BID SPECIFICATION

Vehicle Configuration

		YES	NO
001-172	FREIGHTLINER M2 106 PLUS CONVENTIONAL CHASSIS		
004-227	2027 MODEL YEAR SPECIFIED		
002-004	SET BACK AXLE - TRUCK		
019-004	STRAIGHT TRUCK PROVISION, NON-TOWING		
003-001	LH PRIMARY STEERING LOCATION		

General Service

		YES	NO
A85-020	FIRE SERVICE		
A84-1EV	EMERGENCY VEHICLES BUSINESS SEGMENT		
AA4-002	LIQUID BULK COMMODITY		
AB1-008	MAXIMUM 8% EXPECTED GRADE		
995-091	MEDIUM TRUCK WARRANTY		
A66-99D	EXPECTED FRONT AXLE(S) LOAD 14600.0 lbs		
A68-99D	EXPECTED REAR DRIVE AXLE(S) LOAD 31000.0 lbs		
A63-99D	EXPECTED GROSS VEHICLE WEIGHT CAPACITY 45600.0 lbs		

Truck Service

		YES	NO
AA3-003	TANK BODY – EMERGENCY VEHICLE		
AF7-99D	EXPECTED BODY/PAYLOAD CG HEIGHT ABOVE FRAME - 32.0 INCHES		

Engine

		YES	NO
101-26M	DD8 7.7L 6 CYL DUAL STAGE 375 HP @ 2200 RPM, 2600 GOV RPM, 1050 LB-FT @ 1200 RPM		

Electronic Parameters

		YES	NO
79A-075	75 MPH ROAD SPEED LIMIT		
79B-000	CRUISE CONTROL SPEED LIMIT SAME AS ROAD SPEED LIMIT		
79F-013	FLEET MANAGEMENT - DAILY ENGINE USAGE ENABLED		
79K-033	PTO MODE ENGINE RPM LIMIT - 950 RPM		

79P-032	PTO RPM CONTROL WITH STEERING WHEEL SWITCHES		
79W-008	ONE PTO SPEED VIA DASH SWITCH		
79X-004	PTO SPEED 1 SETTING - 850 RPM		
80G-006	PTO MINIMUM RPM - 825		
80L-003	ENABLE DPF REGEN ZONE 1 WITH AUTO ENGINE RPM ELEVATE FOR EXTENDED IDLE		
80S-001	PTO 1, DASH SWITCH, STATIONARY OPERATION		
80V-001	ENGINE MOUNT PTO, DASH SWTICH ENGAGES PTO MODE, STATIONARY OPERATION		

Engine Equipment

		YES	NO
99C-024	EPA 2010/GHG 2024 CONFIGURATION		
13E-001	STANDARD OIL PAN		
105-001	ENGINE MOUNTED OIL CHECK AND FILL		
014-1BX	SIDE OF HOOD AIR INTAKE WITH NFPA COMPLIANT EMBER SCREEN AND FIRE RETARDANT DONALDSON		

Air Cleaner

		YES	NO
124-1E8	DR 12V 240 AMP 40-SI BRUSHLESS PAD ALTERNATOR WITH REMOTE BATTERY VOLTAGE SENSE		
292-235	(2) DTNA GENUINE, FLOODED STARTING, MIN 2000CCA, 370RC, THREADED STUD BATTERIES		
290-017	BATTERY BOX FRAME MOUNTED		
281-001	STANDARD BATTERY JUMPERS		
282-001	SINGLE BATTERY BOX FRAME MOUNTED LH SIDE UNDER CAB		
291-017	WIRE GROUND RETURN FOR BATTERY CABLES WITH ADDITIONAL FRAME GROUND RETURN		
289-001	NON-POLISHED BATTERY BOX COVER		
293-058	NON-ESSENTIAL POSITIVE LOAD DISCONNECT, IN CAB CONTROL SWITCH MOUNTED OUTBOARD OF DRIVER SEAT		
295-029	POSITIVE AND NEGATIVE POSTS FOR JUMPSTART LOCATED ON FRAME NEXT TO STARTER		
306-015	PROGRESSIVE LOW VOLTAGE DISCONNECT AT 12.3 VOLTS FOR DESIGNATED CIRCUITS		
107-047	WABCO 20.0 CFM SINGLE CYLINDER AIR COMPRESSOR		
108-002	STANDARD MECHANICAL AIR COMPRESSOR GOVERNOR		
131-013	AIR COMPRESSOR DISCHARGE LINE		
152-039	GVG, FIRE AND EMERGENCY SERVICE VEHICLES		

Engine Warning

		YES	NO
128-1A7	DETROIT MD COMPRESSION BRAKE WITH ON/OFF SWITCH		
016-1DC	RH OUTBOARD UNDER STEP MOUNTED HORIZONTAL AFTERTREATMENT SYSTEM ASSEMBLY WITH RH HORIZONTAL TAILPIPE EXITING FORWARD OF REAR TIRE		

Tires

		YES	NO
28F-015	ENGINE AFTERTREATMENT DEVICE, AUTOMATIC OVER THE ROAD ACTIVE REGENERATION AND VIRTUAL REGENERATION REQUEST SWITCH IN CLUSTER AND DASH MOUNTED INHIBIT SWITCH		
239-001	STANDARD EXHAUST SYSTEM LENGTH		
237-022	RH HORIZONTAL TAILPIPE, EXIT FORWARD OF REAR		
23U-001	6 GALLON DIESEL EXHAUST FLUID TANK		
30N-003	100 PERCENT DIESEL EXHAUST FLUID FILL		
43X-002	LH MEDIUM DUTY STANDARD DIESEL EXHAUST FLUID TANK LOCATION		
23Y-001	STANDARD DIESEL EXHAUST FLUID PUMP MOUNTING		
43Y-001	STANDARD DIESEL EXHAUST FLUID TANK CAP		
273-058	AIR POWERED ON/OFF ENGINE FAN CLUTCH		
276-002	AUTOMATIC FAN CONTROL WITH DASH SWITCH AND INDICATOR LIGHT, NON ENGINE MOUNTED		
110-076	DETROIT ENGINE MOUNTED FUEL/WATER SEPARATOR WITH WATER-IN-FUEL SENSOR AND HAND PRIMER		
118-001	FULL FLOW OIL FILTER		
266-101	900 SQUARE INCH ALUMINUM RADIATOR		
103-040	ANTIFREEZE TO -60F, OAT (NITRITE AND SILCATE FREE) EXTENDED LIFE COOLANT		
171-007	GATES BLUE STRIPE COOLANT HOSES OR EQUIVALENT		
172-007	GATES POWERGRIP SHRINK BAND HOSE CLAMPS WHERE POSSIBLE		
270-016	RADIATOR DRAIN VALVE		
168-002	LOWER RADIATOR GUARD		
138-010	PHILLIPS-TEMRO 750 WATT/115 VOLT BLOCK HEATER		
140-022	CHROME ENGINE HEATER RECEPTACLE MOUNTED UNDER LH DOOR		
134-001	ALUMINUM FLYWHEEL HOUSING		
155-080	DELCO 12V 31MT STARTER WITH INTEGRATED MAGNETIC SWITCH		

Transmission

		YES	NO
342-1KD	ALLISON 3000 EVS AUTOMATIC TRANSMISSION WITH PTO PROVISION		

Transmission Equipment

		YES	NO
343-360	ALLISON VOCATIONAL PACKAGE 265 - AVAILABLE ON 3000/4000 PRODUCT FAMILIES WITH VOCATIONAL MODEL EVS		
84B-003	ALLISON VOCATIONAL RATING FOR FIRE TRUCK/EMERGENCY VEHICLE APPLICATIONS AVAILABLE WITH ALL PRODUCT FAMILIES		
84C-023	PRIMARY MODE GEARS, LOWEST GEAR 1, START GEAR 1, HIGHEST GEAR 6, AVAILABLE FOR 3000/4000 PRODUCT FAMILIES ONLY		
84D-023	SECONDARY MODE GEARS, LOWEST GEAR 1, START GEAR 1, HIGHEST GEAR 6, AVAILABLE FOR 3000/4000 PRODUCT FAMILIES ONLY		
84E-000	PRIMARY SHIFT SCHEDULE RECOMMENDED BY DTNA AND ALLISON, THIS DEFINED BY ENGINE AND VOCATIONAL USAGE		
84F-000	SECONDARY SHIFT SCHEDULE RECOMMENDED BY DTNA AND ALLISON, THIS DEFINED BY ENGINE AND VOCATIONAL USAGE		
84G-000	PRIMARY SHIFT SPEED RECOMMENDED BY DTNA AND ALLISON, THIS DEFINED BY ENGINE AND VOCATIONAL USAGE		
84H-000	SECONDARY SHIFT SPEED RECOMMENDED BY DTNA AND ALLISON, THIS DEFINED BY ENGINE AND VOCATIONAL USAGE		
84J-000	ENGINE BRAKE RANGE PRESELECT RECOMMENDED BY DTNA AND ALLISON, THIS DEFINED BY ENGINE AND VOCATIONAL USAGE		
84K-000	ENGINE BRAKE RANGE ALTERNATE PRESELECT RECOMMENDED BY DTNA AND ALLISON, THIS DEFINED BY ENGINE AND VOCATIONAL USAGE		
84N-200	FUEL SENSE 2.0 DISABLED - PERFORMANCE - TABLE BASED		
84U-000	DRIVER SWITCH INPUT - DEFAULT - NO SWITCHES		
85E-011	MAXIMUM ENGINE SPEED FOR PTO ENGAGEMENT 1000 RPM		
353-075	QUICKFIT BODY LIGHTING CONNECTOR AT END OF		

Frame

		YES	NO
34C-011	ELECTRONIC TRANSMISSION WIRING TO CUSTOMER INTERFACE CONNECTOR		
362-2JN	CHELSEA PTO - CHL871XDFJP B5XV		
363-001	PTO MOUNTING, LH SIDE OF MAIN TRANSMISSION ALLISON & ZF		
341-018	MAGNETIC PLUGS, ENGINE DRAIN, TRANSMISSION DRAIN, AXLE(S) FILL AND DRAIN		
345-078	HEAVY DUTY ELECTRONIC TRANSMISSION SHIFT CONTROL, COLUMN MOUNTED		
97G-004	TRANSMISSION PROGNOSTICS - ENABLED 2013		
370-015	WATER TO OIL TRANSMISSION COOLER, IN RADIATOR		
346-003	TRANSMISSION OIL CHECK AND FILL WITH ELECTRONIC OIL LEVEL CHECK		
35T-001	ATF-SYNTHETIC AUTOMATIC TRANSMISSION FLUID		
400-1A8	DETROIT DA-F-14.7-3 14,700# FF1 71.5 KPI/3.74 DROP SINGLE		
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		
419-001	CAST IRON OUTBOARD FRONT BRAKE DRUMS		
427-001	5 FRONT BRAKE DUST SHIELDS		
409-006	FRONT OIL SEALS		
408-001	VENTED FRONT HUB CAPS WITH WINDOW, CENTER AND SIDE PLUGS - OIL		
416-022	STANDARD SPINDLE NUTS FOR ALL AXLES		
405-002	MERITOR AUTOMATIC FRONT SLACK ADJUSTERS		
536-012	TRW TAS-85 POWER STEERING		
539-003	POWER STEERING PUMP		
534-015	2 QUART SEE THROUGH POWER STEERING RESERVOIR		
40T-002	CURRENT AVAILABLE SYNTHETIC 75W-90 LUBE		

Front Suspension

		YES	NO
620-010	14,600# TAPERLEAF FRONT SUSPENSION		
619-005	MAINTENANCE FREE RUBBER BUSHINGS - FRONT SUSPENSION		
62H-010	FRONT SUSPENSION WITH LEFT HAND OFFSET SHACKLE BRACKET		
410-001	FRONT SHOCK ABSORBERS		

420-064	MERITOR RS-30-185 31,000# U-SERIES FIRE/EMERGENCY SERVICE SINGLE		
421-538	5.38 REAR AXLE RATIO		
424-001	IRON REAR AXLE CARRIER WITH STANDARD AXLE HOUSING		
386-074	MXL 176T MERITOR EXTENDED LUBE MAIN DRIVELINE WITH HALF ROUND YOKES		
452-001	DRIVER CONTROLLED TRACTION DIFFERENTIAL - SINGLE		
878-018	(1) DRIVER CONTROLLED DIFFERENTIAL LOCK REAR VALVE FOR SINGLE DRIVE AXLE		
87B-015	INDICATOR LIGHT FOR EACH DIFFERENTIAL LOCKOUT SWITCH, ENGAGE <5 MPH, DISENGAGE >25 MPH		
423-010	MERITOR 16.5X7 P CAST SPIDER CAM REAR BRAKES, DOUBLE ANCHOR, CAST SHOES		
433-025	FIRE AND EMERGENCY SEVERE SERVICE NON- ASBESTOS REAR BRAKE LINING		
434-011	BRAKE CAMS AND CHAMBERS ON FORWARD SIDE OF DRIVE AXLE(S)		
451-018	WEBB CAST IRON REAR BRAKE DRUMS		
425-002	REAR BRAKE DUST SHIELDS		
440-006	REAR OIL SEALS		
426-100	WABCO TRISTOP D LONGSTROKE 1-DRIVE AXLE SPRING PARKING CHAMBERS		
428-003	HALDEX AUTOMATIC REAR SLACK ADJUSTERS		
41T-002	CURRENT AVAILABLE SYNTHETIC 75W-90 LUBE		

Rear Suspension

		YES	NO
622-1DG	31,000# FLAT LEAF SPRING REAR SUSPENSION WITH HELPER AND RADIUS ROD FOR FIRE/EMERGENCY SERVICE		
621-001	SPRING SUSPENSION - NO AXLE SPACERS		
431-001	STANDARD AXLE SEATS IN AXLE CLAMP GROUP		
623-005	FORE/AFT CONTROL RODS		
018-002	AIR BRAKE PACKAGE		
490-121	WABCO 4S/4M ABS WITH TRACTION CONTROL		
871-001	REINFORCED NYLON, FABRIC BRAID AND WIRE BRAID CHASSIS AIR LINES		
46E-001	STANDARD AIR MANAGEMENT UNIT		
904-001	FIBER BRAID PARKING BRAKE HOSE		
412-001	STANDARD BRAKE SYSTEM VALVES		
46D-002	STANDARD AIR SYSTEM PRESSURE PROTECTION SYSTEM		

413-002	STD U.S. FRONT BRAKE VALVE		
432-003	RELAY VALVE WITH 5-8 PSI CRACK PRESSURE, NO REAR PROPORTIONING VALVE		
480-086	BW AD-9SI BRAKE LINE AIR DRYER WITH HEATER		
479-012	AIR DRYER MOUNTED UNDER HOOD		
460-001	STEEL AIR BRAKE RESERVOIRS		
477-004	PULL CABLES ON ALL AIR RESERVOIR(S)		
545-677	6775MM (267 INCH) WHEELBASE		
546-124	9.5MM X 83.5MM X 284.0MM STEEL FRAME (.37 X 3.29 X 11.18 INCH) 140 KSI		
547-037	0.236 INCH (6.00MM) C-CHANNEL INNER FRAME REINFORCEMENT		
552-042	1950MM (77 INCH) REAR FRAME OVERHANG		
55W-007	-20 80 FRAME OVERHANG RANGE: 71 INCH TO 80 INCH		
AC8-99D	CALC'D BACK OF CAB TO REAR SUSP C/L (CA) 201.18 in		
AE8-99D	CALCULATED EFFECTIVE BACK OF CAB TO REAR SUSPENSION C/L (CA) 198.18 in		
AE4-99D	CALC'D FRAME LENGTH - OVERALL 382.51 in		
FSS-0LH	CALCULATED FRAME SPACE LH SIDE 165.88 in		
FSS-0RH	CALCULATED FRAME SPACE RH SIDE 168.56 in		
AM6-99D	CALC'D SPACE AVAILABLE FOR DECKPLATE 0.0 in		
553-001	SQUARE END OF FRAME		
550-001	FRONT CLOSING CROSSMEMBER		
559-001	STANDARD WEIGHT ENGINE CROSSMEMBER		
561-001	STANDARD CROSSMEMBER BACK OF TRANSMISSION		
562-001	STANDARD MIDSHIP #1 CROSSMEMBER(S)		
572-001	STANDARD REARMOST CROSSMEMBER * REARMOST CROSSMEMEBER MOUNTED WITH LAST CROSSMEMBER 26" FROM EOF		
565-001	STANDARD SUSPENSION CROSSMEMBER		

Chassis Equipment

		YES	NO
556-1AR	THREE-PIECE 14 INCH CHROMED STEEL BUMPER WITH COLLAPSIBLE ENDS		
558-001	FRONT TOW HOOKS – FRAME MOUNTED		
574-001	BUMPER MOUNTING FOR SINGLE LICENSE PLATE		
586-024	FENDER AND FRONT OF HOOD MOUNTED FRONT MUDFLAPS		
	GRADE 8 THREADED HEX HEADED FRAME FASTENERS		
551-007	EXTERIOR HARNESSES WRAPPED IN ABRASION TAPE		
44Z-002			
489-031			

605-103	FACTORY INSTALLED BENDIX NEXT GEN SMARTIRE TIRE PRESSURE MONITORING SYSTEM WITH WHEEL RIM MOUNTED NEXT GEN SENSORS AND INTEGRATED IN DASH		
601-017	D15-28195-000 CENTER PUNCH TO MARK CENTERLINE OF REAR SUSPENSION ON TOP FLANGE OF FRAME		
970-038	2D DXF/PDF VEHICLE DRAWING		
	TANK BODY 0 TO 1500 GALLONS		

Fuel Tanks

		YES	NO
204-215	50 GALLON/189 LITER SHORT RECTANGULAR ALUMINUM FUEL TANK - LH		
218-005	RECTANGULAR FUEL TANK(S)		
215-005	PLAIN ALUMINUM/PAINTED STEEL 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)		
122-119	DAVCO 245 FUEL/WATER SEPARATOR WITH 12 VOLT HEAT		
216-020	EQUIFLO INBOARD FUEL SYSTEM		
202-016	HIGH TEMPERATURE REINFORCED NYLON FUEL LINE		

Tires

		YES	NO
093-994	50 MICHELIN XZE 12R22.5 16 PLY RADIAL FRONT TIRES		
094-2CM	232 MICHELIN X WORKS XDY 315/80R22.5 20 PLY RADIAL REAR TIRES		

Hubs

		YES	NO
418-060	CONMET PRESET PLUS PREMIUM IRON FRONT		
450-014	70 WEBB IRON REAR		

Wheels

		YES	NO
502-428	ACCURIDE 28828 22.5X8.25 10-HUB PILOT 6.18 INSET 2-HAND HD STEEL DISC FRONT WHEELS		
505-1HH	136 ACCURIDE 50300 22.5X9.00 10-HUB PILOT 5-HAND STEEL DISC REAR WHEELS		
50W-001	8 BENDIX SMARTIRE TIRE PRESSURE MONITORING SYSTEM WHEEL/RIM MOUNTED SENSORS, ALL AXLES		

496-011	FRONT WHEEL MOUNTING NUTS		
497-011	REAR WHEEL MOUNTING NUTS		

Cab Exterior

		YES	NO
829-071	106 INCH BBC FLAT ROOF ALUMINUM CONVENTIONAL		
650-008	AIR CAB MOUNTING		
648-002	NONREMOVABLE BUGSCREEN MOUNTED BEHIND GRILLE		
678-018	LH AND RH EXTERIOR GRAB HANDLES WITH SINGLE RUBBER INSERT		
646-023	HOOD MOUNTED CHROMED PLASTIC GRILLE		
65X-003	CHROME HOOD MOUNTED AIR INTAKE GRILLE		
644-004	FIBERGLASS HOOD		
652-001	FREIGHTLINER NAME PLATES		
690-017	HOOD LINER, ADDED FIREWALL AND FLOOR HEAT INSULATION		
726-002	DUAL ELECTRIC HORNS		
575-001	REAR LICENSE PLATE MOUNT END OF FRAME		
312-105	LED LOW BEAM AND HIGH BEAM HEADLIGHTS WITH HEATED LENS AND CHROME BEZEL		
302-047	LED AERODYNAMIC MARKER LIGHTS		
311-001	DAYTIME RUNNING LIGHTS		
294-017	INTEGRAL STOP/TAIL/BACKUP LIGHTS WITH 7 EXTRA FEET OF WIRE MOUNTED AT END OF FRAME		
300-015	STANDARD FRONT TURN SIGNAL LAMPS		
469-014	AUTOMATIC ON/OFF, ENGINE COMPARTMENT, HOOD ACTIVATED WORK LIGHT WITH MANUAL OVERRIDE		
744-103	DUAL WEST COAST BRIGHT FINISH HEATED MIRRORS WITH LED LIGHTS AND LH AND RH REMOTE		
797-001	DOOR MOUNTED MIRRORS		
796-001	102 INCH EQUIPMENT WIDTH		
743-204	LH AND RH 8 INCH BRIGHT FINISH CONVEX MIRRORS MOUNTED UNDER PRIMARY MIRRORS		
729-001	STANDARD SIDE/REAR REFLECTORS		
677-055	RH AFTERTREATMENT SYSTEM CAB ACCESS WITH POLISHED DIAMOND PLATE COVER		
764-010	COMPOSITE EXTERIOR SUN VISOR		
768-998	NO REAR WINDOW		
661-003	TINTED DOOR GLASS LH AND RH WITH TINTED NON-OPERATING WING WINDOWS		
654-011	RH AND LH ELECTRIC POWERED WINDOWS		

663-019	1-PIECE ROPED-IN SOLAR GREEN GLASS WINDSHIELD		
659-019	2 GALLON WINDSHIELD WASHER RESERVOIR WITHOUT FLUID LEVEL INDICATOR, FRAME MOUNTED		
647-001	2 WHITE WINTERFRONT		

Cab Interior

		YES	NO
055-017	PROFESSIONAL TRIM PACKAGE		
707-105	MIST AND CARBON CLOTH INTERIOR "PROFESSIONAL"		
70K-016	CARBON WITH BASE BLACK ACCENT		
706-013	MOLDED DOOR PANEL		
708-013	MOLDED PLASTIC DOOR PANEL		
772-006	BLACK MATS WITH SINGLE INSULATION		
785-026	(1)DASH MOUNTED 12V POWER OUTLET, (1)DASH MOUNTED DUAL USB-C OUTLET		
691-001	FORWARD ROOF MOUNTED CONSOLE		
693-019	LH AND RH DOOR STORAGE POCKETS INTEGRATED INTO MOLDED DOOR PANELS		
738-021	DIGITAL ALARM CLOCK IN DRIVER DISPLAY		
742-007	(2) CUP HOLDERS LH AND RH DASH		
680-029	M2/SD DASH		
720-003	10 5 LB. FIRE EXTINGUISHER		
714-001	FIRST AID KIT		
700-002	HEATER, DEFROSTER AND AIR CONDITIONER		
701-001	STANDARD HVAC DUCTING		
703-005	MAIN HVAC CONTROLS WITH RECIRCULATION SWITCH		
170-015	STANDARD HEATER PLUMBING		
130-041	VALEO HEAVY DUTY A/C REFRIGERANT COMPRESSOR		
702-002	BINARY CONTROL, R-134A		
739-034	PREMIUM INSULATION		
285-013	SOLID-STATE CIRCUIT PROTECTION AND FUSES		
280-007	12V NEGATIVE GROUND ELECTRICAL SYSTEM		
324-1B2	PREMIUM LED CAB LIGHTING		
657-001	DOOR LOCKS AND IGNITION SWITCH KEYED THE SAME		
78G-002	KEY QUANTITY OF 2		
655-028	LH AND RH ELECTRIC DOOR LOCKS WITH AUTO UNLOCK FEATURE WHEN DOOR IS SET FROM OPEN TO CLOSED POSITION		
722-028	TRIANGULAR REFLECTORS KIT WITHOUT FLARES SHIPPED LOOSE IN CAB		

756-1G7	H.O. BOSTROM SIERRA AIR-30 HIGH BACK AIR SUSPENSION DRIVER SEAT WITH ADJUSTABLE RECLINE, FIXED LUMBAR AND NFPA 1900 COMPLIANT SEAT SENSOR		
760-1G7	H.O. BOSTROM SIERRA AIR-30 HIGH BACK AIR SUSPENSION PASSENGER SEAT WITH ADJUSTABLE RECLINE, FIXED LUMBAR AND NFPA 1900 COMPLIANT SEAT SENSOR		
711-004	LH AND RH INTEGRAL DOOR PANEL ARMRESTS		
758-149	BLACK DURAWEAR FABRIC DRIVER SEAT COVER, SEAT BOLSTER AND INSERT		
761-149	BLACK DURAWEAR FABRIC PASSENGER SEAT COVER, SEAT BOLSTER AND INSERT		
763-105	NFPA 1900 HIGH VISIBILITY ORANGE SEAT BELTS		
532-002	ADJUSTABLE TILT AND TELESCOPING STEERING COLUMN		
540-044	4-SPOKE 18 INCH (450MM) BLACK STEERING WHEEL WITH SWITCHES		
765-002	DRIVER AND PASSENGER INTERIOR SUN VISORS		
4CH-002	2 EXTRA PROGRAMMABLE SWITCHES/INDICATORS		
106-002	ELECTRONIC ACCELERATOR CONTROL		
732-998	NO INSTRUMENT PANEL-DRIVER		
734-023	CONFIGURABLE LOWER PANEL WITH INTEGRATED UPPER STORAGE		
870-001	BLACK GAUGE BEZELS		
486-001	LOW AIR PRESSURE INDICATOR LIGHT AND AUDIBLE ALARM		
840-001	DUAL NEEDLE PRIMARY AND SECONDARY AIR PRESSURE GAUGE		
198-025	INTAKE MOUNTED AIR RESTRICTION INDICATOR WITHOUT GRADUATIONS		
721-001	97 DB BACKUP ALARM		
149-015	ELECTRONIC CRUISE CONTROL WITH CONTROLS ON STEERING WHEEL SPOKES		
156-007	KEY OPERATED IGNITION SWITCH AND INTEGRAL START POSITION; 4 POSITION OFF/RUN/START/ACCESSORY		
811-044	PREMIUM INSTRUMENT CLUSTER WITH 5.0 INCH TFT COLOR DISPLAY		
81B-003	DIGITAL PANEL LAMP DIMMER SWITCH IN DRIVER DISPLAY		
160-038	HEAVY DUTY ONBOARD DIAGNOSTICS INTERFACE CONNECTOR LOCATED BELOW LH DASH		
844-001	2 INCH ELECTRIC FUEL GAUGE		
148-073	ENGINE REMOTE INTERFACE FOR REMOTE THROTTLE		
48H-003	QUICKFIT POWERTRAIN INTERFACE CONNECTOR UNDER CAB WITH CAPS		

48C-003	QUICKFIT PROGRAMMABLE INTERFACE CONNECTOR(S) UNDER CAB WITH CAP		
163-014	ENGINE REMOTE INTERFACE CONNECTOR AT POWERTRAIN INTERFACE CONNECTOR		
866-018	DIGITAL SINGLE REAR AXLE TEMPERATURE IN DRIVER DISPLAY WITH SENSOR SHIELD		
856-001	ELECTRICAL ENGINE COOLANT TEMPERATURE GAUGE		
854-008	DIGITAL ENGINE OIL TEMPERATURE IN DRIVER DISPLAY		
864-001	2 INCH TRANSMISSION OIL TEMPERATURE GAUGE		
867-004	ELECTRONIC OUTSIDE TEMPERATURE SENSOR DISPLAY IN DRIVER MESSAGE CENTER		
830-017	ENGINE AND TRIP HOUR METERS INTEGRAL WITHIN DRIVER DISPLAY		
372-123	PTO CONTROLS FOR ENHANCED VEHICLE ELECTRIC/ELECTRONIC ARCHITECTURE		
49B-006	ELECTRONIC STABILITY CONTROL,4X2 W/SAFETY MIN BODY WEIGHT EXCEEDS 4,000LBS REQ		
852-002	ELECTRIC ENGINE OIL PRESSURE GAUGE		
679-024	LEFTHAND/CENTER/RIGHTHAND OVERHEAD INSTRUMENT PANEL BLANK		
35M-012	1 QUIKFIT PROGRAMABLE MODULE (QPMXMC) W/ (8) 20AMP FUSED RELAYS		
786-138	PREWIRE FOR CUSTOMER INSTALLED VEHICLE DATA RECORDER TO NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) COMPLIANT SEAT SENSORS		
1U1-002	TOP OF DASH RAM MOUNT WITHOUT POWER OR GROUND, FOR CUSTOMER FURNISHED DEVICE		
746-137	AM/FM/WB WORLD TUNER RADIO WITH BLUETOOTH, USB AND AUXILIARY INPUTS, J1939		
747-001	DASH MOUNTED RADIO		
750-002	(2) RADIO SPEAKERS IN CAB		
753-001	2 AM/FM ANTENNA MOUNTED ON FORWARD LH ROOF		
74D-006	STANDARD RADIO WIRING WITH STEERING WHEEL CONTROLS		
810-028	ELECTRONIC KPH SPEEDOMETER WITH SECONDARY MPH SCALE, WITHOUT ODOMETER		
817-001	STANDARD VEHICLE SPEED SENSOR		
812-001	ELECTRONIC 3000 RPM TACHOMETER		
813-1C8	DETROIT CONNECT PLATFORM HARDWARE		
8D1-215	5 YEARS DETROIT CONNECT BASE PACKAGE(FEATURES VARY BY MODEL) DETROIT CONNECT PLATFORM		
6TS-005	TMC RP1226 ACCESSORY CONNECTOR LOCATED BEHIND PASSENGER SIDE REMOVEABLE DASH PANEL		
162-002	IGNITION SWITCH CONTROLLED ENGINE STOP		

81Y-006	PRE-TRIP INSPECTION FEATURE FOR EXTERIOR LAMPS AND SERVICE BRAKES		
264-033	STEERING WHEEL MOUNTED ELECTRIC HORN CONTROL		
842-006	DIGITAL TURBO AIR PRESSURE IN DRIVER DISPLAY		
836-015	DIGITAL VOLTAGE DISPLAY INTEGRAL WITH DRIVER DISPLAY		
660-008	SINGLE ELECTRIC WINDSHIELD WIPER MOTOR WITH DELAY		
304-030	ROTARY HEADLAMP SWITCH, MARKER LIGHTS/HEADLIGHTS SWITCH WITH PULL OUT FOR OPTIONAL FOG/ROAD LAMPS		
27D-013	ALTERNATING FLASHING (WIG WAG) HIGH BEAM HEADLAMPS WITH DASH SWITCH AND NO PARK BRAKE INTERLOCK		
882-009	ONE VALVE PARKING BRAKE SYSTEM WITH WARNING INDICATOR		
299-020	SELF CANCELING TURN SIGNAL SWITCH WITH DIMMER, HEADLAMP FLASH, WASH/WIPE/INTERMITTENT		
298-046	INTEGRAL ELECTRONIC TURN SIGNAL FLASHER WITH 40 AMP (20 AMP PER SIDE) TRAILER LAMP CAPACITY		
87T-998	NO WRG/SW-OPTL #2,CHAS,AIR		
065-902	TWO COLOR CUSTOM PAINT		
980-2L4	CAB COLOR A: L2225EY CANDY APPLE RED ELITE EY		
981-0JS	CAB COLOR B: L5455EYD JET BLACK PEARL METALLIC ELITE EYD		
986-020	BLACK, HIGH SOLIDS POLYURETHANE CHASSIS PAINT		
962-3AN	FRONT WHEEL PAINT: N0235EA CANDY APPLE RED ELITE SS		
966-3AN	REAR WHEEL PAINT: N0235EA CANDY APPLE RED ELITE		
976-995	SUNVISOR PAINTED SAME AS CAB COLOR A		
963-003	STANDARD E COAT/UNDERCOATING		
996-002	CANADA CMVSS CERTIFICATION, EXCEPT SALES CABS AND GLIDER KITS		

Running Boards

		YES	NO
001	There shall be two (2) custom, embossed aluminium checker-plate running boards installed on the chassis, (1) unit below both driver & officer cab doors. The factory installed running boards shall be removed and replaced with custom fabricated units manufactured with NFPA compliant, skid resistant, embossed & polished aluminium checker-plate. This will hide the painted steel running board brackets and provide an enhanced appearance.		

Cab Console

		YES	NO
002	There shall be an aluminium console installed in the cab between the driver and passenger seat. The console shall feature a hinge-up top lid to allow for easy access to interior electrical. The console shall be large enough to allow for the installation of two (2) mobile radios, siren control, traffic advisor control & vehicle data recorder control if required. On the interior of the lid, a 12 volt power supply buss bar shall be installed to allow for hook-up of these item, plus future installations. The console shall be finished with a speckle coat scratch resistant paint finish.		

Shelve

		YES	NO
003	A shelve shall be attached at the back of the console, extending to the bottom of the pass-through opening to the TME enclosure.		

Door Ajar Display

		YES	NO
004	A door-ajar display shall be installed at the cab console. The display shall specifically indicate which door is open and/or equipment not stowed.		

Helmet Holders

		YES	NO
005	Five (6) On-Scene Solutions "Talon" Helmet Holder brackets shall be supplied. Two (2) shall be installed in the chassis cab to the back wall in between the Driver & Officer seats and four (4) shall be installed on the interior roof of the TME above the pump panel.		

Battery Charger

		YES	NO
006	A Kussmaul Chief series, 4012 40amp battery charger shall be installed in the chassis cab beside the console. The charger shall have the following operational specifications: - Triple Battery Bank. - Built-In Touch Screen Display. - Dual Battery Type Technology - allows for two dissimilar battery chemistries charging at the same time. - Can Bus enabled connectivity - IP32 rated for greater ingress protection - Parasitic Load Compensation (PLC) - allows for user input of total accessory load amps on the vehicle. This allows the charger to shift the absorption stage set point, so the battery voltage drops to the float voltage when desired current is reached. - Configurable for 3-step or float charging. - Optional Remote Touch Display Available. - Accommodates Flooded, Gelled Electrolyte, AGM, Odyssey®, Lithium Iron Phosphate (LFP), and customized. - Pump Plus (20A Aux) output - Rotating mounting feet		

Shoreline

		YES	NO
007	A shoreline auto-eject receptacle shall be installed at the driver-side TME forward, mounted on hinged door. The receptacle shall be wired to the chassis engine start circuit to trigger the auto-eject.		

Indicator Lamp

		YES	NO
008	There shall be a Green LED Master-Battery-On lamp installed at the skirt below the driver cab door. The lamp shall illuminate when the mastery battery switch is on.		

Air Pump

		YES	NO
009	A Kussmaul Air Pump shall be installed. The Auto Pump AC is a 120 volt 60 Hz shaded pole A.C. motor operating a single cylinder air compressor designed specifically for installation on vehicles with air brakes. During long idle periods of the vehicle, when even the slightest seepage can cause an air brake system pressure to drop below the brake lockup pressure, the Auto Pump AC automatically starts to maintain the pressure. The Auto Pump AC motor is directly coupled to the compressor section eliminating all belts and pulleys and assuring long life and reliable operation. A heavy duty pressure switch is adjusted to start the compressor when the system pressure drops below 75 PSI and stops the compressor when 95 PSI is attained. The start up pressure is field adjustable - the pressure differential between start up and stopping is fixed. The moisture trap provided permits routine draining of accumulated moisture in the Auto Pump output line.		

Monitor, Tire Pressure

		YES	NO
010	A tire pressure monitor system shall be installed by the chassis manufacturer.		

Axle Trim

		YES	NO
011	There shall be Chromed ABS Axle Trim installed on the front & rear axles. The trim shall be single-piece and cover the axle and wheel lugs to provide a pleasing appearance.		

Antennas & Mobile Radio(s)

		YES	NO
012	There shall be two (2) mobile radio antenna cables installed on the chassis cab roof. The cables shall be routed to the cab		

	console for hook-up to the mobile radios. - Mobile Radio to be supplied by the Fire Department - OEM to Install Radio		

Inverter 1500 Watt

		YES	NO
013	There shall be a 1500 Watt Xantrax XPower Inverter installed. Heavy-duty battery cables shall be installed as power supply cables to the inverter from the batteries. The inverter shall have the following power ratings: *3000 Watts Surge Power *1500 Watts Continuous Power The inverter shall be installed in compartment L1 forward up high.		

Transfer Switch

		YES	NO
014	There shall be one (1) 20 Amp Transfer Switch installed. This switch shall transfer the AC power supply from the shoreline plug to the inverter/generator once the apparatus engine is running.		

Receptacles 120V AC (2)

		YES	NO
015	There shall be two (2) 120VAC Duplex Receptacles installed. * (1) installed at the cab floor beside the console * (1) installed at the shelf above the TME pump panel The receptacles shall be wired to the apparatus shore-line.		

Backup Camera

		YES	NO
016	An FRC inView TrueSight Back-UP Camera shall be installed with the following features: * one (1) 7" cab monitor * one (1) 7" Remote Monitor at Pump Operators Panel * one (1) heated back-up camera		

Bumper Ext Polished 24" w/ (2) Speed Lays

		YES	NO
017	The chassis front bumper shall be extended 24" forward with 3/8" steel plate channels. The top surface shall be enclosed with polished aluminium checker plate to provide a pleasing appearance. A re-enforcement structure shall be included to support the bumper sides trailing edges.		

Polished Bumper

		YES	NO
018	The bumper shall be fabricated from polished stainless steel, including the left and right bumper trailing edges. The assembly shall be designed to maximize the available usable space for fire service applications.		

Speed Lay Compartment

		YES	NO
019	There shall be an aluminium transverse speed-lay compartment installed ahead of the chassis grille with two (2) hose lays to carry 200' of 1.5" hose each. A polished aluminium checker plate lid shall be attached with stainless steel piano hinge. Rubber door holders are included to support the lid in the open position and a stainless-steel latch to secure the lid in the closed position. Two (2) black vinyl tarps shall be attached, one (1) at each side of the speed-lay cover. Bungee cord shall be sown onto the bottom corners to secure the tarps.		

RC Monitor OS

		YES	NO
020	The front officer-side of the bumper extension shall allow for a RC Monitor installation.		

Tow Hooks

		YES	NO
021	The factory tow hooks shall be removed from the chassis frame rails and re-located to the front of the bumper frame extension.		

Mud/Debris Guards

		YES	NO
022	There shall be ABS guards fabricated and mounted under the chassis hood that cover the gap between the hood and bumper extension upper surface. These guards shall keep mud and road debris from being deposited on the top surface of the bumper extension.		

Bumper Antennas w/ LED

		YES	NO
023	There shall be two (2) stainless steel guide poles mounted at the front corners of the extended bumper. The purpose of the guide poles are to give the driver a visual indication of the location of the front corners of the bumper.		

Led Lights

		YES	NO
024	Amber LED lights at the top of each guide pole shall be wired to the truck accessory circuit.		

Top Mount Enclosure (TME)

		YES	NO
025	A Top Mount Enclosure (TME) shall be supplied and installed immediately behind the cab. The TME shall include a cross control pump panel & SCBA seats. The TME shall be fabricated from Aluminium extrusions to create a high-strength design. “fabricated & formed” styles of TME will not be accepted.		

Sub-Frame

		YES	NO
026	An aluminium sub-frame shall be fabricated to support the TME. All extrusions shall be 1/4" wall thickness (minimum) and consist of structural grade aluminium alloy. The structural members shall run full-module-width to provide joint-free support. All joints shall be welded full-perimeter of the joint.		

TME Module

		YES	NO
027	The TME module shall be fabricated from heavy-duty aluminium extrusions (type 6061 T6), with 3/16" thick aluminium wall panels (type 5052 H32) (or equivalent) Corner extrusions shall be radiused for a pleasing experience. The extrusions and wall panels shall interlock with each other during the assemble process to create durability. The structure shall be welded by Canadian Welding Bureau (CWB) certified aluminium welders.(or equivalent) The welding process shall consist of Gas Metal Arc and Gas Tungsten Arc welding processes. The TME floor shall be constructed from embossed aluminium checkerplate for enhanced slip resistance per NFPA. The TME is engineered to exceed the Transport Canada CMVSS 216 "Roof Intrusion Protection" requirement. Note: The Top Mount Enclosure shall be mounted on rubber vibration absorption mounts, resulting in a road vibration-free ride.		

TME Doors

		YES	NO
028	The entry doors shall be hinged full-height with stainless steel piano-hinge. A latch system with ergonomic door handles shall be used. A gas door assist spring shall be installed on each door. Stainless Steel grab rails are installed on the door to assist in entry and exiting. Automotive rubber weather-strip is installed the full perimeter of the door. Two (2) steps shall be engineered into the bottom of each door assembly. These steps shall be mechanical and shall rotate into position with an opening door to provide a safe and ergonomic TME entry & exit. Shall include a step light that turns-on when the doors are opened.		

Pump House

		YES	NO

029	The pumphouse compartment shall be welded rigidly to the back of the Top Mount Enclosure. The pumphouse shall be constructed of aluminium structural profiles, 1/4" wall thickness (type 6061 T6). (or equivalent) These profiles shall be welded together to form a single high-strength structure. A transverse compartment shall be installed over top of the pumphouse. Vertically hinged doors with latch shall be installed at the driver-side and officer-side of the compartment. The compartment rough opening shall be 14.5" wide x 19.5" high.		

TME Transverse Compartment

		YES	NO
030	A compartment shall be fabricated beneath the SCBA seats at the front of the TME module. Compartment shall be full-width (96") and fitted with vertically hinged doors on each side. There shall be an upper and lower section to this compartment. The rough door opening shall be 32.5" high x 17.0" wide.		

Battery Box

		YES	NO
031	A battery box shall be fabricated into the driver-side forward low compartment. Batteries shall sit on the floor of this compartment.		

Pump Access Panel

		YES	NO
032	A service access panel shall be installed inside the enclosure to access the pump for service. The panel shall be removable, secured with latches and not require the need for tooling.		

Pump Panels

		YES	NO
033	The pump operators panel shall be stainless steel. The face of the pump control panels shall be embossed. This gives the surface a scratch-resistant, non-reflective and highly durable pleasant appearance. Stainless Steel panels shall be attached to both sides of the pumphouse. The finish shall be #4 brushed. All intakes and discharges shall have trim rings installed with a rubber gasket to seal off the openings.		

Heat Pan

		YES	NO
034	The under-side of the pumphouse shall be enclosed with aluminium panels as precise as possible to conserve heat. Fit around the frame rails, drivelines, brake lines, etc shall be neat in appearance and as tight as possible. Two (2) removable pans shall be included, inserted from each side, to approx half-depth. Quick release latches shall be installed on each pan.		

TME Windows

		YES	NO
035	There shall be twelve (12) Aluminium Frame Windows installed in the following locations: * Two (2) on the front facing sloped area, * one (1) on each side above the SCBA seats, * two (2) on each entry door, one upper and one lower, * one (1) on each side above the pump operators panel, * two (2) on the rear face above the pump operators panel. Two (2) additional windows are installed on both side of the control panel to be able to view the discharges. The windows shall come with Dark Tint.		

TME Interior

		YES	NO
036	The interior of the TME shall be partially painted with box-liner material and upholstered with Black "Vinyl" upholstery. The upholstery shall be bonded to foam then bonded to the interior walls. This combination of upholstery & foam will provide insulating and noise absorption qualities. The material shall be compliant with the FMVSS standard for flammability for materials used inside motor vehicles.		

Cab-To-TME Bellows

		YES	NO
037	A custom produced rubber bellows with expansion accordion shall be installed, attached between the cab and the top-mount-enclosure. The bellows shall be neatly trimmed around the edges of the opening for a high-quality leak-free connection between the bodies. The opening shall be 32" x 32".		

TME Air Conditioning

		YES	NO
038	A roof mounted air conditioner model R-9777 (by Red Dot Corporation) shall be supplied for the TME. The unit shall be mounted on the TME roof, extending into the TME interior, with the control panel attached. The unit shall perform to the following specifications: *** Cooling - 25'000 BTU/hr *** The 3-speed fan shall provide 400 CFM of Air flow.		

TME Interior Heat

		YES	NO
039	There shall be two (2) 20'000 BTU TME interior heaters installed, one (1) on each side, inserted into the pumphouse wall. Each heater shall have a rotary 3-speed knob mounted at the heater panel.		

TME Recirc Fans

		YES	NO
041	There shall be two (2) 12volt recirculation fans installed at the interior of the TME. The fans shall be attached to the ceiling, one each side above the pump operator's panel. On-Off switches shall be included at the base of the fans.		

12 VDC Power Outlet, TME

		YES	NO
043	One (1) 12 VDC power receptacle shall be installed at the face of the pump control panel. It shall be of the cigarette lighter style. One (1) Dual USB power receptacle shall be installed at the face of the pump control panel.		

SCBA Seats

		YES	NO
044	There shall be four (4) Bostrom (ABTS) SCBA seats installed inside the TME enclosure, against the front wall facing backwards. The seats shall be NFPA compliant and include a 3-point seatbelt system and Flip-Up Fold/Hold Seat Cushions. The seats shall include occupancy sensors & seat belt status sensors. The outer two (2) seats shall be primary seats as per NFPA 1900 2024 edition, offering a minimum clear width of 27.60 inches at the shoulder level without overlapping other primary seating positions. Clear width may be offset up to 3.00 inches from centerline of cushion. The inner two (2) seats shall be secondary seats as per NFPA 1900 2024 edition. All seats shall have a minimum of 22.00 inches of shoulder clearance without overlap from adjacent seats.		

Heaters Pump-house

		YES	NO
045	There shall be one (1) Red Dot 35'000btu heater installed in the pump-house on the left-side, at frame level. Coolant shall be routed through 5/8" thermal hose from the engine for the source of heat. Quarter-turn brass ball valves shall be installed at the engine. This allows the user to close the circuits if required. The activation switch shall be at the cab dash within convenient reach of the operator.		

Engine Cooler

		YES	NO
046	There shall be a stainless-steel stacked plate heat exchanger installed in the pump-house compartment to assist in cooling the engine in hot climates. A quarter-turn brass valve shall be installed at the pump operator's panel. Water from the fire pump discharge manifold shall be piped to this valve and on to the heat exchanger. A water strainer shall be installed to strain the cooling water before it enters the heat exchanger. The valve handle shall be labelled Engine Cooler.		

Pump Cooler

		YES	NO
047	There shall be a pump cooler circuit installed. A 1/4-turn valve shall be installed at the pump operators panel. Opening this valve allows water to flow from the discharge side of the pump manifold to the booster tank. The valve handle shall be labelled Pumo Cooler		

Waterous Fire Pump

		YES	NO
048	There shall be a Waterous Model CSPA (1250 US GPM) Single Stage PTO Fire Pump installed.		

PUMP

		YES	NO
049	The pump shall be of single stage construction and shall comply with all applicable requirements of the latest standards for automotive fire apparatus of the National Fire Protection Association, NFPA 1901?2016, and shall have a rated capacity of 1250 US?GPM (1050 Imp Gal). The Pump shall be free from objectionable pulsation and vibration under all normal operating conditions.		

PUMP BODY

		YES	NO
050	The pump body shall be close?grained, gray iron and must be horizontally split in two sections for easy removal of the entire impeller shaft assembly, and designed for complete servicing from the bottom of the truck without disturbing setting of the pump in the chassis or apparatus piping which is connected to the pump. Pump body halves shall be bolted together on a single horizontal face to minimize leakage and facilitate reassembly.		

DISCHARGE MANIFOLD

		YES	NO
051	The discharge manifold shall be cast as an integral part of the pump body assembly and shall provide at least three full 3-1/2 inch openings for ultimate flexibility in providing various discharge outlets for maximum efficiency, and shall be located as follows: • One outlet on the right side of the pump body • One outlet on the left side of the pump body • One outlet directly on top of the pump discharge manifold IMPELLAR The impeller shall be bronze with double suction inlets, accurately balanced (mechanically and hydraulically), labyrinth type, wear rings that resist water bypass and loss of efficiency due to wear. WEAR RINGS The wear rings shall be bronze, and shall be easily replaceable to restore original pump efficiency and eliminate the need for replacing the entire pump casing due to wear. IMPELLER SHAFT The impeller shaft		

	shall be stainless steel, accurately ground to size. The impeller shaft shall be of two-piece construction separable between the pump and pump transmission to allow true separation of the transmission from the pump without disassembly of either component. ANTI-FRICTION BEARINGS The impeller shaft shall be supported at each end by oil or grease lubricated anti-friction ball bearings for rigid and precise support. Bearings shall be protected from water and sediment by suitable seal housings, flinger rings, and oil seals. No sleeve type bearings shall be used. PUMP TRANSMISSION The pump transmission shall be rigidly attached to the pump body assembly and be of latest design incorporating a high strength, involute tooth form Morse™ HV chain drive capable of operating at high speeds to provide smooth, quiet transfer of power.		

Chelsae PTO

		YES	NO
052	There shall be a Chelsae "Hot-Shift" Power-Take-Off installed on the left-side of the chassis transmission. This PTO shall power the fire pump and can be used for both stationary and pump-and-roll applications. The PTO shall be pressure lubricated with synthetic oil from the chassis Allison automatic transmission.		

Coupler Shaft (A)

		YES	NO
053	There shall be a 1410 Series Drive-Shaft Coupler-Shaft installed. One end shall be connected to the Chelsae PTO with a companion flange. The other end shall include a yoke and hanger bearing with a mounting bracket attached to the chassis frame rail. The hanger bearing shall include a rubber bushing to absorb drive line vibrations. The drive-shaft assembly shall be precision balanced prior to installation.		

Coupler Shaft (B)

		YES	NO
054	There shall be an intermediate 1410 Series Drive-Shaft Coupler-Shaft installed. One end shall be connected to the first coupler shaft. The other end shall include a yoke and hanger bearing with a mounting bracket attached to the chassis frame rail. The drive-shaft assembly shall be precision balanced prior to installation.		

Slip Shaft

		YES	NO
055	There shall be a 1410 Series Drive-Shaft Slip-Shaft installed. One end shall be connected to the coupler-shaft. The other end shall include a slip-yoke, attached to the fire pump. The drive-shaft assembly shall be machine balanced prior to installation.		

Fire Pump Frame

		YES	NO
056	The Fire Pump Frame shall be manufactured from 3/8" mild steel plate. Angles shall be bolted to both chassis frame rails with grade 8 bolts. These angles shall have flanges formed for the pump frame channels to bolt onto. Four (4) Rubber Vibration Isolation Mounts shall be installed between the pump frame and chassis frames to assist in reducing driveline & pump vibration. All frame components shall be painted with a rust prevention coating.		

Pump Seal

		YES	NO
057	There shall be a mechanical spring-loaded pump seal installed on the fire pump.		

Pump Overheat Protection

		YES	NO
058	There shall be a pump overheat protection system installed. The system shall include a thermal valve at the pump discharge manifold that opens automatically when the water temperature reaches 140 degrees F and dumps to atmosphere. An LED lamp shall be installed at the pump operators panel that flashes once the water temperature reaches 180 degrees F. A push-button switch shall be included to test the lamp function.		

Fire Pump Engage Switch (Cab)

		YES	NO
059	There shall be a pump-engage switch installed at the chassis dash to engage the Fire Pump Power-Take-Off.		

Fire Pump Engage Switch (Pump Panel)

		YES	NO
060	There shall be an additional fire pump engage switch installed at the pump operators control panel. This allows the pump operator to open the tank-to-pump valve to flood the fire pump prior to engaging the fire pump. It also allows for shutting-down the fire pump without having to climb into the chassis cab.		

Primer AirPrime

		YES	NO
061	A Trident AirPrime pump primer shall be installed at the main pump. The system shall utilize chassis air pressure to prime the fire pump through a ventura. An Auto-Prime feature is included that will sense pump discharge pressure and automatically re-prime fire pump as pressure drops.		

Remote Prime

		YES	NO
062	A remote prime option shall be included to allow the operator to prime to the following locations: * Driver-Side Intake * Officer-Side Intake * Rear Intake Each remote prime option shall include an individual primer control.		

Foam Proportioner

		YES	NO
063	There shall be a Waterous Aquis 3.0 Electronic Foam Proportioner installed, with the following features: Control Box: Microprocessor Controller: A 16-bit mixed signal microcontroller with a 60 kB flash memory, 2kB RAM and 12-bit analog to digital convertor. Receives flowmeter flow rate and operator specifications through the OIT and provides the necessary voltage to the pump motor driver. Pump Motor Driver: Receives signals from the microprocessor controller and powers the electric motor in a variable speed duty cycle to ensure the correct amount of foam concentrate set by the operator is injected into the water stream. Operator Interface Terminal: The Operator Interface Terminal (OIT), mounted on the pump operator's panel allows the operator to perform the following functions: - Push button control of foam proportioning rates: - Class A concentrate: .1% to 1% in increments of .1% - Class B concentrate: 1%, 3% or 6% Calibration of water flow rate. - Adjustable units of measurement. - Simulated water flow. - Optional lockout. - Warning of low foam concentrate supply: - Flashes and the displays a steady "low concentrate" warning when the concentrate tank runs low. Note that system will shut down after two minutes. - Flashes a "no concentrate" warning when the concentrate tank is empty. Warning of an electronic malfunction: Flashes and "error" warning when the concentrate tank is empty. If apparatus has dual foam concentrate tanks, allows selection of tank A or B and displays which tank is in use. Operation in manual mode as a backup. A separate panel plate with operation instructions is furnished. Flowmeter: A paddlewheel-type flowmeter, installed in the process manifold upstream of the foam injection point, connects to the microcontroller. A flowmeter tee, constructed of brass with Victaulic groove outer connections and threaded NPT inner connections at each end of the tee, is provided for connection to the apparatus plumbing. Foam Pump: Consists of an electric motor, positive displacement triplex plunger pump and control box mounted on a bracket. Electric Motor: 1/2 HP (.4 kW) 12 or 24 volt. Protected with an electrical load circuit breaker of 80 amps for 12 VDC and 50 amps for 24 VDC. Pump Rating: 3.0 GPM @ 150 psi (11.5 L/min @ 10 bar) with intermittent operating pressures up to 450 psi (31 bar). Pump Construction: Equipped with an anodized aluminum crankcase, oversized ball bearings, forged brass pump body and manifold, solid ceramic plungers, stainless steel inlet and delivery valves and piston guides. Buna packing and preset pressure regulating valve. Control Cables and Connectors: Separate industry standard M12 connectors for connection of OIT and flowmeter to foam pump		

	control box. Consists of shielded cables to prevent radio frequency or electro-mechanical interference. Furnished as follows: OIT connection to control box: 6 meters long Flowmeter connection to control box: 3 meters long Foam concentrate tank level switch to foam pump control box: 4 meters long Low Tank Level Switch: A low tank level float switch, installed in the foam concentrate tank and connected to the control unit, alerts the operator to low foam supply conditions. Foam System Support: The AQUIS is equipped with a USB interface for PC-connectivity which allows a qualified technician to perform upgrades, diagnostics and monitor system functions in real time. The system can also be remotely monitored through the USB interface using any PC with internet access, allowing technicians to easily connect to the Waterous dedicated website to assure proper operation and to update the foam system hardware by uploading new features and functions as they become available.		

Intake 6" Driver-Side (Gated-Elec)

		YES	NO
064	There shall be a 6" M NH intake installed on the left-side of the fire pump. The intake shall include an electric butterfly valve, installed inside the pumphouse. This keeps the valve in a warm winter-time environment and removes the traditional bulk of a piston-intake-valve from the out-side. The valve controller is installed at the pump operator control panel. A waterous non-pilot type intake relief valve shall be installed. A 3/4" lift-style drain valve shall be included. The intake and drain valve shall be labelled to indicate their function. The label shall be color-coded burgundy. ** Supply with droop reducer to 4.0 M NH".		

Intake 6" Officer-Side (Gated-Elec) w Rr Int Opt

		YES	NO
065	There shall be a 6" M NH intake installed on the right-side of the fire pump. The intake shall include an electric butterfly valve, installed inside the pumphouse. This keeps the valve in a warm winter-time environment and removes the traditional bulk of a piston-intake-valve from the out-side. The valve controller is installed at the pump operator control panel. The intake shall include an option for installation of a rear of apparatus pump intake. A waterous non-pilot type intake relief valve shall be installed. A 3/4" lift-style drain valve shall be included. The intake and drain valve shall be labelled to indicate their function. The label shall be color-coded burgundy. ** Supply with droop reducer to 4.0" M NH.		

Intake 5" Rear-Body-Right (Gated)

		YES	NO
066	There shall be a 5.0" Aux Pump Intake installed, plumbed with 5.0" stainless pipe through the poly tank to the back of the body right-side. All plumbing shall be stainless steel. A Waterous		

	Jamesbury Electric Butterfly Valve is included, installed inside the pumphouse. The valve controller shall be installed at the pump operator control panel. A waterous non-pilot type intake relief valve shall be installed. A 3/4" lift-type bleeder/drain valve shall be installed at the pump operators panel. Installed on the inlet at the back of the body is a 5.0" NH adapter w/ strainer and chromed cap. Color coded labels shall be included. ** Supply with droop reducer to 4.0” M NH.		

Intake 2.5" Aux Left-Front

		YES	NO
067	There shall be a 2.5" auxiliary intake installed at the left-side pump panel ahead of the 6" Main Pump Intake. An Akron Brass ball valve with composite ball and remote valve actuator shall be included. The valve actuator shall be a positive locking pistol-grip lever at the pump operator panel. A high-quality push-pull cable shall be installed between the valve lever and the valve. The intake shall include a 2.5" female swivel adapter and chromed plug, chained to the pump panel. An intake strainer shall be included. The threads shall be WCT. A 3/4" lift-handle bleeder/drain valve shall be installed on the intake. The intake and drain valve shall be labeled with a color-coded label.		

Intake 2.5" Aux Right-Front

		YES	NO
068	There shall be a 2.5" auxiliary intake installed at the right-side pump panel ahead of the 6" Main Pump Intake. An Akron Brass ball valve with composite ball and remote valve actuator shall be included. The valve actuator shall be a positive locking pistol-grip lever at the pump operator panel. A high-quality push-pull cable shall be installed between the valve lever and the valve. The intake shall include a 2.5" female swivel adapter and chromed plug, chained to the pump panel. An intake strainer shall be included. The threads shall be WCT. A 3/4" lift-handle bleeder/drain valve shall be installed on the intake. The intake and drain valve shall be labeled with a color-coded label.		

Intake - Tank to Pump (Dual Elec Ctrls)

		YES	NO
069	There shall be a 3.5" stainless steel tank-to-pump supply line installed. An Akron Brass 3.0" Ball Valve with composite ball and an Electric Valve Actuator shall be included. There shall be a check valve installed in the tank to pump line to prevent water from back flowing to the tank. Two (2) Electric Valve Switches shall be installed at the following locations: - one (1) at the pump operator panel - one (1) at the cab console next to the driver Color-coded labels shall be provided.		

Tank Fill From Pump 2.0"

YES	NO

070	There shall be a 2.0" pump-to-tank fill line installed. High-pressure flexible hose shall be used for plumbing. A 2.0" Akron Brass ball valve with composite ball and remote valve actuator shall be included. The valve actuator shall be a positive locking pistol-grip lever at the pump operator panel. A high-quality push-pull cable shall be installed between the valve lever and the valve. A color-coded label shall be attached.		

Discharge Manifold

		YES	NO
071	There shall be a Waterous Cast Iron Discharge Manifold assembly installed on the fire pump. The manifold shall feature numerous discharge port options to facilitate multiple discharge pluming/routing options.		

Discharge 2.5" #1 Left Front

		YES	NO
072	There shall be a 2.5" Discharge located on the left-side of the pump-house towards the front. An Akron Brass ball valve with composite ball and remote valve actuator shall be included. The valve actuator shall be a positive locking pistol-grip lever at the pump operator panel. A high-quality push-pull cable shall be installed between the valve lever and the valve. The discharge shall include a 30 degree droop and chromed cap, chained to the pump panel. There shall be a 2.5" stainless steel dual-scale Psi/Kpa discharge pressure gauge installed for this discharge. A 3/4" - lift style bleeder/drain valve shall be installed for the discharge at the base of the pump panel. The discharge and drain valve shall be labeled with a yellow color-coded label. The threads shall be WCT.		

Discharge 2.5" #2 Left Rear

		YES	NO
073	There shall be a 2.5" Discharge located on the left-side of the pump-house towards the rear. An Akron Brass ball valve with composite ball and remote valve actuator shall be included. The valve actuator shall be a positive locking pistol-grip lever at the pump operator panel. A high-quality push-pull cable shall be installed between the valve lever and the valve. The discharge shall include a 30 degree droop and chromed cap, chained to the pump panel. There shall be a 2.5" stainless steel dual-scale Psi/Kpa discharge pressure gauge installed for this discharge. A 3/4" - lift style bleeder/drain valve shall be installed for the discharge at the base of the pump panel. The discharge and drain valve shall be labeled with a white color-coded label. The threads shall be WCT.		

Discharge 2.5" #3 Right Front

		YES	NO
074	There shall be a 2.5" Discharge located on the right-side of the pump-house towards the front. An Akron Brass 2.5" ball valve		

	with composite ball and remote valve actuator shall be included. The valve actuator shall be a positive locking pistol-grip lever at the pump operator panel. A high-quality push-pull cable shall be installed between the valve lever and the valve. The discharge shall include a 30 degree droop and chromed cap, chained to the pump panel. There shall be a 2.5" stainless steel dual-scale Psi/Kpa discharge pressure gauge installed for this discharge. A 3/4" - lift style bleeder/drain valve shall be installed for the discharge at the base of the pump panel. The discharge and drain valve shall be labeled with a Blue color-coded label. The threads shall be WCT.		

Discharge 4.0" #4 Right Rear

		YES	NO
075	There shall be a 4.0" discharge located on the right-side of the pump-house towards the rear. An Akron Brass 3.0" ball valve with composite ball and remote slo-close valve actuator shall be included. The valve actuator shall be a positive locking t-handled lever at the pump operator panel. A high-quality push-pull cable shall be installed between the valve lever and the valve. The discharge shall include a 30 degree droop and chromed cap, chained to the pump panel. There shall be a 2.5" stainless steel dual-scale Psi/Kpa discharge pressure gauge installed for this discharge. A 3/4" - lift style bleeder/drain valve shall be installed for the discharge at the base of the pump panel. The intake and drain valve shall be labeled with a black color-coded label. The threads shall be storz.		

Discharge 2.5" #5 Hose-Bed Pre-Con FR (Foam)

		YES	NO
076	There shall be a 2.5" pre-connect discharge located at the right-front of the hose-bed. An Akron Brass 2.5" ball valve with composite ball and remote valve actuator shall be included. The valve actuator shall be a positive locking pistol-grip lever at the pump operator panel. A high-quality push-pull cable shall be installed between the valve lever and the valve. There shall be a 2.5" stainless steel dual-scale Psi/Kpa discharge pressure gauge installed for this discharge. A 3/4" - lift style bleeder/drain valve shall be installed for the discharge at the base of the pump panel. The discharge and drain valve shall be labeled with a Blue color-coded label. The threads shall be WCT.		

Foam Manifold (1)

		YES	NO
077	There shall be a 2.5" stainless steel foam manifold (1) installed. A stainless steel check valve shall be included to prevent foam solution to back flow to the clean water manifold. A 3/8" brass drain valve shall be installed at the lower pump panel to drain the foam manifold. The drain valve shall be labelled Foam Manifold Drain.		

Foam Manifold (2)

		YES	NO
078	There shall be a stainless steel foam manifold (2) installed. This manifold shall include the following: * three (3) 2.0" discharges * two (2) 2.5" discharges * one (1) 3.0" discharge		

Speed-lay #1 Foam, Front Bumper

		YES	NO
079	There shall be a 1.5" F NPSH speed-lay hose-bed installed transverse at the front extended bumper. An Akron Brass 2.0" ball valve with composite ball and remote valve actuator shall be included. The valve actuator shall be a positive locking pistol-grip lever at the pump operator panel. A high-quality push-pull cable shall be installed between the valve lever and the valve. High-Pressure flexible 2.0" hose with stainless steel crimped end fittings shall be used to route the discharge from valve to hose-bed. There shall be a 2.5" stainless steel dual-scale Psi/Kpa discharge pressure gauge installed for this discharge. A 3/4" - lift style bleeder/drain valve shall be installed for the discharge at the base of the pump panel. The intake and drain valve shall be labelled with an Orange color-coded label.		

Speed-lay #2 Foam, Front Bumper

		YES	NO
080	There shall be a 1.5" F NPSH speed-lay hose-bed installed transverse at the front extended bumper. An Akron Brass 2.0" ball valve with composite ball and remote valve actuator shall be included. The valve actuator shall be a positive locking pistol-grip lever at the pump operator panel. A high-quality push-pull cable shall be installed between the valve lever and the valve. High-Pressure flexible 2.0" hose with stainless steel crimped end fittings shall be used to route the discharge from valve to hose-bed. There shall be a 2.5" stainless steel dual-scale Psi/Kpa discharge pressure gauge installed for this discharge. A 3/4" - lift style bleeder/drain valve shall be installed for the discharge at the base of the pump panel. The intake and drain valve shall be labelled with a Red color-coded label.		

Plumbing Front Bumper Monitor

		YES	NO
081	There shall be plumbing installed and routed to the front bumper for installation of a surface-mount remote controlled monitor. The plumbing shall be a combination of 1.5" stainless piping and high-pressure flexible hose with crimped stainless steel end fittings. The hose shall be secured along the under-side of the chassis next to the chassis frame rails. An auto-drain valve shall be installed at the lowest point to automatically open and drain the piping when pressure drops below 8psi.		

RC Monitor

		YES	NO
082	A Task Force Tips EF1 model # Y1-EE3A electric remote-controlled monitor shall be installed. The monitor shall be controlled by an external controller with functions that control rotation, elevation and nozzle patterns, oscillate, park, auxiliary 1 and auxiliary 2. The monitor shall have the following travel capabilities: horizontal rotation with travel 135 degrees left and right of center; field changeable rotation stops shall be provided 90 degrees left and right of center; full vertical travel of 135 degrees with field changeable vertical stops at 45 degrees above and 20 degrees below horizontal; flow capability of 200 GPM with no more than 19 PSI loss; maximum operating pressure of 200 PSI. The electrical components for the monitor shall be waterproof and utilize current limiting and position encoders to protect the drive train at the ends of travel. Monitor shall have waterproof plug for power and control cable connection for easy removal. An electrical connection for a TFT remote control nozzle shall be provided. Motors and electronics are housed within the monitor casting, covered by a waterproof lid to reduce the number of external cables. The monitor shall be compatible with optional wired and wireless controllers and monitor position display. For resistance to corrosion the monitor shall be constructed from hardcoat anodized aluminum with a silver powder coat interior and exterior finish. The monitor shall be configured with a 2" female NPT inlet adapter to 2-1/2" NH quick disconnect with locking pin and 1-1/2" male NPSH outlet. The monitor shall have a unique serial number and be covered by a five-year warranty.		

RC Montior Joystick Controller

		YES	NO
083	A Task Force Tips model # Y4E-JS-GT joystick style control station for Task Force Tips EF1, and Tornado series remote control monitor shall be installed. The joystick shall be mounted in an enclosure and control horizontal rotation, vertical elevation and nozzle stream pattern and have a momentary trigger button that can control an optional Task Force Tips valve with interface box by squeezing if desired. The monitor speed is proportional to the joystick movement. A sliding switch shall allow for flow control by adjusting the Task Force Tips gateable valve operation. The control requires 12 or 24 volt DC power. The enclosure shall include membrane switches and LED lights to program and control programmable park and oscillate functions, and a toggle switch to control an optional Task Force Tips valve with interface box. Two additional membrane switches are included to control optional, auxiliary equipment such as a light. LED lights show gateable valve status and operation. A ten foot long, four-conductor cable with four-pin plug to connect to the optional valve interface box shall exit the enclosure. Joystick control can be removed from its box and mounted into a console. The joystick enclosure box shall include a circuit board to communicate with the Task Force Tips remote control monitor and optional valve interface. Internally mounted switches shall be included for the ability to choose which control station shall be dominant where additional controls are used, and to retain oscillate programming if desired. A storage bracket for the handheld control shall be included and shall comply with NFPA 1901 Section14.1.11. The		

	unit shall have a unique serial number and be covered by a five-year warranty.		

RC Monitor Nozzle

		YES	NO
084	Task Force Tips Ultimatic 125, model # B-TOS-ERP adjustable nozzle with electrically operated pattern control shall be provided. The nozzle design shall allow for straight stream through dense wide fog patterns and be able to be flushed without shutting down. The nozzle shall be suitable for foam solution application. The electric drive unit shall develop over 400 pounds of torque, be enclosed in a waterproof aluminum housing and include a manual override in the event the power source fails. The unit shall be compatible with 12 or 24-volt power systems and require no more than a 3-amp power draw and include a 6" connection cable with plug. Electrical actuator systems shall have a rating of IP66/IP67 per IEC 65029. Nozzle stream shaper actuator shall have position encoder for smooth transition between straight stream and fog pattern with fine stream adjustment. Nozzle stream shaper shall stop and pause at full fog position. A second electrical actuation of the stream shaper shall move the shaper to the flush position for removing debris from the nozzle. For corrosion resistance and durability, the nozzle shall be constructed from hardcoat anodized aluminum alloy, have a protective rubber bumper with fog teeth, laser engraved serial number, and reflective labeling. The nozzle shall have a 1-1/2" female NH swivel rocker lug coupling and a user adjustable flow range of 15-120 GPM at 100 PSI. A waterproof six-pin electrical connection for use with TFT remote control monitors shall be included. The nozzle shall be designed to accept the TFT FJ-U Foam Jet low expansion or FJ-UMX FoamJet multi expansion air aspirating attachments. The nozzle shall have a unique serial number and be covered by a five-year warranty.		

RC Monitor Valve

		YES	NO
085	The Valve shall be an Akron Brass 8900 series 2.0" brass valve. - The monitor shall be installed at the front officer-side of the bumper		

Hose Line Blow-Outs

		YES	NO
086	There shall be an air blown-out line plumbed to the foam manifold to remove standing water from all foam capable hose lines. Injecting compressed air to the manifold will evacuate the water from hose lines to prevent freezing. A quarter-turn valve shall be installed at the face of the pumphouse. The air source shall be plumbed from the chassis air tanks, though a pressure protection valve that closes the supply line when air drops below 70 psi.		

Electrical System

		YES	NO
087	An electrical power distribution system shall be installed. The switch panel shall be located in the cab convenient to the operator. Remote power modules are installed in strategic locations on the apparatus to reduce wiring harness requirements.		

Power Distribution Panel

		YES	NO
088	All body electrical equipment installed by the apparatus manufacturer shall conform to current automotive electrical system standard, the latest Federal DOT standards, and the requirements of the applicable NFPA Apparatus Standard. Twisted pair shielded wire shall be provided within the electrical system for noise reduction. The wiring harness shall conform to SAE J-1128 with SXL temperature properties. All exposed wiring shall be run in loom with a minimum 200 degree Fahrenheit rating. All wiring looms shall be properly supported and attached to body members along the entire run. All wiring shall be mounted so as to provide protection from water and heat. All connections shall be crimp type with heat shrink tubing with insulated shanks to resist moisture and foreign debris such as grease and road grime. Weather-resistant connectors shall be provided throughout to ensure the integrity of the electrical system. All wiring looms shall be properly supported and attached along the entire run. At any point where wire or looms must pass through metal, rubber grommets shall be installed to protect the wire from abrasion. All wiring shall be individually coded every 2" on the insulation to allow for easy identification. The numbering shall be continuous, along the entire length of the harness. The main low voltage chassis to body interface point and distribution panel shall be provided at the rear of the body in a location providing easy service access. The distribution panel shall be labelled and shall contain the body electrical power distribution equipment. The distribution panel shall be located so as not to reduce useable compartment space. An electrical harness quick-disconnect shall be provided to facilitate easy removal of the body, should such a procedure become necessary.		

Pressure Governor and Engine Monitoring Display

		YES	NO
089	A Fire Research PumpBoss Max series PBA502-C00 pressure governor and control module kit shall be installed. The kit shall include a control module, intake pressure sensor, discharge pressure sensor, and cables. The control module housing shall be waterproof and have dimensions not to exceed 7 1/2" high by 3 5/8" wide. The control knob shall be 2" in diameter with no mechanical stops, have a serrated grip, and a red idle push button in the center. It shall not extend more than 2" from the front of the control module. The control LCD shall be 3.5" in size with a minimum brightness of 1000 nits and optically bonded to 3mm Borofloat Glass. Inputs for monitored engine information shall be from a J1939 data bus. Outputs for engine control shall be on the		

	J1939 data bus. Inputs from the pump discharge and intake pressure sensors shall be electrical. The following continuous displays shall be provided: - Engine RPM; shown on LCD screen - Check engine and stop engine warning; shown on LCD screen - Engine oil pressure; shown on LCD screen - Engine coolant temperature; shown on LCD screen - Transmission Temperature; shown on LCD screen - Battery voltage; shown on LCD screen - Pressure and RPM operating mode LEDs - Pressure / RPM setting; shown on LCD screen - Throttle ready / Ok to Pump LEDs On screen (LCD) message display shall show diagnostic and warning messages as they occur. It shall show monitored apparatus information, stored data, and program options when selected by the operator. LCD Screen and LED's intensity shall be automatically adjusted for day and nighttime operation. The program shall store the accumulated operating hours for the pump and engine to be displayed with the push of a button. It shall monitor inputs and support audible and visual warning alarms for the following conditions: High Battery Voltage Low Battery Voltage (Engine Off) Low Battery Voltage (Engine Running) High Transmission Temperature Low Engine Oil Pressure High Engine Coolant Temperature Out of Water (visual alarm only) No Engine Response (visual alarm only). The program features shall be accessed via push buttons located on the front of the control module. There shall be a USB port located at the rear of the control module to upload future firmware enhancements. The pressure governor shall operate in two control modes, pressure and RPM. No discharge pressure or engine RPM variation shall occur when switching between modes. A throttle ready and Ok to Pump LED shall light when the interlock signal is recognized. The pressure governor shall start in pressure mode and set the engine RPM to idle. In pressure mode the pressure governor shall automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor shall maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The pressure governor shall limit a discharge pressure increase in RPM mode to a maximum of 30 psi. Other safety features shall include recognition of low water and no water conditions with an automatic programmed response and a push button to return the engine to idle. The pressure governor control module shall be programmed at installation for a specific engine.		

Water Tank Level Display

		YES	NO
090	A Fire Research TankVision Pro model WLA300-A00 tank indicator kit shall be installed. The kit shall include an electronic indicator module, a pressure sensor, and a 10' sensor cable. The indicator shall show the volume of water in the tank on nine (9) easy to see super bright RGB LEDs. A wide view lens over the LEDs shall provide for a viewing angle of 180 degrees. The indicator case shall be waterproof, manufactured of Polycarbonate/Nylon material, and have a distinctive blue label. The program features shall be accessed from the front of the indicator module.The program shall support self-diagnostics capabilities, self-calibration, six (6) programmable colored light patterns to display tank volume, adjustable brightness control levels and a datalink to connect remote indicators. Low water warnings shall include flashing LEDs at 1/4 tank, down chasing		

	LEDs when the tank is almost empty, and an output for an audio alarm. The indicator shall receive an input signal from an electronic pressure sensor. The sensor shall be mounted from the outside of the water tank near the bottom. No probe shall be placed on the interior of the tank. Wiring shall be weather resistant and have automotive type plug-in connectors.		

Water Tank Level Lights (Remote)

		YES	NO
091	There shall be three (3) LED Remote Water Tank Level Lights installed. The lights shall be driven by the master water tank level display located at the pump operator's panel. The lights shall be installed, one (1) on the left-side, one (1) on the right-side and one (1) at the back of the apparatus.		

Foam Tank Level Display

		YES	NO
092	A Fire Research TankVision Pro model WLA360-A00 tank indicator kit shall be installed. The kit shall include an electronic indicator module, a pressure sensor, a 10' sensor cable and a tank vent. The indicator shall show the volume of Class A foam concentrate in the tank on nine (9) easy to see super bright RGB LEDs. A wide view lens over the LEDs shall provide for a viewing angle of 180 degrees. The indicator case shall be waterproof, manufactured of Polycarbonate/Nylon material, and have a distinctive green label. The program features shall be accessed from the front of the indicator module. The program shall support self-diagnostics capabilities, self-calibration, six (6) programmable colored light patterns to display tank volume, adjustable brightness control levels and a datalink to connect remote indicators. Low water warnings shall include flashing LEDs at 1/4 tank, down chasing LEDs when the tank is almost empty, and an output for an audio alarm. The indicator shall receive an input signal from an electronic pressure sensor. The sensor shall be mounted from the outside of the foam tank near the bottom. No probe shall be placed on the interior of the tank. Wiring shall be weather resistant and have automotive type plug-in connectors.		

Master Gauges & Test Ports

		YES	NO
093	There shall be one (1) Master Vacuum and one (1) Master Pressure gauge assembly installed at the pump operator's panel. The gauges shall be stainless steel and approx 4" in diameter. The vacuum gauge shall have a scale of -30 to 400 psi (0-2750 kpa). The pressure gauge shall have a scale of 0-400 psi (0-2750 kpa). Two (2) pump test ports shall be included. The gauges and the test ports shall be part of a chromed bezel for a pleasing appearance.		

Master Drain Valve

		YES	NO
094	There shall be a Master Pump Drain Valve installed at the base of the driver-side pump panel. The valve shall be Trident Brand, 10-port rotary type with a single-point drain.		

Water/Foam Tank, Poly

		YES	NO
095	A 1100 Imp-Gal rectangular poly water tank shall be installed. The tank shall be NFPA compliant.		

Direct Tank Fill

		YES	NO
096	An 6-Bolt pattern tank flange shall be added to the back of the tank for installation of a 2.5" Auto-Tank Fill Valve		

Pipe Sleeve

		YES	NO
097	A pipe sleeve shall be installed/welded through the tank from the front wall to the rear wall to allow for installing a rear pump intake hose line.		

Foam Tank, Poly

		YES	NO
098	A 25 Imp-Gal poly foam tank shall be installed. The tank shall sit at the front-right corner, integral to the water tank.		

Direct-Tank-Fill 4" (1)

		YES	NO
099	There shall be one (1) 4" Stainless Steel Direct-Tank-Fill Valve installed at the back of the poly tank. The valve shall include a spring-loaded plunger that opens automatically when pressure is applied, and closes automatically when pressure falls below 8psi. A 1/4-turn bleeder valve is included with a 30 degree x 4" Storz droop adapter and storz cap. * The location shall be on the Rear, Driver-Side of the apparatus *		

Body Sub-Frame

		YES	NO
100	The sub-frame shall consist of aluminium structural square tubing and aluminium structural rectangular tubing. Square tubing's shall extend outwards into the wheel well openings, in front of and behind the chassis rear wheels. These cross-members shall then be connected to the floor braces of the wheel well compartment floors with vertical structural members. This design shall transfer		

	body loads directly to chassis frame via the aluminium structure instead of welded joints resulting in exceptional strength. Rectangular tubing's shall extend full width from side to side at the front and the back of the body. The body compartments shall receive cut-outs, through which these structural tubing's shall insert, again resulting in body loads being transferred to the sub-frame via structure instead of welded joints. All other cross-members shall be rectangular tubing, welded rigidly to provide a high strength base for proper support of the poly water tank. The alloy shall be 6061-T6 and shall be welded by CWB (Canadian Welding Bureau) certified welders (or equivalent) using the semi-automatic mig welding process. The sub - structure shall be re-enforced with gussets in high stress areas. The sub-frame design shall include sufficient cross-members to ensure adequate water tank support.		

Body Aluminium - High-Side/High-Side

		YES	NO
101	The aluminium body shall be an Extruded Aluminium Body, consisting of aluminium extruded profiles. These aluminium profiles shall be produced from 6061 series aluminium alloy (or equivalent) and shall be of sufficient strength to carry the weight of the body & equipment. The extrusions shall transfer the body & equipment weights to the under-body sub-frame, which shall transfer directly to the chassis frame. This design eliminates any of the compartment walls from functioning as load-bearing members, which could result in body cracking. All extrusion joints shall be properly prepared/bevelled in advance of the welding process. All welding shall be performed by CWB certified welders. (or equivalent) The aluminium material shall be (3/16") 5052 (marine grade) (or equivalent) providing enhanced resistance to corrosion and high weld joint efficiencies. The body shall be computer modeled before construction ensuring correct configuration and geometry. Compartment floors shall receive tabs which when assembled, will insert into grooves cut into the compartment side walls. Tab and groove construction removes a high portion of stress loads from welded joints. Tab and Groove construction also eliminates double wall joints which can trap moisture and encourage corrosion. To prevent (oil canning) all compartment floors shall be re-enforced with a minimum of two (2) structural re-enforcements. All floors shall be of the sweep-out design allowing easy cleaning.		

Hose Bed

		YES	NO
102	A hose bed shall be fabricated at the top of the body. The width shall be approx 50", extending from the back wall of the left compartments to the back wall of the right compartments.		

Body to Chassis Frame Attachment

		YES	NO
103	The aluminium body shall be fastened to the chassis frame using engineered frame mounts. The attachment design shall allow for easy body removal should such a procedure become necessary.		

Rubber Isolator (Frame to Body)

		YES	NO
104	A full length/width of ¼" neoprene rubber shall be bonded to the chassis frame before the body is installed. This shall serve as an isolator for dissimilar metals.		

Compartment L1

		YES	NO
105	There shall be one (1) compartment on the left side ahead of the rear wheels. The rough opening shall be 44.0" wide x 66.5" high"		

Compartment L2

		YES	NO
106	There shall be one (1) compartment on the left side over the rear wheels. The rough opening shall be 66.0" wide x 34.5" high"		

Compartment L3

		YES	NO
107	There shall be one (1) compartment on the left side behind the rear wheels. The rough opening shall be 44.0" wide x 66.5" high"		

Compartment R1

		YES	NO
108	There shall be one (1) compartment on the right side ahead of the rear wheels. The rough opening shall be 44.0" wide x 66.5" high"		

Compartment R2

		YES	NO
109	There shall be one (1) compartment on the right side over the rear wheels, justified towards the back to allow space for a hydraulic ladder-rack towards the front. The rough opening shall be 47.0" wide x 34.5" high"		

Compartment R3

		YES	NO
110	There shall be one (1) compartment on the right side behind the rear wheels. The rough opening shall be 44.0" wide x 66.5" high"		

Coffin Compartment

		YES	NO
111	There shall be one (1) full-length coffin compartment installed at the left-side top of the body. The compartment shall include two (2) aluminium checker-plate covers, gas door assist springs, one (1) led light per door, one (1) door switch/ajar switch per door and floor tile.		

Spare Bottle Storage

		YES	NO
112	Provisions shall be fabricated into the body to allow for installation of a 4-position SCBA bottle storage assembly at each body fender.		

Bumper Body Rear

		YES	NO
113	There shall be a bumper installed at the back of the body. Heavy-duty steel plates shall be custom cut and formed to provide a rigid frame for the tailboard to attach to. The bumper support frame assembly shall be fully independent of the body frame and shall be fastened to the chassis frame rails with grade 8 bolts. The tailboard shall be formed from embossed aluminium polished checker plate to promote slip-resistance. A heavy aluminium channel shall be welded to the underside for additional support.		

Tow Eyes

		YES	NO
114	There shall be two (2) 1-1/4" chrome plated tow eyes installed at the back of the body. Independent brackets shall be used to attach the tow eyes to the frame rails. This is to prevent stresses from towing to transfer to the body & bumper mounting frames.		

Receiver Tube

		YES	NO
115	A receiver tube shall be installed beneath the back bumper.		

Fenderetts

		YES	NO
116	There shall be stainless steel fenderetts installed on the body wheel well skirts, fastened to the skirts with stainless steel hardware.		

Liners Wheel Well

		YES	NO
117	There shall be wheel well liners installed in each body wheel well. The liners shall be 3/16" non-corrosive ABS material. The liners are fastened with stainless steel hardware, nylon shoulder washers and corrosion control paste on the bolt holes.		

Mud Flaps

		YES	NO
118	There shall be heavy-duty mud flaps installed at the rear wheels, attached to the body with stainless steel hardware.		

Rub Rails Body

		YES	NO
119	There shall be anodized aluminium rub rails installed on the sides of the body, ahead of and behind the rear wheels. Plastic end caps shall be included on each end of the rub rails to provide a pleasing appearance. Stainless steel hardware shall be used to fasten the rub rails. Nylon shoulder washers are installed on each bolt, corrosion control paste is applied to each bolt hole prior to hardware insertion on the lower body.		

Steps Body Access Front Left

		YES	NO
120	There shall be flip-down steps installed at the front of the body to access the body and pumphouse top. The steps shall be chromed zinc-aluminium construction. In the down position, the steps shall offer a hand-hold to aid in accessing. A stainless steel kick panel shall be attached to the body above each step to protect body paint. * Five (5) on the left-side (driver-side) Stainless steel grab handles shall be installed as required.		

Stairway

		YES	NO
121	There shall be a collapsible stairway installed at the back center of the body to access the upper-body. The assembly in its deployed state, shall extend past the back bumper to provide an ergonomic angled stairway. The bottom portion shall hinge-up and neatly fold above the brake/tail/turn lights, collapsing into a vertical compact unit. An over-center latch is used to captivate for storage. The threads shall incorporate an aggressive thread pattern to offer secure slip-free footing. Handrails shall be attached to both upper stairway stringers for additional support. Additional Handrails are included at the top of hose bed. An embossed aluminum treadplate step/walkway shall be attached to the back-center of the body to allow users to step off the stairway and access the hose bed.		

Shelving Comp (L1)

		YES	NO
122	There shall be two (2) aluminium shelves installed in compartment L1, left front. The shelves shall be precision cut from 3/16" aluminium sheet, then polished and formed with a 2.5" vertical lip all around. All four corners of the shelve shall be left open for proper drainage. The shelves shall be installed in the compartment on four (4) vertically adjustable aluminium rails. Rubber interlocking floor tile shall be placed on the shelve.		

Shelving Comp (L3)

		YES	NO
123	There shall be two (2) aluminium shelves installed in compartment L3, left rear. The shelves shall be precision cut from 3/16" aluminium sheet, then polished and formed with a 2.5" vertical lip all around. All four corners of the shelve shall be left open for proper drainage. The shelves shall be installed in the compartment on four (4) vertically adjustable aluminium rails. Rubber interlocking floor tile shall be placed on the shelve.		

Shelving Comp (R1)

		YES	NO
124	There shall be two (2) aluminium shelves installed in compartment R1, right front. The shelves shall be precision cut from 3/16" aluminium sheet, then polished and formed with a 2.5" vertical lip all around. All four corners of the shelve shall be left open for proper drainage. The shelves shall be installed in the compartment on four (4) vertically adjustable aluminium rails. Rubber interlocking floor tile shall be placed on the shelve.		

Shelving Comp (R2) Over Wheel

		YES	NO
125	There shall be one (1) aluminium shelve installed in compartment R2, over the body right wheel and behind the hydraulic ladder rack. The shelve shall be precision cut from 3/16" aluminium sheet, then polished and formed with a 2.5" vertical lip all around. All four corners of the shelve shall be left open for proper drainage. The shelve shall be installed in the compartment on four (4) vertically adjustable aluminium rails. Rubber interlocking floor tile shall be placed on the shelve.		

Shelving Comp (R3)

		YES	NO
126	There shall be two (2) aluminium shelves installed in compartment R3, right rear. The shelves shall be precision cut from 3/16" aluminium sheet, then polished and formed with a 2.5" vertical lip all around. All four corners of the shelve shall be left open for proper drainage. The shelves shall be installed in the compartment on four (4) vertically adjustable aluminium rails. Rubber interlocking floor tile shall be placed on the shelve.		

Roll-Out Tray (L3)

		YES	NO
127	There shall be one (1) Slide-Master Roll-Out Tray installed, in body compartment L3, Left-Back-Of-Wheel. The slides shall be by SlideMaster with a 600lb capacity, 100% extension and include a lock-in and lock-out device. An aluminium tray with 2" up-turned flanges and rubber interlocking floor tile shall be included.		

Roll-Out Tray (R1)

		YES	NO
128	There shall be one (1) Slide-Master Roll-Out Tray installed, in body compartment R1, Right-Front-Of-Wheel. The slides shall be by SlideMaster, 100% Extension with a 600lb capacity, and include a lock-in and lock-out device. An aluminium tray with 2" up-turned flanges and rubber interlocking floor tile shall be included.		

Roll-Out Tray (R3)

		YES	NO
129	There shall be one (1) Slide-Master Roll-Out Tray installed, in body compartment R3, Right-Back-Of-Wheel. The slides shall be by SlideMaster with a 600lb capacity, 100% extension and include a lock-in and lock-out device. An aluminum tray with 2" up-turned flanges and rubber interlocking floor tile shall be included.		

Tool Board

		YES	NO
130	A Pac-Pro Tool Board Storage System shall be installed in the driver-side body wheel compartment. The tool board shall consist of one (1) fixed back wall PAC-TRAC tool mount panel and two (2) swing-out panels with spring-loaded latches.		

Spare Bottle Storage

		YES	NO
131	There shall be Eight (8) Spare SCBA Bottle storage system installed, Four (4) per side at the body fenders. The system shall be of aluminium & poly design to prevent bottle scarring and the doors stainless to prevent corrosion.		

Tool Storage Drawer(s)

		YES	NO
132	There shall be a 2-Drawer Tool Storage assembly installed on the floor of compartment L1, Left-Front-Of-Wheel. The storage system shall be fabricated from aluminium sheet. Heavy-Duty		

	ball-bearing slides shall be used for the drawers. Dividers are included to insert as desired for compartment sizing.		

Hose Bed Flooring

		YES	NO
133	The top of the poly tank shall be grooved to allow for drainage forward and backward. Any additional hose bed space in addition to the poly tank surface shall be fitted with interlocking floor tile.		

Hose Bed Divider

		YES	NO
134	There shall be two (2) hose bed dividers installed in the upper hose bed. The dividers shall be produced from 3/16" aluminium sheet, and formed for rigidity. The top of the divider shall have a flange, providing a flat surface for support for the hose bed tarp.		

Cover Hose Bed (Alum Checker)

		YES	NO
135	There shall be two (2) Aluminium Checkerplate Hose Bed covers installed, one (1) on each side of the hose bed. The checker-plate shall be NFPA compliant skid-resistant embossed material. The covers shall be hinged full-length with stainless steel piano hinge. Gas springs shall be included to support the covers in the open position. Black Vinyl flaps are attached to the back of each hose bed cover to prevent deployment of hose. Bungee Cord is attached to the bottom of each tarp for securement purposes.		

Rollup Doors

		YES	NO
136	Compartment doors shall be equipped with AMDOR® brand roll-up doors complete with the following features: - 1" aluminum double wall slats with continuous ball & socket hinge joint designed to prevent water ingression and weather tight recessed dual durometer seals - Double wall reinforced bottom panel with stainless steel lift bar latching system - Bottom panel flange with cut-outs for ease of access with gloved hands - Reusable slat shoes with positive snap-lock securement - Smooth interior door curtain to prevent equipment hang-ups - One-piece aluminum door track side frame - Top gutter with non-marring seal - Non-marring recessed side seals with UV stabilizers to prevent warping - Dual leg bottom seal (wear component material to be Type 6 Nylon) - Door ajar switch system (magnetic) shall be provided by AMDOR. - Door striker will provide support beneath the lift bar to prevent door curtain bounce and potential false door ajar indications. ** Heavy-Duty flex pull-down door straps shall be included **		

Storage System, Ladder Rack OS

		YES	NO
137	There shall be a Ziamatic Hydraulic Ladder Storage Rack installed on the body, at the officer-side wheel well, justified forward. This ladder storage system carries the ladders over-top of the right-side body in a ladder-horizontal position. The storage system shall be operated electrically, from the officer-side pump panel. An Up/Down toggle switch shall be installed. A self-contained hydraulic pump & cylinder shall actuate the system from, vertical for storage to horizontal for accessing the ladder. An mechanical safety latch shall be included to latch system in the stored position. Two (2) amber LED flashing lights shall be included, one at the front and one at the back of the ladder storage cradle. These lights shall automatically turn-on when the rack moves from its stored position. A "Do Not Move" lamp shall illuminate whenever the system is not in its stored position.		

Lightbar

		YES	NO
138	A Whelen Edge® Ultra Freedom IV™ Series features advanced Linear Super-LED optics, DYADTM two level technology, WCX Series 60" NFPA V-END lightbar model # K420VLR shall be installed on the roof of the chassis cab. The K420VLR lightbar shall incorporate an anodized extruded heavy duty aluminium base and cover chassis with two front and rear red corner modules, two interior white modules, and two interior red modules. The front and rear of each corner module shall consist of 12 red Linear Super-LEDs installed on a conformal coated PCB board with a thermal pad/aluminium bracket heat sink assembly. The long red interior Linear Super-LED lights shall incorporate 12 red Super-LED installed on a conformal coated PCB board with a thermal pad/aluminum bracket heat sink assembly. The long white interior Linear Super-LED lights shall incorporate 12 white Super-LEDs installed on a conformal coated PCB board with a thermal pad/aluminium bracket heat sink assembly. All modules will utilize a Diamond Optix™ metalized reflector and two optic collimators. All electronic components shall be conformal coated to provide additional protection. The outer lens construction shall consist of two clear Uni-Dome top lenses with a clear center lens and utilize two liquid injection moulded wiper seal dividers for maximum protection against environmental elements. Metal top shields installed on the Uni-Domes and center lens shall provide protection from climatic conditions and provides passive solar radiation to direct heat away from internal components. The K420VLR shall have an electronic WCX I/O board. The solid state I/O board shall be microprocessor controlled. The I/O board shall have built-in reverse polarity protection and output-short protection. The I/O board shall have the ability to flash twenty two Super-LED warning lights. There shall be a data bank of flash patterns that can be programmed through CORE, COR-R or CCP including steady burn with low power and cruise light functions. The cruise light function shall allow the user the four corner modules as marker courtesy lights. The F4N0VLED will have the capability to install a traffic advisor in the rear of the lightbar. The I/O board shall also have outputs to add takedown, alley lights, and auxiliary lights for each set of lights to be controlled in pairs. All lightheads shall be installed in the K420VLR with the aid of		

	black polycarbonate snap-in mounting brackets. The solid state lightbar shall be vibration resistant. The lightbar will contain a 17' 2/c 8GA unterminated power cable and 17' 3/c 22GA unterminated WCX network control cable. All electronic components are covered by a Lifetime factory warranty. The K420VLR shall include a permanent mount kit with hardware. Optional photocell available to automatically dim the K420VLR at night. Up to six additional front inboard lights, mount kits, and driver side cable can also be installed. Optional color lens filters available in blue, red, and amber. Optional smoked lenses also are available. The clear flashers shall automatically turn-on with the master lighting switch on and the park brake released. They shall automatically turn-off when the park brake is applied when arriving on scene. Clear flashing lights per NFPA are to be used only when "calling for right of way" (responding to a call) and shall be turned-off when "blocking right of way" at an emergency scene. - Lightbar shall have smoked lenses installed		

Additional Lightbar Warning Lights

		YES	NO
139	Two (2) additional RED LED Warning Lights shall be installed facing-forward on the lightbar, for a total of four (4) RED and two (2) CLEAR.		

Alley Lights

		YES	NO
140	Two (2) Clear LED alley lights shall be included, one (1) at each end of the lightbar.		

Scene Light, Lightbar

		YES	NO
141	A Whelen model# PCH2F41 LED combination spot/flood scene light (20,260 lumens) shall be installed front center of the lightbar. This light shall be switched at the chassis dash panel.		

Whelen V2V Module

		YES	NO
142	Whelen Vehicle-to-Vehicle sync shall be installed in lightbar. This feature automatically synchronizes lights and tones on vehicles within any proximity to aid approaching vehicles. This provides a calmer scene for passing motorists.		

Whelen Cencom-CORE

		YES	NO
143	A Whelen CAN-based power distribution system shall be installed. Whelen is redefining control systems with CenCom Core. With the greatest configurability, speed, and expansion yet, CenCom Core is a system created to enhance officer safety with advanced automation and remote connectivity. At the heart of		

	CenCom Core™ is Whelen's newest software, Whelen Command. Featuring an advanced user interface, Command is engineered to streamline the entire programming process and quickly provide updates and new releases. Command can process over 65,000 virtual inputs. Command features Situation-Based Integration and Events. With Situation-Based Integration, scene-specific functions can be created and automated, utilizing various vehicle components and signals. With Events, multiple user-defined rules can be created for specific situations and can be dependent on the state of your vehicle.		

Whelen Scan Port

		YES	NO
145	A Whelen C399SP scan port kit shall be included.		

Warn/Scene Lights Rear-Upper

		YES	NO
146	Two (2) Whelen M9 Series Model # M9V2R Warning/Scene lights shall be installed, at the body rear upper, one (1) on each side. The Lights shall be installed on polished checker-plate Pods. The M9V2R shall incorporate Linear Super-LED® and Smart LED® technology. The configuration of the M9V2R shall be a M9 V-series red warning light and a perimeter light with a split red/clear non-optic polycarbonate lens. The warning light shall consist of four PC boards containing three red Super-LEDs on each PC board. The warning light PC boards will be installed on a V-shaped mounting bracket. Two sets of three red Super-LEDs shall be installed on the main PC board to the left and right sides of The V-shaped bracket. Clear V-shaped optic collimator and metalized reflector will be installed over the PC boards for maximum illumination. The scene light shall consist of 18 white Super-LEDs installed on the main PC board. The scene light will be furnished with a clear optic collimator and metalized angled reflector for supreme radiance. The warning light shall include an internal flasher with 25 Scan-Lock™ flash patterns including low power and steady burn. The M9V2R shall also be provided with a synchronize feature. The M9V2R warning light shall meet KKK 1822F, NFPA 1901, and NFPA 1917 specifications. The M9V2R perimeter light shall meet AMD 024 with two M9V2R on each side of the vehicle and NFPA 13.10.1.2 for one M9V2R up to six feet. The lens/reflector assembly shall be sealed and resistant to water, moisture, dust, and other environmental conditions. The hard coated lens shall provide extended life/luster protection against UV and chemical stresses. The light engine shall be installed at the rear of the unit and be vacuum tested to ensure proper sealing. The PC boards shall be conformal coated for additional protection. The M9V2R shall be furnished with 12"unterminated pigtails. Rubber gasket, screws, and screw grommets shall be included for installation. The M9V2R, with the aid of two screws, shall have the ability to be installed as a surface mount light. The warning light is covered by a five year factory warranty. Additional mounting options are purchased separately.		

Warn Lights Mid Rear

		YES	NO
147	Two (2) Whelen, M9 Series, model# M9R RED LED warning lights shall be installed at the back mid body area, one (1) on the left and one (1) on the right side of the body. The warning lights shall incorporate Linear Super-LED® and Smart LED® technology. The M9R configuration shall consist of 24 red Super-LEDs and a red optic polycarbonate lens. The warning lights, with the aid of two screws, shall have the ability to be installed as a surface mount warning light. The M9R shall utilize optic collimators and a metalized reflector for maximum illumination. The warning light shall include an internal flasher with 164 Scan-Lock™ flash patterns including a variety of CA Title 13 compliant patterns, left/right, top/bottom, in/out, and steady burn. The M9R shall also provide synchronize and low power features. The warning light shall meet KKK 1822F, NFPA 1901, and SAE specifications. The lens/reflector assembly shall be sealed and resistant to water, moisture, dust, and other environmental conditions. The hard coated lens shall provide extended life/luster protection against UV and chemical stresses. The light engine shall be installed at the rear of the unit and be vacuum tested to ensure proper sealing. The PC board shall be conformal coated for additional protection. The M9R shall be furnished with 6" unterminated pigtails, a rubber gasket, screws, and screw grommets shall be included for installation. The warning light is covered by a five year factory warranty. The warning lights shall be switched with the"Upper Level" warning light circuit.		

Warn/Scene Lights Body-Sides-Upper

		YES	NO
148	Four (4) Whelen M9 Series Model # M9V2R Warning/Scene lights (red lens) shall be installed, at the body sides upper panels, two (2) on each side, one (1) at front & one (1) at back. The M9V2R shall incorporate Linear Super-LED® and Smart LED® technology. The configuration of the M9V2R shall be a M9 V-series red warning light and a perimeter light with a split red/clear non-optic polycarbonate lens. The warning light shall consist of four PC boards containing three red Super-LEDs on each PC board. The warning light PC boards will be installed on a V-shaped mounting bracket. Two sets of three red Super-LEDs shall be installed on the main PC board to the left and right sides of The V-shaped bracket. Clear V-shaped optic collimator and metalized reflector will be installed over the PC boards for maximum illumination. The scene light shall consist of 18 white Super-LEDs installed on the main PC board. The scene light will be furnished with a clear optic collimator and metalized angled reflector for supreme radiance. The warning light shall include an internal flasher with 25 Scan-Lock™ flash patterns including low power and steady burn. The M9V2R shall also be provided with a synchronize feature. The M9V2R warning light shall meet KKK 1822F, NFPA 1901, and NFPA 1917 specifications. The M9V2R perimeter light shall meet AMD 024 with two M9V2R on each side of the vehicle and NFPA 13.10.1.2 for one M9V2R up to six feet. The lens/reflector assembly shall be sealed and resistant to water, moisture, dust, and other environmental conditions. The hard coated lens shall provide extended life/luster protection against UV and chemical stresses. The light engine shall be		

	installed at the rear of the unit and be vacuum tested to ensure proper sealing. The PC boards shall be conformal coated for additional protection. The M9V2R shall be furnished with 12"unterminated pigtails. Rubber gasket, screws, and screw grommets shall be included for installation. The M9V2R, with the aid of two screws, shall have the ability to be installed as a surface mount light. The warning light is covered by a five year factory warranty. Additional mounting options are purchased separately.		

Warn Lights, Chassis Bump-Ext

		YES	NO
149	Two (2) Whelen M6 Series Model# M6R Red Warning Lights (with Red Lens) shall be installed, one (1) each side of the front bumper extension face. Chromed bezels are included. Weatherproof electrical connectors shall be used to connect the flashers to the apparatus harness. - The lights shall be switched with the "Lower Level" warning light circuit		

Warn Lights, Chassis Bump-Ext LR

		YES	NO
150	Two (2) Whelen M6 Series Model# M6R Red Warning Lights (with Red Lens) shall be installed, at the chassis extended front bumper extension winglets, one (1) on each side. Chromed bezels are included. Weatherproof electrical connectors shall be used to connect the flashers to the apparatus harness. - The lights shall be switched with the "Lower Level" warning light circuit		

Warn Lights Body Fenders

		YES	NO
151	Two (2) Whelen M6 Series Model# M6R Red Warning Lights (with Red Lens) shall be installed, at the body fenders, one (1) on each side. Chromed bezels are included. Weatherproof electrical connectors shall be used to connect the flashers to the apparatus harness. - The lights shall be switched with the "Lower Level" warning light circuit		

Warn Lights, Body-Rear-Lower

		YES	NO
152	Two (2) Whelen M6 Series Model #M6R Red LED Warning Lights (with Red Lens) shall be installed, at the body rear lower panels, one (1) on each side. Chromed bezels are included. Weather proof electrical connectors shall be used to connect the flashers to the apparatus harness. The M6R warning lights shall incorporate Linear Super-LED® and Smart LED® technology. The M6R configuration shall consist of 18 red Super-LED's and a red optic polycarbonate lens. The warning light, with the aid of two screws, shall have the ability to be installed as a surface mount warning light. The M6R shall utilize optic collimators and a metalized reflector for maximum illumination. The warning lights shall include an internal flasher with 164 Scan-Lock™ flash		

	patterns including a variety of CA Title 13 compliant patterns, left/right, top/bottom, in/out, and steady burn. The M6R shall also provide synchronize and low power features. The M6R shall meet KKK 1822F, NFPA 1901, SAE and EC65 specifications. The lens/reflector assembly shall be sealed and resistant to water, moisture, dust, and other environmental conditions. The hard coated lens shall provide extended life/luster protection against UV and chemical stresses. The light engine shall be installed at the rear of the unit and be vacuum tested to ensure proper sealing. The PC board shall be conformal coated for additional protection. The M6R shall be furnished with 6"unterminated pigtails, a rubber gasket, screws, and screw grommets shall be included for installation. The warning light is covered by a five year factory warranty. These warning lights shall be installed in a vertical polished bezel with the brake/tail/turn lights and shall be switched with the "Lower Level" warning light circuit.		

Traffic Advisor

		YES	NO
153	The WeCanX 2240 Warning Light Array and Traffic Advisor packs more power into a sleeker design with a wide variety of light configurations to meet your needs. Combining the performance and reliability of our powerful ION™ T-Series™ lightheads with the customization and control of WeCanX, its versatility makes it an ideal lighting solution for a wide range of applications. WeCanX 2240 is slimmer than our 4500 Series, provides warning options, and allows aerial recognition. Angled end caps create a unique multi-angled light spread, and snap-in assembly allows lightheads to be easily removed for customization and field serviceability. Whelen Command® enables endless configurations, and lighthead placements are easily arranged within WeCad™. Shall be configured with DUO Red/Amber lightheads. 40.0" long, 8 lightheads & 2 angled end caps.		

Wig-Wag Headlamps

		YES	NO
154	The chassis manufacturer shall install a wig-wag headlamp system. The system shall operate only with park brake released and low beams, not high beams. Upon arriving on-scene, the wig-wags shall turn-off when the park brake is engaged. The Wig-Wags shall be supplied the chassis manufacturer.		

Siren System

		YES	NO
155	A Whelen Cencom CORE siren and light control system shall be provided and installed in the cab console. The Cencom Core has the ability to control the warning lights, scene lights, traffic advisor, and siren from a single keypad.		

Siren Speaker

		YES	NO
156	There shall be one (1) Whelen SP123BMC 100-watt Siren Speaker installed at the front bumper. A Chrome bezel shall be included.		

DOT Lamps

		YES	NO
157	There shall be a set of Whelen LED M6 Brake/Tail/Turn/Back-up Lamps installed in a polished 4-place vertical bezel at the back of the apparatus. The top lamp on each side, shall be an amber arrow for turn function, the second position a red brake lamp, the third position a clear back-up lamp and the lower position a red flasher.		

Clearance Lamps

		YES	NO
158	Five (5) Red LED clearance lamps shall be installed on the back bumper, one (1) on each corner and three (3) on center of the bumper. Four (4) Red LED clearance lamps shall be installed at the back-top of the body sides, two (2) facing sideways and two (2) facing backwards. One (1), Red LED 3-lamp ID bar shall be installed at the top center of the body. This ID bar shall include a 3rd upper brake lamp. There shall be two (2) Amber LED turn signal/clearance lamps installed, one (1) on each side at the body fenders. Six (6) Amber LED clearance lamps shall be installed on the TME sides. Two (2) facing forward at the top front, one (1) each side. Two (2) facing sideways on each side at the top, one (1) at the front and one (1) at the back.		

License Plate Lamp

		YES	NO
159	There shall be a stainless steel bracket installed at the back of the body to carry a license plate. The top of the bracket shall have a formed lip to protect an LED lamp, installed to illuminate the license plate.		

Scene Lights Body-Rear

		YES	NO
160	There shall be two (2) Whelen Pioneer Plus Series Model #PFH2 12-volt LED scene lights installed, at the body-rear. Output shall be rated at 20,261 lumens. The scene lights shall be installed on telescopic poles to allow for horizontal & vertical rotation, raising & lowering. The switches shall be installed at the cab dash switch panel, to activate the lights.		

Scene Lights TME

		YES	NO
161	There shall be two (2) Whelen Pioneer Plus™ Model # PFH2PB LED scene lights installed, one (1) each side on top of the TME. The lights shall be installed on tele-scopic poles with the ability to raise/lower them from inside the TME, and shall be switched at the pump operators panel, individually. The 168 watt +12v DC Pioneer lighthead shall incorporate Super-LED® dual flood light installed in a die-cast white powder coated aluminum housing. The PFH2 configuration shall consist of 60 white Super-LEDs with a clear optic collimator/metalized reflector assembly and a clear non-optic polycarbonate lens. The Pioneer flood light shall have 16,000 usable lumens. The lens/reflector assembly shall utilize a liquid injected molded silicone gasket to be resistant to water, moisture, dust, and other environmental conditions. The hard coated lens shall provide extended life/luster protection against UV and chemical stresses. The PFH2 shall be shall be vibration resistant. The Pioneer™ PC boards shall be conformal coated for additional protection. Two breathable membrane patches shall be installed to the bottom of the housing to maintain a consistent internal pressure. The PFP2 shall have extended LED operation with low current consumption and low operating temperature. The Pioneer light shall be SAE 1113-42 compliant and Class 5 testing for EMI. The PFH2 is covered by a five year factory warranty. Mounting options are purchased separately.		

Pumphouse Lights Ext

		YES	NO
162	The following strip lights shall be installed at the pump-house: * one (1) 57" LED Strip Light installed below a glare shield to illuminate the pump operator control panel * two (2) 36" LED Strip Lights installed one above each side pump-house panel * two (2) LED lights installed one each side of the TME at the exterior compartments beneath the SCBA seats The strip lights shall be white and produce 150 lumens of light per 4.5" section. This strip light comes with lifetime warranty. The lights shall be switched at the pump operators panel.		

Step Lights Chassis

		YES	NO
163	There shall be four (4) Tecniq LED step lights installed, two (2) each side at the chassis cab entry steps. These lights shall turn-on automatically when a cab door is opened and are also switched by a cab dash switch.		

Step Lights Pump Walk-Way

		YES	NO
164	There shall be two (2) Tecniq LED step lights installed, one (1) each side at the pump operators walk-way. These lights shall be switched by a pump operators panel switch.		

Step Lights Body Front Left

		YES	NO
165	There shall be one (1) Tecniq LED step light installed at the front of the body on the left side to illuminate front of body access steps. These lights shall be switched by a cab dash switch.		

Step Lights Rear

		YES	NO
166	There shall be three (3) Tecniq D07 LED step lights installed at the back of the body to illuminate the ladder and bumper surface. Each led light is rated at 240 lumens. The lights shall be installed on the back wall centered on each side compartment back panel. ** The lights shall be activated with the ground lights **		

Ground Lights Front Bumper

		YES	NO
167	There shall be two (2) Tecniq LED ground lights installed, one (1) each side beneath the front bumper to illuminate the ground. These lights shall turn-on automatically when a cab door is opened and are also switched by a cab dash switch.		

Ground Lights Chassis Cab Steps

		YES	NO
168	There shall be two (2) Tecniq LED ground lights installed, one (1) each side beneath each cab entry step to illuminate the ground. These lights shall turn-on automatically when a cab door is opened and are also switched by a cab dash switch.		

Ground Lights TME

		YES	NO
169	There shall be two (2) Tecniq LED ground lights installed, one (1) each side beneath each TME entry step to illuminate the ground. These lights shall turn-on automatically when a cab door is opened and are also switched by a cab dash switch.		

Ground Lights Pump House

		YES	NO
170	There shall be two (2) Tecniq LED ground lights installed, one (1) each side beneath each pump house step to illuminate the ground. These lights shall turn-on automatically when a cab door is opened and are also switched by a cab dash switch.		

Ground Lights Body-Front

		YES	NO
171	There shall be two (2) Tecniq LED ground lights installed, one (1) each side beneath the front of body to illuminate the ground. These lights shall turn-on automatically when a cab door is opened and are also switched by a cab dash switch.		

Ground Lights Back-Bumper

		YES	NO
172	There shall be two (2) Tecniq LED ground lights installed, one (1) each side beneath the back bumper to illuminate the ground. These lights shall turn-on automatically when a cab door is opened and are also switched by a cab dash switch.		

Interior Lights Front Bumper Comp

		YES	NO
173	There shall be two (2) Tecniq LED interior lights installed, at the front chassis grille to illuminate the front bumper extension/compartment. - The lights shall be switched by the ground light switch circuit		

Interior Lights TME

		YES	NO
174	There shall be two (2) Tecniq Red/Clear LED interior lights installed, one (1) each side above the doors at the interior of the TME. The clear lights shall be switched by a door switch at each door and by a switch at the pump operators panel. The Red lights shall be switched at the pump operators panel.		

Interior Lights Pump House

		YES	NO
175	There shall be two (2) Tecniq SteelHead LED work lights installed, one (1) each side at the pump house compartment to illuminate the pump house. Each lamp shall be rated at 750 lumens. The switch shall be installed at the pump control panel.		

Interior Lights, Speedlay/Dry Storage

		YES	NO
176	Two (2) LED lights shall be installed inside each speed-lay access door, one (1) on the left and one (1) on the right. Shall come on with the ground lights.		

Interior Lighting Body-Compartments

		YES	NO
177	All body compartments shall be illuminated by LED strip lighting inserted into the back of the vertical rollup door tracks. One (1) full height strip shall be included on each side of the door opening. The lighting shall turn-on by a magnetic door switch whenever the door is in the open position.		

Interior Lights Hose Bed

		YES	NO
178	There shall be four (4) Tecniq LED interior lights installed, two (2) on the under-side of each hose-bed cover to illuminate the hose bed. - Door-Ajar sensors shall be included		

Ladder Extension

		YES	NO
179	There shall be a Series 900-A 24' Duo-Safety Aluminium Extension Ladder supplied.		

Ladder Roof

		YES	NO
180	There shall be a Series 775-A 12' Duo-Safety Aluminium Roof Ladder supplied.		

Ladder Folding

		YES	NO
181	There shall be a Series 585-A, 10' Duo-Safety Folding Aluminium Ladder supplied. The ladder shall be fastened to the Zico Ladder Rack with rubber PAC tool mounts.		

Suction Hose

		YES	NO
182	There shall be two (2) 6" x 10' lengths of lightweight suction hose supplied with the apparatus. Rigid Long-Handle Female/Male NH Couplings are included.		

Strainer

		YES	NO
183	There shall be a 6" NH Basket Strainer supplied with the apparatus.		

Fire Hose

		YES	NO
184	The following fire hose shall be supplied: * Qty (16) - 2.5" x 50' DBL JKT Niedner ALTRA 3D, Yellow * Qty (8) - 1.75" x 50' DBL JKT Niedner 3D HD, Yellow * Qty (4) - 1.0" x 50' QT Cplgs, ALTRA 187, White		

Pike Poles

		YES	NO
185	There shall be two (2) 10' Fibreglass D-Handled Leatherhead Pike Poles supplied with the apparatus. Two (2) rubber PAC tool mounts shall be included. * The pike pole mounts shall be attached to the Hydraulic Ladder Rack *		

Wheel Chocks

		YES	NO
186	There shall be Two (2) Rubber Wheel Chocks supplied with the apparatus.		

Spanner Wrench Set

		YES	NO
187	There shall be two (2) sets of (2) aluminium spanner wrenches with bracket installed, one (1) each at the driver & officer-side pump panels.		

Storz Wrench Set

		YES	NO
188	There shall be one (1) Aluminium Storz Wrench Set installed at the Officer-Side pump panel for use with the storz discharge adapters.		

Adapters

		YES	NO
189	There shall be two (2) 6" F NH x 30 degree x 4.0" Storz adapters with 4.0" Storz Caps installed at the Driver & Officer-Side 6" Pump Intakes. There shall be one (1) 5” F NH x 30 degree x 4” Storz adapter with a 4.0” Stroz Cap installed a the rear intake.		

Body Underside Coating

		YES	NO
190	There shall be a rubberized undercoat applied to the underside of the body. This coating offers excellent abrasion protection, sound deadening and corrosion protection.		

Paint Body Compartments

		YES	NO
191	The body compartment interiors shall be coated with the following paint process: * all interior surfaces shall have an acid-etch solution applied, then pressure washed/cleaned * one coating of Zolatone Silver primer shall then be applied * all compartment seams shall be caulked to prevent leakage * a top-coat of Zolatona Silver-Grey speckle-coat shall be applied		

Paint Process Body

		YES	NO
192	High Quality Urethane paint will be applied, to provide a high luster and long lasting paint finish, per the following process: * the structure to be painted will have all hardware removed to ensure that all areas are protected by paint * an acid-etch solution shall be applied and thoroughly pressure washed/cleaned * the body shall then be rinsed with reverse-osmosis water * all areas not requiring paint are then masked * all joints/seams that require body work shall have body filler compound material applied and then sanded * all seams are then caulked for sealing purposes * High-Build PPG epoxy primer is applied * Cabinet interiors are then sprayed with speckle/texture coat. * the exterior body surface to be painted, shall then be sanded * all sanded areas are then thoroughly wiped down multiple times with a cleaning solution, and then tacked * every front facing side of the body, and high wear areas are masked and bedliner is applied for enhanced durability. * two (2) coats of PPG urethane single-stage color are applied over the bedliner area and smooth paint areas to ensure a sealed-off paint coat around the apparatus. The front face of the TME & Body shall be coated with a box-liner coating for enhanced durability.		

Paint Chassis Cab

		YES	NO
193	The chassis cab shall be painted Two-Tone, BLACK Upper & RED Lower. ** Shall be color matched to Fire Depts existing apparatus **		

Paint, TME

		YES	NO
194	The TME shall be painted Two-Tone, BLACK Upper & RED Lower.		

Paint Body

		YES	NO

195	The body shall be painted Two-Tone, BLACK Upper & RED Lower.		

Chevron Red/Yellow-Green

		YES	NO
196	There shall be Reflexite Red & Yellow-Green 6" reflective chevron striping installed on the back of the body. The design shall have the striping applied outwards & downwards at a 45 degree angle from the centerline of the body. The colors shall be applied alternately. The entire back of the body shall be covered.		

Reflective Striping

		YES	NO
197	There shall be "White" Reflexite V-92 Reflective Striping installed on the front & sides of the apparatus per NFPA 1901. The side design shall feature a 6" stripe running mid-body and a second 1" stripe applied beside the 6" stripe, spaced 1/2" apart. A "Z" pattern shall be applied at the body front door. The 1" stripe shall be applied above the 6" stripe at the chassis cab and transition through the "Z" pattern to the bottom of the 6" stripe applied to the body. A proof shall be sent to the Fire Dept for approval before installation.		

Decals

		YES	NO
198	There shall be a total of six (6) Fire Department Door Decals installed apparatus. Two (2) on the chassis cab doors and four (4) on the apparatus body The decal design shall be provided or approved by the Fire Dept. The material shall be Regular Reflective Vinyl. A proof shall be sent to the Fire Dept for approval before installation.		

Apparatus Final Test

		YES	NO
199	The apparatus shall be subjected to a final inspection and 3rd party pump tested to the latest ULC standard. A non-affiliated organization shall perform the test with calibrated testing equipment. A label shall be engraved and attached to the pump operators panel, to indicate that the apparatus met the required performance criteria.		

Apparatus Labels

		YES	NO
200	The following labels shall be applied to the apparatus: - NSM - National Safety Mark - Apparatus Fluids Plate - Apparatus GVWR, Length, Height Label - Warning - Apparatus Seating Capacity - Warning - Occupants Must be Seated and Belted - Warning - Do Not Wear Helmets While Riding - Warning - Only Trained Operators to Operate Apparatus - Warning - Hot Exhaust - Warning - Step Fall Hazard - Warning - Do Not Ride on Step when Apparatus in Motion		

Apparatus Drawing

		YES	NO
201	A 2-dimensional drawing of the proposed apparatus shall be provided with the bid spec with the following views: Front, Right, Rear, Left & Top Views		

Manual

		YES	NO
202	There shall be two (2) operation &maintenance manuals included with the apparatus. The manuals shall be electronic on USB cards.		

Warranty

		YES	NO
203	A warranty policy shall apply to the apparatus. The policy shall include 2-year bumper to bumper coverage. All private labelled products (ex. Chassis, Fire Pump, Poly Tank, Emergency Lighting etc.) shall be covered by their respective manufacturer's warranty policies. ** A detailed list of Warranties shall be included with the bid submission.		

Apparatus Service Center

		YES	NO
204	The apparatus warranty and serviced shall be performed by: Service Center_____ Location: _____		

Apparatus Delivery & Training

		YES	NO
205	The completed apparatus shall be subject to a final inspection. It shall then be delivered to the customers facility under its own		

power. An authorized company representative shall deliver the apparatus and perform operational training to the Fire Department upon arrival.		