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PUMPER FIRE APPARATUS - BID SPECIFICATIONS

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
AA6-003	DOMICILED, CANADA (OTHER THAN QUEBEC)		
99D-027	EPA CLEAN IDLE LABEL - (INCLUDES 6X4 INCH LABEL ON LOWER FORWARD OF DRIVER DOOR)		
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 27000.0 lbs		
A63-99D	EXPECTED GROSS VEHICLE WEIGHT CAPACITY 41600.0 lbs		

Truck Service

		YES	NO
AA3-003	TANK BODY		
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		



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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-004	PTO MODE ENGINE RPM LIMIT - 850 RPM		
79P-011	PTO RPM WITH CRUISE SET SWITCH - 825 RPM		
79W-008	ONE PTO SPEED VIA DASH SWITCH		
79X-021	PTO SPEED 1 SETTING - 825 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 SWITCH 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		
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		



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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		
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 TIRES		
28F-014	ENGINE AFTERTREATMENT DEVICE, AUTOMATIC OVER THE ROAD REGENERATION AND VIRTUAL REGENERATION REQUEST SWITCH IN CLUSTER		
239-001	STANDARD EXHAUST SYSTEM LENGTH		
237-022	RH HORIZONTAL TAILPIPE, EXIT FORWARD OF REAR		
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		
242-998	NO MUFFLER/TAILPIPE SHIELD		
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		
120-998	NO COOLANT 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		



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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
343-331	ALLISON VOCATIONAL PACKAGE 198 - AVAILABLE ON 3000/4000 PRODUCT FAMILIES WITH VOCATIONAL MODEL EVS		
84B-003	ALLISON VOCATIONAL RATING FOR FIRE TRUCK/EMERGENCY VEHICLE APPLICATIONS AVAILABLE WITH ALL PRODUCT FAMILIES		
84C-022	PRIMARY MODE GEARS, LOWEST GEAR 1, START GEAR 1, HIGHEST GEAR 5, AVAILABLE FOR 3000/4000 PRODUCT FAMILIES ONLY		
84D-022	SECONDARY MODE GEARS, LOWEST GEAR 1, START GEAR 1, HIGHEST GEAR 5, AVAILABLE FOR 3000/4000 PRODUCT FAMILIES ONLY		
84E-000	PRIMARY SHIFT SCHEDULE RECOMMENDED BY DTNA AND ALLISON, THIS DEFINED BY ENGINE AND VOCATIONAL USAGE		
84F-000	SECONDARY SHIFT SCHEDULE RECOMMENDED BY DTNA AND ALLISON, THIS DEFINED BY ENGINE AND VOCATIONAL USAGE		
84G-000	PRIMARY SHIFT SPEED RECOMMENDED BY DTNA AND ALLISON, THIS DEFINED BY ENGINE AND VOCATIONAL USAGE		
84H-000	SECONDARY SHIFT SPEED RECOMMENDED BY DTNA AND ALLISON, THIS DEFINED BY ENGINE AND VOCATIONAL USAGE		
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		



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353-075	QUICKFIT BODY LIGHTING CONNECTOR AT END OF FRAME, WITH CAP		
34C-011	ELECTRONIC TRANSMISSION WIRING TO CUSTOMER INTERFACE CONNECTOR		
362-2JT	CUSTOMER INSTALLED CHELSEA 281 SERIES PTO		
363-001	PTO MOUNTING, LH SIDE OF MAIN TRANSMISSION ALLISON		
341-018	MAGNETIC PLUGS, ENGINE DRAIN, TRANSMISSION DRAIN, AXLE(S) FILL AND DRAIN		
345-078	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		

Front Axle and Equipment

		YES	NO
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		



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619-005	MAINTENANCE FREE RUBBER BUSHINGS - FRONT SUSPENSION		
62H-010	FRONT SUSPENSION WITH LEFT HAND OFFSET SHACKLE BRACKET		
410-001	FRONT SHOCK ABSORBERS		

Front Axle and Equipment

		YES	NO
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 REAR AXLE LUBE		

Rear Suspension

		YES	NO
622-1DH	31,000# FLAT LEAF SPRING REAR SUSPENSION WITH RADIUS ROD FOR FIRE/EMERGENCY SERVICE		
621-001	SPRING SUSPENSION - NO AXLE SPACERS		
431-001	STANDARD AXLE SEATS IN AXLE CLAMP GROUP		
623-005	FORE/AFT CONTROL RODS		



Pusher / Tag Equipment

		YES	NO
429-998	NO PUSHER/TAG BRAKE DUST SHIELDS		

Brake System

		YES	NO
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		
479-003	AIR DRYER MOUNTED INBOARD ON LH RAIL		
460-001	STEEL AIR BRAKE RESERVOIRS		
	* OUT SIDE RAILS CLEAN= 3" BOC TO 108" BOC. NO CROSSMEMBERS = 6" BOC TO 44"BOC		
477-004	PULL CABLES ON ALL AIR RESERVOIR(S)		

Wheelbase & Frame

		YES	NO
545-635	6350MM (250 INCH) WHEELBASE		
546-123	8.0MM X 88.0MM X 281MM STEEL FRAME (0.31X3.46X11.06 INCH) 140KSI		
547-037	0.236 INCH (6.00MM) C-CHANNEL INNER FRAME REINFORCEMENT		
552-048	2100MM (83 INCH) REAR FRAME OVERHANG		
55W-008	FRAME OVERHANG RANGE: 81 INCH TO 90 INCH		
AC8-99D	CALC'D BACK OF CAB TO REAR SUSP C/L (CA) 137.21 in		
AE8-99D	CALCULATED EFFECTIVE BACK OF CAB TO REAR SUSPENSION C/L (CA) 134.21 in		
AE4-99D	CALC'D FRAME LENGTH - OVERALL 371.68 in		
FSS-0LH	CALCULATED FRAME SPACE LH SIDE 149.14 in		



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FSS-0RH	CALCULATED FRAME SPACE RH SIDE 104.58 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		
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		
585-998	NO MUDFLAP BRACKETS		
590-998	NO REAR MUDFLAPS		
586-024	FENDER AND FRONT OF HOOD MOUNTED FRONT MUDFLAPS		
551-007	GRADE 8 THREADED HEX HEADED FRAME FASTENERS		
44Z-002	EXTERIOR HARNESSES WRAPPED IN ABRASION TAPE		
489-031	FACTORY INSTALLED BENDIX NEXT GEN SMARTIRE TIRE PRESSURE MONITORING SYSTEM WITH WHEEL RIM MOUNTED NEXT GEN SENSORS AND INTEGRATED IN DASH		
605-103	D15-28195-000 CENTER PUNCH TO MARK CENTERLINE OF REAR SUSPENSION ON TOP FLANGE OF FRAME		
970-038	TANK BODY 0 TO 1500 GALLONS		
607-001	CLEAR FRAME RAILS FROM BACK OF CAB TO FRONT REAR SUSPENSION BRACKET, BOTH RAILS OUTBOARD		
	OUT SIDE RAILS CLEAN= 3" BOC TO 108" BOC. NO CROSSMEMBERS = 6" BOC TO 44"BOC		

Fuel Tanks

		YES	NO
204-215	50 GALLON/189 LITER SHORT RECTANGULAR ALUMINUM FUEL TANK - LH		
218-005	RECTANGULAR FUEL TANK(S)		



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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	MICHELIN XZE 12R22.5 16 PLY RADIAL FRONT TIRES		
094-0GR	MICHELIN XDN2 12R22.5 16 PLY RADIAL REAR TIRES		

Hubs

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

Wheels

		YES	NO
502-1HB	ALCOA 88167X 22.5X8.25 10-HUB 5.81 INSET ALUMINUM DISC FRONT WHEELS		
505-356	ALCOA ULTRA ONE 89U64X 22.5X9.00 10-HUB PILOT 5.99 INSET ALUMINUM REAR WHEELS		
524-001	POLISHED FRONT WHEELS; OUTSIDE ONLY		
50W-001	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
829-079	154 INCH BBC HIGH-ROOF ALUMINUM CONVENTIONAL CREW CAB		
650-008	AIR CAB MOUNTING		
648-002	NONREMOVABLE BUGSCREEN MOUNTED BEHIND GRILLE		
678-018	LH AND RH EXTERIOR GRAB HANDLES WITH SINGLE RUBBER INSERT		



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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		
727-1B1	DUAL 25 INCH ROUND STUTTER TONE HOOD MOUNTED AIR HORNS WITH DUAL LANYARDS		
726-002	DUAL ELECTRIC HORNS		
728-002	DUAL HORN SHIELDS		
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		
768-043	63X14 INCH TINTED REAR WINDOW		
661-003	TINTED DOOR GLASS LH AND RH WITH TINTED NON-OPERATING WING WINDOWS		
654-011	RH AND LH ELECTRIC POWERED WINDOWS		
663-013	1-PIECE SOLAR GREEN GLASS WINDSHIELD		
659-019	2 GALLON WINDSHIELD WASHER RESERVOIR WITHOUT FLUID LEVEL INDICATOR, FRAME MOUNTED		
647-001	WHITE WINTERFRONT		



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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		
785-998	NO DASH MOUNTED ASH TRAYS AND LIGHTER		
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	5 LB. FIRE EXTINGUISHER		
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		
756-1G6	H.O. BOSTROM SIERRA AIR-50 HIGH BACK AIR SUSPENSION DRIVER SEAT WITH ADJUSTABLE RECLINE, FIXED LUMBAR AND NFPA 1901-2009/2016 COMPLIANT SEAT SENSOR		
760-1EA	H.O. BOSTROM TANKER 450 AIR-50 SCBA HIGH BACK AIR SUSPENSION PASSENGER SEAT WITH SECUREALL READY		



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	CUSHION AND NFPA 1901-2009/2016 COMPLIANT SEAT SENSOR		
762-1EC	H.O. BOSTROM TANKER 450 SCBA NON SUSP LH, RH & CENTER REAR PASS SEATS W/UNDER SEAT STORAGE, SECURE ALL READY CUSHION & NFPA 1901-2009/2016 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		
755-149	BLACK DURAWEAR FABRIC REAR PASSENGER SEAT COVER, SEAT BOLSTER AND INSERT		
763-105	NFPA 1901-2009 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		

Instruments & Controls

		YES	NO
106-002	ELECTRONIC ACCELERATOR CONTROL		
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		



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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-010	1 QUICKFIT PROGRAMMABLE MODULE (QPM/XMC)		
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		
750-004	(4) RADIO SPEAKERS IN CAB		
749-998	NO CB RADIO MOUNTING PROVISION		
75W-002	SHARKFIN MULTI-BAND ANTENNA, RIGHT HAND BIAS ROOF MOUNTING LOCATION: AM/FM/WEATHERBAND, WIFI/BLUETOOTH, SDAR/SIRIUSXM, GNSS/GPS		
78C-998	NO DIGITAL SATELLITE AUDIO RECEIVER ANTENNA		
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		



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812-001	ELECTRONIC 3000 RPM TACHOMETER		
813-1C8	DETROIT CONNECT PLATFORM HARDWARE		
8D1-213	3 YEARS DETROIT CONNECT BASE PACKAGE(FEATURES VARY BY MODEL) DETROIT CONNECT PLATFORM		
8D4-998	NO FUEL SYSTEMS DATA SERVICE(SCO)		
6TS-005	TMC RP1226 ACCESSORY CONNECTOR LOCATED BEHIND PASSENGER SIDE REMOVEABLE DASH PANEL		
162-002	IGNITION SWITCH CONTROLLED ENGINE STOP		
81Y-006	PRE-TRIP INSPECTION FEATURE FOR EXTERIOR LAMPS AND SERVICE BRAKES		
264-032	(2) OVERHEAD MOUNTED LANYARD CONTROLS: (1) OFFICER AIR HORN AND (1) DRIVER AIR HORN		
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		

Design

		YES	NO
065-000	PAINT: ONE SOLID		

Color

		YES	NO
980-2L4	CAB COLOR A: L2225EY CANDY APPLE RED ELITE EY		
986-020	BLACK, HIGH SOLIDS POLYURETHANE CHASSIS PAINT		



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976-995	SUNVISOR PAINTED SAME AS CAB COLOR A		
963-003	STANDARD E COAT/UNDERCOATING		

SCBA Brackets

		YES	NO
001	Four (4) HO Bostrom "Secure-All" SCBA brackets shall be installed in the chassis cab SCBA seats.		

Running Boards

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

Cab Console

		YES	NO
003	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. A mobile radio, siren control, traffic advisor control & vehicle data recorder control are all components that can be neatly flush-mounted into the hinge-up lid. 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.		

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.		

Battery Charger

		YES	NO
005	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.		



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- 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

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Shoreline Auto-Eject

006 A shoreline receptacle shall be installed at the driver-side chassis running-boards. The receptacle shall be wired to the chassis engine start circuit to trigger the auto-eject.

	YES	NO

Duplex Receptacle

007 A 120 volt AC duplex receptacle shall be installed beside the cab console and shall be wired to the shore line circuit.

	YES	NO

Air Pump

008 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.

	YES	NO



Monitor, Tire Pressure

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

Antennas & Mobile Radio(s)

		YES	NO
010	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
011	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
012	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.		

Power Distribution AC

		YES	NO
013	Three (3) 15amp duplex receptacles shall be installed in the following locations: * Body compartment L1 forward upper * Body Compartment R1 forward upper * Body Compartment R3 forward upper The receptacles shall be wired to the shoreline power source.		



Backup Camera

		YES	NO
014	<p>An FRC inView TrueSight Back-UP Camera shall be installed with the following features:</p> <ul style="list-style-type: none"> - (1) one 7" cab monitor - (1) one heated back-up camera 		

Tire Chains On-Spot

		YES	NO
015	<p>Onspot Automatic Tire Chains shall be installed at the rear axle, offering the traction of a single set of conventional snow chains at the flip of a switch, without having to stop the vehicle. An electric switch mounted in the cab provides 12 volts to an air solenoid mounted on the vehicle's frame rail. Compressed air to the solenoid is supplied from either the vehicle's onboard air system or a 12-volt compressed air kit.</p> <p>When the dashboard switch is activated, the solenoid opens allowing compressed air to enter the air chamber and lower the chainwheel so it contacts the inside of the tire. The friction between the tire and the rubber-covered chainwheel causes the chainwheel to rotate, creating enough centrifugal force to flail the chains out in front of the tire. (The principle of the system is similar to a small generator driven by a bicycle tire to operate a headlight.)</p> <p>Six lengths of chain spaced at 60-degree intervals on the chainwheel ensure that there are always two (2) chains between the tire and road surface whether you are accelerating, braking or are in a wheel lockup condition. The traction from the chainwheel is obtained in forward OR reverse.</p> <p>When the dashboard switch is turned off, the solenoid exhausts the air provided to the chain units and return springs in the air chambers bring the chainwheels back to their resting position.</p>		

Front Bumper Extension / Hose Reel

		YES	NO
016	<p>The front bumper shall be extended 24" and included a compartment for a hose reel. Aluminum checker plate shall be used to enclose/trim the extension for a pleasing appearance. A hinged lid is attached to cover the top of the hose reel.</p>		

Bumper Antennas w/ LED

		YES	NO
017	<p>There shall be two (2) stainless steel guide poles mounted at the front corners of the extended bumper. The purpose of the guide</p>		



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poles are to give the driver a visual indication of the location of the front corners of the bumper.

Led Lights

Amber LED lights at the top of each guide pole shall be wired to the truck accessory circuit.

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Pump House

018 The pump house shall be integral to the body at the front. The pump house shall be a fabricated aluminium sub-structure, fully enclosing the pump assembly. Access panels are located at the top of the driver-side & the officer-side.

YES	NO

Pump Panels

019 The pump house driver-side & officer-side pump panels shall be 14 gauge brushed stainless steel. Rubber sealing washers are positioned over the intake and discharges to retain heat. Stainless steel flanges are placed over top of the sealing washers and fastened in place. The upper portion of both pump panels shall be hinged and latched with 1/4 turn stainless steel latches.

YES	NO

Heat Pan

020 An aluminium heat pan shall be installed below the pumphouse to close-off for winter heat retention. All four (4) sides of the heat-pan are precision fit to the best of ability as heat retention is of utmost importance. Two (2) removable heat pans shall be installed. One pan shall insert into the heat pan enclosure from each side. Spring pins are used to retain the pans.

YES	NO

Roll-Up Doors

021 Roll-Up doors shall be installed the front of body to cover the DS and OS pump panels.

YES	NO

Heaters Pump-house

022 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

YES	NO



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activation switch shall be at the cab dash within convenient reach of the operator.

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Engine Cooler/Heat Exchanger

023

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. This heat exchanger shall be spliced into the pump-house heater coolant supply/return lines. A 3-way valve shall be installed at the heat exchanger.

With the 3-way valve in the summer position, the hot coolant shall bypass the pump-house heaters and flow through the heat exchanger and back to engine. Placing the 3-way valve in the winter position, bypasses the heat exchanger and allows hot coolant to flow through the pump-house heaters and back to engine.

A quarter-turn brass valve shall be installed at the pump operators 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. A flush line shall be piped from the dirty side of the strainer to the pump-house side panel with a 3/4" lift handle style brass ball valve. The pump operator can periodically open this valve to flush the strainer.

The cooling water valve shall be labelled Engine Cooler, and the flush valve Cooling Water Flush.

YES	NO

Pump Cooler

024

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.

YES	NO

Waterous CSUC22C Single Stage Fire Pump (Split-Shaft)

025

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 1901-2009, and shall have a rated capacity of **1500 US-GPM**. The Pump shall be free from objectionable pulsation and vibration under all normal operating conditions.

YES	NO



Pump Body

	YES	NO
<p>026 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.</p> <p><u>Discharge Manifold</u> 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:</p> <ul style="list-style-type: none"> ·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 <p><u>Impeller</u> The impeller shall be bronze with double suction inlets, accurately balanced (mechanically and hydraulically), of mixed flow design with reverse flow, labyrinth type, wear rings that resist water bypass and loss of efficiency due to wear.</p> <p><u>Wear Rings</u> 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.</p> <p><u>Impeller Shaft</u> 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.</p> <p><u>Anti-Friction Bearings</u> 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.</p> <p><u>Pump Transmission</u> 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. The shift engagement shall be accomplished by a free-sliding collar</p>		



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and shall incorporate an internal locking mechanism to ensure that collar will be maintained in ROAD or PUMP position.

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Drive Shaft Modification

027 The chassis drive shaft shall be removed, re-machined and re-installed to fit the fire pump. A slip-joint shall be installed between the transmission and the fire pump, and between the fire pump and the rear axle. The drive shaft assemblies shall be machine welded to ensure straightness.

YES	NO

Fire Pump Frame

028 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 drive-line & pump vibration. All frame components shall be painted with a rust prevention coating.

YES	NO

Pump Seal

029 There shall be a mechanical spring-loaded pump seal installed on the fire pump.

YES	NO

Fire Pump Shifter

030 The fire pump shift shall be pneumatically operated and shall use a standard automotive air valve to control a double-action, air-shift cylinder so that the pump shift remains in its latest position in the event air pressure loss. The in-cab control valve shall include a detent lock to prevent accidental shifting. A label shall be installed to indicate road & pump positions.

YES	NO

Pump Shift Interlock

031 An interlock system shall be provided to prevent the pump drive system to be shifted out of "pump engaged" pumping mode of operation when the chassis transmission is in pump gear.

YES	NO

Primer AirPrime

YES	NO



032	A Trident AirPrime pump primer shall be installed. 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.		
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Remote Prime

		YES	NO
033	<p>A remote prime option shall be included to allow the operator to prime to the following locations:</p> <ul style="list-style-type: none"> * Main Pump Body * Driver-Side Intake * Officer-Side Intake * Rear Intake <p>Each remote prime option shall include an individual primer control.</p>		

Foam Proportioner

		YES	NO
034	<p>There shall be a Waterous Aquis 3.0 Electronic Foam Proportioner installed, with the following features:</p> <p><u>Control Box:</u> 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.</p> <p>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.</p> <p><u>Operator Interface Terminal</u> The Operator Interface Terminal (OIT), mounted on the pump operator's panel allows the operator to perform the following functions:</p> <ul style="list-style-type: none"> - Push button control of foam proportioning rates: <ul style="list-style-type: none"> - 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. 		



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- 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.

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Intake 6" Driver-Side (Gated-Elec)

035

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.

There shall be an intake bleeder valve installed for the Driver-Side 6" gated intake to bleed air from the intake hose when receiving water supply from a positive pressure supply source.

The intake and drain valve shall be labelled to indicate their function. The label shall be color-coded burgundy.

YES	NO

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

036

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.

There shall be an intake bleeder valve installed for the Driver-Side 6" gated intake to bleed air from the intake hose when receiving water supply from a positive pressure supply source.

A 3/4" lift-style drain valve shall be included.

YES	NO



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The intake and drain valve shall be labelled to indicate their function. The label shall be color-coded burgundy.

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Intake 5" Rear-Body-Right (Gated)

037

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 operator's 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.

YES	NO

Intake 2.5" #1 Aux Left-Front

038

There shall be a 2.5" Auxiliary Intake installed at the left-side pump panel ahead of the Main Intake. An Akron Brass ball valve with composite ball and remote valve actuator shall be included. The valve actuator shall be a direct mount lever located beside the valve. The intake shall include a 2.5" female swivel adapter and chromed plug, chained to the pump panel. A strainer shall be included.

A 3/4" lift-style bleeder/drain valve shall be installed on the intake. The intake and drain valve shall be labeled with a color-coded label. The threads shall be WCT.

YES	NO

Intake 2.5" #2 Aux Right-Front

039

There shall be a 2.5" Auxiliary Intake installed at the right-side pump panel ahead of the Main Intake. An Akron Brass ball valve with composite ball and remote valve actuator shall be included. The valve actuator shall be a direct mount lever located beside the valve. The intake shall include a 2.5" female swivel adapter and chromed plug, chained to the pump panel. A strainer shall be included.

A 3/4" lift-style bleeder/drain valve shall be installed on the intake. The intake and drain valve shall be labeled with a color-coded label. The threads shall be WCT.

YES	NO



Intake - Tank to Pump (Dual Elec Ctrls)

		YES	NO
040	<p>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 KZCO Electric Valve Actuator shall be included.</p> <p>There shall be a check valve installed in the tank to pump line to prevent water from back flowing to the tank.</p> <p>Two (2) Electric Valve Switches shall be installed at the following locations:</p> <ul style="list-style-type: none"> - one (1) at the pump operator panel - one (1) at the cab console next to the driver <p>Color-coded labels shall be provided.</p>		

Tank Fill Line

		YES	NO
041	<p>There shall be a 2.0" tank fill line installed. An Akron Brass ball valve with composite ball and remote valve actuator shall be included. The valve actuator shall be a positive locking t-handled lever at the pump operator panel. The lever shall be labeled with a color-coded label. High-Pressure flexible hose shall be use to route the line from valve to tank. Stainless steel fittings are crimped to the end of hose.</p>		

Discharge Manifold

		YES	NO
042	<p>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 plumbing/routing options.</p>		

Discharge 2.5" #1 Left-Front

		YES	NO
043	<p>There shall be a 2.5" Discharge located on the left-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 t-handled lever at the pump operator panel. A 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. The threads shall be WCT.</p> <p>There shall be a 2.5" stainless steel dual-scale Psi/Kpa discharge pressure gauge installed for this discharge.</p>		



A 3/4" - lift-style bleeder/drain valve shall be installed for the discharge at the base of the pump panel. The valve lever and drain valve shall be labeled with a color-coded label.

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Discharge 2.5" #2 Left-Rear

044

There shall be a 2.5" Discharge located on the left-side of the pump-house towards the rear. 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 t-handled lever at the pump operator panel. A 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. The threads shall be WCT.

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 valve lever and drain valve shall be labelled with a color-coded label.

YES	NO

Discharge 2.5" #3 Right-Front

045

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 t-handled lever at the pump operator panel. A 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. The threads shall be WCT.

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 valve lever and drain valve shall be labelled with a color-coded label.

YES	NO

Discharge 4.0" #4 Right-Rear

046

There shall be a 4.0" discharge located on the right-side of the pump-house towards the rear. An Akron Brass 3.0" 8900 series Ball Valve with composite ball and remote valve actuator shall be included. The valve actuator shall be a rotary hand-wheel style at

YES	NO



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the pump operator panel. The discharge shall include a 30 degree x 4.0" storz droop and storz 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 valve lever and drain valve shall be labelled with a color-coded label.

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Discharge 2.5" #5 Hose-Bed Pre-Con (Foam) w/ 15H

047

There shall be a 2.5" pre-connect discharge located on 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 t-handled lever at the pump operator 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 Green color-coded label. The threads shall be WCT. ***This discharge shall be foam capable.***

- A 15' length of 2.5" fire hose shall be supplied, attached to the pre-connect

YES	NO

Discharge Deluge

048

There shall be a 3.0" deluge discharge plumbed to the top of the pump-house. An Akron Brass 3.0" ball valve with composite ball and remote valve actuator shall be included. The valve actuator shall be a rotary hand-wheel style at the pump operator panel. A 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 valve lever and drain valve shall be labeled with a color-coded label. The discharge shall terminate with NPT threads.

YES	NO

Monitor Deluge RC

YES	NO



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049

A Task Force Tips Hurricane RC, model # XFIH-EL 1A remote controlled monitor shall be installed. The monitor shall be controlled by a monitor mounted membrane switch panel with functions that control rotation, elevation and nozzle patterns, oscillate, park, auxiliary 1 and auxiliary 2.

The monitor shall have the following travel capabilities: full 450 degrees of horizontal rotation with travel 225 degrees left and right of center, full 135 degrees of vertical travel with stops at 90 degrees above and 45 degrees below horizontal, field changeable rotation stops shall be provided at 45, 90 and 135 degrees left and/or right of center, flow capability of 1250 GPM, maximum operating pressure of 200 PSI.

The electrical components for the monitor and switch enclosures shall be compatible with 12 and 24 volt DC systems, shall be weatherproof and shall utilize weatherproof components such as a membrane switch, silicone seal, hardware with o-rings and liquid tight electrical connections with strain relief fittings. Monitor shall have 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. Thirty feet of ultra flex robotic power cable shall be provided and include a unique cable guide for 450 degrees of monitor rotation. A six-pin electrical connection for a TFT remote control nozzle shall be provided. The monitor shall be compatible with optional wired and wireless control panels and monitor position display. The monitor shall be equipped with manual override knobs for use in the event of power failure. The motors and knobs control stainless steel worm gears for rotation and elevation adjustment.

For resistance to corrosion the monitor shall be constructed from hardcoat anodized aluminum with a silver powder coat interior and exterior finish. A built in automatic drain designed to protect the monitor from freezing and a threaded port for an optional pressure gauge shall be provided. The unit shall have a unique serial number.

The monitor shall be configured with a Task Force Tips code RLF female threaded inlet to mount directly on Task Force Tips Extend-A-Gun RC3 telescoping deck pipe and 2-1/2" male NH outlet. The unit shall be covered by a five-year warranty.

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TeleScoping Waterway

050

A Task Force Tips model # XGA38VL-RL 3" electrically telescoping waterway shall be installed. The waterway shall be capable of being lowered to deck level (or into a monitor well) for storage and transportation and shall be capable of being raised to an extended height of 18" using Auxiliary 1 push button and retract after the monitor has been parked by pressing the Park button on Task Force Tips RC monitor control stations or from optional panel mounted push buttons. The unit shall include a 12

YES	NO



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volt motor capable of moving the waterway to either the raised or lowered position while maintaining the ability to horizontally rotate the monitor device 360 degrees. The motor shall be weatherproof in design and have an accessible manual override control for use in the event power failure occurs. An interface box with cables and waterproof plugs shall be provided for connection of power, monitor, Extend-A-Gun RC and optional push button controls.

A sensor shall be located on the waterway that signals a 12 volt indicator light installed in the cab to illuminate to indicate that the monitor is raised.

The aluminum riser shall have a 3" waterway; hardcoat anodized finish and be furnished with a 3" Victaulic inlet coupling and a TFT Code RLM male connection for a TFT remote control monitor with TFT Code RLF female inlet. The unit shall be covered by a five-year warranty.

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Nozzle Master Stream

051

A Task Force Tips Master Stream 1250, model # M-ER1250S-NJ automatic nozzle with electrically operated pattern control shall be provided. The nozzle design shall allow for straight stream through dense wide fog patterns.

The electric drive unit shall develop over 400 pounds of torque, be enclosed in a waterproof cast aluminum housing and include a manual override device 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 60" connection cable. For corrosion resistance and durability the nozzle and actuator shall be constructed from hardcoat anodized aluminum alloy, include a protective rubber bumper with fog teeth, laser engraved serial number, and reflective labeling.

The nozzle shall have a 2-1/2" female NH swivel rocker lug coupling and a flow range of 150-1250 GPM at 100 PSI. The nozzle shall be designed to accept the TFT FJ-LX-M FoamJet low expansion air aspirating attachment.

	YES	NO

Pendant Remote Monitor Control Station

052

A Task Force Tips model # Y4E-CT-30-D pendant control station for Monsoon, Hurricane, Typhoon, Tsunami, and Tornado series remote control monitors shall be installed.

The control station shall be tethered with a 30 foot long, four conductor cable with waterproof plug. The control includes backlit membrane switches to control horizontal rotation, vertical elevation, nozzle stream pattern, park, oscillate, auxiliary 1 and auxiliary 2. The graphical display shall provide advanced system feedback and control. The unit shall be capable of controlling up

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to 10 monitors. The control station shall also include a circuit board to communicate with the Task Force Tips remote control monitor. Internally mounted switches shall be included for the ability to choose which control station shall be dominant. The control requires 12 or 24 volt DC power.

The handheld control enclosure shall be weatherproof and have a protective silicone rubber casing. A storage bracket for the handheld control shall be included and shall comply with NFPA 1901 Section 14.1.11. A 30 foot long, four conductor power and communications cable connected to a panel mount receptacle with protective cap shall be supplied. The switch enclosure shall be weatherproof and utilize weatherproof components such as a membrane switch, silicone seal, hardware with o-rings and liquid tight electrical connections with strain relief fittings. The unit shall have a unique serial number and be covered by a five-year warranty.

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Foam Manifold (A)

- 053** There shall be a 2.5" stainless steel foam manifold (A) installed. An Elkhart Brass 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.

YES	NO

Foam Manifold (B)

- 054** There shall be a stainless steel foam manifold (B) installed. This manifold shall include one (1) 2.5" discharge and three (3) 2.0" discharges.

YES	NO

Speedlay #1 Foam, Front Bumper

- 055** There shall be a 1.5" F NPSH speedlay hose-bed installed transverse at the front extended bumper as speed-lay #1. 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 t-handled lever at the pump operator panel, with push-pull cable. High-Pressure flexible 1.5" 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

YES	NO



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valve shall be labeled with an Orange color-coded label. This discharge shall be foam capable.

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Speedlay #2 Foam, Front Bumper

056

There shall be a 1.5" F NPSH speedlay hose-bed installed transverse at the front extended bumper as speed-lay #2. 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 t-handled lever at the pump operator panel, with push-pull cable. High-Pressure flexible 1.5" 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 labeled with an Orange color-coded label. This discharge shall be foam capable.

YES	NO

Plumbing, Hose Reel Front Bumper

057

There shall be a discharge installed for one (1) hose reel supply to the front bumper. An Akron Brass 2.0" 8900 series Ball Valve with Composite Ball and Electric Valve Actuator shall be included. A Navigator Pro 2.0 valve controller shall be installed at the pump operators panel. The hose shall be 1.5" high-pressure flexible rubber hose.

The Navigator Pro 2.0 Valve Controllers are packed with user-friendly features for an effective, efficient and safe operation on the fireground. With three styles to choose from, the Navigators can be used as a basic controller or installed as an integrated controller with a pressure and flow sensor, CAFS control and true position feedback with presets. Take full command of your pump panel with the Navigator Pro's intuitive design and functionality. All valve controllers are NFPA compliant.

Note: This installation shall include the 9335 controller with valve position indicator and pressure meter.

A 3/4" - lift style bleeder/drain valve shall be installed for each discharge at the base of the pump panel. The lever, discharge and drain valve shall be labeled with a color-coded label. **Shall be foam capable.**

YES	NO



Hose Reel, Front Bumper

		YES	NO
058	There shall be one (1) 1.0" Hannay Aluminum Hose Reel supplied and installed at the center of the front bumper. The reel shall be equipped with 12v electric rewind. A hose roller guide shall be installed. The reel material shall be mill aluminum.		

Hose for Hose Reel

		YES	NO
059	There shall be 100' of 1.0" rubber discharge hose installed on the hose reel. The hose shall be yellow in colour and rated at 300psi.		

Nozzle Wildlands

		YES	NO
060	<p>One (1) Akron Brass model #1602 1.0" ProVenger Nozzle shall be provided. The 1" ProVenger SG fire hose nozzle is the selectable gallonage style for the ProVenger Series Nozzles. ProVenger SG is a constant gallonage (flow remains the same in all patterns) with various flow setting for frontline flow control. ProVenger SG is an unbeatable value with the performance that you demand.</p> <p>Low flow options, starting at 5 gpm (19 lpm), are available within the 1" (25 mm) ProVenger line. The new, lower flows aid firefighters in regulating the amount of water needed to extinguish various fires. The 1" nozzles are perfect for wildland and gas cooling applications. Find an Akron Brass distributor near you to learn more about this fire hose nozzle.</p>		

Hose Line Blow-Outs

		YES	NO
061	<p>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.</p> <p>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.</p>		

Electrical System

		YES	NO
062	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.

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Power Distribution Panel

063

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.

YES	NO

Pressure Governor and Engine Monitoring Display

064

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

YES	NO



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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
065	<p>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.</p> <p>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.</p> <p>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.</p>		

Water Tank Level Lights (Remote)

		YES	NO
066	<p>There shall be two (2) LED Remote Water Tank Level Lights installed. The lights shall be driven by the master water tank level display located at the pump operators panel.</p> <p>The lights shall be installed in the following locations:</p> <ul style="list-style-type: none"> * one (1) at the body front upper left-side * one (1) on the body front upper right-side 		

Foam Tank Level Display

		YES	NO
067	<p>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.</p>		



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The program features shall be accessed from the front of the indicator module. The program shall support self-diagnostics capabilities, self-calibration, 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.

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Water/Foam Tank Display Cab Mini

068

Fire Research TankVision miniature Water/Foam Tank Displays shall be installed at the cab console. The indicators shall show the volume of water/foam in the tank on five (5) easy to see super bright LEDs. A wide view lens over the LEDs shall provide for a viewing angle of 180 degrees. The indicators cases shall be manufactured of aluminum and have distinctive blue/green labels respectively.

The miniature indicators shall receive input information via single wires from Fire Research TankVision tank primary indicators. Displays shall be installed on the cab console.

YES	NO

Master Gauges & Test Ports

069

There shall be one (1) Master Vacuum and one (1) Master Pressure gauge assembly installed at the pump operators panel. The gauges shall be stainless steel, 4" 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.

YES	NO

Master Drain Valve

070

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.

YES	NO



Water Tank, Poly

		YES	NO
071	A 1000 Imp-Gal rectangular poly water tank shall be installed. The tank shall be NFPA compliant.		

Direct Tank Fill

		YES	NO
072	A 6-bolt flange shall be installed at the back officer-side of the tank for installation of a direct tank fill valve.		

Foam Tank, Poly

		YES	NO
073	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 2.5" (1)

		YES	NO
074	There shall be one (1) 2.5" Stainless Steel Direct-Tank-Fill Valve installed at the back of the water 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 2.5" droop adapter and cap. Threads shall be WCT. * The location shall be on the Rear, Officer-Side of the apparatus		

Drain Valve Water Tank

		YES	NO
075	A 1.5" brass gate valve shall be installed at the base of the tank for the tank drain.		

Body, Integral Pumphouse

		YES	NO
076	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.		



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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) (or Equivalent) certified welders 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.

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Body Aluminium - Integral Pumphouse

077

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 (or equivalent) welders.

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. After modeling, the sheet-metal parts shall be flattened (electronically) and produced on CNC sheet metal cutting equipment. This will ensure extremely high part tolerances resulting in excellent fit/finishes. 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.

YES	NO



Body to Chassis Frame Attachment

		YES	NO
078	The aluminium body shall be fastened to the chassis frame with custom body mounts. This attachment design also allows for easy body removal should such a procedure become necessary.		

Rubber Isolator (Frame to Body)

		YES	NO
079	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.		

Body Compartments Left Side

		YES	NO
080	<p>DPP There shall be one (1) compartment on the left side front of body. This compartment shall house the pump operators panel/pumphouse.</p> <p>L1 There shall be one (1) compartment on the left side ahead of the rear wheels. The rough frame opening shall be 44.0" wide x 66.5" high.</p> <p>L2 There shall be one (1) compartment on the left side over the rear wheels. The rough frame opening shall be 66.0" wide x 36.5" high.</p> <p>L3 There shall be one (1) compartment on the left side behind the rear wheels. The rough frame opening shall be 44.0" wide x 66.5" high.</p>		

Body Compartments Right Side

		YES	NO
081	<p>OPP There shall be one (1) compartment on the right side front of body. This compartment shall house the pump panel/pumphouse.</p> <p>R1 There shall be one (1) compartment on the right side ahead of the rear wheels. The rough frame opening shall be 44.0" wide x 46.5" high.</p> <p>R2 There shall be one (1) compartment on the right side over the rear wheels. This compartment shall include a hinge-down aluminium fabricated door.</p> <p>R3</p>		



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There shall be one (1) compartment on the right side behind the rear wheels. The rough frame opening shall be 44.0" wide x 46.5" high.

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Speed-Lays

082

Provisions shall be included at the front of the body, integral to the pump-house for two (2) speed-lay pre-connects.

YES	NO

Storage, Suction Hose

083

A compartment tunnel shall be fabricated on the upper-inner portion of the right-side body compartments to carry suction hose. A hinged access door is installed at the back of the compartment.

YES	NO

Driver-Side Coffin Compartments

084

Coffin compartments shall be installed at the driver-side upper body. Shall include hinged/latched aluminium checker-plate covers with gas springs. Floor tile is included.

YES	NO

Spare Bottle Storage

085

Provisions shall be included to allow for storing spare SCBA bottles at the body wheel-wells.

YES	NO

Step/Landing

086

The rear of the coffin boxes shall be shortened to allow space for a landing. This landing shall allow for a safe and easy stepping surface to access the upper body.

Each compartment shall be sealed before an interior coating is applied using a high quality paintable caulking. This will ensure the compartments to be leak free at any of its seams. All compartments will feature vents to allow air re-circulation. The tops of each compartment shall have aluminium checker-plate attached. This will provide for a skid resistant walkway.

YES	NO



Bumper Body Rear

		YES	NO
087	<p>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.</p> <p>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.</p>		

Tow Eyes

		YES	NO
088	<p>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.</p>		

Fenderetts

		YES	NO
089	<p>There shall be stainless steel fenderetts installed on the body wheel well skirts, fastened to the skirts with stainless steel hardware.</p>		

Liners Wheel Well

		YES	NO
090	<p>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.</p>		

Mud Flaps

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

Rub Rails Body

		YES	NO
092	<p>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.</p>		



Stairway

		YES	NO
093	<p>There shall be a collapsible stairway installed at the back left-side 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.</p> <p>The threads shall incorporate an aggressive thread pattern to offer secure slip-free footing.</p> <p>Handrails shall be attached to both upper stairway stringers for additional support. Additional Handrails are included at the top of hose bed.</p>		

Step Platform

		YES	NO
094	<p>An embossed aluminium thread plate 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.</p>		

Shelving Comp (L1)

		YES	NO
095	<p>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 shelf shall be left open for proper drainage.</p> <p>The shelves shall be installed in the compartment on four (4) vertically adjustable aluminium rails. Rubber interlocking floor tile shall be placed on the shelf.</p>		

Shelving Comp (L3)

		YES	NO
096	<p>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 shelf shall be left open for proper drainage.</p> <p>The shelves shall be installed in the compartment on four (4) vertically adjustable aluminium rails. Rubber interlocking floor tile shall be placed on the shelf.</p>		



Shelving Comp (R1)

		YES	NO
097	<p>There shall be one (1) aluminium shelf installed in compartment R1, right front. The shelf 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 shelf shall be left open for proper drainage.</p> <p>The shelves shall be installed in the compartment on four (4) vertically adjustable aluminium rails. Rubber interlocking floor tile shall be placed on the shelf.</p>		

Shelving Comp (R3)

		YES	NO
098	<p>There shall be one (1) aluminium shelf installed in compartment R3, right rear. The shelf 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 shelf shall be left open for proper drainage.</p> <p>The shelves shall be installed in the compartment on four (4) vertically adjustable aluminium rails. Rubber interlocking floor tile shall be placed on the shelf.</p>		

Roll-Out Tray (L3)

		YES	NO
099	<p>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.</p>		

Roll-Out Tray (R1)

		YES	NO
100	<p>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.</p>		

Roll-Out Tray (R3)

		YES	NO
101	<p>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</p>		



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include a lock-in and lock-out device. An aluminum tray with 2" up-turned flanges and rubber interlocking floor tile shall be included.

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Tool Board

102

A 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 an assortment of the following PAC Tool Mounts:

- ten (10) Toolok
- ten (10) Handelok
- four (4) Flexmount - Short
- four (4) Flexmount - Long

- Shall be installed in driver-side body compartment above the body wheels

YES	NO

Spare Bottle Storage

103

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.

YES	NO

Tool Storage Drawer(s)

104

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.

YES	NO

Flooring Body Compartments

105

There shall be rubber floor tile installed on the floors of each body compartment. The floor tile shall be interlocking to prevent shifting, and shall be 1/2" in height.

YES	NO

Hose Bed Flooring

106

The top of the poly tank shall be grooved to allow for drainage forward and backward.

YES	NO



Hose Bed Divider

		YES	NO
107	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 dividers shall have a flange, providing a flat surface for support for the hose bed tarp.		

Cover Hose Bed (Alum Checker)

		YES	NO
108	<p>There shall be two (2) Aluminium Checker plate 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.</p> <p>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.</p> <p>A landing shall be engineered into the center of the hose-bed to allow for a front to back walk-way.</p>		

Rollup Doors

		YES	NO
109	<p>Compartment doors shall be equipped with AMDOR® brand roll-up doors complete with the following features:</p> <ul style="list-style-type: none"> - 1" aluminum double wall slats with continuous ball & socket hinge joint designed to prevent water ingress 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. <p>** Heavy-Duty flex pull-down door straps shall be included **</p>		



Storage System, Ladder Rack OS

	YES	NO
<p>110 There shall be a Ziamatic Hydraulic Ladder Storage Rack installed on the apparatus. 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. A mechanical safety latch shall be included to latch system in the stored position.</p> <p>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.</p> <p>** The system shall be installed at the Officer-Side of the Body **</p>		

Lightbar

	YES	NO
<p>111 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.</p> <p>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.</p> <p>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</p>		



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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 lighthoods 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 Whelen V2V incorporated
- Lightbar shall have smoked lenses installed

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Additional Lightbar Warning Lights

112 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.

YES	NO

Alley Lights

113 Two (2) Clear LED alley lights shall be included, one (1) at each end of the lightbar.

YES	NO

Scene Light, Lightbar

114 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.

YES	NO



Whelen Cencom-CORE

	YES	NO
<p>115 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.</p> <p>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.</p> <p>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.</p>		

Power Distribution Panel

	YES	NO
<p>116 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.</p> <p>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.</p> <p>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.</p> <p>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 labeled and shall contain the body electrical power</p>		



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.

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Warning/Scene Lights Rear-Upper

		YES	NO
117	<p>Two (2) Whelen M9 Series Model # M9V2R Warning/Scene lights shall be installed, at the body rear upper, one (1) on each side.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>** The scene lights shall be wired to automatically turn-on with reverse **</p>		



Warning/Scene Lights Body-Sides-Upper

		YES	NO
118	<p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p>		

Warning Lights Chassis Grille

		YES	NO
119	<p>Two (2) Whelen M6 Series Model# M6R Red Warning Lights (with Red Lens) shall be installed, one (1) each side of the chassis grille. Chromed bezels are included. Weather proof electrical connectors shall be used to connect the flashers to the apparatus harness.</p> <p>* The lights shall be switched with the "Lower Level" warning light circuit *</p>		



Warning Lights Chassis Fenders

		YES	NO
120	<p>Two (2) Whelen M6 Series Model# M6R Red Warning Lights (with Red Lens) shall be installed, at the chassis fenders, one (1) on each side. Chromed bezels are included. Weather proof electrical connectors shall be used to connect the flashers to the apparatus harness.</p> <p>* The lights shall be switched with the "Lower Level" warning light circuit *</p>		

Warn Lights Body Fenders

		YES	NO
121	<p>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. Weather proof electrical connectors shall be used to connect the flashers to the apparatus harness.</p> <p>- The lights shall be switched with the "Lower Level" warning light circuit</p>		

Warning Lights, Body-Rear-Lower

		YES	NO
122	<p>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.</p> <p>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 pigtailed, a rubber gasket, screws, and screw grommets shall be included for installation.</p>		



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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.

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Traffic Advisor

123

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.

YES	NO

Wig-Wag Headlamps

124

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.

YES	NO

Siren System

125

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.

YES	NO



Siren Speaker

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

Q-Siren Front OS

		YES	NO
127	<p>One (1) Federal Signal Q2B siren model #Q2B-012PSD electro-mechanical siren (pedestal mount) shall be provided, installed at the front officer-side of bumper. The Q2B siren shall be a streamlined, chrome plated siren designed to provide reliable and long-life operation. The electro-mechanical siren shall produce the distinctive Q2B sound that is a registered trademark of Federal Signal, and shall be provided with a heavy duty clutch and an electric brake.</p> <p>The Q2B siren shall measure 10.5" high x 10" deep and shall produce 123 decibels at ten feet. The siren shall operate off the vehicles 12V system.</p> <p>One (1) momentary rocker switch shall be installed to activate the siren, at the cab console. A siren brake switch shall be included.</p>		

DOT Lamps

		YES	NO
128	<p>There shall be a set of Whelen LED M6 Brake/Tail/Turn/Back-up Lamps installed in a polished chrome 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.</p> <p>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.</p> <p>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 activate as a third brake lamp.</p>		
129	There shall be two (2) Amber LED turn signal/clearance lamps installed, one (1) on each side at the body fenders.		



License Plate Lamp

		YES	NO
130	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 Front

		YES	NO
131	<p>Two (2) Whelen Pioneer Plus™ Model # PCH2PB LED Scene Lights shall be provided. The 75/75 watt +12v DC Pioneer lighthead with a recess housing shall incorporate Super-LED® combination flood/spot light installed in a die-cast black powder coated aluminum housing. The PCH2 configuration shall consist of 36 white Super-LEDs. The PCH2 will produce 17,750 useable Lumens. The PCH2 assembly will use a collimator/metalized redux spot/flood reflector assembly with Proclera™ silicone optics and a clear non-optic polycarbonate lens. 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.</p> <p>The PCH2 shall be vibration resistant. The Pioneer™ PC boards shall be conformal coated for additional protection. Two breathable membrane patches shall be installed to the housing to maintain a consistent internal pressure. The PCH2 shall have extended LED operation with low current consumption and low operating temperature. The PCH2 shall be furnished with a 20' 4/C 16GA cable. The PCH2 is covered by a five year factory warranty.</p> <p>The lights shall be installed at the body front corners one (1) each side on tele-scopic poles to allow for horizontal & vertical rotation, raising and lowering. Switches shall be installed at the cab console and pump operators panel, to activate the lights.</p>		

Lights Pump Panels

		YES	NO
132	The pump panels shall be illuminated by the led strip light provided with the roll-up doors.		

Step Lights Chassis

		YES	NO
133	There shall be Eight (8) Tecniq LED step lights installed, four (4) 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 Rear

		YES	NO
134	<p>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.</p> <p>** The lights shall be activated with the ground lights **</p>		

Ground Lights Front Bumper

		YES	NO
135	<p>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.</p>		

Ground Lights Chassis Steps

		YES	NO
136	<p>There shall be four (4) Tecniq LED ground lights installed, two (2) 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.</p>		

Ground Lights Pump House

		YES	NO
137	<p>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.</p>		

Ground Lights Back-Bumper

		YES	NO
138	<p>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.</p>		

Interior Lights Front Bumper Comp

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



Interior Lights Engine Compartment

		YES	NO
140	There shall be two (2) Tecniq LED interior lights installed, one (1) each side at the engine compartment to illuminate the engine compartment. Each lamp shall be rated at 750 lumens. - These lights shall be switched by the ground light switch.		

Interior Lights Pump House

		YES	NO
141	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. - These lights shall be switched by a switch at the pump control panel.		

Interior Lighting Body-Compartments

		YES	NO
142	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 Right Comp

		YES	NO
143	There shall be one (1) Tecniq LED interior light installed inside the right-side body wheel compartment. The light shall be activated by a door switch at the door.		

Ladder Extension

		YES	NO
144	There shall be a Series 1225-A 35' Duo-Safety Aluminum Extension Ladder supplied.		

Ladder Roof

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



Ladder Folding

		YES	NO
146	There shall be a Series 585-A, 10' Duo-Safety Folding Aluminium Ladder supplied. An aluminium tray shall be fabricated and mounted to the apparatus with rubber PAC tool mount to carry the ladder.		

Suction Hose

		YES	NO
147	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.		

Suction Hose Storage

		YES	NO
148	Storage shall be included for two (2) suction hoses in tunnels fabricated into the apparatus body, at the officer-side. Hinged/latched access cover shall be included.		

Strainer Low-Level 6" NH

		YES	NO
149	<p>There shall be a Task-Force-Tips 6" F NH High Volume Low-Level Strainer supplied. The strainer is made of hard anodized and powder-coated aluminum. Clog-resistant stainless steel filter has over twice as much flow area as a 6" hose. This keeps friction loss down to 0.5 psi (1" Hg) at 1500 gpm and reduces the potential for air vortexes to form as water sinks towards the 2.5" minimum usable depth. Oversized sealed ball pivot allows 45° range of hose angle without constricting the flow path. A Jet Siphon is included and substantially increases suction lift capability.</p> <p>The Jet Siphon is also useful for tank shuttle operations, pump priming and dewatering without the need for a trash pump.</p>		

Wheel Chocks

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



Spanner/Hydrant Wrench Sets

		YES	NO
151	There shall be two (2) sets of (2) spanner & (1) hydrant wrench sets supplied and installed onto the apparatus, one (1) set on each side at the pump panels.		

Storz Wrench Set

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

Safety Items

		YES	NO
153	The following items shall be included with the apparatus: - Triangular Flare Kit - First Aid Kit - 5lb Fire Extinguisher		

Body Underside Coating

		YES	NO
154	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
155	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 Zolatone Grey-Stone speckle-coat shall be applied		

Paint Process Body

		YES	NO
156	High Quality Urethane paint will be applied, to provide a high luster and long lasting paint finish, state process in submission: The front face of the body shall be coated with a box-liner coating for enhanced durability.		



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Paint Chassis-Cab

		YES	NO
157	The chassis cab shall be painted Single-Tone, RED.		

Paint Body

		YES	NO
158	The body shall be painted Single-Tone, RED. PPG DELFLEET EVOLUTION.		

Chevron Red/Yellow-Green

		YES	NO
159	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.		

Striping Front Bumper

		YES	NO
160	A 4" white reflective stripe shall be attached to the width of the front bumper.		

Reflective Striping

		YES	NO
161	There shall be "White" Reflective Striping installed on the front & sides of the apparatus per NFPA 1901. The side design shall feature a 6" stripe running mid-body, a second 1" stripe applied above the 6" stripe and a third 1" stripe applied below the 6" stripe. * A proof shall be sent to the Fire Dept for approval before installation *		

Decals

		YES	NO
162	There shall be Fire Department Door Decals installed on the chassis cab doors. The design shall be provided or approved by the Fire Dept. Material shall be Regular Reflective Vinyl.		

Apparatus Final Test

YES	NO
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163 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.

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Apparatus Labels

164 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

YES	NO

Apparatus Drawing

165 A 2-dimensional drawing shall be submitted with the following views:
Front, Right, Rear, Left and Top views.

YES	NO

Provincial Truck Safety

166 The apparatus shall be subject to a provincial truck safety inspection prior to delivery.

YES	NO

Manual

167 There shall be two (2) operation & maintenance manuals included with the apparatus. The manuals shall be electronic on USB cards.

YES	NO

Warranty

168 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

YES	NO



Town of Carberry & Municipality of North Cypress-Langford

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etc.) shall be covered by their respective manufacturer's warranty policy's. See attachment for details.

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Service

169

The apparatus builder shall offer a local to Carberry service facility.

Service Center: _____

Location: _____

YES	NO

Apparatus Delivery & Training

170

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.

YES	NO