



# Shop Order

Corporation of the Norfolk County  
 Attn: Terry Dicks  
 95 Culver Street  
 Simcoe, ON N3Y 2V5

**Exp. Date:** 04/10/2018  
**Quote No:** E-Norfolk-ON-0509  
**Job/Order No:** 20410  
**BODY:** 00-10-15 Metalfab Pumper - ULC 05/13

10/18/2019

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PART NO	S	DESCRIPTION	QTY	ID
		<b>== Metalfab Pumper - ULC 05/13 - 0.000 ==</b>	<b>1</b>	<b>MTL</b>
	<b>S</b>	<b>CHANGE ORDER C</b>	<b>1</b>	<b>MTL</b>
00-10-1500		Metalfab Pumper E	1	MTL
00-20-1000		Company Profile E	1	MTL
00-20-1500		Standard Body Warranty	1	MTL
00-20-1550		Metalfab Limited Ten (10) Year Paint and Corrosion Warranty	1	MTL
<b>00-20-1700</b>		<b>Hale Pump Warranty - 5 years</b>	<b>1</b>	<b>MTL</b>
<b>00-20-1800</b>	<b>S</b>	<b>Polypropylene Tank Lifetime Warranty</b>	<b>1</b>	<b>MTL</b>
<b>00-20-2100</b>	<b>S</b>	<b>Plant Inspection Visits 3 visits, 4 persons - Costs covered by CCEV</b>	<b>1</b>	<b>MTL</b>
		<b>Metalfab June 13, 2018</b>		
		<b>Spartan for chassis inspection</b>		
		<b>At Metalfab when truck is COMPLETELY completed and before Krown is applied.</b>		
		<b>They want to make sure that everybody is done working on it before they come</b>		
		<b>for the inspection.</b>		
<b>00-20-2800</b>	<b>S</b>	<b>Bid Bond required</b>	<b>1</b>	<b>MTL</b>
00-20-3500		Certification for Fusion Welding of Aluminum	1	MTL
<b>00-20-4000</b>	<b>S</b>	<b>Quality System registered to ISO 9001:2015</b>	<b>1</b>	<b>MTL</b>
00-20-4500		Fire Apparatus Manufacturers' Association Membership	1	MTL
		<b>GENERAL INFORMATION</b>	<b>1</b>	<b>MTL</b>
10-11-0000		Intent E	1	MTL
<b>10-11-0110</b>		<b>Vehicle data recorder included with chassis</b>	<b>1</b>	<b>MTL</b>
<b>10-11-1101</b>	<b>S</b>	<b>ULC S515-13 and NFPA 1901-2016 Compliance</b>	<b>1</b>	<b>MTL</b>
<b>10-11-1500</b>	<b>S</b>	<b>&gt; ULC Testing - Pumper - Metric</b>	<b>1</b>	<b>MTL</b>
		<b>ENG. NOTE:</b>		
		Note in the shop note if the Fire Department wishes to witness the test		
		<b>Tested to 6000 LPM</b>		
		<b>The plate is to be in Metric</b>		
<b>10-11-2100</b>	<b>S</b>	<b>Maximum length not specified - 33' 04" (400")</b>	<b>1</b>	<b>MTL</b>
10-11-2200		Maximum height not specified E	1	MTL
<b>10-11-2400</b>		<b>Overall length is 30' or more</b>	<b>1</b>	<b>MTL</b>
10-11-2500		General Construction	1	MTL
<b>10-11-2600</b>	<b>S</b>	<b>Preconstruction Meeting</b>	<b>1</b>	<b>MTL</b>
		<b>Held at Metalfab June 13.2018</b>		
10-11-3000		Manuals - two copies ***Two copies of chassis manuals are required.	1	MTL
<b>10-11-3600</b>	<b>S</b>	<b>&gt; Delivery - FOB Fire Department - by CCEV</b>	<b>1</b>	<b>MTL</b>
		<b>ENG. NOTE:</b>		
		Note in the shop note if more than 4 hours of training is required		
		<b>Within 365 days</b>		
<b>10-11-4000</b>	<b>S</b>	<b>Payment Terms - 10% down, Chassis Net 10 days, Balance COD</b>	<b>1</b>	<b>MTL</b>
		<b>10% down</b>		

PART NO	S	DESCRIPTION	QTY	ID
		Chassis net 10 days (title to be changed to Norfolk County at this time) Remainder COD - after final inspection and delivery to the Department.		
10-20-1400	S	> <i>Hose capacity exceeding ULC/NFPA requirements</i> ENG. NOTE: Specify the type of hose and quantity of hose to be carried on the vehicle  900' of 1.75", 800' of 2.5" and 1000' of 4" See proposal drawing for hose layout in hosebed (rear view)	1	MTL
10-20-2000		<i>Equipment carrying capacity - standard ULC Pumper</i> This vehicle is designed to carry the standard ULC miscellaneous equipment load of 2000 pounds for a vehicle with less than 250 cubic feet of compartment space.	1	MTL
		<b>CHASSIS INFORMATION</b>	1	MTL
20-11-1000	S	<i>Chassis supplied by Metalfab - Spartan Metro Star MFD 20" Raised Roof</i> Metalfab must supply a document to verify that this chassis was not used as a tow vehicle Cab tilt requires proper labels to advise if anything has to be moved on the front bumper before raising the cab. Specification summary as follows; 54,000 lb GVW 21,500 lb front axle 32,500 lb rear axle 196" wheelbase 142" cab to axle Cummins L9 380 HP @ 2000 rpm No load 2200 rpm 1150 ft-lb torque @ 1400 rpm Allison 3000 EVS automatic transmission, 320 amp alternator 1710 drive line with jack shaft for pump 50 US gallon fuel tank PPG FBCH900060 White over FBCH 708620 Red	1	MTL
20-11-1500		2013 Emission chassis modifications	1	MTL
20-11-1700	S	<i>Chassis Motor Vehicle Inspection required - by CCEV</i>	1	MTL
20-21-0500		<i>Fluid capacity plate</i>	1	MTL
20-21-0600		<i>Pumping test plate</i> Metric	1	MTL
20-21-1040		<i>Maximum riders sign - 6 persons</i>	1	MTL
20-21-1510		<i>Seat belt warning labels - 4 door chassis</i>	1	MTL
20-21-1520		<i>Helmet warning label - do not wear helmet</i>	1	MTL
20-21-1530		<i>Tire Pressure Indicators - Single Axle</i>	1	MTL
20-21-1600	S	<i>Apparatus Information Label - Standard and Metric</i> Label to be in Metric and Standard scale	1	MTL
20-21-2000		Non removable key	1	MTL
20-21-2500		Shifter lock not required E	1	MTL
20-21-3500		Rear step warning label	1	MTL
20-21-3810		<i>Front mudflaps provided with chassis E</i>	1	MTL
20-21-4001	S	<i>Rear mudflaps - No logo</i> There will be no Metalfab logo on the mud flap. Mud flaps will be black in color.	1	MTL
20-31-0100		Fuel tank or step covers not required	1	MTL
20-31-0200		Fuel fill label -Ultra Low Sulfur Diesel only	1	MTL
20-31-1900	S	<i>Chassis cab two tone by Spartan - white over red</i>	1	MTL
20-41-0600	S	<i>Intake air shutoff for engine not requested</i>	1	MTL
20-41-0900		<i>Auxiliary braking system disabled when pumping</i>	1	MTL
20-41-1100		Transmission programming - Allison WT ***Includes "Pump Engaged" light next to pump shift on chassis instrument panel.	1	MTL
20-41-1500		Extend exhaust pipe - RS front of rear wheels E Engineering to specify exhaust pipe material as required by the chassis manufacturer. Engineering to sign off on the exhaust configuration to make sure it meets the chassis manufacturer's emission specifications.	1	MTL

PART NO	S	DESCRIPTION	QTY	ID
20-41-1900		Battery boost terminals with chassis E	1	MTL
20-41-2000		Chassis batteries remain in OEM location	1	MTL
<b>20-41-2550</b>		<b>Fuel fill at LS rear fender well</b>	<b>1</b>	<b>MTL</b>
20-41-2600		Chassis fuel tank remains in OEM location	1	MTL
<b>20-41-5010</b>	<b>S</b>	<b>Rear Tow Hooks - recessed through rear of back wall of B1</b> Like Centreville M17-19195 - see pic 5239	<b>1</b>	<b>MTL</b>
<b>20-51-0700</b>		<b>Master Battery Disconnect included with chassis</b>	<b>1</b>	<b>MTL</b>
<b>20-51-2500</b>		<b>Back up alarm included with chassis</b>	<b>1</b>	<b>MTL</b>
<b>20-51-3100</b>	<b>S</b>	<b>Air inlet not requested</b>	<b>1</b>	<b>MTL</b>
20-51-3400		Protection valve installed for air operated accessories	1	MTL
<b>20-51-6200</b>		<b>&gt; 120 volt 20 A shore line connection in chassis cab</b> <b>ENG. NOTE:</b> Requires 20-51-75 120 volt auto eject or 20-51-80 120 volt inlet	<b>2</b>	<b>MTL</b>
		<b>Standard 5-20R duplex receptacle, not fused</b> <b>Location of outlets:</b> <b>#1 - In medical cabinet in chassis cab</b> <b>#2 - In upper part of L3 compartment</b>		
<b>20-51-6501</b>	<b>S</b>	<b>Kussmaul Pump Plus Battery Charger supplied with chassis</b> Wired to battery conditioner/compressor, and every 12-volt strip in compartments (ref 50-99-05AA), and oil pan heater. Match previous unit M11-15701	<b>1</b>	<b>MTL</b>
<b>20-51-7101</b>	<b>S</b>	<b>Electric System Management with chassis</b> To be programmed in VMUX to have an over ride. A defeat switch for manually disengaging the Load Manager shall be provided.	<b>1</b>	<b>MTL</b>
<b>20-51-9001</b>	<b>S</b>	<b>Air horns in bumper with chassis</b>	<b>1</b>	<b>MTL</b>
<b>20-52-3500</b>		<b>&gt; Chassis steering wheel lined up by Metalfab E</b> <b>ENG. NOTE:</b> Freightliner, Sterling, and Spartan only	<b>1</b>	<b>MTL</b>
<b>20-52-40AA</b>	<b>U</b>	<b>FRC InView 360 - Front, side, and rear view camera system - view only</b> SOPT #1225 Metalfab will send pictures of potential mounting locations when the chassis arrives. Customer to specify location of monitor in cab	<b>1</b>	
20-60-0400		Chassis wheelbase does not change	1	MTL
<b>20-90-1810</b>	<b>U</b>	<b>Extend air tank moisture ejectors to rubrail and tag</b> The manual pull cables for all air tank drains to be extended to the outer body on the Street side behind the cab and attached to the step board. SOPT #507	<b>1</b>	
<b>20-99-05AA</b>	<b>U</b>	<b>Medical cabinet behind doghouse, flip up door, pull out tray, lighting</b> Ref pics 51, 54, 58 & 60 A storage compartment (full width of doghouse x height 18" x depth 20"). Access from rear to be provided by flip up door with push type latches. Provide sufficient 12v and 120 v receptacles in the compartment. This compartment is intended to house medical equipment, portable radios, hand lights and map books. Finish to be Zolatone inside and out to match the cab interior. A pull out tray with lock in, lock out type slides will be installed at the bottom of the compartment - the slide out tray will have a brushed finish. There shall be binder storage on the front of the cabinet. - Ref pics. Include inside of cabinet one 120 volt receptacle (ref 20-51-6200) Include inside of cabinet one 12 volt power strip (ref 50-99-05AA)	<b>1</b>	
<b>20-99-10AA</b>	<b>U</b>	<b>Toggle switch on the rear of the body for kneeling</b> Located at left rear over the tail light module See pictures in F:/Data/Jacques/Current projects/Norfolk/New Pump 7/4, 19	<b>1</b>	
		<b>PUMP AND PLUMBING</b>	<b>1</b>	<b>MTL</b>

PART NO	S	DESCRIPTION	QTY	ID
30-11-8600	S	<b>Hale QMAX 6000 LPM single stage pump</b> When ordering pump, order the primers 30-51-7700 "remote mount"	1	MTL
30-12-3500		<b>Mechanical seal for Hale QMID/QMAX/QTWO pumps</b>	1	MTL
30-15-0104		<b>Plumbing - Hale manifold pump SM SS E</b>	1	MTL
30-20-0500		Valves and controls - side mount panel	1	MTL
30-20-1002		<b>Akron valves specified</b> Suction and discharge valves to be AKRON brand.	1	MTL
30-20-1600		<b>Piping stainless steel - general</b> No Black or galvanized anywhere in plumbing, including SSRV Piping	1	MTL
30-20-1700	S	<b>1-1/2" thread specifications - NPSH</b>	1	MTL
30-20-1800	S	<b>2-1/2" thread specifications - CSA</b>	1	MTL
30-20-2000		<b>Piping hydrostatic test</b>	1	MTL
30-20-2500		<b>Anodes in suction and discharge piping</b> Install one anode on discharge side of pump, one anode on suction side of pump - do not use teflon tape or thread sealant. Paint flange silver and mask brass anode before painting for visibility. *** Place the anodes low in the pump such that they remain submerged in a partly flooded pump.	1	MTL
30-21-95AA	U	<b>Akron 4" tank to pump, electric valve, SS piping</b> Manual override required - to be operated by a palm wheel (similar to an MIV-E palm wheel) located on the outside of the pump panel. A warning label shall be installed by palm wheel "Hand wheel rotates when electric valve is operated" - see pick 113841. SOPT #788 - truck specific	1	
30-22-1520	S	<b>Tank Fill valve 2-1/2" SS</b>	1	MTL
30-31-4010	S	<b>Suction - 6" each side manifold pump</b> Left side is gated, right side is not gated	1	MTL
30-31-6060	U	<b>6" Front suction, 5" piping to front by Spartan, SS, Bleeders</b> To flow minimum 70% capacity of the pump (4200 LPM) Over ride to be on the RS pump panel There shall be a bleeder at the low spot in piping under front bumper and a bleeder/drain at the low spot in the pump compartment area to completely drain pump and plumbing. See pictures in F:/Data/Jacques/Current projects/Norfolk/New Pump 7/9 SOPT #688b in file Suction height to be dropped to allow the full raising of the cab - the lock needs to be accessible so the gravel shield will have a notch like their previous Metafab unit(s) The pre-prime connection will be at the highest part of the piping as listed in their tender document.	1	
30-31-7200		<b>&gt; Hale master intake suction valve - electric control</b> <b>ENG. NOTE:</b> Required for top mount panels Show location in Shop Note  <b>For the front and left side 6" inlets</b>	2	MTL
30-32-7530		<b>Suction - 2-1/2" left side SS, bleeder, Hale manifold pump</b> Inlets to be low like previous units See pictures in F:/Data/Jacques/Current projects/Norfolk/New Pump 7/8, 9	1	MTL
30-32-8030		<b>Suction - 2-1/2" right side SS, bleeder, Hale manifold pump</b> Inlets to be low like previous units See pictures in F:/Data/Jacques/Current projects/Norfolk/New Pump 7/8, 9	1	MTL
30-40-30AA	U	<b>4" right side discharge, SS, 4" Akron electric vavle, 4" Storz connection, bldr</b> Hi-vol discharge can be located where it needs to be to make the manual over ride function the best.	1	

PART NO	S	DESCRIPTION	QTY	ID
		Electric control on the left side pump operators panel Over ride will be on the Right side pump panel unless otherwise specified SOPT #718c Valves with grease fittings will need to be accessible for greasing as per their tender.		
30-41-2020		2-1/2" RS discharge SS, bleeder, Hale manifold pump	1	MTL
30-41-2520		2-1/2" LS discharge SS, bleeder, Hale manifold pump	1	MTL
30-43-15AA	U	2-1/2" rear discharge, 3" SS piping and valve, bleeder, reducing caps Left and middle to be foam capable and have 2-1/2" x 1-1/2" reducers like previous unit (M11-15701)	3	
30-44-0720		1-1/2" speedlay (each) front of pumphouse SS, plumbed 2" Capacity will be 200' of 1.75". The trays are to be aluminum with the swivels to be above and to the outside edges. The lower speedlay will be foam capable. The end covers are to be one piece and attached in the middle like previous units. The runners of the speedlays are to be removable to allow access for the mechanics through the front pump house panel. There will be rollers on each side and the bottom of the speedlay openings. See pictures in F:/Data/Jacques/Current projects/Norfolk/New Pump 7/26, 27 See also 70-11-0500	2	MTL
30-44-6520	S	Piping for monitor SS, plumbed 4", bleeder Minimum flow of 5000 LPM w/ foam Plumbing to be set up like M11-15701 with a 3.5" valve and 4" pipe. The piping is towards the front of the pump house and allows 360-degree rotation (see pic 2966)	1	MTL
30-51-0700		Pump Gearbox mounted manual over ride for pump shift E	1	MTL
30-51-6640		Class One "TPG Plus" Governor/Throttle Governor to be in KPA and does not need a sun shield (that has been discontinued)	1	MTL
30-51-7000	S	Suction side relief V/V, manifold pump One for main pump One for 6" front suction MIV One for 6" Left MIV Connections to be plumbed through heat pan as listed in 70-11-7550 and the relief valves to be set at 700 Kpa as listed in tender.	3	MTL
30-51-7700		Primer Hale oil less ESP with oil tank Hale Indicator light on panel to show when primer is operating Primer 1 is to be dedicated to the pump and Primer 2 is to be dedicated to the pre-prime function. Both primers must be very accessible on the frame rail and they can share a lubrication tank.. The primer handles must all be side by side or stacked one above the other. See pictures in F:/Data/Jacques/Current projects/Norfolk/New Pump 7/2	2	MTL
30-51-7800	S	Pre Primer for gated suction Hale primer For the left side and front 6" inlets The front pre-prime connection will be at the highest part of the piping as listed in their tender document.	2	MTL
30-51-8100		Heat exchanger included with chassis	1	MTL
30-51-9100		Thermal Relief Valve with warning light Located on pump operators panel	1	MTL
30-52-1000		Master drain V/V, 12 port	1	MTL
30-52-2000		Drain valve for foam system header	1	MTL
30-52-4210	S	Foam System - Hypro FoamPro 2002 Single Tank Foam system is plumbed to the following discharges; Monitor 4" Hi-vol - right side Lower 1.5" speedlay Two (2) rear 2.5" - Left and middle	1	MTL

PART NO	S	DESCRIPTION	QTY	ID
		Display to be set in Litres to match the rest of the settings		
30-52-9100		<i>Foam concentrate label at foam tank fill</i>	1	MTL
30-52-9200		<i>Foam System Instruction Plates</i>	1	MTL
30-52-9400		<i>NFPA Foam System certification test</i>	1	MTL
30-99-05AA	U	<i>Preconnected front suction hose arrangement, tray, box for low-level strainer</i>	1	
		Provide a horizontal inlet fitting located above the front bumper. The inlet centre-line must be approximately 300mm (11.8") to top of bumper. Not to interfere with headlamps.		
		Provide a swiveling 90 degree suction elbow with locking mechanism and debris screen. Inlet thread shall be 150mm (6") National Standard Hose Thread to match side inlets.		
		Provide a 1500mm (60") length of 150mm (6") hard suction hose. Provide a tray to store this hose pre-connected to the front intake and stowed cross-wise on top of the front bumper.		
		The design of the front suction inlet shall be such that with the 1500mm (60") length of suction hose and low-level strainer attached to the inlet swivel, the strainer shall easily lay flat on the floor of a porta-tank set up in front of the pumper and shall meet its drafting capacity of 4200 PM.		
		Provide a storage bin between the front frame rails to store a Kochek style low-level suction strainer, in the front bumper.		
		Provide all necessary mounting brackets and straps to secure the hose and screen in the stowed location.		
		Provide elasticized vinyl material covers to protect suction hose and low level strainer connection openings from dirt and ice entering them. Provide tether cables for the covers, attached to the bumper deck.		
		Similar to last units (M11-15701)		
		SOPT #720 - mark up copy in file.		
		The suction is to be lowered to allow the full tilting of the cab which will require the gravel shield to have a notch to allow the use of the lock - match previous Metalfab unit(s). The pre-connected suction hose to have a 6" end cap that would have been installed on the suction 30-31-6060.		
		<b>WATER AND FOAM TANKS</b>		
40-11-2100	S	<i>Polypropylene water tank (Imperial gallons)</i>	1	MTL
40-11-2200		Water tank capacity certification (tank manufacturer)	1	MTL
40-11-4500	S	<i>Tank capacity 800 Imperial Gallons</i>	1	MTL
40-12-5000	S	<i>Foam cell - 25 Imperial gallon</i>	1	MTL
		Foam tower to be yellow in colour		
		The inside of the fill tower to have a funnel to prevent foaming when re-filling.		
40-21-1000		<i>4" tank to pump connection</i>	1	MTL
40-22-1000	S	<i>2-1/2" tank fill connection</i>	1	MTL
40-23-0500		1" water level gauge connection	1	MTL
40-23-1000		<i>1" foam level gauge connection</i>	1	MTL
40-30-0400		3" plug in sump box	1	MTL
40-30-1000	S	<i>Water Fill Box front left corner</i> *****Extra Label required*****	1	MTL
		Provide a permanently affixed label on the cover of the fill tower that reads "WATER TANK FILL AND OVERFLOW, DO NOT FASTEN DOWN COVER OR OBSTRUCT OPENING".		
		Add a rubber stopper on the back side of the fill tower to prevent the cover from going over 90-degrees as requested in tender		
40-31-0400		Rear dump valve not requested E	1	MTL
40-31-6050		Rear fill not requested E	1	MTL
		<b>ELECTRICAL</b>		
50-11-0400		<i>Base electrical system - Spartan multiplex</i> Dual Vista displays supplied by Spartan	1	MTL
50-11-0600		<i>Warning Light Certification</i>	1	MTL
50-11-0700		<i>Low Voltage Electrical system test</i>	1	MTL
50-11-0800		<i>Low Voltage Electrical System Documents</i> As required by ULC and NFPA standards	1	MTL

PART NO	S	DESCRIPTION	QTY	ID
50-11-2020	U	<b>Federal Rumbler-3 Siren, Amp, Timer and 2 speakers</b> Do not connect this system to the steering wheel horn ring. Rumbler is to be controlled by the Vista displays. Mount the auxiliary speakers in a manner that does not interfere with the main speakers or the front intake system.	1	
50-11-2600	S	<b>Siren and speaker supplied with Spartan chassis</b>	1	MTL
50-11-6110		<b>Whelen light bar included with chassis</b>	1	MTL
50-11-6616	U	<b>Whelen TAM83 Traffic advisor - flush mount</b> SOPT #823	1	
50-11-8001	S	> <b>Rear beacons - special - see 50-11-86AA</b> <b>ENG. NOTE:</b> Confirm that necessary lighting for ULC/NFPA is present	1	MTL
50-11-86AA	U	<b>Whelen B6MMRAP rear LED beacons - Red upper, Amber lower (pr)</b> The red beacon part of the assembly will be controlled by one switch and the rear facing amber flasher part of the assembly will be controlled by a separate switch. SOPT #244	1	
50-12-8000		<b>Additional body side intersection light not required</b> Distance between front and rear side intersection light does not exceed 25'	1	MTL
50-12-8521		<b>Front flashers, intersection lights included with chassis, Whelen 600</b> All red LED warning lights should be set to a strobe simulated pattern. Where available, this pattern should be an automatically varying pattern. Customer to verify flash pattern;	1	MTL
50-12-8610	S	<b>Rear LED flashers (pr)-Whelen LED 600 w/integral flasher - red lower</b> To be located in the CAST4V module All red LED warning lights should be set to a strobe simulated pattern. Where available, this pattern should be an automatically varying pattern. Customer to verify flash pattern;	1	MTL
50-12-87AA	U	<b>Red flasher in rub rail beside intermediate turn signal (pr)</b> There will be a red flasher mounted in the rub rail on each side of the unit. It will be mounted beside the intermediate turn signal. To meet section 9-2-3 of the tender	1	
50-12-8810	S	<b>Body side inter lts (pr)-Whelen red LED 600 with integral flasher</b>	1	MTL
50-21-25AA	U <	<b>Whelen PCH2P1 extenda light with sensor</b> Control switch on pump panel (2) SOPT in file  Wire the extenda lights to the Vista display to show when deployed and wire to audible alarm when the park brake is off to warn that they are not stored.	2	
50-21-30AA	U	<b>Go-Light - Model 30004 LED Stryker - wireless dash mount and hand held remote</b> Install an LED GO Light (Model 30004) mounted on a level platform in the center front of the cab roof, above of the light bar and ahead enough so it does not interfere with cab roof. Install the remote control and switch on the between-seat console within reach of the driver and officer. See photos #6 and #7	1	
50-21-5100		> <b>Compartment lighting - LED tube lights in each compartment (rollup doors)</b> <b>ENG. NOTE:</b> Rollup doors only	1	MTL
50-21-5500	S	<b>Door Ajar warning light - with chassis</b> Bilingual Warning label in cab to read: "Do Not Move Apparatus when Light is on" Also shall indicate when Extenda lights are deployed	1	MTL

PART NO	S	DESCRIPTION	QTY	ID
50-21-5550	S	<p><i>Equipment rack not stowed warning light</i>                      Bilingual Warning label in cab to read:                      "Do Not Move Apparatus when Light is on"                      Include an Audible alarm - the back up alarm shall sound when the HLAS is being deployed.</p>	1	MTL
50-21-8001		<p><i>Step lights for body steps - 4" LED</i></p>	1	MTL
50-21-8201	S	<p><i>Step lights for chassis steps - LED</i></p>	1	MTL
50-21-8600		<p>LED clearance lts and reflectors</p>	1	MTL
50-21-8800		<p><i>LED intermediate turn signal/clearance/reflector length &gt;30'</i></p>	1	MTL
50-22-0750	S	<p><i>Whelan 64 LED CAST 4V tail/brake-turn-backup-warning module (pr)</i>                      The order of the lights are to be:                      Flasher at bottom                      B/U light above the flasher                      Turn signal above B/U light                      Brake light on the top</p>	1	MTL
50-31-60AA	U	<p><i>Whelen PCPSM1C 12 volt scene lights (pr)</i>                      LS, RS and Rear switched by Vista                      Rear to be wired with reverse of transmission                      Department asked to have the unit on the front upper body side of the body to be spaced evenly between the chassis scene light and the one on the rear of the body - SOPT #724                      Whelen Pioneer PCPSM1C to match the one on the cab supplied by Spartan.</p>	3	
50-31-6505		<p><i>Ground lighting included with chassis E</i></p>	1	MTL
50-31-6570		<p><i>Ground lighting (LED Lumabar) - side mount body</i>                      Switched when park brake is applied.</p>	1	MTL
50-31-6595	U	<p><i>Ground lighting under L3 and R3 - LED lumabar</i>                      Switched when park brake is applied.</p>	2	
50-35-10AA	U	<p><i>Motorola XPR5550 radio, speaker and H9990 David Clark headset</i>                      Install in the dash to match previous unit. There will be one (1) speaker on the ceiling between the front seats and rear facing seats - on the A/C tunnel towards the driver seat. The David Clark wireless headset module is to be installed on the LS middle window frame for the best signal. The headset is to be stored in the compartment under the driver seat (add label "Headset" on the door) with the charging base mounted on the medical compartment tray and plugged to 110-volt outlet.</p>	1	
50-99-05AA	U	<p><i>12-Volt bus bar in each body side compartment (ea)</i>                      The 12-volt bus will be installed behind each rollup door and protected by the Amdor roll shields (60-11-56AA).                      SOPT #1030                      There will also be one in the cab medical cabinet 20-99-05AA.                      Customer to specify max amps that will be drawn and preferred type of bus bar</p> <hr/> <p>The shall be 8 separate power feeds.</p>	8	
51-99-05AA	U	<p><i>12-Volt power to portable generator compartment (R3 L3)</i>                      Provide a suitable 150 Amp, 12-Volt circuit and positive and negative power plug to the generator compartment (R3) for use in maintaining (starting) the generator electric start.                      Also add same circuit to L3                      This will be to start the generator only (no battery charging required)                      SOPT #400 (Plug assemblies)                      Ship the other end of the two (2) plugs loose for customer to install to their device</p>	2	
60-10-1400		<p>Single axle extruded aluminum body</p>	1	MTL
60-10-4100		<p>No "beavertail" rear step supports</p>	1	MTL
60-10-4600		<p>Painted fender surround E</p>	1	MTL



PART NO	S	DESCRIPTION	QTY	ID
60-10-4770		<b>Removable stainless steel fender trim - single axle E</b>	1	MTL
60-10-5400		> Diamondback pumphouse steps ENG. NOTE: Maximum height of step is 24" from ground	1	MTL
60-10-5430	S	> <b>Diamondback approximately 24" rear step</b> ENG. NOTE: Maximum height of rear step is 24" from ground	1	MTL
60-10-6500		<b>Bolt on extruded aluminum rub rail E</b>	1	MTL
60-11-0300		> <b>Front left side compartments full height E</b> ENG. NOTE: Specify critical dimensions in shop note	1	MTL
60-11-0700		> <b>Front right side compartments full height E</b> ENG. NOTE: Specify critical dimensions in shop note	1	MTL
60-11-1000		> <b>Rear left side compartments full height E</b> ENG. NOTE: Specify critical dimensions in shop note	1	MTL
60-11-1400		> <b>Rear right side compartments full height E</b> ENG. NOTE: Specify critical dimensions in shop note	1	MTL
60-11-2000		> <b>High side compartment (over 18") each</b> ENG. NOTE: Specify critical dimensions in shop note Specify type of door Specify flip up or drop down Specify which side of body	2	MTL
60-11-2500		> <b>Rear compartment at step level</b> ENG. NOTE: Specify critical dimensions in shop note	1	MTL
60-11-5500		<b>Rollup door - standard height</b> Natural aluminum finish Includes magnetic door switch, LED tube lights, rubber bumpers to prevent pinch point Department does not want Metalfab logos on the Amdor door if that becomes an option	2	MTL
60-11-5520		<b>Rollup door - full height</b> Natural aluminum finish Includes magnetic door switch, LED tube lights, rubber bumpers to prevent pinch point Department does not want Metalfab logos on the Amdor rollup doors if that becomes an option	4	MTL
60-11-5655	U	<b>Amdor Pull straps - Flex HD - for L2 and R2 compartments</b> Include with door order Metalfab part number 1003066 Amdor part number AY-9355-18 For door opening height of 20" to 37" Installed on the following doors Left side over rear wheels Right side over rear wheels	2	
60-11-5660	U	<b>Amdor Pull straps - Flex - HD - for L1, L3, R1, and R3 compartments</b> Include with door order Metalfab part number 1003068 Amdor part number AY-9355-36 For door opening height of 49" to 70" Installed on the following doors	4	

PART NO	S	DESCRIPTION	QTY	ID
		Left side front compartment door		
		Left side rear compartment door		
		Right side front compartment door		
		Right side rear compartment door		
60-11-56AA	U	<i>Amdor plate shields for roll up door rolls</i> Modified to fit. SOPT #1185 Amdor DT-1000 (No drain).	1	
60-31-4100	S	<i>Extruded aluminum handrails</i> Minimum 2" clearance from handrail to any surface located in the following locations; Full height on either side of rear body Full width below the rear hose bed Above both pump panels, at the top of the body On top of the body on both sides at the rear Provide a full grab rail (straight across) at the front of the hose bed - full width of the body Add grab handles on the rear face of the hose bed cover (60-33-55AA)	1	MTL
60-31-5500	S	<i>Steps at rear of body (folding) with LED lights</i> Maximum height between steps is 18"	1	MTL
60-31-5600	S	<i>Steps and grab handles at front of body next to pump panel</i> Maximum height between steps is 18" There will be 4 steps on RS of body and 3 steps on LS as per tender document	1	MTL
60-31-6500	S	<i>Compartment matting - interlocking plastic tile</i>	1	MTL
60-31-8006	U	<i>BA bottle compt (ea)-fender well</i>	3	
60-31-83AA	U	<i>PAC tool board</i> Horizontally mounted in the upper portion of the back wall of L1 and the back wall of L2 compartments See pics #22 & #23 SOPT #624	1	
60-31-8800		> <i>Sliding tray (ea) - 600 pound capacity</i> ENG. NOTE: Specify location	4	MTL
		***Hardware requires 3-1/2" of compartment height Reflective stripe is applied on the exposed edge for visibility when the compartment door is open Installed at floor level in the following compartments; L3, R3, L1, B1		
60-31-9600	S	> <i>Adjustable shelf (ea)</i> ENG. NOTE: Specify location  Reflective stripe is applied on the exposed edge for visibility when the compartment door is open. Shelves are located in the following compartments; 1. L1 fixed at depth change 2. L2 3. L3 fixed at depth change full width 4. L3 shallow full width 5. R1 fixed at depth change low enough to allow 26" of room for the SCBA brackets 6. R1 adjustable full depth 7. R2 8. R3 - adjustable shallow 9. R3 - adjustable shallow	9	MTL
60-32-3560	S	<i>Three adjustable hose divider (each) and 1 fixed to support hose bed cover</i> Hand hold required in end There will be three (3) adjustable dividers and one (1) fixed to support the hose	1	MTL

PART NO	S	DESCRIPTION	QTY	ID
		bed cover		
60-32-7500		<b>Hose bed - aluminum</b> 900' of 1.75", 800' of 2.5", 1000' of 4"	1	MTL
60-33-0000		<b>Paint exterior - Imron Elite</b> *** Paint code and colour red to match cab.	1	MTL
60-33-0200		<b>Undercoat vehicle with KROWN rust protection</b> Thoroughly undercoat all parts of the vehicle that could be exposed to road salt. This shall include all frame members on the chassis and the underside of the cab and body, wheel arches, and etc.	1	MTL
60-33-0600		<b>Chassis wheels not painted</b>	1	MTL
60-33-1000		Paint pump and plumbing job colour	1	MTL
60-33-1500		Buffed finish compartment interior	1	MTL
60-33-2300	S	<b>Lettering - as directed by Customer</b> *** Vinyl letters, Fire Department to provide details on location and text. Match their last Pumper (P7) See pictures in F:/Data/Jacques/Current projects/Norfolk/New Pump	1	MTL
60-33-3100	S	<b>Reflective stripe - 6" white &amp; 1/2" gold</b> 50% of perimeter each side and 25% of perimeter front There will be a 1/2" gold stripe under the 6" reflective stripe See pictures in F:/Data/Jacques/Current projects/Norfolk/New Pump 7/3, 5	1	MTL
60-33-3320	U <	<b>Diamond Grade chevrons</b> Color is red and yellow SOPT 300a	1	
60-33-4000	S	<b>Tarp over speedlays- black</b> Black vinyl cover with heavy-duty hook and loop (velcro) fastener to cover cross/speed lays. There is to be a shock cord in the middle attached to J-hooks to hold the tarp tighter - to match their previous unit	1	MTL
60-33-5005	U	<b>Power assisted main hose bed covers</b> The Customer would like the LS hose bed to operable without the HLAS being deployed. One switch for the left hand cover, one switch for the right hand cover. Both switches are located at rear over the left tail light module. The Customer request grab handles on the rear face of the cover (not on top). SOPT #190	1	
60-40-4500	S	<b>6" Hose tray - side mount (ea) - mounted on HLAS</b> For the 6" x 13' suction hoses 80-11-50AA.	2	MTL
60-41-1000		<b>Pike Pole tube with door</b> For storage of the 8' pike pole 80-13-2500 and the 6' pike pole 80-13-2510. The Customer would prefer the storage to be in the body - somewhere with minimal compartment loss.	2	MTL
60-41-1500		<b>Attic ladder tube with rear door</b> For the storage of the 10' attic ladder 80-14-8500 The Customer would prefer the storage to be in the body - somewhere with minimal compartment loss.	1	MTL
60-41-9500	>	<b>Zico Horizontal Ladder Access system</b> <b>ENG. NOTE:</b> Specify mounting location desired. If ladder(s) are customer supplied, specify overall length and width, width between side rails, rung spacing; also specify ladder brand and model  <b>Include HLAS-OS optional stop</b> <b>Mounted on right side of body ahead of R2.</b> To be wired so only operable when park brake is engaged and wired to the backup alarm (have alarm sound when the rack is moving) Flashing lights and reflective tape required at front and rear to indicate any	1	MTL

PART NO	S	DESCRIPTION	QTY	ID
		<p>areas that protrude beyond the body.                      ****Audible alarm while in motion (wire to the backup alarm)****                      For customer supplied 35' 3-section ladder and 14' roof ladder                      The cylinder actuator cover is to be painted (not deck plate)                      The Customer is to specify the make and model of ladder that are to be installed</p>		
60-41-9510		<p><b>ZICO HLAS switched at rear above tail light</b>                      Switch is located on same side as electric rack - right side</p>	1	MTL
60-99-10AA	U	<p><b>Hose bed cover lights - LED strip lighting to meet ULC</b>                      SOPT #209 4 x 40" LED Lumabars</p>	1	
		<b>INSTRUMENTATION</b>	1	MTL
70-11-0000		<b>Warning Label on Pump Operator's Panel</b>	1	MTL
70-11-0500		<p><b>Side mount instrument panel</b>                      No gauge or visual display can be higher than 84" above the operator's standing position                      Midpoint of any control cannot be higher than 72" above the operator's standing position</p>	1	MTL
		<p>***Front panel(s) of pump house shall be removable with out tools***                      See pic #44 - eight (8) lift and turn latches</p>		
70-11-1500		<p><b>Stainless steel instrument panels</b>                      No gauge or visual display can be higher than 84" above the operator's standing position                      Midpoint of any control cannot be higher than 72" above the operator's standing position                      ***The LS pump panel (upper hinged part) is to be latched (not bolted in) with lift and turn fasteners                      See pictures in F:/Data/Jacques/Current projects/Norfolk/New Pump 7/1</p>	1	MTL
70-11-3200		<p><b>Colour coded tags</b>                      Special colors                      The color code is to match NFPA and the gauge bezel is to be color coded.                      See pictures in F:/Data/Jacques/Current projects/Norfolk/New Pump 7/1</p>	1	MTL
70-11-3210	U	<p><b>Class 1 chrome tag bezels</b>                      SOPT #216</p>	1	
70-11-4000		Stainless steel side panel hood right side	1	MTL
70-11-4100		Stainless steel side panel hood left side	1	MTL
70-11-5100		<p><b>Open storage at rear top of pump house</b>                      The floor is to be removable where possible to allow room for pump service. The Customer is aware there will be cross members and the area around the monitor will be fixed.                      ***LED lighting required***</p>	1	MTL
70-11-5500		<p><b>Right side tread plate pump access door</b>                      To be as large as possible.                      No opening dimension less than 18"                      Slot required for Primer level viewing                      D-handle on door                      Door is vertically hinged</p>	1	MTL
70-11-7550	U	<p><b>Heat pan - aluminum extreme weather type</b>                      Provide a tight fitting winter pan enclosure below the pump compartment. The winter pan shall be easily removable for summer operations. All relief valves to be plumbed through the heat pan.</p>	1	
70-11-8000	S	<p><b>Heater in pump compartment</b>                      Shut offs are to be labeled.                      See pictures in F:/Data/Jacques/Current projects/Norfolk/New Pump 7/37</p>	1	MTL

PART NO	S	DESCRIPTION	QTY	ID
70-11-81AA	U	<b>Thermostat for pump compartment heater with indicator light - Vista controlled</b> Pump house heater(s) will turn on automatically at 5° Celsius outside temperature to prevent freezing of pump components. Provide a labeled, green indicator light on the pump panel that indicates the heater is operating. Must be controlled through the multi-plex system with an over-ride ON/OFF option integrated into to the touch screen. Match M11-15701 - Refrigeration control rated at 20amps (1032002) SOPT #248	1	
70-11-8200	U	<b>Rubber seal around suction and discharge openings on panel</b>	1	
70-20-1500	S	<b>2-1/2" pressure gauge - dual face 0-400</b> Gauge to be no more than 6" from edge of the gauge to the center of the control. *****Metric dominant and up to 2800 Kpa Bezels are to be color coded.	9	MTL
70-20-2500		<b>Primer control</b> Controls must all be side by side or can be stacked one above each other See pictures in F:/Data/Jacques/Current projects/Norfolk/New Pump 7/2	3	MTL
70-20-3100		<b>Class One Governor Control</b> Throttle can be no lower than 42" and no higher than 72" from operator's standing position.	1	MTL
70-20-3500		Electric water level gauge on pump panel, Class One	1	MTL
70-20-6500		Test gauge panel	1	MTL
70-20-7500		<b>Heat exchanger control valve</b>	1	MTL
70-21-1500	S	<b>Electric Foam Level gauge on pump panel, Class One</b> Include access to and room for sender in front of body and back of pump house	1	MTL
<b>ACCESSORIES</b>			1	MTL
80-11-50AA	U	<b>6" x 13' suction hose with rocker lug couplings (ea)</b> All suction hose couplings shall be of the rocker lug style (both ends) Harrington brand was accepted at 06.13.2018 meeting. Stored in trays on the HLAS	2	
80-13-2500	S	<b>Pike pole, fibreglass handle - 8' long</b> Tube mounted	1	MTL
80-13-2510		<b>Pike pole, fibreglass handle - 6' long</b> Tube mounted	1	MTL
80-14-8500		<b>10' aluminum folding attic ladder FL-10</b> Tube mounted	1	MTL
80-17-0500	S	<b>20# dry chemical fire extinguisher and mount</b> Mounting location to be in the rear RS compartment on the floor beside the pull out tray	1	MTL
80-17-1500	S	<b>2 gallon water extinguisher with mount</b> Mounting location to be in LS rear compartment on back wall beside the pull out tray	1	MTL
80-18-0500	S	<b>SCBA bracket with strap - compt mount</b> Located in upper part of R1 compartment - space for the storage of 3 spare cylinder and 1 complete Scott air pack. Allow 26" of space between shelf and drip pan	4	MTL
80-19-0500		<b>Large folding wheel chock - aluminum (ea) not mounted</b>	2	MTL
80-19-0600		<b>&gt; Horizontal bracket for folding wheel chock (ea)</b> ENG. NOTE: Specify location, otherwise ship loose	2	MTL
<b>To be mounted under the body to match M11-15701</b>				

PART NO	S	DESCRIPTION	QTY	ID
80-99-05AA	U	<p><i>Ziamatic Mask Holder MH-YV (ea) mounted in R1</i>                      SOPT #759                      P/N 1562299                      Mount in R1 by the holder for the Scott SCBA</p>	1	
80-99-10AA	U	<p><i>Akron 3431 Apollo Hi-Riser Deck monitor with 5160 nozzle, ground base, pipe, tips</i>                      One (1) 77mm (3") waterway portable deck gun/monitor mounted as a deck gun on top of body with use of top mount adapter. Monitor to rotate 360 degrees. Supply with a de-mountable ground base with 100mm (4") storz inlet on ground base, compartment bracket for base, waterway pressure gauge. Monitor is to be an Akron model 3431 quick raise with Akron model 3505 base storage bracket, or equivalent. Provide Style 5160 Akromatic Master Stream Nozzle and Quad Stacked Deluge tips, or equivalent. All applicable attachment threads to be Ontario Standard (CSA) fire hose. De-mountable base to be bracket mounted inside the LEFT side front compartment on the right side wall.                      ***Must be able to rotate 360-degrees***                      SOPT #730b</p>	1	
80-99-15AA	U	<p><i>Adapter for 6" intake - 6" Long Handle FNH x 4" Storz locking, with blind plug</i>                      Ship loose for Customer to install.                      S54L46                      P/N 1501071                      SOPT #728</p>	2	
80-99-20AA	U	<p><i>6" Low Level strainer - Zico QD-600-NST</i>                      One (1) Ziamatic QD-600-NST low level suction strainer for connection to the 150mm (6") hard suction hose. This strainer shall be mounted in a recessed pocket on the front extension bumper.                      SOPT #729</p>	1	
80-99-25AA	U	<p><i>Mounting of UHH-1 Helmet holder as directed by Customer (ea)</i>                      Helmet holders are supplied and shipped loose with the Spartan chassis. Mount three (3) helmets on each side of the back wall                      See pictures in F:/Data/Jacques/Current projects/Norfolk/New Pump 7/55</p>	6	
80-99-35AA	U	<p><i>Zoll AED Plus - Automatic External Defibrillator</i>                      The defib is to be mounted in the medical cabinet (20-99-05AA) and wired for charging                      SOPT #1024                      P/N 1001428</p>	1	