Honolulu Fuel Tender

SVI Truck #947

Production Specifications

Table of Contents

Honolulu Fuel Tender

SVI Truck #947

Production Specifications

Honolulu Fuel Tender

SVI Truck #947

Production Specifications

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.

WEIGHT DISTRIBUTION

When the fire apparatus is loaded to its estimated in-service weight, the front-to-rear weight distribution shall be within the limits set by the chassis manufacturer.

The front axle loads shall not be less than the minimum axle loads specified by the chassis manufacturer under full load and all other loading conditions.

LOAD DISTRIBUTION

The apparatus manufacturer shall calculate the load distribution for the apparatus, and that load distribution plan shall be delivered with the fire apparatus.

The manufacturer shall engineer the fire apparatus to comply with the gross axle weight ratings (GAWR), the overall gross vehicle weight rating (GVWR), and the chassis manufacturer's load balance guidelines.

The fire apparatus, when loaded to its estimated in service weight, shall have a side-to-side tire load variation of no more than 7 percent of the total tire load for that axle.

Each tire shall be equipped with a visual indicator or monitoring system that indicates tire pressure.

FIRE APPARATUS PERFORMANCE

The fire apparatus shall meet the requirements of this standard at elevations of 2000 ft (600 m) above sea level.

The fire apparatus shall meet all the requirements of this standard while stationary on a grade of 10 percent in any direction.

The fire apparatus shall meet the requirements of this standard in ambient temperature conditions between 32°F (O°C) and 110°F (43°C).

R**OADABILITY**

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.

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
22) When the apparatus is equipped with a water tank, the certification of water tank capacity
23) 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
24) If the system has a CAFS, the documentation of the manufacturer's pre delivery tests
25) If the apparatus has a line voltage power source, the certification of the test for the power source
26) 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
27) 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.

NFPA REQUIRED DOCUMENTATION FORMAT - USB FLASH DRIVE

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

CARRYING CAPACITY

The GAWR and the GCWR or GVWR of the chassis shall be adequate to carry the weight of the completed vehicle when loaded to its estimated in-service weight. The Body Manufacturer shall establish the estimated in service weight during the design of the vehicle

The estimated in-service weight shall include the following:

1) The chassis, body and tank(s)
2) Full fuel, lubricant, and other chassis or component fluid tanks or reservoirs
3) Full water and other agent tanks
4) *250 lb (114 kg) in each seating position
5) Fixed equipment such as pumps, aerial devices, generators, reels and air systems as installed
6) Ground ladders, suction hose, designed hose load in their hose beds and on their reels
7) An allowance for miscellaneous equipment that is the greatest of the values for type of vehicle per NFPA 1901, a Purchaser provided list of equipment to be carried with weights or a Purchaser specified miscellaneous equipment allowance.

The Body Manufacturer shall engineer and design the vehicle such that the completed unit, when loaded to its estimated in-service weight, with all movable weights distributed as close as is practical to their intended in-service configuration, does not exceed the GVWR.

A final Body Manufacturer's certification of the GVWR or GCWR, along with a certification of each GAWR, shall be supplied on a label affixed to the vehicle.

			Equipment Allowance	
Apparatus Type	**Equip. Storage Area**	**Apparatus Size**	**lb.**	**kg.**
Special Service Fire Apparatus	Minimum of 120 cu ft (3.4 cu mt) of enclosed	10,000 lb to 15,000 lb (4,500 kg to 7,000 kg)	2,000	910

	compartmentation.	GVWR		
		15,001 lb to 20,000 lb (7,001 kg to 9,000 kg) GVWR	2,500	1,135
		20,001 lb to 30,000 lb (9,001 kg to 14,000 kg) GVWR	3,000	1,350
		30,001 lb to 40,000 lb (14,001 kg to 18,000 kg) GVWR	4,000	1,800
		40,001 lb to 50,000 lb (18,001 kg to 23,000 kg) GVWR	6,000	2,700
		50,001 lb to 60,000 lb (23,001 kg to 27,000 kg) GVWR	8,000	3.600
		60,001 lb and up (27,001 kg) GVWR	10,000	4,500

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.

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:

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

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 Honolulu Fire Department on all warranty work.

GENERAL LIMITED WARRANTY - TWO (2) YEARS

The vehicle shall be free of defects in material and workmanship for a period of two (2) years or 36,000 miles (or 57,936 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.

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. **Pro-rated warranties will not be acceptable.**

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 thirty (330) 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 Honolulu Fire 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 not exceed 114“ (9' - 6") maximum 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.

Height of vertical exhaust to be determined at final inspection.

OVERALL LENGTH

The overall length (OAL) of the vehicle shall not exceed 312“ (26' - 0") MAX.

OVERALL WIDTH

The overall width (OAW) of the body at drip rails shall be 100" (8' - 4"), and body shall be 98" (8' - 2").

ANGLE OF APPROACH

The angle of approach for this vehicle shall not be less than eight (8) degrees when it is loaded to the estimated in-service weight as specified by the current edition of NFPA 1901.

ANGLE OF DEPARTURE

The angle of departure for this vehicle shall not be less than eight (8) degrees when it is loaded to the estimated in-service weight as specified by the current edition of NFPA 1901.

Honolulu Fuel Tender
SVI Truck #947
Production Specifications

DEMONSTRATION

The Contractor shall provide a delivery engineer to be present at time of delivery and demonstration for three (3) consecutive days. The delivery engineer will demonstrate all related components installed by Contractor and provide initial instruction to representatives of the Honolulu Fire Department regarding the operation, care and maintenance of the equipment supplied at Honolulu Fire Department location.

The delivery engineer shall set delivery and instruction schedule with the person appointed by Honolulu Fire Department.

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

OCEAN DELIVERY

The vehicle shall be delivered to the mainland port by Pasha Hawaii Transport Lines. The vehicle will be cleaned and detailed prior to loading for shipment to Honolulu, HI.

After delivery to port in Honolulu the selling Hawaii motor vehicle dealer will deliver the unit to Honolulu Fire Department with full tank of fuel, completely cleaned, and ready for service.

INSPECTION TRIPS

All required inspection trips shall be the financial responsibility of the Honolulu Fire 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 Honolulu Fire Department's location. On initial delivery of the apparatus, the Contractor shall supply a qualified representative to demonstrate the apparatus and provide initial instruction to representatives of the Honolulu Fire Department regarding the operation, care and maintenance of the apparatus and equipment supplied at Honolulu Fire Department location.

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

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

FUEL SYSTEM TRAINING

Two (2) days of on-site training at fuel system manufacturing facility shall be provided for three (3) Honolulu Fire Department personnel. In addition, after delivery of unit, two (2) days of on-site training shall be provided at Honolulu Fire Department location by fuel system manufacturer.

SHOP NOTES

Price inc. by Western Cascade below.

Honolulu Fuel Tender

SVI Truck #947

Production Specifications

CAB CHASSIS SPECIFICATIONS

MISSION:	Requested GVWR: 35000. Calc. GVWR: 35000 Calc. Start / Grade Ability: 0% / 0% @ 0 MPH Calc. Geared Speed: N/A
DIMENSION:	Wheelbase: 185.00, CA: 117.90, Axle to Frame: 79.00
ENGINE, DIESEL:	{Cummins ISB 300} EPA 2010, 300 HP @ 2600 RPM, 660 lb-ft
TRANSMISSION, AUTOMATIC:	{Allison 3000EVS_P} 5th Generation Controls; Close Ratio, Max.
CLUTCH:	Omit Item (Clutch & Control)
AXLE, FRONT NON-DRIVING:	{Navistar Select} I-Beam Type, 12,000-lb Capacity
AXLE, REAR, SINGLE:	{Navistar Select} Single Reduction, 23,000-lb Capacity, 200
CAB:	Conventional
TIRE, FRONT:	(2) 315/80R22.5 UNISTEEL G291 (GOODYEAR) 491 rev/mile,
TIRE, REAR:	(4) 315/80R22.5 G751 MSA (GOODYEAR) 484 rev/mile, load
SUSPENSION, RR, SPRING, SINGLE:	Vari-Rate; 31,000-lb Capacity, With 4500 lb Auxiliary Rubber
PAINT:	Cab schematic 209GA Location 1: 9425, White (Custom, same as communication unit) Location 2: 0475, Yellow (Custom, same as communication unit) Chassis schematic 936GA Frame: 0475, Yellow (Custom)

Base Chassis, Model 4300 SBA 4X2 with 185.00 Wheelbase, 117.90 CA, and 79.00 Axle to Frame.

TOW HOOK, FRONT (2) Frame Mounted

FRAME RAILS Heat Treated Alloy Steel (120,000 PSI Yield); 10.250" x 3.610" x 0.375" (260.4mm x 91.7mm x 9.5mm); 456.0" (11582mm) Maximum OAL

BUMPER, FRONT Full Width, Aerodynamic, Chrome Plated Steel; 0.142" Material Thickness

WHEELBASE RANGE 134" (340cm) Through and Including 197" (500cm)

AXLE, FRONT NON-DRIVING {Navistar Select} I-Beam Type, 12,000-lb Capacity

SPRINGS, FRONT AUXILIARY Rubber

SUSPENSION, FRONT, SPRING Parabolic, Taper Leaf; 12,000-lb Capacity; With Shock Absorbers
Includes
: SPRING PINS Rubber Bushings, Maintenance-Free

BRAKE SYSTEM, AIR Dual System for Straight Truck Applications
Includes
: BRAKE LINES Color and Size Coded Nylon
: DRAIN VALVE Twist-Type
: 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
AIR BRAKE ABS {Bendix AntiLock Brake System} With Electronic Stability Program (4-Channel) With Automatic Traction Control

AIR DRYER {Bendix AD-IP} With Heater
Includes
: AIR DRYER LOCATION Inside Left Rail, Back of Cab

BRAKES, FRONT, AIR DISC 22.5 Diam., Includes 18" Sq. In. Brake Chambers

BRAKES, REAR, AIR DISC 22.5 Diam., Includes 18/24" Sq. In. Brake Chambers

AIR COMPRESSOR {Cummins} 18.7 CFM Capacity

AIR TANK Polished Aluminum, With Straight Thread O-Ring Ports

BRAKE PACKAGE, REAR {Bendix Spicer ADB22X} Air, Disc Type, Extended Service; Size 22.5"

BRAKE PACKAGE, FRONT {Bendix Spicer ADB22X} Air, Disc Type, Extended Service; Size 22.5"

STEERING COLUMN Tilting and Telescoping

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

STEERING GEAR {Sheppard M-100} Power

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

ENGINE EXHAUST BRAKE for Cummins ISB Engine With Variable Vane Turbo Charger

TAIL PIPE (1) Turnback Type, Bright, for Single Exhaust

MUFFLER/TAIL PIPE GUARD (1) Bright Stainless Steel

SWITCH, FOR EXHAUST 3 Position, Momentary, Lighted Momentary, ON/CANCEL, Center Stable, INHIBIT REGEN, Mounted in IP Inhibits Diesel Particulate Filter Regeneration When Switch is Moved to ON While Engine is Running, Resets When Ignition is Turned OFF

ELECTRICAL SYSTEM 12-Volt, Standard Equipment
Includes
: BATTERY BOX Steel
: 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
: JUMP START STUD Located on Positive Terminal of Outermost Battery
: PARKING LIGHT Integral with Front Turn Signal and Rear Tail Light
: 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) Disc Style

IGNITION SWITCH Keyless

POWER SOURCE Cigar Type Receptacle without Plug and Cord

ALTERNATOR {Liece-Neville} Brushless, 12 Volt 325 Amp. Capacity, Pad Mount, with Remote Sense

BODY BUILDER WIRING INSIDE CAB; Includes Sealed Connectors for Tail/Amber,Turn/Marker/Backup/ Accessory, Power/Ground, and Stop/Turn

BATTERY SYSTEM {International} Maintenance-Free, (3) 12-Volt 1950CCA Total

RADIO AM/FM/CD/WB/Clock/Bluetooth/USB Input/3MM Auxiliary Input, MP3, Apple Device Play & Control, Bluetooth for Phone & Music, with Multiple Speakers

BACK-UP ALARM Electric, 102 dBA

DATA RECORDER Includes Display Mounted in Overhead Console

JUMP START STUD Remote Mounted
Includes:
: JUMP START STUD Mounted to Battery Box

HORN, AIR Black, Single Trumpet, Air Solenoid Operated

SWITCH, AIR HORN, PASSENGER Fire Truck Application; Momentary Switch Located in Instrument Panel Close to Passenger, Driver Also To Activate Switch at Steering Wheel

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

HEADLIGHTS Halogen; Composite Aero Design for Two Light System

INDICATOR, BATTERY WARNING Green BATTERY ON Indicator, Mounted on Left Side of Instrument Panel, To be Used with Factory Installed or Customer Mounted Battery Disconnect Switch

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

Except For 5-Amp Fuses

TURN SIGNALS, FRONT LED, Includes LED Side Marker Lights, Mounted on Fender

BATTERY DISCONNECT SWITCH for Cab Power Loads, Cab Mounted, Disconnects Door Power, Dome Lights and Auxiliary Power; Locks with Padlock

GRILLE Stationary, Chrome

FRONT END Tilting, Fiberglass, With Three Piece Construction

GRILLE EMBER SCREEN Mounted to Grille and Cowl Tray to Keep Hot Embers out of Engine and HVAC Air Intake System

PAINT SCHEMATIC, PT-1 Two Tone, Design 209.

PAINT IDENTITY, PT-2 Single Color, Instruction No. 936. Frame/Running Gear, Less Fuel Tanks
Includes
: NOTE: Battery Box, Air Tanks, Fuel Tanks, Steps and Straps NOT Painted

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

PAINT CLASS Single Custom Color

KEYS - ALL ALIKE, ID Z-001

CLUTCH Omit Item (Clutch & Control)

ENGINE, DIESEL {Cummins ISB 300} EPA 2010, 300 HP @ 2600 RPM, 660 lb-ft Torque @ 1600 RPM, 2600 RPM Governed Speed, 300 Peak HP (Max)
Includes
: ANTI-FREEZE Red Extended Life Coolant; -40 Degrees F/ -40 Degrees C; for Cummins ISB Engines
: FUEL/WATER SEPARATOR Fuel/Water Separator; Heated; with Water-in-Fuel Sensor. Engine Mounted

FAN DRIVE {Horton Drivemaster} Direct Drive Type, Two Speed With Residual Torque Device for Disengaged Fan Speed
Includes
: FAN Nylon

RADIATOR Aluminum; 2-Row, Cross Flow, Over Under System, 717 SqIn Louvered, With 313 SqIn Charge Air Cooler. With In-Tank Transmission Cooler
Includes
: DEAERATION SYSTEM with Surge Tank
: HOSE CLAMPS, RADIATOR HOSES Gates Shrink Band Type; Thermoplastic Coolant Hose Clamps
: RADIATOR HOSES Premium, Rubber

AIR CLEANER With Service Protection Element
Includes
: GAUGE, AIR CLEANER RESTRICTION Air Cleaner Mounted

Honolulu Fuel Tender
SVI Truck #947
Production Specifications

THROTTLE, HAND CONTROL Engine Speed Control for PTO; Electronic, Stationary Pre-Set, Two Speed Settings; Mounted on Steering Wheel

OIL PAN 15 Quart Capacity, For Cummins ISB Engines

EMISSION COMPLIANCE Federal, Does Not Comply With California Clean Air Idle Regulations

ENGINE CONTROL, REMOTE MOUNTED Provision for; Includes Wiring for Body Builder Installation of PTO Controls; With Ignition Switch Control for Cummins ISB Engines

FEDERAL EMISSIONS EPA, OBD and GHG Certified for Calendar Year 2015; ISB Engines

TRANSMISSION, AUTOMATIC {Allison 3000EVS_P} 5th 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.

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); Rescue, Ambulance

SHIFT CONTROL PARAMETERS Allison 3000 or 4000 Series Transmissions, 5th Generation Controls, Performance Programming

AXLE, REAR, SINGLE {Navistar Select} Single Reduction, 23,000-lb Capacity, 200 Wheel Ends Metric, . Gear Ratio: 5.38

SUSPENSION, RR, SPRING, SINGLE Vari-Rate; 31,000-lb Capacity, With 4500 lb Auxiliary Rubber Spring

SHOCK ABSORBERS, REAR (2)

AXLE, REAR, LUBE {EmGard FE-75W-90} Synthetic Oil; 30 thru 39.99 Pints

FUEL TANK STRAPS Bright Finish Stainless Steel

FUEL TANK Top Draw, D-Style, Polished Aluminum, 19" Depth 50 U.S. Gal. Capacity; Mounted Left Side Under Cab

DEF TANK 7 U.S. Gal. 26.5L Capacity, Frame Mounted Outside Left Rail, Under Cab

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

HEATER HOSES Silicone

GRAB HANDLE, CAB INTERIOR (2) Safety Yellow

GAUGE CLUSTER English With English Electronic Speedometer
Includes
: GAUGE CLUSTER (5) Engine Oil Pressure (Electronic), Water Temperature (Electronic), Fuel (Electronic), Tachometer (Electronic), Voltmeter
: 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)

SEATBELT WARNING PREWIRE Includes Seat Belt Switches and Seat Sensors for all Belted Positions in the Cab and a Harness Routed to the Center of the Dash for the Aftermarket Installation of the Data Recorder and Seatbelt Indicator Systems, for 1 to 3 Seat Belts

GAUGE, OIL TEMP, ALLISON TRAN

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

GAUGE, DEF FLUID LEVEL

SEAT, DRIVER {National 2000} NFPA Compliant, Air Suspension, High Back With Integral Headrest, Vinyl, Isolator, 1 Chamber Lumbar, 2 Position Front Cushion Adjust, -3 to +14 Degree Back Angle Adjust
Includes
: SEAT BELT 3-Point, Lap and Shoulder Belt Type

SEAT, PASSENGER {National} Non Suspension, High Back With Integral Headrest, Vinyl, With Fixed Back, With Under Seat Storage

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

GRAB HANDLE Chrome; Towel Bar Type With Anti-Slip Rubber Inserts; for Cab Entry Mounted Left Side Only at "B" Pillar

MIRRORS (2) {Lang Mekra} Rectangular, Power Both Sides, Thermostatically Controlled Heated Heads, LED Clearance Lights, Bright Finish Heads and Arms, with Black Brackets, Breakaway Type, 7.55" x 14.1" Integral Convex Both Sides, 102" Inside Spacing

SEAT BELT All Red; 1 to 3

Honolulu Fuel Tender
SVI Truck #947
Production Specifications

AIR CONDITIONER {Blend-Air} With Integral Heater & Defroster
Includes
: HEATER HOSES Premium
: HOSE CLAMPS, HEATER HOSE Mubea Constant Tension Clamps
: REFRIGERANT Hydrofluorocarbon HFC-134A

HOSE CLAMPS, HEATER HOSE {Breeze} Belleville Washer Type

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

CAB INTERIOR TRIM Premium
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
: CAB SOUND INSULATION Includes Dash and Engine Cover Insulators
: CONSOLE, OVERHEAD Molded Plastic; With Dual Storage Pockets with Retainer Nets, CB Radio Pocket, Speakers, and Reading Lights
: COURTESY LIGHT (2) Mounted In Front Map Pocket Left and Right Side
: DOOR TRIM PANELS with Cloth Insert on Bolster Driver and Passenger Doors
: FLOOR COVERING Rubber, Black
: GAUGE, TEMPERATURE, AMBIENT Includes Wiring and Sensor With Display Unit Mounted in Cluster
: HEADLINER Soft Padded Cloth
: INSTRUMENT PANEL TRIM Molded Plastic with Black Center Section
: STORAGE POCKET, DOOR (2) Molded Plastic (Carpet Texture), Full-Length; Driver and Passenger Doors
: SUN VISOR (3) Padded Vinyl: 2 Moveable (Front-to-Side) Primary Visors, Driver Side with Vanity Mirror and Toll Ticket Strap, plus 1 Auxiliary Visor (Front Only), Driver Side

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

WHEELS, REAR DUAL 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
: Polished Surface Outside Dual Only

WHEEL SEALS, FRONT {International} Oil-Lubricated Wheel Bearings

WHEEL BEARING, FRONT, LUBE {EmGard 50W} Synthetic Oil

(2) TIRE, FRONT 315/80R22.5 UNISTEEL G291 (GOODYEAR) 491 rev/mile, load range J, 18 ply

(4) TIRE, REAR 315/80R22.5 G751 MSA (GOODYEAR) 484 rev/mile, load range L, 20 ply

Services Section:
WARRANTY Standard for Durastar 1000/4000 Series, Effective with Vehicles Built January 2, 2015 or Later, CTS-2475P

Total Component Weight: 6569/4008 10577

CAB TO AXLE DIMESION

Cab to axle will be 118".

CAB/CHASSIS PREPAYMENT

The specified cab/chassis shall be prepaid by Honolulu Fire Department within 30 days of invoice. Honolulu Fire Department understands that if payment is made after 30 days, additional interest charges may apply.

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:

4) 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 (US)

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 feet and inches, the length of the completed fire apparatus in feet and inches, and the GVWR in pounds.

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.

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.

FINAL STAGE MANUFACTURER VEHICLE CERTIFICATION

A final stage manufacturer vehicle certification label shall be provided and installed in the driver cab door jamb area.

Honolulu Fuel Tender
SVI Truck #947
Production Specifications

FRONT BUMPER

The front bumper shall be as provided by the cab/chassis manufacturer. No other alteration 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 the steering wheel horn button located at the driver position and a push button switch on the cab dash at the officer position.

AIR HORN / ELECTRIC HORN SWITCH

There shall be a switch which allows the driver to select the steering column horn ring operation. This switch shall allow the driver to select either the air horn or electric horn activation.

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.

BATTERIES

The International factory supplied batteries shall be removed by SVI and replaced with Northstar model SMS-AGM-8DL batteries.

Based on size of specified batteries about (21" x 12" x 10" H) they will not fit in International factory location, so they will be located in lower front body compartment.

Batteries shall be isolated utilizing a smart relay. The relay shall allow independent charging of the batteries. One battery will be designated for the trucks chassis electrical system and the second battery (auxiliary) will be designated to power the 12VDC Jet fuel pump and flood lighting operation. Chassis battery shall be located in

streetside front compartment, and the auxiliary battery will be located in a cabinet on the body. Batteries shall easily accessible for maintenance and service.

Battery jumper studs shall be located in the streetside cab step area.

NOTE: The removed Navistar batteries shall be shipped with loose equipment back to Hawaii Fire Dept.

MDT/RADIO/ANTENNA INSTALLATION

MDT

The cab shall be pre-wired and configured for the installation of a MDT. The MDT shall be furnished by the dealer. The MDT shall be compatible with a Panasonic CF-31 Toughbook. The location of the MDT system shall be located offset to the passengers side so it can swing over the console for the driver to use. The MDT Slide Rail System (C-LS-18) requires a Fixed Mount Off Set Platform (C-HDM-30x) from 4" to 15" as needed by the design of the custom console. Once the Off Set is determined, the Tilt/Swivel Motion Device (C-MD-202) is mounted, followed by the Vehicle Docking Station mounting bracket that is included with the Havis Vehicle Docking Station # DS-PAN-111-1.

The Docking Power Supply (LPS-104) shall be hooked up to the on board "battery saver circuit" for charging of computer batteries when the shore line is plugged in. The output of the Docking Power Supply shall be connected to the Vehicle Docking Station. The Docking Station Power block shall be mounted in the Vehicle Docking Station as stated in the installation manual. Note: Wireless On/Off switch on the Docking Station must be in the "On" position; install the Screen Stiffener to the Docking Station.

The Sierra Wireless Airlink PinPoint X modem shall be hooked up to the battery and must remain "hot" at all times. The PinPoint modem shall be mounted in the Radio Compartment. All Cables To Go cables shall be connected to the Havis Docking Station and terminate to the Sierra Wireless Airlink PinPoint X modem. Use the following ports on the Docking Station: True Ethernet RJ45, rear USB, Serial 1. Note: The length of the cables will be determined by the mounted location of the Airlink PinPoint X modem, articulation of the Docking Station tilt/swivel and Slide Mount movements.

The following parts shall be supplied by the manufacturer for mounting of the MDT;

- Slide Rail System, Havis #C-LS-18 eighteen (18) in.
- Fixed Mount Top Off Set Platform, Havis #C-HDM-30x. x = 2 (4" off set), 3 (6" off set), 4 (9" off set), 5 (variable 9" to 15")
- Tilt/Swivel Motion Device, Havis #C-MD-202.
- Vehicle Docking Station, Havis #DS-PAN-111-1.
- Docking Power Supply, Havis #LPS-104.
- Screen Stiffener, Havis #DS-DA-409.
- Sierra Wireless Airlink Pinpoint X for Sprint modem.
- Cables To Go 3m (9.8ft or greater as needed) Ultima USB A/B cable #28103.
- Cables To Go 10ft (or greater as needed) Serial DB9 M/F extension cable #52031.
- Cables To Go 10ft (or greater as needed) Snagless Blue Cat5e patch cable #15200.

Modem serial number shall be recorded and included with as-built and warranty documentation.
A GPS Antenna, Antenna Plus, Model AP8500/1800/GPS-S12, Tri-Mode Cellular/PCS/Adhesive Mount Black GPS antenna shall be mounted on the roof and terminated at the modem. Power automobile adapter shall be provided. CAT 5e, USS and RS232 cables shall be installed from the modem to the vehicle mount port replicator. GPS antenna shall be furnished by the dealer.

RADIO

A Harris M7300 dual band 700/800 MHz mobile two-way radio shall be provided by the dealer. The mobile two-way radio shall be installed according to manufacturer's specifications and industry best practices. Radio shall be mounted in a readily accessible location to facilitate programming and maintenance. Control head shall be mounted in the center cab console. An 18 inch service loop for all cables shall be included if radio is mounted in a confined space. Radio serial number shall be recorded and included with as-built and warranty documentation. Two-way radio antenna shall be mounted on roof along center axis a minimum of 18 inches away from the light bar.

PORTABLE RADIO CHARGER

SVI shall install one (1) Honolulu Fire Department supplied Global Technology Systems tri-chemical portable radio battery chargers, part number HCH-P7101DCH-CHG, and bracket, part number HCHP7101DC- BKT in cab. Positioning of the chargers should be such that it is easily accessible by the driver. Device shall be wired to a 12 volt DC source present when truck is running or connected to shore power.

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

USB PORT

There shall be one (1) USB port provided in the front face of the cab console, supplied by the chassis manufacturer, and (1) USB port installed on the officers side of the center console, supplied by SVI.

12 VDC FUSE BLOCK

There shall be one (1) 100 amp Blue Sea Systems ST Series blade type fuse block with screw type terminals for both positive and negative buss with cover provided for distribution of up to six (6) 30 amp, 12 VDC circuits. Fuse block shall be connected to battery saver side of battery charger system and located per required circuits and protected from damage.

SCBA SEAT AIR PACK BRACKETS

No SCBA air pack bracket(s) shall be provided in specified commercial cab SCBA seats. Honolulu Fire Department will provide and install necessary bracket(s) after delivery.

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 / VDR SYSTEM - CUSTOM CAB

The seat belt warning and vehicle data recorder systems shall be provided by the cab/chassis manufacturer.

SIX (6) – 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. The VECSAFE valve cap is self-calibrating. When the cap is mounted on the valve stem the first time, it will memorize that tire pressure, and can be set to recognize a drop in pressure as little as 4 psi. It can be checked for functionality and battery condition by simply unscrewing the cap. If it is in working condition, it will immediately start blinking.

HELMET STORAGE

No helmet storage is required in the cab driving area.

CAB CRASH TEST CERTIFICATION

A cab crash test certification from the fire apparatus manufacturer shall be provided with the equipment. A copy of this certification shall be included with the bid.

NOTE: There shall be no exception to any portion of the cab integrity certification requirements. Nonconformance shall lead to immediate rejection of bid.

The certification shall state that the cab does meet or exceed the requirements below:

- European Occupant Protection Standard ECE Regulation No. 29.

1) SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading Heavy Trucks.

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.

CAB STEP COVER

The stock cab upper and lower entry steps shall be overlaid with 1/8" NFPA compliant aluminum treadplate. There will be a removable panel to access the hinged fuel fill access door.

The maximum stepping height shall not exceed 18", with the exception of the ground to first step, which shall not exceed 24" when the vehicle is loaded to its estimated in-service weight. All steps shall have a minimum area of 35 sq in and shall be of such a shape that a 5" diameter disk does not overlap any side when placed on the step, and shallbe arranged to provide a t least 8" of clearance between the leading edge of the step and any obstruction. All platforms shall have a minimum depth of 8" from the leading edge of the platform to any obstruction.
The treadplate step shall be made to extend forward and cover the DEF fill spout to prevent a tripping hazard.

The polished fuel tank will not be covered with aluminum treadplate.

HUB AND NUT COVERS

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

MUDFLAPS

There shall be 1/4" rubber mudflaps provided and installed behind each set of tires to prevent throwing road debris and lower road spray.

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 near driver's door. The female end of the connector shall be supplied by the Honolulu Fire 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.

LOW PRESSURE AIR SUPPLY

There shall be additional air supply from one (1) 1,480 cubic inch air tank(s) plumbed to the secondary side of the chassis air brake system for air horn supply. A system priority valve shall be provided to close off the primary portion of the chassis air system when air pressure is reduced to 80 psi.

Each air storage tank shall be located in an appropriate area, bolted to the chassis frame. Each air tank shall be inter-piped with color coded reinforced nylon tubing. Brass compression type fittings shall be used on the nylon tubing, meeting all DOT requirements where applicable.

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 and mounted inside cab area.

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 Honolulu Fire 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 Honolulu Fire 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, No Exceptions.

The front and rear corners of body shall be formed as part of the front or rear body panels. This provides a stronger body corner and finished appearance. The use of extruded corners, or caps will not be acceptable, No Exceptions.

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, will 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 and caulked to prevent moisture from entering the compartments. All other interior seams and corners shall be sealed with silicone based caulk prior to painting.

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

DRIP RAILS

The body shall have drip rails over the side full height compartments. The drip rails shall be formed into the upper body panels providing a ridged lower panel and a flat upper body panel surface. The use of mechanically fastened, taped or glued on drip rails will not be acceptable, No Exceptions.

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.

All seams in the roof area shall be welded to the radius and supports prior to paint to prevent entry of moisture. All roof seams shall be continuously welded.

A 2" formed radius shall be provided along the body sides. The use of extruded radius will not be acceptable, No Exceptions.

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 4" x 1/4" aluminum tubes minimum, the same width as the chassis frame rails. Welded to this tubing shall be cross members of 2" x 4" x 1/4" aluminum. Smaller dimension, lighter gauge tubing or angle material subframe shall not be accepted.

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 on 16" centers, or 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 six (6) 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 utilizing 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.

6" REAR BUMPER

The full width rear bumper shall be constructed from minimum 2" x 6" x 1/4" aluminum tubing and covered with 3/16" aluminum tread plate. The bumper shall extend from the rear vertical body panel 6" with a minimum of 1/2" space between the body and bumper for water drainage. Reinforcement gussets from bumper to subframe shall be provided for a 2G rated rear bumper required for this type of vehicle.

REAR TOW EYES

There shall be two (2) heavy duty rear mounted tow eyes securely attached to the chassis frame and mounted above the rear bumper. The tow eyes shall be fabricated from 1" thick steel plate and be chrome plated.

GROUND LIGHTS

There shall be two (2) OnScene 9" Night Axe LED lights 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 a rubber gasket 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.

BODY PAINT SPECIFICATIONS

BODY PAINT PREPARATION

After the body and components have been fabricated they shall be disassembled so when vehicle is complete there shall be finish paint beneath the removable components. The body shall be removed from chassis during the paint process to insure proper paint coverage. The body and components shall be metal finished as follows to provide a superior substrate for painting.

The exterior (and interior, if painted) body shall undergo a thorough cleaning process starting with a biodegradable phosphoric acid solution to begin the etching process followed by a complete clear water rinse. The next step shall consist of a chemical conversion coating applied to seal the metal substrate and become part of the metal surface for greater film adhesion.

All bright metal fittings, if unavailable in stainless steel or polished aluminum, shall be chrome plated. Iron fittings shall be copper under plated prior to chrome plating.

PAINT PROCESS

The paint process shall follow the strict standards set forth by PPG Industries guidelines. Painters applying PPG products will be PPG Certified Commercial Technicians, and re-certified every two (2) years. The body shall go through the following paint process;

2) Clean bare metal with a wax and grease remover using low lint rags.
1) Inspect, straighten, and hammer high points, grind all seams, sharp edges, and welds. DA sand entire paintable surfaces using 24-180 grit dry paper. Plastic fill all low spots and DA sand fill areas using 36-180 grit dry paper. Apply pinhole filler and DA sand areas using 80-180 grit dry paper.
2) Re-clean bare metal using a wax and grease remover and low lint rags.
3) Within 24 hours, a PPG Delfleet® epoxy color primer with proper hardener for corrosion resistance using a pressure pot spray gun and applying 2-5 full wet coats or 1.5-8.0 dry mils max. achieving full hiding and allow to air dry 60 minutes @ 70°F or bake for 45 minutes @ 140°F degree.
4) Inspect, putty fill, and dry guild coat entire body surface and DA sand using 180-400 grit dry paper.
5) Re-clean bare metal using a wax and grease remover using low lint rags.
6) A PPG Delfleet® primer sealer with proper hardener and thinner shall be sprayed using a pressure pot spray gun and applying 1 full wet coat or 1.0-2.0 dry mils achieving full hiding and allow to flash off in spray booth for minimum of 60 minutes @ 70°F.
7) A PPG Delfleet® FBCH basecoat (color) with proper hardener and dry additive shall then be sprayed using a pressure pot set @ 45-60 PSI and achieving full hiding or 1.5-2.0 wet mils and allow to flash off in spray booth 45-60 minutes before applying clearcoat.
8) A PPG Delfleet® clearcoat with proper hardener and thinner shall be sprayed using a pressure pot spray gun and applying 2-3 full wet coats or 5.0 wet mils for a uniform gloss and allow to flash off in spray booth 10 minutes and bake for 120-140 minutes @ 125°F (surface temp.).
9) After cooling, DA sand heavy orange peel or runs using 1000 grit dry sand paper and final DA sand using 1500-2000 grit dry sand paper. Wipe off all surfaces to remove dust and debris. Buff unit as needed using 3M rubbing compound and a white wool pad and inspect until all sand scratches are removed.
10) Polish as needed using 3M Perfect-It-Polish and a black foam pad, repeat as necessary and inspect until all sand scratches are removed.

PAINT - ENVIRONMENTAL IMPACT

The contractor shall meet or exceed all current State (his) regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water and soil. PPG Delfleet® Evolution paint shall be free of all heavy metal (lead & chromate) components. Paint emissions from sanding and painting shall be filtered and collected. All paint wastes shall be disposed of in an environmentally safe manner. Solvents used in cleanup operations shall be collected, sent off-site for distillation and returned for reuse.

FASTENERS

Prior to the assembly and reinstallation of exterior components; i.e. warning and DOT lights, handrails, steps, door hardware, and miscellaneous items, a Mylar isolation tape, or gasket shall be used to prevent damage to the

finish painted surface. These components shall be fastened to body using either a plastic insert into body metal with stainless steel screws or zinc coated nut-serts into body surface using stainless steel bolts to prevent corrosion from dissimilar metals.

ELECTROLYSIS CORROSION CONTROL

The vehicle shall be assembled using ECK brand or similar corrosion control compound on all high corrosion potential areas.

ECK protects aluminum and stainless steel against electrolytic reaction, isolates dissimilar metals and gives bedding protection for hardware and fasteners. ECK contains anti-seizing lubricant for threads. ECK is dielectric and perfect for use with electrical connectors.

PAINT FINISH - SINGLE COLOR

The body shall be painted with a single color of PPG Delfleet® Evolution per Honolulu Fire Department approved paint spray out provided.

A small touch-up bottle of paint shall be provided with completed vehicle.

11) 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.

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. **Pro-rated warranties will not be acceptable.**

COMPARTMENT INTERIOR FINISH

The compartment interior paintable surfaces shall be prepared and DA sanded using 80 grit dry paper and cleaned with a wax and grease remover.

A Scorpion rubberized spray-on XO2 rubberized coating formulation consisting of ZBG (Zero Biological Growth), Fire Retardant, High Pressure Polyurea Systems shall be applied to the horizontal floors and vertical wall surfaces. Scorpion material shall be gray (match cab color used).

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 Honolulu Fire Department prior to installation. The graphics proof shall be submitted to Honolulu Fire 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 6" wide, 3M Scotchcal 680 series.

- This reflective stripe shall be white in color.

REFLECTIVE STRIPE - CAB FRONT

The reflective stripe material shall be 6" wide, 3M Scotchcal 680 series.

This reflective stripe shall be white in color with ¼" black outline.

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.

REFLECTIVE STRIPE - BODY SIDES

The reflective stripe material shall be 6" wide, 3M Scotchcal 680 series.

This reflective stripe shall be white in color with ¼" black outline.

The stripe shall extend from the front of cab in a straight line, then just ahead of the rear wheels the stripe shall angle up and extend straight back to the rear of the body.

CHEVRON REFLECTIVE STRIPE - REAR CENTER/SIDE PANELS

At least 50 percent of the rear-facing vertical surfaces, visible from the rear of the apparatus, excluding any pump panel areas not covered by a door, shall be equipped with retroreflective striping in a chevron pattern sloping downward and away from the centerline of the vehicle at an angle of 45 degrees. Each stripe shall be 6" width.

The rear side panels and center of the body shall have a chevron style reflective stripe, extending from bumper height up to side compartment drip rail height. Chevron panels shall have a 3M UV over laminate to protect from UV rays, scene damage, and everyday use. Chevron panels shall have a minimum 10 year warranty for material failure, and colorfastness.

The stripe material shall be 3M Scotchcal 680 series.

This reflective chevron stripe shall alternate red and fluorescent yellow/green in color.

CAB STRIPE - 22K GOLD LEAF

The cab shall have a 1/2" wide 22K gold leaf stripe provided on each side of cab on the two-tone cab paint line. Stripe shall have a black outline.

LETTERING

GRAPHICS PROOF

A color graphics proof of the lettering layout shall be provided for approval by Honolulu Fire Department prior to installation. The graphics proof shall be submitted to Honolulu Fire 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

There shall be sixty (60) 4" high 22K Gold letters furnished and installed on cab doors. Lettering shall have a clear 3M UV Protective Over Laminate applied before installation.

"HONOLULU" - Arched above door emblem, front cab doors
"FIRE DEPT." - Arched below door emblem, front cab doors

"TENDER" -Arched above T30, rear cab doors
"MOANALUA" - Arched above T30, rear cab doors

There shall be six (6) 8" high 22K Gold letters furnished and installed on rear cab doors. Lettering shall have a clear 3M UV Protective Over Laminate applied before installation.

"T30" – Located on front body doors

UPPER BODY SIDE LETTERING

There shall be thirty six (36) 3" high reflective letters furnished and installed on the vehicle.

"HONOLULU" - Located on upper over rear wheel roll-up door, offset to front of door.

"DEPARTMENT" - Located on center of rear roll-up door above main reflective stripe.

- This reflective lettering shall be black in color.

There shall be fifty (50) 5" high reflective letters furnished and installed on the vehicle.

"FUEL TENDER" - 5" high, Centered on top of main reflective stripe.

"911" - 8" high, Centered below main reflective stripe.
"DON"T STALL" - 3" high
"CALL" - 3" high

"Pride - Service - Dedication" - 3" high cursive font, Centered at bottom of door.

- This reflective lettering shall be black in color.

There shall be eight (8) 10" high reflective letters furnished and installed on the vehicle.

"FIRE" - Located below lettering above on over wheel well roll-up door.

- This reflective lettering shall be white in color with balck outline.

REAR BODY LETTERING

There shall be a gold reflective decal installed onto the rear of the fuel tank that shall read, "HFD".
If letters cannot be installed directly onto the tank, they shall be put onto a plate that can be installed onto the tank.

CAB ROOF LETTERING

There shall be three (3) 12" high reflective letters furnished and installed on the vehicle.

“T30”

- This reflective lettering shall be black in color.

HFD MALTESE - 12"

Two (2) HFD 22K gold 12" x 12" Maltese emblems shall be provided and located on the completed vehicle. The exact design and/or artwork shall be provided by the Honolulu Fire Department prior to construction.

EXTERIOR COMPARTMENT DOORS

ROLL-UP DOOR CONSTRUCTION - ROBINSON (ROM)

The apparatus shall be equipped with Robinson ROM Series III roll-up exterior compartment doors. Robinson roll-up doors shall be complete with the following features;

- Doors shall be front roll with drum positioned at upper front portion of compartment to afford maximum clearances and head room for mounting equipment to ceiling of compartment
- There shall be a non-abrasive side brush seals
- Every slat must have interlocking end shoes to prevent slat from moving side-to-side and binding the door
- Between each slat must be a co-extruded PVC inner seal to prevent metal-to-metal contact and to repel moisture. This inner seal is not visible to detract from appearance of door
- Slats are to have interlocking joints with a folding locking flange to provide security and prevent penetration by sharp objects
- Slats to be double-wall extrusion 1.366" high by .315" thick. Exterior surface to be flat and interior surface to be concave to prevent loose equipment from interfering with door operation
- Latch system to be a full width one piece lift bar operable by one hand
- A 2" wide finger pull integrated into bottom rail extrusion for easy one hand opening and closing
- Clip system that connects the curtain slats to the operator drum which allows for easy tension adjustment without tools
- Each roll-up door shall have a 4" diameter counterbalance operator drum to assist in lifting the door.
- Track shall be one-piece aluminum that has an attaching flange and finishing flange incorporated into its design
- Drip rail will have specially designed seal that prevents the seal from scratching the door
- Bottom rail extrusion must have smooth back to prevent loose equipment from jamming the door
- Bottom rail to have "V" shaped double seal to prevent water and debris from entering the compartment
- Standard replacement parts to be shipped from the United States and available in as little as 48 hours
- Will be free from manufacturing defects for a period of up to 7 years from date of purchase provided that the Product is used under conditions of normal use, that regular periodic maintenance and service is performed and that the product was installed in accordance with R•O•M’s instructions.

Each roll-up door framework shall decrease the compartment door opening by approximately 2.25" and 4.5" in height for standard bottom rail and 6.0" in height for tall bottom rail option.

ROM DOOR BOTTOM RAIL

All exterior compartment doors shall have the standard 3.0" tall bottom rail extrusion for easy one (1) hand opening and closing.

The specified retroreflective stripe material shall be applied on the roll-up compartment doors. The stripe shall be

precision machine cut for each door slat of the roll-up doors. Under no circumstance will the stripe material be cut on roll-up door surface.

BODY HEIGHT MEASUREMENTS

The vertical body dimensions shall be as follows:

AHEAD OF REAR AXLE

	Description	Dimension
A	Bottom of Subframe to Top of Body	64.0"
B	Bottom of Subframe to Bottom of Body	22.5"
C	Vertical Door Opening	
	-with roll-up door	67.5"
	-with hinged door	71.5"

ABOVE REAR AXLE

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

BEHIND REAR AXLE

	Description	Dimension
E	Bottom of Subframe to Bottom of Body	20.0"
F	Vertical Door Opening	
	-with roll-up door	62.0"
	-with hinged door	66.0"

GENERAL

	Description	Dimension
G	Bottom of Drip Rail to Top of Body	13.5"

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

BODY WIDTH DIMENSIONS

The body shall be 98.0" wide, not including drip rail or non-permanent fixtures. Interior compartment depth dimensions shall be approximately:

Area Description	Dimension
Transverse Area above Subframe	93.0"
Compartment Depth below Subframe	24.5"

STREETSIDE COMPARTMENT - FRONT (S1)

The interior useable compartment width shall be approximately 45.0" wide.

The compartment door opening shall be approximately 38.0" wide.

This compartment shall have a ROM roll-up door.

- The roll-up door slats and the door trim components shall be painted to match the single tone exterior color.

- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.

- A keyed cylinder lock shall be provided in the bottom portion of the roll-up 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

- There shall be vertically mounted aluminum Shelf-Trac for specified component installation. Shelf-Trac extrusion shall have side extruded channels for use in mounting or securing special ancillary items, without need for drilling into body.

- 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 3/16" 3003 aluminum 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.
- Tray shall be to store all chassis batteries onto it.

- There shall be one (1) 1,000 lbs. slide-out tray(s) with a SlideMaster painted structural steel base approximately 94" deep and as wide as the compartment layout or door opening permits, capable of extending out either side of the body located above the level of the chassis frame rails. Each slide base shall have a gravity latch which will lock the tray in the closed and full extension positions. Each tray shall be fabricated from 3/16" 3003 aluminum sheet and shall have welded corners to form a box type tray surface with an internal depth of approximately 3 ½". Tray will hold five (5) Honolulu Fire Department supplied 36" x 18" x 18" Bambi Buckets.

- There shall be one (1) 250 lbs. slide-out and tilt down tray(s) with a SlideMaster painted structural steel base approximately 46" deep and as wide as the compartment layout or door opening permits. It shall be located above the level of the chassis frame rails and will be vertically adjustable in height. Each slide base shall have a gravity latch which will lock the tray in the closed and full extension positions. Each tray shall be fabricated from 3/16" 3003 aluminum sheet and shall have welded corners to form a box type tray surface with an internal depth of approximately 3 ½".

- The floor of the compartment above the frame rails shall be extended to the interior edge of the door. The floor shall have a 2" vertical lip and a 1" return to increase strength.

- Two (2) OnScene 64" Access LED compartment lights, vertically mounted.

- The 12 volt electrical distribution panel shall be located in the front transverse compartment above the subframe.

In cab console

STREETSIDE COMPARTMENT - AHEAD OF REAR WHEELS (S2)

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 ROM roll-up door.

- The roll-up door slats and the door trim components shall be painted to match the single tone exterior color.
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.
- A keyed cylinder lock shall be provided in the bottom portion of the roll-up 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

- There shall be vertically mounted aluminum Shelf-Trac for specified component installation. Shelf-Trac extrusion shall have side extruded channels for use in mounting or securing special ancillary items, without need for drilling into body.
- There shall be two (2) adjustable shelf approximately 24" deep located just above reel mounted on lower floor. Each shelf shall be fabricated from 3/16" 3003 aluminum sheet with a 2" vertical flange along the front and rear edges
- A Trimax 10 CAFS skid unit shall be provided and installed in upper compartment with reel located in upper compartment area. Skid will be approximately 31" wide x 14" high x 15" deep. unit will provide finished foam capacity of up to 200 gallons.
- The floor of the compartment above the frame rails shall cover the area directly above the frame rails ONLY (non-extended floor).
- Two (2) OnScene 64" Access LED compartment lights, vertically mounted.
- Two (2) 3-1/2" x 3-1/2" black plastic louvered vents shall be provided in the lower compartment.

STREETSIDE COMPARTMENT - ABOVE REAR WHEELS (S3)

The interior useable compartment width shall be approximately 59.0" wide x 24” deep.

The compartment door opening shall be approximately 52.0" wide.

This compartment shall have a ROM roll-up door.

- The roll-up door slats and the door trim components shall be painted to match the single tone exterior

color.

- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.
- A keyed cylinder lock shall be provided in the bottom portion of the roll-up 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

- There shall be vertically mounted aluminum Shelf-Trac for specified component installation. Shelf-Trac extrusion shall have side extruded channels for use in mounting or securing special ancillary items, without need for drilling into body.
- There shall be one (1) adjustable shelf/shelves approximately 24" deep. Each shelf shall be fabricated from 3/16" 3003 aluminum sheet with a 2" vertical flange along the front and rear edge.
- 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 3/16" 3003 aluminum 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. Tray will hold Honolulu Fire Department cooler and spill kit.
- Two (2) OnScene 36" Access LED compartment lights, vertically mounted.

STREETSIDE COMPARTMENT - REAR (S4)

The interior useable compartment width shall be approximately 49.0" wide x 24” deep.

The compartment door opening shall be approximately 42.0" wide.

This compartment shall have a ROM roll-up door.

- The roll-up door slats and the door trim components shall be painted to match the single tone exterior color.
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.
- A keyed cylinder lock shall be provided in the bottom portion of the roll-up 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.

Honolulu Fuel Tender
SVI Truck #947
Production Specifications

COMPARTMENT LAYOUT

- There shall be vertically mounted aluminum Shelf-Trac for specified component installation. Shelf-Trac extrusion shall have side extruded channels for use in mounting or securing special ancillary items, without need for drilling into body.

- There shall be two (2) adjustable shelf/shelves approximately 24" deep. Each shelf shall be fabricated from 3/16" 3003 aluminum sheet with a 2" vertical flange along the front and rear edge.

- One (1) Western Cascade remote fuel fill display shall be provided in upper compartment. Display shall pull-out and swivel 180 degrees for improved visibility from filling location. Panel is approx. 23” W x 6” H.

- The Dixon Blademaster 1-1/2”, 1 HP, 12 VDC fuel pump and Filter system shall be mounted on an adjustable shelf located just above the fuel dispensing reel. The pump and filter system shall be interconnected to fuel storage tank.

- One (1) Hannay electric rewind reel with 100’ of aviation Jet A fuel delivery hose shall be provided (35” W x 22.7” H x 23.5” D). In addition a Hannay SSHGR stainless steel dual clip grounding reel shall be provided on side of fuel reel.

- The floor of the compartment above the frame rails shall cover the area directly above the frame rails ONLY (non-extended floor).

- Two (2) OnScene 64" Access LED compartment lights, vertically mounted.

- Two (2) 3-1/2" x 3-1/2" black plastic louvered vents shall be provided in the lower compartment.

CURBSIDE COMPARTMENT - FRONT (C1)

The interior useable compartment width shall be approximately 45.0" wide.

The compartment door opening shall be approximately 38.0" wide.

This compartment shall have a ROM roll-up door.

- The roll-up door slats and the door trim components shall be painted to match the single tone exterior color.

- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.

- A keyed cylinder lock shall be provided in the bottom portion of the roll-up 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.

Honolulu Fuel Tender
SVI Truck #947
Production Specifications

COMPARTMENT LAYOUT

- There shall be vertically mounted aluminum Shelf-Trac for specified component installation. Shelf-Trac extrusion shall have side extruded channels for use in mounting or securing special ancillary items, without need for drilling into body.

- There shall be one (1) OnScene Solutions 83 series aluminum tray base with 70% extension, and rating of 1,000 lbs. Slide-out tray(s) base shall be approximately 94" deep; capable of extending out either side of the body located above the level of the chassis frame rails. (Specified in opposite side compartment.)

- There shall be one (1) 250 lbs. slide-out and tilt down tray(s) with a SlideMaster painted structural steel base approximately 46" deep and as wide as the compartment layout or door opening permits. It shall be located above the level of the chassis frame rails and will be vertically adjustable in height. Each slide base shall have a gravity latch which will lock the tray in the closed and full extension positions. Each tray shall be fabricated from 3/16" 3003 aluminum sheet and shall have welded corners to form a box type tray surface with an internal depth of approximately 3 ½”.

- The floor of the compartment above the frame rails shall be extended to the interior edge of the door. The floor shall have a 2" vertical lip and a 1" return to increase strength.

- Two (2) OnScene 64" Access LED compartment lights, vertically mounted.

CURBSIDE COMPARTMENT - AHEAD OF REAR WHEEL (C2)

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 ROM roll-up door.

- The roll-up door slats and the door trim components shall be painted to match the single tone exterior color.

- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.

- A keyed cylinder lock shall be provided in the bottom portion of the roll-up 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

- There shall be vertically mounted aluminum Shelf-Trac for specified component installation. Shelf-Trac extrusion shall have side extruded channels for use in mounting or securing special ancillary items, without need for drilling into body.

- There shall be one (1) adjustable shelf/shelves approximately 70" deep. Each shelf shall be fabricated from 3/16" 3003 aluminum sheet with a 2" vertical flange along the front and rear edges.

- The floor of the compartment above the frame rails shall be extended to the interior edge of the door. The floor shall have a 2" vertical lip and a 1" return to increase strength.

- Two (2) OnScene 64" Access LED compartment lights, vertically mounted.

- Two (2) 3-1/2" x 3-1/2" black plastic louvered vents shall be provided in the lower compartment.

CURBSIDE COMPARTMENT - ABOVE REAR WHEEL (C3)

The interior useable compartment width shall be approximately 59.0" wide x 24” deep.

The compartment door opening shall be approximately 52.0" wide.

This compartment shall have a ROM roll-up door.

- The roll-up door slats and the door trim components shall be painted to match the single tone exterior color.

- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.

- A keyed cylinder lock shall be provided in the bottom portion of the roll-up 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

- There shall be vertically mounted aluminum Shelf-Trac for specified component installation. Shelf-Trac extrusion shall have side extruded channels for use in mounting or securing special ancillary items, without need for drilling into body.

- There shall be one (1) adjustable shelf/shelves approximately 24" deep. Each shelf shall be fabricated from 3/16" 3003 aluminum sheet with a 2" vertical flange along the front and rear edge.

- Two (2) OnScene 36" Access LED compartment lights, vertically mounted.

CURBSIDE COMPARTMENT - REAR (C4)

The interior useable compartment width shall be approximately 49.0" wide x 24” deep.

The compartment door opening shall be approximately 42.0" wide.

This compartment shall have a ROM roll-up door.

- The roll-up door slats and the door trim components shall be painted to match the single tone exterior

color.

- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.

- A keyed cylinder lock shall be provided in the bottom portion of the roll-up 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

- There shall be vertically mounted aluminum Shelf-Trac for specified component installation. Shelf-Trac extrusion shall have side extruded channels for use in mounting or securing special ancillary items, without need for drilling into body.

- There shall be one (1) adjustable shelf/shelves approximately 24" deep. Each shelf shall be fabricated from 3/16" 3003 aluminum sheet with a 2" vertical flange along the front and rear edge.

- 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 3/16" 3003 aluminum 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.

- The floor of the compartment above the frame rails shall cover the area directly above the frame rails ONLY (non-extended floor).

- Two (2) OnScene 64" Access LED compartment lights, vertically mounted.

- Two (2) 3-1/2" x 3-1/2" black plastic louvered vents shall be provided in the lower compartment.

REAR COMPARTMENT - CENTER (RC1)

The rear center compartment shall be open to top and rear and the side compartment will be the side walls to this compartment. The open area shall be 48” wide (clear) x 120” deep to allow for the specified Western Cascade 500 gallon fuel system skid (44” wide x 112” long x 52” high).

Floor surface and front and side walls shall be aluminum tread plate finish.

LONG TOOL STORAGE TROUGH

There shall be one (1) of long tool storage troughs installed in the cargo area. The troughs shall be made of 3/16" smooth aluminum formed in a "U" shape. Length shall be made to fit the cargo area. Make width as wide as space permits.
There shall be (1) one installed on the curbside, and (1) one on the streetside, (if space permits).

A small drop down retaining door shall be installed to hold the tools in place.

Honolulu Fuel Tender
SVI Truck #947
Production Specifications

REAR HOSE COMPARTMENT

There shall be an enclosed compartment located on the upper curbside compartments for storage of 400' of 2 ½" double jacket hose in a flat load. Compartment shall be located up high and will protrude into the cargo area in compartments C3 and C4.

There shall be a vertically hinged aluminum treadplate door to enclose the compartment at the rear.
There shall also be a hinged aluminum treadplate cover installed over this hose storage area to allow for easy re-packing from the top.

Brushed stainless steel trim shall be installed at the bottom opening below the access door to prevent chaffing of the hose jacket on the edges of the body.

AVIATION JET A FUEL SYSTEM

A Western Cascade 500 gallon Jet A fuel tank skid shall be provided and located in open rear area of body. Skid size shall be approximately 100" long x 44" wide x 55" high. Fuel system will be built with the following features;

Material:	Tank Shell, Aluminum 5454-H32 Alloy Top Bottom, And Sides Tank Heads, Full Oval Aluminum 5454-0 Alloy
Compartments:	One (1) Compartment 500 USG
Tank Frame:	Dot / Nfpa1901
Vent:	3"
Tank Mounting:	To Meet Dot Mc 406 Cargo Tank Specifications
Protection:	Full Length DOT Design Tunnel With Nonskid Tape For Walkway
Manhole Covers:	16" Round Tiona Manhole And 10" Fill. Includes 2 Normal Vents, In-Breathing And Out-Breathing
Emergency Valves:	One Supplied, Complete With Mechanical Operator. Jet Internal (See Bottom Loading)
Vapor Recovery:	Atmospheric Via The Man Way
Bottom Loading:	Single Point Loading Extended To The Rear Of The Body For Ease Of Loading, F418 LSFA-F418 And JLS F660 Series 3" Internal Valve
Overfill:	F613 Jet Level Sensor And Digital Gallons Tank Monitoring System (Installed Facing Rear For Easy Vision While Filling)
Filter:	Jet A Fuel Dispensing Filter Assembly: VF-22 Filter Housing With Water Absorbing Filter Element FG-0-6122. Differential Gauge Included
Mounting Location:	The Cargo Tank Will Be Installed Inside The Body And Secured With A Dot Mounting System, Through The Service Body Floor And Attached To The Truck Frame With Dot Certified Cargo Tank Mounts. The Cargo Tank Will Be Installed Approximately 48" Behind The Forward Wall Of The Service Body Allowing The S1 And C1 Compartments To Be Transverse Compartments.
Calibration:	The Unit Will Be Oil Tested For Leaks During The Final Stages Of Production. Calibration Charts (USGPI Depth) Provided
Painting:	Steel Parts Only, Black Metallic Using Endura Paint
Ecology Tank:	Included, The Fuel Nozzle Holder And Meter Air Eliminator Will Be Plumbed To This Tank. The Tank Will Be Drained From A Drain Valve Located At The Left Corner Of The Hose House
Placarding:	Slip In Type Placard Holders Complete With 1863 Placards, No Smoking, And Other Decals As Required By The IFC, NFPA & DOT
Gravity Discharge:	No
Line Strainers:	Supplied (Standard)
Pump:	Dixon, Flow Rates Will Be Set Up At A Max Flow Of 30 GPM, 12 VDC Wired To Chassis Battery

Honolulu Fuel Tender

SVI Truck #947

Production Specifications

	System
Meter:	LC M5 Rated At 5 To 60 GPM Rated For Jet A Fuel. Include 1 Non Print Resettable Counter. Install 1 External Pulser And LC E1613, 2.25 Inch Read Out Digital Gallon Display. Display Will Be Installed On A Slide Out Rotating Tray
Fuel Tank Monitor:	Install One Digital Display Fuel Tank Level Monitor
Hose Reel:	One (1) Floor Mounted Stainless Steel Hannay 32-19-21 Electric Rewind Hose Reel Holding 100 Ft. Of Aviation Jet A Fuel Delivery Hose (Dimensions: 38.38”X21.5”X18.75”) Install To The Left Of The Fuel Reel, 1, Stainless Steel SSHGR 100 Dual Clip Grounding Reel
Hose:	100 Feet Of Jet A Aviation Hose
Nozzle:	Over Wing Jet A Nozzle
Filter System:	Inline Fuel Water Separator Installed Up Stream of The Meter Register
Low Point Drain:	Install 1 Dead Man Type Low Point Drain In The Bottom of The Fuel Dispenser Compartment

SHOP NOTES

See Western Cascade quote in pricing file.

DOT PLACARDING

Slip in type placard holders complete with 1863 placards, No Smoking, and other decals as required by the IFC, NFPA & DOT shall be provided on completed vehicle.

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 yellow.
- The plastic edge trim shall be yellow.

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.

FRONT GRAVEL GUARDS

Gravel guards shall be provided on front lower body corners. Guards shall be 12" high, extend from behind cab or step and wrap around to the front compartment door opening fabricated from 20 gauge brushed stainless steel.

REAR BODY HANDRAILS

There shall be two (2) 24" vertical handrails on the rear of the body. Handrails shall be NFPA compliant 1-1/4" knurled 304 stainless steel with welded end stanchions.

FOLDING STEP(S)

There shall be {qty} Cast Products polished cast aluminum folding step(s) provided and installed on completed vehicle. Each step shall be heavy duty with stainless steel spring and textured step surface meeting NFPA standards. Each step will include integrated upper and lower LED lights.
Steps shall be located on the driver's side rear of the body.

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.

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:

- SAE J156, *Fusible Links*

1) SAE J553, *Circuit Breakers*
2) SAE J554, *Electric Fuses (Cartridge Type)*
3) SAE J1888, *High Current Time Lag Electric Fuses*
4) 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:

5) The propulsion engine and transmission
1) All legally required clearance and marker lights, headlights, and other electrical devices except windshield wipers and four-way hazard flashers
2) 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)
3) 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
4) The minimum optical warning system, where the apparatus is blocking the right-of way

5) The continuous electrical current required to simultaneously operate any fire pumps, aerial devices, and hydraulic pumps
6) 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.

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 DIAGNOSTIC RELAY CONTROL CENTER

The 12 volt power distribution shall be conveniently located with easy access for service. All relays and circuit breakers shall be plug-in type allowing for removal for repairs without necessitating soldering or tools. The sockets mounts for both the relays and circuit breakers shall be of a design that permits the use of standard automotive type components.

The 12 volt distribution panel shall utilize printed circuit boards mounted in high strength enclosure. Each printed circuit board shall be provided with twelve (12) heavy duty independent switching relays. Each relay shall have the ability to be configured either normally open or normally closed and be protected by a 20 amp automatic reset breaker. Each circuit will be provided with a LED for visual diagnostic.

Power distribution panel shall be located in apparatus body within a protected enclosure with removable or hinged cover.

Honolulu Fuel Tender
SVI Truck #947
Production Specifications

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 Black textured 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 mounting of siren head, radio or 12 volt control panel, and etc, with easy access to both Driver and Officer.

ROCKER SWITCH PANEL

The control of the 12 volt equipment installed on chassis and body shall be located in center overhead area of cab. (Offset to the center if possible). The individual rocker style switches shall be located on a separate electrical panel, complete with backlit name tags describing function of each individual switch. The back lighting shall have two (2) levels of intensity, low level lights activated when the vehicle lights or ignition switch is turned "On", and high level lights activated when individual switch is turned "On". An internally lighted rocker switch shall be furnished to the left of specified emergency lighting switches, and identified as "MASTER EMERGENCY SWITCH".

Switch circuitry shall be on a printed circuit board. The lights shall be solid state type and have a 100,000 hour life span.

ELECTRICAL SYSTEM MANAGER

LOAD MANAGEMENT

If the total continuous electrical load exceeds the minimum continuous electrical output rating of the installed alternator(s), an automatic electrical load management system shall be required. The minimum continuous electrical loads shall not be subject to automatic load management.

The apparatus 12 volt electrical system shall be provided with a system manager for:

7) Monitoring chassis battery voltage
- Shedding pre-determined electrical circuits
- Sequencing pre-determined electrical circuits
- Automatically controlling chassis engine fast-idle
- Monitor master switch and parking brake applications
- Automatically control warning light modes ("Calling-For" and "Blocking Right of Way")
- Provide low voltage alarm
- Programmable control circuits
- Remote system status indicator panel

System manager shall perform all electrical functions required by current NFPA 1901 Standards.

BATTERY MONITORING

The system manager shall monitor the vehicle battery voltage. When electrical loads exceed the alternator output and the voltage drops, the load manager shall start shutting down electrical outputs. The system shall shut down

only as many outputs required to maintain the system voltage. A special indicator to show different states of the electrical system by flashing at rate proportional to the battery discharge.

LOAD SEQUENCING AND SHEDDING

The system shall be capable of sequentially switching and shedding 12 volt loads. The Master light switch starts the sequential switch when it is turned "On". Likewise turning the Master Switch "Off" will sequentially de-energize the loads.

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. The switch and pilot light shall be supplied and installed by the cab/chassis manufacturer.

BATTERY SOLENOID

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

BATTERY CONDITIONER

A Kussmaul Autocharge Model 91-187-12 Remote ODY or approved substitute shall be provided. A charge indicator shall be provided near the shore power receptacle. The battery charger shall be wired to the 220 volt shoreline to activate automatically when power is connected. The battery charger shall be located in the cab behind the driver's seat.

A Kussmaul Battery Saver HO model 091-195-12-USB single battery charger, with 120 VAC input and 12 VDC, 20 amp output and front USB charging outlet on front panel shall be provided in cab behind driver seat. The battery saver circuit shall be capable of supplying a minimum up to forty (40) amps for external loads such as hand light or auxiliary radio batteries. The battery saver will be wired to the BLUE SEA fuse block.

A Gast model 5HCD-10-M550X air compressor shall be provided and powered by shoreline electrical system. The compressor shall maintain the air pressure in the chassis air brake system while the vehicle is not in use. A pressure switch shall sense when the system pressure drops and automatically start the compressor, which shall then run until pressure is restored. Square-D Model No. 1-9013- GHG2J30 or approved substitute shall be provided. A coalescing filter shall be provided and installed in the system.

Locate behind the seat in the best possible location.

SHORE POWER INLET

One (1) Kussmaul 120 VAC, 20 amp Super Auto-Eject shore power inlet(s) shall be provided. The shore power connection shall automatically disengage from vehicle when chassis ignition is engaged.
The inlet shall be located on the drivers side in the step area.

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

- The outlet cover shall be yellow.
- The shore power plug shall be located near the Driver door area.

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".

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 ft3 (0.1 m3).
- The compartment has an opening less than or equal to 144 in.2 (92,900 mm2).
- 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

An electronic back-up alarm shall be supplied and installed by the cab/chassis manufacturer. The back-up alarm shall actuate automatically when the transmission gear selector is placed in reverse.

REAR VIEW CAMERA

There shall be one (1) Safety Vision SV-690H-KIT color camera recessed mounted at the rear of the apparatus, offset to the driver's side rear.

One (1) Safety Vision SV-LCD 70 7" color monitor, with speaker, audio and video adjustment controls, mirror/normal image switch, automatic-on in reverse, free voltage 10VCD-26 VDC shall be provided and mounted in overhead center cab area.

The cabling shall have a waterproof threaded metallic connector with rubber o-ring seal. The 65' video cable shall include waterproof threaded connector at camera end.

TAIL LIGHTS

Rear body tail lights shall be vertically mounted and located per Federal Motor Vehicle Safety Standards, FMVSS and Canadian Motor Vehicle Safety Standards CMVSS. The following lights shall be furnished;

- Two (2) Whelen specified lower Zone "C" warning lights
- Two (2) Whelen amber LED 600 Series 60A00TAR turn signal lights
- Two (2) Whelen red LED 600 Series 60BTT stop/tail lights
- Two (2) Whelen LED 600 Series 60C00WCR maximum intensity back-up lights with clear lens

Two (2) Whelen CAST-4V, 4-light polished aluminum bezels shall be provided, one (1) each side vertically mounted on the rear of the apparatus body for the above tail lights.

MIDSHIP MARKER/TURN SIGNAL

Two (2) Whelen model T0A00MAR 2" round amber LED midship body clearance marker/turn signal lights shall be provided and installed, one (1) light on each side of the body, in forward wheel well of rear axle. Midship marker/turn lights shall be wired to the headlight circuit of the chassis.

MARKER LIGHTS

The body shall be equipped with all necessary clearance lights and reflectors in accordance with Federal Motor Vehicle Safety Standards (FMVSS) and Canadian Motor Vehicle Safety Standards (CMVSS) 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.

CAB STEP LIGHTS / GROUND LIGHTS

There shall be two (2) OnScene 8" Access LED 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 MOUNTING BRACKET

A license plate mounting bracket shall **NOT** be provided on completed unit.

ELECTRONIC SIREN

One (1) Whelen model 295SLSA1 electronic siren control with selectable 100 or 200 watt output, hands-free operation, user selectable siren tones, park kill, and standard hard wired microphone shall be provided and installed in cab within easy reach of Driver. Siren power shall be wired through the master warning light switch.

Siren to be mounted in center cab console.

Siren shall be able to be operated by a foot switch at the Drivers' position.

SIREN SPEAKERS

Two (2) Whelen Projector model SA123BMC, 100 watt aluminum, 9.3" x 7.3" x 5.3" siren speaker shall be provided, recessed in the front bumper with chrome plated polycarbonate grille, one (1) on the streetside and one (1) on the curbside. The solid state siren speaker shall be vibration resistant. The SP123BMC shall comply with California Title XIII, Class A, and SAE J1849 requirements with most 100 watt sirens. The SP123BMC complies

with OSHA 1910.95 Guidelines regarding “Permissible Noise Exposure”. All mounting hardware shall be stainless steel and covered by a two year factory warranty.

COMPACT DIRECTIONAL LIGHT

One (1) Command Light C-Lite, CD127 Series light(s) shall be provided and installed on the completed unit. The unit shall not require tapping into vehicle braking system to be operated, eliminating the chance for vehicle brake problems. Hydraulic, manual or pneumatic type flood-spot lights are not acceptable alternatives to the all electric light unit specified.

The light unit shall be capable of electric rotation of the light(s) through an arc of 120 degrees to maximize lighting on the scene. The light unit shall have a full rotation in 10 seconds. The overall size of nested light tower shall be approximately 16 inches wide 11 inches x long x 5.5 inches high, and weigh approximately 18 lbs. The light unit shall be all aluminum construction, with stainless steel shafts and thermo-polymer bushings for long life and low maintenance. The unit shall be tested to withstand winds of 90 mph minimum.

Current:

Arms Moving with Lights Off:	4.3 amps
Two Light Heads Draw:	12.5 amps
Total Draw:	17.5 amps
Voltage Power Requirement:	CD-127D 2x75W PSP1 DC LED 12V DC 200W

The C-Lite shall be covered by a five (5) year limited warranty from defects in materials and workmanship. An operation, maintenance, and parts manual shall be provided with the completed unit.

Light Tower Controls

The light tower(s) shall be operated with a wireless hand-held remote control. The remote control shall be located per the itemized compartment list and include;

One (1) switch for lights on/off.
One (1) switch for light rotation.
One (1) switch for elevating or lowering lights.

Light Mounting

The light(s) shall be mounted to roof of body and reinforced if necessary to support weight of the light.

REAR SCENE LIGHTS

Two (2) Whelen Super LED 900 series (9" x 7") recess mounted scene lights (9SC0ENZR) shall be provided on the upper rear body to light the work area immediately behind the vehicle to a level of at least 3 fc (30 lx) within a 10 ft × 10 ft (3 m × 3 m) square. Each light will have twenty-four LED diodes that draw a total of 4.0 amps, with 3000 Lumens. The light shall be an 8-32 degree gradient lens and chrome flange.

The lights shall be switched at the 12 volt control panel in the cab.

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

SIGTRONICS INTERCOM SYSTEM

Honolulu Fuel Tender
SVI Truck #947
Production Specifications

The following Sigtronics intercom system shall be provided and installed to improve the safety of firefighters and rescue professionals through enhanced communication and hearing protection. System shall have the following major components as minimum;

The mobile 2-way radio shall be interfaced with the intercom via a radio interface cable provided by the HFD Radio Shop. Wiring diagram shall also be provided by contacting Russell Kaneakua of the HFD Radio Shop. Proper wiring provides two-way radio monitoring by all positions and radio transmit functions for the driver, officer and at the rear cabinet. Wires to each headset jack to include a minimum 4" service length to facilitate service. The intercom shall not be interfaced to the broadcast radio and/or Compact Disc player.

Each headset within the cab shall be hung from the ceiling by a headset hook.

The system shall include;

- One (1) each, Sigtronics US-45S four-position intercom system. Intercom serial number
- shall be recorded and included with as-built and warranty documentation.
- Three (3) each, headsets, SE-8.
- Three (3) each, headset jacks, enclosed in blue mounting boxes.
- Three (3) each, push-to-talk buttons, enclosed in blue mounting boxes. There shall be one (1) each, button, for the driver, one (1) each, button for the passenger and one (1) each in the rear cabinet.

There shall be one (1) each, headset jack, for the driver, one (1) each for the passenger and one (1) each in the rear cabinet.

INTERCOM SYSTEM INSTALLATION

The above listed intercom system shall be installed in the cab locations as follows;

Front of Cab

- Driver's – Mounted above the right shoulder position on ceiling.
- Officer's – Mounted above the left shoulder position on ceiling.

Body

- Rear cabinet

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 (4) 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 (4) 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 (2) separate signaling modes during emergency operations. One (1) mode shall signal to drivers and pedestrians that the apparatus is responding to an emergency and is calling for the right-of-way. One (1) 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 (2) 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.

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 LIGHTS

There shall be one (1) Whelen Edge FX2RRR LED 60" lightbar permanently mounted to the cab roof.

The lightbar configuration (streetside to curbside) shall be:

SECTION	INTERNAL COMPONENTS	LENS COLOR
1	Red Rear Facing Linear LED	Clear
2	Red Rear Corner Linear LED	Clear
3	Red Side (DS) Linear LED	Clear
4	Red Front Corner Linear LED	Clear
5	Red Linear LED	Clear
6	Red Linear LED	Clear
7	Clear Linear LED	Clear
8	Opticom 795H	Clear

9	Opticom 795H	Clear
10	Clear Linear LED	Clear
11	Red Linear LED	Clear
12	Red Linear LED	Clear
13	Red Front Corner Linear LED	Clear
14	Red Side (PS) Linear LED	Clear
15	Red Rear Corner Linear LED	Clear
16	Red Rear Facing Linear LED	Clear

All clear lights shall shut down when the parking brake is set to comply with "Blocking" mode requirements as outlined in NFPA 1901.
SHOP NOTES
Add MK8H lightbar mount on Wecad program if there is a brow light on cab

The lightbar shall be separately switched at the 12 volt control panel in the cab and for the Opticom Traffic Emitter.

ZONES B AND D - SIDE WARNING LIGHTS

UPPER REAR CORNER WARNING LIGHTS

There shall be two (2) Whelen 600 series (6" x 4") red Linear Super-LED lights (60R02FRR) provided, one (1) each side. Each light shall have a red lens and chrome flange.

The lights shall be switched at the 12 volt control panel in the cab.

UPPER FORWARD CORNER WARNING LIGHTS

There shall be two (2) Whelen 600 series (6" x 4") red Linear Super-LED lights (60R02FRR) provided, one (1) each side. Each light shall have a red lens and chrome flange.

The lights shall be switched at the 12 volt control panel in the cab.

ZONE C - REAR WARNING LIGHTS

There shall be two (2) Whelen 900 series (9" x 7") Red Linear Super-LED lights (90RR5FRR) provided, one (1) each side. Each light shall have a red lens and chrome flange.

The lights shall be switched at the 12 volt control panel in the cab.

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) Whelen 500 series (5" x 2") TIR6 Super-LED lights (50R03ZRR) provided, one (1) each side. Each light shall have a red lens and chrome finished flange.

The lights shall be switched at the 12 volt control panel in the cab.

ZONES B AND D - CAB INTERSECTOR LIGHT (CAB FRONT CORNERS)

There shall be two (2) Whelen 600 series (6" x 4") red Linear Super-LED lights (60R02FRR) provided, one (1) each side. Each light shall have a red lens and chrome flange.

The lights shall be switched at the 12 volt control panel in the cab.

ZONES B AND D - BODY INTERSECTOR LIGHT (BODY WHEELWELL AREA)

There shall be two (2) Whelen 600 series (6" x 4") red Linear Super-LED lights (60R02FRR) provided, one (1) each side. Each light shall have a red lens and chrome flange.

The lights shall be switched at the 12 volt control panel in the cab.

ZONES B AND D - BODY INTERSECTOR LIGHT (BODY REAR CORNERS)

There shall be two (2) Whelen 500 series (5" x 2") red Linear Super-LED lights (50R02ZRR) provided, one (1) each side. Each light shall have a red lens and chrome flange.

The lights shall be switched at the 12 volt control panel in the cab.

ZONE C - REAR WARNING LIGHTS (LOWER REAR CORNERS)

There shall be two (2) Whelen 600 series (6" x 4") red Linear Super-LED lights (60R02FRR) provided, one (1) each side. Each light shall have a red lens and chrome flange.

The lights shall be switched at the 12 volt control panel in the cab.

EQUIPMENT PAYLOAD WEIGHT ALLOWANCE

Honolulu Fuel Tender
SVI Truck #947
Production Specifications

In compliance with NFPA 1901 standards, the special service vehicle shall be designed for an equipment loading allowance of 6,000 lbs. of Honolulu Fire Department provided equipment based on a 40,001 - 50,000 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) Zico SAC-44-E NFPA approved folding 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, One (1) ahead, and one (1) behind rear wheels, below body on streetside.

– One (1) 15 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, location to be determined by the Honolulu Fire Department.

Fire extinguishers shall be located by the HFD during their final inspection.

– Two (2) 5 lb. ABC dry chemical aluminum fire extinguisher(s) shall be provided with the completed unit.

    - The above specified fire extinguisher(s) shall be installed on the completed unit, location to be determined by the Honolulu Fire Department.

– One (1) 20 lb. ABC dry chemical aluminum fire extinguisher(s) shall be provided with the completed unit.

    - The above specified fire extinguisher(s) shall be installed on the completed unit, location to be determined by the Honolulu Fire Department.

– One (1) Pelican 9410L LED flashlight(s) with shoulder strap shall be provided with 1,131/558 lumen output and 3.75/9 hour run time. Each flashlight shall be yellow in color and have a 12 volt DC charger and vehicle mount kit. The flashlight(s) shall be wired to battery saver.

- One (1) flashlight(s) shall be mounted in cab, on the rear of the center console.

REMAINING NFPA MINOR EQUIPMENT BY PURCHASER

All other minor equipment not specified above, but required by NFPA 1901 for special service vehicles, section 10.5.1 shall be supplied and mounted by Honolulu Fire Department before the unit is placed in emergency service.

Honolulu Fuel Tender
SVI Truck #947
Production Specifications

CLARIFICATIONS AND/OR EXCEPTIONS

Listed below are the clarifications and/or exceptions SVI Trucks is taking to the Honolulu Fire Department's specifications:

Page	Description
3	5. - Min GVWR currently will not reach 44,000 due to Navistar only rating engine up to 37,000 lbs. I am checking with engineering.
7	22. - Tow Hooks provided will be chromed.
13	64. - Trans will provide level to push-button shifter read-out but I do not know of a way to make it activate a signal when the level falls below normal.
13	65. - Transmission cooler will be provided only if Navistar deems it necessary. Typically, no transmission cooler is required when unit employs use of a hydraulic retarder.
5	16. - Specified Northstar batteries will not fit in International factory location. Number of batteries and location to be determined at pre-construction meeting.
16	81. - All wiring harness will be International standard wiring harness and meets all applicable SAE and NFPA standards.
23	96. - Only total of six (6) forward facing lights can be provided with specified Opticom in a 60" light bar.
27	104. - ROM doors do not have stainless steel tracks as option. All door slats and track will be anodized aluminum and painted as specified. Due to the un-reliability of the magnetic switches SVI provides a harsh environment switch inside lower door jamb. If HFD still requires the magnetic switches they can still be provided at no additional cost.

If there are any questions or comments concerning the above items please contact your Regional SVI Trucks Sales Representative Mark Harmer with Harmer Radio and Electronics, Inc. at 808-357-9701 or me at 888-SVI-1112.

SVI TRUCKS

Robert Sorensen
Vice President