Municipality of Magnetawan

P.O. Box 70, 4304 Hwy 520
Magnetawan, ON
P0A 1P0

Lead Contact: Dean Butticci
Fire Chief
Email: fire@magnetawan.com
Phone: 705-349-8477
Fax: 705-387-4875

Request for Tender for

ULC-Rated Pumper Fire Fighting Apparatus

Title: "TENDER 2018-09 Magnetawan Fire Truck"

Date of issue: Thursday, May 31, 2018

Tender Submission Deadline: Thursday, August 16th, 2018

Tender Submission Deadline: 3:30 p.m. Thursday, August 16th, 2018

Section 1 Introduction and General Instructions

1.01 Introduction

The Municipality of Magnetawan is inviting tenders for the supply of one (1) 2019 ULC-RATED PUMPER FIRE FIGHTING APPARATUS for the Magnetawan Fire Department that complies with the specifications indicated elsewhere in this document.

This Request for Tenders document (and any other applicable attachments or addenda) is available in PDF format through the Municipality of Magnetawan's website at www.magnetawan.com

Magnetawan's Procurement Policy is available for review at the Municipal Office

1.02 Submission of Tenders

Tenders shall be submitted in the form and format specified in Section 3 and shall include the completed Form of Tenders included as Section 4 at the end of this document. A designated signing officer authorized to bind the Vendor to the provisions of their Tender must sign the Form of Tender. Any addenda issued by the Municipality of Magnetawan in accordance with Subsection 1.06 must be acknowledged by the Bidder on the Form of Tender.

Each Bidder is asked to submit **one (1) set** of the Tender. All Tenders must be signed, sealed, the envelope marked with the Bidder's name and the Project Name, and received by:

The Municipality of Magnetawan
PO Box 70, 4304 Hwy 520
Magnetawan, ON
P0A 1P0

Project Name: TENDER 2018-09 Magnetawan Fire Truck

Tenders must be received no later than 3:30 p.m., local time, on Thursday, August 16th, 2018.

Tenders must not be restricted by a statement added to the Form of Tender or by a covering letter, or by alterations to the Form of Tender supplied unless otherwise provided in the RFT.

The onus unequivocally remains with the Bidder to ensure that the Municipality of Magnetawan receives Tenders delivered or sent by courier prior to the Tender Submission Deadline, in accordance with the submission process described in this section. Tenders received after the Tender Submission Deadline will not be considered and will be returned unopened. Faxed or electronic submissions will not be accepted in response to this RFT.

1.03 Contacts

All questions or inquiries must be made in writing or email to the Lead Contact named below:

Dean Butticci
Fire Chief
PO Box 70, 4304 Hwy 520
Magnetawan, ON
P0A 1P0
fire@magnetawan.com

IMPORTANT: A Bidder may be disqualified if they make inquiries, between the Tender issue date and the notification of the Award, in a manner other than that described in this RFT or to anyone involved in the process who is not the Lead Contact, including but not limited to the members of Council. This is to ensure that each Bidder receives the same information and that no Bidder receives unfair treatment during the RFT process.

1.04 Schedule

The schedule set out herein represents the Municipality of Magnetawan's best estimate of the schedule that will be followed, and it is intended to be a guideline.

The approximate schedule is as follows:

RFT issue date	Thursday, May 31st, 2018
Deadline for submission of questions (see Section 1.05)	Friday, June 29th, 2018 at 4:30pm
Addenda posted on Municipality website (see Section 1.06)	Monday, July 9th, 2018 by 4:30pm
Tender Submission Deadline (see Section 1.02)	Thursday August 16th, 2018 at 3:30pm
Anticipated notification of award	Thursday September 13th, 2018 (provided Council approve on September 12th, 2018)
Anticipated Delivery Deadline	September 14th, 2019

1.05 Required Review and Clarification

Bidders shall carefully review this RFT. If questions concerning clarification of the contents of this document arise, the questions must be made in writing and received by the Lead Contact by **4:30 p.m. on Friday, June 29th, 2018**. This will allow time for the issuance of any necessary addenda. Protests based on any omission or error or on the content of the RFT will be disallowed if these perceived faults have not been brought to the attention of the Lead Contact.

In submitting a Tender, the Bidder acknowledges that they have read, completely understood, and accepted the terms and conditions of the RFT in full. The Municipality of Magnetawan is not responsible for any misunderstanding of the RFT.

1.06 Amendments to the RFT

The Municipality of Magnetawan may issue addenda to clarify and/or modify certain aspects of the RFT prior to the Tender Submission Deadline. Addenda shall be posted by **Monday, July 9th, 2018 by 4:30pm** to www.magnetawan.com and shall be available in the Municipal Office.

1.07 Opening of Tenders

There will be no formal opening of Tenders. As such, the contract will not be awarded at the opening, but only after the Evaluation Committee has examined all Tenders in detail and presented their recommendation to Council. Bidders will be notified of the date for the Council meeting at which the Award will be decided, and they are welcome to attend.

1.08 Reserved Rights of the Municipality of Magnetawan

The Municipality of Magnetawan reserves the right to:

a. make public the names of any or all Bidders and their quoted price;
b. request written clarification or the submission of supplementary written information in relation to the clarification request from any Bidder and incorporate a Bidder's response to that request for clarification into the Bidder's Tender;
c. adjust a Bidder's scoring or reject a Bidder's Tender on the basis of
    i) a financial analysis;
    ii) information provided by references;
    iii) the Bidder's past performance on previous contracts awarded by the Municipality of Magnetawan;
    iv) the information provided by a Bidder pursuant to the Municipality of Magnetawan exercising its clarification rights under this RFT process; or
    v) other relevant information that arises during the RFT process;
d. verify with any Bidder or with a third party any information set out in a Tender;
e. check references other than those provided by any Bidder;
f. disqualify any Bidder whose Tender contains misrepresentations or any other inaccurate or misleading information, or any qualifications;
g. disqualify any Bidder or the Tender of any Bidder who has engaged in conduct prohibited by this RFT;
h. make changes, including substantial changes, to this RFT provided that those changes are issued by way of addenda in the manner set out in this RFT;
i. select the Bidder other than the Bidder whose Tender reflects the lowest cost to the Municipality of Magnetawan or the highest overall score;
j. cancel this RFT process at any stage;
k. cancel this RFT process at any stage and issue a new RFT for the same or similar deliverables;
l. accept or reject any or all Tenders in whole or in part;
m. discuss with any Bidder different or additional terms to those contemplated in this RFT or in any Bidder's Tender;
n. if a single Tender is received, reject the Tender of the sole Bidder and cancel this RFT process
o. to negotiate with the two lowest Bidder(s).

These reserved rights are in addition to any other expressed rights or any other rights which may be implied in the circumstances.

1.09 Not Responsible for Costs

The Municipality of Magnetawan shall not pay any costs associated with the preparation, submission, or presentation of the Bidder's Tender. The Municipality of Magnetawan shall not be liable for any expenses, costs or losses suffered by the Bidder or any third party resulting from the Municipality of Magnetawan exercising any of its expressed or implied rights under this RFT.

1.10 Tender Expiry Date

Bidders hereby acknowledge that their Tenders shall be irrevocable for a period of 60 days from the Tender submission deadline. Extensions to this period may be granted with the mutual agreement of the Municipality of Magnetawan and the successful Bidder and may be initiated by either party.

1.11 Confidentiality and Ownership

Any information provided to the Bidder by the Municipality of Magnetawan before, during or after the project is completed shall be treated as confidential and shall not be used or communicated by the Bidder or any third party in any way unless otherwise identified or permitted by the Municipality of

Magnetawan. The information, reports, documentation, plans, etc. that are produced by the successful Bidder in response to this project shall become the exclusive property of the Municipality of Magnetawan. However, intellectual property, such as specific tools, templates, processes, etc. that the Bidder provides as part of the deliverables remains the property of the Bidder.

1.12 Invoicing

The Bidder shall provide a single invoice for payment in full to the Municipality of Magnetawan upon delivery of the selected unit. Invoices shall clearly state what has been supplied with a description of the unit. It should be noted that the Municipality of Magnetawan's standard terms of payment are net 30 calendar days from the date of invoice.

1.13 Freedom of Information

Any personal information required in the Tender is received under the authority of the Municipality of Magnetawan. This information shall be an integral component of the submission. All written Tenders received by the Municipality of Magnetawan become a public record. Once a Tender is accepted by the Municipality of Magnetawan and the contract has been awarded, all information contained in the Tenders may be available to the public, including personal information. Questions about the collection of personal information and the Municipal Freedom of Information and Protection of Privacy Act, 1989, R.S.O. 1990, as amended may be directed to the Municipal office.

1.14 Additional Requirements

(a) The successful Bidder shall ensure that all services and products provided in respect to this Tender are done so in accordance with and under the authorization of all applicable authorities, municipal, provincial, and/or federal legislation.

Section 2 Minimum Specifications & Requirements

The successful Proponent / Bidder shall supply one (1) 2019 ULC-RATED PUMPER FIRE FIGHTING APPARATUS for the Magnetawan Fire Department that complies with the specifications indicated as attached in Appendix A and Appendix B of this document.

The Bidder shall provide a full set of specifications, for each component system (including hydraulics), in their proposal. Failure to provide detailed specifications shall be cause for disqualification. Although price is of significance, the proponent vendors are encouraged to put forward a good quality package. The Municipality is looking for durability as well as value. The attached are minimum guidelines only; however, any significant dimensional change should be high-lighted for consideration.

The Municipality of Magnetawan expects the successful Bidder to deliver a fully functional, 'turn-key' fire truck unit within the three hundred and sixty-five (365) calendar days from the date of notification of award. Failure to comply with this requirement will result in a penalty being imposed by the Municipality in the amount of two hundred and fifty dollars ($250.00) per day commencing on the three-hundred and sixty-sixth (366th) day, i.e., the first day of delayed delivery.

An Engineered Drawing specific to the vehicle being bid must be included with the bid package. The drawings shall show the left and right sides as well as a front and rear view of the unit. The drawing must be specific to the unit being bid, it must not be a generic drawing. Failure to do this may result in reject of the bid.

To aid in the evaluation of the tenders, all Bidders shall provide their tender submission and specifications in the same order as the tender document. This will minimize the time required by the Municipality to locate specific requirements and specifications that are required by the document.

Failure to comply with the requirements expressed herein may result in disqualification of the Proposal.

Section 3 Evaluation of the Tenders

3.01 Evaluation Criteria, Process and Award

The Municipality of Magnetawan may make an Award on the basis of the Tenders received without further discussion with the Bidders. Therefore, each initial offer should contain the Bidder's best terms/information, including all required documentation as listed in this RFT.

The evaluation committee will recommend Award to Council for the Bidder achieving the specifications required and the lowest price.

The successful Bidder shall be notified of the Award in writing to the address given on the Form of Tender, and/or may be contacted verbally or electronically by the Lead Contact.

Section 4 Form of Tender

I/We, the Undersigned, having examined this Request For Tenders, do hereby offer to enter into an Agreement with the Municipality of Magnetawan to provide a supply one (1) 2019 ULC-RATED PUMPER FIRE FIGHTING APPARATUS under the terms as included.

I, We _____
(Name-Print) (Position)

of _____
(Company Name)

Dated at _____this _____ day of _____, 2018.

_____
AUTHORIZED SIGNATURE

_____
STREET ADDRESS

_____
CITY PROVINCE POSTAL CODE

_____
TELEPHONE NO. FACSIMILE NO. E-MAIL ADDRESS

Receipt of any issued addenda shall be acknowledged by initialing in the space provided below.

Addendum No. 1 _____Addendum No. 2 _____ Addendum No. 3 _____

Signature in the designated space, by an authorized officer of the Bidder's company affirms acceptance of the Request for Tender requirements set forth in this document, the associated costs attributed to the business arrangement between the Bidder and the Municipality of Magnetawan, and hereby certifies that the information supplied in this Tender to be true and complete in all respects.

Company Seal

Bidder's Initials _____

Breakdown of Costs

Chassis	$ _____
Body & Equipment	$_____
Sub Total	$_____
HST	$_____
Total with Taxes	$_____

Proposed Delivery Date: _____

Other relevant information:

Bidder's Initials _____

Appendix A

GENERAL TERMS AND CONDITIONS

The purchaser's specification shall, in all cases, govern the construction of the apparatus, unless a properly documented exception or deviation was approved. Any bid indicating that the manufacturer's proposal shall supersede the purchaser's specification will be considered a complete substitute and immediately rejected.

THE PURCHASER HAS THE RIGHT TO REJECT ANY BID WHICH DOES NOT MEET THESE SPECIFICATIONS AND IS THE SOLE DECIDER TO DEEM WHICH BID IS IN THE BEST INTEREST OF THE PURCHASER.

YES		**NO EXCEPTION**

EXCEPTIONS

These specifications are based upon design and performance criteria which have been developed by the fire department as a result of extensive research and careful analysis. Subsequently these specifications reflect the only type of fire apparatus that is acceptable at this time and all specifications herein contained are considered as minimum. Therefore exceptions to the specifications may not be accepted.

If a product brand name is specified and is commercially available to all bidders, an exception to such items is not acceptable and such bid may be rejected.

Bidders shall indicate in the "yes/no" column if their bid complies on each item (paragraph) specified.

YES	**NO**	**EXCEPTION/COMMENTS**

Exceptions shall be allowed if they are equal to or superior to that specified and provided they are listed and fully explained on a separate page. All deviations, no matter how slight, shall be clearly explained on a separate sheet, in the bid sequence, citing the page and paragraph number(s) of the specifications, how the proposal deviation is different, how the deviation meets or exceeds the specifications and why it is necessary, and entitled "EXCEPTIONS TO SPECIFICATIONS". The buyer reserves the right to require a bidder to provide proof in each case that a substituted item is equal to that specified. The buyer shall be the sole judge in determination of acceptable substitutes.

Proposals that are found to have deviations without listing them or bids taking total exceptions to these advertised specifications may be rejected.

Bids not including all exceptions shall be considered a material breach and shall result in the bid being immediately rejected. (no exceptions)

If discrepancies are noted between the " YES/NO " statements and the required DETAILED SPECIFICATIONS, the bid shall be immediately disqualified as a material breach.

YES	**NO**	**EXCEPTION/COMMENTS**

RESPONDENT SERVICE CAPABILITIES

The proposed apparatus represents a critical element of the provision of emergency services for the Municipality. As such, the department puts significant emphasis on the continued serviceability of the apparatus.

To ensure the apparatus remains in service, the successful bidder must have the capability to provide in station service to the components of the fire apparatus. This service must be provided by the bidder, subcontracted agents shall not be permitted to complete this warranty work.

YES	**NO**	**EXCEPTION/COMMENTS**

SERVICE AND WARRANTY SUPPORT

TO INSURE FULL SERVICE AFTER DELIVERY, THE SELLING BIDDER/DEALERSHIP MUST BE CAPABLE OF PROVIDING SERVICE WHEN REQUIRED.

The bidder/dealership shall show that the company is in position to render prompt service and to furnish replacement parts.

Each bidder/dealership must be able to display that they are actively in the fire apparatus service business by operating an authorized service centre and parts repository capable of satisfying the warranty service requirements and parts requirements of the vehicle(s) being purchased. The service centre will ideally be located within 300 km of the Municipality of Magnetawan.

The bidder/dealership must state the location of this authorized service centre.

This service centre must have a staff of certified Emergency Vehicle Technician (EVT) or Master Emergency Vehicle Technicians (MEVT) and factory-trained mechanics, well versed in all aspects of service for all major components of the apparatus. The service centre must be equipped to provide mobile apparatus repairs and service at the Magnetawan Fire Department.

Authorized Service Centre Location: _____

YES		**MANDATORY REQUIREMENT - NO EXCEPTION**

STANDARD WARRANTY
The respondent will indicate the warranties on this unit below.

Body: _____

Paint: _____

Pump: _____

Tank: _____

YES	**NO**	**EXCEPTION/COMMENTS**

CERTIFICATION FOR FUSION WELDING OF ALUMINUM

Welding shall only be undertaken by a company certified by the Canadian Welding Bureau to the requirements of CSA Standard W47.2-M1987, Certification of Companies for Fusion Welding of Aluminium.

The Canadian Welding Bureau is accredited by the Standards Council of Canada as a Certification Organization for the administration of CSA Standard W47.2.

YES	**NO**	**EXCEPTION/COMMENTS**

QUALITY SYSTEM REGISTERED TO ISO 9001:2000

To eliminate the need to evaluate third party or in house quality processes, the manufacturer's Quality System shall be registered to ISO 9001 by Quality Management Institute. ISO 9001, titled Quality Systems - Model for Quality Assurance in Production and Installation, is awarded to companies meeting and maintaining a strict series of quality-assurance guidelines. Receiving ISO 9001 certification means that a company has committed itself to maintaining a consistent level of quality across all areas of operation, from customer service and training to equipment calibration and maintenance. This certification is difficult to obtain and represents an organization's dedication to providing its customers with the best products and services possible.

This is a mandatory requirement. NO EXCEPTIONS

YES	NO	EXCEPTION/COMMENTS

MEMBER OF THE FIRE APPARATUS MANUFACTURER'S ASSOCIATION

The respondent shall be a member of FAMA (Fire Apparatus Manufacturer's Association). A current certificate is required to be attached to the bid document.

YES	NO	EXCEPTION/COMMENTS

DELIVERY TO MAGNETAWAN FIRE DEPARTMENT

The successful bidder shall, at its expense, deliver the apparatus to the Fire Department. A factory trained and authorized delivery instructor shall then remain with the apparatus to train Fire Department personnel. Training of personnel is essential to ensure that the purchaser and user are aware of, and instructed in, the proper operation, care and maintenance of the apparatus delivered. Training shall be a minimum of four hours. Sub-contracted personnel shall not be used for this purpose.

YES	NO	EXCEPTION/COMMENTS

PAYMENT TERMS – DUE ON DELIVERY

Payment for the unit is due when the completed vehicle is delivered to the Magnetawan Fire Department. Bids that require deposits, progress payments or payment for chassis on delivery will not be considered.

YES	NO	EXCEPTION/COMMENTS

CHASSIS SUPPLIED BY THE MANUFACTURER

The chassis for the vehicle is provided by the Manufacturer. It shall be as specified in the chassis section – Appendix B.

YES	NO	EXCEPTION/COMMENTS

OMVIC COMPLIANCE - BIDDER

The successful Bidder shall be registered with the Ontario Motor Vehicle Industry Council (OMVIC) as authorized to sell motor vehicles in Ontario as required by law. A copy of the current OMVIC license shall be provided with the bid.

YES	NO	EXCEPTION/COMMENTS

OMVIC COMPLIANCE – SALES REPRESENTATIVE

The sales representative managing the contract shall be registered with the OMVIC as authorized to sell motor vehicles in Ontario as required by law. A copy of their OMVIC license shall be provided with the bid. An alternative of "managers" license shall not be accepted.

YES	NO	EXCEPTION/COMMENTS

INTENT

In the event of a disagreement between this document titled "Appendix A" and the Tender document, the Tender document will prevail. It is the INTENT of these specifications to describe, in detail, the requirements for a first class, custom build, fire-fighting unit. All parts not specifically mentioned which are necessary, in order to provide a complete custom motor propelled truck, shall be furnished by the bidder and shall conform in strength and quality of workmanship to that usually provided by the engineering practice indicated in these specifications.

YES	NO	EXCEPTION/COMMENTS

ULC S515-13 COMPLIANCE

The apparatus shall be constructed to ULC S515-13 requirements and the unit shall also meet Department of Transportation regulations.

The unit shall also meet Canadian Motor Vehicle Safety Standards.

YES	NO	EXCEPTION/COMMENTS

ULC TESTING

This unit shall be tested by Underwriters' Laboratories of Canada at the Manufacturers Plant in order to ensure compliance with applicable standards.

The tests include:

- a weight test, to ensure that the vehicle is not overweight on either axle or in total; and
- a road test, to check acceleration and braking.

After this test, a plate shall be installed showing the test date, unit serial number, and no load governed speed of the engine. CMVSS certification and safety mark are also installed.

TESTING SHALL BE PERFORMED BY A CERTIFIED ULC INSPECTOR – NO EXCEPTION.
THIRD PARTY TESTING SHALL NOT BE ACCEPTED.

YES	NO	EXCEPTION/COMMENTS

GENERAL CONSTRUCTION

CHASSIS GVWR

The GVWR of the chassis shall be adequate to carry the fully equipped apparatus including full water and other tanks, the specified hose load, unequipped personnel weight, ground ladders, and a miscellaneous equipment allowance in accordance with specified standards.

YES	NO	EXCEPTION/COMMENTS

MANUALS - TWO COPIES

At the time of delivery, two (2) copies of complete operation and service manuals will be provided covering the completed apparatus (body and equipment) as delivered and accepted, including the pump, wiring diagrams, lubrication charts, and firefighting equipment delivered with the apparatus. Chassis manuals are those supplied by the chassis manufacturer.

YES	NO	EXCEPTION/COMMENTS

MAXIMUM OVERALL HEIGHT

The overall height of the completed apparatus shall not exceed 11'

YES	NO	EXCEPTION/COMMENTS

CHASSIS SPECIFICATIONS

CHASSIS

The apparatus shall be built on a Manufacturer supplied 2019 or newer 4 door raised roof cab.

The chassis specifications are as specified in Appendix B hereby attached.

YES	NO	EXCEPTION/COMMENTS

CHASSIS MOTOR VEHICLE INSPECTION REQUIRED

The completed apparatus shall have undergone a PMCVI and the yellow sticker shall bear the month of inspection prior to delivery. The sticker shall be displayed on the driver's side door window of the apparatus.

YES	NO	EXCEPTION/COMMENTS

MAXIMUM RIDERS SIGN - 5 PERSONS

An accident prevention sign shall be affixed in the cab stating the maximum number of personnel the vehicle is designed to carry per NFPA standards. The sign shall be located in an area visible to the driver.

YES	NO	EXCEPTION/COMMENTS

SEAT BELT WARNING LABEL

Signs that state "Occupants must be seated and belted when apparatus is in motion" shall be provided. They shall be visible from each seated position.

YES	NO	EXCEPTION/COMMENTS

FLUID CAPACITY PLATE

A permanent plate shall be affixed in the driver's compartment specifying the quantity and type of the following fluids used in the vehicle as applicable:

Engine Oil	Engine Coolant
Transmission Fluid	Drive Axle Lubrication Fluid
Air conditioning refrigerant	Air conditioning lubricant
Power steering fluid	
Equipment rack fluid	Air compressor system lubricant
Front tire cold pressure	Rear tire cold pressure

YES	NO	EXCEPTION/COMMENTS

APPARATUS INFORMATION LABEL

An information label is provided in the chassis cab, visible to the driver, stating:
"When manufactured, this vehicle was:

** m high

** m long

** kg GVW

Changes in height since the apparatus was manufactured shall be noted on this plate by the Fire Department"

YES	NO	EXCEPTION/COMMENTS

NON REMOVABLE KEY

The ignition key shall be made non removable from the cab interior by installation of a chain which attaches the key to the cab dash.

YES	NO	EXCEPTION/COMMENTS

HOSE BED CAPACITY - STANDARD ULC PUMPER

The hose bed on this vehicle is designed for the standard ULC hose storage requirement:

Minimum 39 cubic feet for 2-1/2" hose, minimum 5' long

Minimum 2 areas 3.5 cubic feet each for minimum 1-1/2" preconnected hose

Minimum 39 cubic feet for 4'' hose, minimum 5' long

The hose load expected on this vehicle is:

1000' of 2-1/2" double jacket hose

500' of 4'' double jacket high volume hose

400' of 1-1/2" double jacket hose

YES	NO	EXCEPTION/COMMENTS

EQUIPMENT CARRYING CAPACITY - STANDARD ULC PUMPER

This vehicle is designed to carry the standard ULC miscellaneous equipment load of 2000 pounds for a vehicle with less than 250 cubic feet of compartment space. The manufacturer shall use this calculation in the overall design and weight calculations for the GVWR and axle ratings of the apparatus.

YES	NO	EXCEPTION/COMMENTS

REAR STEP WARNING LABEL

An accident prevention sign shall be located at the rear step area of the vehicle. It shall warn personnel that standing on the step while the vehicle is in motion is prohibited.

YES	NO	EXCEPTION/COMMENTS

REAR MUDFLAPS

Heavy duty mudflaps shall be installed behind the rear wheels to guard against road wash and debris.

YES	NO	EXCEPTION/COMMENTS

FUEL FILL LABEL -ULTRA LOW SULFUR DIESEL ONLY

A label indicating "Ultra Low Sulfur Diesel Only" is installed at each chassis fuel tank fill connection.

YES	NO	EXCEPTION/COMMENTS

CHASSIS CAB PAINTED SINGLE COLOUR BY CHASSIS OEM

The chassis for this vehicle is not painted, the body will be painted to match the colour of the chassis.

YES	NO	EXCEPTION/COMMENTS

AUXILIARY BRAKING SYSTEM DISABLED WHEN PUMPING

An interlock is installed to disable the auxiliary braking system when the pump is operating.

YES	NO	EXCEPTION/COMMENTS

TRANSMISSION PROGRAMMING - ALLISON WT

The electronic control for the transmission is programmed to meet ULC and NFPA standards.

YES	NO	EXCEPTION/COMMENTS

REAR TOW HOOKS - UNDER BODY

Towing devices will be installed at the rear of the unit, attached directly to the frame of the chassis.

YES	NO	EXCEPTION/COMMENTS

MASTER BATTERY DISCONNECT INCLUDED WITH CHASSIS

A two pole master disconnect is provided with the chassis to isolate the batteries from electrical loads.

YES	NO	EXCEPTION/COMMENTS

BACK UP ALARM INCLUDED WITH CHASSIS

The back up alarm provided with the chassis shall be installed at the rear of the unit, wired to operate when the transmission is in Reverse.

YES	NO	EXCEPTION/COMMENTS

PROTECTION VALVE INSTALLED FOR AIR OPERATED ACCESSORIES

An air pressure protection valve is installed to prevent loss of air to brakes from air operated accessories.

YES	NO	EXCEPTION/COMMENTS

ELECTRIC SYSTEM MANAGER INCLUDED WITH CHASSIS

The apparatus shall be equipped with an ULC compliant electrical system load manager.

YES	NO	EXCEPTION/COMMENTS

AIR HORNS AS SUPPLIED BY CHASSIS OEM

The apparatus shall be equipped with dual air horns as supplied with the chassis, one each side of the chassis fenders. Air horn controls are lanyard type.

YES	NO	EXCEPTION/COMMENTS

PUMP AND PLUMBING

PUMP - Waterous CXVPA - PTO driven pump - 1050 IGPM

A Waterous CXVPA 1050 IGPM, Single stage, centrifugal, single suction impeller, midship mounted pump shall be supplied and installed on the completed apparatus.

YES	NO	EXCEPTION/COMMENTS

VALVES AND CONTROLS - COMPARTMENT MOUNTED PANEL

The pump panel controls shall be side mount and enclosed in compartment behind a roll up door. For safety purposes, the discharges and intakes shall be offset to the controls to eliminate dangerous straddling of pressurized hose lines.

All 1" or larger in-line valves will be full flow, drop-out type valves.

All In-line valves will be controlled by chrome plated locking "T" handles with rods designed to permit easy operation and minimal distortion when opening or closing a valve.

All 2-1/2" valves for discharges located on the right and left side pump panels will be operated using lever type controls or by chrome plated locking "T" handles located on the pump operators' panel unless otherwise specified.

All 4" and larger discharge valves will be designed to slow the opening and closing of the valve to comply with applicable ULC and NFPA standards.

YES	NO	EXCEPTION/COMMENTS

PIPING STAINLESS STEEL - NON MANIFOLD PUMPS

All piping will be heavy duty stainless steel type and piping components in contact with water will be non-corrosive materials. Where vibration or chassis flexing may damage or loosen piping, all plumbing exiting the pump enclosure area will be equipped with victaulic or rubber couplings as necessary.

Wherever threaded joints are used, the sealing compound will be of the non-hardening type to ensure ease of removal for repair or replacement of couplings.

All piping will be subjected to hydrostatic test consisting of pressurizing the entire pump and valves, including suction lines. Following the pressure test, a vacuum test will be applied to the entire pump and valves. This test consists of developing 24 inches of vacuum and holding that vacuum for 10 minutes while not losing in excess of 10 inches of vacuum.

YES	NO	EXCEPTION/COMMENTS

THREADS

All threads shall be provided or adapted for Ontario operations;

4'' thread specification storz

1-1/2" thread specifications - NPSH

2-1/2" thread specifications – CSA

YES	NO	EXCEPTION/COMMENTS

PIPING HYDROSTATIC TEST

The pump and plumbing shall be hydrostatically tested to a pressure of 250 psi. The Tank Fill and Tank to Pump valves shall be closed; all other inlets and outlets shall be open and capped. This pressure shall be maintained for 3 minutes.

YES	NO	EXCEPTION/COMMENTS

ANODES IN SUCTION AND DISCHARGE PIPING

Two anodes shall be installed, one in the suction side of the pump and one in the discharge side of the pump to protect the pump and piping from galvanic corrosion.

YES	NO	EXCEPTION/COMMENTS

TANK TO PUMP SS 3" W/ CHECK VALVE NON MANIFOLD PUMP

A 3" quarter turn valve with check valve to prevent accidental pressurization of the water tank through the pump connection is installed in the supply line from the tank to the pump.

YES	NO	EXCEPTION/COMMENTS

TANK FILL VALVE 2" SS

A 2" quarter turn valve is installed in the supply line from the pump to the tank.

YES	NO	EXCEPTION/COMMENTS

SUCTION - 6" NOT GATED EACH SIDE SS NON MANIFOLD PUMP 6" HEADER

Two 6" (not gated) - 1 each side suction intakes shall be provided on the pump. Each intake shall be equipped with a long handle chrome cap and will have removable strainers.

YES	NO	EXCEPTION/COMMENTS

INTAKE 2-1/2" LEFT SIDE SS, BLEEDER, NON MANIFOLD PUMP

One (1) 2-1/2" quarter turn ball valve with chrome plated female swivel connection, bleeder valve, including chrome plug and chain shall be provided on the left side pump panel. This valve is controlled by a lever control or a locking pull control at the valve.

YES	NO	EXCEPTION/COMMENTS

SUCTION - 2-1/2" RIGHT SIDE SS, BLEEDER

One (1) 2-1/2" quarter turn ball valve with chrome plated female swivel connection, bleeder valve, including chrome plug and chain shall be provided on the right side pump panel. This valve is controlled by a lever control or a locking pull control at the valve.

YES	NO	EXCEPTION/COMMENTS

DISCHARGE 4" STORZ RS DISCHARGE SS BLEEDER

One (1) 4" discharge plumbed with 4' discharge valve, including 30 degree chrome plated droop snoot, bleeder valve, and rocker lug chrome cap with chain shall be provided on the right side pump panel.

YES	NO	EXCEPTION/COMMENTS

2-1/2" RS DISCHARGE SS, BLEEDER

One (1) 2-1/2" discharge plumbed with 2-1/2" discharge valve, including 30 degree chrome plated droop snoot, bleeder valve, and rocker lug chrome cap with chain shall be provided on the right side pump panel.

YES	NO	EXCEPTION/COMMENTS

2-1/2" LS DISCHARGE SS, BLEEDER

Two (2) 2-1/2" discharge plumbed with 2-1/2" discharge valve, including 30 degree chrome plated droop snoot, bleeder valve, and rocker lug chrome cap with chain shall be provided on the left side pump panel.

YES	NO	EXCEPTION/COMMENTS

2-1/2" REAR DISCHARGE SS, PLUMBED 2-1/2", BLEEDER

Two (2) 2-1/2" rear preconnects, located at the rear of the apparatus body, one each side, under the hose bed, plumbed with 2-1/2" valve. The discharges shall include a 30 degree droop, bleeder valve, rocker lug chrome cap and chain.

One (1) 4'' REAR DISCHARGE STORZ SS PLUMBED 4", BLEEDER

The discharges shall include a 30 degree droop, bleeder valve, rocker lug chrome cap and chain.

YES	NO	EXCEPTION/COMMENTS

1-1/2" CROSSLAY (EACH) SS, 2" VALVE, BLEEDER

Two (2) 1-1/2" preconnects shall be located in a transverse hose bed above the pump panel. Each preconnect shall be equipped with swivel to allow use from either side of the unit, plumbed with 2" valve to allow the use of 1-3/4" discharge hose. The transverse hose bed is equipped with stainless steel rollers on each end for easier hose removal. Bleeder valve provided on pump panel.

YES	NO	EXCEPTION/COMMENTS

2-1/2" CROSSLAY SS, PLUMBED 2-1/2", BLEEDER

One (1) 2-1/2" preconnect shall be located in a transverse hose bed above the pump panel and shall be equipped with swivel to allow use from either side of the unit. The discharge shall be plumbed with a 2-1/2" valve and panel mounted bleeder valve. Stainless steel rollers are installed at each end of the hose bed.

YES	NO	EXCEPTION/COMMENTS

PIPING FOR MONITOR SS, PLUMBED 3", BLEEDER

One (1) 3" discharge for a deck gun plumbed shall be provided at the front of the apparatus body. The discharge shall be plumbed with a 3" valve with slow close device. A monitor shall be provided with the completed apparatus as specified below.

YES	NO	EXCEPTION/COMMENTS

PUMP SHIFT - PTO PUMP AND ROLL

The Pump Shift for the PTO will include interlocks and an indicator light stating "OK TO PUMP" allowing pumping in neutral only when transmission is in neutral, park brake is set, and PTO control engergized. The remote electronic throttle will be energized in this mode.

An additional indicator light will show "OK TO PUMP AND ROLL" when the transmission is not in neutral, the park brake is not set, and the PTO control is energized. The remote electronic throttle will not be energized in this mode.

YES	NO	EXCEPTION/COMMENTS

POWER SHIFT PTO - AUTOMATIC TRANSMISSION

The power takeoff will be equipped with a power shift. An electric in-cab control for shifting the automatic transmission will be provided.

YES	NO	EXCEPTION/COMMENTS

CLASS ONE "TPG PLUS" GOVERNOR/THROTTLE

The apparatus shall be equipped with a Class 1 Total Pressure Governor Plus engine/pump governor/throttle system that is connected directly to the engine Electronic Control Module (ECM) via J1939. The TPG is to operate as a pressure sensor (regulating) governor eliminating any need for a relief valve on the discharge side of the pump. Battery voltage, engine/transmission temperature, engine oil pressure, and engine RPM are also displayed on the TPG along with audible alarms.

A special preset feature shall permit a predetermined pressure or RPM to be set. The preset pressure or RPM will be displayed on the message display of the TPG. The preset shall be easily adjustable by the operator.

YES	NO	EXCEPTION/COMMENTS

SUCTION SIDE RELIEF V/V

A pre-set, spring-loaded 2-1/2" adjustable relief valve shall be installed to protect against excessive incoming pressure. The valve shall be adjustable from 75 to 250 PSI, shall be preset at 125 PSI, and shall attach directly to the pump suction manifold. The outlet shall be piped away from, but within sight of the pump operator and shall terminate with a 2-1/2" male adapter labelled "Intake pressure relief outlet - Do not cap". Shut-off valves or other means to disable the operation of the relief system shall not be permitted. Caps will not be installed in this line.

YES	NO	EXCEPTION/COMMENTS

PRIMER ELECTRIC VANE TYPE 12V WITH OIL TANK WATEROUS

The priming pump will be a positive displacement vane type, electrically driven, and conform to standards outlined in NFPA Pamphlet No. 1901. One (1) priming control will both open the priming valve and start the priming motors. When operating, the primer is to be automatically lubricated from its own oil reservoir. A one (1) gallon minimum, translucent, polyethylene reservoir will be provided for primer oil, is located directly behind the right side pump panel. A vertical slot will be machine punched into the right side pump panel for visual inspection of primer oil level.

YES	NO	EXCEPTION/COMMENTS

PRIMER DISCONNECT SWITCH

In the event of a primer motor becoming stuck in the on position and to prevent the resulting damage, a primer disconnect switch shall be provided on the apparatus. The switch shall disconnect the power to the primer motor and be of robust design, capable of handling the standard current of the motor.

YES	NO	EXCEPTION/COMMENTS

HEAT EXCHANGER

The chassis radiator hose shall be equipped with a high-efficiency tube bundle type closed circuit heat exchanger, which uses pump flow to reduce engine heat without contaminating engine coolant. The system shall be controlled by a 1/4-turn valve on the pump operator's panel. A drain shall be furnished in the engine cooler line.

YES	NO	EXCEPTION/COMMENTS

MASTER DRAIN V/V, 12 PORT

A master drain valve will be provided. The valve will be located on the left side pump panel and connected in such a manner as to allow complete water drainage. Water will be drained below the apparatus body away from the pump operator.

YES	NO	EXCEPTION/COMMENTS

DRAIN VALVE FOR FOAM SYSTEM HEADER

A drain valve is provided to relieve pressure in the foam system header beyond the check valve and reduce the chance of foam infiltration in the pump.

YES	NO	EXCEPTION/COMMENTS

FOAM SYSTEM - HYPRO FOAMPRO 1600

The apparatus shall be equipped with an FRC/Foam Pro 1600 System. The system shall be an electronic powered plunger type, fully automatic, variable speed, direct injection, discharge side foam proportioning system. The foam system shall be capable of injecting Class "A" or Class "B" foam from 0.1% to 1% based on the direct measurement of water flows and remain consistent within the specified flows and pressures. Hydraulic powered foam systems shall not be considered.

The System shall be equipped with a control module, suitable for installation on the pump panel with a single ON/OFF switch and a Manual Dial foam percentage control. Incorporated within the motor driver shall be a microprocessor that receives input from the system flowmeter, while also monitoring foam concentrate pump

output, comparing values to ensure that the operator preset proportional amounts of foam concentrate is injected into the discharge side of the water pump.

The control module shall enable the pump operator to:

Activate the foam proportioning system using an ON/OFF toggle switch.

Select proportioning rates from O. 1% to 1%.

The system shall have the ability for continuous firefighting operation while refilling the foam concentrate tank.

YES	NO	EXCEPTION/COMMENTS

LABELS

A label is applied next to the foam fill area specifying the type of foam concentrate to be used, any restrictions on the type of foam concentrate that can be used, and "Warning: Do Not Mix Brands and Types of Foam"

An instruction plate is installed at the operator's position including a piping schematic of the system and basic operating instructions

An additional plate is installed at the operators position which provides the following specifications:

-Foam Classification type (Class A; Class B; Class A and B)

-Types of foam concentrate compatible with the system design (see operating manual)

-Maximum/ minimum water flows (gpm)

-Maximum/minimum operating pressures

YES	NO	EXCEPTION/COMMENTS

NFPA FOAM SYSTEM CERTIFICATION TEST

Certification by manufacturer required stating the following (NFPA 21.11.1):

-Foam system, as installed, complies with the foam equipment manufacturer's installation recommendations

-Foam system has been calibrated and tested to meet the foam equipment manufacturer's and the purchaser's performance requirements

-The accuracy of the foam proportioning system meets the requirements of 21.10 (-0/+ 40% for ratios less than 1%; -0/+ 30% or one percentage point, whichever is less, for ratios of 1% and greater)

YES	NO	EXCEPTION/COMMENTS

WATER AND FOAM TANK

The tank shall have the capacity specified within this proposal complete with a Lifetime Warranty.

CONSTRUCTION:

The tank shall be constructed of 1/2" thick non-corrosive stress relieved Copolymer Polypropylene thermoplastic.

The booster tank shall be so designed to be completely independent of the unit body and compartments and shall be of specified configuration.

All transverse swash partitions shall be manufactured of 3/8" thick Copolymer Polypropylene minimum and shall extend to just under the cover. The longitudinal swash partitions shall be constructed of 3/8" Copolymer Polypropylene and extend from the floor of the tank through the cover. In cases where the overall height of the tank exceeds 40 inches reinforcement shall be installed on the tank bottom to allow for more positive welding and provide greater strength.

All swash partitions shall be designed in such a manner as to reducing the water surge to a minimum for greater vehicle stability while still providing maximum air and water flow throughout the tank. All swash partitions interlock with one another and shall be welded to the walls of the tank as well as to each other. All joints and seams shall be nitrogen welded and shall undergo a high frequency voltage testing during fabrication of the tank.

TANK COVER:

Standard tank cover shall be fabricated of 1/2" Copolymer Polypropylene in three pieces recessed 3/8" from the top of the tank. All covers shall be welded to both the outer walls and longitudinal partitions for maximum integrity. Copolymer Polypropylene solid stock shall be installed through each cover and shall serve as both the anchorage location for lifting eyes and reinforcing the rigidity of the cover under fast filling conditions.

FILL TOWER:

The tank shall be equipped with a manual fill tower combined with vent and 1/4" Polypropylene removable screen. The Fill tower shall be constructed of 1/2" Copolymer Polypropylene with a minimum dimension of 8"x 8" and shall have a hinged type cover. Inside the fill tower approximately half way from the top shall be fastened a vent overflow pipe. The vent overflow pipe shall be minimum 4" ID schedule 40 Polypropylene designed to run through the water tank and discharge behind the rear axle at a location specified by the purchaser to better maximize vehicle traction. The fill tower shall be located in the front left corner of the tank unless otherwise specified by the purchaser in Special Provisions.

SUMP BOX:

The tank shall have one (1) sump and shall be constructed of 1/2" Copolymer Polypropylene and location shall be specifed by the purchaser.

On tanks that require a front suction, a 3" NPT schedule 40 Polypropylene pipe shall be installed with a dip tube from the front of the tank to the tank sump box. The sump shall have a 3" NPT threaded outlet on the bottom and shall be used as a combination clean out and drain. An antiswirl plate shall be located on all tanks approximately 2" above the sump.

MOUNTING

The tank shall rest on the body cross members and may require additional support so as not to allow for more than 520 square inches of unsupported area under the area of the tank floor, and in cases where overall height of the tank exceeds 38 inches, the unsupported area of the tank floor shall be reduced to not more than 390 square inches. Additionally the tank must have support to the contour of the tank floor and outside perimeter to prevent tank from shifting side to side and from front to rear. Where square tubing and/or channel subframes are incorporated in the manufacturer's body structure, corner angles shall be installed having a minimum of 4" x 4" x 1/4" x 6" in height for the purpose of capturing and preventing shifting of the tank. The tank must be completely isolated from the supporting crossmembers with the use of rubber strips

with a minimum thickness and width dimension of 1/4" x 2" and a minimum Rockwell Hardness of 60 durometer. In installations where tank hold downs are not incorporated in the construction of the body, a restraint system shall be installed using angle having the minimum dimension of 3" x 3" x 1/4" with a total length of 6" to 14" long bolted to the side of the body of the vehicle halfway from the front and rear of the tank and extended down to rest on the top outside edge of the tank and shall be isoltated from the tank using a hard rubber pad with 1/4" minimum thickness affixed to the underside of the angle. Mounting block and hose bed floor designs shall be fabricated so that the floor slat supports extend from side wall to side wall and shall not be permitted to drop off the edge of the tank or come in contact with the covers where a puncture could occur. Hose floor whall have a loading capacity of 200 pounds per square foot, and whenever possible shall be evenly distributed. The tank shall be completely removable without dismantling or disturbing the apparatus body structure.

YES	NO	EXCEPTION/COMMENTS

WATER TANK CAPACITY CERTIFICATION (TANK MANUFACTURER)

A certificate specifying the capacity of the water tank shall be provided by the water tank manufacturer. The tank shall have a certified capacity of 1200 Imperial gallons.

YES	NO	EXCEPTION/COMMENTS

FOAM CELL - 20 IMPERIAL GALLON

The water tank shall be fitted with an integral foam cell with a capacity of 20 Imperial gallons. The foam cell shall be fittd with a separate fill tower clearly labelled as to its purpose. Preference may be given to a coloured foam fill tower.

YES	NO	EXCEPTION/COMMENTS

TANK CONNECTIONS

The tank shall come with following fittings for connection by the apparatus manufacturer;

One (1) 4" tank to pump connection

One (1) 2" tank fill connection

One (1) 1" water level gauge connection

One (1) 4" direct fill connection

One (1) 10" Newton dump connection

One (1) 2 1/2" direct fill connection

One (1) 3" plug in sump box- A 3" plug is installed in the tank sump box cleanout.

YES	NO	EXCEPTION/COMMENTS

10" REAR NEWTON DUMP, PAINTED STEEL

There shall be one (1) Newton Model 1050 10" x 10" dump valve mounted at the center rear of the apparatus. This line shall permit dumping tank water to an external holding tank at a minimum rate of 1000 GPM. The valve shall be controlled with a top mount manual valve with locking mechanism to lock the valve in the open and closed position.

YES	NO	EXCEPTION/COMMENTS

DUMP VALVE SWIVEL

The dump valve shall be fitted with a AH Stock NEWTON 6012-SW painted steel swivel dump attached to the dump valve specified to allow water dumping from the sides or the rear.

YES	NO	EXCEPTION/COMMENTS

DUMP VALVE CHUTE

The dump valve swivel shall be equipped with an AH STOCK Model 4036 painted steel 36" telescoping chute.

YES	NO	EXCEPTION/COMMENTS

REAR TANK FILL – 2.5”

A 2-1/2" gated rear tank fill shall be installed and connected directly to the booster tank. It includes a 2-1/2" quarter turn valve, 30ø turn down, bleeder valve, swivel, and plug.

YES	NO	EXCEPTION/COMMENTS

REAR TANK FILL – 4”

A 4" rear tank fill shall be located at the rear of the apparatus body, right side, and connected directly to the booster tank. It is equipped with a butterfly valve, 30 degree Storz adapter, bleeder valve, and blind cap.

YES	NO	EXCEPTION/COMMENTS

BASE ELECTRICAL SYSTEM

All electrical circuit feeder wiring supplied and installed by the apparatus manufacturer shall be stranded alloy copper conductors of a gauge rated to carry 125% of the maximum current for which the circuit is protected. Insulation shall be in accordance with SAE J1128, type SXL, and wired to SAE J1292, for such loading at the potential employed. Voltage drops in all wiring from the power source to the using device shall not exceed 10%. Overall covering of conductors shall be 280 degrees F. minimum flame retardant loom or braid. All connections shall be made with lugs or terminals mechanically secured to the conductors. Wiring shall be thoroughly secured in place and suitable protected against heat, oil and physical damage. All body wiring is colour coded and marked every 3" as to function. All circuits are protected by autoreset circuit breakers. The power distribution panel is located in the pump compartment or behind the back wall of the front side compartment depending on the muffler location. Circuits are provided with properly rated low voltage overcurrent protective breakers. Such circuit breakers are readily accessible and protected against excessive heat, physical damage and water spray. Switches, relays, terminals and connectors have a direct current rating of 125% of maximum current for which the circuit is protected. All wiring is done to NFPA standards and SAE standards and complies with CMVSS regulations.

YES	NO	EXCEPTION/COMMENTS

WARNING LIGHT CERTIFICATION

Certification from the warning light manufacturer shall be provided to confirm that the lighting system meets current NFPA 1901 standards.

YES	NO	EXCEPTION/COMMENTS

ELECTRICAL SYSTEM TEST

The low voltage electrical system shall be tested as outlined in the appropriate standard - including reserve capacity test, alternator performance test, and low voltage alarm test.

YES	NO	EXCEPTION/COMMENTS

ROCKER SWITCH PANEL WITH MASTER WARNING SWITCH

A rocker switch panel shall be installed in the apparatus console as specified. The switch panel shall be equipped with a Master switch to control all emergency lighting to comply with applicable standards as well as individual switches for specified lighting.

YES	NO	EXCEPTION/COMMENTS

SIREN

A Federal PA300 100 watt siren shall be mounted in the cab with the following functions supported:

-yelp, wail, and Priority tone

-PA operation, microphone included

-manual operation of siren

-capability of broadcasting radio transmissions through the siren speaker

The siren control unit shall be located so as to be controlled by either the driver or officer.

YES	NO	EXCEPTION/COMMENTS

SIREN SPEAKER

Two (2) 100 watt siren speakers shall be mounted behind the chassis front bumper, one each side.

YES	NO	EXCEPTION/COMMENTS

LIGHT BAR

One (1) Federal Discrete LED full width, all red light bar, model LPX NFPA compliant light bar shall be installed on the roof of the chassis cab. The roof shall be shall be reinforced to carry the weight. The light bar includes LED light heads and red lens. These lights shall all be controlled from the cab. All lights are enabled in RESPONSE mode with two light heads disabled in SCENE mode.

YES	NO	EXCEPTION/COMMENTS

WARNING LIGHTS

The completed apparatus shall be equipped with LED warning lights as follows;

Front ; Two (2) one each side, QL 64 XF-R red LED located in the front grille of the vehicle.

Intersection: Two (2) one each side, QL 64 XF-R red LED located on the fender wells of the chassis

Rear ; Two (2) one each side, QL 64 XF-R red LED at the rear of the unit installed in the vertical tail light assembly.

Sides; Two (2) one each side, QL 64 XF-R red LED in the rear wheel well area

Upper; Two (2) on the front and rear upper corners of the right side apparatus body, QL97XF-R red LED

Two (2) on the front and rear upper corners of the left side apparatus body, QL97XF-R red LED

Two (2) one each side in the upper corners of the rear body face, QL97XF-R red LED

YES	NO	EXCEPTION/COMMENTS

HIDEAWAY LED

There will be one pair of hideaway LED strobe lights installed in the front headlight assembly.

YES	NO	EXCEPTION/COMMENTS

TAILLIGHT ASSEMBLY

A Federal QL64Z4V module including a red tail/brake LED light, an amber LED turn signal and a clear LED back up and lower rear warning light in a chrome housing is installed at the rear of the unit on each side.

YES	NO	EXCEPTION/COMMENTS

SCENE LIGHTS

The completed apparatus shall be equipped with six (6) Federal QL97 LED clear scene lights;

Two (2) in the front and rear upper corners of the apparatus body on the right side paired with the warning lights. These lights shall be switched in the chassis console as " RIGHT SCENE "

Two (2) in the front and rear upper corners of the apparatus body on the left side paired with the warning lights. These lights shall be switched in the chassis console as " LEFT SCENE "

Two (2) in the front and rear upper corners of the rear face of the apparatus body on the right side paired with the warning lights. These lights shall be switched in the chassis console as " REAR SCENE ". These lights shall also be switched from a second switch location on the rear body face.

YES	NO	EXCEPTION/COMMENTS

COMPARTMENT LIGHTING – LED

Two vertical tube type compartment lights will be provided in each enclosed compartment, and will be controlled automatically when compartment door is opened.

YES	NO	EXCEPTION/COMMENTS

DOOR / COMPONENT WARNING LIGHT

A 2" round red warning light with flasher shall be installed in a highly visible location in the chassis cab to indicate any door or component that is not properly secured for travel in accordance with the requirements of ULC. This circuit shall include;

All compartment doors including step compartments

All chassis cab doors

Telescopic lights not stowed

The light shall be interlocked with the park brake.

The light shall be clearly labelled; " DO NOT MOVE VEHICLE WHEN FLASHING "

YES	NO	EXCEPTION/COMMENTS

STEP LIGHTS FOR BODY STEPS - LED

LED step lights shall be installed to light all body work surfaces, steps, and walkways in accordance with ULC.

YES	NO	EXCEPTION/COMMENTS

STEP LIGHTS FOR CHASSIS STEPS - LED

LED step lights shall be installed to light all chassis entry steps in accordance with ULC.

YES	NO	EXCEPTION/COMMENTS

LED CLEARANCE LIGHTS AND REFLECTORS

LED clearance and marker, and a license plate light, along with reflectors shall be mounted in accordance with federal regulations.

YES	NO	EXCEPTION/COMMENTS

LED INTERMEDIATE TURN SIGNAL/CLEARANCE/REFLECTOR

An intermediate turn signal, reflector, and clearance light will be installed ahead of the rear wheels in the body rub rail if the overall length of the vehicle exceeds 30'.

YES	NO	EXCEPTION/COMMENTS

TWO WAY RADIO – MOTOROLA XPR 5550

A Motorola XPR 5550 mobile radio is installed in the chassis cab, including installation of antenna and programming to customer requirements. The radio shall come complete with touch pad mic. The radio shall be wired to come on with Master Power.

YES	NO	EXCEPTION/COMMENTS

BACK UP CAMERA

There will be a camera installed at rear of the apparatus body with one monitor mounted in the chassis cab as per the fire department instruction. The camera shall automatically activate when the vehicle is placed in reverse.

YES	NO	EXCEPTION/COMMENTS

TRAFFIC ADVISOR

A Whelen TA165NF2 LED Traffic Advisor including controller, shall be installed on the rear wall of the apparatus body.

YES	NO	EXCEPTION/COMMENTS

TELESCOPIC SCENE LIGHTS

Two (2) FRC Spectra LED 12 volt telescoping flood lights shall be installed, one each side, on the forward face of the apparatus body. The lights shall be switched from the chassis cab console labelled " RIGHT POLE LIGHT " and " LEFT POLE LIGHT ".

The lights shall be wired with the door ajar circuit to indicate if the light is not fully stowed for travel.

YES	NO	EXCEPTION/COMMENTS

SCENE LIGHT BOXES

Tread plate standoff boxes shall be fabricated and installed to locate the right side scene lights in a suitable position for maximum lighting.

YES	NO	EXCEPTION/COMMENTS

GROUND LIGHTING

Amdor LED Lumabar lighting shall be installed under the pump panel and rear steps, operable when the ground light switch is turned on in accordance with the requirements of ULC.

YES	NO	EXCEPTION/COMMENTS

HOSEBED LIGHTS

Compliant hosebed lighting shall be provided by Amdor Lumabar LED lights installed in the hosebed cover. The lights shall be automatically activated when the cover is raised.

YES	NO	EXCEPTION/COMMENTS

ELECTRICAL

SHORE POWER OUTLETS

One (1) power bar shall be installed in the chassis cab console connected to the Auto Eject shore power outlet.

Two (2) standard duplex receptacles with weather proof cover connected to the Auto Eject shore power outlet are to be installed in L1 and R1 upper.

YES	NO	EXCEPTION/COMMENTS

CORD REEL

A cord reel such as an Akron ERWC-10-28 with electric rewind shall be installed on the ceiling or backwall of the R3 compartment and connected to the generator breaker box. The reel shall have a capacity of 200' of 10/3 yellow cable and shall terminate in a locking connector to mate with the specified junction box. The cord reel shall be equipped with guide rollers and cord.

YES	NO	EXCEPTION / COMMENTS

JUNCTION BOX

A junction box and mounting bracket shall be provided. The box shall include a short cable to mate with the locking cord reel connector. The junction box shall incorporate an integral light and four (4) weatherproof receptacles.

YES	NO	EXCEPTION / COMMENTS

GENERATOR POWER. The generator will be supplied by the municipality

The generator shall be connected to the 12 volt chassis electrical system for starting power.

The generator shall be equipped with a pigtail cable to facilitate connection to a compartment mounted breaker panel. The cable shall be of sufficient length to allow the generator to remain connected while the tray is in the outboard position.

YES	NO	EXCEPTION / COMMENTS

BREAKER BOX

A breaker box shall be supplied and installed in the R3 compartment. The breaker shall house a sufficient number of GFCI breakers to protect the cord reel and outlets specified.

YES	NO	EXCEPTION / COMMENTS

GENERATOR OUTLETS

Three (3) standard duplex receptacles with weather proof cover connected to the Generator Breaker Panel are to be installed in L3 and R1 and R3.

YES	NO	EXCEPTION / COMMENTS

120 VOLT LIGHTING

Two (2) FRC Spectra LED lights on telescopic Model 656 tripod mounts shall be supplied and installed on the completed apparatus. The lights shall be fitted with quick release 603D tripod brackets mounted on the front wall of the R1 compartment.

The lights shall terminate with NEMA L5-15 three prong twist lock plugs.

YES	NO	EXCEPTION / COMMENTS

Bidder's Initials _____

BODY

ALUMINUM BODY

The apparatus body of this unit shall be custom designed to meet the specifications of the customer and to ensure correct load distribution on the chassis. The body design will incorporate design features to suit the routine requirements of the fire department and maximize the safe use of the apparatus. The use of " stock " body designs shall not be acceptable for this application.

The body shall be constructed of engineered aluminum extrusions specifically designed for the application. The body shall be comprised of 6061/6063 aluminum extrusions, 3/16" & 1/8" 5052 aluminum plate, and 1/8" 3003 Aluminum deckplate. The body shall be fabricated with 3/16" Aluminum plate for the body sides and all of the compartment walls except the back walls of the compartment. The compartment back walls are fabricated with 1/8" Aluminum plate. The front exterior plates and the fender tops are fabricated with 1/8" Aluminum deckplate.

The body shall be fabricated on a subframe of 3" x 3" x ¼ Aluminum tubing. The subframe shall be attached to the chassis frame using 4 spring loaded holdowns, two at the front and two at the rear of the subframe. The subframe shall be isolated from the chassis frame using ¾" UMHW. The spring mounting system reduces flexing in the tank and body.

Full Aluminum fender liners fabricated from 1/8" Aluminum plate shall be installed on the body.

All compartments shall be the sweep out type. The compartments and body frame shall be constructed with interlocking extrusions, then MIG or TIG welded.

The extrusions used shall be custom designed and engineered for use in the fabrication of the Apparatus. NO EXCEPTION. Designs using generic Aluminum tubing and angles will not meet the intention of this requirement and will not be accepted. The use of extrusions provides a stronger compartment and body frame and by using the engineered extruded aluminum design, all compartments are stitched welded on the exterior side of the compartment. Automotive seam sealant is used between the welds to completely seal the compartment.

Each compartment is also equipped with floor drains and louvered vents. The vents shall be machined/punched into the compartment wall. Bolt on plates or grills do not meet the intent of this requirement.

Compartment fender tops overall side compartments shall have a flange formed out to provide protection against water runoff.

YES	NO	EXCEPTION / COMMENTS

REAR FENDER WELLS

The vertical trim around each rear wheel is painted to match the rest of the body.

Extruded aluminum trim shall be installed around each rear wheel and is an integral part of the body.

YES	NO	EXCEPTION / COMMENTS

PUMPHOUSE STEPS

The running boards will be made of open strut aluminum with non-slip surface. Each step will be rigidly reinforced with a heavy duty support structure. Running boards will not form any part of compartment design.

YES	NO	EXCEPTION / COMMENTS

REAR STEP

The rear step will be 19 inches deep, made of open strut aluminum with non slip surface, and rigidly reinforced. The step will be a bolt on configuration. Rear steps welded to the apparatus body will not be accepted. The step shall be spaced from the body surface to allow for drainage and cleaning.

YES	NO	EXCEPTION / COMMENTS

EXTRUDED RUB RAIL

An extruded rub rail extends 3/4" beyond the body on each side. It is polished aluminum and is an integral part of the body.

YES	NO	EXCEPTION / COMMENTS

COMPARTMENTATION

LEFT SIDE:

One (1) compartment shall be provided on the left side of the unit ahead of the rear wheels measuring approximately;

57” wide x 64” high by 25” deep in the lower area and 12” deep in the upper area.

One (1) compartment shall be provided on the left side of the unit over the rear wheels measuring approximately;

60” wide x 25” high by 12” deep.

One (1) compartment shall be provided on the left side of the unit behind the rear wheels measuring approximately;

30” wide x 64” high by 25” deep in the lower area and 12” deep in the upper area.

RIGHT SIDE:

One (1) compartment shall be provided on the right side of the unit ahead of the rear wheels measuring approximately;

57” wide x 64” high by 25” deep in the lower area and 12” deep in the upper area.

Two (2) compartments shall be provided on the right side of the unit over the rear wheels in front of and behind the hydraulic ladder rack assembly, measuring approximately;

18” wide x 29” high by 12” deep.

One (1) compartment shall be provided on the right side of the unit ahead of the rear wheels measuring approximately;

57” wide x 64” high by 25” deep in the lower area and 12” deep in the upper area.

YES	NO	EXCEPTION / COMMENTS

ROLLUP DOORS

The compartments shall be equipped with Amdor TM roll up shutter doors, custom fitted to the compartment door opening. Finish shall be natural aluminum.

YES	NO	EXCEPTION / COMMENTS

EXTRUDED ALUMINUM HANDRAILS

All railings will be 1-1/4" outer diameter, extruded aluminum non slip rib type tubing. Two (2) vertical rails will be mounted on the rear of the body, one (1) each side. One (1) handrail will be installed below the level of the hosebed.

YES	NO	EXCEPTION / COMMENTS

STEPS AT REAR OF BODY (FOLDING)

Six (6) folding steps shall be provided at the rear of the apparatus, three (3) each side, mounted to allow access to the body hosebed area with a maximum of 18" height between each step.

YES	NO	EXCEPTION / COMMENTS

STEPS AND GRAB HANDLES AT FRONT OF BODY - PUMP PANEL

Folding steps will be installed on the front surface of the side compartments. Handrails are also installed at the front of the unit as necessary.

YES	NO	EXCEPTION / COMMENTS

INTERMEDIATE STEP ON BACK OF BODY

An intermediate step shall be installed over the rear dump valve to facilitate standing while accessing the hosebed. Stepping surface is diamond back aluminum.

YES	NO	EXCEPTION / COMMENTS

COMPARTMENT MATTING-TURTLE TILE

Turtle Tile compartment floor matting shall be installed on all compartment floors without trays, all trays and all shelves.

SCBA CYLINDER STORAGE TUBES (DOUBLE) IN FENDER (EA) CPI BRAND

Four (4) double cylinder SCBA storage tubes shall be provided, two each side, located in the front and rear corners of the rear wheelwells.

The tubes shall be fitted with doors, latch mechanism and retention straps for securing the bottles in the compartment.

The doors shall be connected to the door ajar warning system to warn if the door is open during travel.

YES	NO	EXCEPTION / COMMENTS

SLIDING VERTICAL TOOL BOARD - GAS STRUT

Sliding vertical tool board(s) equipped with 250 pound capacity sliding hardware and latch to hold in the closed position shall be installed in L2 as directed by the Fire Department. A gas strut is provided to help hold the tool board in the open and closed position.

YES	NO	EXCEPTION / COMMENTS

FIXED VERTICAL PARTITION

Three (3) Fixed vertical partitions shall be installed as specified. The partitions shall be located in L1 and L2 and R1.

YES	NO	EXCEPTION / COMMENTS

SLIDING TRAY (EA) - 400 POUND CAPACITY WITH GAS STRUT

Three (3) Sliding trays equipped with 400 pound capacity sliding hardware and latch to hold in the closed position are installed as directed by the Fire Department. A gas strut is installed to help hold the tray in the open and closed positions.

The trays shall be installed in L3, R1 and R3

YES	NO	EXCEPTION / COMMENTS

TIP DOWN TRAY - 30 DEGREE, 250 POUND CAPACITY

Three (3) 250 pound capacity shelf with sliding hardware to allow 90% extension and 30 degree tip down shall be installed as directed by the Fire Department.

The trays shall be installed in L1, L2, L3

YES	NO	EXCEPTION / COMMENTS

ADJUSTABLE SHELF

Five (5) Adjustable shelves equipped with aluminum unistruts shall be installed as directed by the Fire Department. The shelf installation will include aluminum tracking installed in the four corners of the upper and lower compartment areas to allow for full movement of any shelf.

YES	NO	EXCEPTION / COMMENTS

ADJUSTABLE HOSE DIVIDER

Two (2) Fully adjustable full length 1/4" aluminum hose bed partition(s) will be provided directly on top of the booster tank. Partition(s) will be removable for access to the booster tank.

YES	NO	EXCEPTION / COMMENTS

HOSE BED - ALUMINUM

The hosebed floor shall be constructed of aluminum channels and shall be properly spaced for ventilation. The flooring will be smooth and free from sharp edges to avoid hose damage. Floor will be removable for access to booster tank.

YES	NO	EXCEPTION / COMMENTS

ALUMINUM COVER OVER CROSSLAYS - WITH END TARPS (BLACK)

A hinged aluminum crosslay hosebed cover will be provided over the crosslays. Small tarps with velcro straps to enclose each end are provided.

YES	NO	EXCEPTION / COMMENTS

ALUMINUM COVER OVER HOSE BED WITH END TARPS - BLACK E

A hinged aluminum hosebed cover will be bolted to top body flanges. Gas struts are mounted at the front to assist in opening. Rear flaps with velcro straps will be provided on the rear of the cover to tie around the rear handrail.

YES	NO	EXCEPTION / COMMENTS

HARD SUCTION STORAGE and LADDER STORAGE

Two (2) storage tubes integral to the body shall be provided on the left side compartment top. The storage area will also incorporate space to store the attic ladder. The tubes shall be fitted with a single hinged door made of aluminum, painted to match the body and fitted with a D ring latch.

YES	NO	EXCEPTION / COMMENTS

HARD SUCTION STORAGE and PIKE POLE STORAGE

Two (2) hard suction storage tubes shall be incorporated in the rear body, one each side. The tubes shall be as low as possible, height not to exceed 60" from the ground. Each tube shall be fitted with a door with lift and turn latch.

The tubes shall provide storage in the corner for a single pike pole.

YES	NO	EXCEPTION / COMMENTS

ZICO HORIZONTAL LADDER ACCESS SYSTEM

An electric over hydraulic power Ladder storage system with built in electric safety latch shall be installed on the right side of the apparatus body. It shall allow lowering the ladder from the stored position over the hose bed. Access to the body compartments is available when the rack is up or down. The system is wired so only operable when park brake is engaged. Flashing lights and reflective tape are installed at front and rear to indicate any areas that protrude beyond the body.

The switch to operate the electric ladder rack is installed on the same side of the body as the ladder rack at the rear, above the tail light.

YES	NO	EXCEPTION / COMMENTS

BACKBOARD STORAGE IN PUMPHOUSE

There shall be storage for one backboard in a compartment located rear of the crosslay area. There shall be a hinged deck plate door for access on the right side of the unit.

YES	NO	EXCEPTION / COMMENTS

INSTRUMENTATION

WARNING LABEL ON PUMP OPERATOR'S PANEL

A warning label will be installed on the Pump Operator's Panel stating:
WARNING:
Death or serious injury might occur if proper operating procedures are not followed. The pump operator, as well as individuals connecting supply or discharge hoses to the apparatus, must be familiar with the operator's manual, water hydraulics hazards, and component limitations.

YES	NO	EXCEPTION / COMMENTS

LINKAGE CONTROLS IN LEFT SIDE FRONT COMPARTMENT

Pump panel controls shall be located in the left side front compartment.

YES	NO	EXCEPTION / COMMENTS

INSTRUMENT PANELS

The instrument and pump panels shall be fabricated from 14 gauge 304 stainless steel with brushed finish.

Colour coded identification plates will be provided for all gauges, controls, connections, switches, inlets and outlets. The plates shall be of an enhanced style such as Vision Mark or Innovative Controls.

The right side pump panel will be illuminated by clear lens lights under a polished stainless steel light shield. The shield will be full width of the panel, and will be positioned to cover the lights and prevent glare on operator.

The left side pump panel will be illuminated by clear lens lights under a polished stainless steel light shield. The shield will be full width of the panel, and will be positioned to cover the lights and prevent glare on operator.

YES	NO	EXCEPTION / COMMENTS

HEAT PAN-ALUMINUM

A pump heat pan fabricated from 1/8" aluminum will be provided on the underside of the pump enclosure and pump module area to act as a supplementary heating system by entrapping chassis exhaust heat during low temperature pumping operations. This pan will be attached with spring loaded pins for easy removal without tools for servicing and in warm weather.

YES	NO	EXCEPTION / COMMENTS

HEATER IN PUMP COMPARTMENT

A 30,000 BTU hot water heater is installed in the pump compartment with fan controls at the pump panel.

YES	NO	EXCEPTION / COMMENTS

HEAT RETENTION

The pump module design will incorporate fully enclosing the pump and plumbing for maximum heat retention. This will include gaskets around all discharge and intake plumbing at the pump panel.

YES	NO	EXCEPTION / COMMENTS

GAUGES

One (1) 4" master intake gauge and one (1) 4" master discharge gauge, dual scale, shall be provided on the pump panel.

Ten (10) 2 1/2" Dual face (kPa and PSI) pressure gauges, 2-1/2" diameter, are installed on the pump operator's panel, one plumbed to each discharge.

YES	NO	EXCEPTION / COMMENTS

PRIMER CONTROL

The control for the pump primer shall be mounted on the pump panel to operate the primer pump.

YES	NO	EXCEPTION / COMMENTS

CLASS ONE GOVERNOR CONTROL

A Class One Governor control is installed on the pump operator's panel to control pump pressure and engine speed.

YES	NO	EXCEPTION / COMMENTS

ELECTRIC WATER LEVEL GAUGE ON PUMP PANEL AND AT REAR, CLASS 1

A Class 1 ITL 40 water level gauge is installed on the pump panel with four indicator lights showing quarter, half, three quarter and full tank levels. The sender has no moving parts.

An additional readout is installed at the rear of the body.

YES	NO	EXCEPTION / COMMENTS

FOAM LEVEL GAUGE – PUMP PANEL – CLASS 1

A Class 1 ITL 40 foam level gauge shall be installed on the pump panel with four indicator lights showing quarter, half, three quarter and full tank levels. The sender has no moving parts.

YES	NO	EXCEPTION / COMMENTS

TEST GAUGE PANEL

Connections for pump vacuum and pressure are installed on the pump panel for use when testing the pump.

YES	NO	EXCEPTION / COMMENTS

HEAT EXCHANGER CONTROL VALVE

A quarter turn valve to allow flow of water through the engine heat exchanger is mounted on the pump panel.

YES	NO	EXCEPTION / COMMENTS

PTO HOURMETER

An electric hourmeter shall be mounted on the pump panel, wired to show PTO in gear hours.

YES	NO	EXCEPTION / COMMENTS

MICROPHONE COMPARTMENT

A closed compartment with door shall be provided on the pump panel for storage of the two way radio microphone.

Wiring shall be provided from the pump panel and terminate in the console area for connection to the radio.

YES	NO	EXCEPTION / COMMENTS

SPEAKER ON PUMP PANEL

A flush mount speaker shall be installed on the pump panel for the radio system. Wiring shall be provided from the pump panel and terminate in the console area for connection to the radio.

YES	NO	EXCEPTION / COMMENTS

PAINT EXTERIOR - IMRON ELITE

All compartment doors, removable components, flush mounted lights, drip moldings, accessories and other equipment shall be mounted on the body prior to painting, then removed for final finishing to assure paint has been applied to surfaces under all equipment and components. All exterior surfaces of the body except tread plate and polished stainless steel are painted to prevent corrosion. The body is buffed, primed with acid etching primer, epoxy primed, and painted with 3 full coats of DUPONT ELITEpolyurethane enamel.

YES	NO	EXCEPTION / COMMENTS

UNDERCOAT VEHICLE

The entire cab and body after completion shall be treated with KROWN$_{TM}$ rust protection prior to leaving the factory. A certificate of application shall be provided with the delivery documents stating the application was completed by a certified Krown applicator.

YES	NO	EXCEPTION / COMMENTS

PAINT PUMP AND PLUMBING JOB COLOUR

The pump and plumbing area are painted to match the body colour.

YES	NO	EXCEPTION / COMMENTS

BUFFED FINISH COMPARTMENT INTERIOR

The interior of the aluminum compartments is buffed to remove scratches and provide a finished surface.

YES	NO	EXCEPTION / COMMENTS

REFLECTIVE STRIPE - 4" WHITE

A four inch high white Scotchlite stripe will be provided. The stripe will be applied on a minimum of 50 percent of each side of the unit, 50 percent on the rear of the unit (unless a chevron is provided) and 25 percent on the front of the unit.

YES	NO	EXCEPTION / COMMENTS

REFLECTIVE STRIPE - RED AND YELLOW CHEVRON AT REAR

An NFPA compliant reflective chevron is applied to cover at least 50% of the rear facing vertical surface of the vehicle. This consists of alternating red and yellow reflective stripes 6" wide in a chevron pattern sloping down and away from the centerline of the vehicle at an angle of 45 degrees.

YES	NO	EXCEPTION / COMMENTS

ACCESSORIES

The following accessories and mounting brackets will be installed on this unit:

Two (2) 6" x 10' lightweight suction hose (ea) PVC suction hose with threaded pyrolite fittings

Two (2) 4" x 10' lightweight suction hose (ea) PVC suction hose with threaded pyrolite fittings

One (1) 6" floating strainer, threaded pyrolite

One (1) 4" floating strainer, threaded pyrolite

Two (2) Pike poles, fiberglass handle - 10' long

One (1) 35' 2 section extension ladder Alco Lite PEL 3-35

One (1) 14' aluminum roof ladder Alco Lite PRL-14

One (1) 10' aluminum folding attic ladder Alco Lite FL-10

One (1) TFT Hurricane Remote Controlled Monitor

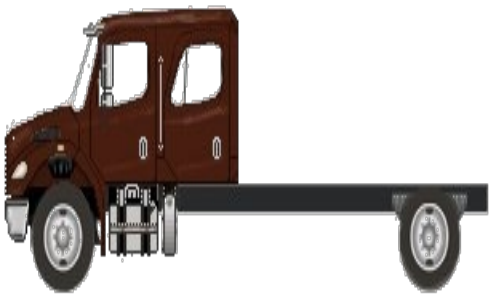
A TFT Hurricane Remote Controlled monitor with a panel operation switch, 1250 ER master stream nozzle, and a 3" remote control telescoping waterway shall be installed on the unit.

YES	NO	EXCEPTION / COMMENTS

Bidder's Initials _____

APPENDIX B

Freightliner M2 106



Components shown may not reflect all spec'd options and are not to scale

APPENDIX B

S P E C I F I C A T I O N P R O P O S A L

Data Code	Description	Weight Front	Weight Rear
Price Level			
PRL-15M	M2 PRL-15M (EFF:10/25/16)		
Data Version			
DRL-008	SPECPRO21 DATA RELEASE VER 008		
Interior Convenience/Driver Retention Package			
055-002	INTERIOR CONVENIENCE PACKAGE		
Vehicle Configuration			
001-172	M2 106 CONVENTIONAL CHASSIS	5,759	3,503
004-218	2018 MODEL YEAR SPECIFIED		
002-004	SET BACK AXLE - TRUCK		
019-002	STRAIGHT TRUCK PROVISION		
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		
AA5-006	TERRAIN/DUTY: 10% (SOME) OF THE TIME, IN TRANSIT, IS SPENT ON NON-PAVED ROADS		
AB1-008	MAXIMUM 8% EXPECTED GRADE		
AB5-003	MAINTAINED GRAVEL OR CRUSHED ROCK - MOST SEVERE IN-TRANSIT (BETWEEN SITES) ROAD SURFACE		
995-091	MEDIUM TRUCK WARRANTY		
A66-99D	EXPECTED FRONT AXLE(S) LOAD : 14600.0 lbs		

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Data Code	Description	Weight Front	Weight Rear
A68-99D	EXPECTED REAR DRIVE AXLE(S) LOAD : 31000.0 lbs		
A63-99D	EXPECTED GROSS VEHICLE WEIGHT CAPACITY : 45600.0 lbs		
Truck Service			
AA3-031	FIRE TANK - NO MAIN DRIVELINE DRIVEN SPLIT-SHAFT PTO/PUMP		
AF7-99D	EXPECTED BODY/PAYLOAD CG HEIGHT ABOVE FRAME "XX" INCHES : 32.0 in		
Engine			
101-23B	CUM L9 350EV HP @ 2000 RPM, 2200 GOV RPM , 1000 LB/FT @ 1400 RPM	640	30
Electronic Parameters			
79A-073	73 MPH ROAD SPEED LIMIT		
79B-000	CRUISE CONTROL SPEED LIMIT SAME AS ROAD SPEED LIMIT		
79K-007	PTO MODE ENGINE RPM LIMIT - 1100 RPM		
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		
80G-002	PTO MINIMUM RPM - 700		
80J-002	REGEN INHIBIT SPEED THRESHOLD - 5 MPH		
Engine Equipment			
99C-017	2016 ONBOARD DIAGNOSTICS/2010 EPA/CARB/FINAL GHG17 CONFIGURATION		
99D-010	NO 2008 CARB EMISSION CERTIFICATION		
13E-001	STANDARD OIL PAN		
105-001	ENGINE MOUNTED OIL CHECK AND FILL		
133-004	ONE PIECE VALVE COVER		
014-1BX	SIDE OF HOOD AIR INTAKE WITH NFPA COMPLIANT EMBER SCREEN AND FIRE RETARDANT DONALDSON AIR CLEANER		
124-1CE	LN 12V 320 AMP 4962PA PAD MOUNT ALTERNATOR	10	

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Data Code	Description	Weight Front	Weight Rear
292-098	(2) ALLIANCE MODEL 1231, GROUP 31, 12 VOLT MAINTENANCE FREE 2250 CCA 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		
293-058	POSITIVE LOAD DISCONNECT WITH CAB MOUNTED CONTROL SWITCH MOUNTED OUTBOARD DRIVER SEAT	8	
295-003	POSITIVE AND NEGATIVE POSTS FOR JUMPSTART CHASSIS MOUNTED LH BACK OF CAB	4	
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	80	
016-1DC	RH OUTBOARD UNDER STEP MOUNTED HORIZONTAL AFTERTREATMENT SYSTEM ASSEMBLY WITH RH HORIZONTAL TAILPIPE EXITING FORWARD OF REAR TIRES	10	5
28F-007	ENGINE AFTERTREATMENT DEVICE, AUTOMATIC OVER THE ROAD ACTIVE REGENERATION AND DASH MOUNTED SINGLE REGENERATION REQUEST/INHIBIT SWITCH		
239-001	STANDARD EXHAUST SYSTEM LENGTH		
237-022	RH HORIZONTAL TAILPIPE, EXIT FORWARD OF REAR TIRES AT 90 DEGREES	20	20
23U-001	6 GALLON DIESEL EXHAUST FLUID TANK		
30N-003	100 PERCENT DIESEL EXHAUST FLUID FILL		
43X-005	LH UNDER CAB DIESEL EXHAUST FLUID TANK LOCATION		
23Y-001	STANDARD DIESEL EXHAUST FLUID PUMP MOUNTING		

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Data Code	Description	Weight Front	Weight Rear
43Y-001	STANDARD DIESEL EXHAUST FLUID TANK CAP		
273-018	HORTON DRIVEMASTER ADVANTAGE ON/OFF FAN DRIVE		
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	20	
103-039	ANTIFREEZE TO -34F, OAT (NITRITE AND SILICATE 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	10	
168-002	LOWER RADIATOR GUARD		
138-011	PHILLIPS-TEMRO 1000 WATT/115 VOLT BLOCK HEATER	4	
140-022	CHROME ENGINE HEATER RECEPTACLE MOUNTED UNDER LH DOOR		
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	200	60
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-022	PRIMARY MODE GEARS, LOWEST GEAR 1, START GEAR 1, HIGHEST GEAR 5, AVAILABLE FOR 3000/4000 PRODUCT FAMILIES ONLY		

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Data Code	Description	Weight Front	Weight Rear
84D-022	SECONDARY MODE GEARS, LOWEST GEAR 1, START GEAR 1, HIGHEST GEAR 5, 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		
84L-000	LOAD BASED SHIFT SCHEDULE AND VEHICLE ACCELERATION CONTROL RECOMMENDED BY DTNA AND ALLISON, THIS DEFINED VOCATIONAL USAGE		
84N-000	NEUTRAL AT STOP - DISABLED, FUELSENSE - DISABLED		
84U-000	DRIVER SWITCH INPUT - DEFAULT - NO SWITCHES		
353-026	VEHICLE INTERFACE WIRING CONNECTOR WITH PDM AND NO BLUNT CUTS, AT BACK OF CAB		
34C-001	ELECTRONIC TRANSMISSION CUSTOMER ACCESS CONNECTOR FIREWALL MOUNTED		
362-1Y2	(2) CUSTOMER INSTALLED MUNCIE CS10 SERIES PTO'S		
363-011	PTO MOUNTING, LH AND RH SIDES OF MAIN TRANSMISSION		
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		

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Data Code	Description	Weight Front	Weight Rear
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		
402-049	MERITOR 16.5X5 Q+ CAST SPIDER CAM FRONT BRAKES, DOUBLE ANCHOR, FABRICATED SHOES		
403-026	FIRE AND EMERGENCY SEVERE SERVICE, NON-ASBESTOS FRONT LINING		
419-023	CONMET CAST IRON FRONT BRAKE DRUMS		
427-001	FRONT BRAKE DUST SHIELDS	5	
409-021	SKF SCOTSEAL PLUS XL FRONT OIL SEALS		
408-001	VENTED FRONT HUB CAPS WITH WINDOW, CENTER AND SIDE PLUGS - OIL		
416-022	STANDARD SPINDLE NUTS FOR ALL AXLES		
405-007	BENDIX VERSAJUST AUTOMATIC FRONT SLACK ADJUSTERS		
536-012	TRW TAS-85 POWER STEERING	40	
539-003	POWER STEERING PUMP		
534-015	2 QUART SEE THROUGH POWER STEERING RESERVOIR		
533-001	OIL/AIR POWER STEERING COOLER	5	
40T-001	ORGANIC SAE 80/90 FRONT AXLE LUBE		
Front Suspension			
620-010	14,600# TAPERLEAF FRONT SUSPENSION	170	
619-005	MAINTENANCE FREE RUBBER BUSHINGS - FRONT SUSPENSION		
62H-998	NO FRONT SUSPENSION SPRING BRACKET OPTIONS		
410-001	FRONT SHOCK ABSORBERS		
Rear Axle and Equipment			
420-064	RS-30-185 31,000# U-SERIES FIRE/EMERGENCY SERVICE SINGLE REAR AXLE		300
421-489	4.89 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	20	20

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Data Code	Description	Weight Front	Weight Rear
452-001	DRIVER CONTROLLED TRACTION DIFFERENTIAL - SINGLE REAR AXLE		20
878-018	(1) DRIVER CONTROLLED DIFFERENTIAL LOCK REAR VALVE FOR SINGLE DRIVE AXLE		
87B-004	BLINKING LAMP WITH EACH MODE SWITCH, DIFFERENTIAL UNLOCK WITH IGNITION OFF, ACTIVE <5 MPH		
423-010	MERITOR 16.5X7 P CAM REAR BRAKES, DOUBLE ANCHOR, CAST SHOES		20
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		50
425-002	REAR BRAKE DUST SHIELDS		
440-006	REAR OIL SEALS		
426-074	HALDEX GOLDSEAL LONGSTROKE 1-DRIVE AXLE SPRING PARKING CHAMBERS		
428-007	BENDIX VERSAJUST AUTOMATIC REAR SLACK ADJUSTERS		
41T-001	ORGANIC SAE 80/90 REAR AXLE LUBE		
Rear Suspension			
622-1DH	31,000# FLAT LEAF SPRING REAR SUSPENSION WITH RADIUS ROD FOR FIRE/EMERGENCY SERVICE		130
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		
490-101	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-001	STANDARD AIR SYSTEM PRESSURE PROTECTION AND 85 PSI PRESSURE PROTECTION FOR AIR HORN(S)		
413-002	STD U.S. FRONT BRAKE VALVE		

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Data Code	Description	Weight Front	Weight Rear
432-003	RELAY VALVE WITH 5-8 PSI CRACK PRESSURE, NO REAR PROPORTIONING VALVE		
480-086	BW AD-9SI BRAKE LINE AIR DRYER WITH HEATER		
479-003	AIR DRYER MOUNTED INBOARD ON LH RAIL		
460-058	STEEL AIR TANKS MOUNTED AFT INSIDE AND/OR BELOW FRAME JUST FORWARD OF REAR SUSPENSION		
477-006	BW DV-2 AUTO DRAIN VALVE WITHOUT HEATER ON ALL TANK(S)		
Trailer Connections			
335-004	UPGRADED CHASSIS MULTIPLEXING UNIT		
32A-002	UPGRADED BULKHEAD MULTIPLEXING UNIT		
30L-998	NO HIGH CURRENT TRAILER/BODY CABLE		
Wheelbase & Frame			
545-635	6350MM (250 INCH) WHEELBASE		
546-102	7/16X3-9/16X11-1/8 INCH STEEL FRAME (11.11MMX282.6MM/0.437X11.13 INCH) 120KSI	470	320
547-001	1/4 INCH (6.35MM) C-CHANNEL INNER FRAME REINFORCEMENT	200	430
552-063	2550MM (100 INCH) REAR FRAME OVERHANG		
55W-009	FRAME OVERHANG RANGE: 91 INCH TO 100 INCH	-70	300
AC8-99D	CALC'D BACK OF CAB TO REAR SUSP C/L (CA) : 137.2 in		
AE8-99D	CALCULATED EFFECTIVE BACK OF CAB TO REAR SUSPENSION C/L (CA) : 134.2 in		
AE4-99D	CALC'D FRAME LENGTH - OVERALL : 379.39		
AM6-99D	CALC'D SPACE AVAILABLE FOR DECKPLATE : 137.2 in		
FSS-0LH	CALCULATED FRAME SPACE LH SIDE : 186.66 in		
FSS-0RH	CALCULATED FRAME SPACE RH SIDE : 189.17 in		
553-001	SQUARE END OF FRAME		
550-001	FRONT CLOSING CROSSMEMBER		
559-003	LIGHTWEIGHT HEAVY DUTY ALUMINUM ENGINE CROSSMEMBER	-12	
562-001	STANDARD MIDSHIP #1 CROSSMEMBER(S)		

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Data Code	Description	Weight Front	Weight Rear
572-001	STANDARD REARMOST CROSSMEMBER		
565-001	STANDARD SUSPENSION CROSSMEMBER		
Chassis Equipment			
556-1AR	THREE-PIECE 14 INCH CHROMED STEEL BUMPER WITH COLLAPSIBLE ENDS	30	
558-001	FRONT TOW HOOKS - FRAME MOUNTED	15	
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		
605-103	D15-28195-000 CENTER PUNCH TO MARK CENTERLINE OF REAR SUSPENSION ON TOP FLANGE OF FRAME		
970-038	TANK BODY 0 TO 1500 GALLONS		
Fuel Tanks			
204-215	50 GALLON/189 LITER SHORT RECTANGULAR ALUMINUM FUEL TANK - LH	20	
218-005	RECTANGULAR FUEL TANK(S)		
215-004	POLISHING OF FUEL/HYDRAULIC TANK(S) WITH PAINTED BANDS		
212-007	FUEL TANK(S) FORWARD		
664-004	POLISHED STAINLESS STEEL STEP FINISH		
205-001	FUEL TANK CAP(S)		
122-1J1	DETROIT FUEL/WATER SEPARATOR WITH WATER IN FUEL SENSOR, HAND PRIMER AND 12 VOLT PREHEATER	-5	
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	50	
094-2CC	MICHELIN XZU-S2 315/80R22.5 20 PLY RADIAL REAR TIRES		200
Hubs			
418-056	CONMET PRESET PLUS IRON FRONT HUBS		

APPENDIX B

Data Code	Description	Weight Front	Weight Rear
450-014	WEBB IRON REAR HUBS		70
Wheels			
502-356	ALCOA ULTRA ONE 89U64X 22.5X9.00 10-HUB PILOT 5.99 INSET ALUMINUM FRONT WHEELS	-28	
505-356	ALCOA ULTRA ONE 89U64X 22.5X9.00 10-HUB PILOT 5.99 INSET ALUMINUM REAR WHEELS		-56
524-001	POLISHED FRONT WHEELS; OUTSIDE ONLY		
525-001	POLISHED REAR WHEELS; OUTSIDE OF OUTER WHEELS ONLY		
496-011	FRONT WHEEL MOUNTING NUTS		
497-011	REAR WHEEL MOUNTING NUTS		
498-019	ALLIGATOR/V2B DUAL SEAL INFLATOR CAPS, FRONT AND REAR		
Cab Exterior			
829-079	154 INCH BBC HIGH-ROOF ALUMINUM CONVENTIONAL CREW CAB	430	250
650-008	AIR CAB MOUNTS		
754-008	2-1/2 INCH FENDER EXTENSIONS	10	
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		
690-007	HOOD LINER INSULATION WITH SINGLE FIREWALL INSULATION		
727-1B0	DUAL 25 INCH ROUND STUTTER TONE HOOD MOUNTED AIR HORNS	8	
726-001	SINGLE ELECTRIC HORN		
728-002	DUAL HORN SHIELDS		
657-001	DOOR LOCKS AND IGNITION SWITCH KEYED THE SAME		
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		
294-021	TRUCK-LITE 3 CHAMBER MODULES WITH 45 SERIES SEALED BEAM LAMPS		5

APPENDIX B

Data Code	Description	Weight Front	Weight Rear
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		
74A-001	RH DOWN VIEW MIRROR		
729-001	STANDARD SIDE/REAR REFLECTORS		
764-010	COMPOSITE EXTERIOR SUN VISOR	10	
768-043	63X14 INCH TINTED REAR WINDOW		
661-003	TINTED DOOR GLASS LH AND RH WITH TINTED NON-OPERATING WING WINDOWS		
654-027	RH AND LH ELECTRIC POWERED WINDOWS, PASSENGER SWITCHES ON DOOR(S)	4	4
663-013	TINTED WINDSHIELD		
659-019	2 GALLON WINDSHIELD WASHER RESERVOIR WITHOUT FLUID LEVEL INDICATOR, FRAME MOUNTED		
Cab Interior			
707-1AK	OPAL GRAY VINYL INTERIOR		
706-016	MOLDED DOOR PANEL WITH UPPER VINYL INSERTS		
708-016	MOLDED DOOR PANEL WITH UPPER VINYL INSERTS		
772-006	BLACK MATS WITH SINGLE INSULATION		
785-001	DASH MOUNTED ASH TRAYS AND LIGHTER		
691-008	FORWARD ROOF MOUNTED CONSOLE WITH UPPER STORAGE COMPARTMENTS WITHOUT NETTING		
694-010	IN DASH STORAGE BIN		
742-007	(2) CUP HOLDERS LH AND RH DASH		
680-006	GRAY/CHARCOAL FLAT DASH		
860-004	SMART SWITCH EXPANSION MODULE		
720-003	5 LB. FIRE EXTINGUISHER	10	
714-001	FIRST AID KIT	2	
700-002	HEATER, DEFROSTER AND AIR CONDITIONER		
701-001	STANDARD HVAC DUCTING		

APPENDIX B

Data Code	Description	Weight Front	Weight Rear
703-005	MAIN HVAC CONTROLS WITH RECIRCULATION SWITCH		
170-015	STANDARD HEATER PLUMBING		
130-033	DENSO HEAVY DUTY AIR CONDITIONER 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		
324-047	DOOR ACTIVATED DOME/RED MAP LIGHTS, FORWARD LH AND RH AND REAR LH, RH AND CENTER		
655-005	LH AND RH ELECTRIC DOOR LOCKS		
284-101	(1) 12V POWER SUPPLY (1) DUAL 2.1 AMP USB CHARGER IN DASH		
722-028	TRIANGULAR REFLECTORS KIT WITHOUT FLARES SHIPPED LOOSE IN CAB	10	
756-1E7	SEATS INC 911 UNIVERSAL SERIES HIGH BACK AIR SUSPENSION DRIVER SEAT WITH NFPA 1901-2009 COMPLIANT SEAT SENSOR	50	
760-1E9	SEATS INC 911 UNIVERSAL SERIES SCBA NON SUSPENSION PASSENGER SEAT WITH UNDERSEAT STORAGE AND NFPA 1901-2009 COMPLIANT SEAT SENSOR	40	15
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 COMPLIANT SEAT SENSOR	60	25
711-004	LH AND RH INTEGRAL DOOR PANEL ARMRESTS		
758-023	GRAY VINYL DRIVER SEAT COVER WITH GRAY CORDURA CLOTH BOLSTER AND HEADREST		
761-022	GRAY VINYL FRONT PASSENGER SEAT COVER WITH GRAY CORDURA CLOTH BOLSTER AND HEADREST		
755-022	GRAY VINYL REAR PASSENGER SEAT COVER WITH GRAY CORDURA CLOTH BOLSTER AND HEADREST		
763-105	NFPA 1901-2009 HIGH VISIBILITY ORANGE SEAT BELTS		
532-002	ADJUSTABLE TILT AND TELESCOPING STEERING COLUMN	10	

APPENDIX B

Data Code	Description	Weight Front	Weight Rear
540-015	4-SPOKE 18 INCH (450MM) STEERING WHEEL		
765-002	DRIVER AND PASSENGER INTERIOR SUN VISORS		
Instruments & Controls			
732-003	WOODGRAIN DRIVER INSTRUMENT PANEL		
734-003	WOODGRAIN CENTER INSTRUMENT PANEL		
87L-001	ENGINE REMOTE INTERFACE WITH PARK BRAKE INTERLOCK		
870-001	BLACK GAUGE BEZELS		
486-001	LOW AIR PRESSURE INDICATOR LIGHT AND AUDIBLE ALARM		
840-002	2 INCH PRIMARY AND SECONDARY AIR PRESSURE GAUGES		
198-003	DASH MOUNTED AIR RESTRICTION INDICATOR WITH GRADUATIONS		
721-001	97 DB BACKUP ALARM		3
149-013	ELECTRONIC CRUISE CONTROL WITH SWITCHES IN LH SWITCH PANEL		
156-007	KEY OPERATED IGNITION SWITCH AND INTEGRAL START POSITION; 4 POSITION OFF/RUN/START/ACCESSORY		
811-042	ICU3S, 132X48 DISPLAY WITH DIAGNOSTICS, 28 LED WARNING LAMPS AND DATA LINKED		
160-038	HEAVY DUTY ONBOARD DIAGNOSTICS INTERFACE CONNECTOR LOCATED BELOW LH DASH		
844-001	2 INCH ELECTRIC FUEL GAUGE		
148-070	ENGINE REMOTE INTERFACE WITH PRESET FAST IDLE		
163-002	ENGINE REMOTE INTERFACE CONNECTOR AT END OF FRAME		
856-001	ELECTRICAL ENGINE COOLANT TEMPERATURE GAUGE		
864-001	2 INCH TRANSMISSION OIL TEMPERATURE GAUGE		
830-017	ENGINE AND TRIP HOUR METERS INTEGRAL WITHIN DRIVER DISPLAY		
372-051	CUSTOMER FURNISHED AND INSTALLED PTO CONTROLS		
49B-004	ENHANCED STABILITY CONTROL		

APPENDIX B

Data Code	Description	Weight Front	Weight Rear
73B-998	NO LANE DEPARTURE WARNING SYSTEM		
852-002	ELECTRIC ENGINE OIL PRESSURE GAUGE		
679-001	OVERHEAD INSTRUMENT PANEL		
746-115	AM/FM/WB WORLD TUNER RADIO WITH BLUETOOTH AND USB AND AUXILIARY INPUTS, J1939	10	
747-001	DASH MOUNTED RADIO		
750-002	(2) RADIO SPEAKERS IN CAB		
753-001	AM/FM ANTENNA MOUNTED ON FORWARD LH ROOF	2	
74D-002	RADIO WIRING WITH POWER CUTOFF WHEN VEHICLE IN REVERSE GEAR		
810-028	ELECTRONIC KPH SPEEDOMETER WITH SECONDARY MPH SCALE, WITHOUT ODOMETER		
817-001	STANDARD VEHICLE SPEED SENSOR		
812-001	ELECTRONIC 3000 RPM TACHOMETER		
813-1C0	NFPA VEHICLE DATA RECORDER AND SEATBELT DISPLAY	5	
8D1-998	NO DIRECT CONNECT		
162-011	IDLE LIMITER, ELECTRONIC ENGINE		
264-028	(2) LH AND RH FOOT SWITCHES WITH DASH SWITCH FOR HORN BUTTON TO CONTROL AIR HORN, DEFAULT TO ELECTRIC <85 PSI		
836-015	DIGITAL VOLTAGE DISPLAY INTEGRAL WITH DRIVER DISPLAY		
660-008	SINGLE ELECTRIC WINDSHIELD WIPER MOTOR WITH DELAY		
304-001	MARKER LIGHT SWITCH INTEGRAL WITH HEADLIGHT SWITCH		
882-009	ONE VALVE PARKING BRAKE SYSTEM WITH WARNING INDICATOR		
299-013	SELF CANCELING TURN SIGNAL SWITCH WITH DIMMER, WASHER/WIPER AND HAZARD IN HANDLE		
298-039	INTEGRAL ELECTRONIC TURN SIGNAL FLASHER WITH HAZARD LAMPS OVERRIDING STOP LAMPS		
869-998	NO MISCELLANEOUS GAUGES		

Design

APPENDIX B

Data Code	Description	Weight Front	Weight Rear
065-000	PAINT: ONE SOLID COLOR		
Color			
980-4PI	CAB COLOR A: B9668EB TOREADOR RED PRL MET ELITE BC		
986-020	BLACK, HIGH SOLIDS POLYURETHANE CHASSIS PAINT		
98K-998	NO FUEL TANK CABINET PAINT		
976-995	SUNVISOR PAINTED SAME AS CAB COLOR A		
963-003	STANDARD E COAT/UNDERCOATING		
Certification / Compliance			
996-002	CANADA CMVSS CERTIFICATION, EXCEPT SALES CABS AND GLIDER KITS		
Secondary Factory Options			
998-033	CORPORATE PDI CENTER IN-SERVICE AND OPTION INSTALLATION/MODIFICATION		

T O T A L V E H I C L E S U M M A R Y

Weight Summary

	Weight Front	Weight Rear	Total Weight
Factory Weight+	8336 lbs	5724 lbs	14060 lbs
Total Weight+	8336 lbs	5724 lbs	14060 lbs

Extended Warranty

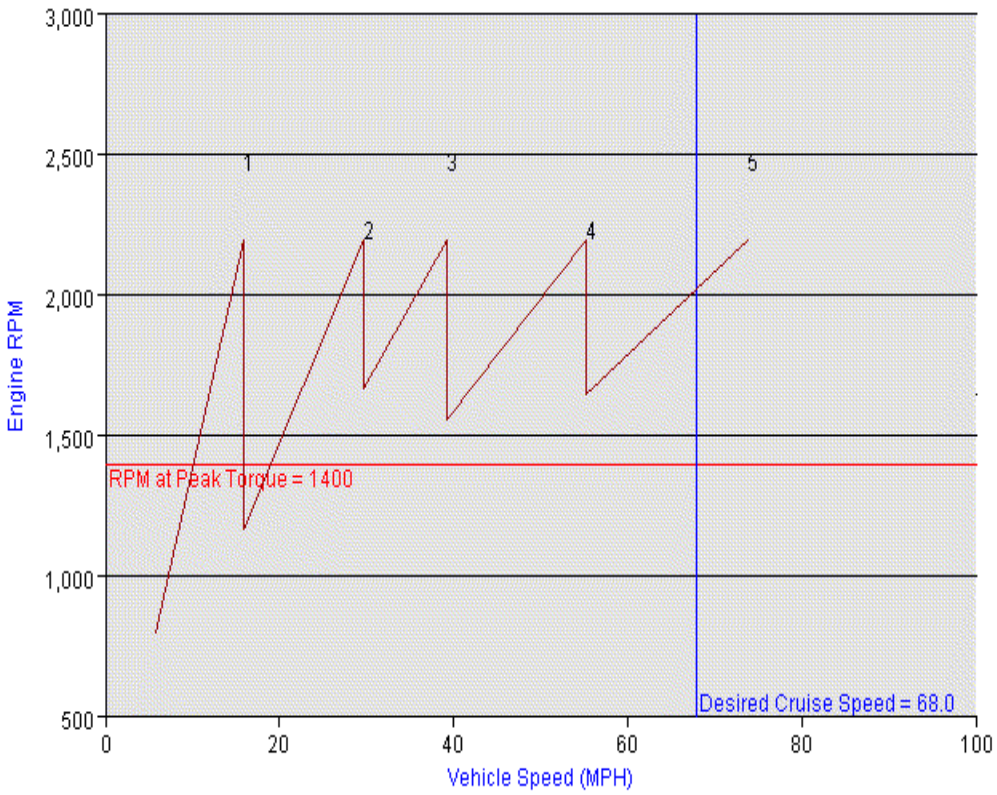
WAG-010	TOWING: 1 YEAR/UNLIMITED MILES/KM EXTENDED TOWING COVERAGE $550 CAP FEX APPLIES

APPENDIX B

(+) Weights shown are estimates only.
If weight is critical, contact Customer Application Engineering.

APPENDIX B

S H I F T C H A R T



VEHICLE SPECIFICATIONS SUMMARY - SHIFT CHART

Model M2106
Cab Size (829)..... 154 INCH BBC HIGH-ROOF ALUMINUM CONVENTIONAL CREW CAB

APPENDIX B

Desired Cruise Speed (mph)	68.0
Engine (101)	CUM L9 350EV HP @ 2000 RPM, 2200 GOV RPM , 1000 LB/FT @ 1400 RPM
RPM at Peak Torque	1400
Governed RPM	2200
Transmission (342)	ALLISON 3000 EVS AUTOMATIC TRANSMISSION WITH PTO PROVISION
Gear Ratio: LL	N/A
Gear Ratio: L	N/A
Gear Ratio: 1	3.49
Gear Ratio: 2	1.86
Gear Ratio: 3	1.41
Gear Ratio: 4	1
Gear Ratio: 5	0.75
Gear Ratio: 6	0.65
Gear Ratio: 7	N/A
Gear Ratio: 8	N/A
Gear Ratio: 9	N/A
Gear Ratio: 10	N/A
Gear Ratio: 11	N/A
Gear Ratio: 12	N/A
Gear Ratio: 13	N/A
Gear Ratio: 14	N/A
Gear Ratio: 15	N/A
Gear Ratio: 16	N/A
Gear Ratio: 17	N/A
Gear Ratio: 18	N/A
Auxiliary Transmission (352)	NO AUXILIARY TRANSMISSION
Low Gear Ratio	N/A
High Gear Ratio	N/A
Transfer Case (373)	NO TRANSFER CASE
Low Gear Ratio	N/A
High Gear Ratio	N/A
Rear Axle (420)	RS-30-185 31,000# U-SERIES FIRE/EMERGENCY SERVICE SINGLE REAR AXLE
Number of Speeds	1
Rear Axle Gear Ratio(s)	4.89 REAR AXLE RATIO
Rear Tires (094)	MICHELIN XZU-S2 315/80R22.5 20 PLY RADIAL REAR TIRES
Revolutions per Mile	488

TABLE SUMMARY - SHIFT CHART

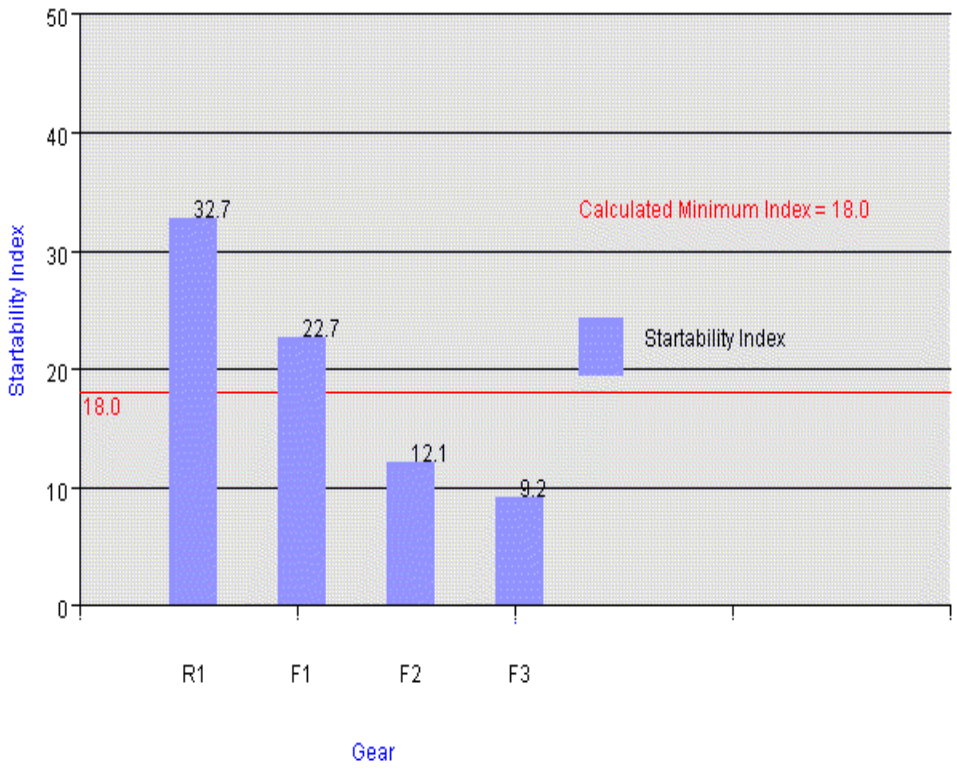
APPENDIX B

Transmission Gear	Transmission Gear Ratio	Rear Axle Ratio	Overall Gear Ratio	Percent Split	RPM After Shift	MPH at Peak Torque RPM	MPH at Governed
1	3.49	4.89	17.07	N/A	800	10.1	15.8
2	1.86	4.89	9.10	87.6	1172	18.9	29.7
3	1.41	4.89	6.89	31.9	1668	25.0	39.2
4	1.00	4.89	4.89	41.0	1560	35.2	55.3
5	0.75	4.89	3.67	33.3	1650	46.9	73.8

Performance calculations are estimates only. If performance calculations are critical, please contact Customer Application Engineering.

APPENDIX B

S T A R T A B I L I T Y



VEHICLE SPECIFICATIONS SUMMARY - STARTABILITY

Model M2106
Cab Size (829)..... 154 INCH BBC HIGH-ROOF ALUMINUM CONVENTIONAL CREW CAB

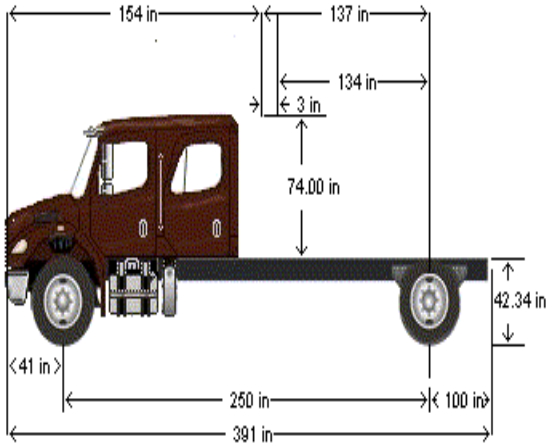
APPENDIX B

Expected Front Axle(s) Load (lbs)	14600.0
Expected Pusher Axle(s) Load (lbs)	0.0
Expected Rear Axle(s) Load (lbs)	31000.0
Expected Tag Axle(s) Load (lbs)	0.0
Expected GVW (lbs)	45600
Expected GCW (lbs)	0.0
Engine (101)	CUM L9 350EV HP @ 2000 RPM, 2200 GOV RPM , 1000 LB/FT @ 1400 RPM
Torque at Clutch Engagement (lbs-ft)	500
Transmission (342)	ALLISON 3000 EVS AUTOMATIC TRANSMISSION WITH PTO PROVISION
Gear Ratio: Forward 1	3.49
Gear Ratio: Forward 2	1.86
Gear Ratio: Forward 3	1.41
Gear Ratio: Reverse 1	5.03
Gear Ratio: Reverse 2	N/A
Gear Ratio: Reverse 3	N/A
Auxiliary Transmission (352)	NO AUXILIARY TRANSMISSION
Low Gear Ratio	N/A
High Gear Ratio	N/A
Transfer Case (373)	NO TRANSFER CASE
Low Gear Ratio	N/A
High Gear Ratio	N/A
Rear Axle (420)	RS-30-185 31,000# U-SERIES FIRE/EMERGENCY SERVICE SINGLE REAR AXLE
Number of Speeds	1
Rear Axle Gear Ratio(s)	4.89 REAR AXLE RATIO
Rear Tires (094)	MICHELIN XZU-S2 315/80R22.5 20 PLY RADIAL REAR TIRES
Revolutions per Mile	488
Vehicle Service (A85)	FIRE SERVICE
Startability Factor	7
Terrain (AA5)	TERRAIN/DUTY: 10% (SOME) OF THE TIME, IN TRANSIT, IS SPENT ON NON-PAVED ROADS
Startability Factor	1
Most Severe Grade Expected (AB1)	MAXIMUM 8% EXPECTED GRADE
Startability Factor	8
Road Surface (AB5)	MAINTAINED GRAVEL OR CRUSHED ROCK - MOST SEVERE IN-TRANSIT (BETWEEN SITES) ROAD SURFACE
Startability Factor	2
Suggested Torque Converter Stall Ratio	1.77

Performance calculations are estimates only. If performance calculations are critical, please contact Customer Application Engineering.

APPENDIX B

D I M E N S I O N S



VEHICLE SPECIFICATIONS SUMMARY - DIMENSIONS

Model M2106
Wheelbase (545) ..... 6350MM (250 INCH) WHEELBASE
Rear Frame Overhang (552) ..... 2550MM (100 INCH) REAR FRAME OVERHANG
Fifth Wheel (578) ..... NO FIFTH WHEEL
- Mounting Location (577) ..... NO FIFTH WHEEL LOCATION
- Maximum Forward Position (in) 0
- Maximum Rearward Position (in) 0
- Amount of Slide Travel (in) 0
- Slide Increment (in) 0
- Desired Slide Position (in) 0.0

Cab Size (829) ..... 154 INCH BBC HIGH-ROOF ALUMINUM CONVENTIONAL CREW CAB
Sleeper (682) ..... NO SLEEPER BOX/SLEEPERCAB
Exhaust System (016) ..... RH OUTBOARD UNDER STEP MOUNTED HORIZONTAL AFTERTREATMENT SYSTEM ASSEMBLY WITH RH HORIZONTAL TAILPIPE EXITING FORWARD OF REAR TIRES

APPENDIX B

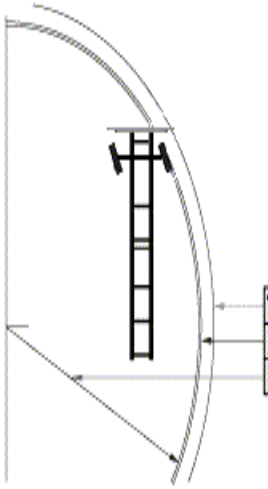
TABLE SUMMARY - DIMENSIONS

Dimensions	Inches
Bumper to Back of Cab (BBC)	153.5
Bumper to Centerline of Front Axle (BA)	40.7
Min. Cab to Body Clearance (CB)	3.0
Back of Cab to Centerline of Rear Axle(s) (CA)	137.2
Effective Back of Cab to Centerline of Rear Axle(s) (Effective CA)	134.2
Back of Cab Protrusions (Exhaust/Intake) (CP)	0.0
Back of Cab Protrusions (Side Extenders/Trim Tab) (CP)	0.0
Back of Cab Protrusions (CNG Tank)	0.0
Back of Cab Clearance (CL)	3.0
Back of Cab to End of Frame	237.2
Cab Height (CH)	74.0
Wheelbase (WB)	250.0
Frame Overhang (OH)	100.0
Overall Length (OAL)	390.7
Rear Axle Spacing	0.0
Unladen Frame Height at Centerline of Rear Axle	42.3

Performance calculations are estimates only. If performance calculations are critical, please contact Customer Application Engineering.

APPENDIX B

T U R N I N G R A D I U S



Turning radius graphic and data provided for general estimate purposes only. For specific figures regarding your configuration, please contact your CAE representative.

	Left Turn	Right Turn	Tolerance
Wall to Wall Diameter (ft)	68.4	60.0	+/- 3.0
Curb to Curb Diameter (ft)	66.7	58.1	+/- 3.0
Turning Radius (ft)	32.9	28.6	+/- 1.5

VEHICLE SPECIFICATIONS SUMMARY - TURNING RADIUS

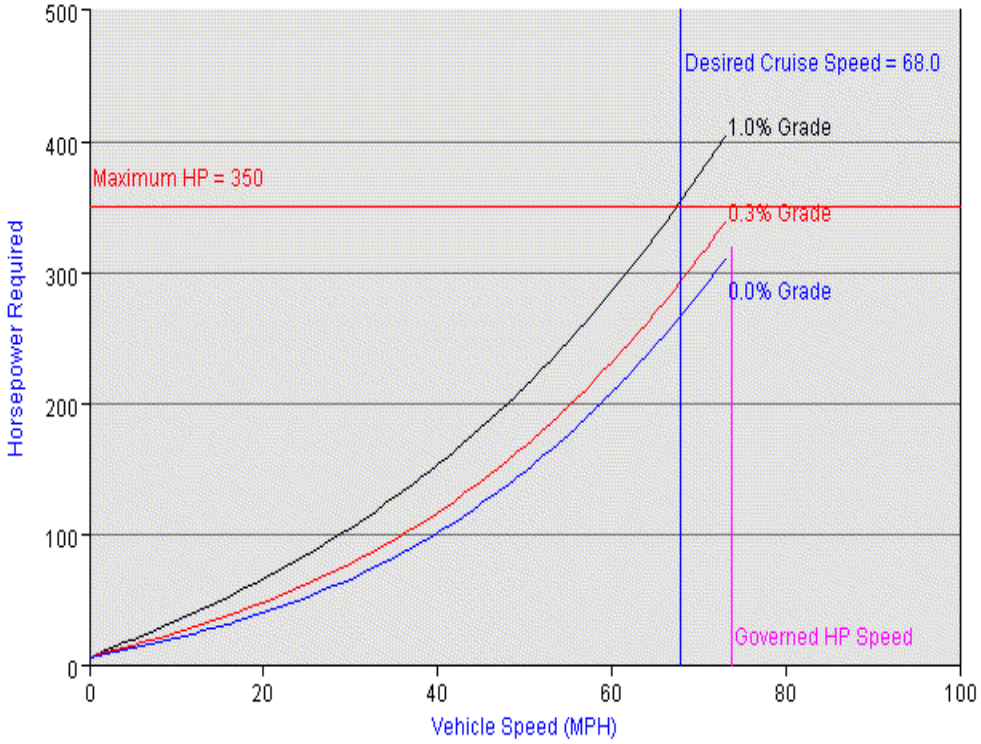
Model M2106
Cab Size (829) ..... 154 INCH BBC HIGH-ROOF ALUMINUM CONVENTIONAL CREW CAB
Wheelbase (545) ..... 6350MM (250 INCH) WHEELBASE
Front Tires (093) ..... MICHELIN XZE 12R22.5 16 PLY RADIAL FRONT TIRES
  Width (in) 11.4
Front Axle (400) ..... DETROIT DA-F-14.7-3 14,700# FF1 71.5 KPI/3.74 DROP SINGLE FRONT AXLE
  Kingpin Intersection (in) 71.5
Bumper (556) ..... THREE-PIECE 14 INCH CHROMED STEEL BUMPER WITH COLLAPSIBLE ENDS
  Width (in) 93.5
  Bumper Miter to Front Axle (in) 21.458
Primary Steering Location (003) ..... LH PRIMARY STEERING LOCATION
Steering Gear (536) ..... TRW TAS-85 POWER STEERING
  Dual Steering Gear ..... NONE
  Ram ..... NONE
Rear Axle (420) ..... RS-30-185 31,000# U-SERIES FIRE/EMERGENCY SERVICE SINGLE REAR AXLE
Axle Spacing (624) ..... NO AXLE SPACING

APPENDIX B

Performance calculations are estimates only. If performance calculations are critical, please contact Customer Application Engineering.

APPENDIX B

S P E E D A B I L I T Y



VEHICLE SPECIFICATIONS SUMMARY - SPEEDABILITY

Model M2106
Cab Size (829)..... 154 INCH BBC HIGH-ROOF ALUMINUM CONVENTIONAL CREW CAB

APPENDIX B

Desired Cruise Speed (mph) 68.0
Expected Front Axle(s) Load (lbs) 14600.0
Expected Pusher Axle(s) Load (lbs) 0.0
Expected Rear Axle(s) Load (lbs) 31000.0
Expected Tag Axle(s) Load (lbs) 0.0
Expected GVW (lbs) 45600
Expected GCW (lbs) 0.0
Engine (101) ..... CUM L9 350EV HP @ 2000 RPM, 2200 GOV RPM , 1000 LB/FT @ 1400 RPM
- Governed RPM 2200
- HP at Governed RPM 320
- RPM at Max HP 2000
- Max HP 350
- HP at Governed RPM (High Torque) 320
- RPM at Max HP (High Torque) 2000
- Max HP (High Torque) 350
- Multi-torque ..... NO

Transmission (342) ..... ALLISON 3000 EVS AUTOMATIC TRANSMISSION WITH PTO PROVISION
Rear Axle (420) ..... RS-30-185 31,000# U-SERIES FIRE/EMERGENCY SERVICE SINGLE REAR AXLE
- Number of Speeds 1
- Rear Axle Gear Ratio(s) ..... 4.89 REAR AXLE RATIO

Rear Tires (094) ..... MICHELIN XZU-S2 315/80R22.5 20 PLY RADIAL REAR TIRES
- Revolutions per Mile 488
- Trailer Width (in) 0.0

Trailer Height (ground to top) (ft) 10.0
Body Width (in) 96.0
Body Height (ground to top) (ft) 10.0
Roof Mounted Aero Device (784) ..... NO AIR SHIELD OR BRACKETS
Road Surface (AB5) ..... MAINTAINED GRAVEL OR CRUSHED ROCK - MOST SEVERE IN-TRANSIT (BETWEEN SITES) ROAD SURFACE
Auxiliary Transmission (352) ..... NO AUXILIARY TRANSMISSION
- High Gear Ratio ..... N/A
- Low Gear Ratio ..... N/A

Transfer Case (373) ..... NO TRANSFER CASE
- High Gear Ratio ..... N/A
- Low Gear Ratio ..... N/A

TABLE SUMMARY - SPEEDABILITY

APPENDIX B

Top Gear Speedability	At Max Power Speed	At Desired Cruise Speed
Top Gear Vehicle Speed (mph)	67.0	68.0
Engine RPM	2000	2028
Gross Power Available (HP)	350	N/A
Power (HP) Required for:		
Level Road	260	268
0.3% Grade	286	294
1.0% Grade	347	355
*Blue background represents value input by user.		

Performance calculations are estimates only. If performance calculations are critical, please contact Customer Application Engineering.

APPENDIX B

F R A M E R B M

VEHICLE SPECIFICATIONS SUMMARY - FRAME RBM

Wheelbase (545) ..... 6350MM (250 INCH) WHEELBASE
Frame Rails (546) ..... 7/16X3-9/16X11-1/8 INCH STEEL FRAME (11.11MMX282.6MM/0.437X11.13 INCH) 120KSI(546)
Yield Strength (psi) 120000
Section Modulus (per rail) (cu in) 21.6
RBM (per rail) (lbf-in) 2592000
Inner Frame Reinforcement (547) ..... 1/4 INCH (6.35MM) C-CHANNEL INNER FRAME REINFORCEMENT
Outer Frame Reinforcement (548) ..... NO OUTER FRAME REINFORCEMENT

TABLE SUMMARY - FRAME RBM

Item	Description / Value
Wheelbase	6350MM (250 INCH) WHEELBASE
Frame	7/16X3-9/16X11-1/8 INCH STEEL FRAME (11.11MMX282.6MM/0.437X11.13 INCH) 120KSI
Inner Frame Reinforcement	1/4 INCH (6.35MM) C-CHANNEL INNER FRAME REINFORCEMENT
Outer Frame Reninforcement	NO OUTER FRAME REINFORCEMENT
Yield Strength (psi)	120000
Section Modulus - per rail (cu. in.)	31.00
Frame RBM - per rail (lbf-in)	3715200

Performance calculations are estimates only. If performance calculations are critical, please contact Customer Application Engineering.