AGENDA

MULMUR-MELANCTHON FIRE BOARD
Monday, February 13, 2023 at 7:00 p.m.
ELECTRONIC

This meeting is being conducted by means of Electronic Participation by a majority of board members, as permitted by Section 238 (3.3) of the Municipal Act, 2001, as amended.

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Join Zoom Meeting
https://us02web.zoom.us/j/84602248258

1. **Call to Order**

2. **Land Acknowledgement**

   We begin this meeting by acknowledging that we are meeting upon the traditional Indigenous lands of the Tionontati (Petun) and Treaty 18 territory of the Anishinaabe peoples. We recognize and deeply appreciate their historic connection to this place and we

also recognize the contributions Indigenous peoples have made, both in shaping and strengthening our community, province and country as a whole.

3. **Approval of the Agenda**

   Draft Motion: THAT the February 13, 2023, agenda for the Mulmur-Melancthon Fire Board be approved as circulated.

4. **Approval of Previous Meeting's Minutes**

   Draft Motion: THAT the Minutes of the Mulmur-Melancthon Fire Board dated January 30, 2023, be approved as copied and circulated.

5. **Declaration of Pecuniary Interest**

   If any member of the Board has a pecuniary interest, they may declare the nature thereof now or at any time during the meeting.

6. **Treasury**

   a) **Accounts**

      Draft Motion: THAT the operating accounts in the amount of $16,467.19 be approved as presented.

   b) **Pumper Procurement**

      Draft Motion: THAT the Board approve the purchase of a Pumper from Midwest Fire at a cost of $398,373.50 USD.

7. **Administration - None**

8. **Information Items - None**

9. **Adjournment**

   Draft Motion: THAT we do now adjourn at _____ pm to meet again on March 21, 2023, at 7:00 pm or at the call of the Chair.

MINUTES

MULMUR-MELANCTHON FIRE BOARD
Monday, January 30, 2023 at 7:00 p.m.

Present: Earl Hawkins, Chair – Mulmur Township
Ralph Moore, Vice Chair – Melancthon Township
Kim Lyon – Mulmur Township
Darren White – Melancthon Township
Mathew Waterfield – Fire Chief
Everhard Olivieri-Munroe – Deputy Fire Chief
Heather Boston – Secretary

1. **Call to Order –** meeting was called to order by the Secretary at 7:01 pm

2. **Land Acknowledgement**

   We begin this meeting by acknowledging that we are meeting upon the traditional Indigenous lands of the Tionontati (Petun) and Treaty 18 territory of the Anishinaabe peoples. We recognize and deeply appreciate their historic connection to this place and we also recognize the contributions Indigenous peoples have made, both in shaping and strengthening our community, province and country as a whole.

3. **Approval of the Agenda**

   Motion by: Moore/White

   THAT the January 30, 2023, agenda for the Mulmur-Melancthon Fire Board be approved as circulated.

   CARRIED.

4. **Approval of Previous Meeting's Minutes**

   Motion by: White/Moore

   THAT the Minutes of the Mulmur-Melancthon Fire Board dated December 20, 2022, be approved as copied and circulated.

   CARRIED.

5. **Declaration of Pecuniary Interest**

Chair Hawkins stated that if any member of the Board had a pecuniary interest, they could declare the nature thereof now or at any time during the meeting.

No Declarations of Pecuniary interest were stated at this time.

6. Treasury

a) Accounts

i. Motion by: Lyon/Moore

THAT the operating accounts in the amount of $15,537.79 be approved as presented.

CARRIED.

b) 2023 Draft Budget

- Current cost per litre of Propane? Cost per litre $0.57820
- Has it been tendered? No, doesn't meet threshold for tendering per Procurement By-law.
- What at the firehall uses the bulk of electricity? Breathing air compressor, cistern well pump, radio system, furnace, and lights. We are currently in the process of upgrading lights to LED.
- Lights being moved over to motion sensor where possible.
- How many hours spent doing bookkeeping and secretarial duties? Minimum of 7 hours a week.

Motion by: Lyon/White

THAT the Board approve the 2023 budget as presented.

CARRIED.

7. Administration

a) Emergency Shelter (Verbal)

Motion by: Moore/White

THAT the Emergency Shelter be deferred to allow individual council direction or discussion;

AND THAT the Board receive feedback to be discussed at a future meeting.

CARRIED.

b) Fire Chief General Update (Verbal)

- Working on getting three quotes via Canoe for a new pumper.

8. Information Items

a) FMPFSC Certification Grant Award Letter

- Grant given to Department to purchase new training materials.

b) Mulmur's Procedural By-Law

9. Adjournment

Motion by: Lyon/Moore

THAT we do now adjourn at 8:03 pm to meet again on March 21, 2023, at 7:00 pm or at the call of the Chair.

CARRIED.

_____ _____

Chair **Secretary**

Accounts Payable

AP Operating Approval List 2022

Vendor 000000 Through 999999

Invoice Entry Date 2022-01-01 to 2022-12-31 Paid Invoices Cheque Date 2023-01-01 to 2023-02-13

Account	Vendor Number	Name	Invoice Number / Item Description	Invoice Date	Entry Date	Chq Nb / Item Amount
MM FIRE - OPERATING REV/EXP						
02-1094-5112	090441	TOWNSHIP OF MULMUR	0040325 DEC FUEL USAGE	2022-12-31	2022-12-31	000504 313.35
02-1094-5114	090908	RITCHIE, MARGARET	08 CLEANING JAN TO DEC 2022	2022-12-29	2022-12-30	001092 2,385.00
02-1094-5115	091202	ULINE CANADA CORPORATION	11368476 ICE MELT/SCOOP/CARPET MAT/OPEN	2022-11-21	2022-12-30	001095 566.91
02-1094-5115	000535	SHELBURNE HOME HARDWARE	373329/1 HOOK/STRIPS/PROTECT SALT	2022-12-15	2022-12-30	001093 80.34
				Account Total		647.25
02-1094-5118	091185	R S RESCUE	1444 OPER/TECH HEAVY VEHICLE RESCUE	2022-12-12	2022-12-30	001091 2,260.00
02-1094-5118	091079	MINISTER OF FINANCE	301901230732118 JULY-SEPT FIRE COLLEGE REGISTR	2022-12-31	2022-12-31	001101 260.00
				Account Total		2,520.00
02-1094-5120	091164	SWISH MAINTENANCE LIMITED	SO56609 GPS FEE: DECEMBER 2022	2022-12-31	2022-12-31	001105 102.92
02-1094-5141	000052	TORONTO DOMINION VISA (MW)	01052023 MEALS - PIZZA	2022-12-31	2022-12-31	000503 182.39
02-1094-5142	090441	TOWNSHIP OF MULMUR	0040324 BUSINESS CARDS VISTA PRINT	2022-12-30	2022-12-30	000504 187.58
02-1094-5142	000361	INTELLICORE	34148 IT SUPPORT EVERHARD NEW PHONE	2022-12-31	2022-12-31	001100 42.88
				Account Total		230.46
02-1094-5143	000043	HEADWATERS HEALTH CARE CENTRE	BIOMED DECEMBER 2022 DEFIB MAINTENANCE ON AED	2022-12-31	2022-12-31	001099 203.40
02-1094-5160	000078	MUNICIPAL EQUIPMENT	4495 GAS DETECTOR UNIT	2022-12-31	2022-12-31	001102 1,367.87
02-1094-5161	090433	LARRY BYE MOBILE REPAIR	26918 SAFETY/OIL-FUEL-AIR FILTER/OIL	2022-12-22	2022-12-30	001089 1,058.99
02-1094-5161	091203	MICHELIN NORTH AMERICA (CANADA) INC	DA0009166473 TRUCK 41 TIRES	2022-12-13	2022-12-30	001090 1,670.03
				Account Total		2,729.02
02-1094-5164	091203	MICHELIN NORTH AMERICA (CANADA) INC	DA0009166454 TRUCK 44 TIRES	2022-12-13	2022-12-30	001090 2,493.80
02-1094-5165	000052	TORONTO DOMINION VISA (MW)	01052023 TRAILER REPAIR	2022-12-31	2022-12-31	000503 138.59

Return to Agenda

Accounts Payable

AP Operating Approval List 2022

Vendor 000000 Through 999999

Invoice Entry Date 2022-01-01 to 2022-12-31 Paid Invoices Cheque Date 2023-01-01 to 2023-02-13

Account	Vendor Number	Name	Invoice Number / Item Description	Invoice Date	Entry Date	Chq Nb / Item Amount
02-1094-5165	090433	LARRY BYE MOBILE REPAIR	26910	2022-12-21	2022-12-30	001089
			SAFETY/GREASE/REAR DOOR FIX			414.63
					Account Total	553.22
					Department Total	13,728.68
					Total Paid Invoices	13,728.68
					Total Unpaid Invoices	0.00
					Total Invoices	13,728.68

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Accounts Payable

AP Operating Approval List 2022

Vendor 000000 Through 999999

Invoice Entry Date 2022-01-01 to 2022-12-31 Paid Invoices Cheque Date 2023-01-01 to 2023-02-13

Account	Vendor Number	Name	Invoice Number / Item Description	Invoice Date	Entry Date	Chq Nb / Item Amount

Department Summary

02-1094	MM FIRE - OPERATING REV/EXP	13,728.68
	Report Total	13,728.68

Return to Agenda

Accounts Payable

AP Operating Approval List Jan 28-Feb13

Vendor 000000 Through 999999

Invoice Entry Date 2023-01-01 to 2023-02-13 Paid Invoices Cheque Date 2023-01-28 to 2023-02-13

Account	Vendor Number	Name	Invoice Number / Item Description	Invoice Date	Entry Date	Chq Nb / Item Amount
MM FIRE - OPERATING REV/EXP						
02-1094-5110	000062	FIRECHEK PROTECTION SERVICES INC	5755 REPLACE BAFFLE PAD/LABOUR	2023-01-19	2023-01-27	001098 518.38
02-1094-5118	091167	RURAL RESCUE FIRST AID TRAINING	1465 AWARENESS MACHINERY RESCUE	2023-01-26	2023-01-27	001103 169.50
02-1094-5120	091194	BELL MOBILITY INC.	01132023 JAN CELL PHONE	2023-01-13	2023-01-31	000499 21.74
02-1094-5120	091194	BELL MOBILITY INC.	01132023 2 JAN CELL PHONE	2023-01-13	2023-01-31	000499 21.74
02-1094-5120	090994	TELIZON INC.	03500520230113 ACCT#35005 - FIRE JAN	2023-01-13	2023-01-31	000502 117.30
				Account Total		160.78
02-1094-5124	090883	SPARLINGS PROPANE CO. LTD	88725061978814 PROPANE	2023-01-10	2023-01-27	001104 1,864.85
02-1094-5146	090454	TD CANADA TRUST AUTO DEBITS	01032023 JAN EFT S/C	2023-01-03	2023-01-03	000501 25.00
				Account Total		25.00
				Department Total		2,738.51
				Total Paid Invoices		2,738.51
				Total Unpaid Invoices		0.00
				Total Invoices		2,738.51

Return to Agenda

Accounts Payable

AP Operating Approval List Jan 28-Feb13

Vendor 000000 Through 999999

Invoice Entry Date 2023-01-01 to 2023-02-13 Paid Invoices Cheque Date 2023-01-28 to 2023-02-13

Account	Vendor Number	Name	Invoice Number / Item Description	Invoice Date	Entry Date	Chq Nb / Item Amount

Department Summary

02-1094	MM FIRE - OPERATING REV/EXP	2,738.51
	Report Total	2,738.51

Staff report: Purchase Pumper Fire apparatus

National Fire Protection Association standard 1901 recommends all fire apparatus to be replace prior to be 20 years old.

Fire Underwriters Survey recommends all first run apparatus be replaced every 15 years and can serve as second run apparatus for another 5 years.

Our second run pumper is currently 23 years old and is beginning to have mechanical issues that due to the age of the apparatus can not be repaired.

The department has obtained 4 quotes for replacement apparatus from vendors who are part of the Canoe Procurement group as required under the procurement policy.

A summary of the 4 quotes is listed below and supporting documentation has been attached.

The 4 quotes have the same engine and transmission specifications as well as all quotes meet all NFPA and provincial regulations for vehicles.

Quote #1 **Midwest Fire**

Freightliner Commercial 4 door Cab and Chassis

1250USG Water Tank

Hale 1250gpm Pump

Price: $398,373.50 USD ($528,487.46 CAD with current exchange rate)

Delivery Approximately 16-18 months

Quote #2 **City view Vehicles (Rosenbauer)**

Freightliner Commercial 4 door Cab and Chassis

1250 USG Water Tank

Hale 1250gpm Pump

Price: $548,400 CAD excluding tax

Delivery Approximately 16-18 months

Quote #3 **Maxi Metal (Pierce)**

Freightliner Commercial 4 door Cab and Chassis

1000 USG Water Tank

1500 GPM Hale Pump

Price: $667,860 CAD excluding taxes

Delivery approximately August 2023

Quote #4 **Maxi Metal (Pierce)**

Freightliner Commercial 4 door Cab and Chassis

1000 USG Water Tank

1250 GPM Hale Pump

Price: $560,000 CAD excluding Taxes

Delivery approximately May 2023

Recommendation:

The Fire Chiefs recommendation is to go with the quote from Midwest Fire. The specifications and design of the apparatus are the most ideal. The options provided for the overall price of the vehicles is the best value. The department currently has another apparatus built by Midwest Fire (Tanker in 2020). This apparatus has been performing extremely well and we have not had any major mechanical or structural issues with this apparatus.

Mathew Waterfield
Fire Chief
Mulmur Melancthon Fire Department

MIDWEST FIRE.

Quote Number	00005338	Company Address	901 Commerce Road P.O. Box 524 Luverne, MN 56156-0524 US
Created Date	12/9/2022		
Account Name	Mulmur-Melancthon Fire Department	Prepared By	Brett Jensen
		Email	brett@midwestfire.com
		Phone	507-690-2981
		Fax	507-283-9142

Apparatus

Product	Quote Description	Quantity
A) 1.00.03.P	Pumper All-Poly Series 1250 Gallon	1.00
A) 1.01	Pumper, Front Fill Tower	1.00
A) 1.03.01	Pumper, Dual High Side Package, Full Body	1.00
F) 6.02.03.09.P	Adjustable Shelf, Street Side, Front, Upper	1.00
F) 6.02.03.10.P	Adjustable Shelf, Street Side, Rear, Upper	2.00
F) 6.02.03.11	Adjustable Shelf, Curb Side, Front, Upper	1.00
F) 6.02.03.12	Adjustable Shelf, Curb Side, Rear, Upper	2.00
F) 6.02.03.13.02	Adjustable Shelf, Street Side, Front, Lower, Half Width, Back	1.00
F) 6.02.03.14.02	Adjustable Shelf, Street Side, Rear, Lower, Half Width Back	1.00
F) 6.02.04.01	Slide-Out Shelf, Street Side, Front	1.00
F) 6.02.04.04.P	Slide-Out Shelf, Street Side, Rear	1.00
F) 6.02.04.08.P	Slide-Out Shelf, Curb Side, Rear	1.00
F) 6.02.04.13	Slide-Out Shelf, Rear Facing	1.00
F) 6.02.11.01	SCBA Spare Bottle Holder, Street Side, Rear, Ahead of Wheels, Single	1.00
F) 6.02.11.04	SCBA Spare Bottle Holder, Street Side, Rear, Behind Wheels, Single	1.00
F) 6.02.11.05	SCBA Spare Bottle Holder, Curb Side, Rear, Ahead of Wheels, Single	1.00
F) 6.02.11.08	SCBA Spare Bottle Holder, Curb Side, Rear, Behind Wheels, Single	1.00
G) 7.03	Pumper, Catwalk	1.00
H) 8.00.01.04	Rear Grab Rails, One (1) Horizontal on both side of the Hose bed Access Platform, Two (2) Total	1.00
H) 8.00.01.06	Rear Grab Rails, One (1) Vertical on Rear of Body, Curb Side	1.00
H) 8.00.04	Tank Grab Rail, (1) One, Front, Street Side	1.00
H) 8.00.05	Tank Grab Rail, (1) One, Front, Curb Side	1.00
H) 8.01.02.03	Front Folding Steps, Chrome Plated, Street Side, (3) Three	1.00
H) 8.01.03.03	Front Folding Steps, Chrome Plated, Curb Side, (3) Three	1.00
H) 8.01.08	Hose Bed Platform, One (1), Below Center Rear Hose Bed	1.00
H) 8.02.05.01	Zico Quic-Ladder, 15", Street Side	1.00
H) 8.02.05.03	Zico Quic-Ladder, Ladder Light Assembly	1.00

I) 9.02.01.02	Quad-Cluster Tail Light Package, Whelen M6 Series	1.00
I) 9.02.03	Side Mount Turn Signals	1.00
I) 9.04.01.02	Camera, Rear View, RearViewSafety, w/out GPS	1.00
I) 9.06.06.02	12V Power Strip, Inside Locker, Street Side, Front, Over Wheel	1.00
I) 9.06.06.06	12V Power Strip, Inside Locker, Curb Side, Front, Over Wheel	1.00
I) 9.06.06.09	12V Power Strip, Inside Center Console, Wired to Chassis Battery	1.00
I) 9.06.06.10	12V Power Strip, Inside Center Console, Wired to Master Switch	1.00
I) 9.06.07.06	Power Inverter, 3000W, Curb Side, Front, Over Wheel	1.00
I) 9.07.06.01.P	IC, Soft Glo Series Tank Level Gauge, Street Side Pump Panel - Master	1.00
J) 10.00.01	Center Console for Freightliner Chassis	1.00
J) 10.00.10.03	Open Door Alarm	1.00
J) 10.01.01.01	Light Bar, LED, Low-Profile, Model Whelen, #JE2NFPA, Red	1.00
J) 10.02.01.03	Whelen 295SLSA1 Siren w/ Speaker Mounted flush mounted, Curb Side	1.00
J) 10.02.03.02	Mechanical Q-Siren (Q2B), Chrome Plated, Mounted Through Front Bumper, Street Side	1.00
J) 10.02.03.05	Additional Q2B Switch, Mounted to Curb Side of Center Console	1.00
J) 10.04.04.02	Lower Level Lights, Front/Rear Flashers, Red Light, M6 Series LED, Four (4) Total	1.00
J) 10.05.04	Intersection Lights, M6 Series LED, Red Light, (6) Six, (3) Three Each Side	1.00
J) 10.06.08.02	Side/Rear Scene/Flasher, Red Light, M9V2, (2) Each Side Tank, (2) Rear of Apparatus, (6) Six Total	1.00
J) 10.07.05	Automatic Reverse Scene Lighting	1.00
J) 10.09.03.P	Ground Lights, LED, (8) Eight	1.00
J) 10.10.01.01	Wigwag Headlights - OEM Installed	1.00
J) 10.10.06.02	Step Lights, LED, (8) Eight, Illuminate Chassis Steps	1.00
K) 11.00.03.01.P	Paint, Color Matched Two-Tone, 750-1250 Gallon	1.00
K) 11.00.08	Paint Spray Out Request - (Up to 3 Spray Outs)	1.00
K) 11.03.01	Vinyl Lettering, Chassis Doors, (See Spec for Details)	1.00
K) 11.03.03	Vinyl Lettering, Customer Unit Number on the Street and Curb Side Chassis Fenders, (See Spec for Details)	1.00
K) 11.03.04	Vinyl Lettering, Street & Curb Side, (See Spec for Details)	1.00
K) 11.05.01.01	Reflective Striping, White, (1" x 4"), Straight on Truck & Body, Single Axle	1.00
K) 11.05.03	Reflective Striping Inside of Chassis Doors	2.00
K) 11.05.08.01	Reflective Striping, Ascending Z-Stripe Pattern, Single Axle - Upcharge	1.00
K) 11.06.04.P	Rear Chevron, Diamond Grade Pattern, 100% of Rear, Red/Fluorescent Yellow/Green	1.00
M) 13.04.06.01	Pump, Hale DSD 1250 Split-Shaft, Side Control, 36" Pumphouse	1.00
M) 13.04.20.01	Split-Shaft Auto Governor Options, Fire Research “Pump Boss 400 Series Auto Governor”	1.00
M) 13.05.02.02	Primer Pump Option, Trident, Manual, No Gauges	1.00
M) 13.06.01.01	Suction Intake, 2 1/2" Gated, Street Side, (1) One	1.00
M) 13.06.02.03	Non-Gated Master Intakes, 6", (2) Two	1.00
M) 13.07.01.02	Side Control Pump Panel Discharges, 2 1/2", Street Side, (2) Two	1.00
M) 13.07.01.04	Side Control Pump Panel Discharges, 2 1/2", Curb Side, (2) Two	1.00
M) 13.07.03.04	Side Ctrl Pump Rear Discharge, Curb Side, 2 1/2", Through Tank, Term. High, (1) One, Foam Capable	1.00

M) 13.07.05.01	Side Control Pump, Front Discharge, Curb Side, 1 1/2", (1) One, Foam Capable	1.00
M) 13.08.03.01	Elkhart Vulcan w/ SM1250 Adjustable Nozzle	1.00
M) 13.08.08.02.02	Deck Gun Plumbing, Port Location, Center of Cross Lay Area	1.00
M) 13.09.01.01	Tank Fill Valve 2", Side Control	1.00
M) 13.09.03.01	Tank to Pump 3", Manual Controls, Side Control	1.00
M) 13.11.02	Pump House Heat Control, Pump House Heater, 29,380 BTU/hr	1.00
M) 13.11.04	Pump House Heat Control, Pump Compartment Heat Pan	1.00
M) 13.11.06	Pump House Heat Control, Winter Seal Package	1.00
M) 13.11.07	Pump House Heat Control, Compartment Seal	1.00
M) 13.12.02	Pump Certification, Third Party Calibration	1.00
N) 14.08.01	Hose Cross Lay Above Side Control Pump	1.00
N) 14.09.02	Pre-connected Cross Lays, Two (2) 1 1/2" NST Male, 2" Valve	1.00
N) 14.10.01.02	Cross Lay Divider, (2) Two Ajustable Dividers, 3/16" Aluminum	1.00
N) 14.10.04.03	Cross Lay Vinyl Cover, Mesh Ends, Black, w/Cutout for Deck Gun	1.00
N) 14.11.00.04	Hose Bed, Full Length & Width of Tank, 16" Tall Walls	1.00
N) 14.11.02.01.P	Pumper, Black Hose Bed Cover, Full Body	1.00
N) 14.11.05	Hose Bed Lighting	1.00
Q) 17.01.02.02	Hub and Lugnut Covers, Single Axle, OEM Install	1.00
Q) 17.03.02	Pump Plus 1000 System, 15-amp, manual plug-in beneath the street side chassis door	1.00
Q) 17.07.01	Tire Chains, On-Spot, Single Axle Chassis	1.00
Q) 17.08.00.02	Air Horns installed on Each Side of the Hood, (2) Two, OEM Installed	1.00
Q) 17.08.04.02	One Foot Switch Located on the Passenger Side Floor, OEM Installed	1.00
Q) 17.09.02.02.07	Extended Front Bumper & Hose Well w/ Hinged Aluminum Tread-Brite Cover, Bumper Length, 24", Fits 150' x 1 3/4" Hose	1.00
Q) 17.10.01.01	Tire Pressure Indicators (Single Axle Chassis)	1.00
Q) 17.10.04.02	Heat Exchanger, Midwest Fire Installed	1.00
Q) 17.10.06.01	SCBA Seats, (3) Three Rear Seats, OEM Installed (SCBA Bracket Ready)	1.00
Q) 17.10.06.02	SCBA Seats, (1) One Front Passenger, OEM Installed (SCBA Bracket Ready)	1.00
Q) 17.10.07.05	SCBA Seat Smartdock Brackets, Three (3) Installed on Rear Seat Backs	1.00
Q) 17.10.07.06	SCBA Seat Smartdock Brackets, One (1) Installed in Front Passenger Seat Back	1.00
Q) 17.10.08	Bumper Guides, Lighted, (2) Two	1.00
Q) 17.10.12.02	Engine Compartment Light, LED, OEM Installed	1.00
Q) 17.11.01.01	Chassis Exhaust, Standard Modifications	1.00
R) 18.04.02	8’ Pike Pole	1.00
R) 18.04.03	10’ Pike Pole	1.00
R) 18.08.03	Wheel Chocks, Rubber, (2) Two, Connected by Rope, in Spare Compartment	1.00
R) 18.10.11	PVC Flex Hard Suction Hose, 6" X 10', (1) One	2.00
R) 18.19	DOT Essential Kit	1.00
S) 19.01	M2 106 Crew Cab, 14.6-27K, 130CA, 360HP	1.00

S) 19.01	Freightliner Chassis	1.00
V) 30.01.01	Maximum Height - No Restrictions	1.00
V) 30.02.01	Maximum Length- No Restrictions	1.00
N) 14.11.01.02	Hose Bed Divider, Two (2)	1.00

Total Price	$398,373.50

City View Specialty Vehicles
1213 Lorimar Dr. Mississauga, ON L5S 1M9
416-249-4500 www.cityviewvehicles.com

21 March, 2023

Mulmur-Melancthon Fire Department
706116 County Road 21
Honeywood, ON L0N 1H0

Chief Waterfield,

Thank you for the opportunity to provide a formal quote to you for a new-build Freightliner/Rosenbauer pumper.

City View Specialty Vehicles is the Ontario dealer for Rosenbauer America fire trucks. City View is in Mississauga, Ontario, and has a staff of over 50 dedicated employees. We have an experienced sales, parts and service team and include a large staff of licensed mechanics for both in-house and on-road repairs. We look forward to speaking with you about this project and other services that we offer.

Please see the previously provided specifications, drawing and other detailed information related to the offered vehicle.

$548,400.00* Cdn. for a new-build pumper as proposed, excluding taxes. *Estimated* delivery is 525 days from completion of the pre-construction approval, pending chassis delivery. Accelerated delivery is available should a chassis production spot become available.

15% of contract amount due after a purchase order; balance of payment due at time of delivery; ownership will be provided once fully paid.

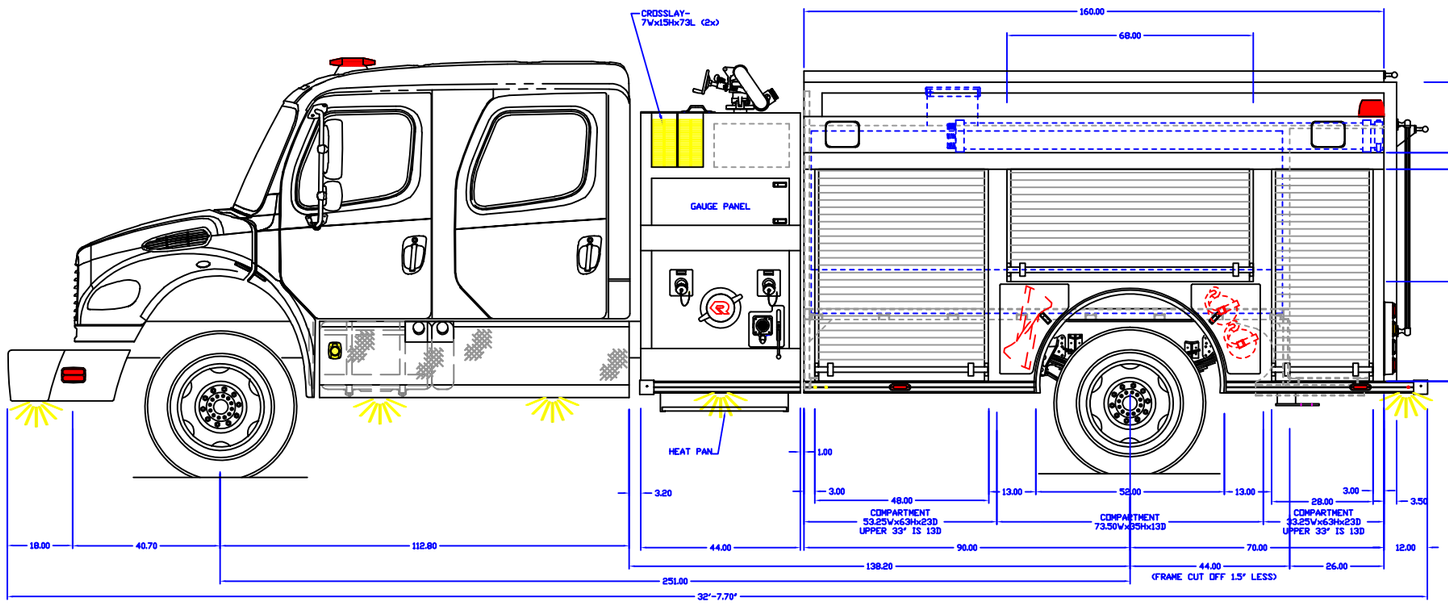
***Note** – the quoted amount above is valid until 13 February 2023 based on Cdn – USD exchange rate fluctuations. Price review can be requested if additional time is required.

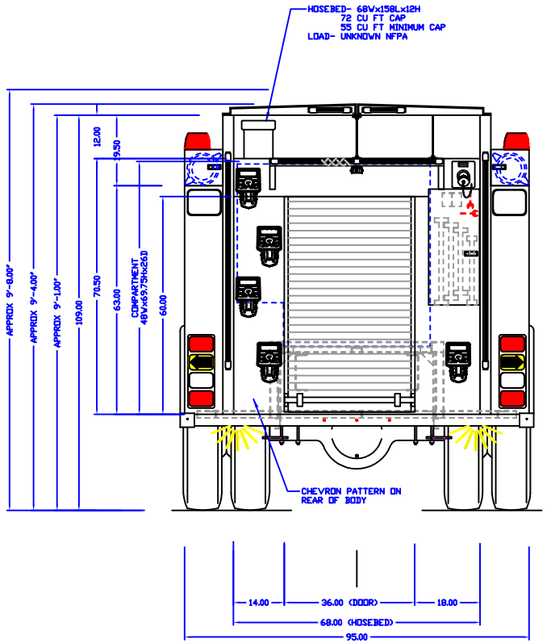
If you require any additional information, please contact me for more information.

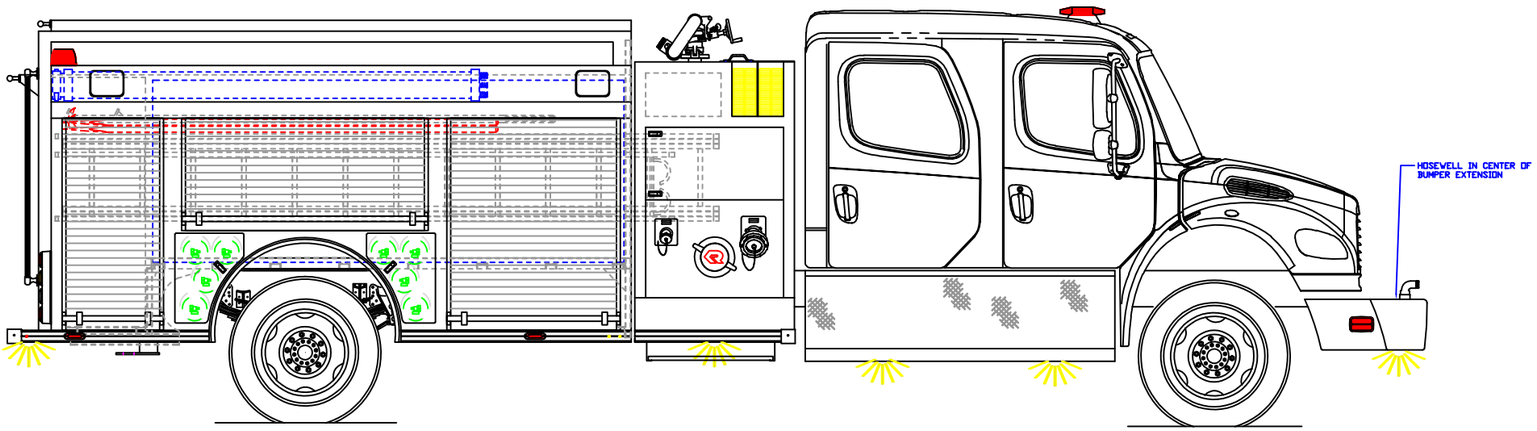
Jamie Larner

Jamie Larner, under approval of Joseph D'Urso Vice-President of Sales
Sales Manager – Emergency Vehicles
416-624-2826 jamie.l@cityviewvehicles.com

NOTES:
1. OVERALL HEIGHT IS IN LOADED CONDITION. UNLOADED HEIGHTS MAY BE 4" ABOVE HEIGHTS SHOWN.
2. DO NOT SCALE DRAWING.
3. ALL DIMENSIONS ARE APPROXIMATE AND SUBJECT TO ENGINEERING CHANGES.
4. DRAWING MAY OR MAY NOT SHOW ALL ITEMS AS DESCRIBED IN THE WRITTEN DETAIL SPECIFICATIONS.
5. INCLUSION OF AN ITEM ON THE DRAWING DOES NOT CONSTITUTE INCLUSION OF THAT ITEM WITH THE FINAL DELIVERED UNIT.
6. THE EFFECTIVE DOOR OPENINGS WILL BE APPROX. 2" LESS THAN THE NOTED COMPARTMENT OPENING FOR ROLL UP DOORS AND UP TO APPROX. 4" LESS FOR HINGED DOORS







APPROVED BY:	
CHASSIS:	FREIGHTLINER
PUMP:	HALE 5000 LPM
TANK:	POLY/1250
PANEL MATL:	STAINLESS STEEL
COMP INTERIOR:	SPATTER PAINTED
MAXIMUM HEIGHT	NONE
MAXIMUM LENGTH	NONE
BODY WIDTH	95"

REVISED: | DATE:
DRAWN: WLM | DATE: 01-19-23

MULMUR – MELANCTHON FIRE DEPT., ON

ROSENBAUER FX 3/16"

DRAWING NUMBER: mulmur, on
REV: -

DETAILED SPECIFICATIONS

FREIGHTLINER M2-106 CHASSIS
HALE FIRE PUMP
ROSENBAUER PUMPER BODY

FOR

MULMUR-MELANCTHON FIRE DEPARTMENT

PRESENTED BY

CITY VIEW SPECIALTY VEHICLES

JANUARY 2023

Joseph D'Urso	joseph@cityviewvehicles.com	416-315-0632
Jamie Larner	jamie.l@cityviewvehicles.com	416-624-2826
James Watt	james.w@cityviewvehicles.com	365-366-4607

00-00-1499
OVERALL HEIGHT

An overall height restriction has not been specified for this apparatus.

00-00-1509
OVERALL LENGTH

An overall length restriction has not been specified for this apparatus.

00-00-1519
OVERALL WIDTH

An overall width restriction has not been specified for this apparatus.

00-00-1529
WHEELBASE

A wheelbase restriction has not been specified for this apparatus.

00-00-1539
ANGLE OF APPROACH

The angle of approach for the apparatus shall not be less than eight (8) degrees as specified by the current edition of the NFPA 1901 Guideline.

00-00-1549
ANGLE OF DEPARTURE

The angle of departure for the apparatus shall not be less than eight (8) degrees as specified by the current edition of the NFPA 1901 Guideline.

00-00-1600
NFPA Equipment Allowances

00-00-1610
NFPA PUMPER EQUIPMENT ALLOWANCE

In compliance with the current NFPA 1901 guidelines, the apparatus shall be engineered to provide an allow of 2500 pounds of fire department provided loose equipment.

00-00-3220
CONTRACT CHANGE NOTICE

The quoted delivery time is based upon our receipt of the specified materials required to produce the apparatus in a timely manner. "Delivery" means the date company is prepared to make physical possession of vehicle available to the customer.

The Company shall not be responsible nor deemed to be in default on account of delays in performance due to causes which are beyond the Company's control which make the Company's performance impracticable, including but not limited to civil wars, insurrections, strikes, riots, fires, storms, floods, other acts of nature, explosions, earthquakes, accidents, any act of government, delays in transportation, inability to obtain necessary labor supplies or manufacturing facilities, allocation regulations or orders affecting materials, equipment, facilities or completed products, failure to obtain any required license or certificates, acts of God or the public enemy or terrorism, failure of transportation, pandemics, epidemics, quarantine restrictions, failure of vendors (due to causes similar to those within the scope of this clause) to perform their contracts or labor troubles causing cessation, slowdown, or interruption of work.

After execution and acceptance of this Purchase Process, the Buyer may request that the Company incorporate a change to the Products or the Specifications for the Products by delivering a Change Order to the Company; provided, however, that any such Change Order must be in writing and include a description of the proposed change sufficient to permit the Company to evaluate the feasibility of such Change Order. Within seven (7) working days of receipt of a Change Order, the Company will inform the Buyer in writing of the feasibility of the Change Order, the earliest possible implementation date for the Change Order, of any increase or decrease in the Purchase Price resulting from such Change Order, and of any effect on production scheduling or delivery resulting from such Change Order. The Company shall not be liable to the Buyer for any delay in performance or delivery arising from any such Change Order. Purchase Price may be modified only by mutual written agreement of the Parties because of changes to the Apparatus required or requested by the Buyer during the construction process pursuant to Appendix C, Change Order Policy. Any changes in the Purchase Price resulting from changes to the Apparatus required or requested by the Buyer during the construction process shall be stated in the Change Order signed by both parties. Additional Changes: If various state or federal regulatory agencies (e.g., NFPA, DOT, EPA) require changes to the specification and/or the product that result in a cost increase to comply therewith this cost will be added to the Purchase Price to be paid by the customer.

00-12-1100
FINANCIAL STABILITY SPECIFICATIONS

With high-profile instances of fire apparatus manufacturers encountering financial difficulties, it is imperative that fire departments be diligent in evaluating the financial position of the companies they solicit to build on their emergency response vehicles. A contract entered into with a company on shaky ground is a dangerous prospect, since conducting business with a manufacturer in such condition could open the department to monumental problems.

Take, for instance, the growing theme of manufacturers *requiring* as opposed to *offering* pre-payment and progressive payment options with a corresponding discount off the price of a vehicle. Such offers are made with an ulterior motive in mind, as it can be generally inferred that manufacturers requiring pre-payments and progressive payments do so because they need your cash *today* to fund production of other vehicles already in the backlog.

Should problems arise, as has been the case in situations too numerous to mention, your department risks losing any down payments already made or even the entire cost of a piece of equipment should certain pre-pay discount situations go awry.

While pre-payment discounts may be enticing, it is important to know just how stable the manufacturer seeking your funds is before you make that commitment. If you enter into one of these agreements and the manufacturer hits a rough patch, it is you that will be hurting, because your funds may not be recoverable. However, if you enter into a contract with a financially sound manufacturer, you will reap all of the benefits of a well-built truck at a lower cost. You may equally, by taking advantage of the time-value of money, be able to afford more truck than initially thought, because funds saved by leveraging pre-payment options could allow you get some added features that you might not necessarily have been able to afford.

With this in mind, it must be noted that Rosenbauer is a company with rock-solid financial stability. This is a statement not made lightly, as we can prove it to you. We can provide language that you can insert into your bid specifications that stipulates that in order for bids to be accepted by a fire department, the company bidding must meet several fiscal criteria.

The first criteria call for the successful bidder to meet a debt-to-equity ratio not exceeding a 2.0 rating. Rosenbauer presently stands at a 1.51 rating, which is well-below the accepted rating. This low number results from Rosenbauer owning more assets with a marginal debt service. This means we are not using lenders to fund our operations, nor our growth.

The second requirement is that the debt coverage ratio of the successful body builder exceeds a 100 rating. The higher the number, the better able a company is to meet its payment obligations with banks and creditors. Rosenbauer's number is at 279.6, which is nearly three times the required amount. The higher the debt coverage ratio, the easily and more fluidly a company is positioned to pay its monthly obligations and operating costs.

The third criteria require that the equity ratio of the successful bidder must exceed .30 rating. A higher equity ratio indicates that the body builder has increased flexibility to meet its financial obligations which translates into greater financial stability. Rosenbauer currently has an equity ratio of .387 which is well above the accepted rating and an excellent indicator of financial strength.

When exploring and evaluating various manufacturers to consider for building your apparatus, there is little doubt you will find one that stands on as firmly a financial ground as Rosenbauer. While others are experiencing stressful issues that raise doubts as to the company's long-term

viability, Rosenbauer continues to demonstrate a strengthening of its financial position in the apparatus manufacturing industry. Because Rosenbauer meets and exceeds all the above-stated financial bid requirements, we are best positioned to ensure customers of a strong relationship with the company, which cannot be claimed by most of our competitors in this volatile market.

The Rosenbauer America Dun and Bradstreet number is 02-447-3584. To acquire a Dun and Bradstreet report, telephone them at 1-800-234-3867 (in Canada 800-463-6362) or visit their web site address at www.dnb.com. Dun and Bradstreet is nationally recognized, independent financial analysis company.

01-06-0560
ELECTRONIC STABILITY CONTROL

Electronic stability control shall be supplied on the chassis.

01-07-0060
ENGINEERING BLUEPRINTS

ROSENBAUER has submitted "proposal" blueprints which are “representative” of the vehicle being proposed and these have been generated on computer-aided-design (CAD) equipment.

The blueprints are provided as follows:

Sheet No. 1:
Left side exterior view
Right side exterior view
Rear exterior view

ROSENBAUER shall provide construction drawings for approval prior to actual construction of the vehicle.

The design of the equipment is in accordance with the best engineering practices. The equipment design and accessory installation shall permit accessibility for use, maintenance and service. All components and assemblies shall be free of hazardous protrusions, sharp edges, cracks or other elements, which might cause injury to personnel or equipment.

All oil, hydraulic, and air tubing lines and electrical wiring shall be located in protective positions properly attached to the frame or body structure and shall have protective loom or grommets at each point where they pass through structural members, except where a through-frame connector is necessary.

Parts and components will be located or positioned for rapid and simple inspection and recognition of excessive wear or potential failure. Whenever functional layout of operating

components determines that physical or visual interference between items cannot be avoided, the item predicted to require the most maintenance shall be located for best accessibility.

01-07-1100
CHANGE ORDERS

To ensure the proper engineering and construction of the purchaser's custom fire apparatus in a timely manner, the contractor shall consider the order final and complete after any changes made during the pre-construction conference are mutually approved. Change orders requested after the pre-construction conference are discouraged. It shall be understood and agreed that any changes, if approved, after the order has been released to Engineering, shall constitute a valid cause for production delay and without penalty to the contractor.

02-03-0500
ISO COMPLIANCE

The manufacturer shall operate a Quality Management System under the requirements of ISO 9001. These standards sponsored by the "International Organization for Standardization (ISO)" specify the quality systems that shall be established by the manufacturer for design, manufacture, installation, and service. A copy of the certificate of compliance shall be included with the bid.

02-06-0200
ROSENBAUER SOUTH DAKOTA COMPANY OVERVIEW

Please allow us to share with you a brief summary of the history and condition of Rosenbauer South Dakota, LLC formally known as Central States Fire Apparatus, LLC, Rosenbauer America Companies.

Rosenbauer South Dakota, LLC is located in Lyons, S.D., where it manufactures a complete line of fire apparatus including pumpers, tankers, rescue units, etc. The company operates in modern facilities consisting of 155,000 sq.ft., which features computer controlled fabricating equipment, down-draft paint booths and CAD system. Production currently averages over fifty (50) units per month.

Rosenbauer South Dakota began manufacturing fire apparatus in 1979 and incorporated under the laws of South Dakota in 1982. The company specializes in extruded aluminum construction that has been field proven for over forty years.

In view of the changes that our industry has gone through in the past few years, we felt it was important to take advantage of economies of scale, yet be aligned with an organization that is 100% committed to the fire service. Thus, on 5-1-98 Rosenbauer South Dakota merged with Rosenbauer, International of Leonding, Austria and (Rosenbauer Minnesota (General Safety)) of

Wyoming, Minnesota. Rosenbauer South Dakota looks forward to the opportunity of expanded growth in the domestic and international markets.

Rosenbauer South Dakota is a profitable, financially secure company, and is listed and rated by Dun & Bradstreet. For your convenience, Rosenbauer South Dakota's Duns number is 10-229-2117. Rosenbauer South Dakota's Bank is the Home Federal Savings Bank in Crooks, SD. The contact person at the bank is Mr. Randy Snyders. Rosenbauer South Dakota's Federal ID# is 46-0448012.

Thank you for considering a Rosenbauer unit. We are sure that you will be more than pleased with a quality apparatus from Rosenbauer.

Feel free to contact us with any questions or concerns you may have regarding our proposal for fire apparatus.

01-16-0150
BODY WARRANTY

We warrant each new motorized fire apparatus manufactured by ROSENBAUER AMERICA, LLC for a period of ONE YEAR from the date of delivery, except for chassis and other components noted herein.

Under this warranty we agree to furnish any parts to replace those that have failed due to defective material or workmanship where there is no indication of abuse, neglect, unusual or other than normal service providing that such parts are, at the option of ROSENBAUER AMERICA, LLC, made available for our inspection at our request, returned to our factory or other location designated by us with transportation prepaid within thirty days after the date of failure or within one year from the date of delivery of the apparatus to the original purchaser, whichever occurs first, and inspection indicates the failure was attributed to defective material or workmanship.

The warranty on the chassis and chassis supplied components, 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 will not apply to any fire apparatus that has been repaired or altered outside our factory in any way, which in our opinion might affect its stability or reliability.

This warranty shall not apply to those items that are usually considered normal maintenance and upkeep services: including, but not limited to, normal lubrication or proper adjustment of minor auxiliary pumps or reels.

This warranty is in lieu of all other warranties, expressed or implied, and all other obligations or liabilities on our part. We neither assume nor authorize any person to assume for us any liability

in connection with the sales of our apparatus unless made in writing by ROSENBAUER AMERICA, LLC.

01-19-0250
ALUMINUM BODY WARRANTY - FIVE YEAR

Rosenbauer America, LLC warrants to the original purchaser only, that the all-aluminum body, fabricated by Rosenbauer America, LLC, under normal use and with reasonable maintenance, be structurally sound and will remain free from corrosion perforation for a period of FIVE (5) years.

This warranty does not apply to the following items that are covered by a separate warranty: paint finish, hardware, moldings, and other accessories attached to this body. In addition, this warranty does not apply to any part or accessory manufactured by others and attached to this body.

ROSENBAUER AMERICA, LLC MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, WITH RESPECT TO THE ALUMINUM BODY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND HEREBY DISCLAIMED.

Rosenbauer America, LLC will replace without charge, repair or make a fair allowance for any defect in material or workmanship demonstrated to its satisfaction to have existed at the time of delivery or not due to misuse, negligence, or accident. If Rosenbauer America, LLC elects to repair this body, the extent of such repair shall be determined solely by Rosenbauer America, LLC, and shall be performed solely at the Rosenbauer America, LLC factory, or at an approved facility. The expense of any transportation to or from such repair facility shall be borne by the purchaser and is not an item covered under this warranty.

Rosenbauer America, LLC will not be liable for damages and under no circumstances will its liability exceed the price for a defective body. The remedies set forth herein are exclusive and in substitution for all other remedies to which the purchaser would otherwise be entitled.

Rosenbauer America, LLC will be given a reasonable opportunity to investigate all claims. The purchaser must commence any action arising out of, based upon or relating to agreement or the breach hereof, within twelve months from the date the cause of the action occurred.

Note: Surety bond, if required, will cover standard one year warranty period only and will not cover any extended warranties allowed by seller or other component manufacturers.

01-19-2800
GALVANIZED SUBFRAME WARRANTY

Subject to the provisions, limitations and conditions set forth in this warranty, Rosenbauer America, LLC (hereby referred to as "seller"), hereby warrants to each original purchaser only that each new hot dip galvanized body subframe (exclusive of paint finish and hardware) is

structurally sound and free of all structural defects of both material and workmanship and further warrants that it will maintain such structural integrity for the duration of ownership by the original purchaser. This warranty terminates upon transfer of possession or ownership by the original purchaser.

This warranty is conditioned upon normal use and reasonable maintenance of such subframe; prompt written notice of all defects to seller or one of the seller's then authorized dealers in the area; no repair or additions there to except by seller or authorized by it; said defect not resulting from misuse, negligence, accident, remount, overloading beyond applicable weight rating by customer or third parties. If any such conditions are not complied with, this warranty shall become void and unenforceable.

Should repairs become necessary under the terms or the warranty, the extent of that repair shall be determined solely by the seller and shall be performed solely at Rosenbauer America, LLC or a repair facility designated by the seller. The expense of any transportation to or from such repair facility shall be that of the purchaser and is not an item covered by this warranty.

Seller reserves the unrestricted right at any time from time to time to make changes in the design of and/or improvements on its products without thereby imposing any obligation on itself to make corresponding changes or improvements in or on its products theretofore manufactured.

EXCLUSIONS AND LIMITATIONS: THIS MANUFACTURER'S WARRANTY IS PROVIDED IN PLACE OF ANY AND ALL OTHER REPRESENTATIONS OR IMPLIED WARRANTIES. NO PERSON IS AUTHORIZED TO MAKE ANY REPRESENTATIONS OR WARRANTY ON BEHALF OF ROSENBAUER AMERICA, LLC OR ANY OF ITS DISTRIBUTORS OTHER THAN SET FORTH IN THIS MANUFACTURER'S WARRANTY. YOUR RIGHT TO SERVICE AND REPLACEMENT OF PARTS ON THE TERMS EXPRESSLY SET FORTH HERIN ARE YOUR EXCLUSIVE REMEDIES AND NEITHER THE MANUFACTURER NOR ANY OF ITS DISTRIBUTORS SHALL BE LIABLE FOR DAMAGES, WHETHER ORDINARY, INCIDENTAL OR CONSEQUENTIAL.

Note: Surety bond, if required, will cover standard one year warranty period only and will not cover any extended warranties allowed by seller or other component manufacturers.

01-20-1005
PAINT WARRANTY - FIVE YEAR

The AkzoNobel paint performance guarantee will cover the areas of the vehicle finished with the specified product for a period of FIVE (5) year beginning the day the vehicle is delivered to the purchaser.

The full apparatus body, manufactured and painted by Rosenbauer America, LLC, shall be covered for the following paint failures as outlined on the guarantee certificate:

- Peeling or delaminating of the topcoat and/or other layers of paint.

- Cracking or checking.
- Loss of gloss caused by cracking, checking, or hazing.
- Any paint failure caused by defective AkzoNobel finishes, which are covered by this guarantee.

All guarantee exclusions, limitations, and methods of claims are covered in the full certificate provided to the original purchaser.

Note: Surety bond, if required, will cover standard one year warranty period only and will not cover any extended warranties allowed by seller or other component manufacturers.

01-17-0600
FIRE PUMP WARRANTY

A five (5) year warranty on the Hale fire pump shall be provided. The warranty shall be parts and labor for the first 2 years and parts only for years 3 through 5. The manufacturer shall supply details of their warranty information with their bid submission.

01-17-1050
STAINLESS STEEL PLUMBING WARRANTY

The manufacturer shall provide a ten (10) year warranty on the stainless steel plumbing components and installation. The manufacturer shall supply details of their warranty information with their bid submission.

01-18-0450
WATER TANK WARRANTY

UNITED PLASTIC FABRICATION 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 vehicle (vehicle must be actively used in fire suppression). The UPF POLY-TANK IIE must be installed in accordance with the United Plastic Fabricating installation manual. Every UPF POLY-TANK IIE is thoroughly inspected and tested for leaks before leaving our facility. Should any problems develop with your UPF POLY-TANK IIE booster/foam tank and will not meet performance criteria during the service life of the vehicle, notify UPF in writing or call our TOLL-FREE SERVICE HOT LINE 1-800-USA-POLY. Provide UPF with the serial number and a description of the problem. If the tank problem would render 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 North America only). If the vehicle can remain in service, UPF will dispatch a service technician within a mutually agreed upon time period.

We will repair, or at our 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 FABRICATION, 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 cancelled. UNITED PLASTIC FABRICATION, 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 FABRICATION, INC BE LIABLE FOR AN AMOUNT IN EXCESS OF THE PRESENT RETAIL, PURCHASE 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 have other rights, which vary from state to state. Some states do not allow exclusion or limitation of incidental of incidental or consequential damage, so the above limitation or exclusion may not apply to you. Some states do not allow limitation on how long an implied warranty lasts, so the above limitation may not apply to you.

01-33-5150

PRINTED ELECTRICAL SYSTEM MANUAL (OPTION) AS BUILT

The manufacturer shall provide with the vehicle upon delivery, one (1) electrical system manual. This manual shall be in a notebook type binder, with reference tabs for each section of the vehicle. An electronic copy shall also be provided.

Within each section shall be:

- Individual component manufacturer instruction and parts manuals
- Warranty forms for the components
- Warranty instructions and format to be used in compliance with warranty obligations
- Wiring diagrams
- Installation instruction and drawings for major parts
- Visual graphics and electronic photos for the installation of major parts
- Necessary normal routine service forms, publications, and components for the installed electrical components
- Technical publications for training and instruction on major components
- Warning and safety related notices for personnel protection

- Cab and chassis manuals on parts, service and maintenance shall be provided

The manufacturer shall supply details of their manual information with their bid submission.

02-90-1200
FREIGHTLINER CHASSIS

A Freightliner 4-door chassis per the attached specifications shall be furnished:

Vehicle Configuration	
001-172	M2 106 PLUS CONVENTIONAL CHASSIS
004-224	2024 MODEL YEAR SPECIFIED
002-004	SET BACK AXLE - TRUCK
019-004	STRAIGHT TRUCK PROVISION, NON-TOWING
003-001	LH PRIMARY STEERING LOCATION
General Service	
AA1-002	TRUCK CONFIGURATION
AA6-003	DOMICILED, CANADA (OTHER THAN QUEBEC)
RCE-00F	FIXED CANADIAN EXCHANGE
A85-020	FIRE SERVICE
A84-1EV	EMERGENCY VEHICLES BUSINESS SEGMENT
AA4-002	LIQUID BULK COMMODITY
AA5-002	TERRAIN/DUTY: 100% (ALL) OF THE TIME, IN TRANSIT, IS SPENT ON PAVED ROADS
AB1-008	MAXIMUM 8% EXPECTED GRADE
AB5-001	SMOOTH CONCRETE OR ASPHALT PAVEMENT - MOST SEVERE IN-TRANSIT (BETWEEN SITES) ROAD SURFACE
995-091	MEDIUM TRUCK WARRANTY
A66-99D	EXPECTED FRONT AXLE(S) LOAD : 14600.0 lbs
A68-99D	EXPECTED REAR DRIVE AXLE(S) LOAD : 31000.0 lbs
A63-99D	EXPECTED GROSS VEHICLE WEIGHT CAPACITY : 45600.0 lbs
Truck Service	
AA3-027	FIRE TANK/PUMPER - MAIN DRIVELINE DRIVEN SPLIT-SHAFT PTO/PUMP
AF3-183	ROSENBAUER
AF7-99D	EXPECTED BODY/PAYLOAD CG HEIGHT ABOVE FRAME "XX" INCHES : 32.0 in
Engine	
101-3B0	CUM L9 360EV HP @ 2200 RPM, 2200 GOV RPM, 1150 LB-FT @ 1200 RPM, R/F/E
Electronic Parameters	
79A-068	68 MPH ROAD SPEED LIMIT
79B-000	CRUISE CONTROL SPEED LIMIT SAME AS ROAD SPEED LIMIT
79K-007	PTO MODE ENGINE RPM LIMIT - 1100 RPM

79M-001	PTO MODE BRAKE OVERRIDE - SERVICE BRAKE APPLIED
79P-002	PTO RPM WITH CRUISE SET SWITCH - 700 RPM
79Q-003	PTO RPM WITH CRUISE RESUME SWITCH - 800 RPM
79S-001	PTO MODE CANCEL VEHICLE SPEED - 5 MPH
79U-007	PTO GOVERNOR RAMP RATE - 250 RPM PER SECOND
79V-001	FUEL DOSING OF AFTERTREATMENT ENABLED IN PTO MODE-CLEANS HYDROCARBONS AT HIGH TEMPERATURES ONLY
79W-001	ONE REMOTE PTO SPEED
79X-008	PTO SPEED 1 SETTING - 1100 RPM
80G-002	PTO MINIMUM RPM - 700
80J-002	REGEN INHIBIT SPEED THRESHOLD - 5 MPH
80S-001	PTO 1, DASH SWITCH, STATIONARY OPERATION
Engine Equipment	
99C-021	2010 EPA/CARB/GHG21 CONFIGURATION
99D-010	NO 2008 CARB EMISSION CERTIFICATION
13E-001	STANDARD OIL PAN
105-001	ENGINE MOUNTED OIL CHECK AND FILL
014-1BX	SIDE OF HOOD AIR INTAKE WITH NFPA COMPLIANT EMBER SCREEN AND FIRE RETARDANT DONALDSON AIR CLEANER
124-1E7	DR 12V 275 AMP 40-SI BRUSHLESS PAD ALTERNATOR WITH REMOTE BATTERY VOLTAGE SENSE
292-235	(2) DTNA GENUINE, FLOODED STARTING, MIN 2000CCA, 370RC, THREADED STUD BATTERIES
290-017	BATTERY BOX FRAME MOUNTED
281-001	STANDARD BATTERY JUMPERS
282-001	SINGLE BATTERY BOX FRAME MOUNTED LH SIDE UNDER CAB
291-017	WIRE GROUND RETURN FOR BATTERY CABLES WITH ADDITIONAL FRAME GROUND RETURN
289-001	NON-POLISHED BATTERY BOX COVER
293-060	POSITIVE LOAD DISCONNECT WITH CAB MOUNTED CONTROL SWITCH WITH LOCKING PROVISION MOUNTED OUTBOARD DRIVER SEAT
295-029	POSITIVE AND NEGATIVE POSTS FOR JUMPSTART LOCATED ON FRAME NEXT TO STARTER
306-015	PROGRESSIVE LOW VOLTAGE DISCONNECT AT 12.3 VOLTS FOR DESIGNATED CIRCUITS
107-032	CUMMINS TURBOCHARGED 18.7 CFM AIR COMPRESSOR WITH INTERNAL SAFETY VALVE
108-002	STANDARD MECHANICAL AIR COMPRESSOR GOVERNOR
131-013	AIR COMPRESSOR DISCHARGE LINE
152-039	GVG, FIRE AND EMERGENCY SERVICE VEHICLES ENGINE WARNING
128-032	C-BRAKE BY JACOBS WITH LOW/OFF/HIGH BRAKING DASH SWITCH
016-1DC	RH OUTBOARD UNDER STEP MOUNTED HORIZONTAL AFTERTREATMENT SYSTEM ASSEMBLY WITH RH HORIZONTAL TAILPIPE EXITING FORWARD OF REAR TIRES

28F-014	ENGINE AFTERTREATMENT DEVICE, AUTOMATIC OVER THE ROAD REGENERATION AND VIRTUAL REGENERATION REQUEST SWITCH IN CLUSTER
239-001	STANDARD EXHAUST SYSTEM LENGTH
237-022	RH HORIZONTAL TAILPIPE, EXIT FORWARD OF REAR TIRES
23U-001	6 GALLON DIESEL EXHAUST FLUID TANK
30N-003	100 PERCENT DIESEL EXHAUST FLUID FILL
43X-002	LH MEDIUM DUTY STANDARD DIESEL EXHAUST FLUID TANK LOCATION
23Y-001	STANDARD DIESEL EXHAUST FLUID PUMP MOUNTING
43Y-001	STANDARD DIESEL EXHAUST FLUID TANK CAP
273-058	AIR POWERED ON/OFF ENGINE FAN CLUTCH
276-002	AUTOMATIC FAN CONTROL WITH DASH SWITCH AND INDICATOR LIGHT, NON ENGINE MOUNTED
110-003	CUMMINS SPIN ON FUEL FILTER
118-008	COMBINATION FULL FLOW/BYPASS OIL FILTER
266-013	1100 SQUARE INCH ALUMINUM RADIATOR
103-040	ANTIFREEZE TO -60F, OAT (NITRITE AND SILCATE FREE) EXTENDED LIFE COOLANT
171-007	GATES BLUE STRIPE COOLANT HOSES OR EQUIVALENT
172-001	CONSTANT TENSION HOSE CLAMPS FOR COOLANT HOSES
270-008	AUXILIARY ENGINE COOLING USING WATER FROM FIRE PUMP
168-002	LOWER RADIATOR GUARD
134-001	ALUMINUM FLYWHEEL HOUSING
132-004	ELECTRIC GRID AIR INTAKE WARMER
155-058	DELCO 12V 38MT HD STARTER WITH INTEGRATED MAGNETIC SWITCH
Transmission	
342-1KD	ALLISON 3000 EVS AUTOMATIC TRANSMISSION WITH PTO PROVISION
Transmission Equipment	
343-331	ALLISON VOCATIONAL PACKAGE 198 - AVAILABLE ON 3000/4000 PRODUCT FAMILIES WITH VOCATIONAL MODEL EVS
84B-003	ALLISON VOCATIONAL RATING FOR FIRE TRUCK/EMERGENCY VEHICLE APPLICATIONS AVAILABLE WITH ALL PRODUCT FAMILIES
84C-023	PRIMARY MODE GEARS, LOWEST GEAR 1, START GEAR 1, HIGHEST GEAR 6, AVAILABLE FOR 3000/4000 PRODUCT FAMILIES ONLY
84D-023	SECONDARY MODE GEARS, LOWEST GEAR 1, START GEAR 1, HIGHEST GEAR 6, AVAILABLE FOR 3000/4000 PRODUCT FAMILIES ONLY
84E-000	PRIMARY SHIFT SCHEDULE RECOMMENDED BY DTNA AND ALLISON, THIS DEFINED BY ENGINE AND VOCATIONAL USAGE
84F-000	SECONDARY SHIFT SCHEDULE RECOMMENDED BY DTNA AND ALLISON, THIS DEFINED BY ENGINE AND VOCATIONAL USAGE
84G-000	PRIMARY SHIFT SPEED RECOMMENDED BY DTNA AND ALLISON, THIS DEFINED BY ENGINE AND VOCATIONAL USAGE

84H-000	SECONDARY SHIFT SPEED RECOMMENDED BY DTNA AND ALLISON, THIS DEFINED BY ENGINE AND VOCATIONAL USAGE
84J-000	ENGINE BRAKE RANGE PRESELECT RECOMMENDED BY DTNA AND ALLISON, THIS DEFINED BY ENGINE AND VOCATIONAL USAGE
84K-000	ENGINE BRAKE RANGE ALTERNATE PRESELECT RECOMMENDED BY DTNA AND ALLISON, THIS DEFINED BY ENGINE AND VOCATIONAL USAGE
84N-011	NEUTRAL AT STOP ENABLED
84U-000	DRIVER SWITCH INPUT - DEFAULT - NO SWITCHES
353-074	QUICKFIT BODY LIGHTING CONNECTOR UNDER CAB, WITH BLUNTCUTS
34C-011	ELECTRONIC TRANSMISSION WIRING TO CUSTOMER INTERFACE CONNECTOR
362-823	CUSTOMER INSTALLED CHELSEA 280 SERIES PTO
363-001	PTO MOUNTING, LH SIDE OF MAIN TRANSMISSION ALLISON
341-018	MAGNETIC PLUGS, ENGINE DRAIN, TRANSMISSION DRAIN, AXLE(S) FILL AND DRAIN
345-003	PUSH BUTTON ELECTRONIC SHIFT CONTROL, DASH MOUNTED
97G-004	TRANSMISSION PROGNOSTICS - ENABLED 2013
370-015	WATER TO OIL TRANSMISSION COOLER, IN RADIATOR END TANK
346-003	TRANSMISSION OIL CHECK AND FILL WITH ELECTRONIC OIL LEVEL CHECK
35T-001	SYNTHETIC TRANSMISSION FLUID (TES-295 COMPLIANT)
Front Axle and Equipment	
400-1A8	DETROIT DA-F-14.7-3 14,700# FF1 71.5 KPI/3.74 DROP SINGLE FRONT AXLE
402-050	MERITOR 16.5X5 Q+ CAST SPIDER HEAVY DUTY CAM FRONT BRAKES, DOUBLE ANCHOR, FABRICATED SHOES
403-026	FIRE AND EMERGENCY SEVERE SERVICE, NON-ASBESTOS FRONT LINING
419-001	CAST IRON OUTBOARD FRONT BRAKE DRUMS
427-001	FRONT BRAKE DUST SHIELDS
409-006	FRONT OIL SEALS
408-001	VENTED FRONT HUB CAPS WITH WINDOW, CENTER AND SIDE PLUGS - OIL
416-022	STANDARD SPINDLE NUTS FOR ALL AXLES
405-002	MERITOR AUTOMATIC FRONT SLACK ADJUSTERS
536-012	TRW TAS-85 POWER STEERING
539-003	POWER STEERING PUMP
534-015	2 QUART SEE THROUGH POWER STEERING RESERVOIR
40T-002	CURRENT AVAILABLE SYNTHETIC 75W-90 FRONT AXLE LUBE
Front Suspension	
620-010	14,600# TAPERLEAF FRONT SUSPENSION
619-005	MAINTENANCE FREE RUBBER BUSHINGS - FRONT SUSPENSION
410-001	FRONT SHOCK ABSORBERS
Rear Axle and Equipment	
420-064	RS-30-185 31,000# U-SERIES FIRE/EMERGENCY SERVICE SINGLE REAR AXLE
421-563	5.63 REAR AXLE RATIO
424-001	IRON REAR AXLE CARRIER WITH STANDARD AXLE HOUSING

386-073	MXL 17T MERITOR EXTENDED LUBE MAIN DRIVELINE WITH HALF ROUND YOKES
452-001	DRIVER CONTROLLED TRACTION DIFFERENTIAL - SINGLE REAR AXLE
878-018	(1) DRIVER CONTROLLED DIFFERENTIAL LOCK REAR VALVE FOR SINGLE DRIVE AXLE
87B-024	INDICATOR LIGHT FOR EACH DIFFERENTIAL LOCKOUT SWITCH, ENGAGE AT SPEEDS 5 MPH OR LESS, DISENGAGE W/IGN OFF OR SPEEDS EXCEEDING 25 MPH
423-010	MERITOR 16.5X7 P CAST SPIDER CAM REAR BRAKES, DOUBLE ANCHOR, CAST SHOES
433-025	FIRE AND EMERGENCY SEVERE SERVICE NON-ASBESTOS REAR BRAKE LINING
434-011	BRAKE CAMS AND CHAMBERS ON FORWARD SIDE OF DRIVE AXLE(S)
451-018	WEBB CAST IRON REAR BRAKE DRUMS
425-002	REAR BRAKE DUST SHIELDS
440-006	REAR OIL SEALS
426-074	HALDEX GOLDSEAL LONGSTROKE 1-DRIVE AXLE SPRING PARKING CHAMBERS
428-003	HALDEX AUTOMATIC REAR SLACK ADJUSTERS
41T-002	CURRENT AVAILABLE SYNTHETIC 75W-90 REAR AXLE LUBE
Rear Suspension	
622-1DH	31,000# FLAT LEAF SPRING REAR SUSPENSION WITH RADIUS ROD FOR FIRE/EMERGENCY SERVICE
621-001	SPRING SUSPENSION - NO AXLE SPACERS
431-001	STANDARD AXLE SEATS IN AXLE CLAMP GROUP
623-005	FORE/AFT CONTROL RODS
Brake System	
018-002	AIR BRAKE PACKAGE
490-121	WABCO 4S/4M ABS WITH TRACTION CONTROL
871-001	REINFORCED NYLON, FABRIC BRAID AND WIRE BRAID CHASSIS AIR LINES
904-001	FIBER BRAID PARKING BRAKE HOSE
412-001	STANDARD BRAKE SYSTEM VALVES
46D-002	STANDARD AIR SYSTEM PRESSURE PROTECTION SYSTEM
413-002	STD U.S. FRONT BRAKE VALVE
432-003	RELAY VALVE WITH 5-8 PSI CRACK PRESSURE, NO REAR PROPORTIONING VALVE
480-009	BW AD-9 BRAKE LINE AIR DRYER WITH HEATER
479-003	AIR DRYER MOUNTED INBOARD ON LH RAIL
460-1AU	STEEL AIR TANKS MOUNTED AFT INSIDE AND/OR BELOW FRAME JUST FORWARD OF REAR SUSPENSION, NO TRIPLE OR TORPEDO TANKS
477-004	PULL CABLES ON ALL AIR RESERVOIR(S)
Wheelbase & Frame	
545-637	6375MM (251 INCH) WHEELBASE

546-102	7/16X3-9/16X11-1/8 INCH STEEL FRAME (11.11MMX282.6MM/0.437X11.13 INCH) 120KSI
552-052	2225MM (88 INCH) REAR FRAME OVERHANG
55W-008	FRAME OVERHANG RANGE: 81 INCH TO 90 INCH
AC8-99D	CALC'D BACK OF CAB TO REAR SUSP C/L (CA) : 138.19 in
AE8-99D	CALCULATED EFFECTIVE BACK OF CAB TO REAR SUSPENSION C/L (CA) : 135.19 in
AE4-99D	CALC'D FRAME LENGTH - OVERALL : 367.97 in
FSS-0LH	CALCULATED FRAME SPACE LH SIDE : 129.3 in
FSS-0RH	CALCULATED FRAME SPACE RH SIDE : 85.59 in
553-001	SQUARE END OF FRAME
550-001	FRONT CLOSING CROSSMEMBER
559-001	STANDARD WEIGHT ENGINE CROSSMEMBER
561-001	STANDARD CROSSMEMBER BACK OF TRANSMISSION
562-001	STANDARD MIDSHIP #1 CROSSMEMBER(S)
572-001	STANDARD REARMOST CROSSMEMBER
565-001	STANDARD SUSPENSION CROSSMEMBER
Chassis Equipment	
556-1AR	THREE-PIECE 14 INCH CHROMED STEEL BUMPER WITH COLLAPSIBLE ENDS
558-001	FRONT TOW HOOKS - FRAME MOUNTED
574-001	BUMPER MOUNTING FOR SINGLE LICENSE PLATE
586-024	FENDER AND FRONT OF HOOD MOUNTED FRONT MUDFLAPS
551-007	GRADE 8 THREADED HEX HEADED FRAME FASTENERS
44Z-002	EXTERIOR HARNESSES WRAPPED IN ABRASION TAPE
605-117	LEVEL FRAME RAILS (+/- 1%) WHEN CHASSIS IS LOADED TO FRONT AND REAR SUSP RATINGS AND D15-28195-000 CENTER PUNCH TO MARK CL OF REAR SUSP ON FRAME FLANGE
970-038	TANK BODY 0 TO 1500 GALLONS
607-001	CLEAR FRAME RAILS FROM BACK OF CAB TO FRONT REAR SUSPENSION BRACKET, BOTH RAILS OUTBOARD
Fuel Tanks	
204-152	70 GALLON/264 LITER ALUMINUM FUEL TANK - LH
218-001	23 INCH DIAMETER FUEL TANK(S)
215-005	PLAIN ALUMINUM/PAINTED STEEL FUEL/HYDRAULIC TANK(S) WITH PAINTED BANDS
212-007	FUEL TANK(S) FORWARD
664-001	PLAIN STEP FINISH
205-001	FUEL TANK CAP(S)
122-1H3	DETROIT FUEL/WATER SEPARATOR WITH WATER IN FUEL SENSOR
216-020	EQUIFLO INBOARD FUEL SYSTEM
202-016	HIGH TEMPERATURE REINFORCED NYLON FUEL LINE
Tires	
093-994	MICHELIN XZE 12R22.5 16 PLY RADIAL FRONT TIRES

094-2CM	MICHELIN X WORKS XDY 315/80R22.5 20 PLY RADIAL REAR TIRES
Hubs	
418-060	CONMET PRESET PLUS PREMIUM IRON FRONT HUBS
450-014	WEBB IRON REAR HUBS
Wheels	
502-766	ALCOA ULA18X 22.5X8.25 10-HUB PILOT 5.81 INSET ALUMINUM DISC FRONT WHEELS
505-356	ALCOA ULTRA ONE 89U64X 22.5X9.00 10-HUB PILOT 5.99 INSET ALUMINUM REAR WHEELS
524-002	POLISHED FRONT WHEELS; INSIDE AND OUTSIDE
525-002	POLISHED REAR WHEELS; OUTSIDE AND INSIDE (BOTH SIDES)
496-011	FRONT WHEEL MOUNTING NUTS
497-011	REAR WHEEL MOUNTING NUTS
Cab Exterior	
829-079	154 INCH BBC HIGH-ROOF ALUMINUM CONVENTIONAL CREW CAB
650-008	AIR CAB MOUNTING
648-002	NONREMOVABLE BUGSCREEN MOUNTED BEHIND GRILLE
678-018	LH AND RH EXTERIOR GRAB HANDLES WITH SINGLE RUBBER INSERT
646-023	HOOD MOUNTED CHROMED PLASTIC GRILLE
65X-003	CHROME HOOD MOUNTED AIR INTAKE GRILLE
644-004	FIBERGLASS HOOD
690-017	HOOD LINER, ADDED FIREWALL AND FLOOR HEAT INSULATION
727-1B0	DUAL 25 INCH ROUND STUTTER TONE HOOD MOUNTED AIR HORNS
726-002	DUAL ELECTRIC HORNS
728-002	DUAL HORN SHIELDS
575-001	REAR LICENSE PLATE MOUNT END OF FRAME
312-038	INTEGRAL HEADLIGHT/MARKER ASSEMBLY WITH CHROME BEZEL
302-047	LED AERODYNAMIC MARKER LIGHTS
311-001	DAYTIME RUNNING LIGHTS
294-046	OMIT STOP/TAIL/BACKUP LIGHTS AND PROVIDE WIRING WITH SEPARATE STOP/TURN WIRES TO 4 FEET BEYOND END OF FRAME
300-015	STANDARD FRONT TURN SIGNAL LAMPS
744-1BC	DUAL WEST COAST BRIGHT FINISH HEATED MIRRORS WITH LH AND RH REMOTE
797-001	DOOR MOUNTED MIRRORS
796-001	102 INCH EQUIPMENT WIDTH
743-204	LH AND RH 8 INCH BRIGHT FINISH CONVEX MIRRORS MOUNTED UNDER PRIMARY MIRRORS
729-001	STANDARD SIDE/REAR REFLECTORS
677-055	RH AFTERTREATMENT SYSTEM CAB ACCESS WITH POLISHED DIAMOND PLATE COVER
768-043	63X14 INCH TINTED REAR WINDOW

661-003	TINTED DOOR GLASS LH AND RH WITH TINTED NON-OPERATING WING WINDOWS
654-011	RH AND LH ELECTRIC POWERED WINDOWS
663-013	1-PIECE SOLAR GREEN GLASS WINDSHELD
659-019	2 GALLON WINDSHIELD WASHER RESERVOIR WITHOUT FLUID LEVEL INDICATOR, FRAME MOUNTED

Cab Interior

055-019	RUGGED TRIM PACKAGE
707-107	GRAY & CARBON VINYL INTERIOR "RUGGED"
70K-020	CARBON WITH PREMIUM GUNMETAL ACCENT (RUGGED)
706-013	MOLDED PLASTIC DOOR PANEL
708-013	MOLDED PLASTIC DOOR PANEL
772-006	BLACK MATS WITH SINGLE INSULATION
785-026	(1)DASH MOUNTED 12V POWER OUTLET (1)DASH MOUNTED DUAL 2.1 AMP USB-C CHARGER
691-001	FORWARD ROOF MOUNTED CONSOLE
693-035	LH AND RH KICKPLATES
738-021	DIGITAL ALARM CLOCK IN DRIVER DISPLAY
742-007	(2) CUP HOLDERS LH AND RH DASH
680-029	M2/SD DASH
700-002	HEATER, DEFROSTER AND AIR CONDITIONER
701-001	STANDARD HVAC DUCTING
703-005	MAIN HVAC CONTROLS WITH RECIRCULATION SWITCH
170-015	STANDARD HEATER PLUMBING
130-041	VALEO HEAVY DUTY A/C REFRIGERANT COMPRESSOR
702-002	BINARY CONTROL, R-134A
739-034	PREMIUM INSULATION
285-013	SOLID-STATE CIRCUIT PROTECTION AND FUSES
280-007	12V NEGATIVE GROUND ELECTRICAL SYSTEM
324-1B3	STANDARD LED CAB LIGHTING
657-001	DOOR LOCKS AND IGNITION SWITCH KEYED THE SAME
78G-004	KEY QUANTITY OF 4
655-005	LH AND RH ELECTRIC DOOR LOCKS
756-1E7	SEATS INC 911 UNIVERSAL SERIES HIGH BACK AIR SUSPENSION DRIVER SEAT WITH NFPA 1901-2009/2016 COMPLIANT SEAT SENSOR
760-1E9	SEATS INC 911 UNIVERSAL SERIES SCBA NON SUSPENSION PASSENGER SEAT WITH UNDERSEAT STORAGE AND NFPA 1901-2009/2016 COMPLIANT SEAT SENSOR
762-1E9	SEATS INC 911 UNIVERSAL SERIES SCBA NON SUSPENSION LH, RH AND CENTER REAR PASSENGER SEATS WITH UNDER SEAT STORAGE AND NFPA 1901-2009/2016 COMPLIANT SEAT SENSOR
711-004	LH AND RH INTEGRAL DOOR PANEL ARMRESTS
758-036	VINYL WITH VINYL INSERT DRIVER SEAT
761-036	VINYL WITH VINYL INSERT PASSENGER SEAT

755-036	VINYL WITH VINYL INSERT REAR PASSENGER SEAT
763-105	NFPA 1901-2009 HIGH VISIBILITY ORANGE SEAT BELTS
532-002	ADJUSTABLE TILT AND TELESCOPING STEERING COLUMN
540-070	4-SPOKE 18 INCH (450MM) LEATHER WRAPPED STEERING WHEEL WITH CHROME SWITCH BEZELS
765-002	DRIVER AND PASSENGER INTERIOR SUN VISORS

Instruments & Controls

81B-003	DIGITAL PANEL LAMP DIMMER SWITCH IN DRIVER DISPLAY
732-998	NO INSTRUMENT PANEL-DRIVER
734-022	FULLY CONFIGURABLE CENTER INSTRUMENT PANELS
87L-003	ENGINE REMOTE INTERFACE WITH PARK BRAKE AND NEUTRAL INTERLOCKS
870-002	BRIGHT ARGENT FINISH GAUGE BEZELS
486-001	LOW AIR PRESSURE INDICATOR LIGHT AND AUDIBLE ALARM
840-001	DUAL NEEDLE PRIMARY AND SECONDARY AIR PRESSURE GAUGE
198-035	ELECTRONIC AIR RESTRICTION INDICATOR DISPLAYED IN DRIVER DISPLAY
721-001	97 DB BACKUP ALARM
149-015	ELECTRONIC CRUISE CONTROL WITH CONTROLS ON STEERING WHEEL SPOKES
156-020	IGNITION SWITCH WITH NON REMOVABLE KEY
811-044	PREMIUM INSTRUMENT CLUSTER WITH 5.0 INCH TFT COLOR DISPLAY
160-038	HEAVY DUTY ONBOARD DIAGNOSTICS INTERFACE CONNECTOR LOCATED BELOW LH DASH
844-001	2 INCH ELECTRIC FUEL GAUGE
148-073	ENGINE REMOTE INTERFACE FOR REMOTE THROTTLE
48H-004	QUICKFIT POWERTRAIN INTERFACE CONNECTOR UNDER CAB WITH BLUNTCUTS
48C-004	QUICKFIT PROGRAMMABLE INTERFACE CONNECTOR(S) UNDER CAB WITH BLUNTCUTS
163-014	ENGINE REMOTE INTERFACE CONNECTOR AT POWERTRAIN INTERFACE CONNECTOR
856-001	ELECTRICAL ENGINE COOLANT TEMPERATURE GAUGE
864-001	2 INCH TRANSMISSION OIL TEMPERATURE GAUGE
867-004	ELECTRONIC OUTSIDE TEMPERATURE SENSOR DISPLAY IN DRIVER MESSAGE CENTER
830-017	ENGINE AND TRIP HOUR METERS INTEGRAL WITHIN DRIVER DISPLAY
372-123	PTO CONTROLS FOR ENHANCED VEHICLE ELECTRIC/ELECTRONIC ARCHITECTURE
49B-006	ELECTRONIC STABILITY CONTROL,4X2 W/SAFETY MIN BODY WEIGHT EXCEEDS 4,000LBS REQ
852-002	ELECTRIC ENGINE OIL PRESSURE GAUGE
679-998	NO OVERHEAD INSTRUMENT PANEL
35M-010	QUICKFIT PROGRAMMABLE INTERFACE MODULE
786-119	NFPA VEHICLE DATA RECORDER AND SEATBELT DISPLAY

746-137	AM/FM/WB WORLD TUNER RADIO WITH BLUETOOTH, USB AND AUXILIARY INPUTS, J1939
747-001	DASH MOUNTED RADIO
750-002	(2) RADIO SPEAKERS IN CAB
753-001	AM/FM ANTENNA MOUNTED ON FORWARD LH ROOF
74D-006	STANDARD RADIO WIRING WITH STEERING WHEEL CONTROLS
810-028	ELECTRONIC KPH SPEEDOMETER WITH SECONDARY MPH SCALE, WITHOUT ODOMETER
817-001	STANDARD VEHICLE SPEED SENSOR
812-001	ELECTRONIC 3000 RPM TACHOMETER
813-1C8	DETROIT CONNECT PLATFORM HARDWARE
8D1-303	3 YEARS DAIMLER CONNECTIVITY BASE PACKAGE (FEATURES VARY BY MODEL) POWERED BY DETROIT CONNECT
6TS-005	TMC RP1226 ACCESSORY CONNECTOR LOCATED BEHIND PASSENGER SIDE REMOVEABLE DASH PANEL
162-002	IGNITION SWITCH CONTROLLED ENGINE STOP
81Y-006	PRE-TRIP INSPECTION FEATURE FOR EXTERIOR LAMPS AND SERVICE BRAKES
264-032	(2) OVERHEAD MOUNTED LANYARD CONTROLS: (1) OFFICER AIR HORN AND (1) DRIVER AIR HORN
836-015	DIGITAL VOLTAGE DISPLAY INTEGRAL WITH DRIVER DISPLAY
660-008	SINGLE ELECTRIC WINDSHIELD WIPER MOTOR WITH DELAY
304-030	ROTARY HEADLAMP SWITCH, MARKER LIGHTS/HEADLIGHTS SWITCH WITH PULL OUT FOR OPTIONAL FOG/ROAD LAMPS
882-018	ONE VALVE PARKING BRAKE SYSTEM WITH DASH VALVE CONTROL AUTONEUTRAL AND WARNING INDICATOR
299-020	SELF CANCELING TURN SIGNAL SWITCH WITH DIMMER, HEADLAMP FLASH, WASH/WIPE/INTERMITTENT
298-046	INTEGRAL ELECTRONIC TURN SIGNAL FLASHER WITH 40 AMP (20 AMP PER SIDE) TRAILER LAMP CAPACITY
Design	
065-902	TWO COLOR CUSTOM PAINT
Color	
980-5Y6	CAB COLOR A: L0762EY MED RED ELITE EY
981-5F6	CAB COLOR B: L0006EY WHITE ELITE EY
986-020	BLACK, HIGH SOLIDS POLYURETHANE CHASSIS PAINT
963-003	STANDARD E COAT/UNDERCOATING
Certification / Compliance	
996-002	CANADA CMVSS CERTIFICATION, EXCEPT SALES CABS AND GLIDER KITS

50-03-1000

LOW VOLTAGE ELECTRICAL SYSTEM SPECIFICATIONS

The electrical system shall include all panels, electrical components, switches and relays, wiring harnesses and other electrical components. The electrical equipment installed by the apparatus manufacturer shall conform to current automotive electrical system standards, the latest Federal DOT standards, and the requirements of the applicable NFPA standards.

All wiring shall be stranded copper or copper alloy conductors of a gauge rated to carry 125 percent of the maximum current for the protected circuit. Voltage drops in all wiring from the power source to the using device shall not exceed 10 percent. The wiring and wiring harness and insulation shall be in conformance to applicable SAE and NFPA standards. The wiring harness shall conform to SAE J-1128 with GXL temperature properties. All exposed wiring shall be protected in a loom with a minimum 289 degree Fahrenheit rating. All wiring looms shall be properly supported and attached to body members. The electrical conductors shall be constructed in accordance with applicable SAE standards, except when good engineering practice requires special construction.

The wiring connections and terminations shall use a method that provides a positive mechanical and electrical connection and shall be installed in accordance with the device manufacturer's instructions. Electrical connections shall be with mechanical type fasteners and large rubber grommets where wiring passes through metal panels.

The wiring between the cab and body shall be joined using Deutsche type connectors or an enclosed in a terminal junction panel area. This system will permit body removal with minimal impact on the apparatus electrical system. All connections shall be crimp-type with insulated shanks to resist moisture and foreign debris such as grease and road grime. Weather-resistant connectors shall be provided throughout to ensure the integrity of the electrical system.

Any electrical junction or terminal boxes shall be weather resistant and located away from water spray conditions. In addition, the main body junction panel shall house the automatic reset breakers and relays where required.

There shall be no exposed electrical cabling, harnesses, or terminal connections located in compartments, unless they are enclosed in a junction box or covered with a removable electrical panel. The wiring shall be secured in place and protected against heat, liquid contaminants and damage. Wiring shall be uniquely identified every three-inches (3") by color coding or permanent marking with a circuit function code and identified on a reference chart or electrical wiring schematic per requirements of applicable NFPA #1901 standards.

The electrical circuits shall be provided with low voltage overcurrent protective devices. Such devices shall be accessible and located in required terminal connection locations or weather resistant enclosures. The overcurrent protection shall be suitable for electrical equipment and shall be automatic reset type and meet SAE standards. All electrical equipment, switches, relays, terminals, and connectors shall have a direct current rating of 125 percent of maximum current for which the circuit is protected. The system shall have electro-magnetic interference suppression provided as required in applicable SAE standards.

The electrical system shall include the following:

- Electrical terminals in weather exposed areas shall have a non-conductive grease or spray applied. A corrosion preventative compound shall be applicable to all terminal plugs located outside of the cab or body.
- The electrical wiring shall be harnessed or be placed in a protective loom.
- Holes made in the roof shall be caulked with silicone. Large fender washers shall be used when fastening equipment to the underside of the cab roof.
- Any electrical component that is installed in an exposed area shall be mounted in a manner that will not allow moisture to accumulate in it.
- A coil of wire must be provided behind an electrical appliance to allow them to be pulled away from mounting area for inspection and service work.
- All lights that have their sockets in a weather exposed area shall have corrosion preventative compound added to the socket terminal area.

The warning lights shall be switched in the chassis cab with labeled switches in an accessible location. Individual rocker switches shall be provided only for warning lights provided over the minimum level of warning lights in either the stationary or moving modes. All electrical equipment switches shall be mounted on a switch panel mounted in the cab convenient to the operator. The warning light switches shall be of the rocker type. For easy nighttime operation, an integral indicator light shall be provided to indicate when the circuit is energized. All switches shall be appropriately identified as to their function.

A single warning light switch shall activate all required warning lights. This switch will allow the vehicle to respond to an emergency and "call for the right of way". When the parking brake is applied, a "blocking right of way" system shall automatically activate per requirements of the applicable NFPA standards. All "clear" warning lights shall be automatically turned off upon application of the parking brake.

NFPA REQUIRED TESTING OF ELECTRICAL SYSTEM

The apparatus shall be electrically tested upon completion of the vehicle and prior to delivery. The electrical testing, certifications, and test results shall be submitted with delivery documentation per requirements of the applicable NFPA standards. The following minimum testing shall be completed by the apparatus manufacturer:

1. Reserve capacity test:

The engine shall be started and kept running until the engine and engine compartment temperatures are stabilized at normal operating temperatures and the battery system is fully charged. The engine shall be shut off and the minimum continuous electrical load shall be activated for ten (10) minutes. All electrical loads shall be turned off prior to attempting to restart

the engine. The battery system shall then be capable of restarting the engine. Failure to restart the engine shall be considered a failed test.

2. Alternator performance test at idle:

The minimum continuous electrical load shall be activated with the engine running at idle speed. The engine temperature shall be stabilized at normal operating temperature. The battery system shall be tested to detect the presence of battery discharge current. The detection of battery discharge current shall be considered a test failure.

3. Alternator performance test at full load:

The total continuous electrical load shall be activated with the engine running up to the engine manufacturer's governed speed. The test duration shall be a minimum of two (2) hours. Activation of the load management system is permitted during this test. However, if an alarm sounds due to excessive battery discharge, as detected by the system requirements in the NFPA standards, or a system voltage of less than 11.7 volts dc for more than 120 seconds is present, the test has failed.

4. Low voltage alarm test:

Following the completion of the above tests, the engine shall be shut off. The total continuous electrical load shall be activated and shall continue to be applied until the excessive battery discharge alarm activates. The battery voltage shall be measured at the battery terminals. With the load still applied, a reading of less than 11.7 volts dc for a 12 volt system shall be considered a test failure. The battery system shall then be able to restart the engine. Failure to restart the engine shall be considered a test failure.

NFPA REQUIRED DOCUMENTATION

The following documentation shall be provided on delivery of the apparatus:

a. Documentation of the electrical system performance tests required above.

b. A written load analysis, including:

1. The nameplate rating of the alternator.

2. The alternator rating under the conditions.

3. Each specified component load.

4. Individual intermittent loads.

50-05-1510
WEATHER RESISTANT ELECTRICAL JUNCTION BOX

The electrical junction or terminal boxes shall be weather resistant and located away from water spray conditions. In addition, the main body junction panel shall house the automatic reset breakers and relays where required. The main body junction panel shall be located in the pump compartment.

50-12-1100
ELECTRICAL CONSOLE WITH EMERGENCY LIGHT SWITCH PANEL

An electrical console shall be constructed of .125" smooth aluminum material and mounted in the cab of the truck chassis. Console shall be designed and installed between the driver and passenger seats. The top face of the console shall be designed as the switch panel for all emergency light switches. The switch panel shall be hinged for easy access to the switch connections.

All emergency light switches shall be lighted, rocker style. Switches shall be internally lit when the switch circuit is in the on position. A plug-in identification label is to be provided and installed adjacent to each rocker switch with backlighting provided behind the label.

SWITCHES

A rocker style internally lighted switch shall be provided and wired through a heavy-duty relay to activate power to the emergency lights. The emergency lights shall be activated by a single "MASTER SWITCH" on the electrical console.

50-15-1100
BATTERY SYSTEM

The battery system shall be supplied with the chassis.

50-15-3100
MASTER ELECTRIC SWITCH

One (1) battery disconnect switch shall be located conveniently to the driver of the apparatus. The switch shall disconnect the 12 volt power supply from the battery system.

50-15-7800
BATTERY CHARGER AND AIR COMPRESSOR

One (1) Kussmaul Pump Plus 1200 model 52-05-1100 battery charger and air compressor system shall be installed. The 120 volt compressor system shall be designed to maintain the air pressure in the chassis brake system whenever the pressure drops below a predetermined level.

The battery charger shall be supplied from the 120 volt shore power receptacle and be a fully automatic high output charging system. The unit shall be mounted in a clean dry area and will be accessible for service and/or maintenance.

50-16-1100
BATTERY CHARGER DISPLAY

One (1) Kussmaul 091-199-001 single battery bank voltage display shall be supplied with the charger.

50-20-1500
AUTO-EJECT

A Kussmaul "Super Auto-Eject" 20-amp automatic disconnect device shall be provided and installed on the 110-volt shoreline connection complete with weatherproof cover and matching plug. The Auto-Eject shall be activated by the chassis starter switch to disconnect the plug. The Super Auto-Eject shall be completely sealed to prevent contamination of the mechanism by inclement weather and road conditions. The Super Auto-Eject shall have an internal switch to open and close the AC circuit after the mating connector is inserted and before the connector is removed.

50-20-1124
SHORE POWER PLUG

The shore power plug shall be located in the step area below the left front cab door of the commercial chassis.

51-00-1700
12 VOLT POWER SOURCE

One (1) 12 volt power and ground connection rated at 30 amps shall be provided on the apparatus for the installation of a mobile two-way radio.

51-00-4010
The power source shall be "constant hot" and remain active regardless of the position of the master battery switch.

51-00-1200
12 VOLT POWER SOURCE

One (1) 12 volt power and ground connection rated at 20 amps shall be provided in the center console in the chassis cab.

51-00-4010
The power source shall be "constant hot" and remain active regardless of the position of the master battery switch.

51-05-6200
ENGINE COMPARTMENT LIGHT

One (1) 12 volt LED light with switch shall be mounted in the engine enclosure.

51-05-9000
The control switch shall be mounted on the light head.

51-05-6400
PUMP ENCLOSURE LIGHTS

One (1) LED work light shall be provided in the pump enclosure.

51-05-9000
The control switch shall be mounted on the light head.

52-08-1009
HAND LIGHTS

All NFPA required portable hand lights supplied by the Customer must be installed before the apparatus is placed into service.

52-15-1200
RADIO ANTENNA BASE

One (1) radio antenna base shall be supplied and installed on the apparatus, the antenna coax terminating in the cab. The location shall be determined by the customer.

53-01-2200
MARKER LIGHTS

LED marker lights shall be installed on the vehicle in conformance to the Canadian Motor Vehicle Safety Standard requirements.

53-02-1300
LICENSE PLATE BRACKET

One (1) stainless steel license plate bracket shall be provided at the rear of the apparatus.

53-03-2600

TAIL LIGHTS

One (1) pair of Whelen 604BTT LED tail/brake lights shall be provided on the rear of the apparatus. The rectangular lights shall be 4" x 6" LED with a red lens.

53-04-2600
TURN SIGNALS

One (1) pair of Whelen, 604T turn signals with populated arrow shape shall be provided. The rectangular LED lights shall be 4" x 6" in dimension and shall have an amber lens.

53-06-3500
BACKUP LIGHTS

One (1) pair of Whelen 604BU LED backup lights shall be installed on the rear of the apparatus body. The dimensions shall be 4" x 6" and the lens color shall be clear.

53-07-1200
FOUR LIGHT BEZEL

One (1) pair of tail light cluster bezels shall be supplied. Each bezel shall be designed to hold the specified rear lights located at the lower rear corners of the body.

53-05-1800
MID BODY LED TURN SIGNALS

One (1) pair of mid body LED turn signals shall be provided. The location of the turn lights shall be at mid-body near the rear wheel axle.

54-02-1520
GROUND LIGHTS

Each door shall include a Whelen 3SC0CDCR LED NFPA compliant ground light mounted to the underside of the cab step below each door.

Each light shall include a polycarbonate lens, a housing which is vibration welded and a bulb which shall be shock mounted for extended life.

The ground lighting shall be activated when the parking brake is set.

54-02-2340
CAB STEP LIGHTS

There shall be LED cab step lights supplied below the chassis cab doors. The lights shall be mounted below the cab doors and illuminate the chassis cab steps. There shall be four (4) LED lights located on each side of the chassis cab.

54-03-1220
GROUND LIGHTS

There shall be two (2), one each side, Whelen 3SC0CDCR LED NFPA compliant ground light mounted to the underside of the rub rail of the pump house.

Each light shall include a polycarbonate lens, a housing which is vibration welded and a bulb which shall be shock mounted for extended life.

The ground lighting shall be activated when the parking brake is set.

54-03-1420
GROUND LIGHTS

There shall be two (2), one each side, Whelen 3SC0CDCR LED NFPA compliant ground light mounted to the underside of the rub rail, mid body.

Each light shall include a polycarbonate lens, a housing which is vibration welded and a bulb which shall be shock mounted for extended life.

The ground lighting shall be activated when the parking brake is set.

54-03-1620
GROUND LIGHTS

There shall be two (2) Whelen 3SC0CDCR LED NFPA compliant ground light mounted to the underside of the rear step.

Each light shall include a polycarbonate lens, a housing which is vibration welded and a bulb which shall be shock mounted for extended life.

The ground lighting shall be activated when the parking brake is set.

54-03-1820
GROUND LIGHTS

There shall be two (2) Whelen 3SC0CDCR LED NFPA compliant ground light mounted to the underside of the compartments, behind the rear wheels.

Each light shall include a polycarbonate lens, a housing which is vibration welded and a bulb which shall be shock mounted for extended life.

The ground lighting shall be activated when the parking brake is set.

54-04-1999
The ground lights shall automatically activate when the parking brake is applied.

54-10-1300
STEP LIGHT

Two (2) LED step light(s) with clear lens shall be installed.

54-10-1450
REAR TAILBOARD LIGHTS

Two (2) LED step lights with clear lens shall be installed to illuminate the step surfaces at the rear of the apparatus body.

54-11-2100
The step/walkway light switch shall be installed and wired to the parking brake.

54-15-1380
SCENE LIGHT

Six (6) Whelen Series 900 LED 8" x 10" scene light shall be installed.

54-15-5500
SCENE LIGHT LOCATION

Two (2) scene light shall be located on the left side of the apparatus body.

54-15-1460
The scene light shall be installed on a treadplate mounting plate.

54-15-5600
SCENE LIGHT LOCATION

Two (2) scene light shall be located on the right side of the apparatus body.

54-15-1460
The scene light shall be installed on a treadplate mounting plate.

54-15-5700

SCENE LIGHT LOCATION

Two (2) scene light shall be located on the rear of the apparatus body.

54-15-6400
SCENE LIGHT SWITCHING

One (1) scene light switch with indicator shall be installed on the cab main switch panel to control the left side scene light(s). The switch shall be labeled "LEFT SCENE".

54-15-6500
SCENE LIGHT SWITCHING

One (1) scene light switch with indicator shall be installed on the cab main switch panel to control the right side scene light(s). The switch shall be labeled "RIGHT SCENE".

54-15-6600
SCENE LIGHT SWITCHING

One (1) scene light switch with indicator shall be installed on the cab main switch panel to control the rear scene light(s). The switch shall be labeled "REAR SCENE".

54-15-6700
SCENE LIGHT SWITCHING

The rear scene lights shall activate automatically upon placing the transmission into reverse.

55-11-2100
DOOR OPEN LIGHT, (OSROOFCR)

One (1) red flashing, warning light shall be provided and installed in the driver's compartment to indicate an open passenger or apparatus compartment door. The warning light shall also be attached to folding equipment racks and light towers as specified. The light shall be a flashing Whelen OS red LED (OSROOFCR) light and shall be properly marked and identified.

56-01-1400
ELECTRONIC SIREN

One (1) Federal Signal PA-300, model 690010, 200 watt full function electronic siren shall be mounted in the cab. The siren shall have the following features: electronic air horn, wail, yelp, Hi-Lo, P.A. and shall have a hard wired microphone. The optional TAP II feature allows the drier to change the siren tone via the vehicle's horn ring. The siren shall be capable of driving one (1) or two (2) 100-watt speakers. The system shall automatically be protected from short circuits.

56-02-1600
SPEAKER

One (1) Federal Signal DynaMax 100-watt speaker, Model #ES100C, shall be installed. The speaker shall feature a Neodymium driver and a high strength composite housing that is chemical resistant and maintains rigidity at high temperatures.

56-02-1650
SPEAKER

One (1) stainless steel grille shall be installed on the speaker.

56-03-1800
SPEAKER LOCATION

The siren speaker shall be installed on the apparatus bumper extension, as determined by the body manufacturer.

57-02-2000
LIGHTBAR

One (1) Whelen Justice series light bar shall be included with the apparatus cab. The light bar shall be a model JE0NFPA and shall be mounted on the roof of the cab, towards the front, above the windshield.

The light bar shall feature:

- A 62" light bar designed for high performance
- Four (4) red Linear Super LED corner modules
- Four (4) red CON3 LED hinged modules
- Two (2) white CON3 LED hinged modules with exterior clear optic lenses
- Clear hard coated lenses to provide extended life/luster protection against UV & chemical stresses
- Designed in accordance with NFPA Zone A requirements

57-10-0600
LIGHTBAR ACTIVATION

The front upper light bar shall be activated through the master warning switch.

58-71-1820
UPPER REAR WARNING LIGHTS

One (1) pair of Whelen Super LED, rotating beacons, P/N L31H*F, shall be installed, one each side on the upper rear of the apparatus body. The unit shall have dimensions of 4" high x 7-9/16" deep.

57-20-8100
The driver side warning light shall be a Whelen LED rotator, model L31HRF with a red lens.

57-20-8101
The officer side warning light shall be a Whelen LED rotator, model L31HRF with a red lens.

58-74-5200
REAR WARNING LIGHT MOUNTING

The upper rear lights shall be mounted on the upper corners of the apparatus body, one on each side.

58-03-1520
LOWER FRONT WARNING LIGHTS

One (1) pair of Whelen model #600 Super LED warning lights shall be installed, one each side one the front of the chassis cab. The dimensions of the lights shall be 4" x 6".

57-20-4010
The driver side warning light shall be a Whelen Model 60R02FRR red-LED with a red lens.

57-20-4011
The officer side warning light shall be a Whelen Model 60R02FRR red-LED with a red lens.

58-01-2240
Each light shall be mounted with a Whelen Model 600 chrome flange.

58-09-1520
INTERSECTION WARNING LIGHTS

One (1) pair of Whelen model #600 red Super LED warning lights shall be installed one each side of the chassis cab. The dimensions of the lights shall be 4" x 6".

57-20-4010
The driver side warning light shall be a Whelen Model 60R02FRR red-LED with a red lens.

57-20-4011
The officer side warning light shall be a Whelen Model 60R02FRR red-LED with a red lens.

58-01-2240

Each light shall be mounted with a Whelen Model 600 chrome flange.

58-26-2600
LOWER MID-BODY WARNING LIGHTS

One (1) pair of Whelen model ION LED warning lights shall be installed , one each side of the apparatus, mid-body. The dimensions of the lights shall be approximately 6" x 2".

57-20-7100
The driver side warning light shall be a Whelen Model WIONSMCR red-LED's with clear lens.

57-20-7101
The officer side warning light shall be a Whelen Model WIONSMCR red-LED's with clear lens.

58-01-1300
Each light shall be mounted with a Whelen chrome flange.

58-36-2600
LOWER REAR SIDE WARNING LIGHTS

One (1) pair of Whelen model ION LED warning lights shall be installed, one each side of the apparatus body, towards the rear of the body. The dimensions of the lights shall be approximately 6" x 2".

57-20-7100
The driver side warning light shall be a Whelen Model WIONSMCR red-LED's with clear lens.

57-20-7101
The officer side warning light shall be a Whelen Model WIONSMCR red-LED's with clear lens.

58-01-1200
There shall be cast aluminum step light housing provided for the warning lights. The housing shall have a pyramid tread on the top of the housing.

58-01-1300
Each light shall be mounted with a Whelen chrome flange.

58-81-1520
LOWER REAR WARNING LIGHTS

One (1)pair of Whelen model #600 Super LED warning lights shall be installed, one each side on the lower rear of the apparatus body. The dimensions of the lights shall be 4" x 6".

57-20-4010

The driver side warning light shall be a Whelen Model 60R02FRR red-LED with a red lens.

57-20-4011
The officer side warning light shall be a Whelen Model 60R02FRR red-LED with a red lens.

10-02-1102
FLUID DATA PLAQUE- METRIC

One (1) fluid data plaque containing required information shall be provided based on the applicable components for this apparatus, compliant with NFPA Standards and stated in metric volumes:

- Engine oil
- Engine coolant
- Chassis transmission fluid
- Drive axle lubricant
- Power steering fluid
- Pump transmission lubrication fluid
- Other NFPA applicable fluid levels or data as required

Location shall be in the driver's compartment or on driver's door.

10-02-1202
DATA & WARNING LABELS - METRIC

HEIGHT LENGTH & WEIGHT

A highly visible label indicating the overall height, length, and weight of the vehicle shall be installed in the cab dash area. The measurements shall be stated in metres and kilograms.

10-02-1300
NO RIDE LABEL

One (1) "NO RIDERS" label shall be applied on the vehicle at the rear step area or other applicable areas. The label shall warn personnel that riding in or on these areas, while the vehicle is in motion is prohibited.

10-02-2100
CAB SEATING POSITION LIMITS

One (1) label shall be installed in the cab to indicate seating positions for firefighters. A weight allowance of 250 pounds for each shall be factored into the gross vehicle weight rating of the chassis.

10-02-2500
HELMET WARNING TAG

A label shall be installed in the cab, visible from each seating position. The label shall read "CAUTION: DO NOT WEAR HELMET WHILE SEATED." Helmets must be properly stowed while the vehicle is in motion according to the current edition of NFPA 1901.

10-03-6000
REAR TOWING PROVISIONS

There shall be two tow eyes furnished under the rear of the body and attached directly to the chassis frame rails. There shall be a reinforcement spreader bar connecting the two tow eyes. Tow eyes are to be constructed of 3/8" plate steel with a 4" I.D. hole, large enough for passing through a tow chain end hook.

80-43-2400
The tow plates shall be painted black.

10-04-2150
BUMPER EXTENSION

The chassis frame shall be extended 18" with reinforced steel angle and structural channel by the body builder. The extension shall be designed to support the bumper and other equipment to be installed.

10-04-2340
FRONT BUMPER GRAVELSHIELD

An 18" front to rear filler panel constructed from NFPA compliant, slip resistant aluminum tread plate shall be provided on the front chassis frame extension. The extension shall be covered on the top and sides, up to the level of front bumper and shall be reinforced to support one (1) firefighter (approximately 250 pounds) and the equipment specified to be installed.

10-04-2720
FRONT BUMPER COMPARTMENT

A recessed fire hose compartment constructed from smooth aluminum shall be installed in the center of the front bumper extension. Water drain holes shall be provided in the bottom.

10-04-3150
BUMPER COMPARTMENT DOOR

One (1) aluminum tread plate door for the front bumper compartment shall be supplied. The flat

door shall have a stainless steel hinge at the rear and a latch to secure the compartment.

08-00-0719
COMPARTMENT LIGHT

One (1) vertically mounted LED strip light shall be installed inside the compartment. The light shall have a polycarbonate lens to eliminate breakage from impact and eliminate heat build up and be approximately 30" in length.

08-00-071A
MOUNTING

The compartment light shall be mounted in the door jamb to illuminate the compartment interior.

55-06-1100
The compartment light will be controlled by an automatic "On-Off" switch located on each compartment door.

10-06-1600
TIRE PRESSURE INDICATOR

There shall be a tire pressure indicator, p/n RWTG1235, at each tire’s valve stem on the vehicle that shall indicate if there is insufficient pressure in the specific tire.

10-08-2100
REAR MUD FLAPS

One (1) pair of black mud flaps shall be installed behind the rear wheels.

10-09-1300
ON-SPOT TIRE CHAINS

"On-Spot" automatic tire chains shall be installed on the rear axle of the apparatus. The system shall include continuous duty solenoid, arm bearings and replaceable 6-strand chainwheels.

A switch installed on the cab dash shall allow the operator to "Engage" and "Disengage" the tire chains without stopping to enhance traction and braking while in forward or reverse motion. The switch shall be provided with a protective guard.

10-09-1920
A switch installed on the cab dash shall allow the operator to "Engage" and "Disengage" the tire chains without stopping to enhance traction and braking while in forward or reverse motion. The switch shall be provided with a protective guard.

10-10-0600
CAB STEPS

The driver's side cab step area on the 4 door chassis shall be covered with slip resistant aluminum tread plate for compliance to applicable NFPA standards.

10-10-0700
CAB STEPS

The passenger's side cab step area on the 4 door chassis shall be covered with slip resistant aluminum tread plate for compliance to applicable NFPA standards.

10-12-6300
SCBA BRACKET

Four (4) Zico SCBA bracket, HZ-KD-ULLH, shall be provided for installation in the cab mounted SCBA seat. An NFPA approved cylinder retention strap shall be supplied.

20-08-3200
HALE QFLO SINGLE STAGE PUMP

A Hale model Q-FLO single stage pump shall be designed to mount within a pump enclosure and shall be split-drive shaft driven. The pump shall be driven by a driveline from the truck transmission. The engine shall provide sufficient horsepower and RPM to enable the pump to meet and exceed its rated performance.

The entire pump, suction and discharge passages shall be hydrostatically tested to a pressure of 600 PSI. The pump shall be tested at the pump manufacturer's factory to the performance specs as outlined by the applicable sections of the NFPA 1901 standard. The pump shall be free from objectionable pulsation and vibration.

PUMP BODY

The pump body and related parts shall be fine grain alloy cast iron, with a minimum tensile strength of 30,000 PSI. All metal moving parts in contact with water shall be of high quality bronze or stainless steel.

IMPELLER

The pump shall have one suction impeller. The pump body shall have two opposed discharge outlet volute cutwaters to eliminate radial unbalance. Pump impeller shall be hard, fine grain bronze of the mixed flow design; accurately machined and individually balanced. The vanes of

the impeller intake eyes shall be of sufficient size and design to provide ample reserve capacity utilizing minimum horsepower.

Impeller clearance rings shall be bronze, easily renewable without replacing impeller or pump volute body, and shall be of wrap-around double labyrinth design for maximum efficiency.

PUMP SHAFT

Pump shaft shall be rigidly supported by two bearings for minimum deflection. The bearings shall be heavy-duty, deep groove ball bearings in the gearbox and they shall be splash lubricated.
The pump shaft shall be heat-treated, electric furnace, corrosion resistant stainless steel to be super-finished with galvanic corrosion protection for longer shaft life. Pump shaft must be sealed with double-lip oil seal to keep road dirt and water out of the gearbox.

PUMP TRANSMISSION

Pump transmission shall be of sufficient size to withstand 16,000 foot pounds of torque of the engine. The drive unit shall be designed of ample capacity for lubrication reserve and to maintain the proper operating temperature.

The gearbox drive shafts shall be of heat-treated chrome nickel steel and be at least 2-3/4" in diameter, on both the input and output drive shafts. They shall withstand the full torque of the engine.

All gears both drive and pump, shall be of highest quality electric furnace chrome nickel steel. Bores shall be ground to size and teeth integrated and hardened, to give an extremely accurate gear for long life. An accurately cut spur design shall be provided to eliminate all possible end thrust.

PUMP MOUNTING

The pump shall be bolted to steel angles in the pump module, using grade 8 bolts.

DRIVELINES

Hollow-tube drivelines and universals shall be properly matched to the engine and transmission output torque ratings.

20-08-3124
5000 LPM FIRE PUMP SPECIFICATIONS

The centrifugal type fire pump shall be a Hale model QFLO midship mounted with a rated capacity of 5000 LPM (Litres per minute). The pump shall meet current ULC-S515 requirements.

The pump shall be certified to meet the following deliveries:
5500 LPM @ 1150 kPa
5000 LPM @ 1000 kPa
3500 LPM @ 1350 kPa
2500 LPM @ 1700 kPa

22-03-1600
LEFT SIDE -- 6" UNGATED INTAKE

One (1) 6" ungated suction intake shall be installed on the left side pump panel to supply the fire pump from an external water supply. The threads shall be 6" NST. The intake shall be provided with a removable screen.

22-41-5700
A 6" chrome plated cap shall be provided. The threads shall be NST and the cap shall be equipped long handles.

22-03-2600
RIGHT SIDE -- 6" UNGATED INTAKE

One (1) 6" ungated suction intake shall be installed on the right side pump panel to supply the fire pump from an external water supply. The intake shall be provided with a removable screen.

22-41-5700
A 6" chrome plated cap shall be provided. The threads shall be NST and the cap shall be equipped long handles.

20-14-2300
FIRE PUMP MECHANICAL WATER SEAL

The Hale fire pump shall have a high quality, self-adjusting, maintenance free mechanical seal.

20-14-3100
ELECTRIC/PNEUMATIC PUMP SHIFT

The pump shift shall be an air operated and shall incorporate an air cylinder with an electric actuating switch to shift from road to pump and back. The power shift control valve shall be mounted in the cab. The fire pump-shift system shall be equipped with a means to prevent unintentional movement of the control device from its set position.

The system shall include a nameplate indicating the chassis transmission shift selector position to be used for pumping and located so that it can be easily read from the driver's position.

The system shall include applicable the NFPA interlocks, pump shift and OK TO PUMP indicator lights in the cab and pump panel. The fire pump system shall be equipped with an interlock system shall be provided to ensure that the pump drive system components are properly engaged in the pumping mode of operation so that the pumping system can be safely operated from the pump operator's position.

If applicable, the secondary braking device shall be automatically disengaged for pumping operations.

20-14-5100
FIRE PUMP PRIMER

The fire pump shall be equipped with a Hale model #ESP oil-less electrically driven priming pump. The unit shall be a positive displacement vane type. A Hale PV priming control shall be located at the pump operator's panel and when pulled it shall open the priming valve and start the priming motor.

The pump shall be capable of taking suction and discharging water with a lift of 10 feet in not more than 30 seconds with the pump dry, through 20 feet of suction hose of appropriate size. The priming system shall comply with applicable sections of NFPA standards.

27-10-4500
ENGINE/PUMP GOVERNOR

Apparatus shall be equipped with a Class1 “Total Pressure Governor” (TPG) that is connected to the Electronic Control Module (ECM) mounted on the engine. The “TPG” will operate as a pressure sensor (regulating) governor (PSG) utilizing the engines 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 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 transducer for best operation. 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 “TPG” shall also include indication of engine RPM, system voltage, engine oil pressure and engine temperature with audible alarm output for all. The “TPG” uses the J1939 data bus for engine information, requiring no additional sensors to be installed. The TPG shall use J1939

broadcast warnings for the alarm as a standard and allow the “user” to select warning values if “SOPs” dictate.

27-30-1100
ENGINE HOUR METER

One (1) engine hour meter shall be provided on the operator's pump panel.

21-00-2002
PUMP ANODES

There shall be sacrificial, zinc anodes in the pump steamer ports which shall protect the pump and piping from electrolysis. These anodes shall also act as screens.

21-00-3300
PUMP PLUMBING SYSTEM

The fire pump plumbing system shall be of rigid stainless steel pipe or flexible piping with stainless steel fittings. Mechanical grooved couplings shall be installed to permit flexing of the plumbing system and allow for quick removal of piping or valves for service. Flexible hose couplings shall be threaded stainless steel or mechanical grooved coupling connections.

The fire pump and plumbing shall be hydrostatically tested in compliance to applicable sections of NFPA standards. The test results shall be included in the delivery documentation.

21-01-0300
FIRE PUMP MASTER DRAIN

The fire pump plumbing system and fire pump shall be piped to a single pump panel mounted 'handwheel' type master pump drain assembly. The master drain valve shall be a bronze master drain with a rubber disc seal, a universal joint and a handwheel control on the pump panel. The master drain shall also provide for low point drainage of the fire pump and auxiliary devices.

ADDITIONAL LOW POINT DRAINS

The plumbing system shall be equipped with additional low point manually operated drain valves to allow total draining of the fire pump plumbing system. These valves shall be accessible from the side of the vehicle and labeled for exact location.

21-01-7300
PLUMBING SYSTEM

The plumbing system shall be unpainted.

21-01-8100
HOSE THREADS

The hose threads shall be National Standard Thread (NST) on all base threads on the apparatus intakes and discharges.

22-51-5210
WATER TANK TO PUMP LINE

A 3" water tank to the rear mounted fire pump line shall be provided with a full flow quarter turn ball valve, 4" piping, and with flex hose and stainless steel hose clamps. The tank to pump line shall be equipped with a check valve to prevent pressurization of the water tank.

The line shall be flow tested during the fire pump testing and shall meet applicable requirements of NFPA standards.

22-50-0100
The tank to pump valve shall be controlled at the pump operator's panel.

24-62-1300
The valve shall be an Akron 8000 Series three-inch (3") valve with a stainless ball.

22-55-4012
An Akron valve equipped with a manually operated pull rod, with quarter-turn locking feature shall be provided on the intake. The handle shall be equipped with a color-coded name plate.

23-02-1300
FIRE PUMP TO WATER TANK FILL LINE

A 2" fire pump to water tank refill and pump bypass cooler line shall be provided. The valve shall be a full flow quarter turn ball valve with 2" piping and flex hose to tank. The valve control handle shall have a nameplate located near the valve control.

24-62-1200
The valve shall be an Akron 8000 Series two-inch (2") valve with a stainless ball.

22-55-4012
An Akron valve equipped with a manually operated pull rod, with quarter-turn locking feature shall be provided on the intake. The handle shall be equipped with a color-coded name plate.

20-30-3100
FIRE PUMP SPLIT SHAFT DRIVESHAFTS AND INSTALLATION

The mid-ship split shaft fire pump shall be installed and shall include installation of the fire pump, modification and/or fabrication of new drivelines and all pump-mounting brackets. The drive shaft(s) shall be spin balanced prior to final installation.

20-31-3600
INTAKE RELIEF/DUMP VALVE

One (1) TFT A18 series, 2-1/2" intake relief/dump valve preset at 125 psi shall be permanently installed on the suction side of the fire pump. The valve shall have an adjustment range of 75 psi to 250 psi, and shall be designed to automatically self-restore to a non-relieving position when excessive pressure is no longer present.

Discharge side of the intake relief valve shall be plumbed away from the pump operator.

20-31-4100
FIRE PUMP COOLING

The fire pump shall be equipped with 3/8" cooling line from the pump to the water tank. This re-circulation line shall be controlled by a pump panel control valve with nameplate label noting it as the "fire pump bypass cooler". There shall be a check valve installed in the pump cooler line to prevent tank water from back flowing into the pump when it is not in use.

20-31-5100
CHASSIS ENGINE HEAT EXCHANGER COOLING SYSTEM

The apparatus shall be equipped with a heat exchanger for supplementary chassis engine cooling during fire pump operations. A manually opened valve, mounted at the operator's panel, shall direct water from the fire pump to the heat exchanger that is mounted in the engine radiator cooling hose. The system shall provide cooling water from the fire pump to circulate around the engine radiator coolant without mixing or coming in direct contact with the engine coolant.

A nameplate label shall be installed on the pump panel noting "engine cooling system" with "on-off" opening directions noted.

20-31-1200
CANADIAN UNDERWRITERS LABORATORIES CERTIFICATION

The apparatus shall undergo a Canadian Underwriters Laboratories Incorporated inspection and test per current ULC standards, prior to delivery of the completed apparatus. These tests shall include pump, tank, weight, brake, and other applicable ULC inspection and testing. The test shall be performed on site by UL/ULC staff and shall include a listing of the apparatus as a fire fighting appliance. The manufacturer shall be ULC certified as a listed fire firefighting appliance manufacturer.

The ULC acceptance certificate and listing label shall be furnished with the apparatus on delivery.

20-31-1710
FIRE ULC PUMP TEST

The pump shall tested as LPM (Liters per Minute).

22-12-1200
LEFT SIDE -- 2-1/2" GATED INTAKE

One (1) 2-1/2" gated suction intake shall be installed on left side pump panel to supply the fire pump from an external water supply. The control valve shall be a quarter turn ball valve and shall have 2-1/2" CSA female thread of chrome plated brass.

The intake shall be equipped with a ¾" drain and bleeder valve. A nameplate label and removable screen shall be installed.

21-01-2502
An Innovative Controls ¾” cast bronze quarter-turn drain/bleeder valve shall be installed. The valve shall be complete with a chrome plated bronze ball, reinforced teflon seals, and blow-out proof stem rated to 600 PSI. A chrome plated zinc handle shall be provided on each drain valve complete with a recessed ID label provision. The handle shall lift to open and push down to close.

22-41-1500
A 2-1/2" chrome plated plug shall be provided. The threads shall be CSA and the plug shall be equipped rocker lugs and chain or cable securement.

24-62-1250
The valve shall be an Akron 8000 Series two and one half-inch (2-1/2") valve with a stainless ball.

22-55-4050
The valve shall be equipped with a manually operated, swing-type manual control located adjacent the intake. The valve shall be equipped with a color-coded name plate.

23-05-2400
1-1/2" DISCHARGE -- FRONT BUMPER, Chrome

A 1-1/2" discharge shall be installed at the front bumper area with chrome swivel outlet with 1-1/2" NPSH male threads. The valve control shall be on pump panel and a nameplate label provided at valve control area.

The plumbing shall be flexible hose with abrasion resistant support mountings.

21-01-2200

A Class 1 automatic type 3/4" bleeder valve shall be installed.

23-05-9200
The hose connection for the front discharge shall be a swivel type located above the front bumper deck level.

24-61-1150
The specified valve shall be an Akron 8000 Series one and one half-inch (1-1/2") valve with a stainless ball.

24-53-0030
For valve actuation, the specified discharge shall be equipped with a side mount valve control. The ergonomically designed 1/4 turn push-pull T-handle shall be chrome plated zinc with recessed labels for color coding and signage. The gear-control rod, double laminated locking clips, and rod housing shall be stainless steel and provide true positive lock that will eliminate valve drift. Bronze and Teflon impregnated stainless steel bushings in both ends of rod housing shall eliminate rod deflection, never need lubrication and ensure consistent long-term operation.

The control assembly shall include a decorative chrome-plated zinc panel mounted bezel with recessed color-coded label.

27-02-1530
One (1) 2-1/2" (65mm) diameter IC pressure gauge with (Dual Scale PSI/kPa) (0-400) shall be provided. The face of the gauge shall be a WHITE dial with black letters. The gauges will be located on the pump instrument panel.

23-06-2520
TWO (2) 1-1/2" CROSSLAY DISCHARGES

Two (2) pre-connect 1-3/4" hose crosslays shall be installed over pump enclosure, with quarter turn 2" diameter ball valves. The outlets shall be a 2" NPT female swivel x 1-1/2" male NPSH hose threads.

The crosslay hosebeds shall have smooth aluminum sides. The hosebed decking shall be constructed with slots integrated into the hosebed floor.

Each hosebed shall provide for a minimum capacity of 200 feet of 1-3/4" diameter double jacket hose with nozzle, for hose provided by the fire department. A divider shall be installed to separate the crosslay beds.

21-01-2502
An Innovative Controls ¾” cast bronze quarter-turn drain/bleeder valve shall be installed. The valve shall be complete with a chrome plated bronze ball, reinforced teflon seals, and blow-out

proof stem rated to 600 PSI. A chrome plated zinc handle shall be provided on each drain valve complete with a recessed ID label provision. The handle shall lift to open and push down to close.

24-61-1200
The specified valve shall be an Akron 8000 Series two-inch (2") valve with a stainless ball.

24-53-0030
For valve actuation, the specified discharge shall be equipped with a side mount valve control. The ergonomically designed 1/4 turn push-pull T-handle shall be chrome plated zinc with recessed labels for color coding and signage. The gear-control rod, double laminated locking clips, and rod housing shall be stainless steel and provide true positive lock that will eliminate valve drift. Bronze and Teflon impregnated stainless steel bushings in both ends of rod housing shall eliminate rod deflection, never need lubrication and ensure consistent long-term operation.

The control assembly shall include a decorative chrome-plated zinc panel mounted bezel with recessed color-coded label.

27-02-1530
Two (2) 2-1/2" (65mm) diameter IC pressure gauge with (Dual Scale PSI/kPa) (0-400) shall be provided. The face of the gauge shall be a WHITE dial with black letters. The gauges will be located on the pump instrument panel.

23-08-3300
CROSSLAY HINGED COVER WITH END FLAPS

The crosslay hosebed shall be equipped with a single aluminum diamond plate hinged cover with vinyl end flaps with hook & loop fasteners. The cover shall have rubber bumpers, latching devices, and lift up handle on each end of the cover.

The hosebed cover shall be labeled, "Not a Standing or Walking Surface", per NFPA.

29-20-5600
The vinyl cover shall be red in color.

23-08-4130
CROSSLAY HOSE BED TRIM

The crosslay hosebed shall be equipped anodized aluminum angle overlays, one on each end of the hosebed.

23-08-5019
CROSSLAY HOSEBEDS

Crosslay hosebed(s) shall be mounted over the upper pump panel or gauge panel in the upper

portion of the pump enclosure. The crosslay hosebed shall be approximately 12" from the top of the pump enclosure.

23-09-4100
LEFT SIDE PUMP PANEL -- 2-1/2" DISCHARGE

Two (2) 2-1/2" discharge shall be installed on the left side pump panel area and shall be controlled by a quarter turn ball valve. The discharge shall have 2-1/2" NST male hose threads. A color coded nameplate label shall be provided adjacent the control handle.

21-01-2502
An Innovative Controls ¾" cast bronze quarter-turn drain/bleeder valve shall be installed. The valve shall be complete with a chrome plated bronze ball, reinforced teflon seals, and blow-out proof stem rated to 600 PSI. A chrome plated zinc handle shall be provided on each drain valve complete with a recessed ID label provision. The handle shall lift to open and push down to close.

24-02-1224
Two (2) lightweight aluminum, color coded, elbow with rocker lugs shall be provided with 2-1/2" NST swivel female x 2-1/2" CSA male hose threads.

24-03-1454
Two (2) 2-1/2" CSA rocker lug color coded vented cap and cable or chain securement shall be provided.

24-61-1250
The specified valve shall be an Akron 8000 Series two and one half-inch (2-1/2") valve with a stainless ball.

24-53-0030
For valve actuation, the specified discharge shall be equipped with a side mount valve control. The ergonomically designed 1/4 turn push-pull T-handle shall be chrome plated zinc with recessed labels for color coding and signage. The gear-control rod, double laminated locking clips, and rod housing shall be stainless steel and provide true positive lock that will eliminate valve drift. Bronze and Teflon impregnated stainless steel bushings in both ends of rod housing shall eliminate rod deflection, never need lubrication and ensure consistent long-term operation.

The control assembly shall include a decorative chrome-plated zinc panel mounted bezel with recessed color-coded label.

27-02-1530
Two (2) 2-1/2" (65mm) diameter IC pressure gauge with (Dual Scale PSI/kPa) (0-400) shall be provided. The face of the gauge shall be a WHITE dial with black letters. The gauges will be located on the pump instrument panel.

23-10-4100
RIGHT SIDE PUMP PANEL -- 2-1/2" DISCHARGE

One (1) 2-1/2" discharge shall be installed on the right side pump panel area and shall be controlled by a quarter turn ball valve. The discharge shall have 2-1/2" NST male hose threads. A color coded nameplate label shall be provided adjacent the control handle.

21-01-2502
An Innovative Controls ¾" cast bronze quarter-turn drain/bleeder valve shall be installed. The valve shall be complete with a chrome plated bronze ball, reinforced teflon seals, and blow-out proof stem rated to 600 PSI. A chrome plated zinc handle shall be provided on each drain valve complete with a recessed ID label provision. The handle shall lift to open and push down to close.

24-02-1224
One (1) lightweight aluminum, color coded, elbow with rocker lugs shall be provided with 2-1/2" NST swivel female x 2-1/2" CSA male hose threads.

24-03-1454
One (1) 2-1/2" CSA rocker lug color coded vented cap and cable or chain securement shall be provided.

24-61-1250
The specified valve shall be an Akron 8000 Series two and one half-inch (2-1/2") valve with a stainless ball.

24-53-0030
For valve actuation, the specified discharge shall be equipped with a side mount valve control. The ergonomically designed 1/4 turn push-pull T-handle shall be chrome plated zinc with recessed labels for color coding and signage. The gear-control rod, double laminated locking clips, and rod housing shall be stainless steel and provide true positive lock that will eliminate valve drift. Bronze and Teflon impregnated stainless steel bushings in both ends of rod housing shall eliminate rod deflection, never need lubrication and ensure consistent long-term operation.

The control assembly shall include a decorative chrome-plated zinc panel mounted bezel with recessed color-coded label.

27-02-1530
One (1) 2-1/2" (65mm) diameter IC pressure gauge with (Dual Scale PSI/kPa) (0-400) shall be provided. The face of the gauge shall be a WHITE dial with black letters. The gauges will be located on the pump instrument panel.

23-10-5200
RIGHT SIDE PUMP PANEL -- 3" x 4" DISCHARGE

One (1) 3" discharge shall be installed on the right side pump panel area and shall be controlled by a full flow 3" slow-close quarter turn ball valve. The discharge shall have 4" NST male hose threads. A color coded nameplate label shall be provided adjacent the control handle.

21-01-2502
An Innovative Controls ¾" cast bronze quarter-turn drain/bleeder valve shall be installed. The valve shall be complete with a chrome plated bronze ball, reinforced teflon seals, and blow-out proof stem rated to 600 PSI. A chrome plated zinc handle shall be provided on each drain valve complete with a recessed ID label provision. The handle shall lift to open and push down to close.

24-02-2320
One (1) color coded elbow with 30 degree slant shall be provided. Threads shall be 4" Storz with lugs and manual locks x 4" female swivel NST with rocker lugs.

24-03-2120
One (1) 4" color coded Storz cap with cable or chain securement shall be provided.

24-61-1300
The specified valve shall be an Akron 8000 Series three-inch (3") valve with a stainless ball.

24-53-0400
One (1) Akron valve equipped with a manually operated pull rod, with quarter-turn locking feature and a manual slow-close device shall be provided on the specified discharge. The handle shall be equipped with color-coded type name plate.

27-02-1530
One (1) 2-1/2" (65mm) diameter IC pressure gauge with (Dual Scale PSI/kPa) (0-400) shall be provided. The face of the gauge shall be a WHITE dial with black letters. The gauges will be located on the pump instrument panel.

23-13-3200
REAR RIGHT SIDE -- 2-1/2" DISCHARGE

One (1) 2-1/2" discharge shall be installed on the right side rear panel of the apparatus body and shall be controlled by a quarter turn ball valve on the pump panel. The discharge shall have 2-1/2" NPT x 2-1/2" NST male hose threads. The outlet shall be equipped with an engraved nameplate label shall be installed adjacent the valve control handle.

21-01-2502
An Innovative Controls ¾" cast bronze quarter-turn drain/bleeder valve shall be installed. The valve shall be complete with a chrome plated bronze ball, reinforced teflon seals, and blow-out proof stem rated to 600 PSI. A chrome plated zinc handle shall be provided on each drain valve complete with a recessed ID label provision. The handle shall lift to open and push down to close.

24-02-1224
One (1) lightweight aluminum, color coded, elbow with rocker lugs shall be provided with 2-1/2" NST swivel female x 2-1/2" CSA male hose threads.

24-03-1454
One (1) 2-1/2" CSA rocker lug color coded vented cap and cable or chain securement shall be provided.

24-61-1250
The specified valve shall be an Akron 8000 Series two and one half-inch (2-1/2") valve with a stainless ball.

24-53-0030
For valve actuation, the specified discharge shall be equipped with a side mount valve control. The ergonomically designed 1/4 turn push-pull T-handle shall be chrome plated zinc with recessed labels for color coding and signage. The gear-control rod, double laminated locking clips, and rod housing shall be stainless steel and provide true positive lock that will eliminate valve drift. Bronze and Teflon impregnated stainless steel bushings in both ends of rod housing shall eliminate rod deflection, never need lubrication and ensure consistent long-term operation.

The control assembly shall include a decorative chrome-plated zinc panel mounted bezel with recessed color-coded label.

27-02-1530
One (1) 2-1/2" (65mm) diameter IC pressure gauge with (Dual Scale PSI/kPa) (0-400) shall be provided. The face of the gauge shall be a WHITE dial with black letters. The gauges will be located on the pump instrument panel.

24-11-3200
3" MONITOR DISCHARGE

One (1) 3" discharge shall be piped to the area over the pump enclosure with 3" NPT male threads provided. The pipe shall be equipped with Victaulic couplings (if necessary) and shall be properly secured to prevent movement when a monitor or deck gun is attached. The quarter turn ball valve shall be controlled on pump panel.

A color coded nameplate label shall be provided adjacent the valve control handle.

21-01-2500
An Innovative Controls ¾" cast bronze quarter-turn drain/bleeder valve shall be installed. The valve shall be complete with a chrome plated bronze ball, reinforced teflon seals, and blow-out proof stem rated to 600 PSI. A chrome plated zinc handle shall be provided on each drain valve complete with a recessed ID label provision. The handle shall lift, to open and push down, to close.

24-61-1300
The specified valve shall be an Akron 8000 Series three-inch (3") valve with a stainless ball.

24-53-0400
One (1) Akron valve equipped with a manually operated pull rod, with quarter-turn locking feature and a manual slow-close device shall be provided on the specified discharge. The handle shall be equipped with color-coded type name plate.

27-02-1530
One (1) 2-1/2" (65mm) diameter IC pressure gauge with (Dual Scale PSI/kPa) (0-400) shall be provided. The face of the gauge shall be a WHITE dial with black letters. The gauges will be located on the pump instrument panel.

24-13-4000
MONITOR

One (1) Akron #3430 GP Manual monitor and direct truck mount adapter shall be installed. The monitor shall be capable of 360-degree rotation and be capable of flowing 1000 GPM when installed on the direct truck mount.

The GP Manual monitor shall be equipped with a built in pressure gauge. The “T” handle manual control provides precise and easy positioning and control.

24-18-4210
MASTER STREAM NOZZLE

An Akron #5160 Akromatic nozzle shall be provided. The nozzle manually adjustable with to accommodate the fluctuating flows of 250 to 1250 GPM. The stream pattern can easily be adjusted for an infinite pattern selection from straight stream to a wide full fog. The construction of the nozzle shall be lightweight aluminum with a 2-1/2" NH swivel base.

24-18-4100
MASTER STREAM STACKED TIPS

An Akron 3488 Stream Shaper with model #2499 quad stacked handline tips shall be provided. The set shall consist of four (4) tips with the base tip having a 2-1/2" female NH swivel inlet and 2" outlet. The other tip sizes shall be 1-3/4", 1-1/2" and 1-3/8". Each tip shall be laser engraved with a flow/pressure chart, orifice size, and thread size.

26-02-2200
SIDE MOUNT PUMP ENCLOSURE

The side mount pump enclosure shall be removable and supported from the chassis frame rails. This enclosure will allow independent flexing of the pump enclosure from the body and allow for quick removal. The support structure shall be constructed of extruded aluminum tubing and angle.

All pump suction and discharge controls are to be mounted on the driver side pump operator's panel so as to permit operation of the pump from a central location. The fire pump, valves and controls shall be accessible for service and maintenance as required by applicable sections of NFPA standards.

The "master" gauges shall be suitably enclosed and mounted on a full pump compartment width "hinged" gauge panel constructed of the same material as the pump operators control panel, allowing access to the backside of all gauges and gauge lines. The individual gauges shall be mounted inline with the control handle or adjacent to the control handle. Panel is to include a stainless steel piano hinge, flush mounted chrome plated trigger latch, and stainless steel cable end stops. Electrical wiring and all gauge lines shall be properly tie wrapped to prevent kinking or cutting of the lines when the panel is opened.

The following controls and equipment as specified in the specifications, shall be provided on the pump panel or within the pump enclosure:

- Primer.
- Pump and plumbing area service lights.
- Pressure control device and throttle control.
- Fire pump and engine instruments.
- Pump intakes and discharge controls.
- Master intake and discharge gauges.
- Tank fill control.
- Tank suction control.
- Water tank level gauge.
- Pump panel lights.

Crosslay Installation

The area atop the pump enclosure shall be notched for the installation of a crosslay hose bed. The hosebed shall have smooth sides and a perforated floor to allow for drainage. Provisions shall be provided to secure hose and equipment per requirements of applicable NFPA standards.

26-30-1100
LEFT SIDE RUNNING BOARD -- SIDE MOUNT PANEL

The left side mount pump panel shall be equipped with side running board. The running board will extend along the width of the pump enclosure from the forward end of the body module to behind the chassis cab.

The running board shall be constructed of aluminum tread plate, bolted in place with stainless steel fasteners. The step surfaces shall be in compliance with applicable sections of NFPA requirements.

26-30-1150
RIGHT SIDE RUNNING BOARD -- SIDE MOUNT PANEL

The right side mount pump panel shall be equipped with side running board. The running board will extend along the width of the pump enclosure from the forward end of the body module to behind the chassis cab.

The running board shall be constructed of aluminum tread plate, bolted in place with stainless steel fasteners. The step surfaces shall be in compliance with applicable sections of NFPA requirements.

26-31-3200
PUMP ENCLOSURE ACCESS DOOR -- RIGHT SIDE UPPER

A pump panel access door shall be provided on the upper right side of the side mount pump enclosure. The access door shall be approximately 18" high and as wide as possible. The door shall be constructed of aluminum tread plate with push button type latches.

26-31-4100
FRONT ACCESS PUMP PANEL

A removable front access panel shall be installed on the front of the pump enclosure of the apparatus. The panel shall be constructed of aluminum tread plate and be fastened to the pump enclosure with stainless steel bolts and nut-serts. (no sheet metal screws)

26-35-3200
PUMP PANELS -- SIDE MOUNT

The pump operator's panel, along with the lower left hand and right hand pump panels shall be constructed of 14 gauge #304 brushed stainless steel and be fastened to the pump enclosure with 1/4" stainless steel bolts.

The instrument area shall have a stainless steel continuous hinge that shall swing for easy access to gauges.

26-35-1100

LEFT SIDE PUMP PANEL -- BOLTED

The pump panel installed on the left hand side of the pump enclosure shall be fastened to the pump enclosure with 1/4" stainless steel bolts.

26-35-1200
RIGHT SIDE PUMP PANEL -- BOLTED

The pump panel installed on the right hand side of the pump enclosure shall be fastened to the pump enclosure with 1/4" stainless steel bolts.

26-36-5100
PUMP PANEL STAINLESS STEEL TRIM PANELS

Stainless steel intake and discharge trim rings shall be installed to the apparatus with mounting bolts. These assemblies will be used to identify intake and discharge ports with color and verbiage, using separate identification tags protected by chrome plated bezels. These trim rings are designed and manufactured to withstand the environment and shall be backed by a warranty equal to that of the exterior paint and finish. All labels shall be backed with 3M permanent adhesive (200MP), which meets UL969 and NFPA standards.

26-50-1200
PUMP COMPARTMENT HEATER SYSTEM

The interior of the pump enclosure shall be equipped with a minimum of 30,000 BTU hot water heater system. The unit shall be piped to the chassis radiator system with standard heater hose. The hose shall be properly clamped and secured in place, and be properly protected from engine exhaust or mechanical damage.

The heater unit shall be equipped with a 12-volt blower fan with control located on the pump operator's panel.

26-50-3100
PUMP ENCLOSURE HEAT PAN

A removable casing constructed of galvanized steel, completely enclosing the underside of the pump compartment and heated by the engine exhaust shall be provided. The heat pan assembly shall include individual panels that can be easily removed from their mounting locations. The two outer slide-out panels shall be bolted in place.

26-50-4100
BODY AND PUMP HOUSE FLEX JOINT RUBBER GASKET

A flexible rubber gasket shall be installed between the pump compartment and the apparatus

body. This gasket will be designed to seal the pump compartment to the apparatus body as tightly as practical. This gasket is necessary for winter operation in extremely cold climates.

26-55-1100
LABELS

Safety, information, data, and instruction labels for apparatus shall be provided and installed at the operator's instrument panel.

The labels shall include rated capacities, pressure ratings, and engine speeds as determined by the certification tests. The no-load governed speed of the engine, as stated by the engine manufacturer, shall also be included.

The labels shall be provided with all information and be attached to the apparatus prior to delivery.

26-55-2400
COLOR CODED PUMP PANEL LABELING AND NAMEPLATES

Discharge and intake valve controls shall be color coded in compliance to guidelines of applicable sections of NFPA standards.

Innovative Controls permanent type nameplates and instruction panels shall be installed on the pump panel for safe operation of the pumping equipment and controls.

26-56-1125
MIDSHIP PUMP PANEL LIGHTS -- LEFT SIDE

Three (3) Techiq E10-W0001-1 or equal LED lights with clear lenses shall be installed under an instrument panel light hood on the left side pump panel. The lights shall be controlled by a switch located on the operator's instrument panel.

26-56-1225
MIDSHIP PUMP PANEL LIGHTS -- RIGHT SIDE

Two (2) Tecniq E10-W0001-1 or equal LED lights with clear lenses shall be installed under an instrument panel light hood on the right side pump panel. The lights shall be controlled by a switch located on the operator's instrument panel.

26-56-2000
PUMP ENGAGED LIGHT

One (1) pump panel light shall be illuminated at the time the fire pump is engaged into operation. The remaining lights shall be controlled by a switch located on the operator's instrument panel.

27-01-1530
MASTER DISCHARGE AND INTAKE GAUGES

Two (2) 4" (100mm) diameter IC discharge pressure and intake gauges (Dual Scale PSI/kPa, 30"-0-600 PSI & -100-0-4140 kPa) shall be provided. The gauges will be located on the pump instrument panel.

The master gauges shall have clear scratch resistant molded crystals with captive O-ring seals shall be used to ensure distortion free viewing and to seal the gauge. The gauges shall be filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation and ensure proper operation from –40°F to +160°F. Each gauge shall exceed ANSI B40.1 Grade A requirements with an accuracy of +/- 1.5% full scale and include a size appropriate phosphorous bronze bourdon tube with a reinforced lap joint and large tube base to increase the tube life and gauge accuracy. A polished chrome-plated brass bezel shall be provided to prevent corrosion and protect the lens and gauge case.

27-01-4100
TEST TAPS

Test taps for pump intake and pump pressure shall be provided on the pump instrument panel and be properly labeled.

27-35-2060
WATER TANK GAUGE

The apparatus shall be equipped with one (1) Class1 “Intelli-Tank” ITL-40-R water tank level gauge system. The tank level gauge shall indicate the liquid level on an easy to read red LED display and show increments of 1/8 of a tank.

Each tank level gauge system shall include:

- A pressure transducer mounted on the outside of the tank in an easily accessible area.
- A super bright LED display viewable from 180-degress with a visual indication at nine accurate levels.
- Weather resistant connectors to connect to the digital display, to the pressure transducer and to the apparatus power.

The primary water tank level gauge shall be installed at the pump panel.

25-26-1600
WATER TANK - 1250 GALLON

The apparatus shall be equipped with a one thousand two-hundred fifty (1250) gallon

polypropylene water tank. The tank shall be equipped with a four-inch (4") overflow pipe (a six-inch (6") overflow pipe shall be provided if required by dump valve installation).

25-25-0060
WATER TANK

The apparatus shall be equipped with a "T" shaped tank.

25-44-1300
WATER TANK FILL TOWER

A fill tower measuring approximately 10” x 10” square shall be provided on the water tank up to and including 1500 gallons total capacity.

25-42-1100
The apparatus shall be equipped with a polypropylene water tank. The tank body and end bulkheads shall be constructed of .75" thick, polypropylene, nitrogen-welded and tested inside and out. Tank construction shall conform to applicable NFPA standards. The tank shall carry a lifetime warranty.

The transverse and longitudinal .375" thick swash partitions shall be interlocked and welded to each other as well as to the walls of the tank. The partitions shall be designed and equipped with vent holes to permit air and liquid movement between compartments.

The .5" thick cover shall be recessed .375" from the top of the side walls. Hold down dowels shall extend through and be welded to both the covers and the transverse partitions, providing rigidity during fast fill operations. Drilled and tapped holes for lifting eyes shall be provided in the top area of the booster tank.

A combination vent/water fill tower shall be provided at front of the tank. The 0.5" thick polypropylene fill and overflow tower shall be equipped with a hinged lid and a removable polypropylene screen. The overflow tube shall be installed in fill tower and piped with a minimum schedule 40 PVC pipe through the tank.

The water tank sump shall be located in the forward area of the tank. There will be a schedule 40 polypropylene tank suction pipe from the front of the tank to the tank sump. The tank drain and clean out shall be located in the bottom of the tank sump. The sump shall have a minimum 3" threaded outlet on the bottom to be used for a combination clean out and drain.

The pump to tank refill connection shall be a sized to mate with tank fill discharge line. A deflector shield inside the tank will also be provided.

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 dimension of 1/4” x 1” and a hardness of approximately 60 durometer. The rubber must be installed so it will not become dislodged during normal operation of the vehicle. Additionally, the tank must be supported around the entire bottom outside perimeter and captured both in the front and rear as well as side to side to prevent tank from shifting during vehicle operation.

A picture frame type cradle mount with a minimum of 2" x 2" x 1/4” mild steel, stainless steel, or aluminum angle shall be provided or the use of corner angles having a minimum dimension of 4" x 4" x 1/4” by 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 vertical 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 1/4” and shall be approximately 6” to 12” long. These brackets must incorporate rubber isolating pads with a minimum thickness of 1/4” inch and a hardness of 60 durometer 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.

Hose beds floors must be so designed 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. Tank top must be capable of supporting loads up to 200 lbs per sq. foot when evenly distributed. 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.

25-42-1200

The tank construction shall include PolyProSeal™ technology wherein a sealant shall be installed between the plastic components prior to being fusion welded. This sealing method shall provide a liquid barrier, offering leak protection in the event of a weld compromise.

The tank shall be equipped with Polychromatic fill towers. The water fill tower shall be blue in color. The foam tank fill towers, if applicable, shall be yellow for foam A and green for foam B and black for any additional foam fill towers.

The water tank shall be certified for the capacity of the water tank prior to delivery of the apparatus. This capacity shall be recorded on the manufacturer's record of construction and the certification shall be provided to the purchaser when the apparatus is delivered.

The tank shall be manufactured by United Plastic Fabricating (UPF).

29-10-1000
HOSEBED SINGLE AXLE

The hose bed compartment deck shall be constructed entirely from maintenance-free, extruded aluminum slats. The slats shall have an anodized, radiused ribbed top surface. The slats shall be of widths approximately 3/4'' high x 6" wide and shall be welded into a one-piece grid system to prevent the accumulation of water and allow ventilation to assist in drying hose.

The apparatus hose body shall be properly reinforced without the use of angles or structural shapes and free from all projections that might injure the fire hose.

The main apparatus hose body shall run the full length of the apparatus body from behind the pump panel area to the rear face of the body.

The upper rear interior of the hose body on the right and left sides shall be overlaid with brushed stainless steel to protect the painted surface from damage by hose couplings.

29-10-5100
HOSE BED STORAGE CAPACITY

The hose bed shall be designed to have a storage capacity for a minimum of 55 cubic feet of fire department supplied fire hose.

29-10-8100
ALUMINUM HOSEBED DIVIDER

One (1) adjustable hosebed divider constructed of .250" aluminum shall be installed on the apparatus.

29-20-3500
ALUMINUM HOSEBED COVER

The hosebed shall be equipped with a reinforced hinged .125" aluminum diamond plate cover. The covers shall be of the sloped design for proper water runoff. Positive hold-open devices shall be provided to hold the door in the open position.

The cover, approximately 49” to 74” wide with a center opening, shall be installed the full length of the hose bed.

The hosebed cover shall be labeled, "Not a Standing or Walking Surface", per NFPA.

29-10-8160
MAIN HOSEBED DIVIDER

One (1) stationary hosebed divider shall be provided in the main hosebed.

The hosebed divider shall be fabricated of 1/4" smooth aluminum sheet stock, pressed into a "T" shaped aluminum extrusion for added strength along the bottom and front edges of the divider.

Divider shall be bolted in place, front and rear, to allow for ease of removal or relocation.

29-20-6650
MANUALLY OPERATED ALUMINUM HOSEBED COVER

The polished aluminum treadplate hosebed covers extending the full-length and width of the main hosebed shall have lift up handles installed on each hose cover to manually open the hosebed covers.

29-20-7326
HOSEBED LED LIGHTS

Four (4) 48" long OnScene Solutions Access LED light shall be installed and produce approximately 10050 lumens per light. The light stick shall be rated at 100,000 hours of service and shall be provided with a 5 year free replacement warranty. The light shall have a 5/8" LEXAN™ polycarbonate tube enclosure for severe duty applications. The light stick shall be waterproof and be connectible via a jumper wire to add additional lights in series if required.

The LED lights shall be recessed into the underside of the hinged aluminum hosebed covers to provide illumination for repacking of fire hose. The 12 volt LED lights shall be automatically controlled by a switch which activates upon opening of the door. The lights shall also be connected to the hazard light in the chassis cab to indicate when the hose bed covers are in the open position.

29-20-7800
REAR VINYL FLAPS FOR ALUMINUM COVER

There shall be a vinyl flaps attached to each aluminum hosebed cover. The vinyl flaps shall cover the area on the rear of the hosebed from top to bottom. The flaps shall be independent of each other but attachable with velcro in the center. The bottom edge of the flap shall be shall be secured utilizing a hook and loop fastening system.

29-20-5600

The vinyl cover shall be red in color.

30-01-1900
3/16" ALUMINUM BODY

The body shall be fabricated of aluminum extrusions, smooth aluminum sheet and aluminum treadplate.

The aluminum extrusion alloy shall be 6061 with a temper rating of T6, and have a tensile strength of 45,000 PSI and yield strength of 40,000 pounds. The aluminum extrusions shall 3" x 3" aluminum tubing, 1-3/4" x 3" aluminum tubing and 3" x 3" aluminum angle and specially designed extrusions, up to .250" wall thickness where applicable.

The smooth aluminum sheet material alloy shall be 5052 with a temper rating of H32, and have a tensile strength of 33,000 PSI and yield strength of 28,000 pounds.

The aluminum treadplate alloy shall be 3003 with a temper rating of H22, and have a tensile strength of 30,000 PSI and yield strength of 28,000 pounds.

The extrusions shall be designed as structural-framing members with the smooth aluminum and treadplate fabricated to form compartments, hosebeds, and floors. All aluminum material shall be welded together using the latest mig spray pulse arc welding system.

Compartment floors shall be of the sweep out design with the floor higher than the compartment door lip and to be water and dust proof. All compartments shall be made to the maximum practical dimensions to provide maximum storage capacity. To ensure maximum storage space, the apparatus shall be constructed without any void spaces between the body and the compartment walls. Double wall construction does not meet this requirement.

All exterior compartments shall have polished aluminum drip moldings installed above the doors where necessary to prevent water from entering the compartments.

Wheel well panels shall be formed aluminum that is welded in place. There shall be no visible bolt heads, retention nuts or fasteners on the exterior surface of the panel. To fully protect the wheel well area from road debris and to aid in cleaning, a full depth radius wheel well liner shall be provided. The frame side of the wheel well area on each side of the opening shall be attached to the frame side of the front and rear compartments. All seams on the frame side of the body shall be welded and caulked to prevent moisture from entering the compartments.

The rear wheel wells shall be radius cut for a streamlined appearance. A fenderette shall be furnished at each rear wheel well opening, held in place with stainless steel fasteners.

FASTENERS

All aluminum and stainless steel components shall be attached using stainless steel fasteners.

Compartment door hinges, handrails and running boards shall be attached using minimum 1/4" diameter machine bolt fasteners.

3/16" diameter fasteners shall only be used in nonstructural areas such as; door handles, trim moldings, gauge mounting, etc.

30-02-2200
COMPARTMENT FLOORS

The compartment floors shall be constructed of smooth aluminum material, to match the compartment interior walls.

30-10-1100
GALVANIZED SUB-FRAME

The apparatus body subframe shall be constructed entirely of heavy steel structural channel material.

Two full frame lengths, three-inch (3") 3.4 pound per foot longitudinal steel channels shall form the sides of the body subframe and sides of the water tank cradle. Subframe crossmembers shall be fabricated with three inch (3") 3.4 pound per foot heavy steel channel cross members welded to the longitudinal body subframe sides and the full length frame pads.

Two full frame length 1/2" x 3" flat steel frame pads shall be attached to the body subframe and rest on top of the chassis frame rails for proper frame weight distribution.

The steel frame pads, longitudinal steel channels and subframe crossmembers shall be attached to the chassis frame rails using heavy "U" bolt fasteners to allow removal of the subframe and body assembly from the chassis. There shall be a barrier provided between the subframe and body to prevent electrolysis.

The rear subframe and lower body platform support members shall be of the "two piece" design, fabricated of 3.4 lb. Per foot heavy channel and welded to the full length subframe channel liners at the rear.

A minimum of two rear platform support channels shall be provided and constructed of 3.4 lb. Per foot heavy steel material. Each support channel shall have welded in gusset where the support meets the rear subframe rails.

After fabrication the entire subframe assembly shall be hot dip galvanized to prevent corrosion. The hot dip galvanized subframe shall have a lifetime warranty against failure due to corrosion.

This steel subframe shall carry the weight of the apparatus body, tank, water and equipment. This method of apparatus construction gives an excellent strength/weight ratio.

31-01-1200
BODY CONFIGURATION

The formed apparatus body shall be up to 160" long, reference the drawing for actual body length.

44-06-2200
SINGLE AXLE WHEEL AREA

For ease of accessibility and maintenance, wheel well panels shall be double break formed painted smooth plate that is welded in place.

To fully protect the wheel well area from road debris and to aid in cleaning, a full depth (minimum of 25") radius wheel well liner shall be provided. Wheel well liner shall be smooth aluminum to prevent corrosion.

44-06-4100
FENDERETTES

The rear wheel wells shall be radius cut for a streamlined appearance. A polished aluminum fenderette shall be furnished at each rear wheel well opening, held in place with concealed stainless steel fasteners.

31-01-2130
BODY WIDTH

The overall width of the pumper body shall not exceed 96".

COMPARTMENT DEPTH

The side compartments on the pumper body shall have the following dimensions:

Lower portion depth of 23"
Upper portion depth of 13"

29-00-1200
HOSEBED WIDTH

The width of the pumper body hosebed shall be 68".

32-03-0063

COMPARTMENT HEIGHT

The left side body compartments shall be 63" high.

32-03-1063
COMPARTMENT HEIGHT

The right side body compartments shall be 63" high.

30-02-1150
ROLL UP DOOR CONSTRUCTION

The roll up door(s) shall be fabricated from aluminum extrusions and be manufactured and assembled in the United States.

The door slats shall be double-wall extrusions with dimensions of 1.366" high x .315" thick. The exterior surface shall be flat and the interior surface concave to deflect loose equipment to prevent the door from jamming. Each slat shall have interlocking end shoes to prevent the slat from moving side to side resulting in binding of the door. Each slat shall be separated by a co-extruded PVC and rubber inner seal to prevent metal to metal contact and minimize dirt and moisture from entering the compartment. The inner seal shall not be visible from the exterior to maintain a clean appearance of door. The slats shall have interlocking joints with a folding locking flange to provide security and prevent penetration by sharp objects.

The track shall be a one (1) piece aluminum assembly that has an attaching flange and finishing flange incorporated into the design that facilitates installation and provides a finished look to the door without additional trim or caulking. A low profile side seal shall be utilized to maximize usable compartment space.

A drip rail designed to prevent water from dripping into the compartment shall be provided. The drip rail shall have a built in replaceable non-contacting seal to eliminate scratching of the surface of the door.

Bottom rail extrusion must have smooth back to prevent loose equipment from jamming the door and have “V” shaped double seal to prevent water and debris from entering the compartment. The door latch system shall be a full width one (1) piece lift bar that enables the user to operate with one hand.

The roll mechanism shall have a clip system that connects the curtain slats to the operator drum to allow for easy tension adjustment without tools. A four (4) inch diameter counterbalanced operator drum to shall be incorporated to assist in lifting the door.

32-05-1120
LEFT FRONT COMPARTMENT

There shall be one (1) full height compartment located ahead of the rear wheels. The compartment shall be equipped with a full height single natural finish roll up door.

The compartment shall be equipped with the following:

44-40-1100
One (1) louver with filter shall be installed in the compartment.

45-01-1050
ADJUSTABLE SHELVING TRACKS

The compartments shall be equipped with two (2) aluminum adjustable tracks, vertically mounted, that are bolted in place for adjustable shelving and equipment mounting.

55-01-1150
COMPARTMENT LIGHT

One (1) ROM vertically mounted roll-up compartment LED V3 door light shall be installed on one side of the door opening. The compartment light shall be integrated into the roll-up door track with the light actuation with the door opening.

The light shall have a polycarbonate lens to eliminate breakage from impact and eliminate heat buildup.

55-06-1400
The compartment light will be controlled by a magnetic "On-Off" switch located on each compartment door.

32-05-1355
LEFT OVERWHEEL COMPARTMENT

There shall be one (1) compartment above the rear wheels. The compartment shall be equipped with a single natural finish roll up door.

The compartment shall be equipped with the following:

44-40-1100
One (1) louver with filter shall be installed in the compartment.

45-01-1050
ADJUSTABLE SHELVING TRACKS

The compartments shall be equipped with two (2) aluminum adjustable tracks, vertically mounted, that are bolted in place for adjustable shelving and equipment mounting.

55-01-1150
COMPARTMENT LIGHT

One (1) ROM vertically mounted roll-up compartment LED V3 door light shall be installed on one side of the door opening. The compartment light shall be integrated into the roll-up door track with the light actuation with the door opening.

The light shall have a polycarbonate lens to eliminate breakage from impact and eliminate heat buildup.

55-06-1400
The compartment light will be controlled by a magnetic "On-Off" switch located on each compartment door.

32-05-1720
LEFT REAR COMPARTMENT

There shall be one (1) full height compartment located behind the rear wheels. The compartment shall be equipped with a full height single natural finish roll up door.

The compartment shall be equipped with the following:

44-40-1100
One (1) louver with filter shall be installed in the compartment.

45-01-1050
ADJUSTABLE SHELVING TRACKS

The compartments shall be equipped with two (2) aluminum adjustable tracks, vertically mounted, that are bolted in place for adjustable shelving and equipment mounting.

55-01-1150
COMPARTMENT LIGHT

One (1) ROM vertically mounted roll-up compartment LED V3 door light shall be installed on one side of the door opening. The compartment light shall be integrated into the roll-up door track with the light actuation with the door opening.

The light shall have a polycarbonate lens to eliminate breakage from impact and eliminate heat buildup.

55-06-1400
The compartment light will be controlled by a magnetic "On-Off" switch located on each compartment door.

32-06-1120
RIGHT FRONT COMPARTMENT

There shall be one (1) full height compartment located ahead of the rear wheels. The compartment shall be equipped with a full height single natural finish roll up door.

The compartment shall be equipped with the following:

44-40-1100
One (1) louver with filter shall be installed in the compartment.

45-01-1050
ADJUSTABLE SHELVING TRACKS

The compartments shall be equipped with two (2) aluminum adjustable tracks, vertically mounted, that are bolted in place for adjustable shelving and equipment mounting.

55-01-1150
COMPARTMENT LIGHT

One (1) ROM vertically mounted roll-up compartment LED V3 door light shall be installed on one side of the door opening. The compartment light shall be integrated into the roll-up door track with the light actuation with the door opening.

The light shall have a polycarbonate lens to eliminate breakage from impact and eliminate heat buildup.

55-06-1400
The compartment light will be controlled by a magnetic "On-Off" switch located on each compartment door.

32-06-1455
RIGHT HIGH SIDE COMPARTMENTS

There shall be one (1) compartment above the rear wheels. The compartment shall be equipped with a single natural finish roll up door.

The compartment shall be equipped with the following:

44-40-1100

One (1) louver with filter shall be installed in the compartment.

45-01-1050
ADJUSTABLE SHELVING TRACKS

The compartments shall be equipped with two (2) aluminum adjustable tracks, vertically mounted, that are bolted in place for adjustable shelving and equipment mounting.

55-01-1150
COMPARTMENT LIGHT

One (1) ROM vertically mounted roll-up compartment LED V3 door light shall be installed on one side of the door opening. The compartment light shall be integrated into the roll-up door track with the light actuation with the door opening.

The light shall have a polycarbonate lens to eliminate breakage from impact and eliminate heat buildup.

55-06-1400
The compartment light will be controlled by a magnetic "On-Off" switch located on each compartment door.

32-06-1720
RIGHT REAR COMPARTMENT

There shall be one (1) full height compartment located behind the rear wheels. The compartment shall be equipped with a full height single natural finish roll up door.

The compartment shall be equipped with the following:

44-40-1100
One (1) louver with filter shall be installed in the compartment.

45-01-1050
ADJUSTABLE SHELVING TRACKS

The compartments shall be equipped with two (2) aluminum adjustable tracks, vertically mounted, that are bolted in place for adjustable shelving and equipment mounting.

55-01-1150
COMPARTMENT LIGHT

One (1) ROM vertically mounted roll-up compartment LED V3 door light shall be installed on one side of the door opening. The compartment light shall be integrated into the roll-up door track with the light actuation with the door opening.

The light shall have a polycarbonate lens to eliminate breakage from impact and eliminate heat buildup.

55-06-1400
The compartment light will be controlled by a magnetic "On-Off" switch located on each compartment door.

33-60-1100
REAR BODY CONFIGURATION

The rear of the apparatus body shall be of the flat back design.

32-08-0200
REAR CENTER COMPARTMENT

There shall be one (1) full height compartment located at the rear of the apparatus. The compartment shall be equipped with a full height natural finish roll up door. The compartment shall be partitioned off from the side compartments.

The compartment shall be equipped with the following:

44-40-1100
One (1) louver with filter shall be installed in the compartment.

45-01-1050
ADJUSTABLE SHELVING TRACKS

The compartments shall be equipped with two (2) aluminum adjustable tracks, vertically mounted, that are bolted in place for adjustable shelving and equipment mounting.

55-01-1250
COMPARTMENT LIGHTS

Two (2) ROM vertically mounted roll-up compartment LED V3 door lights shall be installed one each side of the door opening. The compartment lights shall be integrated into the roll-up door tracks with the light actuation with the door opening.

The lights shall have a polycarbonate lens to eliminate breakage from impact and eliminate heat buildup.

55-06-1100
The compartment light will be controlled by an automatic "On-Off" switch located on each compartment door.

33-61-1300
REAR STEP - 12” BOLT-ON

A 12" deep step surface shall be provided at the rear of the apparatus body, bolted in place and easily removable for replacement or repair. The tailboard shall be constructed of .188" aluminum diamond plate or equal non-slip surface in compliance with NFPA #1901 standards.

A label shall be provided warning personnel that riding on the rear step while the apparatus is in motion is prohibited.

90-02-3500
SLIDE OUT VERTICAL LADDER MOUNTINGS

The ladder shall slide into the passenger rear of the apparatus, through the passenger side of the body. The vertically mounted slide in assembly shall be an integral part of the body and accessible through a hinged door.

90-02-2920
The hinged door shall be constructed of smooth material, with chevron striping applied to match the rear of the apparatus body.

90-02-5300
EXTERIOR FOLDING ATTIC LADDER MOUNTING

An exterior mounting shall be provided for the specified folding attic ladder.

90-03-0225
LADDER SOURCE

New ground ladders shall be provided by the body builder.

90-16-5400
PIKE POLE MOUNTING BRACKET

Two (2) tube shall be provided for pike pole mounting. The tube shall have a 2" interior diameter and shall be mounted in the ladder tunnel.

90-16-6115
PIKE POLE SOURCE

The pike poles shall be provided by the body builder.

90-25-7750
HARD SUCTION MOUNTING

One (1) hard suction hose compartment shall be provided above the body compartments, on the driver side. The design shall allow the hose to be individually removed from the rear of the apparatus. The hard suction compartment shall be constructed of smooth material painted to match the body and shall be equipped with a hinged door with push to latch door catches.

90-02-2920
The hinged door shall be constructed of smooth material, with chevron striping applied to match the rear of the apparatus body.

90-25-7850
HARD SUCTION MOUNTING

One (1) hard suction hose compartment shall be provided above the body compartments, on the passenger side. The design shall allow the hose to be individually removed from the rear of the apparatus. The hard suction compartment shall be constructed of smooth material painted to match the body. The hard suction hose compartment shall have a hinged door with push to latch door catches.

90-02-2920
The hinged door shall be constructed of smooth material, with chevron striping applied to match the rear of the apparatus body.

90-25-9115
SUCTION HOSE SOURCE

New suction hose shall be provided by the body builder.

44-01-1450
FRONT BODY PROTECTION PANELS

Aluminum tread plate overlays and panels shall be installed on the front of the body compartment from the lower edge to the top of the compartment doors.

44-01-6020
CATWALKS

Painted catwalks shall be installed on the top of the compartments.

44-01-4000

REAR BODY PROTECTION PANELS

The rear body panels of the body shall be a smooth material, to allow for the proper application and installation of a "Chevron" stripe on the rear.

33-62-4160
FOLDING STEPS LEFT SIDE REAR

Four (4) folding steps of die cast high-strength zinc/aluminum alloy, plated with a superior automotive grade chrome finish shall be provided. The greater than 42 sq. in. serrated non-skid step traction area also offers an oversized non-slip grasp hand-hold. A heavy duty stainless steel spring design firmly holds the step in the open or closed positions. A rubber stop prevents any transit noise and rattles in the closed position. Step lighting shall be from a LED light mounted above the step.

The step has been third part tested to assure conformation of NFPA 1901 and FHA, 49CFR specifications for stepping surfaces and handhold.

The steps shall be installed on the rear left side of the body.

33-62-4200
FOLDING STEP RIGHT SIDE REAR

A folding step of die cast high-strength zinc/aluminum alloy, plated with a superior automotive grade chrome finish shall be provided. The greater than 42 sq. in. serrated non-skid step traction area also offers an oversized non-slip grasp hand-hold. A heavy duty stainless steel spring design firmly holds the step in the open or closed positions. A rubber stop prevents any transit noise and rattles in the closed position. Step lighting shall be from a LED light mounted above the step.

The step has been third part tested to assure conformation of NFPA 1901 and FHA, 49CFR specifications for stepping surfaces and handhold.

The step shall be installed on the rear right side of the body.

33-62-5300
REAR INTERMEDIATE STEP

An intermediate fixed step shall be provided at the rear of the apparatus body, bolted in place and easily removable for replacement or repair. The intermediate step shall be constructed of .188” polished aluminum diamond plate or equal non-slip surface in compliance with NFPA #1901 standards and be approximately 8” deep x 48” wide.

33-70-1400
HANDRAIL REAR STEP

Two (2) extruded aluminum non-slip handrails, approximately 60” in length, shall be provided and vertically mounted on the rear of the apparatus, one (1) on each side of the body.

33-70-2100
HANDRAIL BELOW HOSEBED

One (1) extruded aluminum non-slip handrail, approximately 48” in length, shall be provided and horizontally mounted below the hosebed on the rear of the apparatus.

33-70-4100
HANDRAIL SIDE PUMP PANEL

Two (2) extruded aluminum non-slip handrails, approximately 12" in length, shall be provided and vertically mounted, one (1) each side on the side pump panel.

44-02-1100
EXTRUDED ALUMINUM RUB RAILS

Full body length polished aluminum rub rails shall be bolted in place on the lower right and left body sides. The side rub rails shall be a heavy extruded aluminum "C" channel.

44-02-2000
NYLON SPACERS FOR RUB RAILS

There shall be nylon spacers provided between the rub rail and the body. This shall allow wash out and replacement in the event of damage.

44-11-5100
WHEEL WELL PROVISION LOCATION

The wheel well provisions shall be located on the left side of the apparatus, ahead of the rear wheels.

44-10-7010
One (1) wheel chock storage compartment for two (2) wheel chocks (not supplied) shall be provided and located in the rear wheel well of the apparatus body.

The storage compartment shall be constructed entirely of aluminum. The door assemblies shall be provided with a gasket between door and body side, bolted in-place and removable for repair or replacement. A painted door shall be provided.

44-11-5300
WHEEL WELL PROVISION LOCATION

The wheel well provisions shall be located on the left side of the apparatus, behind of the rear wheels.

44-10-4200
Two (2) fire extinguisher storage compartment shall be provided in the rear wheel well area. The compartment shall be designed with ample room for the specified extinguisher. A painted aluminum door shall be installed.

44-10-6000
Two (2) one-inch (1") wide loop of black webbing shall be installed in each SCBA compartment to prevent the bottle from sliding out of the compartment in case of door failure. The loop shall be mounted, centered in the compartment and shall hang within one-inch (1") of the compartment floor to allow the bottle to pass by the strap when the bottle is placed in the compartment. The strap shall loop over the valve.

44-11-5500
WHEEL WELL PROVISION LOCATION

The wheel well provisions shall be located on the right side of the apparatus, ahead of the rear wheels.

44-10-3060
One (1) breathing air cylinder storage compartment for four (4) SCBA cylinders (not supplied) shall be provided and located in the rear wheel well of the apparatus body.

The cylinder storage compartment shall be constructed entirely of aluminum. The door assemblies shall be provided with a gasket between door and body side, bolted in-place and removable for repair or replacement.

Compartment shall be provided with SCBA cylinder scuff protection. A painted aluminum door shall be installed.

44-10-6000
Four (4) one-inch (1") wide loop of black webbing shall be installed in each SCBA compartment to prevent the bottle from sliding out of the compartment in case of door failure. The loop shall be mounted, centered in the compartment and shall hang within one-inch (1") of the compartment floor to allow the bottle to pass by the strap when the bottle is placed in the compartment. The strap shall loop over the valve.

44-11-5700
WHEEL WELL PROVISION LOCATION

The wheel well provisions shall be located on the right side of the apparatus, behind of the rear

wheels.

44-10-3060
One (1) breathing air cylinder storage compartment for four (4) SCBA cylinders (not supplied) shall be provided and located in the rear wheel well of the apparatus body.

The cylinder storage compartment shall be constructed entirely of aluminum. The door assemblies shall be provided with a gasket between door and body side, bolted in-place and removable for repair or replacement.

Compartment shall be provided with SCBA cylinder scuff protection. A painted aluminum door shall be installed.

44-10-6000
Four (4) one-inch (1") wide loop of black webbing shall be installed in each SCBA compartment to prevent the bottle from sliding out of the compartment in case of door failure. The loop shall be mounted, centered in the compartment and shall hang within one-inch (1") of the compartment floor to allow the bottle to pass by the strap when the bottle is placed in the compartment. The strap shall loop over the valve.

80-22-1504
BODY PAINT PROCESS

Facility Certification

The paint facility shall be in current compliance with 40 CFR (code of federal regulations) part 63 subpart HHHHHH national emission standards for hazardous air pollutants: Paint stripping and miscellaneous surface coating operations at area sources (6H-NESHAP). Spray guns shall also be compliant certified by paint gun manufacturer.

Cab / Module Prep

Prior to assembly, all joints and seams are to be mechanically etched. All welds shall be ground smooth prior to priming. The bare substrate of the module is first cleaned with a strong surface cleaner to remove fabrication and pneumatic tool oils. *The reason? Cleaning the surface prior to sanding prevents oils and contaminants from being imbedded into the substrate.* After sanding process, a mild surface cleaner removes any sanding dust residue along with pneumatic tool oil. A waterborne surface cleaner is available in case substrate was touched with bare hands or skin.

The following steps must be followed in sequence to properly apply paint to the Fire truck cab, chassis or module.

SURFACE PREP

- Clean entire modular body with Sikkens OTO using the two-cloth method, wipe on wet,

wipe dry. *Reason: Wiping our surface cleaners on wet, contaminants loosen and float to the top. Those floating contaminants then get wiped off with an absorbent towel.*

- Using an orbital sander, (where polyester filler will be applied) 80-grit is used to provide a mechanical tooth for optimal adhesion. 180-grit is then used surrounding the 80-grit area. Sikkens M600 surface cleaner is then used to remove sanding dust and pneumatic tool oil. If bare hands or skin accidentally touched the surface, Sikkens Autoprep waterborne cleaner is used to remove natural oils. *Again: All surface cleaners are applied wet with one towel and wiped dry with another.*
- Rosenbauer approved polyester body filler is then applied over the 80-grit ground areas to cover the imperfections from welds. When body filler dries, it's first sanded with 80-grit then finish sanded with 180-grit to remove all 80-grit sand scratches. Blow off surface dust using approved air wand.
- After body work has been completed, the rest of the aluminum substrate on module gets sanded with 80-grit sandpaper until the surface is bright and sand scratches are consistent. Module gets blown off again to remove all sanding dust.
- Step 1 is essential in achieving proper adhesion.

EPOXY PRIMER and HIGH BUILD primer surfacer APPLICATION PROCESS:

- First, if sanded aluminum substrate has not been primed within 8 hours, aluminum substrate gets re-abraded to remove oxidation that may have begun on aluminum surface. Aluminum substrate gets cleaned with Sikkens M600 surface cleaner using the 2-towel method. Surface cleaners do not get applied over body filler due to polyester filler being absorbent.
- One (1) coat of AkzoNobel LV262 Epoxy primer is applied. This epoxy primer slows down corrosion from happening if in case the unit (once out in the field) has stone chips or scratches down to aluminum. This product is a 2-component epoxy primer meaning it mixes with a hardener. Paint technicians are trained to properly apply this product to achieve a minimum of 1 mil DFT (Dry film thickness) required by AkzoNobel. A blank module schematic showing specific areas to measure dry film thickness is completed on each module /unit.
- Allow LV262 25 minutes minimum dry time prior to applying AkzoNobel LV650 primer surfacer. Apply two to three wet coats of AkzoNobel LV650 two component low VOC high build primer surfacer. A dry film thickness of up to 8 mils can be achieved prior to sanding. Minimum flash between coats is 30 seconds to 5 minutes. LV650 surfacer dries 3 different ways. 8 hour dry without accelerator, bake for 1 hour at 140-degrees or accelerate which allows technicians to sand in 45 minutes @70-degrees.

SANDING:

- Block sand entire module with 320-grit sandpaper minimizing any accidental cut throughs on edges. Blow off body with air gun and move module into paint booth.

PRE TOPCOAT PREPARATION

- Clean areas where Rosenbauer approved seam sealer is applied with Sikkens M600 surface cleaner. If by accident, bare hands or skin touched surface on cab or module, Autoprep waterborne cleaner is used on these areas prior to using M600 cleaner. Both cleaners are used

with the 2-towel method.

- Seam seal with Rosenbauer approved non-shrinking moisture cured urethane seam sealer. Technicians follow seam sealer technical data sheets pertaining to application and dry times prior to applying AkzoNobel BT650 basecoat or 650 Topcoat single stage paint.
- Clean module with M600 surface cleaner. If by accident, bare hands or skin touched surface on module, Autoprep waterborne cleaner is used on these areas prior to using M600 cleaner. Both cleaners are used with the 2-towel method.
- If there are any visible cut throughs, paint techs first use a pre-treatment Alodine wipe followed by one coat of reduced LV262 epoxy primer over these areas and give a 20-minute flash prior to applying BT650 basecoat or Topcoat.
- Tack rag unit to remove any lint or dust that could have landed on surface.

TOPCOAT PROCEDURE

- Mix BT650 basecoat or Topcoat (single stage) polyurethane paint.
- Fluid and spray pattern checks are done prior to applying BT650 base, Topcoat and Clear coat.
- Apply BT650 basecoat until complete coverage is achieved. If Topcoat is applied, a minimum of 1.8 mils is recommended after cut and buff procedure. Note: Topcoat doesn't get clear coated.
- Allow solid color BT650 basecoat to flash 20 minutes prior to applying 3 coats Sikkens LV651 Glamour Clear coat.
- If a metallic color, allow BT650 basecoat to flash 45 minutes prior to applying 3 coats LV651
- Glamour Clear coat. Bake body for 45 minutes once surface temp has reached 140-degrees.
- The mil thicknesses are as follows:
- Autocoat BT LV262 Epoxy Primer1.0 to 1.5 mils
- Autocoat BT LV650 2K Primer Surfacer1.0 to 3.0 mils
- Autocoat BT LV650 Basecoat color1.0 to 1.8 mils
- Autocoat LV651 Clearcoat2.0 to 3.0 mils
- Combined total:5.0 to 9.3 mils

80-06-1100
APPARATUS COLOR

SHOP NOTE
The apparatus shall be ____ in color.

80-30-1200
INTERIOR COMPARTMENT FINISH

Eight (8) apparatus side compartment interiors are to be painted with a spatter finish material. The compartments shall be cleaned with a grease remover, and then the surface sanded and

prepared for painting. The compartment shall be provided with two (2) coats of white epoxy. The compartments are then coated with a splatter paint top coat.

80-42-1500
TOUCH-UP PAINT

One (1) two (2) ounce bottle of touch-up paint shall be furnished with the completed truck at final delivery.

80-50-1600
SCOTCHCAL GOLD LETTERING

The lettering shall be applied in Scotchcal gold material, shaded in black and encapsulated in clear Mylar.

A quantity of seventy-five (75), four (4) inch letters are to be placed on the cab and on the body as directed by the customer.

80-65-1100
APPARATUS DOOR GRAPHICS

Two (2) custom door seals designed primarily with letters and numbers shall be proposed for installation on the apparatus.

80-70-1300
CAB AND BODY STRIPE

A straight Scotchlite reflective stripe, 4'' in width, shall be applied horizontally around the cab and body in compliance with applicable NFPA 1901 standards. The purchaser shall specify the color and location of the stripe.

80-75-1600
COLOR OF STRIPING MATERIAL

The color of the 3M brand striping material shall be white.

80-72-1100
CHEVRON STRIPING

The entire rear portion of the body shall have 3M reflective red and yellow striping installed. The chevron style striping shall be applied at a 45-degree upward angle pointing towards the center upper portion of the rear panel.

80-79-1000

YELLOW SAFETY TAPE - STANDING & WALKING SURFACES

The apparatus shall meet NFPA standard 15.7.1.6 designating any horizontal standing or walking surface higher than 48-in (1220 mm) from the ground and not guarded by railing or structure at least 12-in (300 mm) high shall have at least a 1-in (25 mm) wide safety yellow line delineation that contrasts with the background to mark the outside perimeter of the designated standing or walking surface area, excluding steps and ladders.

90-01-5400
WHEEL CHOCKS

Two (2) large aluminum wheel chocks shall be provided.

90-03-3300
ROOF LADDER

One (1) Duo Safety Model 775-A, 14 foot aluminum roof ladder with folding steel roof hooks on one end and steel spikes on the other end shall be provided on the apparatus. The ladder shall meet or exceed all latest NFPA Standards.

90-07-4300
EXTENSION LADDER

One (1) Duo-Safety Model 1225-A, 35 foot three (3) section aluminum extension ladder shall be provided on the apparatus. The ladder shall meet or exceed all the latest NFPA standards.

90-08-2600
FOLDING LADDER

One (1) Duo Safety Model 585-A, 10 foot folding aluminum ladder shall be provided on the apparatus. The ladder shall meet or exceed all the latest NFPA Standards.

90-16-2500
PIKE POLE

One (1) 6' pike pole with I-Beam handle shall be provided. The pike pole shall be of fiberglass construction.

90-16-2700
PIKE POLE

One (1) 8' pike pole with I-Beam handle shall be provided. The pike pole shall be of fiberglass construction.

90-25-3100
SUCTION HOSE

Two (2) 6.0" x 10 foot length of PVC flexible suction hose shall be supplied. The suction hose shall have light weight couplings provided.

90-25-6100
HOSE COUPLINGS

Light weight aluminum couplings shall be provided on the suction hose. A long handle female swivel shall be provided on one end and a rocker lug male shall be provided for the other end.

90-35-1200
FIRE EXTINGUISHER

One (1) 20# ABC dry chemical fire extinguisher shall be provided with mounting. The extinguisher shall have a pressure gauge and filled with a dry chemical extinguishing agent.

90-35-1500
WATER EXTINGUISHER

One (1) 2-1/2 gallon pressure water extinguisher with mountings shall be provided.

Heather Boston

From: Derek MacDonald <derek.macdonald@comtruck.ca>
Sent: February 2, 2023 2:42 PM
To: Mathew Waterfield
Subject: RE: [EXTERNAL]RE: 4 door pumper
Attachments: INC3217-MAXIMETAL-Paragon-Pumper-1000-10.jpg; INC3217-MAXIMETAL-Paragon-Pumper-1000-2.jpg; INC3217-MAXIMETAL-Paragon-Pumper-1000-3.jpg; INC3217-MAXIMETAL-Paragon-Pumper-1000-4.jpg; INC3217-MAXIMETAL-Paragon-Pumper-1000-9.jpg; Proposal spec INC3217 R1.pdf

Hello Mathew, I dug up a little more info on this truck. Thought you might like the spec. and a little more information that we can discuss tomorrow. Attached you will find the spec that matches the previously sent drawing and pictures. Also a few more pictures attached.

Forecasting Commercial chassis pricing has presented us with some challenges. Freightliner has not released pricing for the 2024 model year trucks at this point, so we are playing a little bit of a guessing game. I can tell you that this apparatus is set to be completed in the Spring of 2024 but I will not be able to finalize the chassis price until 120 days prior to completion. Basically, when the truck lands at MaxiMetal…

At this point we can provide a Canoe proposal price of $667, 860.00 CDN + tax (Includes pre-construction meeting, Final inspection, PDI, Delivery and training) However, we will need to include a disclaimer in the event the chassis price changes. I feel this to be better business practice than a blanket price inflation or padding to cover ourselves. I understand that your finance department and Council may not be overly comfortable with this, but it is our only option to secure an apparatus that will deliver in the next 16 months.

I look forward to chatting with you.

Respectfully,

Derek MacDonald
Apparatus Specialist
Commercial Emergency Equipment Co.
1005 Patullo Ave. Woodstock, ON N4V 1C8
O: 519.421.4488 | C: 519.788.4377
E: derek.macdonald@comtruck.ca
W: www.comtruck.ca

PROVIDING EXPERT TRUCK EQUIPMENT SOLUTIONS ACROSS CANADA

From: Mathew Waterfield <mwaterfield@mulmur.ca>
Sent: January 31, 2023 5:27 PM
To: Derek MacDonald <derek.macdonald@comtruck.ca>
Subject: RE: [EXTERNAL]RE: 4 door pumper

Ok, I am unavailable to speak with you about this project until at least Friday. Is there a good time to call you Friday?

Thank you

Mathew Waterfield
Fire Chief
Mulmur-Melancthon Fire Department

From: Derek MacDonald
Sent: January 31, 2023 5:05 PM
To: Mathew Waterfield
Subject: RE: [EXTERNAL]RE: 4 door pumper

If I can give you only a ballpark at this point, it would fall in the $665k - $685k range.

And so, you are aware, MaxiMetal is on the Sourcewell/Canoe contract as well. Not just Pierce.

Regards,

Derek MacDonald
Apparatus Specialist
Commercial Emergency Equipment Co.
1005 Patullo Ave. Woodstock, ON N4V 1C8
O: 519.421.4488 | C: 519.788.4377
E: derek.macdonald@comtruck.ca
W: www.comtruck.ca

COMMERCIAL TRUCK EQUIPMENT CO.
PROVIDING EXPERT TRUCK EQUIPMENT SOLUTIONS ACROSS CANADA

From: Mathew Waterfield <mwaterfield@mulmur.ca>
Sent: January 31, 2023 5:01 PM
To: Derek MacDonald <derek.macdonald@comtruck.ca>
Subject: [EXTERNAL]RE: 4 door pumper

Derek, thank you for the reply. I like the looks of that truck, what would the approximate cost for this truck?

Thank you

Mathew Waterfield
Fire Chief
Mulmur-Melancthon Fire Department

From: Derek MacDonald
Sent: January 31, 2023 4:36 PM
To: Mathew Waterfield
Subject: 4 door pumper

Hi Chief, thank you for your inquiry. My name is Derek, and I am your area sales rep for Commercial. I thought I would attach some info that matches the wish list that you sent in your email to Carey. Call this a starting point.

As you likely know, the commercial chassis world is challenging these days but Pierce and MaxiMetal are doing their best to work with the long lead times on chassis. This truck is one that they will be copying for a stock truck, set to be complete in Spring of 2024. At this point we have some wiggle room in terms of design tweaks.

https://www.maximetal.com/truck/rideau-lakes-paragon-pumper/

Let's have a chat when you have time, I'd like to gather some additional info and learn a little more about your needs. Please call me whenever it suits you.

Respectfully,

Derek MacDonald
Apparatus Specialist
Commercial Emergency Equipment Co.
1005 Patullo Ave. Woodstock, ON N4V 1C8
O: 519.421.4488 | C: 519.788.4377
E: derek.macdonald@comtruck.ca
W: www.comtruck.ca

COMMERCIAL TRUCK EQUIPMENT CO.
PROVIDING EXPERT TRUCK EQUIPMENT SOLUTIONS ACROSS CANADA

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FIRE APPARATUS SPECIFICATION
STOCK # INC3217
Commercial Pumper Apparatus

PRESENTED TO:

PRESENTED BY:

Christopher Sapienza
MAXIMETAL INC.

Date:
3/31/2021

Return to Agenda

MAXIMETAL

Canadian Manufacturer of Optimized Intervention Vehicles Since 1983

PROUDLY BUILT IN Canada

MAXIMETAL is a dynamic, innovative Canadian company with 35 years of experience designing and manufacturing optimized intervention vehicles. Our core specialty lies in two product families: Maxi Fire trucks and Maxi Utility trucks. With over 1,000 fire and utility trucks built and delivered in the past decade alone you can be confident in the MAXIMETAL name and that our experienced & dedicated team will fulfill your requirements by delivering quality products at a competitive price, on time.

Maxi Utility trucks are trusted by many household names like Hydro-Quebec, Gaz Metro, Rio Tinto, CN, Hewitt and Bell Canada, which is a testament to our understanding of how to satisfy some of the most demanding customers in the marketplace.

Our high-quality, custom-built Maxi Fire trucks are found serving fire departments in from coast to coast in Canada, including some of Canada's biggest fire department fleets like Montreal and Quebec City. We have even delivered Maxi Fire trucks to the USA and over 2-dozen apparatus overseas to North-Africa. Rest assured that you have chosen an experienced partner not just in designing and building your project, but supporting you long term after the sale.

MAXIMETAL is also a partner of choice to many private industry fire services as well. Maxi Fire trucks are serving companies like Suncor, Agnico-Eagle, Bravo Oil Field Services, Alouette Aluminum, ABI Aluminum and Cascades Pulp & Paper.

All Maxi Fire trucks are built in our 35,000 sq-ft St-Georges factory, less than an hour's drive south of Quebec City. We are proud to count many part-time and volunteer firefighters amongst our employees. Their valued input is one of the most important parts of every Maxi Fire truck, assuring your team safe and effective operations. Fire trucks designed by fire fighters, built by fire fighters for fire fighters.

Pierce

In 2015 Pierce Manufacturing, the world leader in fire truck manufacturing, chose MAXIMETAL as their exclusive partner to build a custom line of fire trucks for their Canadian dealer network, called the MaxiSaber®. Further to this first agreement, in 2016 MAXIMETAL began producing specialized Pump-In-Compartment tankers and Enclosed-Top-Mount Commercial pumpers for Pierce's American dealer network under the "Contender by MAXIMETAL®" brand.

Certifications attesting to the high quality of our products and management team:

- *ISO 9001: 2015*
- *Canadian Welding Bureau, CSA W47.1*
- *Canadian Welding Bureau, CSA W47.2*
- *National Safety Mark*
- *UL Canada*
- *NFPA 1901-2016 compliant*

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SECTION 1 TECHNICAL REQUIREMENTS

1.1 DISCLAIMER

1.1.1 This specification document is for reference only and is a general representation of how we propose to build your fire apparatus. Upon placing an order, the customer, dealer and manufacturer will conduct a pre-construction meeting to go through every point of the specification thoroughly and ensure the truck will be built to your precise requirements. Do not hesitate to contact your representative if you have any questions concerning this document.

1.2 GENERAL

1.2.1 This unit will comply with the ULC S515 standard e□ective November 1, 2014, except for fire department's specifications that di□er from ULC specifications. These exceptions will be set forth in the Statement of Exceptions.
Certification of slip resistance of all stepping, standing, and walking surfaces will be supplied with delivery of the apparatus.
A plate that is highly visible to the driver while seated will be provided. This plate will show the overall height, length, and gross vehicle weight rating.
All safety warnings will be in French and English.
The manufacturer will have programs in place for training, proficiency testing and performance for any sta□ involved with certifications..
An o□cial of the company will designate, in writing, who is qualified to witness and certify test results..
The apparatus will be in service at an elevation of less than 2000'.

1.2.2 A pump test will be made at the apparatus manufacturer's plant, and all costs incurred to perform this test will be covered by the bidder.

1.2.3 The apparatus will be compliant with all regulations contained within the Canadian Motor Vehicle Safety Standards (CMVSS).

1.2.4 All components used in the manufacture of this apparatus will be brand new and of the highest quality.
The choice of all components used in the construction of this apparatus will correspond with the best recognized quality standards in the fire apparatus manufacturing industry.
When a part number is specified, no substitute will be accepted.

1.3 DOCUMENTATION UPON DELIVERY

1.3.1 One (1) hard copy and two (2) digital copies of the instruction sheet to register to web portal for access to chassis driver's, maintenance, parts, wiring, troubleshooting and workshop manuals.

1.3.2 One (1) digital copy of wiring, for the chassis and the body. The diagram will be « As Built Wiring Diagrams ».

1.3.3 Two (2) digital copies of the ULC or NFPA documentation (USB flash drive).

1.3.4 One (1) copy of warranties, instruction and/or maintenance manuals of equipments added to the vehicle.

1.3.5 Two (2) digital copies of operation manual of the truck, including operation of the pump, the foam system and a troubleshooting guide.

1.3.6 One (1) copy of FAMA of Fire Apparatus Safety Guide.

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SECTION 2 COMMERCIAL CHASSIS

2.1	**GENERAL**
2.1.1	Freightliner M2-106 commercial chassis, brand-new, 2019 model year
2.1.2	The apparatus will be a pumper vehicle designed for emergency service use and will be equipped with a permanently mounted fire pump.
2.1.3	GVWR: 41,600 lb
2.2	**CAB**
2.2.1	Aluminum cab
2.2.2	4 doors (Crew cab)
2.2.3	Air bag cab suspension
2.3	**VEHICLE DATA RECORDER**
2.3.1	The chassis will have a Vehicle Data Recorder (VDR) system installed to meet NFPA 1901 requirements. The following data will be monitored: • Vehicle speed; • Acceleration; • Deceleration; • Engine speed : RPM; • Engine throttle position : % of full throttle; • ABS Event : On/O□; • Seat occupied status : Yes/No by position; • Seat belt buckled status : Yes/No by position; • Master Optical Warning Device Switch : On/O□; • Time : 24 hour time; • Date : Year/Month/Day;
2.3.2	A seat belt monitoring system (SBMS) will be provided. The SBMS will be capable of monitoring up to ten (10) seat positions indicating the status of each seat position with a green or red LED indicator as follows: • Seat Occupied and Buckled = Green • Seat Occupied and Unbuckled = Red • No Occupant and Buckled = Red • No Occupant and Unbuckled = Not Illuminated

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2.4	**ENGINE**
2.4.1	Cummins L9 engine will offer a rating of 350 HP at 2200 RPM. The torque rating will feature 1000 lbft of torque at 1400 RPM.
2.4.2	There will be two (2) controls for the diesel particulate filter. One (1) control will be for regeneration and one (1) control will be for regeneration inhibit.
2.4.3	A high idle switch will be provided, inside the cab that will automatically maintain a pre-set engine RPM.
2.4.4	A compression brake, for the six (6) cylinder engine will be provided with Low/ O□/High dash switch.
2.5	**COOLING**
2.5.1	A Horton thermostatic clutch fan will be provided.
2.5.2	The cooling package will include Extended Life Coolant (ELC). The coolant will contain a 50/50 mix of ethylene glycol and de-ionized water to keep the coolant from freezing to a temperature of -34oF (-37 oC).
2.5.3	Gates Blue Stripe™ or equivalent hose type will be used for all engine coolant lines.
2.6	**ENGINE AIR INTAKE**
2.6.1	An air intake with NFPA compliant ember screen and fire-retardant air cleaner will be provided. The intake will include a chrome grille.
2.7	**EXHAUST**
2.7.1	The exhaust system will be mounted behind the o□cer side cab step. The tailpipe will terminate ahead of the right rear tires at 90 degrees and will include a temperature mitigation system.
2.8	**TRANSMISSION**
2.8.1	Allison 5th generation, EVS 3000 model with push button shift pad.
2.8.2	6-speed, with “Package 198”.

2.8.3	The transmission fluid will be monitored electronically.
2.8.4	The transmission will include a cooler system.
2.9	**PTO**
2.9.1	The transmission will feature two (2) 10-bolt PTO pads located on the converter housing for future provision.
2.10	**DRIVELINE**
2.10.1	All drivelines will be Spicer 1710 or Meritor MXL 17T heavy duty metal tube and equipped with universal joints.
2.11	**FUEL SYSTEM**
2.11.1	Spin-on Cummins primary filter with water separator and water-in-fuel sensor.
2.11.2	A 50-gallon fuel tank will be provided and mounted in the driver step.
2.11.3	A 13.5 -gallon DEF tank will be mounted in the driver step.
2.12	**FRONT AXLE**
2.12.1	Front axle will be rated at 14,700 lb.
2.13	**FRONT SUSPENSION**
2.13.1	The taperleaf front suspension spring capacity will be rated at 14,600 lb.
2.14	**STEERING**
2.14.1	The steering wheel will be 18.00" in diameter, have tilting and telescoping capabilities, and a 4-spoke design.
2.14.2	The truck turning radius will be determined by the chassis manufacturer.
2.14.3	The power steering pump will be a TRW TAS-85.
2.15	**REAR AXLE**
2.15.1	Rear axle will have a rated capacity of 27,000 lb.

2.15.2	The top speed of the vehicle will be approximately 105 km/h (65 mph).
2.15.3	If approved by the chassis manufacturer the rear differential ratio will be 6.14.
2.15.4	A driver-controlled differential lock will be installed on the rear axle.
2.16	**REAR SUSPENSION**
2.16.1	Flat leaf spring suspension with radius rod will be provided. The rear suspension capacity will be rated at 27,000 lb.
2.17	**TIRES**
2.17.1	Front tires will be Michelin 12R22.5 16-ply XDN 2 tread. The Rating load capacity will be 14,780 lb per axle with a speed rating of 75 MPH when properly inflated to 120 psi.
2.17.2	Rear tires will be Michelin 12R22.5 16-ply XDN2 tread. The Rating load capacity will be 27,120 lb per axle with a speed rating of 75 MPH when properly inflated to 120 psi.
2.17.3	A RealWheels LED AirSecure™ tire alert pressure management system will be provided. The system will monitor each tire's pressure. A sensor will be provided on the valve stem of each tire.
2.17.4	All tires will be balanced.
2.18	**WHEELS**
2.18.1	Polished aluminum, front wheels 22.50” x 8.25” will be supplied.
2.18.2	Polished aluminum, rear wheels 22.50” x 8.25” will be supplied.
2.18.3	Wheels will be polished on the outside only.
2.18.4	Front and rear wheels will have chrome hub and lugnut covers.
2.19	**BRAKE**
2.19.1	A Wabco 4S/4M air brake system with ABS will be installed on the truck.
2.19.2	Automatic traction control system (ATC) will be installed on the rear axle.
2.19.3	Front brakes will be drum, 16.5" x 5.00", cam operated with automatic slack adjusters.

2.19.4	Rear brakes will be drum, 16.5" x 7.00", cam operated with automatic slack adjusters.
2.19.5	The brakes will have dust shields.
2.20	**AIR SYSTEM**
2.20.1	Air compressor will be a Cummins/Wabco with a capacity of 18.7 CFM.
2.20.2	Pull-cable drain valves will be installed on all tanks of the air supply system.
2.20.3	There will be an air dryer system with heater.
2.20.4	The air system on the chassis will be plumbed with color coded nylon tubing air lines.
2.21	**FRAME**
2.21.1	Each simple rail will have yield strength of 120,000 psi.
2.21.2	Frame components will be painted black.
2.22	**FRONT BUMPER**
2.22.1	Three-piece front bumper constructed from steel, chromed finished with cutout for the siren speaker.
2.22.2	Two (2) painted steel tow hooks will be installed and attached to the front frame members.
2.22.3	The bumper will be extended 18" from the front face of the hood.
2.22.4	A compartment will be located in the front bumper. This compartment will be centered and will accommodate up to 150 feet of 1-3/4” hose.
2.23	**HOOD**
2.23.1	Fiberglass hood with chrome front grille.
2.23.2	One (1) NFPA compliant 32" LED strip light mounted under the hood for engine work lighting will be provided and it will be controlled by a magnetic or mechanic switch that will turn on the light when the hood is opened.
2.23.3	Two (2) air horns, 24’’, will be provided above the front wheel-well and controlled with two (2) foot switches, driver and o□cer.

2.23.4	Hood liner, added firewall and floor heat insulation.
2.23.5	2½" inch fender extensions.
2.24	**WINDOWS**
2.24.1	Tinted door glass LH and RH with tinted operating wing windows.
2.24.2	The cab doors will be equipped with electric operated windows with one (1) automotive style switch on each door.
2.24.3	Omit rear window.
2.25	**CLIMATE CONTROL**
2.25.1	Standard chassis-OEM HVAC system for heater, defroster and air conditioner will be provided.
2.25.2	Main HVAC controls with recirculation switch.
2.25.3	Premium insulation.
2.26	**INTERIOR**
2.26.1	Opal gray vinyl interior.
2.26.2	Gray/charcoal flat dash.
2.26.3	Two (2) cup holders with ash tray.
2.26.4	Five (5) switch cutouts and blanks in center panel.
2.26.5	Molded plastic door panel with aluminum kickplate.
2.26.6	Forward roof mounted console with upper storage compartments and additional center compartment without netting.
2.26.7	Door-activated dome/red map lights located under center upper storage.
2.26.8	One (1) additional LED Red/Clear dome light with integrated switch will be installed in the cab.
2.26.9	A console made of 1/8'' thick aluminum and painted with black Zolatone will be installed between the front seats. The console will have two (2) compartments for binders with a hinged cover, which will be maintained open by a gas cylinder.
2.26.10	No AM/FM radio.

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2.27	**SEATS**
2.27.1	Seats Inc 911 Universal Series high back air suspension driver seat with NFPA 1901-2016 compliant seat sensor.
2.27.2	Seats Inc 911 Universal Series SCBA non-suspension passenger seat with underseat storage and NFPA 1901-2016 compliant seat sensor.
2.27.3	Seats Inc 911 Universal Series SCBA non-suspension LH, RH and center rear passenger seat with underseat storage and NFPA 1901-2016 compliant seat sensor.
2.27.4	All seats will be gray vinyl.
2.27.5	Four (4) Zico Load and Lock ULLH SCBA brackets will be supplied and installed in passenger and the rear passenger seats.
2.27.6	LH and RH integral door panel armrests.
2.27.7	All seating positions will be furnished with three (3) point shoulder type orange seat belt.
2.27.8	Fivre (5) Zico UHH-1 helmet holders will be supplied and shipped loosed, for dealer/customer install in a compartment.
2.28	**CAB EXTERIOR**
2.28.1	Windshield wiper control will have high, low, and intermittent modes.
2.28.2	No composite exterior sun visor.
2.28.3	LH and RH exterior grab handles with single rubber insert.
2.28.4	Two (2), door mounted, mirrors dual west coast bright finish. The mirrors will be heated mirrors and will be LH and RH remote with control on driver side.
2.28.5	Mud flaps will be installed behind the front wheels.
2.28.6	The original side steps on both sides of the cab will be removed and replaced by NFPA compliant side steps, made of aluminum checkered plate trim and aluminum grip strut. The assembly will be easily removable for ease of service and maintenance if required. A closed compartment will be built in the passenger steps. The door will be equipped with two “compression type” latches.
2.29	**12 VOLT ELECTRIC SYSTEM**

2.29.1 Two (2) DTNA genuine, 12V maintenance free 2000 CCA, 370RC threaded stud batteries will be located in an accessible area.

2.29.2 One (1) set of battery jumper studs with plastic color-coded covers will be included near the front wheel well.

2.29.3 Leece Neville 4962PA, 320 amp, 12V alternator.

2.29.4 Master battery disconnect switch located close to the driver seat. NFPA compliant with a green indicator light in the dash.

2.29.5 There will be one (1) dual USB receptacle located on the central dash area.

- The positive wire will be connected to the battery master switch.
- The negative wire will be connected to ground.

2.29.6 There will be one (1) power point plug, with rubber cover, located on the central dash area.

- The positive wire will be connected to the battery master switch.
- The negative wire will be connected to ground.

2.29.7 There will be one (1) pair of wires, positive and a negative, installed on the apparatus. The above wires will have the following features:

- The positive wire will be connected to the battery master switch.
- The negative wire will be connected directly to battery ground.
- Wires will be protected to 30 amps at 12 volts DC

Power and ground will terminate o□cer side dash area. Termination will be a Blue Sea System, model 5025, 6 circuit with negative bus bar, straight blade fuse block.

2.29.8 There will be one (1) pair of wires, positive and a negative, installed on the apparatus for radio system #1. The above wires will have the following features:

- The positive wire will be connected directly to the battery power.
- The negative wire will be connected directly to battery ground.
- Wires will be protected to 20 amps at 12 volts DC.

Power and ground will terminate butt spliced and located in center dash area.

2.29.9 An antenna wire for radio system #1 will be installed on the roof and located in center dash area.

2.29.10 Radio system will be supplied and installed by the dealer and/or the customer.

2.30	**CHARGING SYSTEM**
2.30.1	One (1) 20-Amp Kussmaul Super Auto Eject waterproof electrical receptacle with a red cover will be installed in the LH cab step. It will automatically eject the electrical plug when the starter button is released.
2.30.2	A Kussmaul model 1200 battery charger/conditioner will be provided. The charger will be connected to the vehicle batteries and it will be located in the cab, behind the driver seat.
2.30.3	A Kussmaul 120V air compressor to maintain air in the brake system will be provided and in a left side body compartment.
2.31	**LIGHTS**
2.31.1	The cab will include LED marker lights.
2.31.2	The hood will include two (2) integral headlight/marker assemblies with chrome bezel.
2.31.3	At least one (1) LED lights will be installed in each door for cab steps lighting.
2.32	**OPTICAL WARNING DEVICE**
2.32.1	A LED flashing red light clearly labeled "Do Not Move Apparatus". In addition to the flashing red light, an audible alarm will be included which will sound while the light is activated. The flashing red light will be located centered left to right for better visibility.
2.33	**BACKUP SAFETY DEVICE**
2.33.1	A solid-state electronic audible back-up alarm that actuates when the truck is shifted into reverse will be provided.
2.34	**INSTRUMENTATION**
2.34.1	Instrumentation and gauges will be Metric.
2.34.2	Engine hour meter.
2.34.3	Non-removable key.

SECTION 3 PUMP

3.1	**PUMP MODEL**
3.1.1	A brand new current year Hale DSD150 pump NFPA rated at 1500 GPM (1250 IGPM). The pump will be supplied with a G-gearbox and will have mechanical type seal.
3.1.2	Pump will provide the following ratings at an altitude of less than 600 meters (2000 ft): • 1500 GPM (1250 IGPM)- 100% of rating at 165 PSI • 1500 GPM (1250 IGPM)- 100% of rating at 150 PSI • 1050 GPM (875 IGPM)- 70% of rating at 200 PSI • 750 GPM (625 IGPM)- 50% of rating at 250 PSI
3.2	**PUMP SHIFT**
3.2.1	Pump shift will be pneumatically-controlled and activated from inside. All indicators lights and pump engagement will be ULC S515 and NFPA 1901 compliant.
3.3	**PRESSURE GOVERNOR**
3.3.1	A FRC pressure governor «Pump Boss PBA400» will be installed on the operator control panel. The pressure governor will be calibrated by the manufacturer in « pressure/preset » mode at a pressure specified by the customer.
3.4	**PRIMER**
3.4.1	One (1) Hale 12V positive displacement type rotary vane primer of a fluid-less design will be provided for the fire pump priming system.
3.5	**COOLER**
3.5.1	Water flow from the fire pump will be used to cool the engine coolant. The control, «¼ turn type» will be located on pump panel and equipped with a ¾" valve.
3.6	**DRAIN SYSTEM**

3.6.1 A manual master drain valve will be installed on the pump panel. The master pump drain assembly will consist of a Trident Emergency bronze master drain with a rubber disc seal. The master drain will have a rubber seal to prevent water from running out on the running board
The master drain will provide independent ports for low point drainage of the fire pump and auxiliary devices.

3.6.2 An Innovative Control brand ¾" bleeder valve with lift-up handle will be provided for each inlet and discharge. The drain will be located at the lowest drainage point of the fire pump.

3.7 PLUMBING

3.7.1 All fabricated piping will be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

3.7.2 The pumping system will have an Akron model 59 pressure relief valve for each intake more than 3'' diameter.

3.7.3 All the valves on the truck will be Akron 8800 series, except where otherwise specified.

3.7.4 When flexibility is needed, a “Victaulic” fitting will be installed.

3.7.5 The pump and steel accessories will be painted black. Stainless steel plumbing components are not painted.

3.7.6 All discharges, except the 1½" and 2" discharges will have a 30 degree chrome elbow.

3.7.7 All 2½" discharges will be equipped with a 2½" female chrome-plated reducer to a male 1½" with a 1½" chrome cap retained by a chrome chain.
All caps will be Pressure Relieving hose cap NFPA compliant.

3.7.8 The hoses threads on the vehicle will be:
1½ ": NPSH
2½ ": CSA
6 ": NH

3.7.9 All storz fittings installed on the truck will be 4".

3.8 INTAKES AND DISCHARGES (GENERAL)

3.8.1 Control handles for discharges that will not be electric, will be push-pull «T» style controls, Innovative Controls brand.
The valve controller will be a chrome push-pull locking "T" handle located at the pump operator`s panel and will visibly indicate the position of the valves at all times. The control will be located directly adjacent to one another and will be mounted in line so they are in the same position when shut o. The control lever will be connected directly to its respective valve by a 0.718" OD rod to form a direct linkage control system.
Valve control with cables instead of rods will not be accepted.

3.8.2 All discharges and intake located at the sides and rear panels will be provided with Innovative Controls brand, chrome bezel with color identification.
These bezels will be screwed into the panel without nuts at the back.

3.8.3 Color coded pump panel labels will be in accordance with the NFPA standard as follows:

Discharge	Color
Precconect #1	Orange
Precconect #2	Red
Preconnect #3 or Discharge #1	Yellow
Discharge #2	White
Discharge #3	Blue
Discharge #4	Black
Discharge #5	Green
Deluge/deck gun	Silver
Large-diameter hose	Yellow with white border
Foam Line(s)	Red with white border
Booster Reel(s)	Gray
Inlets	Burgundy

3.9 INTAKES

3.9.1 One (1) 6" diameter suction ports with 6" NST male threads and removable zinc screens will be provided on left side of the pump module. Inlet will be equipped with an Elkhart EB6D valve controlled electrically by an Apex-S controller.

3.9.2 One (1) 6" diameter suction ports with 6" NST male threads and removable zinc screens will be provided on right side of the pump module. Inlet will be equipped with an Elkhart EB6D valve controlled electrically by an Apex-S controller.

3.9.3	One (1) 2½" suction intake will be installed on the left side of the pump module with a manual lever control integrated to the valve. It will be equipped with a strainer and a chrome plug with a retaining chain. A ¾" bleeder valve assembly will be installed for this intake.
3.10	**DISCHARGES**
3.10.1	Two (2) 2½" discharges, with 2½" valves, will be installed on left side of the pump module.
3.10.2	One (1) 2½" discharge, with 2½" valve, will be installed on right side of the pump module.
3.10.3	One (1) LDH discharge, with 4" valve, will be installed on right side of the pump module. This valve will be controlled with a handwheel located on the pump operator panel. The discharge will have a 30 degrees anodized Storz elbow with a cap.
3.10.4	One (1) pre-connect discharge will be located in a front bumper compartment. This outlet will provide a 2" diameter valve and a 90 degree, 1½" swivel that will exit in the middle of the compartment. There will be a Class 1 automatic drain installed at all lowest points in the plumbing.
3.10.5	One (1) 2½" discharge, with 2½" valve, will be installed at rear, left side of truck.
3.10.6	Two (2) speedlay discharges will be provided. Each speedlay section will include one (1) 2" brass swivel above each hose compartment with a 1½" hose connection to allow the use of the hose from either side of the apparatus. The speedlay piping will consist of two (2) 2" heavy duty hoses coming from the pump discharge manifold to the 2" swivel.
3.10.7	One (1) discharge, 3" manual valve will be installed on the top of the truck, for a deck gun, with the control on the pump panel. Discharge will terminate threaded and capped. Deck gun is not included int he proposal.
3.11	**TANK FILL AND TANK-TO-PUMP**
3.11.1	One (1) 2" valve combination tank refill and pump re-circulation line will be provided, using a quarter-turn full flow ball valve controlled from the pump operator's panel. The adapter on the tank will be in stainless steel.

3.11.2	The tank will be connected to the pump with 4" piping and one (1) 3" valve. This pipe will have a check valve, an anti-swirl mechanism to prevent pump cavitation and will be connected to the tank.

3.12 FOAM

3.12.1	A Foampro 1600 12-volt electric motor drive, positive displacement foam concentrate pump, rated up to 1.7 gpm (6.4 L/min) @ 200 psi with operating pressures up to 400 psi (27.6 BAR) will be provided.
3.12.2	A foam tank gauge will be installed on pump panel. The foam level indicator will be the same make and model as the water tank gauge.
3.12.3	The system will be capable of handling Class A foam. Operational tests will be completed with Phos-Chek WD881 foam.
3.12.4	A full flow stainless-steel check valve will be provided to prevent foam contamination of the fire pump and water tank as well as to prevent water contamination of the foam tank.
3.12.5	The foam system will be plumbed to the speedlay discharges and the bumper preconnect.
3.12.6	The system will be installed in a suitable, accessible location. The system will be installed and calibrated by the manufacturer before delivery.
3.12.7	A label will be placed near the foam concentrate tank fill opening that reads: “DO NOT MIX BRANDS AND TYPE OF FOAM”
3.12.8	A system rating panel placard will be installed near the foam controller.

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SECTION 4 PUMP OPERATOR CONTROL PANEL

4.1 CONTROL PANEL

4.1.1 Controls and gauges will be located on driver side.
The side intake/discharge pump panels will be a 1/8'' Aluminum sheet with a Black Zolatone painted finish. Each panel will be removable for easier maintenance access to plumbing components.
Pump operator control panel will be a 1/8'' Aluminum sheet with a Black Zolatone painted finish. The upper panel section will be hinged on one side for easier maintenance access to electrical components.

4.1.2 Innovative Controls gauges reading will be in PSI and kPa. The 4½" pressure gauges will be filled with interlube.
There will be one (1) 4½" diameter, 30"-0-400 psi (100-0-2800 kPa) gauge connected to the pressure manifold and another one (1) connected at the pump inlet in a single assembly with chrome bezel and colored labels.

4.1.3 Innovative Controls gauges reading will be in PSI and kPa. The pressure gauges will be filled with interlube.
There will also be one (1) 2½" diameter, 0-400 psi (0-2800kPa) connected to each discharge.

4.1.4 A FRC model WLA300 water level gauge will be installed on the pump panel.

4.1.5 A vacuum and pressure port for annual pump performance testings and checking the accuracy of pump panel gauges.

4.1.6 A minimum of three (3) rocker switches for pump heater, pump lights and hose bed light will be installed on the pump panel. The heater will have a red pilot light.

4.1.7 A push button identified “Evacuation Alert” will be installed to the pump operator panel and connected to the electronic siren.

4.2 COLD PACKAGE

4.2.1 A 42,000 BTU heater will be installed in the pump compartment. This heater will use the truck coolant system. The heater will have two (2) fans.

4.2.2 An aluminum heat pan will be installed below the pump house to prevent freezing and will be removable without any tools.
The heat pan will have approximately 48'' wide x 72'' long and cover all the pump and plumbing. The front and the back of the heat pan will be protected by an aluminum plate around the drive shaft.
The clearance between ground and the heat pan will be minimum 10''

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SECTION 5	TANK
SR.5	**CUSTOMER'S SPECIFIC REQUEST**
SR.5	WARNING: The following special requests, identified by their code "SR", supersede the standard specification text lower down this section. If there is a conflict between a special request and any point elsewhere in the document, the special request will prevail.

5.1	**GENERAL**
5.1.1	A 1000 IMP gallon (1200 U.S.) booster tank and a 25 IMP gallon (30 U.S.) foam tank will be supplied. The booster tank will be completely removable without disturbing or dismounting the apparatus body structure.
5.1.2	The booster tank will be entirely in ½" thick copolymer polypropylene with 3/8" swash partitions. The assembly will be welded utilizing thermoplastic welding technology. The booster tank will have lifting eyelets for facilitating the removal.
5.1.3	The water/foam tank(s) design will be in accordance with ULC S515 and NFPA 1901 requirements. The foam tank will have one (1) air intake installed on the top of the foam tank. The tank(s) will provide two (2) openings, one (1) for the injection system supply and the second one to allow tank cleaning with a 1" hose with Class 1, model BV10, 1" valve.
5.1.4	At the front, under the tank, there will be a dirt collector with a 1½" drain and a 3" plug. The drain will be installed at the bottom of the collector to allow fully draining of the tank. This drain control will be on the operator pump panel, not in a compartment. The valve will be enclosed in the heat pan assembly to prevent freezing.
5.1.5	One (1) manual fill tower will be located to the left forward area of the tank. The tower will be 14"x14" and a 6" vent/overflow pipe will be installed halfway-up the tower. This pipe will empty behind rear wheels.
5.2	**TANK INTAKE AND DISCHARGE**

5.2.1 One (1) 2½" inlet for direct tank fill will be installed at the rear, as low as possible and clearly labeled. This inlet will be equipped with a 2½" valve less Fireman's Friend device with a 30-degree 2½" diameter elbow with a threaded connection, filter, cap and retention cable. Piping for the fill will be routed through the rear wall and include a flow deflector to avoid the breaking of the tank when it is being filled.

5.2.2 One (1) FRC WLA300 remote water level gauge will be mounted on the rear of the body.

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SECTION 6 BODY GENERALITIES

6.1 GENERAL

6.1.1 The aluminum used to build the body and pump house will be 5052-H32 marine grade and 6061- T6/6063-T5 for aluminum extrusions.
The thickness of the aluminum will be 3/16" for the bottom and the back of each compartment and for the front and back of the body. Only the wall between compartments will be 1/8" thick.
The aluminum tread plates will be 3003-H22, 1/8" thick and will meet NFPA slip resistance, when specified.

6.1.2 The fabrication of the body will be formed sheet metal and the body sub-structure will be made from square aluminum tubing extrusion 2" x 3" x ¼" and 3" x 3".
Formed and welded components will allow the Fire Department to have the body repaired locally in the case where any object has struck the body and caused damage. The use of proprietary extrusions will prevent the Fire Department from such repair and will NOT be used.

6.1.3 All joints that may corrode or degrade by calcium and water infiltration will be sealed by a continuous welding cord outside.
Where there is a possibility of water infiltration between aluminum tread plates and painted aluminum, gray silicon sealer will be applied.
All joints and weldings will be polished and so leave no sharp edge.

6.1.4 The design of the body is such that the water tank of the truck will not be visible outside. Any type of "WET SIDE" design will be refused.

6.1.5 All compartments will be “sweep out” design, which means the floor is raised by at least 1’’ to avoid water infiltration

6.1.6 The aluminum components of the body and pump house will be manufactured by using CNC (Computer Numeric Control) machine tools. Each individual assembly parts will be cut and bended for an optimum precision.

6.2 PUMPHOUSE

6.2.1 A step will be installed each side of the pump house, on its full width. The step will have 11¾" in depth and will be built from aluminum grip-strut.

6.2.2 The top of the pump house will be made of aluminum tread plates and will meet ULC S515 and NFPA 1901 requirements.
The front of the pump house will be covered by tread plates. Between the cab and the pump house there will be an access door to access to the pump without any tools.

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6.2.3 The pump module will have a total width of 26” and two upper storage areas. The lower transverse storage area will accommodate two preconnected handlines (150’ of 1¾’’ hose with nozzle). The bottom of this compartment will be at approxamtely 65” from the ground.
The speedlay areas will include two storage trays. The trays will be constructed of 3/16” (.187”) smooth aluminum plate with an exterior sanded finish. The walls and floor of the tray will be slotted to prevent the accumulation of water and allow for ventilation of wet hose.
A protective strip of 0.375" UHMW Polyethylene will be bolted to the bottom of the speeadlay area. Two (2) 1” stainless steel rollers will be installed, one on each side, to facilitate the removal and insertion of the trays in this compartment.
Pump service access doors will be provided. There will be four (4) access points to the pump: one (1) in L1, one (1) in R1, one (1) in at the front of the pump house when the cab is raised and one (1) on the top, at the front of the body. The doors will be secured with tool-free hardware.

6.2.4 A «P» shaped rubber gasket of about 1'' will be installed between the pumphouse and the body to avoid friction of the modules.

6.2.5 The pumphouse will be attached to the chassis frame by utilizing rubber isolators.

6.2.6 Above the speedlay hosebed there will be an enclosed cargo compartment.
Two (2) aluminum tread plate doors will be installed, one (1) on each side of the apparatus, to facilitate easy access to the cargo compartment.
Each door will be equipped with a D-Ring handle. The doors will be hinged across the top and held in the open position by a gas cylinder.
Cargo compartment lighting will be provided by two (2) Amdor Lumabar, 12" LED lights.

6.2.7 The pumphouse will be designed and constructed to be the same height as the body.

6.3 BODY ATTACHMENT

6.3.1 The main body will be attached to the chassis frame rails with six (6) U-bolts.
U-bolts will be made of two (2) 5/8" diameter steel bolts and two (2) ½" thick x 2" width steel plates.
There will be insulation between U-bolts and body.
The mounting will allow easy removal of the body in case of major repair.

6.3.2 There will be rubber insulation installed between the aluminum body and the steel frame rails.

6.4 BODY

6.4.1	Two (2) heavy duty tow eyes made from 2-1/2" diameter steel will be mounted below the body at the rear of the vehicle to allow towing (not lifting). The tow eyes and subframe assembly will be painted black. There will be a plate specifying the capacity of the assembly.
6.4.2	The top and the front of the body compartments will be covered by 1/8" thick aluminum bright finish tread plate.
6.4.3	The wheel-well outer face will be made of 3/16" thick aluminum and will be painted the same color as the body.
6.4.4	The wheel-well will have monohull composite full depth wheel-well liner.
6.4.5	A "P" shaped fenderette will be built from polished aluminum semi-circular moulding with a mirror finish.
6.4.6	Rub rails will be mounted along both sides of the body. The rub rail will be C-channel in design and constructed of 3/16" thick aluminum extrusion. The rub rails will be 2-1/2" high x 1-1/2" deep and will extend beyond the width of the body to protect compartment doors and the body sides. The depth of the rub rails will allow for the installation of marker and/or warning lights for their protection.
6.4.7	The rear tires will have a set of black mud flaps mounted behind the rear tires.
6.4.8	Four (4) compartments for SCBA cylinders will be installed in the wheels well. Each compartment will be able to contain three (3) cylinders. Every cylinder compartment will be built with aluminum tubes and the bottom will be covered with rubber mat according to the ULC S515 and NFPA 1901 requirements. Every compartment will have an aluminum door of the same color as the vehicle with a “compression type” latch. The doors will be designed to avoid water and dust infiltration with reinforcement inside the door.
6.5	**HOSE BED**
6.5.9	Two (2) adjustable hose bed divider will be provided, constructed of 3/16" brushed aluminum plate with a reinforced aluminum base welded to the bottom. The rear end of the divider will have a 3" radius corner and a handle will be integrated to the divider.
6.5.10	A black vinyl tarp will cover the main hose bed, retained by a Velcro tape a□xed all around the hose bed. A hole will be made around the fill tower, to allow the cover to be opened freely. An orange strap will be installed to visually show where to open the tarp.
6.6	**COMPARTMENTS**

6.6.1 All compartment seams will be sealed using a permanent pliable silicone caulk. The walls of each compartment will have vents for adequate ventilation.
Each compartment will have aluminum extrusion tracks installed for use with adjustable shelves. The tracks will be vertically mounted and attached to the side and/or rear walls of the compartments.
The flooring will have drain holes to prevent the accumulation of water. The flooring will be covered by plastic interlocking tiles 5/8" thick.

6.6.2 Compartments doors will be roll-up type with anodized aluminum finish.
Roll-up doors will be Amdor brand.
Compartments light switches will be located at the top of the door and will be Amdor brand magnetic type.

6.6.3 No drip pan under doors.

6.6.4 A black elastic strap will be installed inside each roll-up door of the full-height compartments and also inside each roll -up door of the compartments that are located above the rear wheels.

6.6.5 Each shelf provided will be built as specified below, unless otherwise specified. Each shelf will be as wide and deep as possible.

- Maximum load capacity of at least 440 lbs
- Constructed of 3/16" aluminum, with a 2" lip and as deep as possible
- Bottom of the shelves are covered by rubber tiles of at least 5/8'' thick.

6.6.6 Each slide out provided will be built as specified below, unless specified otherwise. Each slide out will be as wide and deep as possible.

- Maximum load capacity of at least 440 lbs when fully extended
- Minimum exterior slide extension should be about 20".
- Constructed of 3/16" aluminum, with a 2" lip and as deep as possible
- Will be maintained in open or close position with a gas cylinder or with self locking tray slides when cylinder installation is not possible.
- Bottom of the shelves are covered by rubber tiles of at least 5/8'' thick.
- All trays installed on the bottom of the compartments will have two (2) aluminum runners with nylon cover installed near the center to avoid the tray from collapsing.

6.7 LEFT SIDE COMPARTMENTS

6.7.1 **(Front of rear wheels) – L1**
The compartment door opening will be approximately 26” wide x 13'' deep x 61” high. This compartment is the pump operator panel.

6.7.2 **(Front of rear wheels) – L2**
The compartment door opening will be approximately 35” wide x 27” deep x 61” high.
Two (2) adjustable shelves will be installed in this compartment.
One (1) slide-out tray will be installed in this compartment.

6.7.3 **(Above rear wheels) – L3**
The compartment door opening will be approximately 58” wide x 13” deep x 22” high.
One (1) shelf will be installed in this compartment.

6.7.4 **(Rear of rear wheels) – L4**
The compartment door opening will be approximately 34” wide x 27” deep x 61” high.
Two (2) shelves will be installed in this compartment.
One (1) slide-out tray will be installed in this compartment.

6.8 RIGHT SIDE COMPARTMENTS

6.8.1 **(Front of rear wheels) – R1**
The compartment door opening will be approximately 65" wide x 27”/13” deep x 61" high.
Two (2) shelves will be installed in this compartment.
One (1) slide-out tray will be installed in this compartment.

6.8.2 **(Above rear wheels) – R2**
The compartment door opening will be approximately 58" wide x 13” deep x 22" high.
One (1) shelf will be installed in this compartment.

6.8.3 **(Rear of rear wheels) – R3**
The compartment door opening will be approximately 34" wide x 27"/13” deep x 61" high.
Two (2) shelves will be installed in this compartment.
One (1) slide-out tray will be installed in this compartment.

6.9 REAR COMPARTMENT

6.9.1	**B1** The compartment door opening will be approximately 39" wide x 27" deep x 27" high. One (1) shelf will be installed in this compartment. One (1) slide-out tray will be installed in this compartment.
6.10	**REAR ACCESS**
6.10.1	A 10'' deep step will be built above the rear compartment made of aluminum tread plate meeting ULC S515 and NFPA 1901 requirements.
6.10.2	A tailboard step will be provided at the rear of the body. The tailboard will be 11 ¾" in depth. The tailboard step will be made with aggressive aluminum grip strut.
6.10.3	All handrails on body will be 1¼" diameter knurled extruded aluminum to provide a positive gripping surface. Chrome plated end stanchions will support the handrails and plastic gaskets will be used between end stanchions and any painted surfaces. Drain holes will be provided in the bottom of all vertically mounted handrails. Handrails will be provided to meet ULC S515 and NFPA 1901 requirements
6.10.4	Six (6) Innovative Controls folding steps will be provided at the rear, three (3) on each side, to allow access to the hose bed. Each step will incorporate two (2) LED light, chrome bezel, to illuminate the stepping surface above and below the steps. The steps can be used as a hand hold with built-in openings wide enough for a gloved hand. The step light will be activated when the parking brake is set, or when the vehicle marker lights are activated.
6.11	**LADDER STORAGE**
6.11.1	A ladder compartment will be built on the rear right side. It will be made to contain one (1) 14' hook ladder and one (1) 2-section 24' ladder. The ladders (not supplied) will be Duo Safety brand. This compartment door will be covered by chevron striping.
6.12	**SUCTION HOSE STORAGE**
6.12.1	Two (2) compartments of about 12" height x 10" wide x 126" depth will be built above left and right sides compartments. Each compartment will be made to contain one (1) 6" x 10' suction tube. Each compartment door will be covered by chevron striping. Refer to section 9 for supplied loose equipement.
6.13	**PIKE POLE STORAGE**

6.13.1 A storage compartment for pike poles and folding ladder will be built left rear side under the hose bed. It will be able to contain one (1) 10' folding ladder and three (3) 6' pike poles with « D handles ».
This compartment door will be covered by chevron striping.

6.14 COFFIN COMPARTMENT(S)

6.14.1 A coffin compartment will be installed on the top of the left side of the body, accessible from the hose bed. The compartment will be approx. 14" wide X 14" deep X 34" long. The compartment hatch door will be formed checker-plate and include a gas shock. Compartment will be equipped with Amdor Lumabar lighting.

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SECTION 7 ELECTRICAL SYSTEM

7.1 GENERAL

7.1.1 The electrical system will meet NFPA 1901 requirements.
The electrical system will also include the following:

1. The wiring in the body will be securely fastened with stainless-steel bolts attached every 8"-10".

2. Electrical terminals in weather exposed areas will have a non-conductive grease or spray applied.

3. Self adhesive device will be not acceptable.

4. Every electrical wiring will be covered by a plastic split sleeve.

5. Any electrical component that is installed in a exposed area will be mounted in a manner that will not allow moisture to accumulate in it.

6. Heat shrink material and sealed connectors will be used to protect exposed connections.

7. A coil of wire will be provided behind an electrical appliance to allow them to be pulled away from mounting area for inspection and service work.

8. All lights that have their sockets in a weather exposed area will have corrosion preventative compound added to the socket terminal area.

7.1.2 The wiring of the body will be color coded and number coded.

7.1.3 Where applicable, the wiring and permanently connected devices and equipment will be subject to a dielectric voltage withstand test of 900 volts for one minute. The testing will be performed after all body work has been completed. The electric polarity of all permanently wired equipment, cord reels, and receptacles will be tested to verify that wiring connections have been properly made.

7.1.4 Every circuit added to the chassis will be protected by internal electronic circuit breakers with transistor outputs. The system will operate in accordance with the J1939 communication protocol.
The system will have at least two (2) nodes. Each node will have at least 8 inputs and 16 outputs, each node will be protected by an individual breaker Grote model 54-852PL. They will be located to optimize the wiring, one (1) in the body and one (1) in the cab.
The vehicle will have one (1) programming plug installed near the multiplex node in the cab.

7.1.5 The switches in cab and pump panel will have an identification that meets ULC S515 and NFPA 1901.
There will be a single Emergency Master switch which controls all emergency warning lights including lightbars, cab warning lights, body warning lights and high beam flash if applicable.

7.2 WARNING AND EMERGENCY

7.2.1 Two (2) Whelen M6 Series Series red light heads, clear lens, will be provided and installed on the lower zone of the front grille. The lights will include chrome flanges.

7.2.2 Two (2) M6 Series red light heads, clear lens, will be provided and installed, one (1) each side, on lower zone, on the corner of the front bumper extention The lights will include chrome flanges.

7.2.3 Two (2) Whelen M6 Series red light heads with clear lenses will be provided, one (1) each side, in the rear wheel well. The lights will include chrome flanges.

7.2.4 Two (2) Whelen M6 Series red light heads with colored lenses will be provided at rear, one (1) each side, on a 4-spaces light bezel.

7.2.5 There will be one (1) Whelen Freedom F4N0QLED, LED lightbar mounted on the cab roof. This lightbar will include the following:

- Four (4) red flashing forward facing LED modules.
- Two (2) white flashing forward facing LED modules.
- Two (2) red flashing side facing LED modules.

The lens color will be clear.

7.2.6 Two (2) Red LED Whelen Micro Freedom#CFFLED2R mini-light-bars will be supplied and installed on upper of the rear body.

7.2.7	A Whelen 295SLSA1 electronic siren, will be mounted in the cab. The siren will feature 100-watt output, with one (1) 100w speaker. The electronic siren will be activated with a with the horn button on driver side. The electronic siren will be activated with a push button located on the dash on passenger side.
7.2.8	An amber directional tra□c advisor, six (6) LED lighthead Whelen model #TAL65 will be provided and recessed at the rear of the body. The control will be located in the cab.

7.3 BACK-UP CAMERA

7.3.1	A Fire Reasearch model BCA111 with night vision rearview camera will be installed to the rear of the vehicle. The 7" color LCD monitor will be installed close to the driver. A protective cast aluminum cover will be installed above the camera.

7.4 LIGHTING

7.4.1	LED, Grote model 47962 / 47963 clearance/marker lights.
7.4.2	The center top rear marker lights will be a Grote model 253-4400-1 for marker light AND for brake light signal.
7.4.3	Turn signal-lights, break-lights and backup lights will be of the same brand and serie as the emergency light, and will be LED lights with clear lenses. There will be a total of two (2) brake lights, two (2) back-up lights and two (2) turn-signal lights. It will be mounted on a 4 space lights bezel with the emergency lights. The rear part of the lights, visible from the compartment will be entirely covered with a protective aluminum cover which will protect the rear part of the light and the electrical wiring. Two (2) amber, Grote #47963 LED auxiliary turn lights will be installed, recessed in the rubrail, one each side toward the front of body.
7.4.4	One (1) white LED Grote #60681 licence plate light will be mounted at the rear of the body. The plate will be mounted with four (4) stainless steel bolts.

7.5 AUXILIARY LIGHTS

7.5.1	Two (2) 12" Amdor Lumabar # AY-9500-012 LED lights will be mounted under the pump module panel light shield, one (1) each side. These lights will automatically turn on when the pump is engaged or when the “pump light” switch is on and when the park brake is set.

7.5.2 One (1) Amdor AY9220-032 LED light will be installed in the pumphouse and it will be controlled by the "pump light" switch on the pump panel.

7.5.3 Two (2) Amdor Lumabar LED compartment light strips will be mounted in each body compartment.
The lentgh of each light is the same as the door opening height minus 5".

7.5.4 All perimeter lights under cab and body will be Truck Lite LED lights, as follow :

- Four (4) under cab and crew cab steps.
- Two (2) under pump compartment steps.
- Two (2) under rear bumper.

The ground lighting will be activated by the opening of a cab door, or when the parking brake is set and when the marker lights are turned on, or when the transmission is on reverse.

7.5.5 A LED TecNiq model E03 light will be installed under each 6" inlet on pump panel for steps lighting.
The lights will turn on when the parking brake is set and the marker lights are turned on or with the pump light switch.

7.5.6 One (1) LED light JETCO # 300-3161F-8 will be used for hose bed light. It will be installed in the front of the body.
The hose bed light will turn on when the parking brake is set and when the hose bed switch is turned on.

7.5.7 Two (2) FRC SPA900-Q70 scene lights with chrome bezel shall be installed on the rear face of the vehicle. The control of these lights shall be as follows:

- They shall turn o when the parking brake is not set;
- Turn on when the transmission is on reverse and the E-Master is turned on;
- Turn on with a waterproof switch, located on the rear left side when the parking brake is set.

The rear lights switch will be waterproof and installed in a sealed aluminum box Cast Products on the left rear side.

7.5.8 Four (4)FRC SPA900-Q70 scene lights with chrome bezel shall be installed on the truck. Two (2) each side of the body.
- The waterproof switch shall be located on the pump panel.
- These lights shall turn o when the parking brake is not set.

7.6 120V DISTRIBUTION

7.6.9 Two (2) 120 volt, 15-amp (NEMA 5-15) receptacles, will be installed, one (1) in the cab and one (1) in L3 compartment. The final location will be discussed during the pre-construction meeting.
Receptacles will be powered by the shoreline connection.

SECTION 8 BODY FINISH DETAILS

8.1	**GENERAL**
8.1.1	All nuts and rivets installed on the apparatus will be stainless steel.
8.1.2	Where dissimilar metals are to be mounted together, the mounting base material will have an isolation barrier prior to assembly to prevent dissimilar metal reaction.
8.1.3	All Caution, Warning, Danger and other safety related signs will meet the requirements of the FAMA Standard Product Safety Signs for Automotive Fire Apparatus issued October 2015 or more recent.
8.1.4	A Corrosion Control Coating # 2020A-WATERBORNE undercoating rust protection shall be sprayed under the entire body and body substructure before their installation on the chassis so that no area shall be left unprotected.
8.1.5	The rear stainless-steel sub-frame structure will left unpainted.
8.2	**BODY AND CHASSIS PAINT**
8.2.1	The painting will be conducted in accordance with best practices followed in the heavy equipment industry to ensure the best protection against corrosion and abrasion. All removable parts such as brackets, lights, doors, and steps will be removed before painting the body and will be painted separately if required.
8.2.2	Paint and primer used will be of good quality and type « base Coat / Clear Coat ». The painting process will be in accordance with the paint manufacturer.
8.2.3	The cab will be painted red, Dupont #L0780806EY, equivalent to Pierce #90.
8.2.4	The body will be painted as the cab primary color.
8.2.5	The exterior of the pump module will be painted the same color as the body color and the interior will be whitened with acid.
8.2.6	The interior of the compartments will have a smooth brushed finish and will be whitened with acid.
8.2.7	The shelf and slide-out trays will have a smooth brushed finish.
8.3	**LETTERING STRIPING**
8.3.1	A reflective stripe, 4" wide, will be installed each side according to the NFPA 1901 standard.

8.3.2 The maximum surface of the rear body will be covered by chevron stripes according to NFPA. The stripes will be red and yellow, 3M-983 brand, (models 72 and 71).

8.3.3 A 3" wide chevron type stripe will be installed on each cab door. The covering surface will be at minimum 150 square inches.

SECTION 9 LOOSE EQUIPEMENT TO BE SUPPLIED BY BIDDER

9.1	**GENERAL**
9.1.1	Two (2) NH chrome caps for pump inlets.
9.1.2	One (1) 2.50 lb D.O.T approved fire extinguisher with BC rating.
9.1.3	One (1) emergency safety triangle kit.
9.1.4	Three (3) road flares.
9.1.5	Two (2) folding wheels chocks Zico, 44" diameter tires with brackets will be installed under L2 compartment.
9.1.6	Two (2) NFPA compliant, Kochek suction hoses, 6'' x 10' length, NH threads and long handles will be provided.
9.1.7	One (1) Duo Safety, 10' attic ladder will be provided with the apparatus.
9.1.8	One (1) Duo Safety, 14' roof ladder will be provided with the apparatus.
9.1.9	One (1) Duo Safety, 24' 2-sections ladder will be provided with the apparatus

MAXIMETAL

SECTION 10 WARRANTY

10.1	**GENERAL**
10.1.1	The warranty is e□ective upon delivery of the vehicle.
10.1.2	One (1) Year, limited warranty, Material and Workmanship
10.1.3	One (1) Year, chassis manufacturer basic vehicle standard limited warranty will be provided.
10.1.4	A five (5) year/160,000 km limited engine warranty will be provided.
10.1.5	A five (5) year/unlimited km parts and labor warranty will be provided for transmission.
10.1.6	A five (5) years parts and labor warranty will be provided for front axle.
10.1.7	A five (5) years parts and labor warranty will be provided for rear axle.
10.1.8	A Wabco three (3) year parts and labor limited warranty on brake system ABS/ ATC/RSC/ESC.
10.1.9	One (1) year pro-rated limited warranty on the cab paint. This warranty will cover the paint and perforations due to corrosion, delaminating and cracking under normal use of the vehicle.
10.1.10	Ten (10) year limited warranty on structural integrity of the body. This warranty will cover all the structural components of the body against defects in materials and workmanship. Excluded from this warranty is hardware, mechanical and electrical items or paint finish.
10.1.11	Ten (10) year pro-rated limited warranty on the body paint. This warranty will cover the paint and perforations due to corrosion, delaminating and cracking under normal use of the vehicle.
10.1.12	The water/foam tank parts and labor warranty will be provided for life (25 years) against any manufacturing defects.
10.1.13	Ten (10) year pump stainless steel pluming components limited warranty. This warranty will cover all components of the pump except the valves against defects in materials and workmanship. Excluded from this warranty are the breakage caused by freezing.

10.1.14 A Hale, 5-year limited warranty covering parts and labor for the first two (2) years and only parts (no labor) for the remaining three (3) years of the warranty.
This warranty will cover all components of the pump except the valves against defects in materials and workmanship. Excluded from this warranty are the breakages caused by freezing.

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Heather Boston

From: Derek MacDonald <derek.macdonald@comtruck.ca>
Sent: February 6, 2023 3:31 PM
To: Mathew Waterfield
Subject: Pierce 4 door pumper
Attachments: 35754 BXP 4dr side drawing.pdf; 35754 BXP Pumper specifications.docx

Hello Mathew, Looks like I have another option for you. We just secured this truck this morning. This is a Pierce BX pumper, build at the Pierce Florida plant. Complete and ready for delivery in May.

Sell price $560,000.00 CDN + tax

Let me know your thoughts.

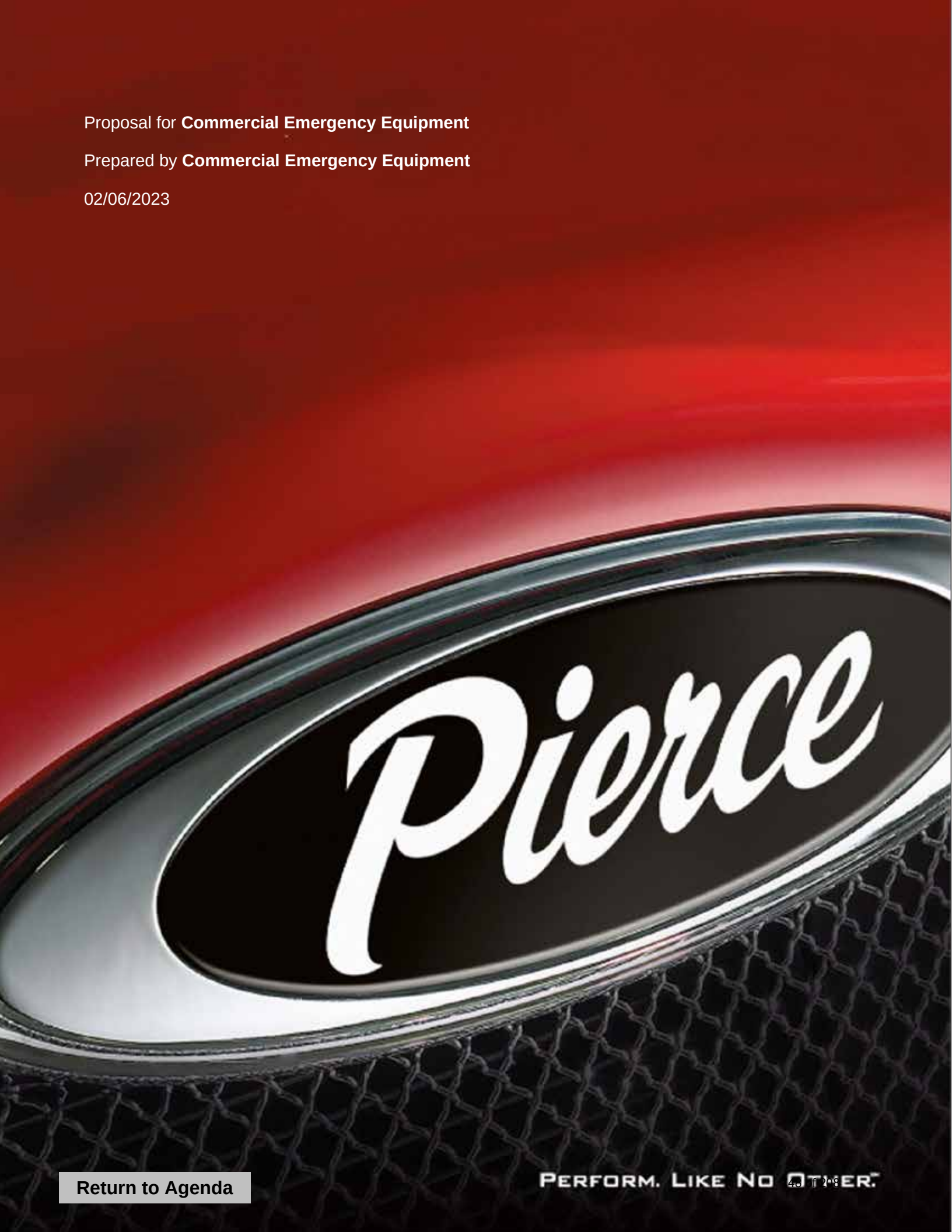
Derek MacDonald
Apparatus Specialist
Commercial Emergency Equipment Co.
1005 Patullo Ave. Woodstock, ON N4V 1C8
O: 519.421.4488 | C: 519.788.4377
E: derek.macdonald@comtruck.ca
W: www.comtruck.ca

PROVIDING EXPERT TRUCK EQUIPMENT SOLUTIONS ACROSS CANADA

Proposal for **Commercial Emergency Equipment**

Prepared by **Commercial Emergency Equipment**

02/06/2023



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Your apparatus will be manufactured in Bradenton, Florida.

ULC 2013 STANDARDS

This unit must comply with the ULC standards effective November 1, 2014, except for fire department specifications that differ from ULC specifications. These exceptions will be set forth in the Statement of Exceptions.

Certification of slip resistance of all stepping, standing, and walking surfaces must be supplied with delivery of the apparatus.

A plate that is highly visible to the driver while seated will be provided. This plate will show the overall height, length, and gross vehicle weight rating. The plate will read in metric and standard.

All safety warnings will be in French and English.

The manufacturer will have programs in place for training, proficiency testing and performance for any staff involved with certifications.

An official of the company will designate, in writing, who is qualified to witness and certify test results.

ULC COMPLIANCY

Apparatus proposed by the bidder will meet the applicable requirements of the CAN/ULC-S515 standard as stated in the current edition at the time of contract execution. Fire department's specifications that differ from ULC specifications will be indicated in the proposal as "non-ULC" compliant. The apparatus will be in service at an elevation of 3000' ASL.

PUMP TEST

The pump will be tested, approved and certified by Underwriter's Laboratory. The test results and the pump manufacturer's certification of hydrostatic test; the engine manufacturer's certified brake horsepower curve; and the manufacturer's record of pump construction details will be forwarded to the Fire Department.

GENERATOR TEST

If the unit has a generator, the generator will be tested, approved, and certified by Underwriters Laboratories. The test results will be provided to the Fire Department at the time of delivery.

BREATHING AIR TEST

If the unit has breathing air, the apparatus manufacturer will draw an air sample from the air system and certify that the air quality meets the requirements of CSA Z180.1-13, *Compressed Breathing Air and Systems.*

VEHICLE INSPECTION PROGRAM CERTIFICATION

To assure the vehicle is built to current CAN/ULC-S515 standards, the apparatus, in its entirety, will be third-party, independent, audit-certified through Underwriters Laboratory (UL) that it is built and complies to all applicable standards in the current edition. The certification includes: all design, production, operational, and performance testing of not only the apparatus, but those components that are installed on the apparatus (no exception).

A placard will be affixed in the driver's side area stating the third party agency, the date, the standard and the certificate number of the whole vehicle audit.

AFTERMARKET SUPPORT WEBSITE

Pierceparts.com will provide Pierce authorized dealer access to comprehensive information pertaining to the maintenance and service of their customer's apparatus. This tool will provide the Pierce authorized dealer the ability to service and support their customers to the best of their ability with factory support at their fingertips.

Pierceparts.com is also accessible to the end user through the guest login. Limited access is available and vehicle specific parts information accessible by entering a specific VIN number. All end users should see their local authorized Pierce dealer for additional support and service.

The website will consist of the following screens at the dealer level:

My Fleet Screen

The My Fleet screen will provide access to truck detail information on the major components of the vehicle, warranty information, available vehicle photographs, vehicle drawings, sales options, applicable vehicle software downloads, etc.

Parts Screens

The Parts screens will provide parts look-up capability of Pierce Manufacturing sourced items, with the aid of digital photographs, part drawings and assembly drawings. The parts search application will permit the searching of parts by item description or function group (major system category). The parts application will provide the ability to submit electronically a parts order, parts quote, or parts return request directly to Pierce Manufacturing for processing.

Warranty Screen

The Warranty screens will provide dealers the ability to submit electronically warranty claims directly to Pierce Manufacturing for reimbursement.

My Reports Screens

The My Reports screens will provide access to multiple dealer reports to allow the dealership to maintain communication with the customer on the status of orders, claims, and phone contacts.

Technical Support Screens

The Technical Support screens will provide access to all currently published Operation and Maintenance and Service Publications. Access to Pierce Manufacturing Service Bulletins and Work Instructions, containing information on current service topics and recommendations will be provided.

Training

The Training screens will provide access to upcoming training classes offered by Pierce Manufacturing along with interactive electronic learning modules (Operators Guides) covering the operation of major

vehicle components will be provided. Access to training manuals used in Pierce Manufacturing training classes will be provided.

About Pierce

Access to customer service articles, corporate news, quarterly newsletters, and key contacts within the Customer Service Department will be provided. The current Customer Service Policy and Procedure Manual, detailing the operation of the Customer Service group will also be accessible.

UNITS OF MEASURE

This apparatus will be built for a destination in Canada and required ULC certifications will be in the proper metric format such as liters, liters per minute, kpa, etc.

The following proposal contains standard US units of measure for volume and pressure and are not converted to metric equivalents.However, specific individual options such as pressure gauges and speedometers may be described in metric terminology.

BID BOND NOT REQUESTED

A bid bond will not be included. If requested, the following will apply:

All bidders will provide a bid bond as security for the bid in the form of a 5% bid bond to accompany their bid. This bid bond will be issued by a Surety Company who is listed on the U.S. Treasury Departments list of acceptable sureties as published in Department Circular 570. The bid bond will be issued by an authorized representative of the Surety Company and will be accompanied by a certified power of attorney dated on or before the date of bid. The bid bond will include language, which assures that the bidder/principal will give a bond or bonds as may be specified in the bidding or contract documents, with good and sufficient surety for the faithful performance of the contract, including the Basic One (1) Year Limited Warranty, and for the prompt payment of labor and material furnished in the prosecution of the contract.

Notwithstanding any document or assertion to the contrary, any surety bond related to the sale of a vehicle will apply only to the Basic One (1) Year Limited Warranty for such vehicle. Any surety bond related to the sale of a vehicle will not apply to any other warranties that are included within this bid (OEM or otherwise) or to the warranties (if any) of any third party of any part, component, attachment or accessory that is incorporated into or attached to the vehicle. In the event of any contradiction or inconsistency between this provision and any other document or assertion, this provision will prevail.

PERFORMANCE BOND NOT REQUESTED

A performance bond will not be included. If requested at a later date, one will be provided to you for an additional cost and the following will apply:

The successful bidder will furnish a Performance and Payment bond (Bond) equal to 100 percent of the total contract amount within 30 days of the notice of award. Such Bond will be in a form acceptable to the Owner and issued by a surety company included within the Department of Treasury's Listing of Approved Sureties (Department Circular 570) with a minimum A.M. Best Financial Strength Rating of A and Size Category of XV. In the event of a bond issued by a surety of a lesser Size Category, a minimum Financial Strength rating of A+ is required.

Bidder and Bidder's surety agree that the Bond issued hereunder, whether expressly stated or not, also includes the surety's guarantee of the vehicle manufacturer's Bumper to Bumper warranty period included within this proposal. Owner agrees that the penal amount of this bond will be simultaneously amended to 25 percent of the total contract amount upon satisfactory acceptance and delivery of the vehicle(s) included herein. Notwithstanding anything contained within this contract to the contrary, the surety's liability for any warranties of any type will not exceed three (3) years from the date of such satisfactory acceptance and delivery, or the actual Bumper to Bumper warranty period, whichever is shorter.

Due to global supply chain constraints, any delivery date contained herein is a good faith estimate as of the date of this order/contract, and merely an approximation based on current information. Delivery updates will be made available, and a final firm delivery date will be provided as soon as possible.

REFERENCE DRAWING

A drawing depicting the basic configuration of the model of the proposed apparatus will be provided.

This drawing will indicate the major components such as the chassis make and model, body configuration and door style, location of the standard lights, etc. The drawing will not display additional options selected that are not part of the base model package.

This drawing will not need to be signed and returned to Pierce, and will not be part of the contract documents.

ELECTRICAL WIRING DIAGRAMS

Two (2) electrical wiring diagrams, prepared for the body as it interfaces with the commercial chassis, will be provided.

CHASSIS

The chassis will be a Freightliner, Model M2, 106MD Conventional Chassis, supplied with the following equipment:

WHEELBASE

The wheelbase of the vehicle will be 229".

GVW RATING

The gross vehicle weight rating will be 38,000#.

FRAME

The frame rails will be formed from 120,000 psi yield, heat treated alloy steel. The frame rails will be E-coated prior to painting.

FRAME LINER

An 0.25" inner frame reinforcement will be provided.

The frame section properties will be:

- Section Modulus:26.50 cubic inch, per rail

- RBM:3,200,000 in-lb, per rail
- Yield Strength: 120,000 psi, per rail

FRONT AXLE
Front axle will be an I beam type, made of forged steel. It will be a Detroit brand axle with a ground rating capacity of 12,000 lb.

FRONT SUSPENSION
Spring mounted: Taper-leaf

Capacity at Ground: 12,000 lb

Shock absorbers will be provided on the front axle.

FRONT BRAKES
The front brakes will be S-Cam, 16.50" x 5.00". The front brakes will be provided with automatic slack adjusters.

TIRE BRAND
The default brand of tire for the commercial chassis manufacturer for this apparatus is Michelin.

However, the commercial chassis manufacturer reserves the right to substitute brands and models of tire as may be available at the factory on the date of manufacture. They will provide the proper tread style and weight rating for the position in which the tire is installed.

Pierce Manufacturing and the chassis manufacturer are working to provide the brand of tire specified. However, due to shortages (and even model changes by the tire manufacturers), if the chassis manufacturer substitutes other tires, they will not be changed by Pierce.

TIRES, FRONT
Front tires will be 11R22.50, radial tires with a tread pattern suitable for the steering axle position. The maximum capacity of the tires will be 13,220 lbs. and a maximum top speed per the requirements described elsewhere in this proposal, up to 75 MPH.

WHEELS, FRONT
Wheels for the front axle will be 22.50" x 8.25" aluminum disc.

REAR AXLE
The single reduction rear axle will be provided with a ground rating capacity of 26,000 lb.

PARKING BRAKE
The parking brake will be spring set and located on the rear axle service brake.

Rear axle brakes will be 16.50" x 7.00", S-Cam drum type brakes. Automatic slack adjusters will be provided.

TOP SPEED OF VEHICLE
The required top speed of the vehicle will be approximately 103 to 108 kilometers per hour .The rear axle ratio that provides optimal performance and still allows the apparatus to achieve the top speed will be provided.Top speed may also be controlled via the chassis engine electronic control system.

REAR SUSPENSION
The rear suspension will be spring mounted multi-leaf with a capacity at ground level of 26,000 lbs.

TIRES, REAR
Rear tires will be 12R22.50 radial tires with a traction tread pattern suitable for the drive axle position. The tires will meet or exceed the weight rating of the axle and/or suspension. Tires will be rated for a maximum top speed per the requirements described elsewhere in this proposal, up to 75 MPH

WHEELS, REAR
The rear wheels will be 22.50" x 8.25" disc. The outer wheel will be polished aluminum and the inner wheel will be steel.

TIRE PRESSURE MANAGEMENT
There will be a RealWheels LED AirSecure™ tire alert pressure management system provided, that will monitor each tire's pressure. A sensor will be provided on the valve stem of each tire for a total of six (6) tires.

The sensor will calibrate to the tire pressure when installed on the valve stem for pressures between 10 and 200 psi. The sensor will activate an integral battery operated LED when the pressure of that tire drops 5 to 8 psi.

Removing the cap from the sensor will indicate the functionality of the sensor and battery. If the sensor and battery are in working condition, the LED will immediately start to flash.

CHROME LUG NUT COVERS
Chrome lug nut covers will be supplied on front and rear wheels.

MUD FLAPS
Mud flaps with a Pierce logo will be installed behind the rear wheels.

WHEEL CHOCKS PROVIDED BY FIRE DEPARTMENT
CAN/ULC-S515, current edition, section 4.9.3.1 requires two wheel chocks to be mounted in readily accessible locations and designed to hold the fire apparatus when loaded to its maximum in-service weight, when on a 20% grade with the transmission in neutral and the parking brake .

The wheel chocks are not on the apparatus as manufactured. The fire department will provide and mount these wheel chocks.

Wheel Chock Brackets Provided by Fire Department

The wheel chock brackets are not on the apparatus as manufactured. The fire department will provide and install the wheel chock brackets.

ANTI-LOCK BRAKE SYSTEM

The vehicle will be equipped with an anti-lock braking system. The ABS will provide anti-lock braking control on both the front and rear wheels. It will be a digitally controlled system that utilizes microprocessor technology to control the anti-lock braking system. Each wheel will be monitored by the system. When any particular wheel begins to lockup, a signal will be sent to the control unit. This control unit then will reduce the braking of that wheel for a fraction of a second and then reapply the brake. This anti-lock brake system will eliminate the lockup of any wheel thus helping to prevent the apparatus from skidding out of control.

AIR COMPRESSOR, BRAKE SYSTEM

The air compressor will have an output of 18.7 cubic feet per minute.

AIR DRYER

An air dryer with a heater will be provided. Other features of this air dryer include:

- Desiccant style filter

- In-line filtration system

- Automatic purge valve

AIR INLET

A single air inlet with male coupling will be provided. It will allow station air to be supplied to the apparatus brake system through a shoreline hose. The inlet will be located near the pump operator's position. A check valve will be provided to prevent reverse flow of air. The inlet will discharge into the "wet" tank of the brake system. A mating female coupling will also be provided with the loose equipment.

ENGINE

- Model: Electronic Cummins B6.7 360EV
- Number of Cylinders: Six (6)
- Displacement: 6.7 liters
- Rated Brake Horsepower: 360 at 2600 rpm
- Peak Torque: 800 at 1800 rpm
- Governed rpm: 2600
- Charge Air Cooled

ENGINE ACCESSORIES

- Air Cleaner: Dry type, with restriction indicator in cab
- Fuel Filters
- Governor: Limiting speed type
- Lube Oil Cooler

- Lube Oil Filter: Full flow
- Starting Motor: 12-volt

ENGINE WARRANTY

The engine will come with a warranty provided by the engine manufacturer.

RADIATOR

- Pressurized System, Tube and Fin
- Deaeration Tank and Sight Glass
- Anti-Freeze Protection -34 Degrees Fahrenheit

HIGH IDLE

A high idle switch will be provided on the instrument panel inside the cab. Activating the switch will cause the vehicle to automatically maintain a preset engine rpm.

The high idle switch will be operational only when the parking brake is on and the truck transmission is in neutral. A green indicator light will be provided adjacent to the switch. The light will be labeled "OK To Engage High Idle."

ENGINE EXHAUST BRAKE

An exhaust brake with an integral variable geometry turbo charger (VGT) will be provided. The control will be located on the instrument panel within easy reach of the driver.

When the engine brake is engaged it will activate the brake lights.

FUEL/WATER SEPARATOR

A Detroit fuel/water separator will be provided on the chassis. It will include a "water in fuel" sensor, hand primer and a 12-volt pre-heater.

AIR INTAKE, W/EMBER SEPARATOR

The air inlet will be equipped with a stainless steel mesh to separate water and burning embers from the air intake system such that particulate matter larger than 0.039" (1.0 mm) in diameter cannot reach the air filter element.

This will comply with NFPA 1901 and 1906 standards.

EXHAUST SYSTEM

The exhaust system will include a diesel particulate filter (DPF) and a selective catalytic reduction (SCR) device to meet current EPA standards. The DPF and SCR will be mounted horizontally outside of the frame rails in the right side front step area.

EXHAUST MODIFICATIONS

The exhaust will terminate with a horizontal tailpipe and diffuser ahead of the right side rear wheels.

A heat deflector shield will be provided where the tail pipe is routed under any side compartmentation.

All modifications will be approved by the chassis engine manufacturer and/or the chassis OEM. Exhaust treatment devices will not be altered.

COOLANT LINES

Gates Blue Stripe rubber hose will be used for all engine coolant lines installed by the chassis manufacturer.

Hose clamps will be the constant torque type to prevent coolant leakage. They will expand and contract according to coolant system temperature thereby keeping a constant clamping pressure on the hose.

FUEL TANK

A 50 gallon fuel tank will be provided and mounted at the left-hand cab step. The tank will be constructed of aluminum.

DIESEL EXHAUST FLUID TANK

A diesel exhaust fluid (DEF) tank will be provided and mounted on the left side, below the cab.

The tank will be sized by the chassis manufacturer based on the engine provided. It will include an integrated heater unit that utilizes engine coolant to thaw the DEF in the event of freezing.

FUEL PRIMING PUMP

A Cummins automatic electronic fuel priming pump will be integrated as part of the engine.

AUXILIARY FUEL COOLING SYSTEM

A supplementary fuel cooling system will be provided to allow the use of water from the discharge side of the pump for cooling the chassis engine fuel. The heat exchanger will be a cylindrical type and will be a separate unit. The cooler will operate any time the pump is discharging water and will be plumbed to the master drain valve.

TRANSMISSION

An Allison, model 3000 EVS, electronic torque converting automatic transmission will be provided. To qualify for the EVS rating, the transmission will be filled with synthetic transmission fluid.

Two (2) PTO openings will be located on left and right side of the converter housing (positions 8 o'clock and 4 o'clock).

A transmission temperature gauge or warning light will be installed on cab instrument panel.

TRANSMISSION SHIFT CONTROL

A push button shift module will be mounted to right of driver. Shift position indicator will be indirectly lit for after dark operation.

The transmission will be a five (5)-speed.

TRANSMISSION COOLER

A transmission oil cooler will be provided in a tank of the radiator.

DRIVELINE
Drivelines will be a heavy duty metal tube equipped with universal joints properly sized for the application. A splined slip joint will be provided in each driveshaft.

STEERING
The steering system will be hydraulically driven. The steering column will have an adjustable tilt and telescope feature.

BUMPER
A 14.00", three (3) piece, full width chrome plated steel bumper with collapsible boxed ends will be attached to the front of the chassis frame.

TOW HOOKS
Two (2) painted, forged steel tow hooks will be provided. The tow hooks will be designed and positioned to allow up to a 6,000 lb straight horizontal pull in line with the centerline of the vehicle. The tow hooks will not be used for lifting of the apparatus.

BUMPER GAP
The standard bumper furnished with the chassis will be used.

CAB
A 4-door, high-roof cab will be provided. The cab and doors will be of an aluminum construction.

Exterior Styling

Aerodynamic hood and windshield

Tinted Glass in all Windows

Fiberglass hood with mounted plastic grille

Single 63"x14" rear window

Interior

Air bag rear cab suspension

Black vinyl mats

Forward roof mounted console

Two (2) dash-mounted cup holders, right-hand and left-hand

Dual Sun visors

Fresh Air Heater and Defroster

- Gray Vinyl Upholstery

CAB GRILLE, INTERIOR CONVENIENCE AND EXTERIOR APPEARANCE PACKAGE
The cab exterior will have a high impact plastic chromed grille and matching headlight bezels. The grille will tilt with the hood.

Additionally, the headlight bezels and the engine air intake housing will have a chrome finish.

The cab interior will include black dash panels, molded door panels with vinyl inserts and brushed aluminum door kick plates.

MIRRORS
West Coast style heated, remote operated mirrors constructed from a molded composite material with a bright finish will be provided. A heated 8.00" convex mirror will be included below the primary mirrors.

CAB ACCESS STEPS
The cab steps will be provided by the apparatus manufacturer in compliance with ULC requirements.

STEP LIGHTS
There will white LED step lights provided to meet NFPA step lighting requirements. Lights will be installed at each cab and crew cab door step.

The lights will be activated when any cab door is opened.

POWER WINDOWS AND LOCKS
The cab doors will have electrically powered windows and locks.

DAYTIME RUNNING LIGHTS
The chassis will be provided with daytime running lights.

AIR CONDITIONING
An air conditioner will be provided that is integral with heater and defroster system.

ENGINE COMPARTMENT LIGHTS
Two (2) engine compartment lights will be installed under the engine hood, of which the switches are an integral part.

SEATING CAPACITY
The seating capacity in the cab will be five (5).

SEATING
Seating inside the cab will consist of a Seats Inc. air-ride driver seat and a non-suspension Seats Inc. 911 SCBA officer seat.

SEATING (CREW CAB)
Three (3) individual Seats Inc. #911 SCBA style seats will be provided inside the crew cab. Each seat will be mounted to an individual storage box with drop down hinged door and latch.

AIR BOTTLE HOLDERS
A Ziamatic, Model ULLH, SCBA holder will be mounted in the back rest of the SCBA seat. This bracket will include a backplate, two (2) seats, a footplate and the model LLS (Load & Lock) strap to hold the bottle in the bracket. The bracket seats will be a one (1) size fits all style seat and will accommodate SCBA cylinders from the high pressure 30 minute to the high pressure 60 minute. Seats will be adjustable up and down by unbolting, relocating, and rebolting in the desired position. There will be a quantity of four (4).

SEAT BELT WEB LENGTH
NFPA 14.1.3.2 and 14.1.3.3 requires effective seat belt web length for a Type 1 lap belt for pelvic restraint to be a minimum of 60 in., and a Type 2 pelvic and upper torso restraint-style seat belt assembly to be a minimum of 110 in.

Per Fire Department specification of a commercial chassis, this apparatus will have seat belts of the required length. These belts will provide sufficient length for large firefighters in bunker gear. This apparatus will be compliant to NFPA standards effective at time of contract execution.

SEAT BELTS
All seating positions in the cab and crew cab will have highly visible (orange) seat belts.

HELMET STORAGE PROVIDED BY FIRE DEPARTMENT
CAN/ULC-S515, current edition, section 13.2.1.5 requires a location for helmet storage be provided.

There is no helmet storage on the apparatus as manufactured. The fire department will provide a location for storage of helmets.

PORTABLE HAND LIGHTS PROVIDED BY FIRE DEPARTMENT
CAN/ULC-S515, current edition, section 4.9.3.1 requires two portable hand lights.

The hand lights are not on the apparatus as manufactured. The fire department will provide these hand lights.

CAB INSTRUMENTS
- Engine Temperature Gauge and Warning Buzzer

- Engine Oil Pressure Gauge and Warning Buzzer

- Speedometer with KPH scale (MPH secondary scale)

- Engine Tachometer

- Engine Hourmeter

- Fuel Level Gauge

- Voltmeter: Low voltage red warning light and audible alarm

- Air Brake Pressure Gauge

- Air Restriction Indicator

- Circuit Breakers: For overload protection of electric circuits

- Ignition Switch: Keyless type

EMERGENCY SWITCH PANEL

An emergency switch panel will be provided in the cab. The switch panel will be located within reach of the driver. All NFPA required emergency lights will be controlled from the master emergency switch. References within this proposal to a "switch in the cab" for zone specific options will mean the emergency master switch.

"DO NOT MOVE APPARATUS" INDICATOR

A flashing red indicator light (located in the driving compartment) will be illuminated automatically per the current edition of NFPA. The light will be labeled "Do Not Move Apparatus If Light Is On".

The same circuit that activates the Do Not Move Apparatus indicator will not activate any alarm when the parking brake is released.

DO NOT MOVE TRUCK MESSAGES

A message will be displayed on the VMUX display in view of the driver whenever any of the following conditions exist:

- CAB DOOR OPEN (Any Cab Door Open with ignition on)
- LH COMPARTMENT OPEN (Any Left Hand Compartment Door Open)
- RH COMPARTMENT OPEN (Any Right Hand Compartment Door Open)
- REAR DOOR OPEN (Any Rear Compartment Door Open)
- TANK RACK DOWN (Tank Rack Not Stowed)
- LH LIGHT POLE RAISED (Left Hand Pole Light Raised)
- RH LIGHT POLE RAISED (Right Hand Pole Light Raised)

A warning message will also be displayed for any other device that is opened, extended or deployed that creates a hazard or is likely to cause major damage to the apparatus if the apparatus is moved.

WIPER CONTROL

Wiper control will include an intermittent feature and windshield washer controls.

POWER RECEPTACLES

There will be two (2) power receptacles located in the dash provided by the chassis manufacturer.

The circuit(s) may be load managed when the parking brake is set.

VEHICLE DATA RECORDER

There will be a vehicle data recorder (VDR) capable of reading and storing vehicle information provided.

The information stored on the VDR can be downloaded through a USB port mounted in a convenient location determined by cab model. A USB cable can be used to connect the VDR to a laptop to retrieve required information. The program to download the information from the VDR will be available to download on-line.

The vehicle data recorder will be capable of recording the following data via hardwired and/or CAN inputs:

- Vehicle Speed - MPH
- Acceleration - MPH/sec
- Deceleration - MPH/sec
- Engine Speed - RPM
- Engine Throttle Position - % of Full Throttle
- ABS Event - On/Off
- Seat Occupied Status - Yes/No by Position
- Seat Belt Buckled Status - Yes/No by Position
- Master Optical Warning Device Switch - On/Off
- Time - 24 Hour Time
- Date - Year/Month/Day

Seat Belt Monitoring System

A seat belt monitoring system (SBMS) will be provided. The SBMS will be capable of monitoring up to six (6) seating positions indicating the status of each seat position per the following:

- Seat Occupied & Buckled = Green LED indicator illuminated
- Seat Occupied & Unbuckled = Red LED indicator with audible alarm
- No Occupant & Buckled = Red LED indicator with audible alarm
- No Occupant & Unbuckled = No indicator and no alarm

The SBMS will include an audible alarm that will warn that an unbuckled occupant condition exists and the parking brake is released, or the transmission is not in park.

TWO-WAY RADIO ACCOMMODATION PACKAGE

One set of 12 volt wire leads will be provided for the future installation of a two-way radio. These leads will consist of one (1) 30-amp battery direct circuit, one (1) 10-amp battery switched circuit and one (1) ground circuit. These leads will be 6' long and terminate behind the cab dash with heat shrink caps.

One (1) NMO mobile radio antenna mount with RG-58A/U stranded coaxial cable will be provided. The antenna mount will be installed through the cab roof, and the coaxial cable will be routed behind the cab dash. All wiring will be neatly coiled and clearly marked.

A weatherproof cap for the antenna mount will also be installed.

ELECTRICAL

All 12-volt electrical equipment installed by the apparatus manufacturer will conform to modern automotive practices. All wiring will be high temperature crosslink type. Wiring will be run in loom or conduit where exposed and have grommets where wire passes through sheet metal. Automatic reset circuit breakers will be provided which conform to SAE Standards. Wiring will be color, function and number coded. Function and number codes will be continuously imprinted on all wiring harness conductors at 2.00" intervals. Exterior exposed wire connectors will be positive locking, and environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids. Electrical wiring and equipment will be installed utilizing the following guidelines:

(1) All holes made in the roof will be caulked with silicon. Rope caulk is not acceptable. Large fender washers, liberally caulked, will be used when fastening equipment to the underside of the cab roof.

(2) Any electrical component that is installed in an exposed area will be mounted in a manner that will not allow moisture to accumulate in it. Exposed area will be defined as any location outside of the cab or body.

(3) Electrical components designed to be removed for maintenance will not be fastened with nuts and bolts. Metal screws will be used in mounting these devices. Also a coil of wire will be provided behind the appliance to allow them to be pulled away from mounting area for inspection and service work.

(4) Corrosion preventative compound will be applied to all terminal plugs located outside of the cab or body. All non-waterproof connections will require this compound in the plug to prevent corrosion and for easy separation (of the plug).

(5) All lights that have their sockets in a weather exposed area will have corrosion preventative compound added to the socket terminal area.

(6) All electrical terminals in exposed areas will have silicon applied completely over the metal portion of the terminal. All emergency light switches will be mounted on a separate panel installed in the cab. A master warning light switch and individual switches to be provided to allow pre-selection of emergency lights. The light switches will be "rocker" type with an internal indicator light to show when switch is energized. All switches will be properly identified and mounted in a removable panel for ease in servicing. Identification of the switches will be done by either printing or etching on the switch panel. The switches and identification will be illuminated.

All lights and reflectors, required to comply with Federal Motor Vehicle Safety Standard #108, will be furnished. Rear identification lights will be recessed mounted for protection. Lights and wiring mounted in the rear bulkheads will be protected from damage by installing a false bulkhead inside the rear compartments.

An operational test will be conducted to ensure that any equipment that is permanently attached to the electrical system is properly connected and in working order.

The results of the tests will be recorded and provided to the purchaser at time of delivery.

BATTERY SYSTEM
A single starting battery system will be provided consisting of two (2) 12 volt, maintenance-free batteries. The battery system will have a total of 2000 CCA.

Jump Start Connections
Positive and negative posts for jump starting will be provided by the chassis manufacturer. They will be frame mounted and located under the hood.

BATTERY LOCATION
The batteries will be installed in the standard location as provided by the chassis manufacturer. This location is typically under the cab on the left side of the truck.

MASTER BATTERY SWITCH
A master battery switch, to activate the battery system, will be provided inside the cab within easy reach of the driver.

The master battery disconnect switch will be wired between the starter solenoid and the remainder of the electrical loads on the apparatus.

A green "battery on" indicator light, visible from the driver's position, will be provided.

BATTERY CHARGER
An IOTA, Model DLS 45, will be provided.

The battery charger will be wired to the AC shoreline inlet as defined elsewhere in this proposal.

BATTERY CHARGER LOCATION
The battery charger will be located in the left side forward body compartment. It will be mounted as high and forward as practical to keep it protected and away from other equipment in the compartment.

KUSSMAUL AUTO EJECT FOR SHORELINE
one (1) shoreline inlet will be provided to operate the dedicated 120-volt circuits on the truck without the use of the generator.

The shoreline receptacle (s) will be provided with a NEMA 5-20, 120 volt, 20 amp, straight blade Kussmaul auto eject plug with a yellow weatherproof cover. The cover is spring loaded to close, preventing water from entering when the shoreline is not connected.

A solenoid wired to the vehicle's starter is energized when the engine is started. This instantaneously drives the plug from the receptacle.

The shoreline will be connected to the battery charger.

A mating connector body will also be supplied with the loose equipment.

The shoreline receptacle will be located on the driver side of pump panel .

ALTERNATOR
The alternator will be a Delco Remy 40SI, 275 amp, quadramount, with remote battery voltage senser.

ELECTRONIC LOAD MANAGEMENT
Included with the apparatus manufacturer's electrical system will be a programmable load management system.

This system will monitor the vehicle's 12-volt electrical system, and automatically reduce the electrical load in the event of a low voltage condition and by doing so, ensures the integrity of the electrical system.

EXTERIOR LIGHTING
Exterior lighting will meet or exceed Federal Department of Transportation, Federal Motor Vehicle Safety Standards and National Fire Protection Association requirements in effect at this time.

Front headlights will be halogen type and comply to all FMVSS requirements.

Five (5) LED clearance/marker lights will be installed across the leading edge of the cab.

INTERMEDIATE LIGHT
There will be two (2) Truck-Lite®, Model 60421Y, amber LED lights furnished, one (1) each side, horizontally in the rear fender panel. The light will double as a turn signal and marker light.

A stainless steel trim will be included with this installation.

REAR CLEARANCE/MARKER/ID LIGHTING
There will be three (3) LED identification lights located at the rear installed per the following:

- As close as practical to the vertical centerline
- Centers spaced not less than 6.00" or more than 12.00" apart
- Red in color
- All at the same height

There will be two (2) LED lights installed at the rear of the apparatus used as clearance lights located at the rear of the apparatus per the following:

- To indicate the overall width of the vehicle
- One (1) each side of the vertical centerline
- As near the top as practical
- Red in color
- To be visible from the rear
- All at the same height

There will be two (2) LED lights installed on the side of the apparatus used as marker lights as close to the rear as practical per the following:

- To indicate the overall length of the vehicle
- One (1) each side of the vertical centerline
- As near the top as practical
- Red in color
- To be visible from the side
- All at the same height

The lights will be mounted with no guard.

There will be two (2) red reflectors located on the rear of the truck facing to the rear. One (1) each side, as far to the outside as practical, at a minimum of 15.00", but no more than 60.00", above the ground.

There will be two (2) red reflectors located on the side of the truck facing to the side. One (1) each side, as far to the rear as practical, at a minimum of 15.00", but no more than 60.00", above the ground.

Per FMVSS 108 and CMVSS 108 requirements.

REAR FMVSS LIGHTING

There will be two (2) wrap around tri-cluster LED modules provided on the face of the rear body compartments.

Each tri-cluster will include the following:

- One (1) LED stop/tail light
- One (1) LED directional light
- One (1) LED backup light

LICENSE PLATE BRACKET

One (1) license plate bracket constructed of stainless steel will be provided at the rear of the apparatus.

One (1) white LED light with chrome housing will be provided to illuminate the license plate. A stainless steel light shield will be provided over the light that will direct illumination downward, preventing white light to the rear.

BACK-UP ALARM

A PRECO, Model 1040, solid-state electronic audible back-up alarm that actuates when the truck is shifted into reverse will be provided. The device will sound at 60 pulses per minute and automatically adjust its volume to maintain a minimum ten (10) dBA above surrounding environmental noise levels.

CAB PERIMETER SCENE LIGHTS

There will be four (4) Truck-Lite, Model 6060C, white LED lights with grommets provided, one (1) for each cab and crew cab door.

These lights will be activated automatically when the battery switch is on and the exit doors are opened or by the same means as the body perimeter scene lights.

PUMP HOUSE PERIMETER LIGHTS
There will be two (2) Truck-Lite, Model 6060C, white LED lights with grommets provided under the pump panel running boards, one (1) each side.

The lights will be controlled by the same means as the body perimeter lights.

BODY PERIMETER SCENE LIGHTS
There will be two (2) Truck-Lite, Model 6060C, white LED lights with grommets provided under at the rear step area of the body, one (1) each side shining to the rear.

The perimeter scene lights will be activated when the parking brake is applied.

STEP LIGHTS
White LED, step lights will be provided to meet the NFPA step lighting requirement. Lights will be provided on each side, on the front compartment face and at the rear to illuminate the tailboard.

These step lights will be actuated with the parking brake.

All other steps on the apparatus will be illuminated per the current edition of NFPA 1901.

12 VOLT LIGHTING
There will be one (1) Whelen, Model PCPSM1*, 12 volt surface mounted LED combination spot/flood lights located on the left side, one (1) forward, up high on the side of the tank. The lights will be mounted with chrome flange(s), on a housing and/or mounting blister with all wiring totally enclosed.

The lights selected above will be controlled by the following:

- a switch at the driver's side switch panel
- a switch at the driver's side pump panel

These lights may be load managed when the parking brake is set.

12 VOLT LIGHTING
There will be one (1) Whelen, Model PCPSM1*, 12 volt surface mounted LED combination spot/flood light located on the right side, one (1) forward, up high on the side of the tank. The light will be mounted with chrome flange(s), on a housing and/or mounting blister with all wiring totally enclosed.

The light selected above will be controlled by the following:

- a switch at the driver's side switch panel
- a switch at the driver's side pump panel

This light may be load managed when the parking brake is set.

REAR SCENE LIGHTS
There will be two (2) Whelen, Model PELCC, white 12 volt DC LED scene lights with 45 degree chrome housing installed at the rear of the apparatus, one (1) each side mid height on rear body bulkhead.

The lights will be controlled by a switch at the driver's side switch panel.

REAR SCENE LIGHT(S)

There will be two (2) Whelen®, Model 6SC0ENZR, gradient LED scene light(s) with Whelen, Model 6EFLANGE, chrome flange(s) installed at the rear of the apparatus, two (2) on the rear body, spaced evenly under the hose bed . The light(s) will be surface mounted.

The light(s) will be controlled by a cup switch at the driver's side rear bulkhead.

The light(s) may be load managed when the parking brake is set.

WALKING SURFACE LIGHT

There will be Model FRP, 4" round black 12 volt DC LED floodlight(s) with bolt mount provided to illuminate the entire designated walking surface on top of the body.

The light(s) will be activated when the body step lights are on.

WATER TANK

Booster tank will have a capacity of 1000 gallons and be constructed of polypropylene plastic.

Tank joints and seams will be nitrogen welded inside and out.

Tank will be baffled in accordance with NFPA Bulletin 1901 requirements.

Baffles will have vent openings at both the top and bottom to permit movement of air and water between compartments.

Tank top will be sufficiently supported to keep it rigid during fast filling conditions.

A sump will be provided at the bottom of the water tank, and include a drain plug and the tank outlet.

Tank will be installed in a fabricated cradle assembly constructed of structural steel.

Sufficient crossmembers will be provided to properly support bottom of tank. Crossmembers will be constructed of steel bar channel or rectangular tubing.

Tank will "float" in cradle to avoid torsional stress caused by chassis frame flexing. Rubber cushions, .50" thick x 3.00" wide, will be placed on all horizontal surfaces that the tank rests on.

Stops or other provision will be provided to prevent an empty tank from bouncing excessively while moving vehicle.

Mounting system will be approved by the tank manufacturer.

Fill tower will be constructed of .50" polypropylene and will be a minimum of 8.00" wide x 14.00" long.

Fill tower will be furnished with a .25" thick polypropylene screen and a hinged cover.

An overflow pipe, constructed of 4.00" schedule 40 polypropylene, will be installed approximately halfway down the fill tower and extend through the water tank and exit to the rear of the rear axle.

HOSE BED

The hose bed will be fabricated of .125"-5052 aluminum with a nominal 38,000 psi tensile strength.

Upper and rear edges of side panels will have a double break for rigidity.

Flooring of the hose bed will be removable aluminum grating with the top surface corrugated to aid in hose aeration. The grating slats will be a minimum of 0.50" x 4.50" with spacing between slats for hose ventilation.

HOSEBED ILLUMINATION

The hose bed will be illuminated with LED lighting. The lights will have control from a switch at the rear of the truck .

Hose bed will accommodate 1500 feet of 2.50" and 400 feet of 1.50" hose.

HOSE BED DIVIDER

One (1) hosebed divider will be furnished for separating hose.

Each divider will be constructed of a .25" brushed aluminum sheet. Flat surfaces will be sanded for uniform appearance, or constructed of brushed aluminum.

Divider will be fully adjustable by sliding in tracks, located at the front and rear of the hose bed.

Divider will be held in place by tightening bolts, at each end.

Acorn nuts will be installed on all bolts in the hose bed which have exposed threads.

HOSEBED HOSE RESTRAINT

A red hosebed cover will be furnished with velcro with snaps fasteners at the front and velcro with jacket snaps in each corner fasteners on the sides. There will be seat belt buckle fasteners at the bottom of the rear body sheet below the hosebed. The flap at the rear will be weighted with chain weighted.

RUNNING BOARDS

Running boards will be fabricated of .125" bright aluminum treadplate.

Each running board will be supported by a welded 2.00" square tubing and channel assembly, which will be bolted to the pump compartment substructure.

Running boards will be 12.75" deep and spaced .50" away from the pump panel.

A splash guard will be provided above the running board treadplate.

TAILBOARD

The tailboard will also be constructed of .125" bright aluminum treadplate and spaced .50" from the body, as well as supported by a structural steel assembly.

The tailboard area will be 12.00" deep and full width of the body.

The exterior side will be flanged down and in for increased rigidity of tailboard structure.

REAR WALL, SMOOTH ALUMINUM/BODY MATERIAL
The rear facing surfaces of the center rear wall will be smooth aluminum.

The bulkheads, the surface to the rear of the side body compartments, will be smooth and the same material as the body.

The rear wall will be flush.

TOW BAR
A tow bar will be installed under the tailboard at center of truck.

Tow bar will be fabricated of 1.00" CRS bar rolled into a 3.00" radius.

Tow bar assembly will be constructed of .38" structural angle. When force is applied to the bar, it will be transmitted to the frame rail.

Tow bar assembly will be designed and positioned to allow up to a 30-degree upward angled pull of 17,000 lb, or a 20,000 lb straight horizontal pull in line with the centerline of the vehicle.

Tow bar design will have been fully tested and evaluated using strain gauge testing and finite element analysis techniques.

COMPARTMENTATION
Body and compartments will be fabricated of .125", 5052-H32 aluminum.

Side compartments will be an integral assembly with the rear fenders.

Circular fender liners will be provided for prevention of rust pockets and ease of maintenance.

Compartment flooring will be of the sweep out design with the floor higher than the compartment door lip.

Drip protection will be provided above the doors.

All screws and bolts which protrude into a compartment will have acorn nuts on the ends to prevent injury.

UNDERBODY SUPPORT SYSTEM
Due to the severe loading requirements of this pumper a method of body and compartment support suitable for the intended load will be provided.

The backbone of the support system will be the chassis frame rails which is the strongest component of the chassis and is designed for sustaining maximum loads.

AGGRESSIVE WALKING SURFACE
All exterior surfaces designated as stepping, standing, and walking areas will comply with the required average slip resistance of the current NFPA standards.

TESTING OF BODY DESIGN

Body structural analysis will be fully tested. Proven engineering and test techniques such as finite element analysis, stress coating and strain gauging will be performed with special attention given to fatigue, life and structural integrity of the cab, body and substructure.

Body will be tested while loaded to its greatest in-service weight.

The criteria used during the testing procedure will include:

- Raising opposite corners of the vehicle tires 9.00" to simulate the twisting a truck may experience when driving over a curb.

- Making a 90 degree turn, while driving at 20 mph to simulate aggressive driving conditions.

- Driving the vehicle at 35 mph on a washboard road.

- Driving the vehicle at 55 mph on a smooth road.

- Accelerating the vehicle fully, until reaching the approximate speed of 45 mph on rough pavement.

Evidence of actual testing techniques will be made available upon request.

LEFT SIDE COMPARTMENTATION

A full height, roll-up door compartment ahead of the rear wheels will be provided. The interior dimensions of this compartment will be 29.50" wide x 60.00" high x 26.00" deep in the lower 30.50" of the compartment and 13.00" deep in the remaining upper portion. The height of the compartment will be measured from the compartment floor to the bottom edge of the door roll. The depth of the compartment will be calculated with the compartment door closed. The compartment interior will be fully open from the compartment ceiling to the compartment floor and designed so that no permanent dividers are required between the upper and lower sections. The clear door opening of this compartment will be 26.625" wide x 63.75" high.

Closing of the door will not require releasing, unlocking, or unlatching any mechanism and will easily be accomplished with one hand.

A roll-up door compartment over the rear wheels will be provided. The interior dimensions of this compartment will be 59.00" wide x 34.25" high x 13.00" deep. The height of the compartment will be measured from the compartment floor to the bottom edge of the door roll. The depth of the compartment will be calculated with the compartment door closed. The clear door opening of this compartment will be 59.00" wide x 35.25" high.

Closing of the door will not require releasing, unlocking, or unlatching any mechanism and will easily be accomplished with one hand.

A full height, roll-up door compartment behind the rear wheels will be provided. The interior dimensions of this compartment will be 48.625" wide x 60.00" high x 26.00" deep in the lower 30.50" of height and 13.00" deep in the remaining upper section of the compartment. The height of the compartment will be measured from the compartment floor to the bottom edge of the door roll. The depth of the

compartment will be calculated with the compartment door closed. The compartment interior will be fully open from the compartment ceiling to the compartment floor and designed so that no permanent dividers are required between the upper and lower sections. The clear door opening of this compartment will be 48.50" wide x 63.75" high.

Closing of the door will not require releasing, unlocking, or unlatching any mechanism and will easily be accomplished with one hand.

RIGHT SIDE COMPARTMENTATION

A full height, roll-up door compartment ahead of the rear wheels will be provided. The interior dimensions of this compartment will be 29.50" wide x 60.00" high x 26.00" deep in the lower 30.50" of the compartment and 13.00" deep in the remaining upper portion. The height of the compartment will be measured from the compartment floor to the bottom edge of the door roll. The depth of the compartment will be calculated with the compartment door closed. The compartment interior will be fully open from the compartment ceiling to the compartment floor and designed so that no permanent dividers are required between the upper and lower sections. The clear door opening of this compartment will be 26.625" wide x 63.75" high.

Closing of the door will not require releasing, unlocking, or unlatching any mechanism and will easily be accomplished with one hand.

A roll-up door compartment over the rear wheels will be provided. The interior dimensions of this compartment will be 59.00" wide x 34.25" high x 13.00" deep. The height of the compartment will be measured from the compartment floor to the bottom edge of the door roll. The depth of the compartment will be calculated with the compartment door closed. The clear door opening of this compartment will be 59.00" wide x 35.25" high.

Closing of the door will not require releasing, unlocking, or unlatching any mechanism and will easily be accomplished with one hand.

A full height, roll-up door compartment behind the rear wheels will be provided. The interior dimensions of this compartment will be 48.625" wide x 60.00" high x 26.00" deep in the lower 30.50" of height and 13.00" deep in the remaining upper section of the compartment. The height of the compartment will be measured from the compartment floor to the bottom edge of the door roll. The depth of the compartment will be calculated with the compartment door closed. The compartment interior will be fully open from the compartment ceiling to the compartment floor and designed so that no permanent dividers are required between the upper and lower sections. The clear door opening of this compartment will be 48.50" wide x 63.75" high.

Closing of the door will not require releasing, unlocking, or unlatching any mechanism and will easily be accomplished with one hand.

ROLLUP DOOR, SIDE COMPARTMENTS

There will be six (6) compartment doors installed on the side compartments. The doors will be double faced aluminum construction, painted one (1) color to match the lower portion of the body and manufactured by Gortite®.

Lath sections will be an interlocking rib design and will be individually replaceable without complete disassembly of door.

Between each slat at the pivoting joint will be a PVC inner seal to prevent metal to metal contact and prevent dirt or moisture from entering the compartments. Seals will allow door to operate in extreme temperatures ranging from 180 to -40 degrees Fahrenheit. Side, top and bottom seals will be provided to resist ingress of dirt and weather and be made of Santoprene.

All hinges, barrel clips and end pieces will be nylon 66. All nylon components will withstand temperatures from 300 to -40 degrees Fahrenheit.

A polished stainless steel lift bar to be provided for each roll-up door. Lift bar will be located at the bottom of door and have latches on the outer extrusion of the doors frame. A ledge will be supplied over lift bar for additional area to aid in closing the door.

Doors will be constructed from an aluminum box section. The exterior surface of each slat will be flat. The interior surfaces will be concave to provide strength and prevent loose equipment from jamming the door from inside.

To conserve space in the compartments, the spring roller assembly will not exceed 3.00" in diameter.

The header for the rollup door assembly will not exceed 4.00".

A heavy-duty magnetic switch will be used for control of open compartment door warning lights.

REAR COMPARTMENTATION

A roll-up door compartment above the rear tailboard will be provided.

Interior dimensions of this compartment will be 42.00" wide x 56.63" high x 27.88" deep in the lower 47.75" of height and 19.75" deep in the remaining upper portion. Depth of the compartment will be calculated with the compartment door closed.

For a chassis with a rear mounted fuel tank, a louvered removable access panel will be furnished on the back wall of the compartment.

Rear compartment will be open into the rear side compartments.

Clear door opening of this compartment will be 34.38" wide x 48.25" high.

Closing of the door will not require releasing, unlocking, or unlatching any mechanism and will easily be accomplished with one hand.

ROLLUP REAR COMPARTMENT DOOR

There will be a rear rollup door. The door will be double faced aluminum construction, an anodized satin finish and manufactured by Gortite®.

Lath sections will be an interlocking rib design and will be individually replaceable without complete disassembly of door.

Between each slat at the pivoting joint will be a PVC inner seal to prevent metal to metal contact and prevent dirt or moisture from entering the compartments. Seals will allow door to operate in extreme temperatures ranging from 180 to -40 degrees Fahrenheit. Side, top and bottom seals will be provided to resist ingress of dirt and weather and be made of Santoprene.

All hinges, barrel clips and end pieces will be nylon 66. All nylon components will withstand temperatures from 300 to -40 degrees Fahrenheit.

A polished stainless steel lift bar to be provided for each roll-up door. Lift bar will be located at the bottom of door and have latches on the outer extrusion of the doors frame. A ledge will be supplied over lift bar for additional area to aid in closing the door.

Door will be constructed from an aluminum box section. The exterior surface of each slat will be flat. The interior surface will be concave to provide strength and prevent loose equipment from jamming the door from inside.

To conserve space in the compartments, the spring roller assembly will not exceed 3.00" in diameter.

The header for the rollup door assembly will not exceed 4.00".

A heavy-duty magnetic switch will be used for control of open compartment door warning lights.

COMPARTMENT LIGHTING

There will be seven (7) compartments with LED compartment light strip. Each light strip will be centered vertically along the door framing. All body compartments with roll-up doors will have these strip lights.

Any remaining compartment without a light strip will have a 6.00" diameter Truck-Lite, Model: 79384 light. Each light will have a number 1076 one filament, two wire bulb.

Opening the compartment door will automatically turn the compartment lighting on.

MOUNTING TRACKS

There will be six (6) sets of tracks for mounting shelf(s) in LS1, LS2, LS3, RS1, RS2 and RS3 . These tracks will be installed vertically to support the adjustable shelf(s), and will be full height of the compartment. The tracks will be unpainted with a natural finish.

ADJUSTABLE SHELVES

There will be six (6) shelves with a capacity of 215 lb provided. The shelf construction will consist of .18" aluminum with 2.00" sides. Each shelf will be painted to match the compartment interior. Each shelf will be infinitely adjustable by means of a threaded fastener, which slides in a track.

The shelves will be held in place by .12" thick stamped plated brackets and bolts.

The location will be in LS1 at the depth transition point, in RS1 at the transition point, in RS3 at the transition point, in RS2 centered between the floor and the ceiling, in LS2 centered between the floor and ceiling and in LS3 at the depth transition point .

RUB RAIL
Bottom edge of the side compartments will be trimmed with a bright aluminum extruded rub rail.

Trim will be 2.12" high with 1.38" flanges turned outward for rigidity.

The rub rails will not be an integral part of the body construction, which allows replacement in the event of damage.

BODY FENDER CROWNS
Stainless steel fender crowns will be provided around the rear wheel openings.

A rubber welting will be installed between the body and the crown to seal the seam and restrict moisture from entering.

A dielectric barrier will be provided between the fender crown fasteners (screws) and the fender sheet metal to prevent corrosion.

HARD SUCTION HOSE
Hard suction hose will not be required.

HANDRAILS
The handrails will be 1.25" diameter knurled aluminum to provide a positive gripping surface.

Chrome plated end stanchions will support the handrail. Plastic gaskets will be used between end stanchions and any painted surfaces.

Drain holes will be provided in the bottom of all vertically mounted handrails.

Handrails will be provided to meet NFPA 1901 section 15.8 requirements. The handrails will be installed as noted on the sales drawing.

- One (1) vertical handrail, with offset stanchions will be located on each rear bulkhead.
- Additionally, a handrail to aid in accessing the hose bed will be installed on the left side rear vertical and top horizontal rearward edge of the hosebed side sheet.

AIR BOTTLE STORAGE
A total of four (4) air bottle compartments will be provided, two (2) each side of the body. The air bottle compartment will be in the form of a PVC round tube to accommodate different size air bottles. The inside diameter of the tube will be approximately 7.63" in diameter x 26.00" deep. Drain holes will be provided at the bottom of the tubes to prevent water collection.

A Cast Products door with latch will be provided to contain the air bottle.

EXTENSION LADDER
There will be a 24' two-section aluminum Duo-Safety Series 900-A extension ladder provided.

ROOF LADDER
There will be a 14' aluminum Duo-Safety Series 775-A roof ladder provided.

LADDER STORAGE
The ladders will be stored inside the upper section of the right side compartments.

The ladder rack will reduce the depth of the upper section, in the side compartments, by approximately 12.00".

A partition will be installed inside the compartments to conceal the ladder rack and allow for equipment storage. The ladders will extend through the forward wall of the compartmentation, into the pump area. The ladders will be stored in separate storage troughs lined with Dura-Surf slides to aid in loading and unloading of the ladders. Rear of ladder storage area will be a vertically hinged door with D-ring latch to contain the ladders.

FOLDING LADDER
One (1) 10.00' aluminum, Series 585-A, Duo-Safety folding ladder will be installed in a U-shaped trough inside the ladder storage compartment .

6 FT PIKE POLE PROVIDED BY FIRE DEPARTMENT
CAN/ULC-S515, current edition, section 4.9.3.1 requires one (1) 1.8 m (6 ft) pike pole or plaster hook.

The pike pole is not on the apparatus as manufactured. The fire department will provide the pike pole.

The pike pole(s) will be a Akron 6' pike pole.

PIKE POLE STORAGE
Tubing will be used for the storage of two (2) pike poles and will be located in the ladder storage compartment . If the head of a pike pole can come in contact with a painted surface, a stainless steel scuffplate will be provided.

STEP, CARGO ACCESS
One (1) wedge step will be located on the left side of the cargo area to provide a NFPA compliant step height into the cargo area.The step will be approximately 8.00" deep to be NFPA compliant.

NO STEPS REQUIRED, FRONT OF BODY
No steps will be required at the front of the body, as access to the cargo area and hose bed is defined elsewhere in this specification.

LADDER, HOSE BED ACCESS
A hose bed access ladder, constructed of aluminum rungs and extruded aluminum rails, will be provided on the left side rear of the apparatus.

PUMP COMPARTMENT
The pump compartment will be separate from the hose body and compartments so that each may flex independently of the other. It will be a fabricated assembly of steel tubing, angles and channels which supports both the fire pump and the side running boards.

The pump compartment will be mounted on the chassis frame rails with rubber biscuits in a four point pattern to allow for chassis frame twist.

Pump compartment, pump, plumbing and gauge panels will be removable from the chassis in a single assembly.

PUMP CONTROL PANELS (SIDE CONTROL)

All pump controls and gauges will be located at the left side of the apparatus and properly marked.

The pump panel on the right side is removable with lift and turn type fasteners. The left side is fastened with screws.

The control panels will be 45.00" wide.

The gauge and control panels will be two (2) separate panels for ease of maintenance.

Polished stainless steel trim collars will be installed around all inlets and outlets.

All push/pull valve controls will have 1/4 turn locking control rods with polished chrome plated zinc tee handles. Guides for the push/pull control rods will be chrome plated zinc castings securely mounted to the pump panel. Push/pull valve controls will be capable of locking in any position. The control rods will pull straight out of the panel and will be equipped with universal joints to eliminate binding.

The identification tag for each valve control will be recessed in the face of the tee handle.

All discharge outlets will have color coded identification tags, with each discharge having its own unique color. Color coding will include the labeling of the outlet and the drain for each corresponding discharge.

All line pressure gauges will be mounted in individual chrome plated castings with the identification tag recessed in the casting below the gauge. All remaining identification tags will be mounted on the pump panel in chrome plated bezels. Mounting of the castings and identification bezels will be done with a threaded peg cast on the back side of the bezel or screws.

PUMP

Pump will be a Waterous CXPA, 1250 gpm, single (1) stage, power take off (PTO) driven midship mounted centrifugal type.

Pump will be the class "A" type.

Pump will deliver the percentage of rated discharge at pressures indicated below:

- 100% of rated capacity at 150 psi net pump pressure.

-70% of rated capacity at 200 psi net pump pressure.

-50% of rated capacity at 250 psi net pump pressure.

Pump casting will be a two (2) piece, vertically split design and will be constructed of high tensile, close grain gray iron.

Impeller shaft will be stainless steel, heat treated, accurately ground to size, and polished under the shaft seal. It will be supported by oil lubricated ball bearings.

Bearings will be protected from water and sediment by suitable stuffing boxes, flinger rings, and oil seals. No special or sleeve type bearings will be used.

MECHANICAL SEAL ON PUMP

Pump will be equipped with a self-adjusting, maintenance-free, mechanical shaft seal.

The mechanical seal will consist of a flat, highly polished, spring fed carbon ring that rotates with the impeller shaft. The carbon ring will press against a highly polished stainless steel stationary ring that is sealed within the pump body.

In addition, a throttling ring will be pressed into the steel chamber cover, providing a very small clearance around the rotating shaft in the event of a mechanical seal failure. The pump performance will not deteriorate, nor will the pump lose prime, while drafting if the seal fails during pump operation.

Wear rings will be bronze and easily replaceable to restore original pump efficiency and eliminate the need to replace the entire pump casing due to wear.

PUMP TRANSMISSION

The pump transmission will be made of light weight aluminum casing. Power transfer to pump will be through a pressure lubricated, Morse HY-VO drive chain.

Drive shafts will be a minimum of 1.50" diameter hardened and ground alloy steel. All shafts will be ball bearing supported. The case will be designed as to eliminate the need for water cooling.

The water pump will be driven by a special heavy duty ten (10)-bolt hot shift PTO. It will be located on the left side of the chassis transmission. This PTO will be designed specifically for the torque required to drive a 1250 gpm or larger water pump.

PUMPING MODE

An interlock system will be provided to ensure that the pump drive system components are properly engaged so that the apparatus can be safely operated. Interlock system will be designed to allow stationary pumping only.

If the selection is made for the truck to "pump in motion", then a digital pump pressure gauge will be supplied in the cab.

PUMP SHIFT

A pump shift will be provided within easy reach of the driver for engagement of the PTO driven pump. The shift will include the indicator lights as mandated by NFPA. The pump shift control will be illuminated to meet NFPA requirements.

AUXILIARY COOLING SYSTEM

A supplementary heat exchange cooling system will be provided to allow the use of water from the discharge side of the pump for cooling the engine water. The heat exchanger will be a separate unit. It

will be installed in the pump or engine compartment with the control located on the pump operator's control panel. The exchanger will be plumbed to the master drain valve.

INTAKE RELIEF VALVE

An intake relief valve will be installed on the suction side of the pump preset at 125 psig.

Relief valve will have a working range of 50 psig to 350 psig.

Outlet will terminate below the frame rails with a 2.50" National Standard hose thread adapter and will have a "do not cap" warning tag.

PRESSURE CONTROLLER

A Fire Research Pump Boss Model PBA200 pressure governor will be provided.

A pressure transducer will be installed in the water discharge manifold on the pump.

The display panel will be located at the pump operator's panel.

PRIMING PUMP

The priming pump will be a Trident Emergency Products compressed air powered, high efficiency, multistage venturi based AirPrime System, conforming to standards outlined in the current edition of NFPA 1901.

All wetted metallic parts of the priming system are to be of brass and stainless steel construction.

One (1) priming control will open the priming valve and start the pump primer.

PUMP MANUALS

There will be a total of two (2) pump manuals provided by the pump manufacturer and furnished with the apparatus. The manuals will be provided by the pump manufacturer in the form of two (2) electronic copies. Each manual will cover pump operation, maintenance, and parts.

PLUMBING, STAINLESS STEEL AND HOSE

All inlet and outlet lines will be plumbed with either stainless steel pipe, flexible polypropylene tubing or synthetic rubber hose reinforced with hi-tensile polyester braid. All hose's will be equipped with brass or stainless steel couplings. All stainless steel hard plumbing will be a minimum of a schedule 10 wall thickness.

Where vibration or chassis flexing may damage or loosen piping or where a coupling is required for servicing, the piping will be equipped with victaulic or rubber couplings.

Plumbing manifold bodies will be ductile cast iron or stainless steel.

All piping lines are to be drained through a master drain valve or will be equipped with individual drain valves. All drain lines will be extended with a hose to drain below the chassis frame.

All water carrying gauge lines will be of flexible polypropylene tubing.

All piping, hose and fittings will have a minimum of a 500 PSI hydrodynamic pressure rating.

FOAM SYSTEM PLUMBING

All piping that is in contact with the foam concentrate or foam/water solution will be stainless steel. The fittings will be stainless steel or brass. Cast iron pump manifolds will be allowed.

MAIN PUMP INLETS

A 6.00" pump manifold inlet will be provided on each side of the vehicle. The suction inlets will include removable die cast zinc screens that are designed to provide cathodic protection for the pump, thus reducing corrosion in the pump.

MAIN PUMP INLET CAP

The main pump inlets will have National Standard Threads with a long handle chrome cap.

The cap will be the Pierce VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.

VALVES

All ball valves will be Akron® Brass. The Akron valves will be the 8000 series heavy-duty style with a stainless steel ball and a simple two-seat design. No lubrication or regular maintenance is required on the valve.

Valves will have a **ten (10) year** warranty.

The location of the valve for the one (1) inlet will be recessed behind the pump panel.

INLET CONTROL

The side auxiliary inlet(s) will incorporate a quarter-turn ball valve with the control located at the inlet valve. The valve operating mechanism will indicate the position of the valve.

LEFT SIDE INLET

There will be one (1) auxiliary inlet with a 2.50" valve at the left side pump panel, terminating with a 2.50" (F) National Standard hose thread adapter.

The auxiliary inlet will be provided with a strainer, chrome swivel and plug.

INLET BLEEDER VALVE

A 0.75" bleeder valve will be provided for each side gated inlet.

The valves will be located behind the panel with a "T" swing style handle control extended to the outside of the panel.

The handles will be chrome plated and provide a visual indication of valve position. The swing handle will provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage.

The water discharged by the bleeders will be routed below the chassis frame rails.

TANK TO PUMP

The booster tank will be connected to the intake side of the pump with heavy duty 4.00" piping and a quarter turn 3.00" valve with the control remotely located at the operator's panel. A rubber coupling will be included in this line to prevent damage from vibration or chassis flexing.

A check valve will be provided in the tank to pump supply line to prevent the possibility of "back filling" the water tank.

TANK REFILL

A 1.50" combination tank refill and pump re-circulation line will be provided, using a quarter-turn full flow ball valve controlled from the pump operator's panel.

DISCHARGE OUTLET CONTROLS

The discharge outlets will incorporate a quarter-turn ball valve with the control located at the pump operator's panel. The valve operating mechanism will indicate the position of the valve.

If a handwheel control valve is used, the control will be a minimum of a 3.9" diameter stainless steel handwheel with a dial position indicator built in to the center of the handwheel.

Any 3.00 inch or larger discharge valve will be a slow-operating valve in accordance with NFPA 16.7.5.3.

LEFT SIDE DISCHARGE OUTLETS

There will be Two (2) discharge outlets with a 2.50" valve on the left side of the apparatus, terminating with a 2.50" (M) National Standard hose thread adapter.

LEFT SIDE OUTLET ELBOWS

The 2.50" discharge outlets located on the left side pump panel will be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) National Standard hose thread, chrome plated, 45 degree elbow.

The elbow will be Pierce VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.

RIGHT SIDE DISCHARGE OUTLETS

There will be One (1) discharge outlet with a 2.50" valve on the right side of the apparatus, terminating with a (M) 2.50" National Standard hose thread adapter.

RIGHT SIDE OUTLET ELBOWS

The 2.50" discharge outlets located on the right side pump panel will be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) National Standard hose thread, chrome plated, 45 degree elbow.

The elbow will be Pierce VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.

There will be One (1) discharge outlet with a 3.00" valve on the right side of the apparatus, terminating with a male 3.00" National Standard hose thread adapter.

ADDITIONAL RIGHT SIDE OUTLET ELBOWS

The 3.00" discharge outlets, located on the right side pump panel, will be furnished with a 3.00" (F) National Standard hose thread x 2.50" (M) National Standard hose thread, chrome plated, 45 degree elbow.

The elbow will be the Pierce VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.

FRONT OF HOSE BED DISCHARGE OUTLET

There will be One (1) discharge outlet discharge(s) piped to the front of the hose bed and located right side . Plumbing will consist of 2.50" piping with a 2.50" full-flow ball valve controlled at the pump operator's panel. The discharge(s) will terminate with a 2.50" (M) National Standard hose thread adapter.

DISCHARGE CAPS/ INLET PLUGS

Chrome plated, rocker lug, caps with chain will be furnished for all discharge outlets 1.00" thru 3.00" in size, besides the pre-connected hose outlets.

Chrome plated, rocker lug, plugs with chain will be furnished for all auxiliary inlets 1.00" thru 3.00" in size.

The caps and plugs will incorporate a thread design to automatically relieve stored pressure in the line when disconnected.

OUTLET BLEEDER VALVE

A 0.75" bleeder valve will be provided for each outlet 1.50" or larger. Automatic drain valves are acceptable with some outlets if deemed appropriate with the application.

The valves will be located behind the panel with a T swing style handle control extended to the outside of the side pump panel.

The handles will be chrome plated and provide a visual indication of valve position.

The T swing handle will provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage.

Bleeders will be located at the bottom of the pump panel. They will be properly labeled identifying the discharge they are plumbed in to.

The water discharged by the bleeders will be routed below the chassis frame rails.

DELUGE RISER

A 3.00" deluge riser will be installed above the pump in such a manner that a monitor can be mounted and used effectively.

The 3.00" piping will be installed securely so there is no movement when the line is charged. A 2.50" gated valve will be installed and directly controlled at the pump operator's position with a lever style handle.

This deluge outlet will flow a minimum 1000 GPM.

MONITOR

The customer or dealer will supply and install the monitor. The make and model TBD monitor will be properly installed on the deluge riser by the customer or dealer.

The deluge riser will have male National Pipe Threads for mounting the monitor.

SPEEDLAY HOSE RESTRAINT

A black 1.00" nylon webbing design with 2.00" box pattern will be provided across each end of two (2) speedlay(s) to secure the hose during travel. The webbing will be permanently attached at the bottom of the speedlay opening. There will be quarter turn fasteners located at the opposite end of the permanently attached webbing.

SPEEDLAYS WITH TRAY

Ahead of the pump enclosure will be two (2) 1.75" speedlay hose beds. Each bed will have a 2.00" preconnect line with a 2.00" quarter-turn ball valve and terminate with a 1.50" National Standard hose thread 90 degree swivel. The swivel will be located at the top of the speedlay compartment to allow easy removal of the hose in either direction.

Individual controls for the speedlays will be at the pump operator's panel.

Each compartment will be capable of carrying 200 feet of 1.75" double jacketed hose with the one (1) compartment located above the other.

A removable tray will be provided for each speedlay hosebed. The speedlay trays will be constructed with two (2) hand holes for easy removal from the compartment. The floor of the trays will be perforated to allow for drainage and hose drying.

SPEEDLAY HOSE RESTRAINT

A 2.00" black nylon webbing design restraint will be provided across the ends of speedlay(s) to secure the hose during travel. The webbing assembly is to be attached at the bottom of the speedlay(s) with footman loops as a permanent attachment and is attached at the top with quarter-turn fastener(s).

HUSKY 3 FOAM PROPORTIONER

A Pierce Husky 3 foam proportioning system will be provided. The Husky 3 is an on demand, automatic proportioning, single point, direct injection system suitable for all types of Class A and B foam concentrates, including the high viscosity (6000 cps), alcohol resistant Class B foams. Operation will be based on direct measurement of water flow, and remain consistent within the specified flows and pressures. The system will automatically proportion foam solution at rates from 0.1 percent to 3 percent regardless of variations in water pressure and flow, up to the maximum rated capacity of the foam concentrate pump.

The design of the system will allow operation from draft, hydrant, or relay operation.

System Capacity

The system will have the ability to deliver the following minimum foam solution flow rates at accuracies that meet or exceed NFPA requirements at a pump rating of 150 psi.

- 100 gpm @ 3 percent
- 300 gpm @ 1 percent
- 600 gpm @ 0.5 percent

Class A foam setting in 0.1 percent increments from 0.1 percent to 1 percent. Typical settings of 1 percent, 0.5 percent and 0.3 percent (maximum capacity will be limited to the plumbing and water pump capacity).

Control System

The system will be equipped with a digital electronic control display located on the pump operators panel. Push button controls will be integrated into the panel to turn the system on/off, control the foam percentage, and to set the operation modes.

The percent of injection will have a preset. This preset can be changed at the fire department as desired. The percent of injection will be able to be easily changed at the scene to adjust to changing demands.

Three (3) 0.50" tall LEDs will display the foam percentage in numeric characters. Three (3) indicator LEDs will also be included: one (1) green, one (1) red, and one (1) yellow. The LEDs will indicate various system operation or error states.

The indications will be:

- Solid Green - System On
- Solid Red - Valve Position Error
- Solid Yellow - Priming System
- Flashing Green - Injecting Foam
- Flashing Red - Low Tank Level
- Flashing Yellow - Refilling Tank

The control display will house a microprocessor, which receives input from the systems water flow meter while also monitoring the position of the foam concentrate pump. The microprocessor will compare the values of the water flow versus the position/rate of the foam pump, to ensure the proportion rate is accurate. One (1) check valve will be installed in the plumbing to prevent foam from contaminating the water pump.

Hydraulic Drive System

The foam concentrate pump will be powered by an electric over hydraulic drive system. The hydraulic system and motor will be integrated into one (1) unit.

Foam Concentrate Pump

The foam concentrate pump will be of positive displacement, self-priming; linear actuated design, driven by the hydraulic system. The pump will be constructed of brass body; chrome plated stainless steel shaft, with a stainless steel piston. In order to increase longevity of the pump, no aluminum will be present in its construction.

A relief system will be provided which is designed to protect the drive system components and prevent over pressuring the foam concentrate pump

The foam concentrate pump will have minimum capacity for 3 gpm with all types of foam concentrates with a viscosity at or below 6000 cps including protein, fluoroprotein, AFFF, FFFP, or AR-AFFF. The system will deliver only the amount of foam concentrate flow required, without recirculating foam back to the storage tank. Recirculating foam concentrate back to the storage tank can cause agitation and premature foaming of the concentrate, which can result in system failure. The foam concentrate pump will be self-priming and have the ability to draw foam concentrate from external supplies such as drums or pails.

External Foam Concentrate Connection

An external foam pick-up will be provided to enable use of a foam agent that is not stored on the vehicle. The external foam pick-up will be designed to allow continued operation after the on-board foam tank is empty, or the use of foam different than the foam in the foam tank.

Panel Mounted External Pick-Up Connection / Valve

A bronze three (3)-way valve will be provided. The unit will be mounted to the pump panel. The valve unit will function as the foam system tank to pump valve and external suction valve. The external foam pick-up will be one (1) 0.75" male connection GHT (garden hose thread) with a cap.

Pick-Up Hose

A 0.75" flexible hose with an end for insertion into foam containers will be provided. The hose will be supplied with a 0.75" female swivel GHT (garden hose thread) swivel connector. The hose will be shipped loose.

Discharges

The foam system will be plumbed into a manifold. All outlets that are plumbed into that manifold will be foam capable. This will include, but will not be limited to the two (2) speedlays and 2.50" rear outlet.

(**TECH NOTE:** The 2.50" side outlets and the deluge are the only discharge outlets not plumbed into the manifold and therefore, will not be foam capable.)

System Electrical Load

The maximum current draw of the electric motor and system will be no more than 55 amperes at 12 VDC.

FOAM CAPABLE DISCHARGES

The foam system will be plumbed into a manifold. All outlets that are plumbed into that manifold will be foam capable.

Foam capable outlets will be:

- Speedlays (2)
- Rear 2.50" outlet

(**TECH NOTE:** The 2.50" side outlets and the deluge are not plumbed into the manifold and therefore, will not be foam capable.)

REFILL, SINGLE FOAM TANK

The foam system's proportioning pump will be used to fill the foam tank. This will allow use of the auxiliary foam pick-up to pump the foam from pails or a drum on the ground into the foam tank. A foam shut-off switch will be installed in the fill dome of the tank to shut the system down when the tank is full. The fill operation will be controlled by a mode in the foam system controller. While the proportioner pump is filling the tank, the controller will display a flashing yellow LED to indicate that the tank is filling. When the tank is full, as determined by the float switch in the tank dome, the pump will stop and the controller will shut the yellow LED off. If it attempted to use tank fill and the refill valve and suction valve are in the wrong position(s), then a red LED will illuminate to indicate the improper valve position(s). When the valves are positioned properly, then filling will commence.

FOAM TANK

The foam tank will be an integral portion of the polypropylene water tank. The cell will have a capacity of 30 gallons of foam with the intended use of Class A foam. The brand of foam stored in this tank will be Fireaide. The foam cell will reduce the capacity of the water tank. The foam cell will have a screen in the fill dome and a breather in the lid.

FOAM TANK DRAIN

The foam tank drain will be a 1.00" quarter turn drain valve located inside the pump/plumbing compartment.

PUMP PANEL CONFIGURATION

The pump panel configuration will be neat and orderly.

PUMP AND GAUGE PANEL

The pump and gauge panels will be constructed of aluminum with a black vinyl finish. A polished aluminum trim molding will be provided around each panel.

PUMP ACCESS

Right Side Panel

The right side upper pump panel will be removable.

Panel Fastener

The removable panels will be secured with black swell latch .

The left side pump panels will be attached with screws.

The right side lower pump panel (drain bank) will be attached with screws.

PUMP COMPARTMENT LIGHT

A pump compartment light will be provided inside the right side pump enclosure and accessible through a door on the pump panel.

A .125" weep hole will be provided in each light lens, preventing moisture retention.

PUMP PANEL GAUGES AND CONTROLS

The following will be provided on the pump panels in the FRC IN Control Pressure Governor system

- Engine Oil Pressure Gauge: LED bar graph display

- Engine Water Temperature Gauge: LED bar graph display

- Tachometer: over 1/2" high LED digits

- Voltmeter: LED bar graph display

THROTTLE READY GREEN INDICATOR LIGHT

There will be a green indicator light integrated with the pressure governor and/or engine throttle installed on the pump operators panel that is activated when the pump is in throttle ready mode.

OK TO PUMP INDICATOR LIGHT

There will be a green indicator light installed on the pump operators panel that is activated when the pump is in Ok To Pump mode.

ALUMINUM HEAT ENCLOSURE

A heat enclosure will be installed, trapping hot air radiated from the engine exhaust system, which will warm the fire pump. The enclosure will consist of an aluminum understructure, with easily removable aluminum panels. Also a covering above the pump will be provided, so warm air cannot escape freely. This covering could be a combination of the cargo are flooring, crosslay flooring, etc. It is not expected to be an "air tight" seal as there must be the required tolerances around any components routed through the cargo area floor, the drainage holes in the crosslay flooring, or required material gaps for component fit-up.

ELECTRIC GAUGE HEATER

A 12v electric gauge heater will be provided for all water carrying gauges.

PUMP COMPARTMENT HEATER

A hot water heater will be installed in the pump compartment.

Controls for the heater will be located at the pump operator's panel.

RUBBER BOOT

The front and rear of the pump house will be enclosed to contain the heat. The rear will have openings for the plumbing only. A rubber boot will be supplied around the plumbing, at the front, sides and rear of the pump house, the boot will allow the plumbing to flex and keep cold air out.

VACUUM AND PRESSURE GAUGES

The pump vacuum and pressure gauges will be liquid filled and manufactured by Class 1 Incorporated ©.

The gauges will be a minimum of 4.00" in diameter and will have white faces with black markings, with a pressure range of 30.00" 0-600 psi/kpa.

Gauge construction will include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut.

The pump pressure and vacuum gauges will be installed adjacent to each other at the pump operator's control panel.

Test port connections will be provided at the pump operator's panel. One (1) will be connected to the intake side of the pump, and the other to the discharge manifold of the pump. They will have 0.25 in. standard pipe thread connections and non-corrosive polished stainless steel or brass plugs. They will be marked with a label.

This gauge will include a 10 year warranty against leakage, pointer defect, and defective bourdon tube.

PRESSURE GAUGES

Existing individual "line" pressure gauges for the discharges will be replaces with interlube filled and manufactured by Class 1©.

eight (8) discharge gauges will be installed.

They will be a minimum of 2.00" in diameter and will have white faces with black lettering.

Gauges will be compound type with a vacuum/pressure range of 0-400#/kpa.

The individual pressure gauge will be installed as close to the outlet control as practical.

WATER LEVEL GAUGE

There will be an electronic water level gauge provided on the operator's panel that registers water level by means of five (5) colored LED lights. The lights will be durable, ultra-bright five (5) LED design viewable through 180 degrees. The water level indicators will be as follows:

- 100 percent = Green
- 75 percent = Yellow
- 50 percent = Yellow
- 25 percent = Yellow
- Refill = Red

The light will flash when the level drops below the given level indicator to provide an eighth of a tank indication. To further alert the pump operator, the lights will flash sequentially when the water tank is empty.

The level measurement will be based on the sensing of head pressure of the fluid in the tank.

The display will be constructed of a solid plastic material with a chrome plated die cast bezel to reduce vibrations that can cause broken wires and loose electronic components. The encapsulated design will provide complete protection from water and environmental elements. An industrial pressure transducer will be mounted to the outside of the tank. The field calibratable display measures head pressure to accurately show the tank level.

FOAM LEVEL GAUGE

An electronic foam level gauge will be provided on the operator's panel that registers foam level by means of five (5) colored LED lights. The lights will be durable, ultra-bright five (5) LED design viewable through 180 degrees. The foam level indicators will be as follows:

- 100 percent = Green
- 75 percent = Yellow
- 50 percent = Yellow
- 25 percent = Yellow
- Refill = Red

The light will flash when the level drops below the given level indicator to provide an eighth of a tank indication. To further alert the pump operator, the lights will flash sequentially when the foam tank is empty.

The level measurement will be based on the sensing of head pressure of the fluid in the tank.

The display will be constructed of a solid plastic material with a chrome plated die cast bezel to reduce vibrations that can cause broken wires and loose electronic components. The encapsulated design will provide complete protection from foam and environmental elements. An industrial pressure transducer will be mounted to the outside of the tank. The display will be able to be calibrated in the field and will measure head pressure to accurately show the tank level.

LIGHT SHIELD

There will be a polished, 16 gauge stainless steel light shield installed over the pump operator's panel.

- There will be 12 volt DC white LED lights installed under the stainless steel light shield to illuminate the controls, switches, essential instructions, gauges, and instruments necessary for the operation of the apparatus. These lights will be activated by the pump panel light switch. Additional lights will be included every 18.00" depending on the size of the pump house.
- One (1) pump panel light will come on when the pump is in ok to pump mode.

There will be a light activated above the pump panel light switch when the parking brake is set. This is to afford the operator some illumination when first approaching the control panel.

ELECTRONIC SIREN

A Whelen®, Model 295SLSA1, electronic siren with noise canceling microphone will be provided.

This siren to be active when the battery switch is on and that emergency master switch is on.

Siren head will be located in the cab within reach of the driver.

The electronic siren will be controlled on the siren head only. No horn button or foot switches will be provided.

SPEAKER

There will be one (1) speaker provided. Each speaker will be a Whelen model SA315P black nylon composite, 100-watt, with mounting brackets. Each speaker will be connected to the siren amplifier.

The speaker(s) will be recessed in the center of the front bumper.

FRONT ZONE UPPER WARNING LIGHTS

There will be one (1) 60.00" Whelen Freedom IV LED lightbar mounted on the cab roof.

The lightbar will include the following:

- One (1) red flashing LED module in the driver's side end position.
- One (1) red flashing LED module in the driver's side front corner position.
- Open in the driver's side first front position.
- One (1) red flashing LED module in the driver's side second front position.
- Open in the driver's side third front position.
- One (1) white LED module in the driver's side fourth front position.
- Open in the driver's side fifth front position.
- Open in the passenger's side fifth front position.
- One (1) white flashing LED module in the passenger's side fourth front position.
- Open in the passenger's side third front position.
- One (1) red flashing LED module in the passenger's side second front position.
- Open in the passenger's side first front position.
- One (1) red flashing LED module in the passenger's side front corner position.
- One (1) red flashing LED module in the passenger's side end position.

There will be clear lenses included on the lightbar.

There will be a switch installed in the cab on the switch panel to control this lightbar.

The two (2) white flashing LED modules will be disabled when the parking brake is applied.

The two (2) red flashing LED modules in the front positions may be load managed when the parking brake is applied.

FRONT WARNING LIGHT

There will be two (2) Whelen, Model M6** LED flashing lights provided at the front of the truck.

The driver's side front warning light to be red.

The passenger's side front warning light to be red.

The color of the lenses will be lens color(s) to be clear.

The lights will be mounted with with a flange.

The lights will be activated by a switch on the cab instrument panel.

SIDE ZONE LOWER LIGHTING

There will be four (4) Whelen®, flashing LED warning lights with with a flange installed per the following:

- Two (2) Model M2*, 2.50" high x 4.00" wide lights one (1) each side on the engine hood under 62.00".
- The driver's side, side front light to include red warning LEDs .
- The passenger's side, side front light to include red warning LEDs .
- Two (2) Model M6*, 4.31" high x 6.75" wide lights one (1) each side on the rear fender panel.
- The driver's side, side rear light to include red warning LEDs .
- The passenger's side, side rear light to include red warning LEDs .
- The lenses will be lens color(s) to be clear .

There will be a switch in the cab on the switch panel to control the lights.

REAR ZONE LOWER LIGHTING

There will be two (2) Whelen®, Model M6**, 4.31" high x 6.75" wide x 1.37" deep flashing LED warning lights with chrome trim located at the rear of the apparatus per the following:

- The left side rear warning light to include red LEDs
- The right side rear warning light to include red LEDs
- The warning light lens color(s) to be clear

There will be a switch in the cab on the switch panel to control the lights.

WARNING LIGHTS (REAR AND SIDE UPPER ZONES)

Four (4) Whelen, model M6* LED flashing warning lights will be provided at the rear of the apparatus with with a flange .

The side rear upper light(s) on the driver's side to be red.

The rear upper light(s) on the driver's side to be red.

The rear upper light(s) on the passenger's side to be red.

The side rear upper light(s) on the passenger's side to be red.

These lights will include lens color(s) to be clear .

There will be a switch located in the cab on the switch panel to control the lights.

REAR LIGHT MOUNTING

The rear warning lights will be mounted on the rear side sheet flange and rear bulkhead of the body as high as possible with all wiring totally enclosed.

LOOSE EQUIPMENT

The following equipment will be furnished with the completed unit:

- One (1) bag of chrome, stainless steel, or cadmium plated screws, nuts, bolts and washers, as used in the construction of the unit.

ULC REQUIRED LOOSE EQUIPMENT PROVIDED BY DEALER OR FIRE DEPARTMENT

The following additional loose equipment as outlined in CAN/ULC - S515, sections 4.9.2 and 4.9.3 will be provided by the dealer or the fire department:

4.9.2 Fire Hose and Nozzles

4.9.2.1

- 360 m (1200 ft) of 65 mm (2.5 in) or larger fire hose;
- 120 m (394 ft) of 38 mm (1.5 in), 45 mm (1.75 in), or 50 mm (2 in) fire hose;
- One (1) combination spray nozzle, 750 L/min (165 gpm/200 US-gpm) minimum;
- Two (2) combination spray nozzles, 360 L/min (80 gpm / 95 US-gpm) minimum.
- One (1) playpipe with shutoff and 25 mm (1 in), 29 mm (1.14 in) and 32 mm (1.25 in tips; and
- One (1) additional of either item, one (1) combination spray nozzle, or one (1) playpipe.

4.9.3 Miscellaneous Equipment

4.9.3.1 The following minimum additional equipment is required:

- One (1) 2.7 kg (6 lb) flathead axe;
- One (1) 2.7 kg (6 lb) pickhead axe;
- One (1) 1.8 m (6 ft) pike pole or plaster;
- One (1) 2.4 m (8 ft) or longer pike pole;
- Two (2) portable hand lights;
- One (1) approved dry chemical portable fire extinguisher with a minimum 80-B:C rating;
- One (1) 9.5 L (2.0 gal / 2.5 US-gal) or larger water extinguisher;
- One (1) self-contained breathing apparatus (SCBA) complying with CSA Z94.4, Selection, Use, and Care of Respirators, for each assigned seating position, but not less than four (4), mounted or stored in containers supplied by the SCBA manufacturer;
- One (1) spare SCBA cylinder for each SCBA carried, each mounted or stored in a specially designed storage space;
- One (1) first aid kit;
- Four (4) combination spanner wrenches;
- Two (2) hydrant wrenches;
- One (1) double female adapter, sized to fit 65 mm (2.5 in) or larger fire hose;
- One (1) double male adapter, sized to fit 65 mm (2.5 in) or larger fire hose;
- One (1) rubber mallet, suitable for use on suction hose connections;
- Two (2) salvage covers each a minimum size of 3.7 m x 4.3 m (12 ft x 14 ft); and
- Two (2) wheel chocks, each designed to hold the fire fighting apparatus when loaded to its maximum in service weight, when on a 10% grade with the transmission in neutral and the parking brake released, will be mounted in readily accessible locations.

MISCELLANEOUS EQUIPMENT PROVIDED BY DEALER OR FIRE DEPARTMENT

NOTE: If any of the items listed above that are required by CAN/ULC-S515-04 4.9.2.1 & 4.9.3.1 that are missing or not specifically exempted elsewhere, those items will be supplied by the Dealer or Fire Department.

SOFT SUCTION HOSE PROVIDED BY FIRE DEPARTMENT

CAN/ULC-S515, current edition, section 4.8.2 requires a minimum of 4.6 m (15 ft) of supply hose or 6.1 m (20 ft) of suction hose.

Hose is not on the apparatus as manufactured. The fire department will provide suction or supply hose.

DRY CHEMICAL EXTINGUISHER PROVIDED BY FIRE DEPARTMENT

CAN/ULC-S515, current edition, section 4.9.3.1 requires one (1) approved dry chemical portable fire extinguisher with a minimum 80-B:C rating complying with CAN/ULC-S504, Standard on Dry Chemical Fire Extinguisher.

The extinguisher is not on the apparatus as manufactured. The fire department or dealer will provide the extinguisher.

FLATHEAD AXE PROVIDED BY FIRE DEPARTMENT

CAN/ULC-S515, current edition, Section 4.9.3.1 requires one (1) 2.7 kg (6 lb) flathead axe.

The axe is not on the apparatus as manufactured. The fire department or dealer will provide the axe.

PICKHEAD AXE PROVIDED BY FIRE DEPARTMENT

CAN/ULC-S515, current edition, section 4.9.3.1 requires one (1) 2.7 kg (6 lb) pickhead axe.

The axe is not on the apparatus as manufactured. The fire department or dealer will provide the axe.

PAINT PROCESS

The exterior custom cab and/or body painting procedure will consist of a seven (7) step finishing process. A commercial chassis paint process will follow similar processes as determined by the chassis manufacturer. The following procedure will be used by Pierce:

1. Manual Surface Preparation - All exposed metal surfaces on the custom cab and body will be thoroughly cleaned and prepared for painting. Imperfections on the exterior surfaces will be removed and sanded to a smooth finish. Exterior seams will be sealed before painting. Exterior surfaces that will not be painted include; chrome plating, polished stainless steel, anodized aluminum and bright aluminum treadplate.
2. Chemical Cleaning and Pretreatment - All surfaces will be chemically cleaned to remove dirt, oil, grease, and metal oxides to ensure the subsequent coatings bond well. The aluminum surfaces will be properly cleaned and treated using a high pressure, high temperature 4 step Acid Etch process. The steel and stainless surfaces will be properly cleaned and treated using a high temperature 3 step process specifically designed for steel or stainless. The chemical treatment

converts the metal surface to a passive condition to help prevent corrosion. A final pure water rinse will be applied to all metal surfaces.

3. Surfacer Primer - The Surfacer Primer will be applied to a chemically treated metal surface to provide a strong corrosion protective base coat. A minimum thickness of 2 mils of Surfacer Primer is applied to surfaces that require a critical aesthetic finish. The surfacer primer will be a two-component high solids urethane that has excellent sanding properties and an extra smooth finish when sanded.
4. Finish Sanding - The surfacer primer will be sanded with a fine grit abrasive to achieve an ultra-smooth finish. This sanding process is critical to produce the smooth mirror like finish in the topcoat.
5. Sealer Primer - The sealer primer is applied prior to the base coat in all areas that have not been previously primed with the surfacer primer. The sealer primer is a two-component high solids urethane that goes on smooth and provides excellent gloss hold out when top coated.
6. Base coat Paint - Two coats of a high performance, two component high solids polyurethane base coat will be applied. The Base coat will be applied to a thickness that will achieve the proper color match. The Base coat will be used in conjunction with a urethane clear coat to provide protection from the environment.
7. Clear Coat - Two (2) coats of clear coat will be applied over the base coat color. The clear coat is a two-component high solids urethane that provides superior gloss and durability to the exterior surfaces. Lap style doors will be clear coated to match the body. Paint warranty for the roll-up doors will be provided by the roll-up door manufacturer.

Our specifications are written to define cyclic corrosion testing, physical strengths, durability and minimum appearance requirements must be met in order for an exterior paint finish to be considered acceptable as a quality finish.

Each batch of base coat color will be checked for a proper match before painting of the cab and the body. After the cab and body are painted, the color is verified again to make sure that it matches the color standard. Electronic color measuring equipment will be used to compare the color sample to the color standard entered into the computer. Color specifications are used to determine the color match. A Delta E reading will be used to determine a good color match within each family color.

All removable items such as brackets, compartment doors, door hinges, and trim will be removed and separately if required, to ensure paint behind all mounted items. Body assemblies that cannot be finish painted after assembly will be finish painted before assembly.

Environmental Impact

Contractor will meet or exceed all current State regulations concerning paint operations. Pollution control will include measures to protect the atmosphere, water and soil. Controls will include the following conditions:

- Topcoats and primers will be chrome and lead free.
- Metal treatment chemicals will be chrome free. The wastewater generated in the metal treatment process will be treated on-site to remove any other heavy metals.
- Particulate emission collection from sanding operations will have a 99.99 percent efficiency factor.

- Particulate emissions from painting operations will be collected by a dry filter or water wash process. If the dry filter is used, it will have an efficiency rating of 98 percent. Water wash systems will be 99.97 percent efficient.
- Water from water wash booths will be reused. Solids will be removed on a continual basis to keep the water clean.
- Paint wastes will be disposed of in an environmentally safe manner.
- Empty metal paint containers will be recycled to recover the metal.
- Solvents used in clean-up operations will be recycled on-site or sent off-site for distillation and returned for reuse.

Additionally, the finished apparatus will not be manufactured with or contain products that have ozone depleting substances. Pierce will, upon demand, present evidence that the manufacturing facility meets the above conditions and that it is in compliance with the state EPA rules and regulations.

PAINT

The chassis will be painted by the chassis manufacturer, and will remain the commercial grade finish as provided. The body will be painted the matching color by Pierce.

To ensure a good color match between the body and chassis, Pierce has a mutually pre-approved paint color program with the chassis manufacturer. The apparatus will be painted Pierce #90 candy apple red .

COMMERCIAL CHASSIS PAINT

The chassis will be painted by the chassis manufacturer. It will remain the color and commercial quality finish as provided. The primary color will be Pierce #90 candy apple red .

PAINT CHASSIS FRAME ASSEMBLY

The chassis frame assembly will be painted black by the chassis manufacturer. It will remain the commercial grade finish as provided.

COMPARTMENT INTERIOR PAINT

The interior of all compartments will be painted with a gray spatter finish for ease of cleaning and to make it easier to touch up scratches and nicks.

REFLECTIVE BAND

A 6.00" white reflective band will be provided across the front of the vehicle and along the sides of the body.

REFLECTIVE VINYL ON FRONT BUMPER

There will be a reflective vinyl band provided across the front bumper.

REAR CHEVRON STRIPING

There will be alternating chevron striping located on the rear-facing vertical surface of the apparatus. The rear surface, excluding the rear compartment door, will be covered.

The colors will be red and L2 fluorescent yellow green .

Each stripe will be 6.00" in width.

This will meet the requirements of the current edition of NFPA 1901, which states that 50% of the rear surface will be covered with chevron striping.

CAB DOORS REFLECTIVE STRIPE

white reflective striping will be provided on the interior of each cab door.

This striping will total a minimum of 96.00 square inches and will meet the NFPA 1901 requirement.

UNDERCOATING, CAB & BODY

The underside of the apparatus will be undercoated with an asphalt petroleum based material, dark in color.

The undercoating material utilized on the apparatus will be formulated to resist corrosion and deaden unwanted sound or road noise.

Coating texture will appear firm, flexible, and resistant to abrasion. Minimum dry film thickness will be in the range of 8.00 to 12.00 mils.

The material will be applied to the following areas:

Body and cab wheel well fender liners, on the back side only.

Underside of body and cab sheet metal, and structural components.

Underside and vertical sides of all sheet metal compartmentation, including support angles.

Structural support members under running boards, rear platforms, battery boxes, walkways, etc.

Inside surfaces of the pump heat enclosure, (when installed).

MANUAL, BODY PARTS ONLY

A custom parts manual for the Pierce® installed parts only will be provided in USB flash drive format with the completed unit.

The manual will contain the following:

- Job number

- Part numbers with full descriptions

- Table of contents

- Parts section sorted in functional groups reflecting a major system, component, or assembly

- Parts section sorted in Alphabetical order

- Instructions on how to locate parts

The manual will be specifically written for the body model being purchased. It will not be a generic manual for a multitude of different bodies.

SERVICE PARTS INTERNET SITE

The service parts information included in this manual are also available on the Pierce website. The website offers additional functions and features not contained in this manual, such as digital photographs and line drawings of select items. The website also features electronic search tools to assist in locating parts quickly.

MANUALS, SERVICE

A USB flash drive format service manual supplement containing parts and service information on Pierce® installed components will be provided with the completed unit.

The manual will be specifically written for the unit being purchased. It will not be a generic manual for a multitude of different units.

MANUAL, CHASSIS OPERATION

One (1) chassis operation manual will be provided with the completed unit.

ONE (1) YEAR MATERIAL AND WORKMANSHIP

Each new piece of apparatus will be provided with a minimum one (1) year basic apparatus material and workmanship limited warranty. The warranty will cover such portions of the apparatus built by the manufacturer as being free from defects in material and workmanship that would arise under normal use and service.

A copy of the warranty certificate will be submitted with the bid package.

CHASSIS WARRANTY

The chassis manufacturer will provide a **three (3) year/160,000 kilometer warranty.**

PAINT WARRANTY

The commercial chassis manufacturer's paint warranty will apply to the paint on the chassis only.

COMPARTMENT LIGHT WARRANTY

The Pierce 12 volt DC LED strip lights limited warranty certificate, WA0203, is included with this proposal.

TRANSMISSION WARRANTY

The transmission will have a **five (5) year/unlimited mileage** warranty covering 100 percent parts and labor. The warranty to be provided by Allison Transmission and not apparatus builder.

WATER TANK WARRANTY

A UPF poly water tank limited warranty certificate, WA0195, is included with this proposal.

TEN (10) YEAR STRUCTURAL INTEGRITY

The Pierce apparatus body limited warranty certificate, WA0009, is included with this proposal.

ROLL UP DOOR MATERIAL AND WORKMANSHIP WARRANTY

A Gortite roll-up door limited warranty will be provided. The mechanical components of the roll-up door will be warranted against defects in material and workmanship for the lifetime of the vehicle. A **six (6) year** limited warranty will be provided on painted and satin roll up doors.

The limited warranty certificate, WA0190, is included with this proposal.

PUMP WARRANTY

The Waterous pump will be provided with a Seven (7) year material and workmanship limited warranty.

A copy of the warranty certificate will be submitted with the bid package (no exception).

TEN (10) YEAR PUMP PLUMBING WARRANTY

The Pierce apparatus plumbing limited warranty certificate, WA0035, is included with this proposal.

FOAM SYSTEM WARRANTY

The Husky 3 foam system limited warranty certificate, WA0231, is included with this proposal.

TEN (10) YEAR PRO-RATED PAINT AND CORROSION

A Pierce body limited pro-rated paint warranty certificate, WA0057, is included with this proposal.

VEHICLE STABILITY CERTIFICATION

The fire apparatus manufacturer will provide a certification stating the apparatus complies with NFPA 1901, current edition, section 4.13, Vehicle Stability. The certification will be provided at the time of bid.

CAB INTEGRITY

The cab has been tested to and passed the following standards:

- ECE Regulation No.29

- SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading Heavy Trucks.

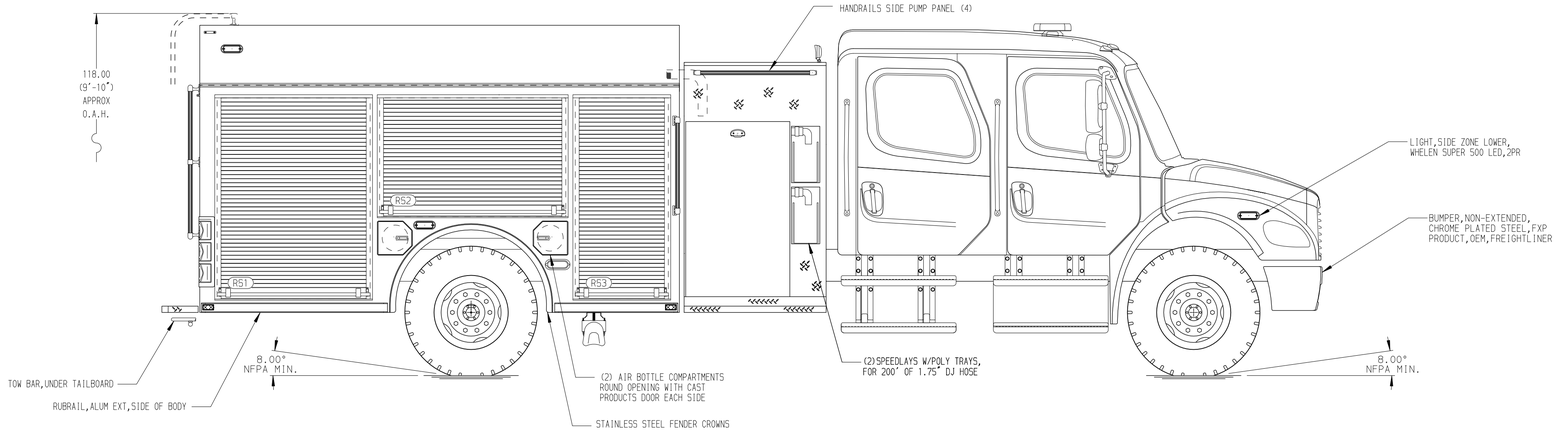
AMP DRAW REPORT

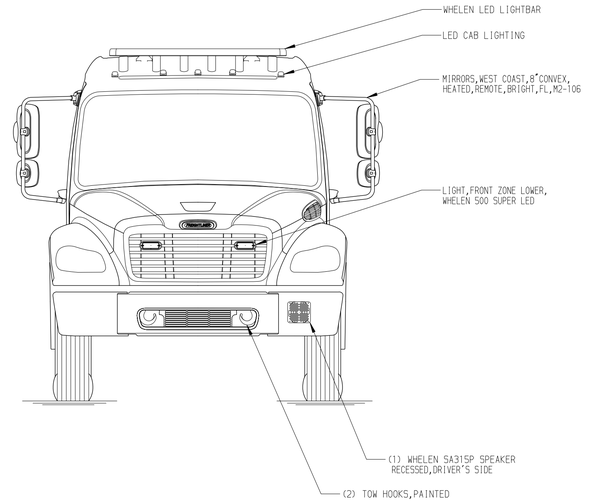
The bidder will provide, at the time of bid and delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system.

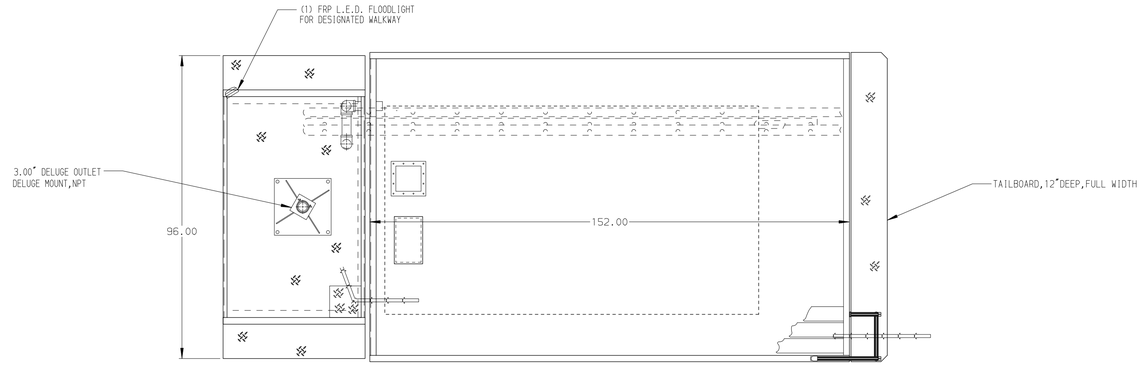
The manufacturer of the apparatus will provide the following:

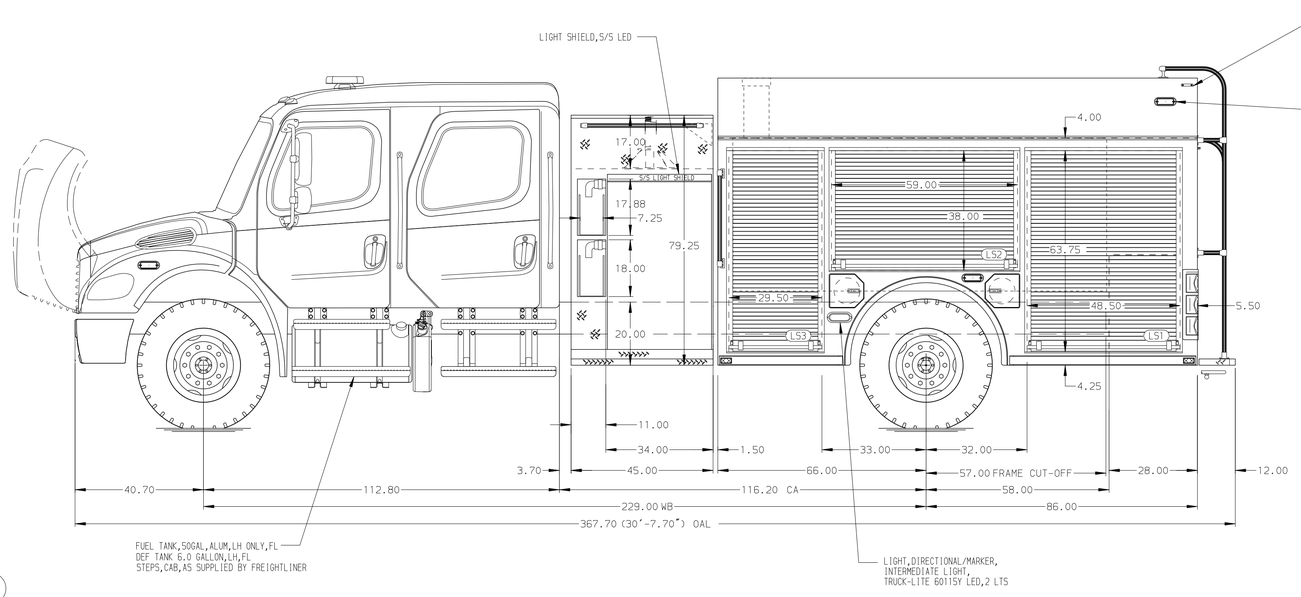
- Documentation of the electrical system performance tests.
- A written load analysis, which will include the following:
    - The nameplate rating of the alternator.
    - The alternator rating under the conditions specified per:
        - Applicable CAN/ULC-S515 Standard (Current Edition).
    - The minimum continuous load of each component that is specified per:
        - Applicable CAN/ULC-S515 Standard (Current Edition).
    - Additional loads that, when added to the minimum continuous load, determine the total connected load.
    - Each individual intermittent load.

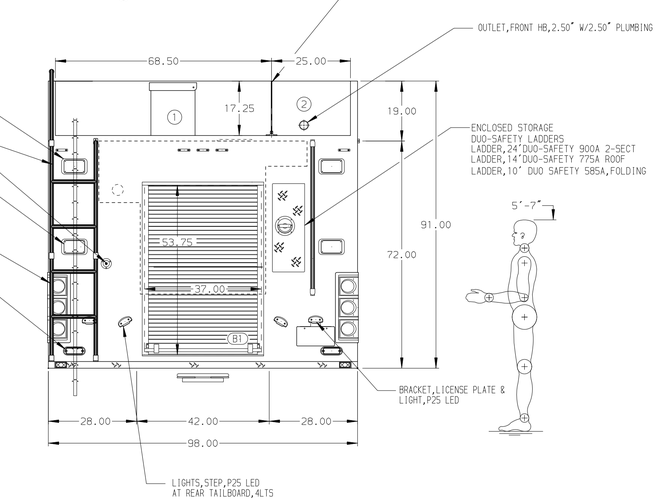
All of the above listed items will be provided by the bidder per the applicable CAN/ULC-S515 Standard (Current Edition).











HOSEBED CAPACITIES
(1) 1500' OF 2.50" D.J. POLYESTER HOSE
(2) 400' OF 1.50" D.J. POLYESTER HOSE

ALUMINUM BODY

NOTE

DIMENSIONS SHOWN ARE APPROXIMATE AND ARE SUBJECT TO MINOR DEVIATIONS AS MAY OCCUR OR BE NECESSARY IN CONSTRUCTION.
MINOR DETAILS NOT SHOWN.

1. CTF WHEEL CHOCKS AND MOUNTING BRACKETS
2. EXHAUST SYSTEM,HORIZONTAL,RH STEP MOUNTED DPF/SCR,2013 FL
3. PERIMETER SCENE LIGHTS LOCATED PER SHOP ORDER
4. BATTERY CHARGING RECEPTACLE LOCATED ON THE DRIVER SIDE PUMP PANEL
5. AIR INLET LOCATED LOCATED DS PUMP PANEL
6. CONCEPTUAL DRAWING STAGE

REV	DATE	BY	CH
▽	-	-	-

CHASSIS DATA
MAKE: FL
MODEL: M2-106

PIERCE MANUFACTURING INC.
BRADENTON, FLORIDA

JOB NO.	SF-1207
SCALE	1:24
DATE	04JUN20
DRAWN BY	JLA
CHECKED BY	CAG
5JUN20	
SHEET SIZE	D
SHEET NO.	1 OF 1

TITLE: 1000 GAL WATER,152"FULL HT FRONT & REAR
34"SC PH, (2) SPEEDLAYS & LADDERS THRU BODY

FOR: PIERCE MANUFACTURING INC.
BRADENTON, FLORIDA

DWG NO. SF-1207AD