

# Edmonton Police Service

## Command

### Production Specification

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#### **LIABILITY INSURANCE**

Bidder shall furnish with the bid a certificate of insurance for;

Workman's Compensation and Employer's Liability Insurance covering all employees.

General Liability each occurrence of \$1,000,000.00, General Aggregate of \$2,000,000.00 including Products Completed / Operations Aggregate.

Personal Injury of \$1,000,000.00, Fire damage of \$50,000.00 and Medical expense of \$10,000.00. Automobile liability of \$1,000,000.00 combined single limit (each accident), including any auto, all owned autos, scheduled autos, hired autos, non-owned autos, and garage liability.

Excess Umbrella Liability coverage of \$2,000,000.00 each occurrence, Aggregate of \$2,000,000.00.

All insurance policies must be;

- Maintained for the life of the contract,
- Must provide ten (10) days notice before cancellation,
- Must cover all operations of the contractor, or anyone employed by them.

#### **INTERNET IN-PROCESS SITE**

The Bidder shall post and maintain a website where the Edmonton Police Department will be able to view digital images of their apparatus as its being manufactured. The digital images shall be posted once a week starting when the body begins production or when the cab/chassis arrives and shall continue until the final completion of the apparatus.

#### **VEHICLE STABILITY SUPPLIED WITH CAB/CHASSIS**

The cab/chassis shall be equipped with a stability control system. The system shall have, at a minimum, a steering wheel position sensor, a vehicle yaw sensor, a lateral accelerometer and individual wheel brake controls.

#### **ROADABILITY**

The apparatus, when loaded to its estimated in-service weight, shall be capable of the following performance while on dry, paved roads that are in good condition:

- 1) From a standing start, the apparatus shall be able to attain a speed of 35 mph (55 km/hr) within 25 seconds on a level road.
- 2) The apparatus shall be able to attain a minimum top speed of 50 mph (80 km/hr) on a level road.
- 3) The apparatus shall be able to maintain a speed of at least 20 mph (32 km/hr) on any grade up to and including 6 percent.

The maximum top speed of fire apparatus with a GVWR over 26,000 lb (11,800 kg) shall not exceed either 68 mph (105 km/hr) or the manufacturer's maximum fire service speed rating for the tires installed on the apparatus, whichever is lower.

If the combined water tank and foam agent tank capacities on the fire apparatus exceed 1250 gal (4732 L), or the GVWR of the vehicle is over 50,000 lb (22,680 kg), the maximum top speed of the apparatus shall not exceed either 60 mph (85 km/hr) or the manufacturer's maximum fire service speed rating for the tires installed on the apparatus, whichever is lower.

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#### **SERVICEABILITY**

The fire apparatus shall be designed to allow the manufacturer's recommended routine maintenance checks of lubricant and fluid levels to be performed by the operator without lifting the cab of a tilt-cab apparatus or without the need for hand tools.

Where special tools are required for routine service on any component of the apparatus, such tools shall be provided with the apparatus.

Apparatus components that interfere with repair or removal of other major components shall be attached with fasteners, such as cap screws and nuts, so that the components can be removed and installed with ordinary hand tools. These components shall not be welded or otherwise permanently secured into place.

#### **CONSTRUCTION DOCUMENTATION**

The contractor shall supply, at the time of delivery, at least one (1) copy of the following documents:

The manufacturers record of apparatus construction details, including the following information:

- 1) Owner's name and address
- 2) Apparatus manufacturer, model, and serial number
- 3) Chassis make, model, and serial number
  - a) GAWR of front and rear axles and GVWR
  - b) Front tire size and total rated capacity in pounds (kilograms)
  - c) Rear tire size and total rated capacity in pounds (kilograms)
  - d) Chassis weight distribution in pounds (kilograms) with water and manufacturer-mounted equipment (front and rear)
  - e) Engine make, model, serial number, rated horsepower and related speed, and governed speed; and if so equipped, engine transmission PTO(s) make, model, and gear ratio
  - f) Type of fuel and fuel tank capacity
  - g) Electrical system voltage and alternator output in amps
  - h) Battery make, model, and capacity in cold cranking amps (CCA)
  - i) Chassis transmission make, model, and serial number; and if so equipped, chassis transmission PTO(s) make, model, and gear ratio
- 4) Pump make, model, rated capacity in gallons per minute (liters per minute where applicable), and serial number
- 5) Pump transmission make, model, serial number, and gear ratio
- 6) Auxiliary pump make, model, rated capacity in gallons per minute (liters per minute where applicable), and serial number
- 7) Water and Foam tank certified capacity in gallons or liters
- 8) Paint manufacturer and paint number(s)
- 9) Company name and signature of responsible company representative
- 10) If the apparatus is a mobile foam fire apparatus, the certification of foam tank capacity
- 11) Certification of compliance of the optical warning system
- 12) Siren manufacturer's certification of the siren
- 13) Written load analysis and results of the electrical system performance tests
- 14) Certification of slip resistance of all stepping, standing, and walking surfaces
- 15) If the apparatus has a fire pump, the pump manufacturer's certification of suction capability
- 16) If the apparatus is equipped with a fire pump and special conditions are specified by the purchaser, the pump manufacturer's certification of suction capacity under the special conditions
- 17) If the apparatus has a fire pump, a copy of the apparatus manufacturer's approval for stationary pumping applications
- 18) If the apparatus has a fire pump, the engine manufacturer's certified brake horsepower curve for the engine furnished, showing the maximum governed speed
- 19) If the apparatus has a fire pump, the pump manufacturer's certification of the hydrostatic test
- 20) If the apparatus has a fire pump, the certification of inspection and test for the fire pump
- 21) If the apparatus is equipped with an auxiliary pump, the apparatus manufacturer's certification of the hydrostatic test

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- 22) When the apparatus is equipped with a water tank, the certification of water tank capacity
- 23) If the apparatus has an aerial device, the certification of inspection and test for the aerial device
- 24) If the apparatus has an aerial device, all the technical information required for inspections to comply with NFPA 1911, Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Automotive Fire Apparatus
- 25) If the apparatus has a foam proportioning system, the foam proportioning system manufacturer's certification of accuracy and the final installer's certification the foam proportioning system meets this standard
- 26) If the system has a CAFS, the documentation of the manufacturer's pre delivery tests
- 27) If the apparatus has a line voltage power source, the certification of the test for the power source
- 28) If the apparatus is equipped with an air system, air tank certificates, the SCBA fill station certification, and the results of the testing of the air system installation
- 29) Any other required manufacturer test data or reports.

#### **OPERATIONS AND SERVICE DOCUMENTATION**

The Contractor shall deliver with the fire apparatus at least two (2) sets of complete operation and service documentation covering the completed apparatus as delivered and accepted.

The documentation shall address at least the inspection, service, and operations of the fire apparatus and all major components thereof.

The Contractor shall also deliver with the fire apparatus the following documentation for the entire apparatus and each major operating system or major component of the apparatus:

- 1) Manufacturer's name and address
- 2) Country of manufacture
- 3) Source for service and technical information
- 4) Parts replacement information
- 5) Descriptions, specifications, and ratings of the chassis, pump (if applicable), and aerial device (if applicable)
- 6) Wiring diagrams for low voltage and line voltage systems to include the following information:
  - j) Pictorial representations of circuit logic for all electrical components and wiring
  - k) Circuit identification
  - l) Connector pin identification
  - m) Zone location of electrical components
  - n) Safety interlocks
  - o) Alternator-battery power distribution circuits
  - p) Input/output assignment sheets or equivalent circuit logic implemented in multiplexing systems
- 7) Lubrication charts
- 8) Operating instructions for the chassis, any major components such as a pump or aerial device, and any auxiliary systems
- 9) Precautions related to multiple configurations of aerial devices, if applicable
- 10) Instructions regarding the frequency and procedure for recommended maintenance
- 11) Overall apparatus operating instructions
- 12) Safety considerations
- 13) Limitations of use
- 14) Inspection procedures
- 15) Recommended service procedures
- 16) Troubleshooting guide
- 17) Apparatus body, chassis and other component manufacturer's warranties
- 18) Special data required by this standard
- 19) A material safety data sheet (MSDS) for any fluid that is specified for use on the apparatus

The Contractor shall deliver with the apparatus all manufacturer's operations and service documents supplied with components and equipment that are installed or supplied by the Contractor.



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#### **NFPA REQUIRED DOCUMENTATION FORMAT - CD-ROM**

The vehicle construction details and the operations and service documentation as required per NFPA 1901 latest edition shall be provided on a CD-ROM. These manuals shall be divided into sections for ease of reference. There shall be two (2) copies of the CD-ROM provided with the completed vehicle.

#### **TESTING**

##### **ROAD TEST**

Road test shall be conducted in accordance with this section to verify that the completed apparatus is capable of compliance with Roadability Section.

The tests shall be conducted at a location and in a manner that does not violate local, state or provincial or federal traffic laws.

The tests shall be conducted on dry, level, paved roads that are in good condition. The apparatus shall be loaded to its estimated in service weight.

The engine shall not operate in excess of the maximum governed speed. Acceleration tests shall consist of two runs in opposite directions over the same route. The fire apparatus shall attain a speed of 35 mph (55 km/hr) from a standing start within 25 seconds. The fire apparatus shall attain a minimum top speed of 50 mph (80 km/hr).

If the apparatus is equipped with an auxiliary braking system, the Body Manufacturer shall road test the system to confirm that the system is functioning as intended by the auxiliary braking system manufacturer.

If the apparatus is equipped with an air brake system, the service brakes shall bring the apparatus, when loaded to its GVWR, to a complete stop from an initial speed of 20 mph (32.2 km/hr) in a distance not exceeding 35 ft (10.7 m) by actual measurement on a paved, level, dry surface road that is free of loose material, oil or grease.

If the apparatus is equipped with a hydraulic brake system, the service brakes shall bring the apparatus, when loaded to its GVWR, to a complete stop from an initial speed of 30 mph (48.2 km/hr) in a distance not exceeding 88 ft (26.8 m) by actual measurement on a paved, level, dry surface road that is free of loose material, oil or grease.

##### **LOW VOLTAGE - ELECTRICAL SYSTEM PERFORMANCE TEST**

The vehicles low voltage electrical system shall be tested and certified by the manufacturer. The certified test results shall be delivered with the completed vehicle. Tests shall be performed when the air temperature is between 0°F and 110°F (–18°C and 43°C).

#### **TEST SEQUENCE**

The following three (3) tests shall be performed in the order in which they appear below. Before each test, the batteries shall be fully charged until the voltage stabilizes at the voltage regulator set point and the lowest charge current is maintained for ten (10) minutes. Failure of any of these tests shall require a repeat of the sequence.

##### **1. RESERVE CAPACITY TEST**

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

All electrical loads shall be turned off prior to attempting to restart the engine. The battery system shall then be capable of restarting the engine. Failure to restart the engine shall be considered a test failure of the battery system.

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## **2. ALTERNATOR PERFORMANCE TEST**

### **TEST AT IDLE**

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

### **TEST AT FULL LOAD**

The total continuous electrical load shall be activated with the engine running up to the engine manufacturer's governed speed. The test duration shall be a minimum of two (2) hours. Activation of the load management system shall be permitted during this test.

An alarm sounded by excessive battery discharge, as detected by the warning system required in 13.3.4, or a system voltage of less than 11.8 V dc for a 12 V nominal system, 23.6 V dc for a 24 V nominal system, or 35.4 V dc for a 42 V nominal system for more than 120 seconds shall be considered a test failure.

## **3. LOW VOLTAGE ALARM TEST**

The following test shall be started with the engine off and the battery voltage at or above 12 V for a 12 V nominal system, 24 V for a 24 V nominal system or 36 V for a 42 V nominal system.

With the engine shut off, the total continuous electrical load shall be activated and shall continue to be applied until the excessive battery discharge alarm activates. The battery voltage shall be measured at the battery terminals.

The test shall be considered a failure if the alarm does not sound in less than 140 seconds after the voltage drops to 11.70 V for a 12 V nominal system, 23.4 V dc for a 24 V nominal system, or 35.1 V for a 42 V nominal system.

The battery system shall then be able to restart the engine. Failure to restart the engine shall be considered a test failure.

## **LOW VOLTAGE - ELECTRICAL SYSTEM PERFORMANCE TEST**

### **DOCUMENTATION**

The manufacturer shall deliver the following with the fire apparatus:

- 1) Documentation of the electrical system performance tests
- 2) A written electrical load analysis, including the following:
  - q) The nameplate rating of the alternator
  - r) The alternator rating
  - s) Each of the component loads specified that make up the minimum continuous electrical load
  - t) Additional electrical loads that, when added to the minimum continuous electrical load, determine the total continuous electrical load
  - u) Each individual intermittent electrical load

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#### **UL 120/240 VAC CERTIFICATION**

The 120/240 volt electrical system shall be tested and certified by Underwriters Laboratories, to perform as listed below;

The prime mover shall be started from a cold start condition, and the unloaded voltage and frequency shall be recorded.

The line voltage electrical system shall be loaded to at least 100% of the continuous rated wattage stated on the power source specification label. Testing with a resistive load bank shall be permitted.

The power source shall be operated in the manner specified by the apparatus manufacturer as documented on instruction plates or in operation manuals. The power source shall be operated at a minimum of 100% of the continuous rated wattage as stated on the power source specification label for a minimum of two (2) hours.

The load shall be adjusted to maintain the output wattage at or above the continuous rated wattage during the entire 2-hour test.

The following conditions shall be recorded at least every 1/2 hour during the test:

- 1) The power source output voltage, frequency and amperes
- 2) The prime mover's oil pressure, water temperature and transmission temperature, if applicable
- 3) The power source hydraulic fluid temperature, if applicable
- 4) The ambient temperature and power source air inlet temperature

The following conditions shall be recorded once during the test for power sources driven by dedicated auxiliary internal combustion engines:

- 1) Altitude
- 2) Barometric pressure
- 3) Relative humidity

If the generator is driven by the chassis engine and the generator allows for operation at variable speeds, the chassis engine speed shall be reduced to the lowest rpm allowed for generator operation and the voltage and frequency shall be recorded.

The load shall be removed and the unloaded voltage and frequency shall be recorded.

Voltage shall be maintained within  $\pm 10\%$  of the voltage stated on the power source specification label during the entire test. Frequency shall be maintained within  $\pm 3$  Hz of the frequency stated on the power source specification label during the entire test.

The total continuous electrical loads, excluding those loads associated with the equipment defined in NFPA 22.15.7.3.11.2, shall be applied during the testing unless an auxiliary engine drives the power source.

If the apparatus is equipped with a fire pump, the 2-hour certification test of the power source shall be completed with the fire pump pumping at 100% capacity at 150 psi (1000 kPa) net pump pressure. The test shall be permitted to be run concurrently with the pump certification test.

#### **DOCUMENTATION**

The Body Manufacturer shall deliver the following with the fire apparatus:

The results of each test shall be recorded on an appropriate form and provided with the delivery of the fire apparatus.

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#### **DIELECTRIC VOLTAGE WITHSTAND TEST**

The line voltage wiring and permanently connected devices and equipment shall be subjected to a dielectric voltage withstand test of 900 volts for one (1) minute. The testing shall be performed after all body work has been completed.

The test shall be conducted as follows:

- 1) Isolate the power source from the panel board and disconnect any solid state low voltage components
- 2) Connect one lead of the dielectric tester to all the hot and neutral buses tied together
- 3) Connect the other lead to the fire apparatus frame or body
- 4) Close any switches and circuit breakers in the circuit(s)
- 5) Apply the dielectric voltage for one (1) minute in accordance with the testing equipment manufacturer's instructions

The electrical polarity of all permanently wired equipment, cord reels and receptacles shall be tested to verify that wiring connections have been properly made.

Electrical continuity shall be verified from the chassis or body to all line voltage electrical enclosures, light housings, motor housings, light poles, switch boxes and receptacle ground connections that are accessible to fire fighters in normal operations.

If the apparatus is equipped with a transfer switch, it shall be tested to verify operation and that all non grounded conductors are switched.

Electrical light towers, floodlights, motors, fixed appliances and portable generators shall be operated at their full rating or capacity for 30 minutes to ensure proper operation.

#### **WARRANTY**

A full statement shall be provided of the warranties for the vehicle(s) being bid. Warranties should clearly describe the terms under which the vehicle manufacturer accepts responsibility for the cost to repair defects caused by faulty design, quality of work or material and for the applicable period of time after delivery.

Cost of repairs refers to all costs related thereto including, but not limited to, the cost of materials and the cost of labor.

The Body Manufacturer shall warrant all materials and accessories used on the vehicle(s), whether fabricated by manufacturer or purchased from an outside source and will deal directly with the Edmonton Police Department on all warranty work.

#### **GENERAL LIMITED WARRANTY - ONE (1) YEAR**

The vehicle shall be free of defects in material and workmanship for a period of one (1) year or 24,000 miles (or 38,624 kilometers), whichever occurs first starting thirty (30) days after the original invoice date.

The Contractor must be the "single source" coordinator of all warranties on the vehicle.

#### **LOW VOLTAGE ELECTRICAL WARRANTY - FIVE (5) YEARS**

The vehicle low voltage electrical system shall be free of defects in material and workmanship for a period of five (5) years or 60,000 miles (or 96,561 kilometers), whichever occurs first, starting thirty (30) days after the original invoice date.

#### **STRUCTURAL WARRANTY - TEN (10) YEARS**

The body shall be free of structural or design failure or workmanship for a period of ten (10) years, or 100,000 miles (or 160,934 kilometers), whichever occurs first, starting thirty (30) days after the original invoice date.

# Edmonton Police Service

## Command

### Production Specification

#### **PAINT LIMITED WARRANTY - TEN (10) YEARS**

The body shall be free of bubbling or peeling as a result of a defect in the method of manufacture for a period of ten (10) years or 100,000 miles (or 160,934 kilometers), whichever occurs first, starting thirty (30) days after the original invoice date.

#### **GRAPHICS LIMITED WARRANTY**

The 3M graphics installation shall be warranted for a period of two (2) years. The 3M materials installed on completed vehicle shall be warranted for seven (7) years. The 3M Diamond grade film (if specified) shall be warranted for ten (10) years.

#### **CONSTRUCTION PERIOD**

The completed vehicle shall be delivered within three hundred sixty (360) days after receipt of a purchase order or contract.

Contractor shall not be held liable for delays of chassis delivery due to accidents, strikes, floods or other events not subject to their control. Contractor shall provide immediate written notice to Edmonton Police Department as to delays and to what extent these delays have in completing vehicle within the stated construction time period.

#### **OVERALL HEIGHT**

The overall height (OAH) of the vehicle shall be approximately 152" (12' - 8") from the ground. This measurement shall be taken on flat ground with the tires properly inflated, in the unloaded condition, at that highest point of the vehicle.

#### **OVERALL LENGTH**

The overall length (OAL) of the vehicle shall be approximately 483" (40' - 3").

#### **ENGINEERING SUPPORT AT PRE-CONSTRUCTION MEETING**

The Contractor shall provide an engineer to be present at the pre-construction meeting held at the Edmonton Police Department location. The engineer will address all engineering related questions for the truck as purchased and for all proposed changes.

The engineer will have the 2D AutoCAD electronic drawing on hand and be able to provide dimensional data for proposed changes and proposed layouts. This will help ensure that the final design matches the Edmonton Police Department intentions to the maximum extent possible.

#### **IT ENGINEER DEMONSTRATION**

The Contractor shall provide an Information Technology (IT) engineer to be present at time of delivery and demonstration for three (3) consecutive days. The IT engineer will demonstrate all IT related components installed by Contractor and provide initial instruction to representatives of the Edmonton Police Department regarding the operation, care and maintenance of the equipment supplied at Edmonton Police Department location. The Edmonton Police Department will be responsible for the integration and programming of any on-board vehicle systems with Edmonton Police Department land based systems.

The IT Engineer shall set delivery and instruction schedule with the person appointed by Edmonton Police Department.

After delivery of the apparatus, the Edmonton Police Department shall be responsible for ongoing training of its personnel to proficiency regarding the proper and safe use of the apparatus and associated equipment.

# Edmonton Police Service

## Command

### Production Specification

#### **INSPECTION TRIPS**

All required inspection trips shall be the financial responsibility of the Edmonton Police Department, including but not limited to transportation, food and lodging.

#### **DELIVERY AND DEMONSTRATION**

The Contractor shall be responsible for the delivery of the completed unit to the Edmonton Police Departments location. On initial delivery of the apparatus, the Contractor shall supply a qualified representative for a minimum of one (1) full day to demonstrate the apparatus and provide initial instruction to representatives of the Edmonton Police Department regarding the operation, care, and maintenance of the apparatus and equipment supplied at Edmonton Police Department location.

The Delivery Engineer shall set delivery and instruction schedule with the person appointed by Edmonton Police Department.

After delivery of the apparatus, the Edmonton Police Department shall be responsible for ongoing training of its personnel to proficiency regarding the proper and safe use of the apparatus and associated equipment.

#### **DELIVERY AND DEMONSTRATION: TRAINING VIDEO**

The Contractor shall supply one (1) training video with the completed apparatus.

# Edmonton Police Service

## Command

### Production Specification

#### CUSTOMER SUPPLIED CAB CHASSIS SPECIFICATION

**MISSION:** Requested GVWR: 56000. Calc. GVWR: 56000

**DIMENSION:** Wheelbase: 301.00, CA: 233.90, Axle to Frame: 140.00

**ENGINE, DIESEL:** {MaxxForce 10} EPA 10, 350 HP @ 2000 RPM, 1150 lb-ft Torque @ 1200 RPM, 2200 RPM Governed Speed

**TRANSMISSION, AUTOMATIC:** {Allison 3000EVS\_P} 4th Generation Controls; Close Ratio, 6-Speed; With Double Overdrive, Includes Oil Level Sensor, With Provision for PTO, Less Retarder, With 80,000-lb GVW & GCW Max.

**CLUTCH:** Omit Item (Clutch & Control)

**AXLE, FRONT NON-DRIVING:** {Dana Spicer I-160W} Wide Track, I-Beam Type, 16,000-lb Capacity

**AXLE, REAR, TANDEM:** {Dana Spicer DD405/RD405} Single Reduction 40,000-lb Capacity, 200 Wheel Ends, Driver Controlled Locking Differential in Forward Rear and Rear Rear Axles Gear Ratio: 5.57

**CAB:** Conventional

**TIRE, FRONT:** (2) 315/80R22.5 XZY-3 (MICHELIN) 486 rev/mile, load range L, 20 ply

**TIRE, REAR:** (8) 11R22.5 XDE M/S (MICHELIN) 497 rev/mile, load range H, 16 ply

**SUSPENSION, REAR, AIR, TANDEM:** {Hendrickson HAS-402-55} 55" Axle Spacing; 40,000-lb Capacity, 9.5" Ride Height, With Shock Absorbers Mounted Inboard

**FRAME REINFORCEMENT:** Outer "C" Channel, Heat Treated Alloy Steel (120,000 PSI Yield); 10.813" x 3.892" x 0.312"; (274.6mm x 98.9mm x 8.0mm); 480.0" (12192mm) Maximum OAL

**PAINT:** Cab schematic 100GN Location 1: 9219, Winter White (Std) Chassis schematic N/A

Base Chassis, Model 7500 SBA 6X4 with 301.00 Wheelbase, 233.90 CA, and 140.00 Axle to Frame

TOW HOOK, FRONT (2) Frame Mounted

FRAME RAILS Heat Treated Alloy Steel (120,000 PSI Yield); 10.125" x 3.580" x 0.312" (257.2mm x 90.9mm x 8.0mm); 480.0" (12192) Maximum OAL

FRAME REINFORCEMENT Outer "C" Channel, Heat Treated Alloy Steel (120,000 PSI Yield); 10.813" x 3.892" x 0.312"; (274.6mm x 98.9mm x 8.0mm); 480.0" (12192mm) Maximum OAL

BUMPER, FRONT Full Width, Aerodynamic, Chrome Plated Steel; 0.189" Material Thickness

CROSSMEMBER, REAR, AF (01)

WHEELBASE RANGE 264" (670cm) Through and Including 311" (790cm)

FRAME ADDITION, FRONT 1" Integral; Increases BBC, BA and OAL Vehicle Dimensions By 1"

AXLE, FRONT NON-DRIVING {Dana Spicer I-160W} Wide Track, I-Beam Type, 16,000-lb Capacity  
Notes

: The following features should be considered when calculating Front GAWR: Front Axles; Front Suspension; Brake System; Brakes, Front Air Cam; Wheels; Tires.

SUSPENSION, FRONT, SPRING Parabolic, Taper Leaf; 16,000-lb Capacity; With Shock Absorbers  
Includes

: SPRING PINS Rubber Bushings, Maintenance-Free

Notes

: The following features should be considered when calculating Front GAWR: Front Axles; Front Suspension; Brake System; Brakes, Front Air Cam; Wheels; Tires.

# Edmonton Police Service

## Command

### Production Specification

#### BRAKE SYSTEM, AIR Dual System for Straight Truck Applications

##### Includes

- : BRAKE LINES Color and Size Coded Nylon
- : DRAIN VALVE Twist-Type
- : DUST SHIELDS, FRONT BRAKE
- : DUST SHIELDS, REAR BRAKE
- : GAUGE, AIR PRESSURE (2) Air 1 and Air 2 Gauges; Located in Instrument Cluster
- : PARKING BRAKE CONTROL Yellow Knob, Located on Instrument Panel
- : PARKING BRAKE VALVE For Truck
- : QUICK RELEASE VALVE Bendix On Rear Axle for Spring Brake Release: 1 for 4x2, 2 for 6x4
- : SLACK ADJUSTERS, FRONT Automatic
- : SLACK ADJUSTERS, REAR Automatic
- : SPRING BRAKE MODULATOR VALVE R-7 for 4x2, SR-7 with relay valve for 6x4

##### Notes

- : Rear Axle is Limited to 46,000-lb GAWR with Code 04091 BRAKE SYSTEM, AIR and Standard Rear Air Cam Brakes Regardless of Axle /Suspension Ordered

#### BRAKES, FRONT, AIR CAM 16.5" x 6", Includes 24 SqIn Long Stroke Brake Chambers

##### Notes

- : The following features should be considered when calculating Front GAWR: Front Axles; Front Suspension; Brake System; Brakes, Front Air Cam; Wheels; Tires.

AIR BRAKE ABS {Bendix AntiLock Brake System} Full Vehicle Wheel Control System (4-Channel)

#### AIR DRYER {Bendix AD-9} With Heater

##### Includes

- : AIR DRYER LOCATION Inside Left Rail, Back of Cab

#### BRAKE CHAMBERS, FRONT AXLE {Haldex} 24 SqIn

#### BRAKE CHAMBERS, REAR AXLE {Haldex GC3030LHDHO} 30/30 Spring Brake

##### Includes

- : BRAKE CHAMBERS, SPRING (2) Rear Parking; WITH TRUCK BRAKES: All 4x2, 4x4; WITH TRACTOR BRAKES: All 4x2, 4x4; 6x4 & 6x6 with Rear Tandem Axles Less Than 46,000-lb. or GVWR Less Than 54,000- lb.
- : BRAKE CHAMBERS, SPRING (4) Rear Parking; WITH TRUCK BRAKES: All 6x4, 6x6; WITH TRACTOR BRAKES: 6x4 & 6x6 with Rear Tandem Axles 46,000-lb. or Greater or GVWR of 54,000-lb. or Greater

#### BRAKES, REAR, AIR CAM S-Cam; 16.5" x 7.0"; Includes 30/30 Sq.In. Long Stroke Brake Chamber and Spring Actuated Parking Brake

##### Notes

- : The following features should be considered when calculating Rear GAWR: Rear Axles; Rear Suspension; Brake System; Brakes, Rear Air Cam; Brake Shoes, Rear; Special Rating, GAWR; Wheels; Tires.

AIR COMPRESSOR {Bendix Tu-Flo 750} 16.5 CFM Capacity

#### DRAIN VALVE (3) Petcocks; for Air Tanks

#### STEERING COLUMN Tilting and Telescoping

#### STEERING WHEEL 2-Spoke, 18" Diam., Black

#### STEERING GEAR (2) {Sheppard M-100/M-80} Dual Power



# Edmonton Police Service

## Command

### Production Specification

EXHAUST SYSTEM Single, Horizontal, Aftertreatment Device Frame Mounted Right Side Back of Cab;  
Includes Vertical Tail Pipe & Guard

Includes

: EXHAUST HEIGHT 10' Exhaust Height - Based on Empty Chassis with Standard Components (+ or - 1" Height)

: MUFFLER/TAIL PIPE GUARD Non-Bright Finish

ELECTRICAL SYSTEM 12-Volt, Standard Equipment

Includes

: BATTERY BOX Steel with Plastic Lid

: DATA LINK CONNECTOR For Vehicle Programming and Diagnostics In Cab

: FUSES, ELECTRICAL SAE Blade-Type

: HAZARD SWITCH Push On/Push Off, Located on Top of Steering Column Cover

: HEADLIGHT DIMMER SWITCH Integral with Turn Signal Lever

: HEADLIGHTS (2) Sealed Beam, Round, with Chrome Plated Bezels

: HORN, ELECTRIC Single

: JUMP START STUD Located on Positive Terminal of Outermost Battery

: PARKING LIGHT Integral with Front Turn Signal and Rear Tail Light

: RUNNING LIGHT (2) Daytime, Included With Headlights

: STARTER SWITCH Electric, Key Operated

: STOP, TURN, TAIL & B/U LIGHTS Dual, Rear, Combination with Reflector

: TURN SIGNAL SWITCH Self-Cancelling for Trucks, Manual Cancelling for Tractors, with Lane Change

Feature

: TURN SIGNALS, FRONT Includes Reflectors and Auxiliary Side Turn Signals, Solid State Flashers; Flush Mounted

: WINDSHIELD WIPER SWITCH 2-Speed with Wash and Intermittent Feature (5 Pre-Set Delays), Integral with Turn Signal Lever

: WINDSHIELD WIPERS Single Motor, Electric, Cowl Mounted

: WIRING, CHASSIS Color Coded and Continuously Numbered

HORN, ELECTRIC (2)

POWER SOURCE Cigar Type Receptacle without Plug and Cord

ALTERNATOR {Leece-Neville 14931PAH} Brush Type, 12 Volt 320 Amp. Capacity, Pad Mounted

BODY BUILDER WIRING Back of Standard Cab at Left Frame or Under Extended or Crew Cab at Left Frame; Includes Sealed Connectors for Tail/Amber Turn/Marker/ Backup/Accessory Power/Ground and Sealed Connector for Stop/Turn

BATTERY SYSTEM {International} Maintenance-Free (3) 12-Volt 2775CCA Total

RADIO {International} AM/FM Stereo With CD Player, Weatherband, Clock, Auxiliary Input, Includes Multiple Speakers

Includes

: SPEAKERS IN CAB (2) Coaxial with Deluxe Interior

: SPEAKERS IN CAB (4) Coaxial with Premium Interior

BACK-UP ALARM Electric, 102 dBA

JUMP START STUD Remote Mounted

Includes

: JUMP START STUD Mounted to Battery Box

HORN, AIR Black, Single Trumpet, Air Solenoid Operated

BATTERY DISCONNECT SWITCH {Joseph Pollak 51-315} Positive Type, Lever Operated, Cab Mounted

# Edmonton Police Service

## Command

### Production Specification

ALTERNATOR PULLEY 2.4" Diameter for Increased Alternator Output at Idle; for Fire Truck Application With International Engines, Must Include Fire Truck Identity Code

SWITCH, TOGGLE, FOR WORK LIGHT Lighted; on Instrument Panel and Wiring Effects for Customer  
Furnished Back of Cab Light

HEADLIGHTS Long Life Halogen; for Two Light System

CLEARANCE/MARKER LIGHTS (5) {Truck Lite} Amber LED Lights, Flush Mounted on Cab or Sunshade

STARTING MOTOR {Delco Remy 38MT Type 300} 12 Volt; less Thermal Over-Crank Protection

INDICATOR, LOW COOLANT LEVEL With Audible Alarm

CIRCUIT BREAKERS Manual-Reset (Main Panel) SAE Type III With Trip Indicators, Replaces All Fuses  
Except For 5-Amp Fuses

FENDER EXTENSIONS Rubber

INSULATION, UNDER HOOD for Sound Abatement

GRILLE Stationary, Chrome

INSULATION, SPLASH PANELS for Sound Abatement  
BUG SCREEN Front End; Mounted Behind Grille

FRONT END Tilting, Fiberglass, With Three Piece Construction; for 2007 & 2010 Emissions

PAINT SCHEMATIC, PT-1 Single Color, Design 100  
Includes  
: PAINT SCHEMATIC ID LETTERS "GN"

PAINT TYPE Base Coat/Clear Coat, 1-2 Tone

CLUTCH Omit Item (Clutch & Control)

OIL FILTER, ENGINE {Hudgins Model 960 Spinner}

# Edmonton Police Service

## Command

### Production Specification

ENGINE, DIESEL {MaxxForce 10} EPA 10, 350 HP @ 2000 RPM, 1150 lb-ft Torque @ 1200 RPM, 2200 RPM Governed Speed

Includes

- : AIR COMPRESSOR AIR SUPPLY LINE Naturally-Aspirated (Air Brake Chassis Only)
- : ANTI-FREEZE Red Shell Rotella Extended Life Coolant; -40 Degrees F/ -40 Degrees C; for MaxxForce Engines

- : COLD STARTING EQUIPMENT Intake Manifold Electric Grid Heater with Engine ECM Control

- : CRUISE CONTROL Electronic; Controls Integral to Steering Wheel

- : ENGINE OIL DRAIN PLUG Magnetic

- : ENGINE SHUTDOWN Electric, Key Operated

- : FUEL FILTER Included with Fuel/Water Separator

- : FUEL/WATER SEPARATOR Fuel/Water Separator and Fuel Filter in a Single Assembly; With Water-in-Fuel Sensor; Engine Mounted

- : GOVERNOR Electronic

- : OIL FILTER, ENGINE Spin-On Type

- : WET TYPE CYLINDER SLEEVES

FAN DRIVE {Horton Drivemaster Polar Extreme} Direct Drive Type, Two Speed, With Residual Torque Device for Disengaged Fan Speed

Includes

- : FAN Nylon

RADIATOR Aluminum, Front to Back Cross Flow, Series System; 1663 SqIn Core and 885 SqIn Charge Air Cooler and 470 SqIn Low Temperature Radiator Down Flow

Includes

- : DEAERATION SYSTEM with Surge Tank

- : HOSE CLAMPS, RADIATOR HOSES Gates Shrink Band Type; Thermoplastic Coolant Hose Clamps

- : RADIATOR HOSES Premium, Rubber

FEDERAL EMISSIONS for 2010; MaxxForce 9 & 10 Engines

AIR CLEANER Dual Element

Includes

- : GAUGE, AIR CLEANER RESTRICTION Air Cleaner Mounted

- : THROTTLE, HAND CONTROL Engine Speed Control; Electronic, Stationary, Variable Speed; Mounted on Steering Wheel

ENGINE CONTROL, REMOTE MOUNTED Provision for; Includes Wiring for Body Builder Installation of PTO Controls; With Ignition Switch Control for MaxxForce post 2007 Emissions Electronic Engines

FAN OVERRIDE Manual; With Electric Switch on Instrument Panel, (Fan On With Switch On)

BLOCK HEATER, ENGINE {Phillips} 120 Volt/1250 Watt; With "Y" Cord From Socket in Standard Location, For a Dealer Installed Oil Pan Heater, With Extended Life Coated Metal/Plastic/Metal Material Oil Pan, for I6

Includes

- : BLOCK HEATER SOCKET Receptacle Type; Mounted below Drivers Door

Notes

- : MPM material is single sheet composite with two layers of sheet metal sandwiching plastic material. MPM material has electro-deposition prime coat with powder coating for the final finish coat.

TRANSMISSION, AUTOMATIC {Allison 3000EVS\_P} 4th Generation Controls; Close Ratio, 6-Speed; With Double Overdrive, Includes Oil Level Sensor, With Provision for PTO, Less Retarder, With 80,000-lb GVW & GCW Max.

Includes

- : OIL FILTER, TRANSMISSION Mounted on Transmission

- : TRANSMISSION OIL PAN Magnet in Oil Pan

# Edmonton Police Service

## Command

### Production Specification

OIL COOLER, AUTO TRANSMISSION {Modine} Water to Oil, for Allison or CEEMAT Transmission

TRANSMISSION SHIFT CONTROL {Allison} Push-Button Type; for Allison 3000 & 4000 Series Transmission

TRANSMISSION OIL Synthetic; 29 thru 42 Pints

ALLISON SPARE INPUT/OUTPUT for Emergency Vehicle Series (EVS), 127/198 Includes J1939 Based Auto Neutral; Fire/Pumper, Tank, Aerial/Ladder

SHIFT CONTROL PARAMETERS Allison Performance Programming in Primary and Allison Economy Programming in Secondary

SUSPENSION AIR CONTROL VALVE Pressure Release Control In Cab

AXLE, REAR, TANDEM {Dana Spicer DD405/RD405} Single Reduction 40,000-lb Capacity, 200 Wheel Ends, Driver Controlled Locking Differential in Forward Rear and Rear Rear Axles . Gear Ratio: 5.57

Includes

: POWER DIVIDER LOCK Electric over Air Operated, Cab Control with Indicator Light

: REAR AXLE DRAIN PLUG (2) Magnetic, For Tandem Rear Axle

Notes

: The following features should be considered when calculating Rear GAWR: Rear Axles; Rear Suspension; Brake System; Brakes, Rear Air Cam; Brake Shoes, Rear; Special Rating, GAWR; Wheels; Tires.

: When Specifying Axle Ratio, Check Performance Guidelines and TCAPE for Startability and Performance

SUSPENSION, REAR, AIR, TANDEM {Hendrickson HAS-402-55} 55" Axle Spacing; 40,000-lb Capacity, 9.5" Ride Height, With Shock Absorbers Mounted Inboard

Includes

: CROSSMEMBER, SUSPENSION 3-Piece

Notes

: The following features should be considered when calculating Rear GAWR: Rear Axles; Rear Suspension; Brake System; Brakes, Rear Air Cam; Brake Shoes, Rear; Special Rating, GAWR; Wheels; Tires.

SUSPENSION LEVELING VALVE Dual Height; One Additional, for Air Ride Suspension

DIFF. SWITCH CONTROLS Two Independent Switches for Control Traction Differentials on Tandem Rear Axles, Mounted on Dash

FUEL TANK (2) Top Draw; D Style, Non Polished Aluminum, 80 U.S. Gal., Total Capacity 160 U.S. Gal., 606 L; 23" Tank Depth, Mounted Under Cab Left and Right Side

FUEL/WATER SEPARATOR With Filter Restriction/Change Indicator, Includes Standard Equipment Waterin-Fuel Sensor

# Edmonton Police Service

## Command

### Production Specification

#### CAB Conventional

##### Includes

- : ARM REST (2) Molded Plastic; One Each Door
- : CLEARANCE/MARKER LIGHTS (5) Flush Mounted
- : COAT HOOK, CAB Located on Rear Wall, Centered Above Rear Window
- : CUP HOLDERS Two Cup Holders, Located in Lower Center of Instrument Panel
- : DOME LIGHT, CAB Rectangular, Door Activated and Push On-Off at Light Lens, Timed Theater Dimming, Integral to Console, Center Mounted
- : GLASS, ALL WINDOWS Tinted
- : GRAB HANDLE, CAB INTERIOR (1) "A" Pillar Mounted, Passenger Side
- : GRAB HANDLE, CAB INTERIOR (2) Front of "B" Pillar Mounted, One Each Side
- : INTERIOR SHEET METAL Upper Door (Above Window Ledge) Painted Exterior Color
- : STEP (4) Two Steps Per Door

#### GAUGE CLUSTER English With Metric Electronic Speedometer

##### Includes

- : GAUGE CLUSTER (6) Engine Oil Pressure (Electronic), Water Temperature (Electronic), Fuel (Electronic), Tachometer (Electronic), Voltmeter, Washer Fluid Level
- : ODOMETER DISPLAY, Miles, Trip Miles, Engine Hours, Trip Hours, Fault Code Readout
- : WARNING SYSTEM Low Fuel, Low Oil Pressure, High Engine Coolant Temp, and Low Battery Voltage (Visual and Audible)

##### Notes

- : Standard in Canada

GAUGE, OIL TEMP, ENGINE

GAUGE, OIL TEMP, ALLISON TRAN

GAUGE, OIL TEMP, REAR AXLE

GAUGE, AIR APPLICATION

GAUGE, AIR CLEANER RESTRICTION {Filter-Minder} With Black Bezel Mounted in Instrument Panel

IP CLUSTER DISPLAY On Board Diagnostics Display of Fault Codes in Gauge Cluster

SEAT, DRIVER {National 2000} Air Suspension, High Back With Integral Head Rest, Cloth, Isolated, 1 Chamber Lumbar, 2 Position Front Cushion Adjustment, -3 to +14 Degree Seat Back Angle Adjustment, Dual Shocks

##### Includes

- : SEAT BELT 3-Point, Lap and Shoulder Belt Type

SEAT, PASSENGER {National 2000} Air-Suspension, High Back With Integral Headrest, Cloth, Isolator, 1 Chamber Lumbar, 2 Position Front Cushion Adjustment, -3 to +14 Degree Seat Back Adjustment, Dual Shocks

##### Includes

- : SEAT BELT 3-Point, Lap and Shoulder Belt Type

MIRROR, CONVEX, LOOK DOWN {Lang Mekra} Right Side; 6" x 10 1/4", With Bright Finish

MIRRORS (2) {Lang Mekra} Styled; Rectangular, 7.09" x 15.75" & Integral Convex Both Sides, 102" Inside Spacing, Breakaway Type, Heated Heads Thermostatically Controlled, Power Both Sides, Clearance Lights LED, Bright Finish Heads & Brackets

KEYLESS ENTRY SYSTEM REMOTE With Panic Alarm and Horn Beep Lock Confirmation, With Auxiliary Button for Work Light Function Includes One Key Fob

# Edmonton Police Service

## Command

### Production Specification

ARM REST, RIGHT, DRIVER SEAT

ARM REST, LEFT, PASSENGER SEAT

AIR CONDITIONER {Blend-Air} With Integral Heater & Defroster

Includes

: CLAMPS, HEATER HOSE Mubea Constant Tension Clamps

: HEATER HOSES Premium

: REFRIGERANT Hydrofluorocarbon HFC-134A

CAB SOUND INSULATION Includes Dash Insulator and Engine Cover Insulator

Notes

: Feature included with CAB INTERIOR TRIM, Premium

INSTRUMENT PANEL Center Section, Flat Panel

WINDOW, POWER (2) And Power Door Locks, Left and Right Doors, Includes Express Down Feature

HVAC FRESH AIR FILTER

STORAGE POCKET, DOOR Molded Plastic, Full Width; Mounted on Passenger Door

FRESH AIR FILTER Attached to Air Intake Cover on Cowl Tray in Front of Windshield Under Hood

CAB INTERIOR TRIM Deluxe

Includes

: "A" PILLAR COVER Molded Plastic

: CAB INTERIOR TRIM PANELS Cloth Covered Molded Plastic, Full Height; All Exposed Interior Sheet Metal is Covered Except for the Following: with a Two-Man Passenger Seat or with a Full Bench Seat the Back Panel is Completely Void of Covering

: CONSOLE, OVERHEAD Molded Plastic; With Dual Storage Pockets with Retainer Nets and CB Radio Pocket

: DOOR TRIM PANELS Molded Plastic; Driver and Passenger Doors

: FLOOR COVERING Rubber, Black

: HEADLINER Soft Padded Cloth

: INSTRUMENT PANEL TRIM Molded Plastic with Black Center Section

: STORAGE POCKET, DOOR (1) Molded Plastic, Full-Length; Driver Door

: SUN VISOR (2) Padded Vinyl with Driver Side Toll Ticket Strap, Integral to Console

CAB REAR SUSPENSION Air Bag Type

WHEELS, FRONT DISC; 22.5" Polished Aluminum, 10-Stud (285.75MM BC) Hub Piloted, Flanged Nut, Metric Mount, 9.00 DC Rims; With Steel Hubs

Notes

: Aluminum Wheels not Painted or Coated

: Compatible Tire Sizes: 12R22.5, 295/75R22.5, 295/80R22.5, 315/80R22.5

: The following features should be considered when calculating Rear GAWR: Rear Axles; Rear Suspension; Brake System; Brakes, Rear Air Cam; Brake Shoes, Rear; Special Rating, GAWR; Wheels; Tires.

WHEELS, REAR DUAL DISC; 22.5" Polished Aluminum, 10-Stud (285.75MM BC) Hub Piloted, Flanged Nut, Metric Mount, 8.25 DC Rims; With Steel Hubs

Notes

: Aluminum Wheels not Painted or Coated

: Compatible Tire Sizes: 11R22.5, 12R22.5, 255/70R22.5, 255/80R22.5, 265/75R22.5, 275/70R22.5, 275/80R22.5, 295/75R22.5, 295/80R22.5

: Polished Surface Outside Dual Only

# Edmonton Police Service

## Command

### Production Specification

BDY INTG, REMOTE POWER MODULE (3) Mounted Inside Cab behind Driver Seat; Up to 6 Outputs & 6 Inputs each, Max. 20 amp. per Channel, Max. 80 amp Total (Includes 3 Switch Packs With Latched Switches)

BDY INTG, PTO ACCOMMODATION for Electric over Hydraulic PTO, Does Not Include Solenoids, With Latched Switch Mounted on Dash Includes Audible Alarm and Indicator Light in Gauge Cluster (Requires 1 Remote Power Module input & 1 output)

BDY INTG, THEFT DETERRENT SYS Includes one (1) Switch Pack of Six Momentary Switches  
Notes

: Programming the customer's security code is not included in the PDI reimbursement and is not a warranty expense. Sales persons must account for the labor in the sale price of the vehicle.

(8) TIRE, REAR 11R22.5 XDE M/S (MICHELIN) 497 rev/mile, load range H, 16 ply

(2) TIRE, FRONT 315/80R22.5 XZY-3 (MICHELIN) 486 rev/mile, load range L, 20 ply

MISCELLANEOUS Remove air ride cab suspension for walk-thru cab

Pre - Delivery Inspection

Commercial Vehicle Inspection

Supply and install winterfront and bug screen

Supply three sets of keys and one additional remote key fob

Supply one red master switch in switch pack

Supply and install oil pan heater

Provide 48 Month (200,000 km) 4500 Hour Extended Engine Warranty

Provide 48 Month (160,000 km) 3600 Hour Extended Chassis Warranty

# Edmonton Police Service

## Command

### Production Specification

#### **CHASSIS MODIFICATIONS**

#### **LUBRICATION AND TIRE DATA PLATE**

A permanent label in the driving compartment shall specify the quantity and type of the following fluids used in the vehicle and tire information:

- Engine oil
- Engine coolant
- Chassis transmission fluid
- Pump transmission lubrication fluid . . (if applicable)
- Pump priming system fluid, if applicable . . (if applicable)
- Drive axle(s) lubrication fluid
- Air conditioning refrigerant . . (if applicable)
- Air conditioning lubrication oil . . (if applicable)
- Power steering fluid
- Cab tilt mechanism fluid . . (if applicable)
- Transfer case fluid . . (if applicable)
- Equipment rack fluid (if applicable)
- CAFS air compressor system lubricant . . (if applicable)
- Generator system lubricant . . (if applicable)
- Front tire cold pressure
- Rear tire cold pressure
- Maximum tire speed ratings

#### **VEHICLE DATA PLATE**

A permanent label in the driving compartment which indicates the following:

- Filter part numbers for the;
  - Engine
  - Transmission
  - Air
  - Fuel
- Serial numbers for the;
  - Engine
  - Transmission
- Delivered Weights of the Front and Rear Axles
- Paint Brand and Code(s)
- Sales Order Number

#### **OVERALL HEIGHT, LENGTH DATA PLATE (METRIC)**

The fire apparatus manufacturer shall permanently affix a high-visibility label in a location visible to the driver while seated.

The label shall show the height of the completed fire apparatus in meters, the length of the completed fire apparatus in meters and the GVWR in kilograms.

Wording on the label shall indicate that the information shown was current when the apparatus was manufactured and that, if the overall height changes while the vehicle is in service, the fire department must revise that dimension on the plate.



# Edmonton Police Service

## Command

### Production Specification

#### **ACCIDENT PREVENTION**

There shall be a placard in the cab seating area which reads, "ALL OCCUPANTS MUST BE SEATED AND BELTED WHEN THE APPARATUS IS IN MOTION".

#### **PERSONNEL CAPACITY**

A label that states the number of personnel the vehicle is designed to carry shall be located in an area visible to the driver.

#### **ACCIDENT PREVENTION**

If the rear bumper is 8" deep or more, there shall be a placard on the rear face of the body, in clear sight from the ground, which reads, "WARNING - DO NOT RIDE ON STEPS OR DECK AREAS WHILE THE APPARATUS IS IN MOTION. DEATH OR SERIOUS INJURY MAY RESULT".

#### **WEARING HELMET WARNING**

A label stating "DO NOT WEAR HELMET WHILE SEATED" shall be visible from each seating location.

#### **FRONT BUMPER**

The front bumper shall be as provided by the cab/chassis manufacturer. No other alternation or modifications are required.

#### **AIR HORNS**

Two (2) Grover 24" Stuttertone chrome plated air horns shall be mounted, one (1) each side of the cab hood. An emergency air shut off valve shall be provided in cab.

#### **AIR HORN ACTIVATION**

The air horn(s) shall be operated by a foot switch on the cab floor located at both the driver and officer positions.

#### **FRONT TOW PROVISIONS**

The front tow provisions shall be supplied and installed by the cab/chassis manufacturer.

#### **EXHAUST**

The exhaust system shall be as provided by cab/chassis manufacturer. The tailpipe may require some modifications for proper ground clearances and fit with body.

The exhaust piping and discharge outlet shall be located or shielded so as not to expose any portion of the vehicle or equipment to excessive heating.

Exhaust pipe discharge shall be directed away from any operator's position or entry doors on body.

Where parts of the exhaust system are exposed so that they are likely to cause injury to operating personnel, protective guards shall be provided.

# Edmonton Police Service

## Command

### Production Specification

#### **GPS ANTENNA INSTALLATION**

There shall be one (1) Edmonton Police Department supplied 'puck' style GPS antenna installed on the roof of the cab/chassis. The end of the GPS antenna shall be routed to the specified MDT mount located on the center console of the cab.

#### **RADIO/ANTENNA INSTALLATION**

There shall be one (1) Edmonton Police Department supplied Harris M73 radio(s) with antenna installed in the cab within easy reach of driver. The radio shall be located in the specified cab console.

Radio shall be installed per Manufacturer's requirements and wired for proper 12 volt power and ground.

#### **MDT MOUNT**

One (1) MDT mount shall be provided and installed on the front curbside area of the specified center cab console. The mount shall be designed to hold one (1) Edmonton Police Department supplied Panasonic Tough Book model CF31 and shall consist of one (1) Havis-Shields model C-HDM-216 telescoping base, one (1) Havis-Shields model C-MD-105 tilt/swivel mount, and one (1) Havis-Shields model DS-PAN-103 computer docking station.

#### **SEAT BELT COLOR**

Section 14.1.3.4 of the NFPA 1901 Standards, 2009 edition, requires all seat belt webbing in cab to be bright red or bright orange in color, and the buckle portion of the seat belt shall be mounted on a rigid or semi rigid stalk such that the buckle remains positioned in an accessible location.

#### **SEAT BELT WEB LENGTH - COMMERCIAL CAB**

Sections 14.1.3.2 and 14.1.3.3 of the NFPA 1901 standards, 2009 edition, require the effective seat belt web length for a Type 1 lap belt for pelvic restraint to be a minimum of 60", and a Type 2 pelvic and upper torso restraint-style seat belt assembly to be a minimum of 110".

The chassis seat belt web length as supplied by the commercial chassis manufacturer shall be compliant to NFPA Standards 14.1.3.2 and 14.1.3.3.

#### **SEAT BELT MONITORING SYSTEM - COMMERCIAL CAB**

Section 14.1.3.10 of the NFPA 1901 Standards, 2009 edition, requires that a seat belt warning system be provided. The seat belt warning device is intended to assist the driver or officer in determining whether all occupants are seated and belted before the vehicle is driven.

Per Edmonton Police Department specification for a commercial chassis, this emergency vehicle may not have a seat belt monitoring system. Without this device, the driver must manually determine that all occupants are seated and belted before the apparatus is placed in motion. This specification for an emergency fire apparatus for the seat belt monitoring system shall be non-compliant to NFPA 1901 standards, effective at the time of the bid opening.

#### **IGNITION KEY**

If the vehicle is specified to have an ignition key it will be attached to steering column or dash with vinyl covered steel cable.

# Edmonton Police Service

## Command

### Production Specification

#### **TEN (10) – LED TIRE PRESSURE VISUAL INDICATORS**

Each tire shall be equipped with a VECSAFE heavy duty valve cap (or equal) LED indicator that indicates proper tire pressure.

Cab Integrity Certification: Commercial, NFPA Compliant

#### **CAB MIRRORS, DRIVER ADJUSTABLE**

Section 14.3.5 of the NFPA 1901 Standards, 2009 edition, requires all primary rear view mirrors used by the driver to be adjustable from the driver's position.

#### **ENGINE COOLANT HEATER**

There shall be one (1) Wabasto TSL 17 Coolant Heater with optional 7-day digital timer provided and installed. The timer controls shall be located in the specified cab console.

#### **CAB STEP AND FUEL TANK COVER**

The stock chassis step and fuel tank brackets shall be overlaid with 1/8" aluminum tread plate covers. The stepping surface of the covers will be overlaid with a non-slip NFPA approved stepping surface. There will be a removable panel to access and replace the chassis batteries and a hinged fuel fill access door.

The cab steps shall include serrated grip-strut material to enhance traction in inclement weather.

The following options will be cut into the step cover:

#### **BATTERY JUMPER STUDS**

Two (2) battery jumper studs, one (1) positive with a red weather cover, and one (1) negative with a black weather cover shall be provided in the lower front portion of the driver step area. Jumper studs shall be identified with color coded label.

These studs shall allow this vehicle to be jump started due to a battery failure, or to allow easy access to assist another vehicle.

#### **HUB AND NUT COVERS**

Front and rear wheels shall be provided with stainless steel hub caps and wheel nut covers.

#### **MUDFLAPS**

There shall be rubber mudflaps furnished and installed behind each set of tires.

In addition there shall be two (2) rubber mud flaps furnished and installed at front outer edge of body 24" wide x 9" from ground, and one (1) full width mud flap located at the rear of the apparatus.

# Edmonton Police Service

## Command

### Production Specification

#### **AIR BRAKE SYSTEM QUICK BUILD-UP**

There shall be one (1) Milton male quick connector type air shoreline inlet to provide air to the chassis air tanks from an external source compressed air shoreline hookup in order to maintain full operating air pressure while the vehicle is not running. Air inlet shall be located in the front of the streetside cab step cover, visible to the driver when entering the apparatus. A rubber cover shall be provided over the fitting to protect from road splash and debris. The female end of the connector shall be supplied by the Edmonton Police Department.

The quick buildup system shall provide sufficient air pressure so that the apparatus has no brake drag and is able to stop under the intended operating conditions following the 60-second buildup time.

#### **ROAD EMERGENCY SAFETY KIT**

One (1) set of three (3) dual faced triangular warning flares with fold away base complete with storage case per DOT requirements shall be provided with the completed apparatus.

One (1) 2.5 lb. ABC type vehicle fire extinguisher with bracket per DOT requirements shall be provided with the completed apparatus.

#### **AUTOMATIC VEHICLE LEVELING SYSTEM**

An HWH brand leveling system shall be installed on the unit designed for large heavy duty vehicles with a GVWR over 23,000 pounds. The system shall have four (4) mounting brackets bolted to the chassis frame rails, two (2) front and two (2) rear. Each jack shall bolt to the bracket attached to the chassis frame.

The system shall have a drive-off safety feature. If the parking brake is disengaged and any legs are not fully retracted, a warning alarm shall sound.

The leveling system control panel shall be located in the specified cab console.

The system shall be provided with a one (1) year limited warranty.

# Edmonton Police Service

## Command

### Production Specification

#### **BODY DESIGN**

The importance of public safety associated with emergency vehicles requires that the construction of this vehicle meet the following specifications. These specifications are written to establish the minimum level of quality and design. All Bidders shall be required to meet these minimum requirements.

It is the intent of these specifications to fully describe the requirements for a custom built emergency type vehicle. In order to extend the expected service life of this vehicle, the body module shall be removable from the chassis frame and be capable of being installed on a new chassis.

The sheet metal material requirements, including alloy and material thickness, throughout the specifications are considered to be a minimum. Since such materials are available to all Manufacturers, the material specifications shall be strictly adhered to.

The fabrication of the body shall be formed sheet metal. Formed components shall allow the Edmonton Police Department to have the body repaired locally in the case where any object has struck the body and caused damage. The use of proprietary extrusions will prevent the Edmonton Police Department from such repair and shall NOT be used.

Following construction of the subframe, which supports the apparatus body, the sheet metal portion of the body shall be built directly on the subframe. The joining of the subframe and body shall be of a welded integral construction.

The sheet metal fabrication of the body shall be performed using inert gas continuous feed welders only. The entire body shall be welded construction. The use of pop rivets in any portion of structural construction may allow premature failure of the body structure. Therefore, pop rivets shall NOT be used in the construction of the structural portions of the body. This includes side body sheets, inner panels of compartment doors, and any other structural portions of the body.

#### **EXTERIOR ALUMINUM BODY**

The fabrication of the body shall be constructed from aluminum 3003H-14 alloy smooth plate. This shall include compartment front panel, vertical side sheets, side upper rollover panels, rear panels and compartment door frames.

The body compartment floors and exterior panels shall be constructed with not less than 3/16" (.187) aluminum 3003H-14 smooth plate. Interior compartment dividing walls shall be constructed with not less than 1/8" (.125) aluminum 3003H-14 smooth plate. Lighter gauge sheet metal will not be acceptable in these areas.

The door side frame openings shall be formed "C" channel design. An electrical wiring conduit raceway running the full length of exterior compartments shall be provided. This raceway shall contain all 12 volt wiring running to the rear of the apparatus, permitting easy accessibility to wiring.

Individual compartment modules, with dead air space voids between compartments, shall not be an acceptable method of compartment construction.

The compartments shall be an integral part of the body construction. Compartment floors from front of body to ahead of rear axle, also from rear axle to rear of body shall be single one-piece sections. Compartment floors shall be preformed, then positioned in body and welded into final position.

Compartment floors shall have a "sweep-out" design with door opening threshold positioned lower than compartment floor, permitting easy cleaning of compartments. Angles, lips, or door moldings are not acceptable in the base of compartment door opening. One-way rubber drain valves shall be provided in compartment floors so that a water hose may be used to flush-out compartment area.

All exterior seams in sheet metal below frame, and around the rear wheel well area shall be welded continuous to prevent moisture from entering compartments. All other interior seams and corners shall be sealed with silicone based caulk prior to painting.

# Edmonton Police Service

## Command

### Production Specification

Only stainless steel bolts, nuts, sheet metal screws and/or aluminum screws shall be used in mounting exterior trim, hardware and equipment.

Exterior compartments shall have louvers in lower back wall of compartment for ventilation.

#### **ROOF CONSTRUCTION**

The roof shall be integral with the body and shall be all welded construction. The roof of the body shall not be less than 3/16" aluminum 3003H-14 alloy NFPA nonskid compliant tread plate, fully and continuously welded. The roof shall be reinforced with 2" x 2" x 1/4" aluminum tubing running the full width of the body. A 2" rounded radius shall be provided along the body sides.

#### **BODY SUBFRAME**

The chassis frame rails shall be fitted with 1/4" custom extruded UHMW polyethylene rail cap to isolate the body frame members from direct contact with chassis frame rails.

The body subframe shall be constructed from 6061T6 aluminum alloy tubing. Subframe shall consist of two (2) 2" x 6" x 1/4" aluminum tubes, the same width as the chassis frame rails, NO EXCEPTION. Welded to this tubing shall be cross members of 2" x 6" x 1/4" aluminum. These cross members shall extend the full width of the body to support the compartments. Cross members shall be located at front and rear of the body, below compartment divider walls, and in front and rear of wheel well opening. Additional aluminum cross members shall be located as necessary to support walkway or heavy equipment.

To form the frame, the tubing shall be beveled and welded at each joint using 5356 aluminum alloy welding wire.

#### **BODY MOUNTING**

The body subframe shall be fastened to the chassis frame with a minimum of eight (8) spring loaded body mounts. Each mount shall be configured using a two-piece encapsulated slide bracket. The two (2) brackets shall be fabricated of heavy duty 1/4" thick steel and shall have a powder coat finish to prevent any corrosion. Each mounting assembly shall utilize two (2) 3/4" diameter x 6" long grade 8 bolts and two (2) heavy duty springs. The assembly design shall allow the body and subframe to act as one (1) component, separate from the chassis. As the chassis frame twists under driving conditions, the spring mounting system shall eliminate any stress from being transferred into the body. The spring loaded body mounts shall also prevent frame side rail or body damage caused by unevenly distributed stress and strains due to load and chassis movement.

Body mountings that do not allow relief from chassis movement will not be acceptable.

#### **12" REAR STEP BUMPER**

The full width rear bumper shall be constructed from 2" x 2" x 1/4" aluminum tubing frame and covered with 3/16" NFPA compliant aluminum tread plate. The bumper shall extend from the rear vertical body panel 12" and provide a rear step with a minimum of 1/2" space at body for water drainage.

#### **REAR TOW EYES**

There shall be two (2) heavy duty rear mounted tow eyes securely attached to the body subframe, below the apparatus body. The tow eyes shall be fabricated from 3/4" thick steel plate and shall have a black powder coat finish.

# Edmonton Police Service

## Command

### Production Specification

#### **GROUND LIGHTS**

Two (2) OnScene Solutions 9" LED Nightstik ground lights shall be mounted below the bumper.

There shall be two (2) OnScene Solutions 9" LED NightStik light(s) installed below bumper capable of providing illumination at a minimum level of 2 fc (20 lx) on ground areas within 30 in. (800 mm) of the edge of the vehicle in areas designed for personnel to climb onto or descend from the vehicle to the ground level.

Lighting shall be switchable but activated automatically when the vehicle park brake is set.

#### **WHEEL WELL EXTERIOR PANEL**

The exterior panel of the body wheel well enclosure shall be constructed from 3/16" smooth aluminum panels.

#### **STAINLESS STEEL BODY FENDERS**

The body wheel well openings shall be provided with round radius, polished stainless steel fenderettes. The fenderettes shall be bolted and easily replaceable if damaged. The fenderettes shall be installed using nylon washers to space them slightly away from the body to reduce buildup of moisture and/or debris.

#### **WHEEL WELL LINERS**

The wheel wells shall be provided with an easily removable polymer, circular inner fender liner. The inner liner shall be bolted to the wheel well with stainless steel bolts and spaced away from the wheel well so the liner will not accumulate dirt or water.

#### **SPLASH SKIRT**

Each wheel well liner (cab and body) shall be provided with a inner back skirt or panel to assist in preventing road slush from splashing on under body components.

#### **PAINT FINISH - SINGLE COLOR**

The body shall be painted with a single color of PPG Delfleet® Evolution paint per approved customer sprayout.

Prior to the assembly and reinstallation of exterior components; i.e. warning and DOT lights, handrails, steps, door hardware, and miscellaneous items, an isolation tape, or gasket shall be used to prevent damage to the finish painted surfaces. These components shall be fastened to body using either a plastic insert into body metal with stainless steel screws or zinc coated nutserts into body surface using stainless steel bolts to prevent corrosion from dissimilar metals.

Touch-up paint shall be provided with completed vehicle.

- Paint Color: Match cab/chassis supplied paint color.

#### **BODY UNDERCOATING**

The entire underside of body shall be sprayed with black automotive undercoating. Undercoating shall cover all areas underside of body and wheel well area to help prevent corrosion under the vehicle.

# Edmonton Police Service

## Command

### Production Specification

#### **UNDERCOAT WARRANTY**

The body undercoating shall have a warranty provided by the manufacturer for the lifetime of the vehicle or twenty (20) years, whichever occurs first. The warranty shall be transferable between vehicle owners. Should the undercoating material applied to the underside of the body and wheel wells of the vehicle ever flake off, peel, chip or crack due to drying out, the damaged area shall be re-sprayed without charge to the vehicle owner.

#### **PAINT WARRANTY**

The vehicle shall be provided with a ten (10) year non-prorated warranty to the original owner. Warranty is provided by PPG Inc. A warranty sheet with all conditions and maintenance procedures shall be provided with the delivered vehicle.

#### **COMPARTMENT INTERIOR FINISH**

The compartment interiors shall be treated with phosphoric acid and then sprayed with an epoxy primer applied 1.0 mil thick. All body seams will be caulked with urethane seam sealer and painted with two (2) coats of textured Zolatone paint. Zolatone catalysts will be added to the Zolatone to help in resisting moisture and provide a more durable finish. Paint color shall be gray.



# Edmonton Police Service

## Command

### Production Specification

#### **REFLECTIVE STRIPE REQUIREMENTS**

##### **Material**

All retroreflective materials shall conform to the requirements of ASTM D 4956, *Standard Specification for Retroreflective Sheeting for Traffic Control*, Section 6.1.1 for Type I Sheeting.

All retroreflective materials used that are colors not listed in ASTM D 4956, Section 6.1.1, shall have a minimum coefficient of retroreflection of 10 with observation angle of 0.2 degrees and entrance angle of -4 degrees.

Any printed or processed retroreflective film construction used shall conform to the standards required of an integral colored film as specified in ASTM D 4956, Section 6.1.1.

##### **Minimum Requirements**

A retroreflective stripe(s) shall be affixed to at least 50 percent of the cab and body length on each side, excluding the pump panel areas, and at least 25 percent of the width of the front of the apparatus.

The stripe or combination of stripes shall be a minimum of 4 in. (100 mm) in total width.

The 4 in. (100 mm) wide stripe or combination of stripes shall be permitted to be interrupted by objects (i.e., receptacles, cracks between slats in roll up doors) provided the full stripe is seen as conspicuous when approaching the apparatus.

#### **GRAPHICS PROOF**

A color graphics proof of the reflective striping layout shall be provided for approval by Edmonton Police Department prior to installation. The graphics proof shall be submitted to Edmonton Police Department on 8.5" x 11" sheets with front, sides, rear and plan views, each on one (1) sheet. In addition if there is any special art work an additional sheet shall be provided showing all details.

#### **REFLECTIVE STRIPE - CAB SIDE**

The reflective stripe material shall be 10" wide, 3M Scotchcal 680 series.

- This reflective stripe shall be white in color.

#### **REFLECTIVE STRIPE - CAB FRONT**

The reflective stripe material shall be 4" wide, 3M Scotchcal 680 series.

- This reflective stripe shall be white in color.

#### **REFLECTIVE STRIPE - CAB DOOR INTERIOR**

Any door of the apparatus designed to allow persons to enter or exit the apparatus shall have at least 96 in.2 (62,000 mm2) of retroreflective material affixed to the inside of the door.

The stripe material shall be 3M Scotchlite 680.

- This reflective stripe shall be white in color.

# Edmonton Police Service

## Command

### Production Specification

#### **REFLECTIVE STRIPE - BODY SIDES**

The reflective stripe material shall be 10" wide, 3M Scotchcal 680 series.

- This reflective stripe shall be white in color.

The stripe shall extend from the chassis to the body where it will angle up and then extend straight back to the rear of the body.

#### **REFLECTIVE STRIPE - REAR OF BODY**

A 10" minimum reflective stripe shall be affixed to the rear face of the body.

- The stripe material shall be 3M Scotchcal 680.
- This reflective stripe shall be white in color.

#### **LETTERING**

##### **GRAPHICS PROOF**

A color graphics proof of the lettering layout shall be provided for approval by Edmonton Police Department prior to installation. The graphics proof shall be submitted to Edmonton Police Department on 8.5" x 11" sheets with front, sides, rear and plan views, each on one (1) sheet. In addition if there is any special art work an additional sheet shall be provided showing all details.

The following lettering shall be provided and installed on the completed unit as follows;

##### **SIDE CAB DOOR LETTERING**

##### **UPPER BODY SIDE LETTERING**

There shall be thirty eight (38) 10" high reflective letters furnished and installed on the vehicle.

"POLICE"

"MOBILE COMMAND"

- This reflective lettering shall be Edmonton Police Department blue in color.

##### **REAR BODY LETTERING**

There shall be six (6) 10" high reflective letters furnished and installed on the vehicle.

"POLICE"

- This reflective lettering shall be Edmonton Police Department blue in color.

##### **FRONT OF CAB LETTERING**

##### **SUPPLIED DECALS**

The bidder shall install two (2) Edmonton Police Department supplied decal(s) on the vehicle, located on the cab doors.

# Edmonton Police Service

## Command

### Production Specification

#### **EXTERIOR COMPARTMENT DOORS**

##### **HINGED DOOR CONSTRUCTION**

The exterior compartment doors shall be custom manufactured and built for each compartment. The compartment doors must be able to withstand years of rugged service and wear. For this reason, the compartment door design, metal thickness, and attachments must be strictly adhered to.

The compartment doors shall be all aluminum 3003H-14 alloy construction. The exterior panel shall be of 1/8" thickness smooth plate aluminum and the interior panel shall be of 1/8" thickness smooth plate aluminum. Lighter gauge material will NOT BE ACCEPTABLE in these areas. The double panel doors shall be 1-3/4" thick to completely enclose the door latching assembly. Doors shall have drain hole openings for drainage and ventilation.

The doors shall be flush mounted so that the outer surface is in line with the side body surface. Lap or bevel type constructed doors, doors framed with extrusions, or doors requiring rubber bumpers to prevent unnecessary contact are NOT ACCEPTABLE.

Compartment door openings shall be sealed with closed cell automotive type rubber molding to provide a weather resistant seal around door. In addition, rubber molding shall be provided along hinge to prevent moisture entry. Open cell foam type rubber moldings are NOT ACCEPTABLE.

Hinged compartment doors shall have 14 gauge stainless steel hinge, with 1/4" stainless steel pin. The hinge shall be bolted to the door and body with stainless steel machine screws. A polyester barrier film gasket shall be placed between stainless steel hinge and any dissimilar metals as necessary.

Drip rails shall be installed above all compartment door openings. Drip rails shall be completely removable for easy replacement if necessary.

The latching mechanism of hinged compartment doors shall include stainless steel 6" offset bent D-ring keyed handles. A gasket shall be placed between stainless steel handle and door. Door latches shall be a double catching two-point rotary slam latch, recessed inside the double panel door with striker plate.

All vertically hinged compartment doors shall have a pneumatic cylinder to hold door in the open and closed positions. Each door shall be capable of being closed without unlatching. Door checks shall be bolted to the upper compartment door header and the box pan of the door. Door checks that require unlatching by hand will NOT BE ACCEPTABLE. All horizontally hinged compartment door shall have a door check as specified with each door.

# Edmonton Police Service

## Command

### Production Specification

#### **BODY HEIGHT MEASUREMENTS**

The vertical body dimensions shall be as follows:

##### **AHEAD OF REAR AXLE**

	<u>Description</u>	<u>Dimension</u>
A	Bottom of Subframe to Top of Body	98.0"
B	Bottom of Subframe to Bottom of Body	25.0"
C	Vertical Door Opening - (Full Height Compartment)	
	-with roll-up door	67.5"
	-with hinged door	71.5"
	Vertical Door Opening - (Short Compartment)	
	-with hinged door	20.0"

##### **ABOVE REAR AXLE**

	<u>Description</u>	<u>Dimension</u>
D	Vertical Door Opening - Above Rear Wheel	
	-with roll-up door	34.0"
	-with hinged door	37.0"

##### **BEHIND REAR AXLE**

	<u>Description</u>	<u>Dimension</u>
E	Bottom of Subframe to Bottom of Body	22.5"
F	Vertical Door Opening - (Full Height Compartment)	
	-with roll-up door	62.0"
	-with hinged door	66.0"
	Vertical Door Opening - (Short Compartment)	
	-with hinged door	17.5"

##### **GENERAL**

	<u>Description</u>	<u>Dimension</u>
G	Bottom of Drip Rail to Top of Body	38.5"
H	Walk-in Interior Height	82.0" (min)

(Dimensions are generic and subject to change during the actual design process)

#### **BODY WIDTH DIMENSIONS**

The body shall be 100.0" wide, not including drip rail or non-permanent fixtures. Interior compartment depth dimensions shall be approximately:

<u>Area Description</u>	<u>Dimension</u>
Transverse Area above Subframe	95.0"
Compartment Depth below Subframe	24.5"

# Edmonton Police Service

## Command

### Production Specification

#### **STREETSIDE COMPARTMENT - FRONT (S1)**

The interior useable compartment width shall be approximately 52.0" wide.

The compartment door opening shall be approximately 45.0" wide.

This compartment shall have a horizontally hinged box pan style door fabricated of 1/8" thick smooth aluminum. The inner liner of the door shall be 1/8" thick smooth aluminum with an unpainted finish. The door exterior shall be painted job color.

The hinged door(s) shall have a stainless steel 6" offset bent D-ring locking handle. A gasket shall be placed between stainless steel handle and door. Door latches shall be a two-point rotary slam, double-catch latch, recessed inside the double panel door with striker plate.

The hinged door(s) shall have a pair of tailgate style mechanisms to stop the door at 90 degrees. Each door shall be capable of being closed without unlatching.

#### **COMPARTMENT LAYOUT**

- One (1) OnScene Solutions 36" LED Nightstik compartment light, horizontally mounted at the top of the compartment toward the door opening.
- Location for specified cab/chassis batteries. The batteries shall be mounted in a stainless steel pan with hold down provisions for mobile application.
- One (1) OnScene Solutions 9" LED Nightstik ground light shall be provided below the body.
- Two (2) 3-1/2" x 3-1/2" black plastic louvered vents shall be provided in the lower compartment.

# Edmonton Police Service

## Command

### Production Specification

#### **STREETSIDE COMPARTMENT - AHEAD OF REAR WHEELS (S2)**

The interior useable compartment width shall be approximately 52.0" wide.

The compartment door opening shall be approximately 45.0" wide.

This compartment shall have a horizontally hinged box pan style door fabricated of 1/8" thick smooth aluminum. The inner liner of the door shall be 1/8" thick smooth aluminum with an unpainted finish. The door exterior shall be painted job color.

The hinged door(s) shall have a stainless steel 6" offset bent D-ring locking handle. A gasket shall be placed between stainless steel handle and door. Door latches shall be a two-point rotary slam, double-catch latch, recessed inside the double panel door with striker plate.

The hinged door(s) shall have a pair of tailgate style mechanisms to stop the door at 90 degrees. Each door shall be capable of being closed without unlatching.

#### **COMPARTMENT LAYOUT**

- One (1) OnScene Solutions 36" LED Nightstik compartment light, horizontally mounted at the top of the compartment toward the door opening.
- One (1) OnScene Solutions 9" LED Nightstik ground light shall be provided below the body.
- Two (2) 3-1/2" x 3-1/2" black plastic louvered vents shall be provided in the lower compartment.
- The 12 volt electrical distribution panel shall be located in the compartment.

# Edmonton Police Service

## Command

### Production Specification

#### **STREETSIDE COMPARTMENT - AHEAD OF REAR WHEELS (S3)**

The interior useable compartment width shall be approximately 64.0" wide.

The compartment door opening shall be approximately 57.0" wide.

This compartment shall have a horizontally hinged box pan style door fabricated of 1/8" thick smooth aluminum. The inner liner of the door shall be 1/8" thick smooth aluminum with an unpainted finish. The door exterior shall be painted job color.

The hinged door(s) shall have a stainless steel 6" offset bent D-ring locking handle. A gasket shall be placed between stainless steel handle and door. Door latches shall be a two-point rotary slam, double-catch latch, recessed inside the double panel door with striker plate.

The hinged door(s) shall have a pair of tailgate style mechanisms to stop the door at 90 degrees. Each door shall be capable of being closed without unlatching.

#### **COMPARTMENT LAYOUT**

- There shall be one (1) 400 lbs. slide-out tray(s) approximately 24" deep and as wide as the compartment layout or door opening permits. The tray top shall be fabricated from 12GA" stainless steel sheet with a 3" vertical lip and welded corners to form a box type tray surface. The sliding tracks shall extend 100% of the slide length. The tray assembly shall utilize a pneumatic cylinder mounted on underside to hold the tray in both the extended and closed positions.
- One (1) OnScene Solutions 36" LED Nightstik compartment light, horizontally mounted at the top of the compartment toward the door opening.
- Location for specified inverter and deep cycle batteries. The batteries shall be mounted in a stainless steel pan with hold down provisions for mobile application.
- One (1) OnScene Solutions 9" LED Nightstik ground light shall be provided below the body.
- Two (2) 3-1/2" x 3-1/2" black plastic louvered vents shall be provided in the lower compartment.

# Edmonton Police Service

## Command

### Production Specification

#### **STREETSIDE - ABOVE REAR WHEELS (S4)**

##### **SIDE ENTRY DOOR**

Access to the interior body compartment shall be provided through a side entry door. The door opening shall be approximately 30" wide x 75" high.

Construction of the side entry door shall be with 1/8" aluminum exterior smooth plate, the interior door pan being constructed from 1/8" aluminum tread plate.

The door shall be hung on full height 14 gauge stainless steel hinge, with a 1/4" stainless steel pin. The hinge shall be bolted to the door and body with stainless steel machine screws at offset 5" centers. The hinge shall be slotted horizontally and vertically for ease of adjustment. A polyester barrier film gasket shall be placed between the stainless steel hinge and door.

There shall be one (1) OnScene Solutions 9" LED light with ball burnished aluminum housing provided on the interior surface of the door to illuminate the stepping area of the door opening.

The latch mechanism shall include a stainless steel paddle handle with thumb lock on inside. A polyester barrier film gasket shall be placed between the stainless steel handle and the aluminum door panels.

The hinged door(s) shall have a stainless steel paddle type keyed locking handle on the exterior. A gasket shall be placed between stainless steel handle and door. Door latches shall be a two-point rotary slam, double-catch latch, recessed inside the double panel door with striker plate.

##### **ENTRY HANDRAILS**

There shall be two (2) handrails provided at entry door, one (1) vertical on exterior of body on door handle side, and one (1) on inside of door. The interior handrail shall be angled for optimum use when entering or exiting the walk-in portion of the body.

Handrails shall be NFPA compliant 1-1/4" 304 knurled stainless steel tubing with welded end stanchions.

##### **COMBINATION LOCK KEY PAD**

There shall be a Trimark electric combination lock on the exterior of the door with a touch panel key pad.

##### **WINDOW(S)**

There shall be one (1) 18"wide x 22" high, double-paned insulated, vertical sliding window(s) installed in the entrance door. Each window shall have tinted automotive type safety glass mounted in an extruded aluminum frame. The frame shall have a black anodized finish.

##### **INTERIOR BODY WINDOW COVERS**

There shall be one (1) opaque curtain(s) provided on the specified window(s) of the walk-in door. The curtain(s) shall be secured along the top and bottom and be designed to fully open to expose the entire width of the window(s), and fully close to prevent outside individuals from being able to view the inside of the apparatus.

##### **EXTERIOR ENTRY STAIRS**

An exterior entry stairway shall be provided for the specified door. The stairway shall be fabricated from 3/16" NFPA approved tread plate to provide a safe walking surface. The stairway shall be stored along the forward wall of the S4/C4 interior area when not deployed.



# Edmonton Police Service

## Command

### Production Specification

#### **STREETSIDE COMPARTMENT - REAR (S5)**

The interior useable compartment space shall be approximately 70.0" wide.

The compartment door opening shall be approximately 63.0" wide.

This compartment shall have vertically hinged box pan style doors fabricated of 1/8" thick smooth aluminum. The inner liner of the door shall be 1/8" thick smooth aluminum with an unpainted finish. The door exterior shall be painted job color.

The hinged door(s) shall have a stainless steel 6" offset bent D-ring locking handle. A gasket shall be placed between stainless steel handle and door. Door latches shall be a two-point rotary slam, double-catch latch, recessed inside the double panel door with striker plate.

The hinged door(s) shall have a pneumatic cylinder to hold door in the open and closed positions. Each door shall be capable of being closed without unlatching. Door checks shall be bolted to the upper compartment door header and the box pan of the door.

A compartment threshold protection plate shall be installed on the bottom edge of the compartment door opening. The threshold protection shall be fabricated from an aluminum extrusion with an anodized exterior finish.

#### **COMPARTMENT LAYOUT**

- One (1) OnScene Solutions 36" LED Nightstik compartment light, horizontally mounted at the top of the compartment toward the door opening.
- The diesel engine driven generator location.
- One (1) OnScene Solutions 9" LED Nightstik ground light shall be provided below the body.
- Two (2) 3-1/2" x 3-1/2" black plastic louvered vents shall be provided in the lower compartment.

# Edmonton Police Service

## Command

### Production Specification

#### **CURBSIDE COMPARTMENT - FRONT (C1)**

##### **SIDE ENTRY DOOR**

Access to the interior body compartment shall be provided through a side entry door. The door opening shall be approximately 30" wide x 75" high.

Construction of the side entry door shall be with 1/8" aluminum exterior smooth plate, the interior door pan being constructed from 1/8" aluminum tread plate.

The door shall be hung on full height 14 gauge stainless steel hinge, with a 1/4" stainless steel pin. The hinge shall be bolted to the door and body with stainless steel machine screws at offset 5" centers. The hinge shall be slotted horizontally and vertically for ease of adjustment. A polyester barrier film gasket shall be placed between the stainless steel hinge and door.

There shall be one (1) OnScene Solutions 9" LED light with ball burnished aluminum housing provided on the interior surface of the door to illuminate the stepping area of the door opening.

The latch mechanism shall include a stainless steel paddle handle with thumb lock on inside. A polyester barrier film gasket shall be placed between the stainless steel handle and the aluminum door panels.

The hinged door(s) shall have a stainless steel paddle type keyed locking handle on the exterior. A gasket shall be placed between stainless steel handle and door. Door latches shall be a two-point rotary slam, double-catch latch, recessed inside the double panel door with striker plate.

##### **ENTRY HANDRAILS**

There shall be two (2) handrails provided at entry door, one (1) vertical on exterior of body on door handle side, and one (1) on inside of door. The interior handrail shall be angled for optimum use when entering or exiting the walk-in portion of the body.

Handrails shall be NFPA compliant 1-1/4" 304 knurled stainless steel tubing with welded end stanchions.

##### **COMBINATION LOCK KEY PAD**

There shall be a Trimark electric combination lock on the exterior of the door with a touch panel key pad.

##### **WINDOW(S)**

There shall be one (1) 18" wide x 22" high, double-paned insulated, non-sliding window(s) installed in the entrance door. Each window shall have tinted automotive type safety glass mounted in an extruded aluminum frame. The frame shall have a black anodized finish.

##### **INTERIOR BODY WINDOW COVERS**

There shall be one (1) opaque curtain(s) provided on the specified window(s) of the walk-in door. The curtain(s) shall be secured along the top and bottom and be designed to fully open to expose the entire width of the window(s), and fully close to prevent outside individuals from being able to view the inside of the apparatus.

# Edmonton Police Service

## Command

### Production Specification

#### **BODY ENTRANCE STEP COVER**

A swing down type step cover fabricated from 3/16" NFPA approved treadplate will be provided at the side entrance to the apparatus body. The hinged step cover will be securely fasten up to allow access to the body and when manually swung down, provide a flush cover over the body entrance steps to provide a safe walking surface when the entrance door is close.

#### **STAIRWELL STRIPING**

3M™ Diamond Grade™ Conspicuity striping shall be provided on the perimeter of the stair treads to help improve visibility. The striping shall be 2" wide and red/white in color.

# Edmonton Police Service

## Command

### Production Specification

#### **CURBSIDE COMPARTMENT - AHEAD OF REAR WHEEL (C2)**

The interior useable compartment width shall be approximately 52.0" wide.

The compartment door opening shall be approximately 45.0" wide.

This compartment shall have a horizontally hinged box pan style door fabricated of 1/8" thick smooth aluminum. The inner liner of the door shall be 1/8" thick smooth aluminum with an unpainted finish. The door exterior shall be painted job color.

The hinged door(s) shall have a stainless steel 6" offset bent D-ring locking handle. A gasket shall be placed between stainless steel handle and door. Door latches shall be a two-point rotary slam, double-catch latch, recessed inside the double panel door with striker plate.

The hinged door(s) shall have a pair of tailgate style mechanisms to stop the door at 90 degrees. Each door shall be capable of being closed without unlatching.

#### **COMPARTMENT LAYOUT**

- One (1) OnScene Solutions 36" LED Nightstik compartment light, horizontally mounted at the top of the compartment toward the door opening.
- One (1) OnScene Solutions 9" LED Nightstik ground light shall be provided below the body.
- Two (2) 3-1/2" x 3-1/2" black plastic louvered vents shall be provided in the lower compartment.

# Edmonton Police Service

## Command

### Production Specification

#### **CURBSIDE COMPARTMENT - AHEAD OF REAR WHEEL (C3)**

The interior useable compartment width shall be approximately 64.0" wide.

The compartment door opening shall be approximately 57.0" wide.

This compartment shall have a horizontally hinged box pan style door fabricated of 1/8" thick smooth aluminum. The inner liner of the door shall be 1/8" thick smooth aluminum with an unpainted finish. The door exterior shall be painted job color.

The hinged door(s) shall have a stainless steel 6" offset bent D-ring locking handle. A gasket shall be placed between stainless steel handle and door. Door latches shall be a two-point rotary slam, double-catch latch, recessed inside the double panel door with striker plate.

The hinged door(s) shall have a pair of tailgate style mechanisms to stop the door at 90 degrees. Each door shall be capable of being closed without unlatching.

#### **COMPARTMENT LAYOUT**

- One (1) OnScene Solutions 36" LED Nightstik compartment light, horizontally mounted at the top of the compartment toward the door opening.
- The specified air conditioners system condenser(s).
- One (1) OnScene Solutions 9" LED Nightstik ground light shall be provided below the body.
- Two (2) 3-1/2" x 3-1/2" black plastic louvered vents shall be provided in the lower compartment.

# Edmonton Police Service

## Command

### Production Specification

#### **CURBSIDE COMPARTMENT - BEHIND REAR WHEEL (C4)**

The interior useable compartment width shall be approximately 35.0" wide.

The compartment door opening shall be approximately 28.0" wide.

This compartment shall have a horizontally hinged box pan style door fabricated of 1/8" thick smooth aluminum. The inner liner of the door shall be 1/8" thick smooth aluminum with an unpainted finish. The door exterior shall be painted job color.

The hinged door(s) shall have a stainless steel 6" offset bent D-ring locking handle. A gasket shall be placed between stainless steel handle and door. Door latches shall be a two-point rotary slam, double-catch latch, recessed inside the double panel door with striker plate.

The hinged door(s) shall have a pair of tailgate style mechanisms to stop the door at 90 degrees. Each door shall be capable of being closed without unlatching.

#### **COMPARTMENT LAYOUT**

- One (1) OnScene Solutions 36" LED Nightstik compartment light, horizontally mounted at the top of the compartment toward the door opening.
- The specified air conditioners system condenser(s).
- One (1) OnScene Solutions 9" LED Nightstik ground light shall be provided below the body.

# Edmonton Police Service

## Command

### Production Specification

#### **CURBSIDE COMPARTMENT - REAR (C5)**

##### **SIDE ENTRY DOOR**

Access to the interior body compartment shall be provided through a side entry door. The door opening shall be approximately 30" wide x 75" high.

Construction of the side entry door shall be with 1/8" aluminum exterior smooth plate, the interior door pan being constructed from 1/8" aluminum tread plate.

The door shall be hung on full height 14 gauge stainless steel hinge, with a 1/4" stainless steel pin. The hinge shall be bolted to the door and body with stainless steel machine screws at offset 5" centers. The hinge shall be slotted horizontally and vertically for ease of adjustment. A polyester barrier film gasket shall be placed between the stainless steel hinge and door.

There shall be one (1) OnScene Solutions 9" LED light with ball burnished aluminum housing provided on the interior surface of the door to illuminate the stepping area of the door opening.

The latch mechanism shall include a stainless steel paddle handle with thumb lock on inside. A polyester barrier film gasket shall be placed between the stainless steel handle and the aluminum door panels.

The hinged door(s) shall have a stainless steel paddle type keyed locking handle on the exterior. A gasket shall be placed between stainless steel handle and door. Door latches shall be a two-point rotary slam, double-catch latch, recessed inside the double panel door with striker plate.

##### **ENTRY HANDRAILS**

There shall be two (2) handrails provided at entry door, one (1) vertical on exterior of body on door handle side, and one (1) on inside of door. The interior handrail shall be angled for optimum use when entering or exiting the walk-in portion of the body.

Handrails shall be NFPA compliant 1-1/4" 304 knurled stainless steel tubing with welded end stanchions.

##### **COMBINATION LOCK KEY PAD**

There shall be a Trimark electric combination lock on the exterior of the door with a touch panel key pad.

##### **WINDOW(S)**

There shall be one (1) 18" wide x 22" high, double-paned insulated, non-sliding window(s) installed in the entrance door. Each window shall have tinted automotive type safety glass mounted in an extruded aluminum frame. The frame shall have a black anodized finish.

##### **INTERIOR BODY WINDOW COVERS**

There shall be one (1) opaque curtain(s) provided on the specified window(s) of the walk-in door. The curtain(s) shall be secured along the top and bottom and be designed to fully open to expose the entire width of the window(s), and fully close to prevent outside individuals from being able to view the inside of the apparatus.

# Edmonton Police Service

## Command

### Production Specification

#### **BODY ENTRANCE STEP COVER**

A swing down type step cover fabricated from 3/16" NFPA approved treadplate will be provided at the side entrance to the apparatus body. The hinged step cover will be securely fasten up to allow access to the body and when manually swung down, provide a flush cover over the body entrance steps to provide a safe walking surface when the entrance door is close.

#### **STAIRWELL STRIPING**

3M™ Diamond Grade™ Conspicuity striping shall be provided on the perimeter of the stair treads to help improve visibility. The striping shall be 2" wide and red/white in color.



# Edmonton Police Service

## Command

### Production Specification

#### **PLASTIC FLOOR AND SHELF TILE**

All compartment floors, shelves, and trays shall be covered with Dri-Dek plastic interlocking grating.

- The plastic floor tile shall be black.
- The plastic edge trim shall be black.

#### **SIDE BODY PROTECTION - RUB RAIL**

OnScene Solutions rub rails shall be provided below the compartment door openings on both the streetside and curbside.

The rub rail shall be fabricated from 6063 extruded aluminum, measuring approximately 2-3/4" high x 1-3/8" thick with tapered aluminum end caps. The rub rail shall be bolted to the body using stainless steel bolts and 1-1/2" diameter x 5/8" thick rubber mount isolators to prevent damage to the body.

The rails shall incorporate LED clearance marker lighting recessed into the rail fascia to avoid damage to the light in case of impact. The rub rail shall have an accessory mounting track integrated into the backside of the rail to allow mounting of accessories such as ground lighting.

3M™ Diamond Grade™ Conspicuity striping shall be provided in the rub rail. The striping shall be white in color.

#### **FRONT GRAVEL GUARDS**

Gravel guards shall be fabricated of aluminum tread plate. Gravel guards shall be installed on the front lower body corners and shall wrap around the corners to the front compartment door hinge on each side. The gravel guards shall extend from the lower body edge up 20".

#### **ROOF BRUSH GUARD**

The front edge of the roof shall include a full width guard for the roof mounted equipment. The guard shall extend upward from the front edge of the body 1" above the highest point when all equipment is stowed. The guard shall appear to be an integral piece of the body, not a bolt on component. Any extensions of the barrier along the sides of the body roof (gussets, etc. shall be kept to a minimum length.

#### **ROLL-OUT AWNING CURBSIDE**

One (1) Girard G-2000 Automatic Retractable Lateral Arm Awning shall be mounted on the body side.

The cassette housing is made of corrosion-resistant, powder-coated extruded aluminum with components made of stainless steel. The housing box to be powder coated to match the upper body white.

The unit shall measure twelve (12) feet by 5-1/4" (deep), 7-3/8" (high). The awning shall project outward nine (9) feet nine (9) inches and will be mounted slightly lower in the rear to add in drainage.

The G-2000 will deploy and retract using a 110V AC motor with manual override (to retract awning in the event of a power failure) the power controls shall be located in compartments L-1 for a left awning and R-1 for a right awning.

The awning shall have a system to detect canopy motion. The awning shall automatically retract when the canopy reaches a certain level of movement. The G-2000 has a Limited Lifetime Warranty.

- The awning fabric color shall be gray.

# Edmonton Police Service

## Command

### Production Specification

#### **ACCESS LADDER**

The top of the body shall be accessible from the ground by a folding ladder. The ladder design will have a main ladder section and a folding lower step section for better angle of departure. Ladder stores in a folded position and then pulls out to a comfortable climbing angle. The ladder shall be parallel to the body when in the stored position.

Each cast aluminum step shall be 4-1/2" deep x 16" wide. Hand railing shall be 2-1/8" oval shaped aluminum tubing with a ribbed gripping surface. The ladder shall be wired to the door ajar warning light in cab to warn the driver that the ladder is in the down position. Ladder shall be mounted to body with stainless steel bolts. Ladder shall be located on rear curbside of the body.

#### **ROOF ACCESS HANDRAIL**

There shall be one (1) handrail mounted on top of body to assist in roof access. Handrails shall be NFPA compliant 1-1/4" 304 knurled stainless steel with welded end stanchions.

# Edmonton Police Service

## Command

### Production Specification

#### **WALK-IN INTERIOR FINISH DETAILS**

##### **ROOF HATCH WITH SKYLIGHT**

The apparatus roof area shall be specially reinforced for the installation of a hatch with skylight. The opening shall be approximately 24" x 24" in size, suitable for use as an escape hatch, for ventilation, and supplemental light in the interior of the apparatus. The skylight shall have tinted glass. Two (2) compression type door checks are used to hold door in open position.

#### **INTERIOR SPECIFICATIONS**

##### **INTERIOR INSULATION**

Following the sheet metal fabrication the roof area, upper exterior walls and the entry door of the apparatus body shall be insulated with 1-1/2" rigid polyurethane foam insulation. This insulation shall be the type that will not absorb moisture, move once in place or deteriorate. Mat type fiberglass or spray in foam insulation is not acceptable.

##### **INTERIOR FINISH**

The interior of the apparatus body shall have carpeted walls. The interior finish shall be installed on the ceiling, front wall, and interior side walls from top of exterior compartments to ceiling height.

The interior plywood panels shall be installed with sheet metal screws and the carpet will be glued to it using high bond adhesive.

The interior finish shall be medium texture gray.

##### **INTERIOR WALKWAY FLOOR**

There shall be Lonseal, Loncoin-II Flecks installed on the floor substrate. Loncoin II Flecks is a heterogeneous resilient sheet vinyl with a decorative raised coin texture, breathtaking color, and intriguing style. The fleck coloration provides camouflage for simpler maintenance while the raised coin embossing provides enhanced traction. Excellent for interior, retail, commercial, or institutional use where design parameters call for a high performance, sophisticated flooring solution.

Loncoin II Flecks is composed of polyvinyl chloride (PVC) resin, plasticizers, fillers, and pigments. The co-calendared wear layer is formulated to provide maximum resistance to foot traffic and most commercial and healthcare chemicals.

The middle layer provides dimensional stability, sound-absorbing properties, and resiliency under foot. The backing layer provides strength and stability of the flooring and enhances the bonding strength of the adhesive.

The material shall be black in color (Loncoin-II Flecks - Onyx).

Lonseal, Inc. warrants that Lonseal flooring products shall be free from manufacturing defects for a period of one (1) year from the date of purchase and that, when properly installed and maintained, shall not wear through as a result of normal foot traffic for a period of 7 years from the date of installation.

There shall be 2.5" vinyl cove molding installed around the perimeter of the walls.

##### **INTERIOR SUB-FLOOR**

Above the body subframe shall be an isolation sheet that shall prevent outside elements from permeating the full length sound and thermal barrier of 3/4" thick grade plywood. The sheet shall be fabricated from the same type of material as is used in the subframe. The isolation sheet shall be flanged on both sides with a 1" high vertical break.

# Edmonton Police Service

## Command

### Production Specification

#### **UNDERFLOOR INSULATION**

The under floor area between the frame rails shall have 3" foam insulation applied from the underside of the body.

#### **TWO ROOM AIR CONDITIONER - HEATER SYSTEM**

The vehicle body shall be supplied with an "off roof" Dometic Cruisair air conditioning/heater system for up to four (4) rooms. The individual cooling/heat units shall be connected to two (2) undercarriage mounted model ACH14BC, 230 VAC, 36/9 Amp start/full-load, 14,000 BTU each condensing units. (Size: 26" L x 22" D (inc. hoses) x 14" H, Weight: 97 lbs.) Condensing unit features refrigerant condenser, compressor and associated electrical and mechanical components in an aluminum enclosure. Refrigerant connections are located on the front of unit. Blower type unit pull air in through the coil in back and discharge in back through the bottom or front of unit.

Condensing unit shall supply four (4) Dometic Cruisair model CRU-715010702-REU7C 230 VAC, 1.8/1.0 Amp start/full-load, 7,000 BTU, 233 CFM, each evaporator units. (Size: 14" L x 10" D x 12" H, Weight: 14 lbs.) These evaporators will be inside wall or cabinet mounted and ducted to supply air flow for cooling and heating of two separate areas inside the body. Each cooling unit is a compact ductable unit with a rotatable variable speed blower, insulated condensate drip pan with anti-slosh, antifungal foam lining, with an air filter. Interior air temperature will be controlled by a wall mounted SMX Series computerized control.

The condensing unit(s) shall be located as follows:

- Two (2) in the Command area of the body
- One (1) in the Negotiators room
- One (1) in the Electronic room

The system will be completely tested prior to delivery for cooling capabilities and refrigerant line leaks. The entire system shall be designed and installed per Dometic Cruisair installation requirements for air flow, refrigerant line length and sizing, and condenser cooling and air flow.

#### **HEATER**

The apparatus shall be provided with two (2) 18,800 BTU Espar D5LC air heater(s). The heater(s) shall be connected to the chassis diesel fuel tank with a thermostat controlled 12 volt blower.

Each furnace shall tap into the fuel tank to no more than  $\frac{3}{4}$  the depth of the tank (must be higher than the pick up tubes for the generator)

The heaters shall be located as follows:

- One (1) furnace is for the Negotiators / Electronics Room
- One(1) furnace for the Command area.

Heat should be ducted to several locations within each room – a single output at the furnace is not acceptable for the command room.

# Edmonton Police Service

## Command

### Production Specification

#### **ELECTRIC BASEBOARD HEAT**

Four (4) Grainger model QMKC2576W (or equal), 240 volt, commercial electric baseboard heaters shall be provided as follows;

- Two (2) in the Command section of the body, one (1) per side
- One (1) centrally located in the Negotiators room
- One (1) in the Electronics room

Baseboard units shall be various lengths from 4' - 6' to fit specified areas. Heaters shall be controlled by wall mounted thermostat in each area as specified above.

#### **INTERIOR SMOKE/CO ALARMS**

Three (3) combination smoke/CO alarm(s) shall be provided, one (1) per interior room.

#### **EXHAUST FAN**

The apparatus shall have three (3) 100 cfm, 12 volt exhaust fan(s) installed in the ceiling of the rescue truck body. Each fan shall be wired to an electrical rocker switch located at the entrance door, mounted on the side wall.

Vents & controls to be located:

- One (1) located in the Electronics room
- One (1) located in the Command room
- One (1) located in the Negotiators room

# Edmonton Police Service

## Command

### Production Specification

#### **STREETSIDE INTERIOR AREA (IS1)**

#### **INTERIOR CABINET - FULL HEIGHT**

There shall be one (1) full height cabinet(s) provided on interior. Cabinet(s) shall be constructed of 1/8" smooth finish aluminum, and painted with a hammer tone powder coat paint finish for a hard durable surface. Paint color shall be gray. Each cabinet shall be approximately 48" wide x 24" deep.

74) Four (4) OnScene Solutions 27" LED Nightstik compartment light, vertically mounted, one (1) per side of each door.

- The above cabinet(s) shall have two (2) sets of double, vertically hinged aluminum doors that shall be painted with a hammer tone powder coat paint finish to match cabinet color choice.
- There shall be four (4) vertically adjustable shelves in each of the above cabinets.
- There shall be four (4) 12 volt accessory plug(s) furnished and installed in the upper area of the full height cabinet. The plugs shall be located in the rear of the cabinet, adjacent to the 120V power outlet(s).
- There shall be one (1) 120 volt outlet(s) located in this compartment on the forward wall unless noted otherwise.
- The outlet receptacle(s) shall be 15 amp, straight-blade (NEMA 5-15R).

There shall be one (1) 120 volt outlet strip(s) approximately 4' long with straight blade household type outlets provided with this outlet. Exact mounting location shall be specified by the Edmonton Police Department at the pre-construction meeting.

- Outlet(s) shall be powered through the on-board generator system.

# Edmonton Police Service

## Command

### Production Specification

#### **STREETSIDE INTERIOR AREA (IS2/IS3)**

##### **SLIDE-OUT ROOM EXTENSION**

There shall be an HWH Space Maker universal level out (ULO) hydraulic room extension on the streetside which shall extend approximately 31" as measured from the outside of the body. The extendable module shall be approximately 94.5" in length (81.5" interior usable space) and the interior height shall be approximately 11" less than the specified interior height. The installed module shall provide a water tight seal in both the fully extended and the retracted positions.

The slide-out section utilizes the HWH "Universal Room" mechanism known for its strength and reliability, for rooms up to 4,000 pounds. The floor is suspended above main floor which eliminates the possibility of damage to floor coverings and when slide-out provides a flat floor. Four-point attachment of the HWH Universal Room Extension draws all four corners in for positive seal when room is extended or retracted.

Systems that don't provide a flat floor when fully extended will NOT BE ACCEPTABLE. A manual override shall be provided in the event of a system failure.

The slide-out section shall be framed with 2" x 2" x 1/4" 6061-T6 alloy aluminum. The frame structure shall be covered with no less than 1/8" thick 3003-H14 smooth aluminum.

Full width padded foam cushion head bumpers shall be provided in the slide-out. Head bumpers shall be covered with matching interior vinyl.

There shall be two (2) flashing LED warning lights with red lenses, one (1) at each end of the slide-out section. The lights shall activate and be visible when the unit is extended.

All electrical wiring installed in the slide-out wall shall run through a boxed type conduit at the lower corner of the system. All wiring shall be enclosed in a flexible, moisture resistant, reinforced conduit, with proper seal tight connectors and hardware. Access shall be provided for inspection of all wiring and the slide-out mechanisms.

The slide-out room extension must be able to withstand years of rugged service and wear. For this reason, this design, metal thickness and attachments must be strictly adhered to. RV type slide-outs or slide-outs using light weight metal or fiberglass shall not be acceptable.

##### **WINDOW(S)**

There shall be two (2) 18" wide x 22" high, double-paned insulated, high non-sliding window(s) installed on the completed apparatus. Each window shall have tinted automotive type safety glass mounted in an extruded aluminum frame. The frame shall have a black anodized finish.

##### **INTERIOR BODY WINDOW COVERS**

An interior window cover shall be provided on two (2) windows in the apparatus body.

The window covers shall be of Cover Lite Select, 22 oz material. Snap type fasteners shall be installed around each window in the body to allow each window to be covered.

##### **INTERIOR CABINET - OVERHEAD**

There shall be one (1) 42" wide overhead cabinet(s) provided on interior. Cabinet(s) shall be constructed of 1/8" smooth finish aluminum, and painted with a hammer tone powder coat paint finish for a hard durable surface. Paint color shall be gray.

- The above cabinet(s) shall have sliding Clear Lexan doors.

# Edmonton Police Service

## Command

### Production Specification

#### **INTERIOR UNDER CABINET LED LIGHTS**

Two (2) OnScene Solution model #70152, 10" x 6" x 7/8", 10-30 VDC, surface mount dual red and white LED light(s) with clear lens shall be provided under cabinet. Each light shall be individually switched with a high/low intensity setting. In addition light(s) will be capable of a five (5) second delay after switching off.

#### **PAPER HOLDER**

There shall be Grip-A-Strip paper holders installed across the full wide of the bottom edge of the overhead cabinet(s).

#### **CABLE DUCT**

A minimum 3" x 3" cable duct shall be run from the electronics room equipment racks to provide cabling to the work stations. Minimum 2" x 4" long oval holes with black computer cable pass through grommets shall be installed to permit access to the wireway.

#### **MAGNETIC WHITEBOARD**

There shall be one (1) magnetic whiteboard(s), sized to fit the area between the upper cabinets and specified desk provided. The white board shall run the full length of the desk.

#### **SLIDE-OUT AREA - FULL WIDTH DESK**

The slide-out area shall be provided with a full width desk which shall be 24" deep and located approximately 30" from floor. The front edge of the desk top shall be reinforced with 2" x 2" tubing in order to support a person sitting on the edge of the desk.

The desk top surface shall be fabricated of 3/16" smooth finish aluminum. It shall have a 2" vertical downward edge along front to cover the 2" x 2" reinforcement. There shall be 2-1/2" diameter holes with plastic edge grommet provided at each rear corner for wiring of future equipment located on the desk top. The desk shall be painted with a dark gray hammer tone powder coat paint finish for a hard and durable surface.

The seating positions (from front to rear of slide-out) shall be:

- Analyst / CIS position #1
- Analyst / CIS position #2
- Spare workstation
- Second position for Negotiator Lead
  
- There shall be mounting provisions for the specified fax machine provided at the Spare workspace location.
  
- There shall be one (1) Recordex AFX-95 Digital Document Camera provided and installed at the Spare workspace position. The camera system shall be complete and fully operational, including all miscellaneous cable, 120 volt AC wiring, and connections.
  
- There shall be four (4) phone locations provided at the specified desk. Three (3) phone jacks shall be capable of mounting the specified handset, one (1) per seating position, and one (1) jack shall be for the specified fax machine. The three (3) handset specified locations shall be located on the desktop surface and designed for a desk mounted phone. The fax machine specified location shall be under the desktop.
  
- There shall be eight (8) data port(s) provided. Four (4) data ports will be located under the desk, one (1) per work station, and four (4) data ports shall be located one (1) per workstation on a full width panel centered above the desktop on the slide-out wall. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.



# Edmonton Police Service

## Command

### Production Specification

- There shall be eight (8) 24" CAT6 patch cable(s) provided.
- There shall be four (4) 3.5mm stereo headphone jack(s) provided. The jack(s) shall be located two (2) per analyst workstation on a full width panel centered above the desktop on the slide-out wall. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be two (2) -two (2) conductor, 18ga shielded cable(s) with red/black terminals provided. The terminals shall be located one (1) per workstation on a full width panel centered above the desktop on the slide-out wall. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be one (1) HDMI connection(s) provided. The connection(s) shall be located centered between the analyst workstations on a full width panel centered above the desktop on the slide-out wall. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be two (2) VGA connection(s) provided. The connection(s) shall be located one (1) per analyst workstation on a full width panel centered above the desktop on the slide-out wall. The cable ends shall be routed to the specified audio/video routing system with a minimum of 12" of slack per cable.
- There shall be one (1) two-gang 12 VDC outlet(s) provided. The outlet(s) shall be located centered between the analyst workstations on a full width panel centered above the desktop on the slide-out wall.
- There shall be one (1) USB connection(s) provided. The connection(s) shall be located one (1) per analyst workstation on a full width panel centered above the desktop on the slide-out wall. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be four (4) 120 VAC, 20 amp, duplex straight-blade receptacle (NEMA 5-20R) outlet(s) provided under the specified desk, one (1) per workstation.

#### **32" VIDEO MONITOR**

Two (2) Samsung LN-T325H (or equal) 32" multi-function flat panel monitors with built-in TV tuner shall be provided and located on forward side of rear slide-out wall.

Monitors shall be installed on pivoting mount brackets with horizontal/vertical adjustment.

System shall be complete and fully operational, including all miscellaneous coax cable, 120 volt AC wiring, and cable connections.

Each monitor is capable of displaying up to four (4) separate video inputs. Video inputs for each monitors will be determined by purchaser.

Each monitor location shall include:

- One (1) CATV inlet
- One (1) HDMI Inlet
- Two (2) shielded CAT6 inlet
- One (1) RG6 inlet

# Edmonton Police Service

## Command

### Production Specification

#### **CONFERENCE TABLE**

A 106.0" x 36.0" conference table will be provided in the forward area between slide-out locations.

The edge of the table shall be reinforced with 2" x 2" tubing in order to support a person sitting on the edge of the desk.

The conference table surface shall be fabricated of 3/16" smooth finish aluminum. It shall have a 2" vertical downward edge along front to cover the 2" x 2" reinforcement. There shall be 2-1/2" diameter holes with plastic edge grommet provided at on each end for wiring of future equipment located on the table. The conference table shall be painted with a dark gray hammer tone powder coat paint finish for a hard and durable surface.

The center area of the desk shall have a raised enclosure to match the sales drawing. This enclosure shall be designed to hold the communications/technical components as specified below.

The seating positions (from front curbside corner clockwise around the table) shall be:

#### **Workstation #1: Division Sergeant:**

- There shall be one (1) HDMI connection(s) provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be one (1) VGA connection(s) provided. The cable ends shall be routed to the specified audio/video routing system with a minimum of 12" of slack per cable.
- There shall be one (1) Edmonton Police Services supplied Harris M73 radio installed. The radio shall include one (1) audio quality speaker mounted in the ceiling of the apparatus, directly above the seating position. The speaker shall be controlled through the specified audio/video routing system for on/off switching and volume control.
- There shall be two (2) 3.5mm stereo headphone jack(s) provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be two (2) data port(s) provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be one (1) -two (2) conductor, 18ga shielded cable(s) with red/black screw terminals provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be one (1) USB connection(s) provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be one (1) 120 VAC, 20 amp, duplex straight-blade receptacle (NEMA 5-20R) outlet(s) provided.

# Edmonton Police Service

## Command

### Production Specification

#### **Workstation #2: Diarist #2:**

- There shall be one (1) VGA connection(s) provided. The cable ends shall be routed to the specified audio/video routing system with a minimum of 12" of slack per cable.
- There shall be two (2) 3.5mm stereo headphone jack(s) provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be two (2) data port(s) provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be one (1) -two (2) conductor, 18ga shielded cable(s) with red/black screw terminals provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be one (1) USB connection(s) provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be one (1) 120 VAC, 20 amp, duplex straight-blade receptacle (NEMA 5-20R) outlet(s) provided.
- There shall be one (1) AMX control display(s) provided. The display(s) shall be mounted on a swivel to allow for use by multiple workspace positions.

#### **Workstation #3: Diarist #1:**

- There shall be one (1) VGA connection(s) provided. The cable ends shall be routed to the specified audio/video routing system with a minimum of 12" of slack per cable.
- There shall be two (2) 3.5mm stereo headphone jack(s) provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be two (2) data port(s) provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be one (1) -two (2) conductor, 18ga shielded cable(s) with red/black screw terminals provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be one (1) USB connection(s) provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be one (1) 120 VAC, 20 amp, duplex straight-blade receptacle (NEMA 5-20R) outlet(s) provided.

#### **Workstation #4: Psychiatrist**

- There shall be two (2) 3.5mm stereo headphone jack(s) provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be two (2) data port(s) provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be one (1) -two (2) conductor, 18ga shielded cable(s) with red/black screw terminals provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be one (1) 120 VAC, 20 amp, duplex straight-blade receptacle (NEMA 5-20R) outlet(s) provided.

# Edmonton Police Service

## Command

### Production Specification

#### **Workstation #5: Negotiator Team Lead:**

- There shall be two (2) 3.5mm stereo headphone jack(s) provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be two (2) data port(s) provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be one (1) -two (2) conductor, 18ga shielded cable(s) with red/black screw terminals provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be one (1) 120 VAC, 20 amp, duplex straight-blade receptacle (NEMA 5-20R) outlet(s) provided.

#### **Workstation #6: Incident Commander:**

- There shall be one (1) HDMI connection(s) provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be one (1) VGA connection(s) provided. The cable ends shall be routed to the specified audio/video routing system with a minimum of 12" of slack per cable.
- There shall be two (2) 3.5mm stereo headphone jack(s) provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be two (2) data port(s) provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be one (1) -two (2) conductor, 18ga shielded cable(s) with red/black screw terminals provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be one (1) USB connection(s) provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be one (1) 120 VAC, 20 amp, duplex straight-blade receptacle (NEMA 5-20R) outlet(s) provided.

# Edmonton Police Service

## Command

### Production Specification

#### **Workstation #7: Tactical Staff Sergeant:**

- There shall be one (1) Edmonton Police Department supplied phone(s) provided.
- There shall be one (1) Edmonton Police Services supplied Harris M73 radio installed. The radio shall include one (1) audio quality speaker mounted in the ceiling of the apparatus, directly above the seating position. The speaker shall be controlled through the specified audio/video routing system for on/off switching and volume control.
- There shall be two (2) 3.5mm stereo headphone jack(s) provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be two (2) data port(s) provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be one (1) 3.5mm stereo headphone jack(s) provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be one (1) 120 VAC, 20 amp, duplex straight-blade receptacle (NEMA 5-20R) outlet(s) provided.
- There shall be one (1) AMX control display(s) provided. The display(s) shall be mounted on a swivel to allow for use by multiple workspace positions.

#### **Workstation #8: Platoon Commander:**

- There shall be one (1) VGA connection(s) provided. The cable ends shall be routed to the specified audio/video routing system with a minimum of 12" of slack per cable.
- There shall be one (1) Edmonton Police Services supplied Harris M73 radio installed. The radio shall include one (1) audio quality speaker mounted in the ceiling of the apparatus, directly above the seating position. The speaker shall be controlled through the specified audio/video routing system for on/off switching and volume control.
- There shall be two (2) 3.5mm stereo headphone jack(s) provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be two (2) data port(s) provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be one (1) 3.5mm stereo headphone jack(s) provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be one (1) USB connection(s) provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be one (1) 120 VAC, 20 amp, duplex straight-blade receptacle (NEMA 5-20R) outlet(s) provided.

#### **INTERIOR ROLL-AROUND CHAIR**

There shall be eleven (11) roll-around office chairs provided at the command desk area. The chairs shall have provisions to fully secure under the desk when not in use and the apparatus is in motion.

Four (4) chairs will be located at streetside slide-out desk, and eight (8) chairs at the center conference room table.

# Edmonton Police Service

## Command

### Production Specification

#### **STREETSIDE INTERIOR AREA (IS4)**

All walls, floors, doors, etc. in this area shall contain extra sound deadening insulation to make the area as quiet as practicably achievable.

#### **SIDE ENTRY DOOR**

There shall be a side entry door located in this area. The door shall be lockable from the interior.

There shall be two (2) non-flashing red LED lights provided to indicated when the negotiators are using the phone system (Truck-lite model 33 or equivalent with clear lens). The lights shall be located:

- One (1) on the exterior of the streetside body, adjacent the side entry door handle. The light shall be provided with a hooded enclosure to ensure the light is only viewable from the area immediately adjacent to the door opening.
- One (1) on the rear wall of the command room, adjacent to the negotiator room pocket door, and approximately 12" down from the ceiling.

The lights shall be tied into the phone at workstation 12 to automatically illuminate when the phone is off the hook.

#### **SLIDING POCKET DOOR**

There shall be one (1) 32.0" wide sliding pocket door(s) provided on interior of walk-in body area. Pocket door shall be fabricated from 1/8" smooth aluminum and be approximately 1-1/2" thick and hang on adjustable pocket door hardware. The door shall be painted to match the interior wall color. A stainless steel handle shall be provided on each side of door. The door shall be equipped with a pneumatic cylinder which will "over-center" to hold the door in open and closed positions.

The door shall have a 20" x 20" clear Lexan sliding window located approximately face level when seated in a standard office chair (to the center of opening portion of window). To permit communications into the negotiator room without opening the slide door.

#### **INTERIOR CABINET - OVERHEAD**

There shall be two (2) 26" wide overhead cabinet(s) provided on back wall of negotiations room above specified desk. Cabinet(s) shall be constructed of 1/8" smooth finish aluminum, and painted with a hammer tone powder coat paint finish for a hard durable surface. Paint color shall be gray.

- The above cabinet(s) shall have sliding Clear Lexan doors.

#### **INTERIOR UNDER CABINET LED LIGHTS**

Three (3) OnScene Solution model #70152, 10" x 6" x 7/8", 10-30 VDC, surface mount dual red and white LED light(s) with clear lens shall be provided under cabinet. Each light shall be individually switched with a high/low intensity setting. In addition light(s) will be capable of a five (5) second delay after switching off.

#### **MAGNETIC WHITEBOARD**

There shall be one (1) magnetic whiteboard(s), sized to fit the area between the upper cabinets and specified desk provided. The white board shall run the full length of the desk.

# Edmonton Police Service

## Command

### Production Specification

#### **INTERIOR DESK**

The back wall of the negotiations room shall be provided with a desk top which shall be 24" deep and located approximately 30" from floor. The front edge of the desk top shall be reinforced with 2" x 2" tubing in order to support a person sitting on the edge of the desk.

The desk top surface shall be fabricated of 3/16" smooth finish aluminum. It shall have a 2" vertical downward edge along front to cover the 2" x 2" reinforcement. There shall be 2-1/2" diameter holes with plastic edge grommet provided at each rear corner for wiring of future equipment located on the desk top. The desk top shall be painted dark gray with a hammer tone powder coat paint finish for a hard and durable surface.

The seating positions (from curbside to streetside) shall be:

#### **Workspace #12: Primary Negotiator:**

- There shall be one (1) Edmonton Police Department supplied phone(s) provided. The phone shall be mounted to the desktop surface.
- There shall be two (2) data port(s) provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be one (1) 12 VDC outlet(s) provided on the rear compartment wall under the desk, accessible from a pass through hole on the desktop surface
- There shall be one (1) 120 VAC, 20 amp, duplex straight-blade receptacle (NEMA 5-20R) outlet(s) provided on the rear compartment wall under the desk, accessible from a pass through hole on the desktop surface.

#### **Workspace #13: Secondary Negotiator:**

- There shall be one (1) Edmonton Police Department supplied phone(s) provided. The phone shall be mounted to the desktop surface.
- There shall be two (2) data port(s) provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be one (1) 12 VDC outlet(s) provided on the rear compartment wall under the desk, accessible from a pass through hole on the desktop surface
- There shall be one (1) 120 VAC, 20 amp, duplex straight-blade receptacle (NEMA 5-20R) outlet(s) provided on the rear compartment wall under the desk, accessible from a pass through hole on the desktop surface.
- There shall be one (1) AMX control display(s) provided. The display(s) shall be mounted on a swivel to allow for use by multiple workspace positions.

# Edmonton Police Service

## Command

### Production Specification

#### **Workspace #14: Intel:**

- There shall be one (1) 26" wide desk top mounted radio/communication console provided in the interior. The radio cabinet shall provide mounting for the radios and any 12 volt control switches required in the walk-in.
- Radio cabinet(s) shall be constructed of 1/8" smooth finish aluminum and painted with a hammer tone powder coat paint finish for a hard durable surface. Paint color shall be gray or black. A hinged access cover shall be provided on side to access equipment mounting and wiring with ¼ turn knobs to secure cover closed. Two (2) 12 volt cooling fans and 12 volt power and ground provisions shall be provided for proper installation and ventilation of radio equipment.
- There shall be one (1) HDMI connection(s) provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be one (1) Edmonton Police Department supplied phone(s) provided. The phone shall be mounted to the desktop surface.
- There shall be one (1) VGA connection(s) provided. The cable ends shall be routed to the specified audio/video routing system with a minimum of 12" of slack per cable.
- There shall be two (2) 3.5mm stereo headphone jack(s) provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be one (1) data port(s) provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be one (1) 3.5mm stereo headphone jack(s) provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be one (1) 12 VDC outlet(s) provided in the front face of the component console.
- There shall be one (1) USB connection(s) provided. The cable ends shall be routed to the specified data racks with a minimum of 12" of slack per cable.
- There shall be one (1) 120 VAC, 20 amp, duplex straight-blade receptacle (NEMA 5-20R) outlet(s) provided in the front face of the component console.

#### **INTERIOR ROLL-AROUND CHAIR**

There shall be three (3) roll-around office chairs provided at the command desk area. The chairs shall have provisions to fully secure under the desk when not in use and the apparatus is in motion. The exact roll-around chair shall be determined at a scheduled inspection trip to the Body Manufacturer's facility.



# Edmonton Police Service

## Command

### Production Specification

#### **32" VIDEO MONITOR**

Two (2) Samsung LN-T325H (or equal) 32" multi-function flat panel monitors with built-in TV tuner shall be provided and located on rear wall of negotiations room below cabinets.

Monitors shall be installed on pivoting mount brackets with horizontal/vertical adjustment.

System shall be complete and fully operational, including all miscellaneous coax cable, 120 volt AC wiring, and cable connections.

Each monitor is capable of displaying up to four (4) separate video inputs. Video inputs for each monitors will be determined by purchaser.

Each monitor location shall include:

- One (1) CATV inlet
- One (1) HDMI Inlet
- Two (2) shielded CAT6 inlet
- One (1) RG6 inlet

#### **PAPER HOLDER**

There shall be Grip-A-Strip paper holders installed across the full wide of the bottom edge of the overhead cabinet(s).

# Edmonton Police Service

## Command

### Production Specification

#### **STREETSIDE INTERIOR AREA (IS5)**

##### **INTERIOR WALL COVERING**

The streetside wall of the apparatus extending from the top of the exterior compartment to the ceiling, and from the forward compartment wall to the rear wall shall be provided with a 3/4" G1S plywood backer board for use in mounting punch blocks and other equipment.

##### **BIX WIRING MOUNT(S)**

There shall be two (2) BIX model 10A (approximately 8.0" x 13.0") wiring mounts provided and installed on the rear interior apparatus wall.

##### **MIDDLE ATLANTIC 40U DATA RACK**

There shall be two (2) Middle Atlantic Products model # MRK-4031, EIA compliant 19" gangable equipment rack(s), provided on completed vehicle.

Overall dimensions shall be 76.125"H x 22.0"W x 32.625"D. Useable height shall be 40 rack spaces, useable depth shall be 24". Fully welded construction shall provide a static capacity of 10,000 lbs. and a UL Listed load capacity of 2,500 lbs.

Rack shall be constructed of the following materials: top and bottom shall be 14-gauge steel, horizontal braces shall be 16-gauge steel, rear door shall be 18-gauge steel and all structural elements shall be finished in a durable black powder coat.

Rack shall come equipped with two pairs of 11-gauge steel rack rail with tapped 10-32 mounting holes in universal EIA spacing, black e-coat finish and numbered rack spaces.

Rack shall have removable split rear knockout panels with 1/2", 3/4", 1" and 1-1/2" electrical knockouts and top BNC knockouts for UHF/VHF antenna.

Solid front door with black textured powder coat finish and keylock. The door is capable of hinging on either the left or the right of the rack.

Integrated fan top includes 4.5" fans, fan guards and proportional speed thermostatic fan controller.

The PD-920R-NS rack mount power distribution unit is equipped with 8 circuit breaker protected rear outlets (NEMA 5-20R), and one front outlet (NEMA 5-15R). An illuminated combination power switch/circuit breaker is located on the front panel. UL listed in the US and Canada. Occupies one rack space.

The APC Uninterruptible Power Supply (UPS) provides protection for electronic equipment from utility power blackouts, brownouts, sags and surges. The UPS filters small utility line fluctuations and isolates electronic equipment from large disturbances by internally disconnecting from utility line power. The UPS provides continuous power from the batteries until utility power returns to safe levels or the batteries are fully discharged.

##### **RACK MOUNTED AC UNIT**

There shall be two (2) rack mounted AC units provided, one (1) per rack. The AC units shall be designed to maintain proper temperature in the specified data racks.

# Edmonton Police Service

## Command

### Production Specification

#### **CURBSIDE INTERIOR AREA (IC1)**

There shall be a side entry door located in this area.

#### **INTERIOR STAIRWELL STUB WALL**

An interior stub wall shall be provided the full length of entry stairs offset to the inside of the body. The stub wall shall be designed to prevent personnel from falling into the stair area.

#### **CURBSIDE INTERIOR AREA (IC2/IC3)**

#### **SLIDE-OUT ROOM EXTENSION**

There shall be an HWH Space Maker universal level out (ULO) hydraulic room extension on the streetside which shall extend approximately 31" as measured from the outside of the body. The extendable module shall be approximately 94.5" in length (81.5" interior usable space) and the interior height shall be approximately 11" less than the specified interior height. The installed module shall provide a water tight seal in both the fully extended and the retracted positions.

The slide-out section utilizes the HWH "Universal Room" mechanism known for its strength and reliability, for rooms up to 4,000 pounds. The floor is suspended above main floor which eliminates the possibility of damage to floor coverings and when slide-out provides a flat floor. Four-point attachment of the HWH Universal Room Extension draws all four corners in for positive seal when room is extended or retracted.

Systems that don't provide a flat floor when fully extended will NOT BE ACCEPTABLE. A manual override shall be provided in the event of a system failure.

The slide-out section shall be framed with 2" x 2" x 1/4" 6061-T6 alloy aluminum. The frame structure shall be covered with no less than 1/8" thick 3003-H14 smooth aluminum.

Full width padded foam cushion head bumpers shall be provided in the slide-out. Head bumpers shall be covered with matching interior vinyl.

There shall be two (2) flashing LED warning lights with red lenses, one (1) at each end of the slide-out section. The lights shall activate and be visible when the unit is extended.

All electrical wiring installed in the slide-out wall shall run through a boxed type conduit at the lower corner of the system. All wiring shall be enclosed in a flexible, moisture resistant, reinforced conduit, with proper seal tight connectors and hardware. Access shall be provided for inspection of all wiring and the slide-out mechanisms.

The slide-out room extension must be able to withstand years of rugged service and wear. For this reason, this design, metal thickness and attachments must be strictly adhered to. RV type slide-outs or slide-outs using light weight metal or fiberglass shall not be acceptable.

#### **MAGNETIC WHITEBOARD**

There shall be three (3) magnetic whiteboard(s), approximately 42.0" wide x 34.0" tall designed to hang from the curbside wall of the slide-out over the 40.0" monitors. The white boards shall be stored under the specified slide-out desk.

#### **WINDOW(S)**

There shall be one (1) 18" wide x 22" high, double-paned insulated, high non-sliding window(s) installed on the completed apparatus. Each window shall have tinted automotive type safety glass mounted in an extruded aluminum frame. The frame shall have a black anodized finish.

# Edmonton Police Service

## Command

### Production Specification

#### **INTERIOR BODY WINDOW COVERS**

An interior window cover shall be provided on two (2) windows in the apparatus body.

The window covers shall be of Cover Lite Select, 22 oz material. Snap type fasteners shall be installed around each window in the body to allow each window to be covered.

#### **SLIDE-OUT AREA - FULL WIDTH DESK**

The slide-out area shall be provided with a full width desk which shall be 9.0" deep and located approximately 36" from floor (just below specified SmartBoards). The front edge of the desk top shall be reinforced with 2" x 2" tubing on the edge of the desk.

The desk top surface shall be fabricated of 3/16" smooth finish aluminum. It shall have a 2" vertical downward edge along front to cover the 2" x 2" reinforcement. There shall be 2-1/2" diameter holes with plastic edge grommet provided at each rear corner for wiring of future equipment located on the desk top. The desk shall be painted with a dark gray hammer tone powder coat paint finish for a hard and durable surface.

#### **40" LCD FLAT SCREEN TV**

Three (3) Samsung 400FP-3, 40.0" LCD flat screen monitor(s) shall be provided and wall mounted on each end of curbside slide-out.

Monitors shall be installed on pivoting mount brackets with horizontal/vertical adjustment.

System shall be complete and fully operational, including all miscellaneous coax cable, 120 volt AC wiring, and cable connections.

Each monitor is capable of displaying up to four (4) separate video inputs. Video inputs for each monitors will be determined by purchaser.

Each monitor location shall include:

- One (1) CATV inlet
- One (1) HDMI Inlet
- Two (2) shielded CAT6 inlets
- One (1) RG6 inlet

# Edmonton Police Service

## Command

### Production Specification

#### **CURBSIDE INTERIOR AREA (IC4)**

#### **CURBSIDE INTERIOR AREA (IC5)**

There shall be a side entry door located in this area.

#### **INTERIOR CABINET - COUNTER HEIGHT**

There shall be one (1) interior counter height cabinet(s) provided on interior. Cabinet(s) shall be constructed of 1/8" smooth finish aluminum, and painted with a hammer tone powder coat paint finish for a hard durable surface. Paint color shall be gray. Each cabinet shall be approximately (insert actual dimensions).

- The above cabinet(s) shall have a 4" x 4" toe kick area at the base to allow for the top surface to be used as a working surface.
- The above cabinet(s) shall have double vertically hinged aluminum door(s) and painted with a hammer tone powder coat paint finish to match cabinet color choice.
- There shall be one (1) vertically adjustable shelf in each of the above cabinets. It shall have a 1.25" lip to contain items while minimizing space used.

#### **INTERIOR WORKBENCH**

The area ahead of the side entry door shall be provided with a stand-up desk top which shall be 36" wide x 16" deep and located approximately 42" from floor. The front edge of the desk top shall be reinforced with 2" x 2" tubing in order to support a person sitting on the edge of the desk.

The desk top surface shall be fabricated of 3/16" smooth finish aluminum. It shall have a 2" vertical downward edge along front to cover the 2" x 2" reinforcement. There shall be 2-1/2" diameter holes with plastic edge grommet provided at each rear corner for wiring of future equipment located on the desk top. The desk top shall be painted dark gray with a hammer tone powder coat paint finish for a hard and durable surface.

- There shall be one (1) input into the video multiplexing system for externally supplied video provided in the curbside wall directly above the specified workbench.
- There shall be two (2) 120 VAC, 20 amp, duplex straight-blade receptacle (NEMA 5-20R) outlet(s) provided in the curbside wall directly above the specified workbench.

# Edmonton Police Service

## Command

### Production Specification

#### **19" LCD MONITOR(S)**

One (1) Samsung (or equal), 19" multiple input, flat panel LCD monitor with built in TV tuner shall be provided.

Monitors shall be installed on pivoting mount brackets with horizontal/vertical adjustment.

System shall be complete and fully operational, including all miscellaneous coax cable, 120 volt AC wiring, and cable connections.

Each monitor is capable of displaying up to four (4) separate video inputs. Video inputs for each monitors will be determined by purchaser.

Each monitor location shall include:

- One (1) CATV inlet
- One (1) HDMI Inlet
- Two (2) shielded CAT6 inlets
- One (1) RG6 inlet

# Edmonton Police Service

## Command

### Production Specification

#### LOW VOLTAGE ELECTRICAL SYSTEM- 12 VDC

##### General

Any low voltage electrical systems or warning devices installed on the fire apparatus shall be appropriate for the mounting location and intended electrical load.

Where wire passes through sheet metal, grommets shall be used to protect wire and wire looms. Electrical connections shall be with double crimp water-tight heat shrink connectors.

All 12 VDC wiring running from front to back of vehicle body shall be run in full length electrical wiring raceway down each side of body.

##### Wiring

All electrical circuit feeder wiring supplied and installed by the fire apparatus manufacturer shall meet the requirements of NFPA Chapter 13.

The circuit feeder wire shall be stranded copper or copper alloy conductors of a gauge rated to carry 125 % of the maximum current for which the circuit is protected. Voltage drops in all wiring from the power source to the using device shall not exceed 10 %. The use of star washers for circuit ground connections shall not be permitted.

All circuits shall otherwise be wired in conformance with SAE J1292, *Automobile, Truck, Truck-Tractor, Trailer, and Motor Coach Wiring*.

##### Wiring and Wire Harness Construction

All insulated wire and cable shall conform to SAE J1127, *Low Voltage Battery Cable*, or SAE J1128, *Low Voltage Primary Cable*, type SXL, GXL, or TXL.

All conductors shall be constructed in accordance with SAE J1127 or SAE J1128, except where good engineering practice dictates special strand construction. Conductor materials and stranding, other than copper, shall be permitted if all applicable requirements for physical, electrical, and environmental conditions are met as dictated by the end application. Physical and dimensional values of conductor insulation shall be in conformance with the requirements of SAE J1127 or SAE J1128, except where good engineering practice dictates special conductor insulation. The overall covering of conductors shall be moisture-resistant loom or braid that has a minimum continuous rating of 194°F (90°C) except where good engineering practice dictates special consideration for loom installations exposed to higher temperatures. The overall covering of jacketed cables shall be moisture resistant and have a minimum continuous temperature rating of 194°F (90°C), except where good engineering practice dictates special consideration for cable installations exposed to higher temperatures.

All wiring connections and terminations shall use a method that provides a positive mechanical and electrical connection. The wiring connections and terminations shall be installed in accordance with the device manufacturer's instructions. All ungrounded electrical terminals shall have protective covers or be in enclosures. Wire nut, insulation displacement, and insulation piercing connections shall not be used.

Wiring shall be restrained to prevent damage caused by chafing or ice buildup and protected against heat, liquid contaminants, or other environmental factors.

Wiring shall be uniquely identified at least every 2 ft (0.6 m) by color coding or permanent marking with a circuit function code. The identification shall reference a wiring diagram.

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Circuits shall be provided with properly rated low voltage overcurrent protective devices. Such devices shall be readily accessible and protected against heat in excess of the overcurrent device's design range, mechanical damage, and water spray. Circuit protection shall be accomplished by utilizing fuses, circuit breakers, fusible links, or solid state equivalent devices.

If a mechanical-type device is used, it shall conform to one of the following SAE standards:

- 1) SAE J156, *Fusible Links*
- 2) SAE J553, *Circuit Breakers*
- 3) SAE J554, *Electric Fuses (Cartridge Type)*
- 4) SAE J1888, *High Current Time Lag Electric Fuses*
- 5) SAE J2077, *Miniature Blade Type Electrical Fuses*

Switches, relays, terminals, and connectors shall have a direct current (dc) rating of 125 % of maximum current for which the circuit is protected.

#### Power Supply

A 12 V or greater electrical alternator shall be provided. The alternator shall have a minimum output at idle to meet the minimum continuous electrical load of the vehicle, at 200°F (93°C) ambient temperature within the engine compartment, and shall be provided with full automatic regulation.

#### Minimum Continuous Electrical Load

The minimum continuous electrical load shall consist of the total amperage required to simultaneously operate the following in a stationary mode during emergency operations:

- The propulsion engine and transmission
- All legally required clearance and marker lights, headlights, and other electrical devices except windshield wipers and four-way hazard flashers
- The radio(s) at a duty cycle of 10 percent transmit and 90 % receive (for calculation and testing purposes, a default value of 5 A continuous)
- The lighting necessary to produce 2 fc (20 lx) of illumination on all walking surfaces on the apparatus and on the ground at all egress points onto and off the apparatus, 5 fc (50 lx) of illumination on all control and instrument panels, and 50 percent of the total compartment lighting loads
- The minimum optical warning system, where the apparatus is blocking the right-of way
- The continuous electrical current required to simultaneously operate any fire pumps, aerial devices, and hydraulic pumps
- Other warning devices and electrical loads defined by the purchaser as critical to the mission of the apparatus

If the apparatus is equipped to tow a trailer, an additional 45 A shall be added to the minimum continuous electrical load to provide electrical power for the federally required clearance and marker lighting and the optical warning devices mounted on the trailer.

The condition of the low voltage electrical system shall be monitored by a warning system that provides both an audible and a visual signal to persons on, in, or near the apparatus of an impending electrical system failure caused by the excessive discharge of the battery set.

The charge status of the battery shall be determined either by direct measurement of the battery charge or indirectly by monitoring the electrical system voltage.

If electrical system voltage is monitored, the alarm shall sound if the system voltage at the battery or at the master load disconnect switch drops below 11.8 V for 12 V nominal systems, 23.6 V for 24 V nominal systems, or 35.4 V for 42 V nominal systems for more than 120 seconds.



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A voltmeter shall be mounted on the driver's instrument panel to allow direct observation of the system voltage.

#### Electromagnetic Interference

Electromagnetic interference suppression shall be provided, as required, to satisfy the radiation limits specified in SAE J551/1, *Performance Levels and Methods of Measurement of Electromagnetic Compatibility of Vehicles, Boats (up to 15 m), and Machines (16.6 Hz to 18 GHz)*.

#### Wiring Diagram

A complete electrical wiring schematic of actual system shall be provided with finished apparatus. Similar or generic type electrical schematics shall NOT BE ACCEPTABLE.

#### Low Voltage Electrical System Performance Test

A low voltage electrical system test certification shall be provided with delivered apparatus.

### **12 VOLT MULTIPLEX CONTROL CENTER**

The apparatus shall be equipped with a Weldon V-MUX multiplexed 12 volt electrical system that will provide complete diagnostic capability, No Exception. The system shall have the capability of delivering multiple signals via a CAN bus, utilizing specifications set forth by SAE J1939. The system shall be node based to maximize stability so that failure of one node does not affect the operation of the other nodes. The system shall use shielded twisted-pair wire for transmission of system function signals. The shielded wire shall provide protection against EMI and RFI noise interruptions.

The multiplex system shall be responsible for providing power management functions as well as load shedding. The warning light system shall be controlled by the multiplex system. The system shall be capable of displaying text and/or graphic messages on a display module. The system shall be based on solid-state technology and shall include self-contained diagnostic indicators.

#### **Outputs:**

The outputs shall perform all the following items without added modules to perform any of the tasks;

1. Load Shedding: The system shall have the capability to load shed with 8 levels any output. This means you can specify which outputs (barring NFPA restrictions) you would like load shed. Level 1 12.9v, Level 2 12.5V, Level 3 - 12.1V, Level 4 - 11.7V, Level 5 11.3V, Level 6 10.9V, Level 7 10.5, Level 8 10.1. Unlike conventional load shedding devices you can assign a level to any or all outputs.
2. Load Sequencing: The system shall be able to sequence from 0 8 levels any output. With 0 being no delay and 1 being a 1 second delay, 2 being a 2 second delay and so on. Sequencing reduces the amount of voltage spikes and drops on your vehicle, and can help limit damage to your charging system.
3. Output Device: The system shall have solid-state output devices. Each solid-state output shall be a MOS-FET (Metal Oxide Semiconductor - Field Effect Transistors); MOS-FETs are solid-state devices with no moving parts to wear out. A typical relay when loaded to spec has a life of 100,000 cycles. The life of a FET is more than *100 times* that of a relay.
4. Flashing Outputs: The system shall be able to flash any output in either A or B phase, and logic is used to shut down needed outputs in park, or any one of several combined interlocks. The flash rate can be selected at either 80, 160 or 200 FPM. This means any light can be specified with a multiplex truck with no need to add flashers. Flashing outputs can also be used to warn of problems or other unique idea you may come up with.
5. PWM: The modules shall have the ability to PWM at some outputs so that a headlight PWM module is not needed.

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6. **Diagnostics:** An output should be able to detect either a short or open circuit. The system should be able report in “real time” a text based message that points the maintenance person to a specific output.

#### **Inputs:**

1. The inputs shall have the ability to switch by a ground or vbatt signal.
2. The inputs shall be filtered for noise suppression via hardware and software so that RF or dirty power will not trick an input into changing its status.

#### **Auto-Throttle:**

The multiplex system shall be able to perform automatic high idle via a network gateway or by using an existing output on a module to provide the proper signals to an OEM Engine ECU. This task should be handled with existing inputs and outputs.

#### **Displays:**

Displays shall be able to provide real time information regarding load shedding and system status, such as network traffic/errors or shorts and open circuits.

#### **System Network:**

The multiplex system shall contain a Peer-to-Peer network. A Master Slave Type network is not suitable for this type of unit. A Peer-to-Peer network means that all the modules are equal on the network; a Master is not needed to tell other nodes when to talk, **No Exceptions.**

#### **System Reliability:**

The multiplex system shall be able to perform in extreme temperature conditions, from 40° to +85° C (-40° to +185° F.) The system shall be sealed against the environment, moisture, humidity, salt or fluids such as diesel fuel, motor oil or brake fluid. The enclosures shall be rugged to withstand being mounted in various locations or compartments around the vehicle. The modules shall be protected from over voltage and reverse polarity.

#### **WELDON CERTIFICATION**

A letter shall be provided with bid submittal that the Contractor has successfully completed the Weldon training requirements for Level 1 of the V-MUX Certified Supplier Program and is authorized to design, build, and service V-MUX electrical systems.

#### **MULTIPLEX SYSTEM VISTA IV V-MUX COLOR DISPLAY**

One (1) Weldon V-MUX Vista IV shall be provided, **located on the cab dash panel.** The Vista IV shall have seven switches with custom legends and a wide temperature operating range. The four wires shall control all lighting and HVAC. The Vista IV shall have color changes for button status. The display shall be pre-programmable (OEM Level) and be colored. The auto climate control shall display temperature set point and outside temperatures. The Vista IV shall be ready for back-up camera, thermal cameras and DVDs. Virtual switches, GPS, on-board diagnostics, 6” and 9” Pana Vise options and large font size shall also be included.

The Vista IV allows for peer to peer networking. The Vista IV shall have the ability to automatically change screens based on a predetermined state or condition for warning message or status.

The V-Mux display shall be located in the cab center console for control of all master and emergency lights.

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### Production Specification

#### **CAB CONSOLE**

A center cab console shall be provided between the Driver's and Officer's seats. Console shall be as large as possible and fabricated of 1/8" smooth aluminum. A textured gray powder coat paint finish shall be provided for durability and finished appearance.

The rear portion of the console shall be provided with open top storage for notebooks or maps. Two (2) adjustable dividers shall be provided in the storage area. The forward portion of console shall be slanted for easy viewing of the V-Mux display screen, and any siren or radio equipment. The area shall be within easy access to both Driver and Officer.

The final design of console shall be determined by the Edmonton Police Department at the pre-construction meeting.

#### **BATTERY SYSTEM**

The battery connectors shall be heavy duty type with cables terminating in heat shrink loom. Heavy duty battery cables shall provide maximum power to the electrical system. Where required, the cables shall be shielded from exhaust tubing and the muffler. Large rubber grommets shall be provided where cables enter the battery compartment.

Batteries shall be of the high-cycle type. With the engine off, the battery system shall be able to provide the minimum continuous electrical load for 10 minutes without discharging more than 50 percent of the reserve capacity and then to restart the engine. The battery system cold cranking amps (CCA) rating shall meet or exceed the minimum CCA recommendations of the engine manufacturer. The batteries shall be mounted to prevent movement during fire apparatus operation and shall be protected against accumulations of road spray, snow, and road debris. The batteries shall be readily accessible for examination, testing, and maintenance.

A means shall be provided for jump-starting the engine if the batteries are not accessible without lifting the cab of a tilt-cab apparatus.

Where an enclosed battery compartment is provided, it shall be ventilated to the exterior to prevent the buildup of heat and explosive fumes. The batteries shall be protected against vibration and temperatures that exceed the battery manufacturer's recommendation.

A master load disconnect switch shall be provided between the starter solenoid(s) and the remainder of the electrical loads on the apparatus. The starter solenoids shall be connected directly to the batteries.

Electronic control systems and similar devices shall be permitted to be otherwise connected if so specified by their manufacturer.

The alternator shall be wired directly to the batteries through the ammeter shunt(s), if one is provided, and not through the master load disconnect switch.

A green "battery on" pilot light that is visible from the driver's position shall be provided.

A sequential switching device shall be permitted to energize the optical warning devices and other high current devices required in minimum continuous electrical load, provided the switching device shall first energize the electrical devices required in minimum continuous electrical load within 5 seconds.

#### **BATTERY SWITCH**

One (1) battery "On/Off" switch in cab located within easy reach of Driver with green "BATTERY ON" pilot light that is visible from the driver's position shall be provided.

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## Command

### Production Specification

#### **BATTERY SOLENOID**

Battery switch shall consist of a minimum 200 ampere, constant duty solenoid to feed from positive side of battery.

#### **BATTERY CHARGER**

One (1) Newmar model PT-80 battery charger shall be provided ideal for charging multiple battery bank systems. The Newmar Phase Three "Smart" battery charging technology provides significant benefits over traditional float chargers whose output voltage droops under heavy loads, and fails to attain proper voltage levels recommended by battery manufactures as part of a proper charge cycle. These issues are particular significant in Emergency Vehicle applications where rapid recharge is required while powering DC loads, and reliable service life of batteries is critical. PT Series chargers feature multiple isolated outputs to charge independent battery banks.

Features;

- "Smart" circuitry provides three stage charging—bulk, absorption, float
- Gel-Cell/Flooded Lead-acid/AGM battery type switch selects optimum charge/float voltages
- Multiple isolated outputs - charge independent battery banks\*
- Optional sensor adjusts output voltage based on battery temperature\*
- Current limiting - charges dead batteries without overload
- Use as a power supply; can power Radios/MDT's without a battery in line
- Built to last—rugged stainless steel case with circuitry hardened for hostile environments
- Remote meter included

#### **CHASSIS AIR SHORE PUMP**

One (1) Kussmaul Auto-Pump 12 volt, 80 psi air compressor shall be provided and installed to maintain air pressure in chassis air brake system.

#### **BATTERY CHARGE INDICATOR**

A Newmar charge indicator display shall be provided and located near drivers' door area. This single battery system indicator is a suppressed zero bar graph voltage display which may be installed in any 12 volt system.

#### **SHORE POWER INLET**

One (1) Kussmaul 120 VAC, 30 amp non auto-eject shore power inlet(s) shall be provided.

The protective ground from the shoreline inlet shall be bonded to the vehicle frame.

- The outlet cover shall be yellow.
- The shore power inlet shall be located on the forward area of the streetside body.

#### **ENGINE COMPARTMENT LIGHT**

There shall be one (1) light(s) mounted in the engine compartment with integral switch with a light output of at least 20 candlepower (250 lumens). The engine compartment light(s) shall operate only when the master battery switch is turned "On".

#### **CHASSIS HEADLIGHT WIG/WAG**

Chassis headlight Wig/Wag flashing unit shall be provided on apparatus. Headlight flasher shall be switched from 12 volt control panel. The headlight flasher shall be shut down when the parking brake is engage for "Blocking Mode".

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## Command

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#### **CAB HAZARD WARNING LIGHT**

A red flashing or rotating light, located in the driving compartment, shall be illuminated automatically whenever the vehicles parking brake is not fully engaged and any of the following conditions exist:

- Any passenger or equipment compartment door is not closed.
- Any ladder or equipment rack is not in the stowed position.
- Stabilizer system is not in its stowed position.
- Powered light tower is not stowed.
- Any other device permanently attached to the apparatus is open, extended, or deployed in a manner that is likely to cause damage to the apparatus if the apparatus is moved.

Compartments and equipment meeting all of the following conditions shall be permitted to be exempt from being wired to the hazard light:

- The volume is less than or equal to 4 ft<sup>3</sup> (0.1 m<sup>3</sup>).
- The compartment has an opening less than or equal to 144 in.<sup>2</sup> (92,900 mm<sup>2</sup>).
- The open door does not extend sideways beyond the mirrors or up above the top of the fire apparatus.
- All equipment in the compartment is restrained so that nothing can fall out if the door is open while the apparatus is moving.
- Manually raised pole lights with an extension of less than 5 ft (1.5 m).

The hazard light shall be labeled "DO NOT MOVE APPARATUS WHEN LIGHT IS ON".

An audible alarm shall be provided for the door ajar light.

#### **BACK-UP ALARM**

The body manufacturer shall furnish and install one (1) 107 dB(A) electronic back-up alarm. Back-up alarm to actuate automatically when the transmission gear selector is placed in reverse. The alarm shall include a disable switch to allow silencing of the alarm if needed.

#### **REAR/SIDE VIEW CAMERA SYSTEM**

There shall be one (1) Zone Defense rear/side observation camera system provided and installed on the apparatus. The system shall include the following components:

- One (1) model CAM.313.SH.4P color camera with IR, high speed shutter mechanism, and automatic heater installed on the rear the body.
- Two (2) model CAM.313.MS compact color cameras with IR installed on the left and right cab sides.

The camera feeds shall be viewable through the Vista Display when the apparatus is in motion, and the AMX system when the apparatus is parked.

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## Command

### Production Specification

#### **INTERIOR LED LIGHTS**

Twenty Seven (27) OnScene Solution model #70156, 10" x 10" x 7/8", 10-30 VDC, surface mount dual red and white LED light(s) with clear lens shall be provided throughout the vehicle. Each light shall be individually switched with a high/low intensity setting at the entry door(s). The lights located in the Negotiators room shall be switchable at both the exterior and pocket door locations.

The lights shall be located as follows:

- Seventeen (17) 12 volt light(s) shall be installed in the command room. The lights shall be switched at the entry doorway area.
- Six (6) 12 volt light(s) shall be installed in the negotiators room. The lights shall be switched at the entry doorway area.
- Four (4) 12 volt light(s) shall be installed in the electronics room. The lights shall be switched at the entry doorway area.

There shall be one (1) interior light (included in the count above) located adjacent to each door opening. The light(s) shall be activated with the opening of the door and utilize the 5 second delay feature of the LED light when the door is closed. The light(s) shall also be activated with the room light switch to illuminate whenever the balance of room lights are active.

#### **REMOTE FUEL GAUGE/LOW LEVEL ALARM**

There shall be one (1) CruzPro model TL55 Tank Level Gauge with Alarm provided in the command room of the apparatus body. The gauge shall be installed to function both with and without the chassis engine running. The system shall be programmed to activate at least 30 minutes prior to any components running out of fuel.

A disable switch shall be provided to silence the low level alarm.

#### **TAIL LIGHTS**

Rear body tail lights shall be vertically mounted per Federal Motor Vehicle Safety Standards. The following lights shall be furnished:

- Two (2) Whelen 900 Series 90A00TAR amber LED turn signal lights
- Two (2) Whelen 900 Series 90R00XRR red LED stop/tail lights
- Two (2) Whelen 900 Series 90J000CR halogen back-up lights with clear lens

Each of the lights above shall be mounted in a 9EFLANGE, chrome finish bezel.

#### **MIDSHIP MARKER/TURN SIGNAL**

Two (2) Whelen 900 Series 90A00TAR amber LED turn signal lights and two (2) Whelen LED midship body clearance marker lights (T0A00MAR) shall be installed. There shall be one (1) set of lights on each side of the body, in the wheel well, between the dual rear axles.

#### **MARKER LIGHTS**

The apparatus body shall be equipped with all necessary clearance lights and reflectors in accordance with Federal Motor Vehicle Safety Standards (FMVSS) regulations. All body clearance lights shall be Truck-Lite Model 18 LED to reduce the need for maintenance and lower the amp draw. Clearance lights shall be wired to the headlight circuit of the chassis.

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#### **REAR BUMPER MARKER LIGHTS**

Two (2) Britax LED style dual face flexible mounted rear bumper markers shall be located, one (1) each side lower rear corner of body visible from driver mirrors.

#### **CAB STEP LIGHTS / GROUND LIGHTS**

There shall be two (2) OnScene Solutions 9" LED NightStik light(s) installed on the vehicle capable of providing illumination at a minimum level of 2 fc (20 lx) on ground areas within 30 in. (800 mm) of the edge of the vehicle in areas designed for personnel to climb onto or descend from the vehicle to the ground level.

Lighting designed to provide illumination on areas under the driver and crew riding area exits shall be switchable but activated automatically when the exit doors are opened.

#### **LICENSE PLATE LIGHT**

One (1) Arrow #437 chrome plated LED license plate light shall be installed on the rear of the body. License plate light shall be wired to the headlight circuit of chassis. A fastener system shall be provided for license plate installation.

#### **ELECTRONIC SIREN**

One (1) Code 3 MicroCom2, electronic siren with Microphone, Rotary Switch, Primary Tones: Wail, Yelp, HiLo, Air Horn; Secondary Tones: HyperYelp, HyperLo. The siren shall be installed in the cab within easy access of the Driver.

#### **SIREN SPEAKER**

Two (2) D&R DRCS100 100 watt siren speaker shall be provided, recessed in the front bumper, one (1) per side.

- The siren speaker(s) shall be located behind the grill.

#### **SIDE SCENE LIGHTS**

There shall be five (5) Code 3 795SCBZ (9" x 7") surface mounted, LED scene lights provided on the upper body. Each light will have a 8-32 degree lens and chrome flange.

The lights shall be located as follows:

##### Curbside

- Two (2) on the face of the slide-out, evenly spaced, below the awning
- One (1) directly above the main entry door (manual switch located inside the main entry door)
- One (1) directly above the electronics room entry door (manual switch located inside the electronics room)

##### Streetside

- Two (2) one the body corners, adjacent to the warning lights.
- One (1) on the rear corner of the slide-out, adjacent to negotiators room door.

Two (2) switches shall be provided, one (1) for the streetside scene lights, and one (1) for the curbside scene lights.

The lights shall be switched at the 12 volt control panel in the cab. Additionally, override switch(es) shall be provided at the entry door to control the scene lighting.

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### Production Specification

#### **REAR SCENE LIGHTS**

There shall be two (2) Code 3 795SCBZ (9" x 7") surface mounted, LED scene lights provided on the upper body. Each light will have a 8-32 degree lens and chrome flange.

The lights shall be located one (1) on either side of the face directly below the upper Red / Blue emergency lights.

The lights shall be switched at the 12 volt control panel in the cab. Additionally, override switch(es) shall be provided at the entry door to control the scene lighting.

The rear scene lights shall also be activated when the apparatus is in reverse.

#### **WARNING LIGHT PACKAGE**

Each apparatus shall have a system of optical warning devices that meets or exceeds the requirements of this section.

The optical warning system shall consist of an upper and a lower warning level. The requirements for each level shall be met by the warning devices in that particular level without consideration of the warning devices in the other level.

For the purposes of defining and measuring the required optical performance, the upper and lower warning levels shall be divided into four warning zones. The four zones shall be determined by lines drawn through the geometric center of the apparatus at 45 degrees to a line drawn lengthwise through the geometric center of the apparatus. The four zones shall be designated A, B, C, and D in a clockwise direction, with zone A to the front of the apparatus.

Each optical warning device shall be installed on the apparatus and connected to the apparatus's electrical system in accordance with the requirements of this standard and the requirements of the manufacturer of the device.

A master optical warning system switch that energizes all the optical warning devices shall be provided.

The optical warning system on the fire apparatus shall be capable of two separate signaling modes during emergency operations. One mode shall signal to drivers and pedestrians that the apparatus is responding to an emergency and is calling for the right-of-way. One mode shall signal that the apparatus is stopped and is blocking the right-of-way. The use of some or all of the same warning lights shall be permitted for both modes provided the other requirements of this chapter are met.

A switching system shall be provided that senses the position of the parking brake or the park position of an automatic transmission. When the master optical warning system switch is closed and the parking brake is released or the automatic transmission is not in park, the warning devices signaling the call for the right-of-way shall be energized. When the master optical warning system switch is closed and the parking brake is on or the automatic transmission is in park, the warning devices signaling the blockage of the right-of-way shall be energized. The system shall be permitted to have a method of modifying the two signaling modes.

The optical warning devices shall be constructed or arranged so as to avoid the projection of light, either directly or through mirrors, into any driving or crew compartment(s). The front optical warning devices shall be placed so as to maintain the maximum possible separation from the headlights.



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## Command

### Production Specification

#### UPPER LEVEL OPTICAL WARNING DEVICES

The upper-level optical warning devices shall be mounted as high and as close to the corner points of the apparatus as is practical to define the clearance lines of the apparatus. The upper-level optical warning devices shall not be mounted above the maximum height, specified by the device manufacturer.

#### ZONE A - FRONT WARNING LIGHT

There shall be one (1) Code 3 model RMX69NFPA2, 69" long lightbar permanently mounted on cab roof.

The lightbar configuration (streetside to curbside) shall be:

<u>Section</u>	<u>Components</u>	<u>Color</u>
Top	(1) PriZm REF8 LED Module	Red LED/ Clear Lens
Top	(1) PriZm REF8 LED Module	Red LED/ Clear Lens
Top	(1) PriZm REF8 LED Module	Red LED/ Clear Lens
Top	(1) PriZm REF8 LED Module	Clear LED/ Clear Lens
Top	(1) PriZm REF8 LED Module	Red LED/ Clear Lens
Top	(1) PriZm REF8 LED Module	Clear LED/ Clear Lens
Top	(1) PriZm REF8 LED Module	Blue LED/ Clear Lens
Top	(1) PriZm REF8 LED Module	Blue LED/ Clear Lens
Top	(1) PriZm REF8 LED Module	Blue LED/ Clear Lens

<u>Section</u>	<u>Components</u>	<u>Color</u>
Bottom	(1) PriZm REF12 LED Module	Red LED/ Clear Lens
Bottom	(1) PriZm REF8 LED Module	Red LED/ Clear Lens
Bottom	(1) PriZm REF8 LED Module	Red LED/ Clear Lens
Bottom	(1) PriZm REF8 LED Module	Clear LED/ Clear Lens
Bottom	(1) PriZm REF8 LED Module	Blue LED/ Clear Lens
Bottom	(1) PriZm REF8 LED Module	Clear LED/ Clear Lens
Bottom	(1) PriZm REF8 LED Module	Blue LED/ Clear Lens
Bottom	(1) PriZm REF8 LED Module	Blue LED/ Clear Lens
Bottom	(1) PriZm REF12 LED Module	Blue LED/ Clear Lens

All clear lights shall shut down when the parking brake is set to comply with "Blocking" mode requirements as outlined in NFPA 1901.

The lightbar shall be separately switched at the vista display in the cab.

#### ZONES B AND D - SIDE WARNING LIGHTS

#### UPPER REAR CORNER WARNING LIGHTS

There shall be two (2) Code 3 model 85BZRB (9" x 7") surface mount LED lights provided, one (1) each side. Lights shall have red/blue split LED's, clear lens, and a chrome finished flange.

The lights shall have the red portion of the light forward on the streetside, and blue portion of the light forward on the curbside.

The lights shall be switched at the Vista display in the cab.

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### Production Specification

#### UPPER FORWARD CORNER WARNING LIGHTS

There shall be two (2) Code 3 model 85BZRB (9" x 7") surface mount LED lights provided, one (1) each side.

The lights shall have the red portion of the light forward on the streetside, and blue portion of the light forward on the curbside.

The lights shall be switched at the Vista display in the cab.

#### ZONE C - REAR WARNING LIGHTS

Two (2) Code 3 model 85BZRB (9" x 7") surface mount LED lights shall be provided in the rear upper zone of the body. There shall be one (1) light mounted on each side, near the corners of the body. Lights shall have red/blue split LED's, clear lens, and a chrome finished flange.

The lights shall have the red portion of the light positioned to the streetside on both lights.

The lights shall be switched at the Vista display in the cab.

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## Command

### Production Specification

#### **LOWER LEVEL OPTICAL WARNING DEVICES**

To define the clearance lines of the apparatus, the optical center of the lower-level optical warning devices in the front of the vehicle shall be mounted on or forward of the front axle centerline and as close to the front corner points of the apparatus as is practical.

The optical center of the lower-level optical warning devices at the rear of the vehicle shall be mounted on or behind the rear axle centerline and as close to the rear corners of the apparatus as is practical. The optical center of any lower-level device shall be between 18 in. and 62 in. (460 mm and 1600 mm) above level ground for large apparatus, and 18 in. and 48 in. (460 mm and 1220 mm) above level ground for small apparatus.

A midship optical warning device shall be mounted right and the left sides of the apparatus if the distance between the front and rear lower-level optical devices exceeds 25 ft (7.6 m) at the optical center. Additional midship optical warning devices shall be required, where necessary, to maintain a horizontal distance between the centers of adjacent lower-level optical warning devices of 25 ft (7.6 m) or less. The optical center of any midship mounted optical warning device shall be between 18 in. and 62 in. (460 mm and 1600 mm) above level ground.

#### **ZONE A - FRONT WARNING LIGHTS**

There shall be two (2) Code 3 model 65BZRB (6" x 4") surface mount LED lights provided, one (1) each side. Lights shall have red/blue split LED's, clear lens, and a chrome finished flange.

The lights shall have the red portion of the light positioned to the streetside on both lights.

The lights shall be switched at the Vista display in the cab.

#### **ZONES B AND D - CAB INTERSECTOR LIGHT (CAB FRONT CORNERS)**

There shall be two (2) Code 3 model 45BZRB (7" x 3") surface mount LED lights provided, one (1) each side. Lights shall have red/blue split LED's, clear lens, and a chrome finished flange.

The lights shall have the red portion of the light forward on the streetside, and blue portion of the light forward on the curbside.

The lights shall be switched at the Vista display in the cab.

#### **ZONES B AND D - BODY INTERSECTOR LIGHT (BODY WHEELWELL AREA)**

There shall be two (2) Code 3 model 65BZRB (6" x 4") surface mount LED lights provided, one (1) each side. Lights shall have red/blue split LED's, clear lens, and a chrome finished flange.

The lights shall have the red portion of the light forward on the streetside, and blue portion of the light forward on the curbside.

The lights shall be switched at the Vista display in the cab.

# Edmonton Police Service

## Command

### Production Specification

#### ZONES B AND D - BODY INTERSECTOR LIGHT (BODY REAR CORNERS)

There shall be two (2) Code 3 model 65BZRB (6" x 4") surface mount LED lights provided, one (1) each side. Lights shall have red/blue split LED's, clear lens, and a chrome finished flange.

The lights shall have the red portion of the light forward on the streetside, and blue portion of the light forward on the curbside.

The lights shall be switched at the Vista display in the cab.

#### ZONE C - REAR WARNING LIGHTS (LOWER REAR CORNERS)

There shall be two (2) Code 3 model 85BZRB (9" x 7") surface mount LED lights provided, one (1) each side. Lights shall have red/blue split LED's, clear lens, and a chrome finished flange.

The lights shall have the red portion of the light positioned to the streetside on both lights.

The lights shall be switched at the Vista display in the cab.

# Edmonton Police Service

## Command

### Production Specification

#### **LINE VOLTAGE ELECTRICAL SYSTEM**

The command truck will be supplied with both a PTO generator, and a diesel powered generator as follows;

#### **ONAN PTO GENERATOR**

The vehicle shall be equipped with an Onan Protec PTO generator system with a capacity of 20,000 watts at 120/240 VAC, 166/83 amps, single phase. Current frequency shall be stable at 60 hertz.

The transmission's PTO port and PTO, or the split shaft PTO, and all associated drive shaft components shall be rated to support the continuous duty torque requirements of the generator's continuous duty rating as stated on the power source nameplate.

Where the generator is driven by the chassis engine and transmission through a split shaft PTO, the driving compartment speedometer shall register when the generator drive system is engaged.

Where the generator is driven by the chassis engine and transmission through a split shaft PTO and a chassis transmission retarder is furnished, it shall be automatically disengaged for generator operations.

The direct drive generator shall be mounted so that it does not change the ramp breakover angle, angle of departure, or angle of approach as defined by other components, and it shall not extend into the ground clearance area.

The direct drive generator shall be mounted away from exhaust and muffler areas or provided with a heat shield to reduce operating temperatures in the generator area.

#### **GENERATOR ENGAGEMENT**

A "Generator Engaged" indicator shall be provided in the driving compartment to indicate that the generator shift has been successfully completed.

An "OK to Operate Generator" indicator shall be provided in the driving compartment to indicate that the generator is engaged (if not always engaged), the transmission is in the proper gear (if required, automatic transmissions only), and the parking brake is engaged (if applicable).

An interlock system shall be provided to prevent advancement of the engine speed in the driving compartment or at any operator's panel unless the parking brake is engaged, and the transmission is in neutral or the output of the transmission is correctly connected to a pump or generator instead of the drive wheels.

#### **WARRANTY PERIOD**

Provided such goods are operated and maintained in accordance with Onan's written instructions, Onan warrants that the Protec YDCR series PTO generators shall be free from defects in material and workmanship for a period of five (5) years or one thousand (1,000) hours, whichever comes first, from the date of delivery to the first purchaser.

#### **GENERATOR SPLASH GUARD**

A powder coat painted splash cover shall be installed to reduce the amount of road spray on the frame mounted PTO generator. A V-ring seal shall also be installed in the cover to provide additional protection against contaminants reaching the generator front seals.

# Edmonton Police Service

## Command

### Production Specification

#### **GENERATOR MOUNTING**

The generator shall be mounted between the chassis frame rails. The generator mounting brackets shall be fabricated using heavy duty steel tubing, or structural channel. The generator mounting shall be bolted and removable so that the generator can be lowered from under apparatus for service, if necessary. The generator case shall not extend below the bottom edge of the apparatus body.

#### **MANUALS AND SCHEMATICS**

Two (2) complete manuals on parts list, maintenance, wiring schematics, hydraulic schematics, circuit boards, voltage regulator board and other components shall be provided on delivery.

#### **POWER-TAKE-OFF GENERATOR DRIVE**

There shall be a "Hot Shift" power-take-off (PTO) installed on the transmission PTO opening of the chassis. The "Hot Shift" PTO is provided to allow the engagement of the PTO at higher engine RPM speeds. The PTO output shall be connected to the generator through hollow tube type driveline with heavy duty universals.

The engagement of the PTO shall be in the chassis cab with a rocker switch and red pilot light to note engagement of the PTO.

The power supply to the PTO engagement control shall be wired to the parking brake and a neutral position transmission switch to prevent engagement unless the vehicle is stopped and transmission has been placed in neutral.

The installation of the engine, transmission, driven accessories (power takeoffs (PTO), etc.) shall meet the engine and transmission manufacturers' installation recommendations for the service intended.

Model part number shall be Chelsea 277XMFJPB5XD, 129% Ratio.

#### **ENGINE SPEED CONTROL**

An engine speed auxiliary control device (high idle switch or throttle) shall be installed to maintain a stable cycle output from generator when the apparatus is parked.

An interlock shall prevent the operation of the engine speed auxiliary control device unless the parking brake is engaged and the transmission is in neutral or park, or the parking brake is engaged and the engine is disengaged from the drive wheels.

The engine shall be prevented from regulating its own engine speed during times when engine rpm control is critical for consistent apparatus functions such as generator, water pump, or aerial operation.

#### **LOADCENTER**

The loadcenter shall be a Cutler Hammer, BR Series, specifically designed for protection and distribution of 120/240 volt AC, such as lighting and small motor branch circuits. The loadcenter enclosure shall be made of 16 gauge galvanized sheet steel. The galvanized coating provides corrosion protection and as such does not require paint. All trims used on the BR Loadcenter shall be chromate sealed and finished with electro disposition epoxy paint (ASA61) which exceeds requirements for outdoor and indoor applications. A combination surface/flush cover with integral door shall be supplied.

The loadcenter shall be UL / CSA listed, **NO EXCEPTIONS** will be allowed.

# Edmonton Police Service

## Command

### Production Specification

#### **GENERATOR MONITORING PANEL**

To properly monitor the generator performance and load demand during operation, the generator installation shall be equipped with a full instrument monitor panel.

- Generator frequency in hertz
- Line 1 current in amperes
- Line 2 current in amperes
- Generator voltage in volts

The program shall support the accumulation of elapsed generator hours. Generator hours shall be displayed.

#### **DIESEL GENERATOR**

An Onan model SD 20.0HDKAW-2008A, diesel driven generator shall be installed on the vehicle. The generator shall be installed so that fumes, vapors, heat, and vibrations do not enter the driving or crew compartment. The generator shall be rated at 20,000 watts continuous at 120/240 VAC, 166/83 amps, single phase. Current frequency shall be stable at 60 hertz.

Generator features shall include:

- |                                           |                                                                                                     |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------|
| • 4-cylinder Kubota V2403-M diesel engine | • Digital voltage regulation                                                                        |
| • Brushless alternator                    | • Regulated-voltage 30 A battery charging                                                           |
| • Vibration isolated control box          | • Hourmeter                                                                                         |
| • Muffler USDA approved spark arrestor    | • Instant one touch stop                                                                            |
| • Internal radiator                       | • Electric fuel pump                                                                                |
| • Bottom mount radiator                   | • Vertically mounted fuel filter, spin on cartridge                                                 |
| • Intake silencer                         | • Full flow oil filter                                                                              |
| • Replaceable element air cleaner         | • Automatic timed glow plugs for quick easy start                                                   |
| • Maintenance-free electronic governor    | • Overvoltage, low oil pressure, overtemp, overspeed, overload, and AC alternator overtemp safeties |

Overall size of generator shall 49" L x 24" W x 28" H and weigh 890 lbs.

Sound: 60 Hz (single phase) 81.9 dB(A) at 10 ft before installation, full load.

Generator shall be equipped with a high temperature automatic shutdown system and a low oil (pressure or level) automatic shutdown system. The generator shall be installed in accordance with the generator manufacturer's requirements for ventilation and service accessibility.

If the generator is installed in a compartment and the compartment doors must be open during its operation, the generator shall be equipped with an interlock system to prevent its operation if the doors are not open, or the compartment shall be equipped with a high temperature alarm.

Permanently installed generators shall have readily accessible engine oil drain provisions or piping to a remote location for oil changing.

If the generator is located in a position on the apparatus where the operator cannot see the instrumentation and operate the controls while standing at ground level or positioned at a specifically designated operator station, an operating panel with the required instrumentation, start and stop controls, and other controls necessary for safe operation shall be provided at a remote operator's panel.

# Edmonton Police Service

## Command

### Production Specification

#### **WARRANTY PERIOD**

Provided such goods are operated and maintained in accordance with Onan's written instructions, Onan warrants that the Generators shall be free from defects in material and workmanship for a period of two (2) years or two thousand (2,000) hours, whichever comes first, from the date of delivery to the first purchaser.

#### **GENERATOR MOUNTING**

The generator shall be mounted in a lower exterior compartment on rubber vibration isolators. The compartment shall be reinforced where necessary to hold weight of generator. A valve shall be provided on the generator oil drain outlet and piped to underside of generator compartment with flexible hose and plug. The drain shall be located where easily accessible for generator service.

#### **FUEL SYSTEM**

The generator fuel system shall be plumbed to the chassis main fuel tank. A separate fuel line shall be installed directly from the tank, not connected to the truck engine fuel line system. The generator fuel line shall be properly protected and secured inside of chassis frame. A shut-off valve shall be provided between the generator and fuel line as it enters the compartment.

Fuel lines shall be protected from chafing at all wear points. If the fuel source is shared with the apparatus engine, a separate fuel pickup system shall be provided that is arranged to ensure that the generator cannot utilize more than 75 percent of the fuel tank capacity.

#### **STARTING SYSTEM**

The generator starting system shall be powered by chassis battery system with heavy duty stranded copper cables. The starter line shall by-pass the chassis master switch to permit generator operation when the apparatus engine is not running. This starter line shall be of sufficient size for the generator, adequately protected and supported inside the chassis frame area.

#### **EXHAUST SYSTEM**

The generator exhaust system shall be equipped with a residential type muffler for maximum quieting, and black iron rigid pipe to link the generator to the muffler.

The exhaust piping and discharge shall be located or shielded to prevent thermal damage to the apparatus or equipment. The exhaust shall be piped to the exterior of the vehicle and discharged at a location away from any operator's position.

Where parts of the exhaust system are exposed so that they can cause injury to operating personnel, protective guards shall be provided.

Silencing devices shall be provided and shall not create exhaust back pressure that exceeds the limits specified by the engine manufacturer.

#### **MANUALS AND SCHEMATICS**

Two (2) complete manuals on parts list, maintenance, wiring schematics, hydraulic schematics, circuit boards, voltage regulator board and other components shall be provided on delivery.



# Edmonton Police Service

## Command

### Production Specification

#### **GENERATOR COMPARTMENT INSULATION**

The generator compartment shall be provided with heavy duty sound insulation applied to walls and ceiling. Insulation shall have a high temperatures rating with a foil facing and attached to walls with a positive type fasteners, glue type adhesive shall not be acceptable.

#### **GENERATOR MONITORING PANEL**

To properly monitor the generator performance and load demand during operation, the generator installation shall be equipped with a full instrument monitor panel.

- Generator frequency in hertz
- Line 1 current in amperes
- Line 2 current in amperes
- Generator voltage in volts

The program shall support the accumulation of elapsed generator hours. Generator hours shall be displayed.

#### **GENERATOR CONTROLS**

In addition to generator controls provided at the generator, there shall be controls provided in Vista display in the cab. The following controls shall be provided:

- One (1) pre-heat switch (if generator is diesel).
- One (1) start/stop switch.
- One (1) generator running indicator light.

#### **GENERATOR CONTROLS**

In addition to generator controls provided at the generator and Vista display, there shall be controls provided in the interior walk-in area of the body, adjacent to the specified 120V panel. The following controls shall be provided:

- One (1) pre-heat switch (if generator is diesel).
- One (1) start/stop switch.
- One (1) generator running indicator light.

#### **SHORE POWER INLET - BATTERY CHARGER**

The above mentioned shore power inlet, and battery conditioner shall be specified in the 12 volt section.

# Edmonton Police Service

## Command

### Production Specification

#### **SHORE POWER INLET - INVERTER**

One (1) Kussmaul 30 amp "Super Auto-Eject" shore power inlet shall be furnished and installed. The shore power inlet shall provide an external power source for apparatus electrical circuits. A matching 30 ampere plug shall be shipped with the apparatus for Edmonton Police Department supplied external power source wiring.

A transfer switch shall be required to isolate one power source from the other where a circuit(s) is intended to be supplied from more than one power source. To protect both the generator and external power source from back feed, two (2) 120 volt, 30 ampere, 4PST auxiliary contact with safety interlock relay shall be installed. Relay shall cut-off the connection between the generator supply circuit and device circuits when shore power is connected.

Transfer equipment, including transfer switches, shall operate such that all ungrounded conductors of one power source are disconnected before any ungrounded conductors of the second power source are connected. The neutral conductor shall be switched through the transfer switch. The apparatus shall have a label permanently affixed at the power inlet that indicates the line voltage, and amperage.

- The outlet cover shall be red.
- The shore power inlet shall be located on the streetside front of body, outboard of the cab.

Shore power shall be wired to the specified 120 volt inverter.

#### **SHORE POWER INLET - SPECIFIED CIRCUITS**

One (1) Kussmaul 30 amp "Super Auto-Eject" shore power inlet shall be provided and wired to specified circuits below. The shore power inlet shall provide an external power source for apparatus electrical circuits. A matching 30 ampere plug shall be shipped with the apparatus for Edmonton Police Department supplied external power source wiring.

A transfer switch shall be required to isolate one power source from the other where a circuit(s) is intended to be supplied from more than one power source. To protect both the generator and external power source from back feed, two (2) 120 volt, 30 ampere, 4PST auxiliary contact with safety interlock relay shall be installed. Relay shall cut-off the connection between the generator supply circuit and device circuits when shore power is connected.

Transfer equipment, including transfer switches, shall operate such that all ungrounded conductors of one power source are disconnected before any ungrounded conductors of the second power source are connected. The neutral conductor shall be switched through the transfer switch. The apparatus shall have a label permanently affixed at the power inlet that indicates the line voltage, and amperage.

- The outlet cover shall be yellow.
- The shore power inlet shall be located on the streetside front of body, outboard of the cab.

Shore power inlet shall be wired to the following specified 120 VAC circuits;

Shore power shall be wired to all primary 120 VAC, 20 ampere electrical outlets on apparatus (maximum of two (2) circuits). Circuits shall be provided with circuit breaker protection with either generator or shore power providing power.

# Edmonton Police Service

## Command

### Production Specification

#### **SHORE POWER INLET - 100 AMP**

A 100 ampere, 240 VAC, single phase shore power inlet shall be provided in the streetside compartment ahead of the rear wheels (S2) to provide an external power source for apparatus electrical circuits. A matching 100 ampere plug shall be shipped with the apparatus for Edmonton Police Department supplied external power source wiring.

Shore power shall be wired to apparatus main circuit breaker in the circuit breaker distribution panel and feed all 120/240 electrical circuits on apparatus.

To protect both the generators and external power source from back feed, two (2) manual switches shall be installed at the generator control panel. One (1) to switch between generator and shore power, and one (1) to switch between the PTO and diesel generator. The switches shall be designed to cut off the connection between the apparatus circuits and the generators when the external power source plug is in use.

#### **SHORE POWER DOOR**

A Cast Products pass thru door assembly shall be provided and located on the floor of the compartment, adjacent to the shore power receptacle. The door shall have a spring-loaded hinged door with a rubber slotted gasket to minimize weather exposure when the door is in use. Door shall be wired to the "Hazard Warning Light" in cab to indicate that truck is connected to shore power system.

#### **OUTLETS AND CIRCUITS**

The generator and or shore power shall supply the 120/240 volt electrical equipment and outlets outlined below. Proper circuit protection shall be installed as noted:

Two (2) 120 volt exterior outlets, one (1) each side near rear wheel well area.

- The outlet receptacle(s) shall be 20 amp, straight-blade (NEMA 5-20R).

One (1) 240 volt exterior outlet, located on the curbside rear of the body.

- The outlet receptacle(s) shall be 30 amp, twist-lock (NEMA L6-30R).

# Edmonton Police Service

## Command

### Production Specification

#### **INVERTER**

A Newmar model 12-3550ICIP inverter shall be provided on vehicle that provides 3,000 continuous watts, 140 A capability, 120 VAC, 60 cycle output from 12 VDC. Inverter shall have a full function remote monitor/control panel.

An innovative new series of Inverter-Chargers called "Intelligence Plus" because of their multi-function capability to produce supplemental power for peak loads when running shore and generator sources and can limit its own AC power consumption when charging batteries, preventing AC system overloads. Integrated with a programmable smart 3-step high power charger, temperature compensation, alarms and other diagnostics, it has intelligence plus heavy duty electrical and mechanical design standards for high performance and survival in the rugged mobile environment.

The alternator and/or battery system shall be adequate to provide power for continuous operation for a minimum of 2 hours at full output.

#### Features;

- Heavy Duty Grade design and construction
- Pure sine "Perfect Wave" output runs sensitive electronics
- High surge ratings for motor starting
- Programmable input and output to match user profile and power availability
- High amperage three stage charger recovers batteries quickly
- Fast Transfer from stand by to full power status provides AC back up as UPS
- Supplements shore or generator power for peak loads
- Digital display on unit and remote provides easy monitoring
- Versatile bulk head or horizontal mounting options
- Rated for continuous output to 70°C
- Produces true sine wave, with excellent voltage regulation, and frequency stabilization
- Programmable to supplement shore and generator sources for peak load sharing
- High surge current capability for motor starting

#### Battery Charging;

- High Amperage temperature compensated, 3 step charger for main and auxiliary battery banks
- Programmable voltage and timer settings for virtually any battery type
- Programmable input current limit prevents overload of AC input source when charging dead batteries.

#### **INVERTER BATTERY SUPPLY**

There shall be four (4) deep cycle batteries provided as the 12volt power source for the onboard inverter. The batteries shall incorporate Absorbent Glass Mat (AGM) technology for efficient gas recombination of up to 99% and freedom from electrolyte maintenance. The batteries shall be mounted in a stainless steel pan with hold down provisions for mobile application.

A master disconnect switch for the inverter battery supplied shall be provided adjacent to the battery location. The exterior of the compartment shall include a label stating: "CAUTION: UNIT EQUIPPED WITH MULTIPLE BATTERY SYSTEMS".

#### **INVERTER BATTERY SUPPLY - VSR**

There shall be one (1) Voltage Sensitive Relay (VSR) provided with the deep cycle batteries. The VSR allows two batteries to be charged at the same time. When the engine is started and the start battery reaches 13.7 volts, the VSR engages, allowing two battery banks (start and inverter supply) to be charged simultaneously. When the voltage drops below 12.8 volts (e.g. the engine is stopped), the VSR disengages, separating the batteries. This system eliminates the possibility of draining the wrong battery and protects sensitive electronic equipment powered from the house battery from harmful engine start up spikes.

# Edmonton Police Service

## Command

### Production Specification

#### LINE VOLTAGE ELECTRICAL SYSTEM

##### GENERAL REQUIREMENTS

###### Stability

Any fixed line voltage power source producing alternating current (ac) shall produce electric power at 60 Hz,  $\pm 3$  Hz when producing power at all levels between no load and full rated power. Any fixed line voltage power source shall produce electric power at the rated voltage  $\pm 10$  percent when producing power at all levels between no load and full rated power.

The maximum voltage supplied to portable equipment shall not exceed 275 volts to ground. Higher voltage shall be permitted only when used to operate fixed wired, permanently mounted equipment on the apparatus.

###### Conformance with National Electrical Code

All components, equipment, and installation procedures shall conform to *NFPA 70, National Electrical Code*, except where superseded by the requirements of this chapter. Where the requirements of this chapter differ from those in *NFPA 70*, the requirements in this chapter shall apply.

Where available, line voltage electrical system equipment and materials included on the apparatus shall be listed and used only in the manner for which they have been listed. All equipment and materials shall be installed in accordance with the manufacturer's instructions.

###### Location Ratings

Any equipment used in a dry location shall be listed for dry locations. Any equipment used in a wet location shall be listed for wet locations.

Any equipment, except a PTO-driven generator, used in an underbody or under chassis location that is subject to road spray shall be either listed as Type 4 or mounted in an enclosure that is listed as Type 4.

If a PTO-driven generator is located in an underbody or under chassis location, the installation shall include a shield to prevent road spray from splashing directly on the generator.

###### Grounding

Grounding shall be in accordance with 250.34(A) and 250.34(B) of *NFPA 70*. Ungrounded systems shall not be used.

Only stranded or braided copper conductors shall be used for grounding and bonding.

The grounded current-carrying conductor (neutral) shall be insulated from the equipment-grounding conductors and from the equipment enclosures and other grounded parts.

The neutral conductor shall be colored white or gray in accordance with 200.6, "Means of Identifying Grounded Conductors," of *NFPA 70*.

Any bonding screws, straps, or buses in the distribution panel board or in other system components between the neutral and equipment-grounding conductor shall be removed and discarded.

###### Bonding

The neutral conductor of the power source shall be bonded to the vehicle frame. The neutral bonding connection shall occur only at the power source. In addition to the bonding required for the low voltage return current, each body and each driving or crew compartment enclosure shall be bonded to the vehicle frame by a copper conductor.

# Edmonton Police Service

## Command

### Production Specification

The conductor shall have a minimum ampere rating, as defined in 310.15, "Ampacities for Conductors Rated 0–2000 Volts," of *NFPA 70*, of 115 percent of the rated ampere on the power source specification label.

A single conductor that is sized to meet the low voltage and line voltage requirements shall be permitted to be used.

#### Ground Fault Circuit Interrupters

In special service vehicles incorporating a lavatory, sink, toilet, shower, or tub, 120 V, 15 or 20 A receptacles within 6 ft (1.8 m) of these fixtures shall have ground fault circuit interrupter (GFCI) protection. GFCIs integrated into outlets or circuit breakers or as stand-alone devices shall be permitted to be used in situations.

#### Power Source General Requirements

All power source system mechanical and electrical components shall be sized to support the continuous duty nameplate rating of the power source.

The power source shall be shielded from contamination that would prevent the power source from operating within its design specifications.

#### Power Source Rating

For power sources of 8 kW or larger, the power source manufacturer shall declare the continuous duty rating that the power source can provide when installed on fire apparatus according to the manufacturer's instructions and run at 120°F (49°C) air intake temperature at 2000 ft (600 m) above sea level.

The rating on the power source specification label shall not exceed the declared rating from the power source manufacturer.

Access shall be provided to permit both routine maintenance and removal of the power source for major servicing. The power source shall be located such that neither it nor its mounting brackets interfere with the routine maintenance of the fire apparatus.

#### Instrumentation

If the power source is rated at less than 3 kW, a "Power On" indicator shall be provided. If the power source is rated at 3 kW or more but less than 8 kW, a voltmeter shall be provided.

If the power source is rated at 8 kW or more, the following instrumentation shall be provided at an operator's panel:

- 1) Voltmeter
- 2) Current meters for each ungrounded leg
- 3) Frequency (Hz) meter
- 4) Power source hour meter

The instrumentation shall be permanently mounted at an operator's panel. The instruments shall be located in a plane facing the operator. Gauges, switches, or other instruments on this panel shall each have a label to indicate their function.

The instruments and other line voltage equipment and controls shall be protected from mechanical damage and not obstructed by tool mounting or equipment storage.

An instruction plate(s) that provides the operator with the essential power source operating instructions, including the power-up and power-down sequence, shall be permanently attached to the apparatus at any point where such operations can take place.

# Edmonton Police Service

## Command

### Production Specification

#### Operation

Provisions shall be made for placing the generator drive system in operation using controls and switches that are identified and within convenient reach of the operator.

Where the generator is driven by the chassis engine and engine compression brakes or engine exhaust brakes are furnished, they shall be automatically disengaged for generator operations.

Any control device used in the generator system power train between the engine and the generator shall be equipped with a means to prevent unintentional movement of the control device from its set position in the power generation mode.

If there is permanent wiring on the apparatus that is designed to be connected to the power source, a power source specification label that is permanently attached to the apparatus at the operator's control station shall provide the operator with the information required.

The power source, at any load, shall not produce a noise level that exceeds 90 dBA in any driving compartment, crew compartment, or onboard command area with windows and doors closed or at any operator's station on the apparatus.

#### Power Supply Assembly

The conductors used in the power supply assembly between the output terminals of the power source and the main over current protection device shall not exceed 12 ft (4 m) in length.

All power supply assembly conductors, including neutral and grounding conductors, shall have an equivalent amperage rating and shall be sized to carry not less than 115 percent of the amperage of the nameplate current rating of the power source.

If the power supply assembly connects to the vibrating part of a generator (not a connection on the base), the conductors shall be flexible cord or other fine-stranded conductors enclosed in metallic or nonmetallic liquid tight flexible conduit rated for wet locations and temperatures not less than 194°F (90°C).

#### Overcurrent Protection

Manually resettable over current devices shall be installed to protect the line voltage electrical system components.

#### Power Source Protection

A main over current protection device shall be provided that is either incorporated in the power source or connected to the power source by a power supply assembly.

The size of the main over current protection device shall not exceed 100 percent of the rated amperage stated on the power source specification label or the rating of the next larger available size over current protection device, where so recommended by the power source manufacturer.

If the main over current protection device is subject to road spray, the unit shall be housed in a Type 4-rated enclosure.

#### Branch Circuit Overcurrent Protection

Over current protection devices shall be provided for each individual circuit and shall be sized at not less than 15 amps in accordance with 240.4, "Protection of Conductors," of *NFPA 70*.

Any panel board shall have a main breaker where the panel has six or more individual branch circuits or the power source is rated 8 kW or larger.

# Edmonton Police Service

## Command

### Production Specification

Each over current protection device shall be marked with a label to identify the function of the circuit it protects.

Dedicated circuits shall be provided for any large appliance or device (air conditioning units, large motors, etc.) that requires 60 percent or more of the rated capacity of the circuit to which it is connected, and that circuit shall serve no other purpose.

#### Panelboards

All fixed power sources shall be hardwired to a permanently mounted panel board unless one of the following conditions exists:

- 1) All line voltage power connections are made through receptacles on the power source and the receptacles are protected by integrated over current devices.
- 2) Only one circuit is hardwired to the power source, which is protected by an integrated over current device.

The panel shall be visible and located so that there is unimpeded access to the panel board controls. All panel boards shall be designed for use in their intended location. The panel(s) shall be protected from mechanical damage, tool mounting, and equipment storage.

Where the power source is 120/240 V and 120 V loads are connected, the apparatus manufacturer or line voltage system installer shall consider load balancing to the extent that it is possible.

#### Wiring Methods

Fixed wiring systems shall be limited to the following:

- 1) Metallic or nonmetallic liquid tight flexible conduit rated at temperatures not less than 194°F (90°C) with stranded copper wire rated for wet locations and temperatures not less than 194°F (90°C)
- 2) Type SOW, SOOW, SEOW, or SEOOW flexible cord rated at 600 V and at temperatures not less than 194°F (90°C)

Electrical cord or conduit shall not be attached to chassis suspension components, water or fuel lines, air or air brake lines, fire pump piping, hydraulic lines, exhaust system components, or low voltage wiring and shall be arranged as follows:

- 1) Separated by a minimum distance of 12 in. (300 mm) from exhaust piping or shielded from such piping
- 2) Separated from fuel lines by a minimum distance of 6 in. (150 mm)

A means shall be provided to allow "flexing" between the driving and crew compartment, the body, and other areas or equipment whose movement would stress the wiring.

Electrical cord or conduit shall be supported within 6 in. (150 mm) of any junction box and at a minimum of every 24 in. (600 mm) of run.

Supports shall be made of nonmetallic materials or of corrosion-resistant or corrosion-protected metal. All supports shall be of a design that does not cut or abrade the conduit or cord and shall be mechanically fastened to the apparatus.

Only fittings and components listed for the type of cord or conduit being installed shall be used.

Splices shall be made only in a listed junction box.



# Edmonton Police Service

## Command

### Production Specification

#### Additional Requirements for Flexible Cord Installations

Where flexible cord is used in any location where it could be damaged, it shall be protected by installation in conduit, enclosures, or guards.

Where flexible cord penetrates a metal surface, rubber or plastic grommets or bushings shall be installed.

#### Wiring Identification

Each line voltage circuit originating from the main panel board shall be identified.

The wire or circuit identification either shall reference a wiring diagram or wire list or shall indicate the final termination point of the circuit.

Where pre-wiring for future power sources or devices exists, the un-terminated ends shall be marked with a label showing their wire size and intended function.

#### Wiring System Components

Only stranded copper conductors with an insulation rated for temperatures of at least 194°F (90°C) and wet locations shall be used. Conductors in flexible cord shall be sized in accordance with Table 400.5(A) of *NFPA 70*. Conductors used in conduit shall be sized in accordance with 310.15, "Ampacities for Conductors Rated 0–2000 Volts," of *NFPA 70*. Aluminum or copper-clad aluminum conductors shall not be used.

All boxes shall conform to and be mounted in accordance with Article 314, "Outlet, Device, Pull, and Junction Boxes; Conduit Bodies; Fittings; and Manholes," of *NFPA 70*. All boxes shall be accessible using ordinary hand tools. Boxes shall not be permitted behind welded or pop-riveted panels.

The maximum number of conductors permitted in any box shall be in accordance with 314.16, "Number of Conductors in Outlet, Device, and Junction Boxes, and Conduit Bodies," of *NFPA 70*.

All wiring connections and terminations shall provide a positive mechanical and electrical connection. Connectors shall be installed in accordance with the manufacturer's instructions. Wire nuts or insulation displacement and insulation piercing connectors shall not be used.

Each switch shall indicate the position of its contact points (i.e., open or closed) and shall be rated for the continuous operation of the load being controlled. All switches shall be marked with a label indicating the function of the switch. Circuit breakers used as switches shall be "switch rated" (SWD) or better. Switches shall simultaneously open all associated line voltage conductors. Switching of the neutral conductor alone shall not be permitted.

Line voltage circuits controlled by low voltage circuits shall be wired through properly rated relays in listed enclosures that control all non-grounded current-carrying conductors.

#### Receptacles and Inlet Devices

#### Wet and Dry Locations

All wet location receptacle outlets and inlet devices, including those on hardwired, remote power distribution boxes, shall be of the grounding type, provided with a wet location cover, and installed in accordance with Section 406.8, "Receptacles in Damp or Wet Locations," of *NFPA 70*.

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All receptacles located in a wet location shall be not less than 24 in. (600 mm) from the ground. Receptacles on off road fire apparatus shall be a minimum of 30 in. (750 mm) from the ground. All receptacles located in a dry location shall be of the grounding type and shall be at least 12 in. (300 mm) above the interior floor height. No receptacle shall be installed in a face-up position.

The face of any wet location receptacle shall be installed in a plane from vertical to not more than 45 degrees off vertical.

#### Receptacle Label

Each receptacle shall be marked with a label indicating the nominal line voltage (120 volts or 240 volts) and the current rating in amps of the circuit. If the receptacle is DC or other than single phase, that information shall also be marked on the label.

All receptacles and electrical inlet devices shall be listed to UL 498, *Standard for Safety Attachment Plugs and Receptacles*, or other recognized performance standards.

Receptacles used for DC voltages shall be rated for DC service.

#### Wiring Schematics

An "As-Built" Wiring diagrams for line voltage systems shall be provided to include the following information;

- a) Pictorial representations of circuit logic for all electrical components and wiring
- b) Circuit identification
- c) Connector pin identification
- d) Zone location of electrical components
- e) Safety interlocks
- f) Alternator–battery power distribution circuits
- g) Input/output assignment sheets or equivalent circuit logic implemented in multiplexing systems

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#### **AUDIO VIDEO ROUTING AND CONTROL SYSTEM**

One (1) AMX NI-3000 control station with RS323 control shall be used to operate and control the video system equipment.

Five (5) AMX NXD-CV5, 5" color touch-panel interface units shall be provided and located;

- 1) One (1) in streetside slide-out, between positions 10 & 11
- 2) Two (2) at the conference table, position 8 & between 5/4
- 3) One (1) in the rear Negotiations Room, at position 13
- 4) One (1) on wall above desk in rear Tech Room.

The interface units shall communicate with the NI-3000 control station which shall in turn IR and RS-232 compatible components. The control shall be programmed with custom code to offer each interface unit with an interactive menu. The menus shall include screens to operate the Pelco camera system from either interface unit with the ability to assign one as the aster and steal control at any time.

The control code shall also include signal instructions to allow the operators to interact with the broadcast TV receiver, Satellite TV receivers, and display screens.

System shall be capable of routing all audio/video inputs (including Satellite TV, Dibos outputs, Pelco camera system, and Broadcast TV). Any input source can be displayed at any of the specified monitors.

#### **UNIVERSAL ROUTING SWITCHER (URS)**

A Christie Vista URS-0800, Universal Routing Switcher with eight (8) inputs, and eight (8) outputs shall be provided and installed on completed unit with the following capabilities;

The Universal Routing Switcher (URS) accepts any source format, converts it, and sends it to any output display. It eliminates most or all of your front- and back-end boxes, reducing your requirements to one piece of equipment and one point of control.

Input Number: Eight (8) inputs;

- 1) Four (4) supporting composite, S-video, component analog, HDSDI, SDI, and 3G SDI (SMPTE 424M)
- 2) Four (4) supporting progressive DVI and progressive RGBHV

Signals:

- Analog RGB composite, component • DVI, single-link and dual-link (8 inputs are dual-link capable) • SDI, HD-SDI and 3G-SDI (SMPTE 424M)

Output Number:

- Eight (8) @ (< 2048 x 1200) or 4 @ (2560 x 1600) or combination

Signals:

- Analog RGB, component • DVI, single-link and dual-link (4 outputs are dual-link capable) • SDI, HD-SDI and 3G-SDI (SMPTE 424M)

Pixel Clock: Analog up to 165MHz • DVI up to 265MHz

Resolutions: Up to 2560 x 1600 (any resolution greater than 2048 x 1200 uses 2 output channels)

Scan Rates: Up to 120Hz dependant on pixel clock rate maximum

Control and networking:

- RS-232 in/out • Ethernet (10/100)

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#### Enhanced feature sets:

– Independent aspect ratio and frame rate set-up	– Integrated source monitoring
– Overlays	– Built-in image capture
– Transitions	– Output rotation (portrait)
– Aspect ratio conversions	

#### Additional features:

- Easy-to-use web-based interface enables monitoring and control of the URS from any computer on the network.
- Built-in image capture/Still Store functionality
- Auto set-up feature
- Intuitive graphical user interface (GUI)
- Simple cohesive control of all functions
- Redundant hot swappable power supplies

#### Software Interface:

- The Microsoft® Windows XP/Vista based control software for the URS provides full setup, configuration, and real-time control of the routing switcher with an easy-to-use interface.

#### **BOSCH AUDIO/VIDEO RECORDER**

There shall be one (1) Bosch DHR 730 08A000 Hybrid Digital Video Recorder shall be provided and installed in the specified data rack.

#### **ROOF MOUNTED MICROWAVE ANTENNA PRE-WIRE PROVISION**

There shall be a pre-wire provision in the data rack for the future connection of a Edmonton Police Department supplied microwave antenna.

The pre-wire provision shall include a roof mounted antenna located directly above the data rack in a custom enclosure. The enclosure shall include a 12 VDC electric actuator to raise and lower the enclosure cover. The antenna module shall be mounted on a Shadow Light RT actuator arm located inside the enclosure. Both the cover and the actuator arm shall be capable of being actuated from inside the vehicle.

The cover and actuator arm shall be wired into the vehicle door ajar system to alert the driver when the cover is not correctly stowed.

The provision wiring shall include CAT6 ethernet cable and 20A, 12 volt power and ground located in a sealed junction box inside the specified enclosure.

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#### **RADIO INSTALLATION**

There shall be installation provided for four (4) Edmonton Police Department supplied communications radios. Installation provisions shall include:

- Installation of the radio base in the electronics rack
- Two (2) 19" shelves spaced at 4" in the equipment rack in the electronics room for installation of radio transceivers
- Installation of the remote radio faceplate (including microphone, headset, PTT, etc. as appropriate) at the appropriate workstation
- 12VDC 12A (separately fused) power routed to each radio transceiver location
- CANBUS wiring from each radio base to the appropriate work station for radio head (with 6' service loop)

Remote radio heads shall be located as specified in the previous sections.

Power to radios shall be from the auxiliary batteries and shall be via appropriately sized copper stranded wire with crimped end connectors. Cables shall be enclosed in convoluted tubing and function identified with labeled colored shrink-wrap. Power shall be controlled by a continuous duty switch actuated by the battery disconnect switch.

#### **RADIO ANTENNA BOOSTER INSTALLATION**

There shall be one (1) Edmonton Police Department supplied antenna booster installed in the main conference area.

#### **DAVID CLARK INTERCOM SYSTEM**

There shall be one (1) David Clark intercom system provided. The system shall include five (5) over-the-head, single ear headsets with boom microphone with windscreen & belt-station push-to-talk switch interfaced with an individual radio, per headset, via the radio mic & speaker plugs.

#### **SEVEN (7) ANTENNA RAIL**

Four (4) radio antenna rail(s) shall be provided and installed on roof of vehicle. Each rail shall be constructed of aluminum, forming a two piece box design. The top section shall be removable for easy access to the individual antenna wiring. Seven (7) antenna bases shall be provided and installed in each rail. Each antenna base shall include enough cable to reach radio location plus a service loop of at least 3' of LMR195 flexible communications cable. The antenna wiring shall enter the vehicle roof at a single point under the end of the rail. The end of each radio antenna shall be routed to radio mounting locations, or as determined by the Edmonton Police Department.

Each antenna shall include:

- Labeled TNC bulkhead jack in patch panel for each radio antenna on the raceway
- Labeled TNC bulkhead jack in patch panel from each radio location
- NMO-style base on roof mounted antenna raceway
- Supply weatherproof covers for unused NMO bases
- Minimum horizontal separation between bases of 1.22m (4')
- 24" patch cords terminated with TNC connectors.

The rearmost antenna position on the streetside and curbside antenna rail shall be used for a microwave downlink antenna system. These positions shall contain an 'N' type male connector and include cabling designed for a 2GHz signal.

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#### **IP CAMERA SYSTEM**

There shall be one (1) SVRC35VT Camera and Axis 241Q Video Server IP camera system provided and installed in the rear streetside corner of the command room. The camera shall have a wide field of vision and be able to view the entire room. The camera shall have low light capabilities and include audio/video recording capabilities outside of the specified audio/video recording system. The camera feed shall be routed to the specified data rack, but not hooked into any of the specified systems.

#### **CABLING/WIRING FOR FUTURE DATA SATELLITE SYSTEM**

All cabling and wiring shall be provided for the future Edmonton Police Department data satellite system from mounting point on top of body to the data rack located in rear of vehicle.

Future system will provide broadband Internet connections from the vehicle while on scene. The onboard computer network system shall be wired to the satellite equipment so that Internet access is shared by the network.

The make and model of satellite will be provided prior to construction so proper wire harness can be provided.

Installation preparations for the Edmonton Police Department installed broadband antenna system on the roof with wiring run to the main rack location shall include:

- One (1) welded aluminum box cover (with weather proof gasket) to protect the mounting location
- Two (2) ENT conduits run to the main rack location from within the aluminum box
- Sufficient room to install the dish on the roof.

#### **ELECTRONIC PATCH PANEL**

An electronic patch panel shall be provided on the curbside of the apparatus behind the rear wheel well area. The patch panel shall be located inside a formed aluminum enclosure with a body color painted door and locking latches. The panel shall include the following audio, video, etc. input/outputs:

- Two (2) BNC video inputs/outputs
- One (1) USB input/output
- One (1) HDMI input/output
- One (1) VGA input/output
- Four (4) CAT 6 inputs/outputs

All wiring shall terminate inside the specified data racks.

#### **CAT6 PATCH PANEL**

A CAT6 patch panel shall be provided in the specified data rack.

#### **DATA RACK SHELVES**

Five (5) data rack shelves shall be provided and shipped loose on the completed unit.

#### **AUDIO DISTRIBUTION AMPLIFIER(S)**

One (1) Behringer HA8000 Audio distribution amplifiers shall be provided and installed in the specified data rack.

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#### **RF RECEIVER**

One (1) Edmonton Police Department supplied RF Receiver (DTC) with a 3" height requirement shall be installed in the specified data rack.

#### **MICROWAVE DOWNLINK RECEIVER**

One (1) Edmonton Police Department supplied microwave downlink receiver (MDR-2) and two (2) signal boosters shall be installed in the specified data rack.

#### **WALL CLOCKS**

There shall be two (2) Franklin Instruments (FR254 or current model) clocks with 63.5mm (2.5") LED display and 12 or 24 hours modes provided and installed in the completed unit. The clocks shall be located as follows:

- One (1) in the command room on the front wall
- One (1) in the negotiators room above/beside the external entry door

#### **DIGITAL SATELLITE TV SYSTEM**

There shall be one (1) DSS receiver and TracStar SV360 (or current) automatic mobile digital satellite system with dual LNB an in-motion tracking systems provided and installed. The system shall be equipped with one (1) Bell ExpressVU satellite TV decoder/receiver with the output connected to the SMART hub. The receiver shall be located in the specified data rack with remote control capabilities from the command room.

The cost of service and activation shall be the responsibility of the Edmonton Police Department.

#### **VIDEO CONFERENCE SYSTEM**

One (1) Polycom model VSX 5000 VTX (or current) Video Conference System shall be provided and installed in the command room. The system shall include:

- VSX 5000 system with PTZ camera
- Infrared remote
- SoundStation VTX 1000 (or current model) conference phone with speaker & microphone

#### **OFFICE EQUIPMENT**

One (1) HP LaserJet Pro CM1415fnw All-In-One color printer/copier/scanner/fax (or equivalent) shall be provided and installed in the apparatus.

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#### **PHONE AND NETWORK CABLING STANDARDS**

If a telephone or fax machine is specified it will be connected to the central phone system from the RJ-11 wall jacks and wired through to the data rack or technical cabinet using yellow Category 6, 4 pair twisted copper cabling with yellow boot ends.

If a computer network is specified it will be connected to the network switch location, if specified from the RJ-45 wall jacks wired through to the data rack or technical cabinet using blue Category 6, 4 pair twisted copper cabling with blue boot ends. The pin pair assignments will be based on the T568B standard configuration. The termination ends in shall be RJ-45 male ends and connected to the network switch.

Only Category 6, 4 pair twisted copper cable shall be used for all computer cabling for improved transmission performance and superior immunity from external noise. All wiring shall be installed to Institute of Electrical and Electronics Engineers (IEEE) 802 standards.

All Category 6 cable must be properly installed and terminated to meet specifications. Incorrect installation practices include kinking or bending the cable too tightly will not be allowed. The cable bend radius should be no less than 4 times the outer diameter of the cable. Incorrect termination practices include untwisting the wire pairs or stripping the outer jacket back too far will not be allowed. When used for 10/100/1000 BASE-T, the maximum allowed length of a Category 6 cable is 100 meters (330 ft). All cabling shall be properly labeled at both termination ends for proper identification in future.

The running of Category 6 cabling in the same loom with any VAC wiring will not be allowed.

#### **WIRING CHANNELS**

Minimum 4" x 4" wiring channels shall be provided directly below the desk tops along the outside walls for computer, radio, and communications wiring. The top of desk tops shall have minimum 3" diameter openings that drop directly into wiring channel. The wiring channels shall have openings for future wiring installation and access. The wiring channels shall run as direct as possible to the data rack or technical cabinet location with several cross overs provided in roof structure for running wiring across body.



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#### **EQUIPMENT PAYLOAD WEIGHT ALLOWANCE**

In compliance with NFPA 1901 standards, the special service vehicle shall be designed for an equipment loading allowance of 8,000 lbs. of Edmonton Police Department provided loose equipment based on a 50,001 - 60,000 pound gross vehicle weight rating.

#### **EQUIPMENT**

The following equipment shall be furnished with the completed special service vehicle;

- One (1) container of assorted stainless steel nuts, bolts, screws and washers used in the construction of the apparatus shall be provided with the completed apparatus.
- There shall be two (2) NFPA approved aluminum wheel chocks provided for 44" diameter tires that together will hold the vehicle when loaded to its GVWR or GCWR, on a hard surface with a 20 % grade, with the transmission in neutral, and the parking brake released.
  - The wheel chock(s) shall be mounted on the apparatus, location as per the Edmonton Police Department.
- There shall be four (4) Bigfoot UHMW Blend leveling pads model P242410 with mounting provisions provided. The pads shall measure approximately 24"x 24" x 1" thick with a grab strap on one side.
  - The pads shall be stored on the underside of each side of the body, in close proximity to the level feet.
- Three (3) 10 LB. CO2 fire extinguisher(s) shall be provided with the completed unit.
  - The above specified fire extinguisher(s) shall be installed on the completed unit as follows:
    - One (1) under/adjacent to the forward handrail in the Main Command Area
    - One (1) in the forward curbside corner of the Negotiators Room
    - One (1) in the Electronics Room
- Two (2) Pelican model 9410 LED lantern(s) shall be provided. Each flashlight shall be yellow in color. Each flashlight shall have a 12 volt DC charger and vehicle mount kit. Each flashlight shall have a LED spotlight style bulb and reflector. The flashlight(s) shall be wired to battery direct unless otherwise specified by the customer.
  - The flashlight(s) shall be mounted on the completed unit one (1) in the cab, and one (1) adjacent to the command room fire extinguisher.
- One (1) 50', 100 ampere shore power cable shall be supplied with the completed apparatus. One (1) Appleton 100 ampere plug shall be included on one end of the cable. The opposite end shall have no connection included.
- One (1) set of three (3) dual faced triangular warning flares with fold away base complete with storage case per DOT requirements shall be provided with the completed apparatus
  - The above specified triangular warning flares shall be shipped loose with completed unit.

#### **REMAINING NFPA MINOR EQUIPMENT BY PURCHASER**

All other minor equipment not specified above, but required by NFPA 1901 before the unit is placed in service shall be supplied and mounted by Edmonton Police Department.