FIRST AMENDMENT TO AGREEMENT NO. 29136

29136

THIS FIRST AMENDMENT TO AGREEMENT NO. 29136 is made and entered, in duplicate, as of November 30, 2007 for reference purposes only, pursuant to Resolution No. RES-07-0164 adopted by the City Council of the City of Long Beach at its meeting held on November 20, 2007, by and between SEAGRAVE FIRE APPARATUS, LLC, whose address is 105 East 12th Street, Clintonville, Wisconsin 54929 ("Contractor"), and the CITY OF LONG BEACH, a municipal corporation ("City").

WHEREAS, Section 1802 of the Long Beach City Charter permits the City to make purchases under the purchasing contracts of other governmental agencies when authorized by a resolution; and

WHEREAS, Resolution C-28461 was adopted by the City Council of the City of Long Beach at its meeting held on October 5, 2004 authorizing the City Manager to enter into an agreement to purchase one (1) aerial ladder truck with the option to amend the agreement for the purchase of additional vehicles while the original vehicle is still under warranty; and

WHEREAS, the City entered into Agreement No. 29136 with Seagrave Fire Apparatus, LLC to purchase the aerial ladder truck; and

WHEREAS, Resolution No. RES-07-0164 was adopted by the City Council of the City of Long Beach at its meeting held on November 20, 2007 authorizing the City Manager to amend Agreement No. 29136 for the purchase of additional vehicles;

NOW, THEREFORE, in consideration of the mutual terms and conditions contained in Agreement No. 29136 and this First Amendment, the parties agree as follows:

1. Section 1.b. of Contract No. 29136 is hereby amended in its entirety to read as follows:

"Contractor shall sell, furnish and deliver to the City the vehicle as and when ordered by the City, in accordance with Exhibit "A" and with the options described

OFFICE OF THE CITY ATTORNEY
ROBERT E. SHANNON, City Attorney
333 West Ocean Boulevard, 11th Floor
Long Beach, CA 90802-4664

in Exhibit "B", attached to the Agreement and incorporated therein by reference, not to exceed $611,304.00, plus tax. Contractor shall sell, furnish and deliver to the City the vehicles as and when ordered by the City, in accordance with Exhibit "A" and with the options described in Exhibit "B-1", attached hereto and incorporated herein by reference, not to exceed $1,204,718, plus tax and a 10% contingency for additional equipment if necessary. To the extent that the Ridgefield Park Contract, the Agreement as amended herein, Exhibit "A", Exhibit "B" or Exhibit "B-1" are inconsistent, the following priority shall govern: (1) the Agreement as amended, (2) Exhibit "B", (3) Exhibit "B-1", (4) Exhibit "A", and (5) the Ridgefield Park Contract."

2. Except as expressly amended in this First Amendment, all terms and conditions in Agreement No. 29136 are ratified and confirmed and shall remain in full force and effect.

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333 West Ocean Boulevard, 11th Floor
Long Beach, CA 90802-4664

IN WITNESS WHEREOF, the parties have caused this document to be duly executed with all formalities required by law as of the date first stated above.

SEAGRAVE FIRE APPARATUS, LLC

December 20, 2007 By Mary J Wenzel

Mary J Wenzel
(Type or Print Name)

CFO
(Title)

Dec. 20, 2007 By Nathan Nick

NATHAN NICK
(Type or Print Name)

COO
(Title)

"Contractor"

CITY OF LONG BEACH, a municipal corporation

1/22, 2008 By [illegible]
City Manager

EXECUTED PURSUANT TO SECTION 301 OF THE CITY CHARTER.

"City"

This First Amendment to Agreement No. 29136 is approved as to form on 12/20, 2007.

ROBERT E. SHANNON, City Attorney

By Lauren A Conway
Deputy

OFFICE OF THE CITY ATTORNEY
ROBERT E. SHANNON, City Attorney
333 West Ocean Boulevard, 11th Floor
Long Beach, CA 90802-4664

EXHIBIT "B-1"

California Seagrave
SALES, SERVICE & PARTS
19002 S. Santa Fe / Rancho Dominguez, CA 90221 Phone: 310-637-6752 Fax: 310-637-6753

September 24, 2007

City of Long Beach
Public Works Department
Fleet Services Bureau
2600 Temple Avenue
Long Beach, CA 90806

Attention: John Seevers

Dear Sirs:

This is an offer to sell a tractor drawn aerial truck, previously owned by the Morongo Reservation, for $460,000 plus tax, under the same terms and conditions of City of Long Beach Agreement #29136. The truck was built in 2004 and has mileage of approximately 5500, half of which was incurred driving the unit from the factory to California.

In addition, Seagrave proposes to provide proof of certified load testing of the aerial and ground ladders by a qualified third party, prior to purchase. All applicable warranties would be transferred to the City of Long Beach including engine, transmission, body, frame rails, and paint. Seagrave will perform a complete and thorough mechanical inspection of the unit and correct any deficiencies.

The apparatus will be ready for immediate delivery. Therefore it is Seagrave's desire to expedite this purchase as soon as possible. Please contact me directly for any additional information or questions.

Sincerely,

Arcadio Aguirre
President
California Seagrave

c: David W. Ellis, Fire Chief

California Seagrave
SALES, SERVICE & PARTS
19002 S. Santa Fe / Rancho Dominguez, CA 90221 Phone: 310-637-6752 Fax: 310-637-6753

October 25, 2007

The City of Long Beach Fire Department
Chief David Ellis
925 Harbor Plaza, Suite 100
Long Beach, California 90802-6411

Dear Chief Ellis:

Seagrave Fire Apparatus, LLC and California Seagrave are pleased to present this proposal.

One [1] Seagrave 100' Patriot Aerial Apparatus per the Long Beach Specifications. Delivery can be expected in about 300 days after receipt of the cities signed order. The quoted price is $744,718.00, delivered, plus tax. Any number of identical apparatus on the same purchase order can be purchased for $716,082.00. The same terms and conditions contained in the cities Agreement #29136 shall apply.

The enclosed Long Beach 100' Aerial Specification is what is offered at the above prices. A Preliminary Concept drawing is enclosed.

The loose equipment included in the proposal is an Akron 1495 ladder pipe, stacked tips and a TFT fog nozzle. The communication proposal from 911 Vehicle has been included. A copy of their proposal is included at the end of the Long Beach specification. Any modifications or changes, at the time of delivery, to the required loose equipment or the 911 proposal may be the responsibility of the city.

Please review the Payment Options included in this package. Considerable savings are available by selecting one of the progress options. Example: Selection of Option #1 would reduce the purchase price by approximately $45,000.00, plus the reduction in sales tax on that amount.

Please feel free to contact me with any questions or if any additional information is needed.

Sincerely,

Jim Firth, California Seagrave

Seagrave

PROPOSAL

SEAGRAVE FIRE APPARATUS, LLC

October 25, 2007

The City of Long Beach Fire Department
Chief Dave Ellis
925 Harbor Plaza, Suite 100
Long Beach, California 90802-6411

Gentlemen:

The undersigned is prepared to manufacture for you, upon an order being placed by you for final acceptance by Seagrave Fire Apparatus, LLC at its home office in Clintonville, Wisconsin, the apparatus and equipment herein named and for the following prices:

Seven Hundred forty-four thousand, seven hundred eighteen and 00/100
TOTAL $744,718.00
(State, Federal, FET, or Local Taxes Not Included).

This bid meets the full intent of your published specifications and the said apparatus and equipment are to be built and shipped in accordance with the contractor's specifications hereto attached. Delays due to strikes, war or international conflict, failures to obtain materials, or other causes beyond our control not preventing, within about 300 days after receipt of this order and the acceptance thereof at our office at Clintonville, Wisconsin, and to be delivered to you at the above address.

The specifications herein contained shall form a part of the final contract, and are subject to changes desired by the purchaser, provided such alterations are interlined prior to the acceptance by the company of the offer to purchase, and provided such alterations do not materially affect the cost of the construction of the apparatus.

Unless accepted within 30 days from date, the right is reserved to withdraw this proposition.

SEAGRAVE FIRE APPARATUS, LLC

By _____
Jim Firth, California Seagrave

Seagrave

SEAGRAVE FIRE APPARATUS

AERIAL PAYMENT OPTIONS

1) Discounts can be earned by pre or partial payment with the order.
   - If 100% payment is submitted with the order the annualized rate of 7.50% will be earned on the amount deposited from the date of receipt until the date the unit is ready for shipment from the factory. Multiplier .0002055.
   - If 50% payment is submitted with the order the annualized rate of 6.00% will be earned on the amount deposited from the date of receipt until the date the unit is ready for shipment from the factory. Multiplier .0001644.
   - If 25% payment is submitted with the order the annualized rate of 5.00% will be earned on the amount deposited from the date of receipt until the date the unit is ready for shipment from the factory. Multiplier .0001369.

   Note: Performance Bond, if required, costs $8.00 per thousand dollars of the total contract.

2) No discounts – Payment upon delivery

All discounts will be deducted from the final invoicing.

10/2007

QUOTATION

California Seagrave

Long Beach Fire Department

California Seagrave

Exp. Date: 11/25/2007
Quote No: 10018-0025

10/25/2007

PART NO	DESCRIPTION	QTY	ID
	Seagrave MATRIX Master Data Version - 073007	1	SGX
00-00-0500	Introduction - Seagrave	1	SGX
00-00-5000	Purchaser Responsibility	1	SGX
00-02-1000	Performance Test and Requirements	1	SGX
00-02-1200	Aerial Test and Certification	1	SGX
00-02-2105	Pre-Construction Conference - Proposal	3	SGX
00-02-2135	In-Process Inspection - Proposal	1	SGX
00-02-2165	Final Inspection - Proposal	4	SGX
00-02-2500	Final Delivery & Familiarization - Aerials	1	SGX
00-02-3000	General Construction Requirements	1	SGX
00-02-5905	Proposal Drawings - Proposal	1	SGX
00-02-6000	Approval Drawings	1	SGX
10-00-7800	Marauder II S/S Tilt Cab - 100' 250#, Aerial/Tractor	1	SGX
10-00-9600	Wheelbase	1	SGX
10-00-9700	Seating Capacity	6	SGX
10-10-1000	Frame - 10.25" Straight Rail, 1.968m RBM	1	SGX
10-11-0000	Bumper - 10" High, S/S, Wrap-Around	1	SGX
10-11-0900	Bumper Extension - 11", w/3/16" ATP Gravelshield	1	SGX
10-20-0100	Tow Hooks - Painted, Front, Below Bumper	1	SGX
10-20-0550	Tow Eyes - Cut Plate, Chrome, Front, Thru Pan	1	SGX
10-25-0100	Steering Gear Box - Ross TAS-85	1	SGX
10-25-1300	Auxiliary Cylinder - Power Steering	1	SGX
10-28-0300	Air System - Chassis (TDA)	1	SGX
10-28-3810	Air Dryer - BW AD 9	1	SGX
10-28-4900	Aux Air Outlet - Schrader Coupler, Shutoff Valve	2	SGX
10-28-5600	Aux Air Inlet - Air Reservoir Charging	1	SGX
10-30-0200	Driveline - Spicer 1810	1	SGX
11-00-4000	Front Axle - MFS, 22K w/Disc Brakes / Spring Suspension	1	SGX
11-00-9000	Park Brake - Frt Axle, Auxiliary, Air Applied (Aerials)	1	SGX
11-10-0500	Rear Axle - RC-23-160, w/16-1/2"x10" S-Cam Brakes, 24,000#	1	SGX
11-10-9999	Top Road Speed Requirement	1	SGX
11-20-2700	Anti-Lock Brakes (ABS) - TDA	1	SGX
11-30-3100	Rear Susp. - Semi-Elliptical Spring, 3"x52", Single, 24,000#	1	SGX
12-15-1250	Frt Tires - MI/385/65R22.5/XFE/Reg 10,000# (Ea)	2	SGX
12-16-0900	Rear Tires - MI/11R22.5/XZE/Reg 6,205# (Ea)	4	SGX
12-50-0500	Wheels - Alum. Disc, Polished, Hub Piloted SA	1	SGX
12-80-0100	Hub Caps - (2) S/S, "Baby Moon", Front Axle	2	SGX
12-90-0200	Hub Caps - (2) S/S, "High Hat", Rear Axle	1	SGX
13-00-2470	Engine - Detroit Diesel S60, 490 HP, 1550 ft. lb., 14 L	1	SGX
13-00-5899	Diagnostic Switch Guards	1	
13-00-7000	EPQ Certification	1	SGX
13-00-7500	Fan Clutch	1	SGX
13-01-2100	Silicone Hoses - Coolant/Heater	1	SGX
13-03-1200	Transmission - Allison, 4000-EVS	1	SGX
13-03-2000	Transmission Fluid - Transynd (IPOS)	1	SGX
13-03-3000	Transmission Programming - 5th On Mode	1	SGX

PART NO	DESCRIPTION	QTY	ID
13-03-4000	Transmission Shift Control - Touch Pad	1	SGX
13-08-0500	Fuel Tank - 50 Gallon, Steel, Rear Mt, w/S/S Straps	1	SGX
13-08-5800	Fuel/H2O Separator - Racor B32000 Series	1	SGX
13-10-0400	Alternator - Leece Neville, 320 Amp	1	SGX
13-11-0200	Air Compressor - B/W, #BA921, 16 CFM	1	SGX
13-12-0600	Air Cleaner and Ember Separator	1	SGX
13-12-5500	Air Restrict Indicator - Information Display Center	1	SGX
13-13-0100	Exhaust - 5", Horizontal, RH Side	1	SGX
13-13-0800	Tailpipe - Nederman, Extended for Exh. Evac. System	1	SGX
13-13-1000	Tail Pipe Deflector - Chrome Plated	1	SGX
13-13-1100	Tail Pipe Heat Shield	1	SGX
13-13-1200	Exhaust Pipe - Insulated, Under Hood, Permanent	1	SGX
13-15-0200	Engine Brake - Jacobs, Detroit Diesel Series 60	1	SGX
13-15-3200	Heater - Engine, 1000 Watt	1	SGX
13-15-4100	Fast Idle - Switched on Dash	1	SGX
13-15-5000	Nameplate - Lubrication Capacity	1	SGX
18-00-0100	Chassis - Trailer, 100 Ft, TDA	1	SGX
18-02-0100	Fifth Wheel - TDA	1	SGX
18-03-0100	Trailer/Tiller Axle - TDA,100', w/Auto Slacks	1	SGX
18-05-0200	Tiller Suspension - Air, Ridewell 227, w/Air Reservoir, TDA	1	SGX
18-07-0100	Tiller Brakes - w/Air Reservoir	1	SGX
18-07-1000	Trailer Brake Piping - Nylon	1	SGX
18-12-2100	Tiller Tire/Wheel - MI/425/65R22.5/XFE/On/Off, 11,400#(Ea)	2	SGX
18-15-0200	Tow Eyes - Chrome Plated (TDA)	1	SGX
20-00-6600	Cab - S/S, Full Tilt, 130" (SF)	1	SGX
20-00-7400	Cab Roof - Flat	1	SGX
20-00-8600	Doors - Barrier Style, 130" Cab	1	SGX
20-00-9600	Doors - Cab, Side Access, 37" High	1	SGX
20-00-9640	Scuff Strip - Cab Side Acc. Door Sill, Brushed S/S	1	SGX
20-01-5000	Side Air Inlet Grille - Hi-Polished	1	SGX
20-05-1600	Fenderettes - Front, S/S, Polished	1	SGX
20-07-0300	Mud Flaps - Front, Rear, and Tiller	1	SGX
20-10-0400	Mirrors - Velvac #708022, Flat, 7x16, No Convex	1	SGX
20-10-2500	Mirrors - (Pr) 6" Dia., Bolt on, Convex, Spot	1	SGX
20-12-0300	Windshield - Tinted, w/Intermittant Wipers	1	SGX
20-12-2200	Door Glass - Tinted	1	SGX
20-14-1400	Glass - Crew Cab, Sliding, Tinted	1	SGX
20-14-4900	Windows - (2) Rear of Cab 10.5" x 15.6" (Level & 8"RR)	1	SGX
20-16-0100	Cab Trim - Exterior Molding	1	SGX
20-20-1000	Crash Test Report - Chassis and Cab	1	SGX
20-25-0800	Headliner - Padded, Acoustical	1	SGX
20-25-1000	Engine Enclosure	1	SGX
20-25-1200	Accessory Mounting Surface on Tunnel Cover	1	SGX
20-25-3000	Steering Wheel - Tilt/Telescoping	1	SGX
20-25-4000	Linex - Cab Dash	1	SGX
20-25-4400	ATP - Cab Floor, Over Insulated Mat, Tilt Only	1	SGX
20-25-5000	Sun Visors - (2) Vinyl, Padded	1	SGX
20-25-8000	Sign - Vehicle Dimension & Weight	1	SGX
20-26-1800	Power Studs - Overhead Switch Panel, (4) Stud Switched	1	SGX
20-26-1900	Power Studs - Cab Dash Area, (4) Stud Switched	1	SGX
20-50-5200	Inner Cab Door Panels - S/S, Brushed	1	SGX
21-00-2900	Seat - Driver's, Bostrom, Sierra, Air Reclining	1	SGX
21-00-4300	Seat - Officer's, Bostrom, Tanker 450, Air SCBA	1	SGX
21-07-0200	Seat Riser - w/ Compartment, 7.00" High	1	SGX
21-07-0300	Seat Riser - w/ Compartment, 5.00" High	1	SGX
21-11-5900	Seat - (2) Outboard, Rr Facing, Bostrom, Tanker 450 SCBA	1	SGX
21-11-7000	Seat - (2) Outboard, Fwd Facing, Flip-up	1	SGX
21-12-7100	Cavity Covers - Bostrom, 400 Series Seats	3	SGX
21-12-7300	Upholstery - Seat, Vinyl, Gray	1	SGX
21-13-1400	Interior Decor - Gray	1	SGX
21-13-2500	Sign - Seating Capacity	1	SGX

PART NO	DESCRIPTION	QTY	ID
21-23-0700	Heater/Defroster - Forward Cab, 46,000 BTU	1	SGX
21-23-0900	Manual Shutoff Valve - Heater Return	1	SGX
21-23-3800	Air Conditioner - 68,000 BTU Total	1	SGX
21-23-5000	Defroster Fan (Ea)	2	SGX
21-26-1200	Grab Rail - Additional, 8", Knurled (Ea)	4	SGX
21-26-1500	Knurled Cab Handrails & Grab Handles	2	SGX
22-00-0600	Cab Dash and Instruments (Marauder II)	1	SGX
22-00-1500	Information Center - LCD (Marauder II)	1	SGX
22-01-0600	Ammeter (IATS)	1	SGX
22-03-1300	Power Receptacle and Plug - 12 Volt	2	SGX
22-10-0700	Batteries - (6) 12V, 950 CCA	1	SGX
22-10-5200	Jumper Cable Studs - Under Driver's Side Battery Box	1	SGX
22-11-0600	Battery Boxes - S/S, (1) Each Side	1	SGX
22-11-5100	Battery Mats - Non-Corrosive	1	SGX
22-15-1400	Battery Selector Switch - Blue Sea 350 Amp	1	SGX
22-15-3800	Battery Charger - Kussmaul, Autocharge 1000, Single	1	SGX
22-15-5000	Battery Charger Cover	1	SGX
22-15-5300	Shore Power Plug - 110 Volt	1	SGX
22-20-0500	Electrical Wiring - 12V (MII)	1	SGX
23-00-0800	Marker/Clearance Lights - LED, w/Reflectors	1	SGX
23-00-0900	Side Turn/Marker Lights - Amber LED (Req. over 30' OAL)	1	SGX
23-00-1100	License Plate Bracket and Light	1	SGX
23-00-2700	Headlights - Quad, Rectangular, Halogen	1	SGX
23-00-3300	Headlights - Alternating, Flashing	1	SGX
23-00-5000	Driving Lights - Tiller, Trucklite #80396	1	SGX
23-01-0300	Rear Spot/Floodlights - (2) Collins #FX-12	1	SGX
23-01-5000	Spotlight - Collins #FX-12 (Ea)	2	SGX
23-02-1100	Frt Direct Lts - Opt.#11, Whelen600 LED,Ambr Arrw w/Dl Lt Bz	1	SGX
23-02-9000	Cab Side Direct Lights - Weldon, "Bug Eye"	1	SGX
23-03-1100	Stop/Turn/Backup - Whelen 600, LED (Opt. #11)	1	SGX
23-10-0600	Step Lights - (4) Cab & Add'l Worklights (TDA'S)	1	SGX
23-10-1060	Work Lights - (2) Engine Compartment, w/Switch	1	SGX
23-10-1A00	Ground Lights - (4) Cab & (4) Body, LED	1	SGX
23-11-1000	Cab Dome Lights - (4) Red/Clear, (1) White	1	SGX
23-11-2100	Map Light - Flex Neck W/Switch Sunnex #741-20	1	SGX
23-11-2700	Door Switches - Dome Lights, Automatic	1	SGX
23-25-0100	Compartment Lights - 5" Dia. Moonstone, (1) Per Compt.	1	SGX
23-25-1020	Compt Door Light - Recessed, Single Vert Hinged Door (Ea)	2	SGX
23-25-1200	Hazard Warning Light - Red, Flashing, Trucklite	1	SGX
24-02-2000	Lightbar - Whelen #FN72VLED, 72", LED	1	SGX
24-02-4300	Warning Light - Whelen Super-LED, Red & Amber (Ea.)	4	SGX
24-02-4400	Warning Light - Whelen #70R02FRR, Super-LED, Red (Ea.)	10	SGX
24-02-7800	Warning Light - (2) Whelen #B6TMR1P, LED, Red Beacons	1	SGX
24-03-1000	Flasher (Required with Halogen Warning Lights) (MII)	3	SGX
24-90-1500	Load Manager Sequencer - Class 1 Total System (MII)	1	SGX
25-01-0100	Backup Alarm - Preco #LDA-50, 97DBA	1	SGX
25-16-1000	Tiller to Cab Buzzer - w/Button, Each Location	1	SGX
26-00-1100	Air Horn - Single, Grover, w/Selector Switch	1	SGX
26-00-3500	Foot Switch - For Tiller Driving Lights, Tiller Cab	1	SGX
26-10-7000	Electronic Siren - Unitrol TM-4, Overhead Console Mnt	1	SGX
26-10-9000	Mounting Bracket - Swivel	1	SGX
26-11-1100	Siren Speaker - Whelen #SA-340STS, 100 Watt	1	SGX
26-12-0300	Foot Switch - Electronic Siren	2	SGX
26-15-5500	Mechanical Siren - Q2B, w/2 Foot Switches, Recessed in Bumpr	1	SGX
27-00-0030	Hydraulic Generators - Seagrave Stick Aerials	1	SGX
27-00-4000	Hydraulic Generator - Onan 10.0 KW, Model #10CMHG	1	SGX
27-02-0400	Rem Gen Start - w/Run Light, @Breaker Box (Generator)	1	SGX
27-05-0400	Load Center - Up To Twenty Circuits	1	SGX
27-05-1100	Receptacle - Weatherproof, Twist Lock (Each)	4	SGX
27-05-3100	Cord Reel - ECR 1616-17-18	2	SGX
27-05-4400	10/3 Cord Reel Cable - Per 200 foot length	2	SGX

PART NO	DESCRIPTION	QTY	ID
27-05-5100	Cable Stop	2	SGX
27-05-5800	Junction Box - Extenda-Lite, w/Mtg. Box, L5-15R Recept.	2	SGX
27-22-0400	Floodlight - FRC, 1000W, w/Telescoping Pole (Ea)	2	SGX
27-22-5100	Floodlight - FRC, 1000W, Focus #FCA530-M10, Teles. (Ea)	4	SGX
27-22-5500	Floodlight - FRC, 1000W, Focus #FCA570 CA-M10 - Fixed (Ea)	2	SGX
27-40-0300	Remote Floodlight Switches on Cab Dash (Ea)	2	SGX
42-25-1100	Rear Tractor Fenders - W/ S/S Fenderettes (TDA)	1	SGX
44-00-0200	Running Boards - 3/16" ATP	1	SGX
44-05-0100	Tool Box - TDA100, w/o Waterway	1	SGX
44-10-0200	Compartment - Tractor, F/Center Mounted Generator (A1)	1	SGX
44-10-2000	Ladder Pipe Hose Compartment (A3)	1	SGX
44-10-3100	Side Apron Compartment (A5)	1	SGX
44-20-0200	Tiller Cab - 100 Ft. Trailer, S/S	1	SGX
44-20-0600	Tiller Steering Wheel - Tilt, Telescoping	1	SGX
44-20-1900	1/8" ATP On Tiller Cab Roof	1	SGX
44-20-4000	Tiller Seat - Sierra FX (H.O. Bostrom)	1	SGX
44-20-5200	Windows - Side, Sliding Glass, In Tiller Cab IPOS	1	SGX
44-20-7000	Tiller Mirror - Velvac 708192-5 Flat 6.5" x 10"	1	SGX
44-20-7099	Tiller Mirror - Convex - 12"	2	
44-20-8000	Tiller Handrail - Knurled Aluminum, 40"	1	SGX
44-25-0200	Tiller Heater - 7000 BTU, Diesel, TDA	1	SGX
44-30-0100	Body Construction - Trailer, S/S, TDA	1	SGX
44-31-0700	Std. Comp'ts - TDA100, Hinged Doors, W/O Waterway (Opt 7)	1	SGX
44-31-5100	B1 Trailer Compartments TDA100	1	SGX
44-31-5200	B8 Trailer Compartment TDA100	1	SGX
44-31-5300	Gooseneck Compartment - RH Side	1	
44-31-5400	B10 Comp't TDA100(Air Bottles in Fenders)	1	SGX
44-31-5499	Trailer Compartment	1	
44-35-0100	Louvers - Interior Compartment	1	SGX
44-37-0100	Transverse [side to side] Rollout Tray	2	SGX
44-39-1100	3/16" ATP Deck Over Ground Ladders TDA	1	SGX
44-40-0300	Compartment Doors - Standard	1	SGX
44-40-1040	Keyed Locks - Hinged Compartment Doors (Ea)	1	SGX
44-40-1050	No Pull Chain Latch - F/Free Door of Double Door Comp't (Std	1	SGX
44-45-0300	Trailer Fenders w/ S.S. Fenderettes TDA100	1	SGX
44-50-0200	Rear Step 3/16" Alum	1	SGX
44-55-0100	Tiller Access Ladder Curb Side TDA100 STD	1	SGX
44-55-0300	Additional Access Ladder F/Tiller Cab(TDA100)	1	SGX
44-60-0100	Tiller Cab Handrails	1	SGX
59-15-0200	Adjustable Shelves - Open Corner, S/S (Ea)	5	SGX
59-16-0099	Full Width Adjustable Shelf	1	
59-17-1700	Rollout Tray - In Compartment, 500#, S/S (Ea)	1	SGX
59-20-0300	Scuff Strip - S/S, Brushed, Compt Door Sill (All)	1	SGX
59-20-0500	Scuffplates - Inside Compt Door, S/S, Brushed, Lwr Drs (Ea)	6	SGX
59-20-0600	Scuffplates - Inside Compt Door, S/S, Brushed, F/H Drs (Ea)	16	SGX
59-20-4200	Rub Rails - S/S, Brushed (Aerial)	1	SGX
91-01-5300	Adjustable Shelf Finish - DA (Ea.)	5	SGX
91-01-6300	Rollout Tray Finish - DA (Ea.)	1	SGX
60-00-0100	Aerial Hydraulics System	1	SGX
60-05-0100	"Hot Shift" PTO - Aerials	1	SGX
60-10-0100	Emergency Pump	1	SGX
60-12-0100	Hydraulic Swivel (All)	1	SGX
60-20-0100	Hoist System (75', 100' & 100HD)	1	SGX
60-25-0600	Extension-Retraction System (100' & 100HD)	1	SGX
60-30-0100	Rotation System (75', 100' & 100HD)	1	SGX
60-30-5030	Rotation Interlock System - TDA	1	SGX
60-32-0100	Turntable (75, 100 & 100HD Aerials)	1	SGX
60-50-1500	Outriggers (250# TDA 100) N/A With Waterway	1	SGX
60-55-1600	Outrigger Controls 250# (TDA)	1	SGX
60-60-0100	Outrigger Alarm	1	SGX
60-65-0300	Outrigger Lighting (250# TDA 100)	1	SGX

PART NO	DESCRIPTION	QTY	ID
60-70-0100	Auxiliary Outrigger Pads (250#TDA100 & D/RA 75-100)	1	SGX
61-00-0100	Aerial Ladder Design Standards	1	SGX
61-05-0600	Aerial Ladder Construction (100'/250#)	1	SGX
61-06-0100	Aerial Ladder Slides	1	SGX
61-10-0100	Folding Steps - Tip of Ladder	1	SGX
61-12-0500	Detachable Aerial Lifting Device - Dual, 1/2" Pulley	1	SGX
61-15-0100	Aerial Travel Support	1	SGX
61-25-0100	Aerial Control Console (100' 250#/75' 500#)	1	SGX
61-25-3000	Remote Eng. Start Button - On Aerial Control Console	1	SGX
61-25-3500	Push Button Switch For Air Horns - On Aerial Pedestal	1	SGX
61-25-5100	Hinged Alum Cover - Control Pedestal (ALL)	1	SGX
61-50-0200	Aerial Spotlights - 2 Base & 1 Fly (ALL AERIALS)	1	SGX
61-50-1700	Collins FX-12 Lights IPO Unity on Aerial (Ea)	3	SGX
61-50-1799	FCA Focus S-75	1	
61-54-1400	110 Volt Wiring To Fly (100' Patriot)	1	SGX
61-54-2500	Weatherproof Twist Lock Receptacle (Each)	1	SGX
61-55-1000	Intercom - Fire Research (Aerials & TDA)	1	SGX
61-58-0100	Load Alarm	1	SGX
61-60-0200	Ladder Cradle Interlock System - 250# TDA, A-Frame Outriggrs	1	SGX
61-63-0300	Electric Swivel - 24 Circuit (w/Waterway)	1	SGX
61-64-1202	Intercom System - Aerial, 2-Station, Fire Research ICA700	1	SGX
61-75-2300	6' Nupla Rubbish Hook - Fiberglass Handle, Mounted On Fly	1	SGX
61-75-5100	Ladder Signs - 1 Ea Side, Does Not Inc. Lettering	1	SGX
61-90-0000	Aerial Capacities	1	SGX
61-95-0100	Inspection Certificate	1	SGX
90-00-0150	Ground Ladders - TDA	1	SGX
90-01-9000	Ground Ladder - Vertically Mounted (TDA)	1	SGX
90-01-9400	Ladder Hold Down - Cam Type, F/Ground Ladders (IPOS)	1	SGX
90-05-0500	Pike Poles and Misc. Equipment (Aerial)	1	SGX
90-05-2300	Pike Pole - 8' Duo-Safety w/ Hollow Fiberglass Handle	2	SGX
90-05-2400	Pike Pole - 10' Duo-Safety w/ Hollow Fiberglass Handle	2	SGX
90-05-2500	Pike Pole - 12' Duo-Safety w/ Hollow Fiberglass Handle	1	SGX
90-05-2600	Pike Pole - 16' Duo-Safety w/ Hollow Fiberglass Handle	1	SGX
90-21-0400	Wheel Chocks - (4) Zico Folding Alum. (Aerial)	1	SGX
91-00-1500	Paint - Prep & Finish (Aerials)	1	SGX
91-00-2600	Paint - Prep & Finish	1	SGX
91-00-3000	Paint - Clear Coat Paint Finish (Exterior)	1	SGX
91-00-4700	Paint - Frame & Undercarriage Finish (TDA's)	1	SGX
91-00-5000	Paint - Cab Interior, Gray Zolatone Paint	1	SGX
91-00-5400	Paint - Cab Interior, Clear Coat (Full Cabs)	1	SGX
91-00-5900	Paint - Cab Exterior, One Color	1	SGX
91-00-7000	Paint - Tiller Cab Interior, Gray Zolatone Paint	1	SGX
91-00-7280	Paint - Tiller Cab Exterior, One Color	1	SGX
91-00-A110	Cab Decorative Trim Molding - 5G radius	1	SGX
91-01-1000	Paint - Compartment Interior, Gray Zolatone Paint	1	SGX
91-01-1300	Paint - Compartment Interior, Clearcoat (TDA)	1	SGX
91-02-1000	Paint - Body Exterior, Single Color	1	SGX
91-02-5100	Paint - Outriggers, Silver Blue Metallic	1	SGX
91-02-6000	Paint - Ladder & Components, White	1	SGX
91-02-7300	Paint - Torque Box/Ladder Stakes, Job Color	1	SGX
91-02-8000	Paint - Aerial Ladder, White Polyurethane	1	SGX
91-03-0000	Delete Reflective Striping (DFI)	1	SGX
91-50-0100	Warranty - Seagrave, Entire Unit, 1 Year Parts & Labor	1	SGX
91-50-0200	Warranty - Seagrave, Cab, 10 Year Structural	1	SGX
91-50-0300	Warranty - Seagrave, Body, 10 Year Structural	1	SGX
91-50-0400	Warranty - Seagrave, Aerial, 20 Year Structural	1	SGX
91-50-0500	Warranty - Seagrave, Chassis Frame Rail, Lifetime Structural	1	SGX
91-50-0600	Warranty - Seagrave, Paint & Corrosion	1	SGX
91-50-5000	Operation & Maintenance Manuals w/Schematics - CD	2	SGX
91-50-5100	Parts Manuals - CD	2	SGX
94-00-2100	NFPA and Loose Equipment	1	

PART NO	DESCRIPTION	QTY	ID
94-00-3100	Dealer Preparation and Delivery	1	
94-00-1100	Lettering and Striping	1	DLR

Long Beach Fire Department

00-00-0500

SEAGRAVE FIRE APPARATUS SPECIFICATIONS INTRODUCTION

The selection of fire apparatus is one of the most important decisions by officials of any municipality or fire department today.

Fire apparatus is emergency equipment used for the protection of life and property in your community and it is expected to last for many years.

Emergency apparatus is subject to the most vigorous types of operations and must be kept in service around the clock. You must be assured that parts and service will be available for the life of the apparatus.

Municipalities are vitally concerned with the quality of fire fighting apparatus, its components and the dependability of the company producing the equipment.

Seagrave Fire Apparatus meets all of these requirements with excellence. Your Seagrave apparatus is produced in one of the most modern fire apparatus manufacturing facilities in the country at Clintonville, Wisconsin. The machine shops, sheet metal shops, assembly and painting departments are operated by men and women trained to Seagrave's industry-leading quality standards and supervised by experienced personnel who insist on meeting and exceeding those standards.

Engineering at Seagrave is one of our most important assets. Our Engineering staff is made up of highly trained and experienced personnel dedicated to the research, design and building of fire apparatus. Seagrave uses only the highest quality automotive components. Every part is carefully selected for its particular function and is fully engineered into the total fire fighting unit.

Seagrave, "the greatest name in fire apparatus", has been in continuous operation since 1881 and has given the U.S. Fire Service many firsts through our engineering:

First spring aerial hoist
First centrifugal pump
First enclosed pumping unit
First automatic pressure regulator
First all steel aerial ladder
First 100% hydraulic aerial ladder hoist
First safety steel canopy cab
First 3 boom aerial platform in U.S.
And many others . . . . .

Seagrave's Triton centrifugal pumps, with its bulletproof reliability and industry-leading seven year warranty, are standard on our apparatus. Waterous or Hale centrifugal pumps are also available. Seagrave straight stick ladder trucks feature our own 100% all steel ladder.

It is with great pride that Seagrave offers the widest variety of fire apparatus available to meet the ever-changing challenges facing the Fire Service today. From our country's wilderness and urban interface, through our nation's rural heartland, and in the world's largest cities, Seagrave is proud to be the industry's undisputed leader in quality fire apparatus for over 125 years.

We trust you will favorably consider our proposal. Your confidence will be rewarded by the highest quality apparatus and excellent Seagrave service throughout its long life.

00-00-5000

PURCHASER RESPONSIBILITY

It shall be the responsibility of the purchaser to specify the following details of the apparatus:

- Its required performance, including where operations at elevations 2000 ft. (600 m) or on grades greater than 6 percent are required.

- The maximum number of fire fighters to ride within the apparatus

- Specific electrical loads that are to be part of the minimum continuous electrical load defined in 13.3.3 of NFPA 2003.

- Any hose, ground ladders, or equipment to be carried by the apparatus that exceed the minimum requirements of this standard

00-02-1000

PERFORMANCE TEST AND REQUIREMENTS

A road test shall be conducted with the apparatus loaded per NFPA recommendations (unless otherwise specified) and a continuous run of ten (10) miles or more shall be made during which time the apparatus shall show no loss of power or overheating. The transmission drive shaft or shafts and rear axles shall run quietly and be free from abnormal vibration or noise throughout the operating range of the apparatus. The apparatus when loaded shall have not less than 25% nor more than 45% of the weight on the front axle and not less than 55% nor more than 75% on the rear axle. The successful bidder shall furnish a weight certificate showing weights on front axle, rear axle and total weight for the completed apparatus at time of delivery, with water tank full, but without personnel, equipment and hose.

A. The apparatus must be capable of accelerating to 35 mph from a standing start within 25 seconds on a level concrete highway without exceeding the maximum governed rpm of the engine.

B. The fully loaded vehicle shall be capable of obtaining a speed of 50 mph on a level concrete highway with the engine not exceeding its governed rpm (full load).

C. The apparatus shall be able to maintain a speed of 20 mph on any grade up to and including 6%.

D. The service brakes shall be capable of stopping the fully loaded vehicle in 35 feet at 20 mph on a level concrete highway.

E. The apparatus shall be tested and approved in accordance with NFPA standard practices.

00-02-1200

AERIAL TEST AND CERTIFICATION - (STD)

The aerial device shall be third party tested at the manufacturer's facility and shall conform to NFPA requirements and standards.

00-02-2105

PRE-CONSTRUCTION CONFERENCE

A pre-construction conference shall be held at the Seagrave factory in Clintonville, WI. The conference shall be scheduled during normal business hours, Monday - Friday. All expenses for

transportation, meals and lodging for *three [3]* representatives of the purchaser shall be included in the bid price. A dealer representative shall accompany the purchaser on the trip. The conference shall be held prior to the commencement of any work being done on the apparatus. Factory sales and engineering personnel shall participate in the conference to ensure that the apparatus fulfills the requirements of the accepted offer. Authorized representatives from both the purchaser and manufacturer shall approve and sign any changes made during these meetings prior to the commencement of any work being done on the apparatus.

00-02-2135

IN-PROCESS INSPECTION TRIP

One (1) "In-Process" inspection trip for *one [1]* representatives of the purchaser shall be included in the bid. The inspection shall take place at the Seagrave factory in Clintonville, WI, during normal business hours, Monday - Friday. The cost of transportation, meals and lodging shall be included. A dealer representative shall accompany the purchaser on the inspection trip.

00-02-2165

FINAL INSPECTION TRIP

One (1) final inspection trip for *four [4]* representatives of the purchaser shall be included in the bid. The inspection shall take place at the Seagrave factory in Clintonville, WI, during normal business hours, Monday - Friday. The cost of transportation, meals and lodging shall be included. A dealer representative shall accompany the purchaser on the inspection trip.

00-02-2500

DELIVERY

The fire apparatus shall be delivered over the road and under its own power to insure proper break-in of all driving components while still under warranty. Rail or truck freight shipment of the apparatus is not acceptable.

An experienced and qualified dealer representative shall familiarize Fire Department personnel (as designated by the authority in charge) in the proper operation, care and maintenance of the apparatus delivered.

The representative must be a qualified agent of the local dealer or a direct employee of the manufacturer of the apparatus in the event of a direct (factory) transaction.

A factory field service technician shall provide instruction to the fire department. The familiarization period shall consist of three (3) daytime sessions over a period of three (3) days during the normal work week (Monday - Friday). The number, length and time of the sessions may vary due to the nature of the apparatus and availability of attendees and must be approved by the factory in advance. Evening sessions may be arranged in advance with the Seagrave Fire Apparatus Service Department under special circumstances. Due to scheduling, advance notice must be received in writing at least three (3) weeks prior to shipment or date of instruction and will be considered on a first come, first serve basis. The balance of any time remaining in a session may be devoted to minor adjustments or repairs to the apparatus, which may have developed while in transit from the factory.

00-02-3000

GENERAL CONSTRUCTION

The apparatus shall be designed and the equipment mounted with due consideration to distribution of load between the front and rear axles so that all specified equipment, including a filled water tank, full complement of personnel and fire hose shall be carried without damage to

the apparatus. Weight balance and distribution shall be in accordance with the recommendations of the National Fire Protection Association and current standard automotive practices.

00-02-5905

PROPOSAL DRAWINGS

Full size, blueprint type drawings of the apparatus being proposed shall be submitted with the bid package. These drawings shall be drawn to scale on a CAD system to assure an accurate and professional drawing. The drawings shall show five (5) views of the vehicle (front, rear, both sides and top). The drawings shall show the overall dimensions of the apparatus, proposed compartment sizes and features, booster tank position and the location of all emergency warning equipment, worklights and other major items that are to be provided on the apparatus.

00-02-6000

APPROVAL DRAWINGS

Two (2) sets of engineering blueprints, specifically for this apparatus, shall be provided by the manufacturer and be approved by the fire department before construction begins. Both the fire department and the manufacturer's representative shall have a copy of this drawing. It shall become part of the total contract. These drawings shall be drawn to scale on a CAD system to assure an accurate and professional drawing. The drawing shall show five (5) views of the vehicle (front, rear, both sides and top). The blueprints shall show the overall dimensions of the apparatus, proposed compartment sizes and features, booster tank position and the location of all emergency warning and worklights that are to be provided on the apparatus.

10-00-7800

GENERAL

Chassis shall be a new, heavy-duty, custom fire apparatus design built expressly for the fire service. All standard components that have not been specified shall be provided.

Chassis shall be designed, engineered and built by the bidder and be the manufacturer's first line custom chassis.

The chassis shall be suitable for heavy duty service with all components having adequate strength and capacity for the intended load to be sustained and the type of service required.

10-00-9600

WHEELBASE

The wheelbase shall be: [*144.50"* inches]. *Reference previous Long Beach TDA #76366. Maximum OAL to be 661.13"with tiller doors closed, 675.00" with the tiller doors open.* ***Absolute MAXIMUM OAL with tiller doors open is 56-1/2' or 678.00".***

10-00-9700

SEATING CAPACITY

The safe seating capacity of the cab for properly belted passengers shall be *six [6].*

10-10-1000

FRAME

The chassis frame shall be built with two steel channels with a minimum of five (5) crossmembers. Pump shall not be counted as a crossmember. The side rails shall be of heat

treated steel measuring 10-1/4" x 3-1/2" x 3/8". Each rail shall have a section modulus of 16.4, a minimum elastic limit of 120,000 PSI and a minimum resisting bending moment of 1,968,000 inch pounds. The frame and cross members shall be a bolted assembly utilizing 5/8" flange head grade eight bolts and Spiralock flange nuts. Spiralock nuts shall be used exclusively in the frame assembly for mounting spring hangers, steering gear, engine, transmission, etc. because of their ability to maintain a constant torque tension and prevent vibration loosening. Their design shall provide for an even thread load distribution over the bolt, increased fatigue strength and life, and clamping torque. All holes made must be used and any holes in the frame for options not required on this chassis are not acceptable. The frame rails shall be primed with a polyester powder coating. The frame rails shall have a **lifetime warranty** against cracks or failure, excluding accident or abuse.

10-11-0000

BUMPER

A heavy duty, 10" high, ribbed, highly polished stainless steel bumper shall be mounted to the front of the chassis. A 1/4" thick by 9-3/8" high formed channel with 3" flanges shall be provided directly behind the full width of the flat portion of the bumper. It shall be a modular assembly of three (3) pieces bolted together. The chassis frame shall extend past the front of the cab and the upper part shall be "notched" to allow for the installation of the gravel pan. This bumper frame extension support shall be reinforced by an angle (minimum 5-1/4" x 3-1/2 x 3/8") welded to the bottom. A 3/16" aluminum treadplate gravel pan (deck) contoured to fit just below the front face of the cab and just below the upper bumper flange shall be provided. Sides (between bumper and cab corners) of the deck shall be boxed in. Pan shall not be fastened to the top flange of the bumper.

10-11-0900

11" BUMPER EXTENSION

A 11" bumper extension shall installed at the front of the cab. The front of the bumper shall be approximately 11" from the front face of the cab. The walkway surface shall be made of 3/16" treadplate and shall be boxed in on each side with aluminum treadplate. The bumper extension shall be securely attached to the chassis frame.

10-20-0100

FRONT TOW HOOKS

Two (2) painted tow hooks shall be furnished below the bumper securely attached to the bumper support.

10-20-0550

FRONT TOW EYES

Two (2) chrome plated "cut plate" type tow eyes shall be furnished. They shall be installed through the top of the aluminum treadplate "gravel" pan, directly behind bumper, and securely attached (bolted) to the bumper extension frame. The eyes shall be fabricated of 1" thick steel plate with a 3" diameter opening.

10-25-0100

STEERING

Ross TAS-85 integral heavy duty power steering shall be provided. The hydraulic pump shall be gear driven. An 18" diameter padded steering wheel shall be provided. The steering gear "box", the fixture that the gear is mounted to, shall be fabricated in the factory of the bidder. It shall be a welded assembly constructed of 3/8" formed steel with a 3/4" face plate that the gearbox is

mounted on. Vertical gussets shall be provided between the face plate and the frame mounting plate. Frame plate shall be bolted to **both** the chassis frame channel and the bumper extension frame assembly with a minimum of fourteen (14) 9/16" and four (4) 7/16" grade eight flange head bolts with Spiralock flange nuts. The radiator mounting crossmember shall be located just below the gear box and shall reinforce front frame assembly and limit chassis frame twist during static (truck not moving) steering.

Bidder shall report in his bid any past failures and subsequent FMVSS safety mandated recalls or any other non-recall campaigns to repair or replace his steering gear box during the past twenty (20) years. Failure to disclose this information shall be considered non-responsive and bid shall be disqualified.

10-25-1300

AUXILIARY CYLINDER FOR POWER STEERING

An auxiliary power assist cylinder shall be provided in the power steering system.

10-28-0300

AIR PIPING

The service brake system shall be full air type. The system is to meet or exceed current FMVSS-121 requirements. Other components or accessories shall be as follows:

- Pressure protection valve
- Quick build up system
- Engine mounted, gear driven air compressor
- B/W Model E-6 dual circuit brake treadle valve
- Two air pressure gauges on cab dash with indicator light and buzzer
- One (1) BW DV2 automatic drain valve on wet tank
- Manual drain valves on remaining air reservoirs
- Three air reservoirs - 4270 cubic inch capacity

Brake piping shall consist of SAE approved, DOT rated, "Synflex" reinforced nylon tubing. Braided hoses shall provide flexibility between axle and frame connections. Brake air lines shall be color-coded. Air inlet to air brake compressor shall be from the engine intake manifold, i.e. after transition through the engine air cleaner. A copper line and stainless braided Teflon hose shall be provided from the compressor to the air dryer.

The parking brake system is to be the spring set type operated by control valve on driver's console. A brake indicator light shall also be provided.

10-28-3810

AIR DRYER

A BW AD 9 air dryer shall be installed in the air brake system. It shall be equipped with an automatic heated moisture ejector.

10-28-4900

AUXILIARY AIR OUTLET

There shall be a 1/4" female air outlet with Schrader air hose fitting mounted on the left pump panel with a 1/4" valve. The outlet shall be connected to one of the vehicle's air reservoirs and shall provide an air supply for air tools or other uses. A 1/4 turn shutoff valve shall be located

adjacent to the outlet.

10-28-5600

AUXILIARY AIR INLET

There shall be an auxiliary air inlet installed to maintain truck air pressure while engine is not running. The exact location shall be determined by the Fire Department.

10-30-0200

DRIVELINE

Drivelines shall be built with heavy-duty metal tubes and utilize Spicer 1810 series or "Equal" mechanics type universal joints with "half round" end yokes. This quick disconnect strap and bolt design type end joint shall allow the driveline to be easily disassembled and dropped straight down for ease of service and maintenance. They also shall be dynamically balanced by the truck manufacturer before installation in the chassis. A splined slip joint is to be provided in each shaft assembly.

11-00-4000

FRT AXLE, MERITOR, MFS, 22,000# WITH DISC BRAKES & SUSPENSION

FRONT AXLE
A Meritor MFS front axle with a 22,000 pound rating shall be provided. The MFS front steer front axle shall have a 42 degree cramp angle with 425/65R22.5 tires. It shall include composite low-friction bushings with diagonal grooves to better distribute lube, camber settings of +1/4 degree for both left and right sides to help improve tire life and a large diameter, heat treated kingpin with a lube retaining seal. A two (2) year parts / labor Meritor axle warranty shall be provided on the apparatus.

DISC BRAKES
The front axle shall be provided with Meritor #EX225H air disc brakes with internal automatic adjustment, sealed synchronized twin pistons and robust sealing of slide pins for environmental protection. The #EX225H air disc brakes shall have 17" rotors and a fully sealed lever mechanism with variable mechanical ratio. A visual indicator of brake wear shall also be provided. A three (3) year parts / labor EX225H brake warranty shall be provided on the apparatus.

FRONT SEMI-ELLIPTICAL SPRING SUSPENSION, 3" X 52"
The front suspension shall be semi-elliptical 3" x 52" constant rate type springs with a military wrapped eye. The correct material, spring length, width, thickness and number shall be provided to match the leaf spring rating with that of the gross axle weight rating of the vehicle.

SHOCK ABSORBERS
Gabriel 3-1/2" heavy-duty telescoping shock absorbers shall also be provided on the front axle.

11-00-9000

AUX. AIR APPLIED FRONT AXLE PARKING BRAKE

An auxiliary air applied front axle parking brake shall be supplied with a separate control switch and properly labeled indicator light in the cab. This front parking brake will only be able to be activated when the parking brake for the rear axle is set.

11-10-0500

REAR AXLE

The rear axle shall be a Meritor model RC23-160 with a capacity of 24,000 pounds at the hub. The rear axle shall include 16-1/2" x 10" S-Cam brakes with automatic slack adjusters. Stroke indicators shall be incorporated to provide a visual indicator of brake wear.

All axles shall be purchased complete from and certified by the axle manufacturer for the specific application. Brake chamber brand and size shall be determined by the axle manufacturer.

A Meritor two (2) year parts and labor axle warranty shall be provided on the apparatus.

11-10-9999

State required top speed shall be: [One (1)]

11-20-2700

ANTI-LOCK BRAKES TDA

The braking system shall be provided with the MERITOR-WABCO (formerly Rockwell) anti-lock tractor/trailer braking system (ABS) to assist in providing safe stopping without wheel lockup.

This electronic system shall monitor and control wheel speed during braking. This ABS system shall be divided in two circuits or diagonals to control specific areas of the vehicle. Diagonal 1 shall control the right front and left rear tractor wheels and the right trailer wheels. Diagonal 2 shall control the left front and right rear tractor wheels and the left trailer wheels.

If a fault occurs in one diagonal, the other diagonal shall continue to provide the ABS function. If the ABS system should fail completely, the brake control shall be returned to normal (non-ABS) braking.

An ABS warning light shall be installed under the driver's dash. This warning light shall cycle through a test stage at the point of ignition turn on and remain illuminated until the vehicle reaches approximately four (4) MPH. The light shall illuminate in other conditions to warn of an ABS system failure.

11-30-3100

REAR SEMI-ELLIPTICAL SPRING SUSPENSION, 3" X 52", SINGLE - 24,000#

The rear suspension shall be semi-elliptical 3" x 52" constant rate type springs with a military wrapped eye. The correct material, spring length, width, thickness and number shall be provided to match the leaf spring rating with that of the gross axle weight rating of the vehicle.

Provide a block that is easily accessible for all lube points in the tractor rear axle requiring lubrication.

12-15-1250

FRONT TIRES

The front tires shall be Michelin 385/65R22.5, XFE, load range "L", regional tread (medium to heavy loads, frequently on 2-lane roads) with a maximum rating of 10,000 pounds at a top speed of 75 mph.

12-16-0900

REAR TIRES

The rear tires shall be Michelin 11R22.5, XZE, load range "H", regional tread (medium to heavy loads, frequently on 2-lane roads) with a maximum rating of 6,205 pounds at a top speed of 75 mph.

12-50-0500

WHEELS

Wheels shall be Alcoa polished aluminum disc type and hub piloted. Chrome plated nut covers shall be furnished.

12-80-0100

FRONT AXLE "BABY MOON" HUB CAPS

Stainless steel "Baby Moon" type hub caps shall be provided on the front axle.

12-90-0200

REAR AXLE "HIGH HAT" HUB CAPS

Stainless steel "High Hat" type hub caps shall be provided on the rear axle(s).

13-00-2470

ENGINE

The chassis shall be powered by a 2007 emissions compliant Detroit Diesel engine as described below:

Basic Engine	4 Cycle
Model	Series 60
Number of Cylinders	Six Inline
Bore and Stroke	5.17 x 6.61 in.
Displacement Liter (Cu. In)	14.0 (854)
Air System/Exhaust	Air-to-air charge cooling/EGR
Control	DDEC VI Electronic
Rated BHP	490 @ 1800 RPM
Torque	1550 Ft. Lb. @ 1100 RPM
Governed Speed	2100 rpm
Oil Capacity / Type	10 gallons / SAE CJ-4
Fuel Requirement	Ultra low sulfur (15 ppm max)

Standard equipment on the engine to include the following:

- Particulate filter
- Doser active regeneration exhaust after treatment system
- Overhead camshaft
- Fan - 32", 11 blade
- Fuel filter with check valve
- Fuel strainer with water separator
- Governor - Detroit Diesel Electronic Control VI
- Injectors - electronic, unit type
- Lube oil cooler
- Lube oil filter - full flow
- Starting motor - 12 volt
- Electronic VGT Turbo
- Charge air cooler

The engine exhaust system shall be a horizontal design constructed from heavy-duty truck components. Flexible couplings shall be utilized to absorb the torque and vibration of the engine. The outlet shall be directed to the forward side of the rear wheels, exiting the right side, with a

straight tip. The system shall be equipped with a canister consisting of a Diesel Oxidation Catalyst (DOC) and a Diesel Particulate Filter (DPF). The canister shall be mounted under the right side frame rail, and meeting the engine manufacturer's specifications and current noise level tests. A heat-absorbing sleeve shall be used on the exhaust pipe in the engine compartment area to reduce stored heat, providing protection for the alternator, and also to protect hands when checking or adding oil in the engine compartment.

A five year or 100,000 mile engine warranty shall be provided by Detroit Diesel.

ENGINE AND CHARGED AIR COOLING SYSTEMS

A serpentine core type radiator with continuous louvered copper fin design shall be provided. The radiator core shall be provided with bolt-on removable upper and lower die drawn tanks. Tank bolt centers shall not be more than 1-3/4" apart to obtain a tight, leak free, union with the core. Radiator shall be fitted with formed steel side frames. The top tank shall have a built-in deaeration system. A drain shall be located at the lowest point. The frontal area of the radiator shall be a minimum of 1200 square inches. The total engine cooling system capacity shall be a minimum of 14 gallons.

The engine charged air heat exchanger shall be located directly in front of the radiator and be bolted to its side rails. It shall be all aluminum brazed construction. Air cooler to be cross flow design with cast aluminum side tanks, horizontal inlet and outlet at top and aluminum louvered serpentine external air fins. Cooler tubes shall also be constructed of aluminum and have internal fins that eliminate laminar air flow.

The charged air cooler and the radiator shall be produced by the same manufacturer as a single assembly to provide continuity throughout the cooling system. This shall ensure a certified "balanced" package for the chassis engine air and water cooling systems.

The dual heat exchanger package shall be mounted on a frame crossmember fabricated from a 5" ship channel. It shall be held in place at the bottom by two (2) large bolts equipped with anti-stress rubber biscuits. The top of the radiator shall be supported by two (2) 3/4" tubular braces bolted to the chassis frame. Anti-vibration rubber biscuits shall be installed at the top threaded end of the braces where they attach to the radiator.

A fan shroud shall be bolted to the rear (engine side) of the radiator to increase the fan's efficiency by drawing all air from the front of (and through) the radiator. It shall also be equipped with extruded rubber side baffles.

13-00-5899

DIAGNOSTIC SWITCH GUARDS

Provide red spring loaded switch guards to protect the switches adjacent to the engine // transmission // ABS test ports.

13-00-7000

EPQ CERTIFICATION

"EPQ" (End Product Questionnaire) certification shall be provided by the apparatus manufacturer and shall be done on a completed unit (after pump and complete body installation). Incomplete certifications (chassis only) shall not be acceptable.

13-00-7500

FAN CLUTCH

A pneumatically operated, thermostatically controlled, clutch shall be provided for the engine

cooling fan. The clutch shall be of a failsafe design, in that it shall fail in the "on" mode and thus prevent overheating in the event of component or air line failure. Manufacturer shall also wire the clutch so that it remains "on" in the pumping mode to prevent water pressure fluctuations.

13-01-2100

SILICONE HOSES

All hoses in the cooling system shall be silicone type with stainless steel constant torque Oetiker clamps.

13-03-1200

TRANSMISSION

An Allison, Model 4000 - EVS, electronically controlled, 5 speed automatic transmission with integral fluid filter shall be provided. A transmission cooler shall be installed in the radiator return tank. A warning light and buzzer shall be provided on the cab dash to alert the driver should the transmission overheat.

The transmission shall include the following emergency vehicle specifications:

Maximum gross input power:	600 hp
Maximum gross input torque:	1850 lbs/ft.
Input speed range:	1700 to 2300 rpm
Direct gear lock-up:	4th @ 1.00 to 1.00
Overdrive gear and ratio:	5th @ 0.74 to 1.00

Gear ratios shall be as follows:

1st - 3.51 to 1
2nd - 1.91 to 1
3rd - 1.43 to 1
4th - 1.00 to 1
5th - 0.74 to 1
Rev - 4.80 to 1

The transmission shall be covered by a 5 year warranty by the transmission manufacturer.

13-03-2000

TRANSYND TRANSMISSION FLUID

The Allison transmission shall be delivered from the factory with Transynd transmission fluid in place of the standard Dexron VI fluid. The Transynd fluid is a synthetic oil that allows an extended period between maintenance changes of the filters and fluid.

13-03-3000

TRANSMISSION PROGRAMMING

The transmission shall be programmed as a 5-speed with 5th gear (overdrive) selected by mode button only.

13-03-4000

TOUCH PAD TRANSMISSION SHIFT CONTROL

Touch pad control shift module shall be mounted to the right of the driver on the console and be indirect lighted for after dark operation.

13-08-0500

FUEL SYSTEM

The vehicle shall be furnished with a 50 gallon fuel tank mounted behind the rear axle and just below the frame rails using a stainless steel strap. The tank shall be constructed of hot rolled, pickled in oil steel and equipped with a swash partition and vent. The fuel tank shall meet all FHWA requirements including a fill capacity of 95% of tank volume and all DOT and FMVSS regulations for rollover protection. A 2" diameter fill inlet shall be provided. Fuel cap shall be of brass or bronze construction, non-vented and have lead safety fuses. It shall be chained to inlet tube or to the body sheet metal to prevent loss. Braided hoses shall be provided for the fuel lines. A 1/2" NPT drain plug shall be located at the bottom of the tank. The fuel tank pickup tube and sending unit shall be accessible without having to remove the tank. The tank shall be installed using stainless steel straps and hardware, separated from the tank by a rubber insulating strip to prevent against chaffing.

The fuel fill inlet shall be located on the left (drivers) side of the apparatus. It shall be concealed behind a door marked "DIESEL FUEL ONLY". The fuel inlet area, recessed behind the door, shall be completely enclosed to prevent dirt and debris from entering. Provision shall be provided inside the fill recess for drainage of any spilled fuel within the cavity.

The fuel door shall be constructed of stainless steel. It shall be horizontally hinged at the bottom and pull down to open. A Southco spring loaded device with brass roller shall be provided to hold the door in the open or closed position. A black pull knob shall be installed on the door for opening and closing it. A black rubber bumper shall be installed in a position to prevent the door from damaging the surrounding surface when it is opened. Bumper shall be permanently mounted with screws.

13-08-5800

RACOR FUEL/WATER SEPARATOR

A Racor B32000 series 10 mircon spin-on filter with fuel water separator shall be provided.

13-10-0400

ALTERNATOR

A minimum 320 amp Leece Neville alternator with an integral rectifier system shall be provided.

Provide an excite switch oil pressure activated. Ref previous Long Beach 76366, drawing #W0521100.

13-11-0200

AIR COMPRESSOR

A Bendix Westinghouse #BA921 16.0 CFM air compressor shall be furnished. The air compressor shall be gear driven off the engine.

13-12-0600

AIR CLEANER AND EMBER SEPARATOR

A dry type engine air cleaner shall be provided. It shall be installed in a location so that the filter element can be easily serviced. Engine air inlet box shall be located on the left (drivers) side of the cab just to the rear of the front wheel. A series of screens, baffles and separators shall be placed in-line prior to engine air entering the air cleaner.

A moisture and ember separator shall be installed that meets NFPA #1901 requirements.

13-12-5500

AIR RESTRICTION INDICATOR IN INFORMATION DISPLAY CENTER

An electrical engine air restriction indicator shall be provided and installed in the cab information display center.

13-13-0100

EXHAUST

The exhaust shall be 5" diameter and shall discharge to the right side of the vehicle ahead of the rear wheels. The exhaust system will include a diesel particulate filter and a diesel oxidation catalyst to meet current EPA standards.

13-13-0800

TAILPIPE EXTENSION

Tailpipe will be provided to accommodate a Nederman exhaust evacuation system. The tailpipe will be mounted perpendicular or 45 degrees to the side of the truck and be a maximum of 2" past the body. 12" of clearance between the center of the pipe and the tire will be provided.

It is understood that the 2007 engine exhausts can not be connected to exhaust evacuation systems when the Diesel Oxidation Catalyst and Diesel Particulate Filter on the engine are regenerating.

13-13-1000

CHROME TAIL PIPE DEFLECTOR

The tail pipe shall be provided with a chrome deflector tip at its outlet.

13-13-1100

TAIL PIPE HEAT SHIELD

Heat shields shall be provided as needed to prevent damage to body and wiring from excessive exhaust temperatures.

13-13-1200

EXHAUST PIPE

The exhaust pipe under the hood shall be insulated with a heat absorbing fiberglass sleeve wrap. After the fiberglass is installed, it shall be sprayed with a sealer to provide a permanent installation.

13-15-0200

ENGINE BRAKE

A Jacobs engine brake shall be installed with controls within easy reach of the driver. Brake shall automatically be actuated when the accelerator pedal is released. The engine brake shall be wired in conjunction with the rear brake lights so that they are activated when the engine brake is engaged. It shall have a three position switch; "LOW", "MEDIUM" and "HIGH" along with an "OFF" and "ON" switch.

13-15-3200

ENGINE HEATER

A 110 volt, 1000 Watt direct immersion block heater shall be provided with AC electrical inlet (shoreline) connection.

13-15-4100

FAST IDLE SWITCH

A fast idle switch shall activate an engine high idle potentiometer. The circuit shall be wired through the neutral safety/parking brake interlock to prevent activation when the transmission is in the road mode. Fast idle shall be set at 1000 RPM's. A toggle switch located inside the cab convenient to the driver shall be provided for this system.

13-15-5000

LUBRICATION PLATE

A permanent plate shall be installed in the driver's compartment which shall specify the quantity and type of lubrication fluids used in the following chassis or apparatus components: engine, chassis transmission, pump transmission, pump primer and rear axle differential. Engine coolant type and quantity shall also be stated.

18-00-0100

TRAILER FRAME

The trailer frame shall be of the curved gooseneck design, welded channel construction, incorporating a forward section for the turntable and rearward section for the body and tiller station. The frame is to have a 110,000 PSI yield and a minimum resistance to bending moment of 2,300,000 in lbs. per rail.

18-02-0100

FIFTH WHEEL

A heavy duty fifth wheel shall be provided with a monorace bearing of a minimum of 3" x 30" in diameter. The mounting plate shall be bolted to the tractor frame rails using .75" grade 8 bolts. The longitudinal pivot shall utilize two (2) 1.75" minimum diameter 4340 heat treated steel pins mounted in double shear.

18-03-0100

AXLE

Trailer axle to be Rockwell-Standard Model FL-941 with auto slacks and a rated capacity of 18,000 lbs. Chrome plated wheel nut covers shall be furnished.

STEERING

A Ross TAS-85 steering gear pump shall be provided for the trailer axle steering.

18-05-0200

SUSPENSION

The tiller axle suspension, (up to 21,500lb), shall be a Ridewell RAS-227 air type. Heavy duty sway and stabilizer bars as well as shock absorbers shall be provided. A 1250 cubic inch air reservoir will be provided to supply the required air for the suspension.

18-07-0100

BRAKES

The trailer is to have full air type Rockwell brakes. The system is to meet or exceed current FMVSS-121 requirements. One 2412 cubic inch trailer mounted air reservoir shall be provided.

18-07-1000

NYLON BRAKE PIPING

Nylon brake lines shall be provided in the trailer frame.

18-12-2100

TILLER TIRES

The tiller axle tires shall be Michelin 425/65R22.5, *XFE*, load range "L", on/off road tread (heavy loads and slower speeds, operating on a mixture of improved secondary and aggressive road surface) with a maximum rating of 11,400 pounds at a top speed of *75* mph. The wheels shall be 12.25 inch steel disc type with an 11.25 inch bolt circle.

18-15-0200

TOW EYES

Two (2) chrome plated rear tow eyes are to be provided, attached directly to the trailer frame rails.

20-00-6600

STAINLESS STEEL FULL TILT CAB

CUSTOM CAB DESIGN AND CONSTRUCTION

The cab shall be designed specifically for the fire service and as such shall provide extra strength and safety. The cab shall be made in the factory of the bidder and must be the bidder's first line stainless steel model. The cab shall be of the open through type and shall tilt forward for engine access.

The cab shall be of stainless steel reinforced welded safety-cage construction utilizing a rectangular structural tube sub-frame. Front face, roof and rear wall shall be framed with stainless steel square tubing. Cab sides shall utilize both formed stainless steel sheet metal and formed tubing for reinforcement. Framing shall be covered with a stainless steel skin on front and sides. Side roof covering (rolled edges) shall be constructed of stainless steel sheet metal formed in a quarter round, hollow double wall, angle reinforced configuration with integral drip rail.

No plastic or fiberglass shall be used in the construction of the cab.

CAB DIMENSION

The back wall of the cab shall measure 62" from the center of the front axle. The cab shall have an inside width of 91" and outside width of 96". Entrance step wells to the driver's and officer's positions shall be a minimum of 26" wide and the rear crew step wells shall be 34" wide. They shall be "spaced" out at front, rear and side to prevent trapping of dirt and other residue. Entrance steps shall be made of expanded aluminum grating.

CAB FLOORS AND UNDERSIDE

Cab floors shall be covered with a sound barrier mat with a heavy-duty wear surface. The underside of the cab shall have an integral high strength framework which shall become the lifting platform for the cab hydraulic tilt system.

CAB ROOF

The roof of the cab shall be covered with high polished aluminum diamond plating. The perimeter of the treadplate, at the junction with the cab roof, shall be sealed.

REAR OF CAB

The rear of the cab shall be covered with high polished aluminum diamond plating. The perimeter of the treadplate, at the junction with the cab back wall, shall be sealed.

CAB TILT

The cab shall tilt a minimum of 45 degrees for normal servicing of the engine and other equipment. The tilt cab locking system shall be a two-point type that locks automatically when the cab is lowered into its nested position. The cab tilt package is custom designed for safety and ease of vehicle maintenance. The hydraulic tilting system consists of two (2) heavy-duty single acting cylinders equipped with velocity fuses at the cylinder base in case of any failure in the operating mode. The power supply is a high efficiency electric over hydraulic system with an integral mechanical override in case of battery failure. All components and parts are designed for installation with a minimum of 3 to 1 safety factor based on current S.A.E. standards.

In addition to the velocity fuses, a secondary safety system shall be provided to hold cab in the fully raised position in the event of a failure in the primary lift mechanism. It shall consist of a metal channel device, which automatically drops over the extended rod of the right side hydraulic lift cylinder thereby preventing its retraction. The safety channel can only be released through an overt action made by the operator such as pulling a lever or cable. Automatic release of the safety system shall not be acceptable.

The cab tilt system shall be remotely controlled utilizing a twelve foot cable with a hand held push button device which is to plug into a receptacle in the bumper area on the right-hand side of the cab. The receptacle shall have a spring-loaded weatherproof cover. A four point isolated mounting system shall be provided. The mounting system shall consist of two (2) front pivot mounts fabricated of steel and two (2) rear cab mounts that are center bonded rubber. Each front pivot mount shall consist of a greaseless pin and a multi-layered, self-lubricating, composite bearing. The outer layer of the bearing shall be high-durometer rubber to isolate road vibrations and shock. The tilt pump placards to be mounted on the side of the seat riser under the officers seat.

CAB GRILLE - *HORIZONTAL* BARS AND RAISED BEZEL SURROUND

The cab front opening shall be covered with a custom made polished stainless steel grille that shall be fabricated in the bidder's factory. The grille shall have formed *horizontal* bars spaced apart on 2" centers. The upper polished stainless steel grille shall have a matching lower counterpart to further facilitate engine cooling. The two (2) stainless grilles shall be housed in a custom, raised and chrome plated bezel.

20-00-7400

FLAT ROOF

A flat roof shall be provided with an interior floor to ceiling height of 59".

20-00-8600

CAB BARRIER DOOR CONSTRUCTION

The cab doors shall be barrier clearing and fabricated from stainless steel (No exceptions). The front cab doors shall be 34.75" wide. The crew cab doors shall be 28.75" wide. The interior and exterior door handles to be flush mounted paddle style with a keyed lock incorporated in the exterior handle and lever control lock incorporated in the interior handle. Six inch wide strap style door checks shall be provided. Doors shall be hung on high polished stainless steel full length hinges attached to cab and door with .25" bolts. Doors shall meet Federal Motor Vehicle Safety Standard #206.

20-00-9600

CAB SIDE ACCESS DOOR

Cab side access doors shall be provided between the front doors and front crew cab windows, one each side. Door openings shall be approximately 16.00" wide x 37.00" high. "D" handle type latches shall be provided on the lower rearward part of the door. The doors shall be vertically hinged with a chain type stop.

Opening these doors shall activated the white cab dome lights and the recessed lights in these doors. Automatic door switches 23-11-2700.

Doors shall be hinged at the rear.
Provide recessed light in each door - 23-25-1020

20-00-9640

SIDE ACCESS DOOR SILL SCUFF STRIPS

Brushed stainless steel scuff strips, approximately .50" wide, shall be provided on the cab side access door sills to protect the painted finish.

20-01-5000

STAINLESS STEEL AIR INLET GRILLE

A highly polished stainless steel grille shall be provided on the cab for the engine air intake.

20-05-1600

FRONT FENDERS

Polished stainless steel fenderettes shall be installed in the front wheel openings. Fender shall be sufficiently wide to completely cover the outside of the front tire (in the straight forward position) and reduce wheel splash along the sides of the cab and body. They shall be installed with 1/4" hex head bolts (self-tapping sheet metal screws are not acceptable) and have a full width rubber welt placed between the fenderette and cab mounting surfaces. A liberal coating of anti-corrosive and rust preventative shall be applied to fenderette and wheel opening flange during the assembly process. Outside edge of welting shall form a "V" bead between fenderette and cab side face to prevent moisture from entering. Inside edge shall also have a small raised bead. Outside edge of fenderette, at the wheel opening shall be rolled inward to eliminate a sharp edge and avoid injury when cleaning apparatus.

Full semicircular innerliners shall be provided in each wheel housing. They shall be constructed of smooth aluminum and be bolted in place so they may be removed if damaged.

20-07-0300

FRONT AND REAR MUD FLAPS

Heavy duty mud flaps with manufacturer's colored "logo" and name (in script) shall be provided at

the rear of each front wheel, at the rear of the rear dual wheels, *and at the rear of the tiller wheels.* Name shall be black with a white background. Front flaps shall be 15" wide and rear flaps shall be 24" wide. Mud flaps shall be made of 3/16" heavy duty semi-flexible vinyl material to prevent "sailing".

20-10-0400

CAB MIRRORS

Two (2) "Velvac" 708022 west coast style mirrors shall be installed, one each side of the cab. The mirror heads shall be full length, 7" x 16", flat with no built-in convex. They shall be the spring loaded type with a polished stainless steel housing. Mirrors shall be installed on the cab doors. Each mirror shall have two mounting points (top and bottom) to inhibit vibration.

20-10-2500

CONVEX SPOT MIRRORS

A Velvac 6" diameter bolt on convex mirror shall be provided below each of the west coast mirrors.

20-12-0300

WINDSHIELD

The windshield shall be of tinted automotive laminated safety plate glass with a curved two-piece design. The windshield shall have approximately 2900 square inches of visual area. Right and left hand windshield glass shall be symmetrical and interchangeable from side to side to minimize spare parts stock. Windshield shall be installed and held in place by an extruded rubber molding with a chrome plated, decorative, locking bead. Cab shall be finish painted prior to windshield glass being installed.

WINDSHIELD WIPERS AND WASHERS
One (1) wet arm operated windshield wiper shall be provided for each plate of windshield glass for accessibility and optimum windshield wiping surface areas. Wipers to be two speed type with intermittent wiping feature. One (1) control switch shall be provided for both wiper arms. Switch to be the knob type which combines the on/off (automatic park position), two speed, intermittent and washer functions in one control. Turning switch shall activate the wipers and control speed, and pushing it shall operate the washers.

20-12-2200

DOOR WINDOWS

A retractable window with automotive type tempered safety glass shall be provided in all four (4) cab doors. All glass shall be tinted. Glass shall slide in stainless steel side channels with cloth/fiber liners. Rubberized fiber seals shall be located at the bottom of the window opening to prevent water and debris from entering the interior of the door when the glass is up (or down). A seal shall be placed on both sides (interior and exterior) of the glass. The front door glass shall be 23.75" high x 25.75" wide upper and 27.50" wide lower. The rear door glass shall be 23.75" high x 30" wide. The door window openings shall be trimmed on the exterior side with a smooth, black, poly vinyl chloride (PVC) molding

Window regulator shall be manufactured by the Muncy Corporation and shall be the enclosed, sliding flexible shaft, gear type for ease of operation and reliability. The shaft shall enter a vinyl plastic protective sheath whenever it is exposed. Window crank effort shall be the same over the entire raising or lowering process. Crank arm shall be installed on a 3/8" square shaft (splined shaft will not be acceptable). Regulator shall not require any periodic maintenance over its lifetime. Sector gear/lever action or sprocket/moving arm type regulator mechanisms will not be

acceptable.

20-14-1400

SLIDING CREW CAB SIDE GLASS

There shall be a side window on each side of the cab between the doors. They shall be tinted and be manufactured of automotive tempered safety glass. They shall be the sliding type with anodized aluminum frames and felt lined slide guide channels. Each window shall be 23" high x 23" wide to provide maximum vision. They shall be installed and held in place by an extruded rubber molding with chrome plated, decorative, locking bead. The cab shall be finish painted prior to window glass being installed.

The sliding crew window can be horizontal sliding, vertically divided, or can be vertical sliding, with horizontal divider. Locking interior handles shall be provided. Provision shall be made to drain the exposed guide channel of water and other debris.

20-14-4900

REAR CAB WINDOWS (OPTIONAL ON LEVEL AND 8" MARAUDER II RR CAB)

There shall be two (2) fixed windows placed in the rear face of the cab. They shall be located one each side at the extreme outer corners. Windows shall be tinted and be manufactured of automotive tempered safety glass. Each window shall be a minimum of 10.5" high x 15.6" wide to provide all possible vision to the rear of the body.

These windows shall also be held in place by an extruded rubber molding with a chrome plated, decorative, locking bead. The molding shall fit over the aluminum treadplate rear cab face. The raised "diamonds" of the tread plate shall be neatly milled off to the flat surrounding surface wherever they interfere (with the rubber molding).

20-16-0100

CAB TRIM

Decorative molding is to be provided across the front and along both sides of the cab just below the windshield level. The molding shall be the automotive adhesive type made of poly vinyl chloride (PVC). It shall be 5/8" wide with chrome plated outer edges and a 5/16" textured black center strip.

20-20-1000

CRASH TEST

The cab shall be certified for the following tests:

SAE J2420: Cab Over Engine (COE) Front Strength Evaluation - Dynamic Loading - Heavy Trucks

SAE J2422: Cab Roof Strength Evaluation - Quasi Static Loading - Heavy Trucks

ECE Regulation 29: Protection of Occupants of Cab in Commercial Vehicle

Performance Measure:

1. After undergoing each test, the cab of the vehicle shall exhibit a survival space accommodating a 50th percentile male ATD in the median position without contact between the manikin and non-resilient parts for all seating positions.
2. None of the doors shall open during the tests.

3. The cab attachments may be distorted or fractured, however, the cab shall remain attached to the vehicle frame in at least one attachment location.

20-25-0800

HEADLINER

The cab shall be provided with a removable headliner for ease of servicing the electrical wiring placed in the cab roof. The headliner shall be made of sound absorbing urethane foam. It shall be placed over a 3/16" thick sheet of plywood composite and fastened to its surface with an adhesive. The foam shall have a layer of perforated vinyl on the exterior side and a polyurethane water/vapor barrier on the other.

Headliner shall be the multi-piece type (minimum of three (3) sections) so that the entire liner does not have to be removed for localized maintenance.

20-25-1000

ENGINE ENCLOSURE

The tunnel cover shall have a 1-1/4" thick inner lining, on the engine side, comprised of aluminized foil and foam/barrier composite for heat insulation. It shall be covered with 1/2" decoupled foam lower and 1" decoupled foam upper for noise insulation. The top forward portion of the hood shall have a full-width riser with a sloped face for the installation of the switch panel. The sloped panels shall be used for vehicle accessory controls. A minimum of 1" shall be provided between the right edge of the accelerator pedal and the side of the engine hood.

ACCESSORY MOUNTING STRUCTURE
The top portion of the engine enclosure shall have an 1/8" thick aluminum channel frame located between the engine tunnel structure and the cover to support the cover and facilitate mounting of accessories and equipment.

ENGINE COMPARTMENT ACCESS DOOR
An access door shall be provided at the rear of the engine enclosure for routine engine fluid checks. The access door shall be insulated from engine heat with aluminized foil/foam/barrier composite and sealed to prevent exhaust fumes from entering the crew cab.

Reference previous Long Beach 76366. Provide a compartment mounted to the rear of the engine enclosure.

20-25-1200

ADDITIONAL ACCESSORY MOUNTING STRUCTURE(S)

Additional flat and full width 1/8" aluminum plate(s) will be located on top of the engine tunnel cover, fastened through the engine tunnel channel structure, to enable the mounting of accessories. Fasteners will not protrude through the engine tunnel cover into the engine compartment. Up to three (3) plates are available.

20-25-3000

TILT STEERING WHEEL TELESCOPING

The upper steering column is to be of the tilt and telescopic type. A self-canceling directional switch is to be mounted on the steering column with an ICC four way flash switch. Steering wheel shaft shall be enclosed in a flexible rubberized tube to prevent it from "snagging" driver's clothing when it turns. Shaft cover shall be fastened at top with a hose clamp and at bottom with hose clamp or flange type ring. Removal or loosening of clamps shall allow for inspection and/or servicing of shaft universal joints.

20-25-4000

LINEX FOR CAB DASH

The cab dash shall be sprayed with linex having a high resistance to abrasion and tearing. A vinyl cloth glued or laminated in some process to a metal backing surface shall not be acceptable.

The linex shall absorb impact without surface damage. The linex shall be resistant to gasoline, diesel fuel, paints, bleaches, organic solvents and other cleaning agents and chemicals. It shall include sound dampening and vibration elimination properties.

The linex shall be solvent free and be environmentally safe to apply with no VOC or CFC hazards. Its surface shall have a nonglare, granular texture and be easily cleaned with common cleansing compounds.

20-25-4400

TREADPLATE FLOORING

Aluminum treadplate flooring shall be installed over the insulated cab floor matting. Flooring shall be removable in sections.

20-25-5000

SUN VISORS

Two (2) 6.625" x 29.50" padded sun visors shall be provided, one on the driver's side and one on the officer's side. Visor shall be supported at both ends to prevent drooping.

20-25-8000

VEHICLE DIMENSION SIGN

A sign shall be provided in the front cab area indicating the height of the completed apparatus in feet and inches or meters, length of the completed apparatus in feet and inches or meters, and the gross vehicle weight rating (GVWR) in pounds or kilograms.

20-26-1800

POWER STUDS (OVERHEAD SWITCH PANEL)

Four (4) studs shall be provided in the overhead switch panel to provide a 12 volt feed. The studs shall consist of a 12 volt direct stud, switched battery stud, switched ignition stud and grounding stud.

20-26-1900

POWER STUDS (CAB DASH)

Four (4) studs shall be provided in the cab dash area to provide a 12 volt feed. The studs shall consist of a 12 volt direct stud, switched battery stud, switched ignition stud and grounding stud.

20-50-5200

INNER DOOR PANELS-BRUSHED STAINLESS STEEL (4)

The cab inside door panels shall be removable and shall be constructed of brushed stainless steel.

All driving and crew compartment doors shall have at least 96 inches square (62,000 mm sq) of

reflective material affixed to the inside of each door in compliance with N.F.P.A.

21-00-2900

DRIVER'S SEAT

The driver's seat shall be an H.O. Bostrom Sierra Air 100 RX reclining air suspension high back seat. A DOT approved 3-pt. shoulder harness shall be furnished that is red in color.

21-00-4300

OFFICER'S TANKER SEAT

An H.O. Bostrom Tanker 450 Air 50 seat shall be provided for the officer. The seat shall be adjustable and be furnished with a universal SCBA bracket. A DOT approved 3-pt. shoulder harness shall be furnished that is red in color.

21-07-0200

SEAT RISER W/COMPARTMENT

The seat(s) shall be held at NFPA regulated height by a galvanneal steel frame which creates a weatherproof compartment. The compartment measures 16.5" wide x 7.0" high x 17.0" deep, front to back. Access to this compartment shall be through a drop-down door.

21-07-0300

SEAT RISER W/COMPARTMENT

The seat(s) shall be held at NFPA regulated height by a galvanneal steel frame which creates a weatherproof compartment. The compartment measures 16.5" wide x 5.0" high x 17.0" deep, front to back. Access to this compartment shall be through a drop-down door.

21-11-5900

REAR SEATING

The rear crew cab section shall contain two (2) outboard rear facing H. O. Bostrom Tanker 450 passenger seats with universal SCBA brackets shall be provided. The seats shall be installed one (1) each side at the rear of the engine enclosure. The seating area shall allow maximum room for fire fighters in full turn out gear. DOT approved 3-pt. shoulder harnesses shall be furnished that are red in color.

21-11-7000

REAR SEATING

The rear crew cab section shall contain two (2) outboard forward facing seats. The two forward facing seats shall be fold-up jump seats installed on the rear wall of the cab. The seating area shall allow maximum room for fire fighters in full turn out gear. DOT approved 3-pt. shoulder harnesses shall be furnished that are red in color.

21-12-7100

CAVITY COVERS - H.O. BOSTROM SEATS

Three (3) cavity cover(s), H.O. Bostrom #3330-9000 shall be provided.

21-12-7300

SEAT UPHOLSTERY

All cab seats shall be upholstered in gray colored vinyl material.

21-13-1400

INTERIOR DECOR

The interior components, accessories and trim, shall be gray in color.

21-13-2500

CAPACITY SIGN

A sign visible to the driver, that states the number of personnel the vehicle is designed to carry, shall be provided.

21-23-0700

HEATER AND DEFROSTER

A 46,000 BTU front heater and defroster shall be installed with a variable, 425 CFM blower. Conventional defroster outlets shall be provided from the heater for directing warm air to the windshields that shall be "slot" type, located at the bottom of the windshield. The heater controls shall be current automotive style consisting of push button controls for fan speed, heat direction and for temperature control with hot and cold positions. Heat shall be directed to the windshield, lower dash both sides, and center of cab. The heater unit shall be located near the floor on the right side of cab, ahead of officer's seat.

For optimum comfort in all weather, a climate control panel allows the driver to control the heating, defrosting and ventilating functions for the forward portion of the cab. The front control panel includes an air temperature switch and controls for air discharge location (mode), fan speed, and temperature. The air source will automatically select either fresh air from outside the cab or recirculated air already inside the cab.

A shut off valve shall be built into the system on the supply line.

21-23-0900

MANUAL SHUTOFF VALVE FOR HEATER RETURN

A manual shutoff valve shall be provided for the return line at the engine to facilitate servicing.

21-23-3800

AIR CONDITIONING

The cab shall be equipped with an evaporator, condenser compressor system, to work in conjunction to the forward cab HVAC system for a combined total of 68,000 BTU. The evaporator shall have controls for adjusting the fan speed. The evaporator shall have six (6) air diffusers to allow for multi-directional airflow. Each diffuser shall be adjustable up and down and side-to-side for individual preference. The evaporator shall be compliant with all EPA regulations and use R-134A Refrigerant. A sump style drain system shall be provided inside the cab to allow for the removal of condensation. All hoses used in the air conditioning system shall be "barrier" type construction for containment of the refrigerant. The condenser is a stacked type low profile, dual fan compact design with dryer and pressure switch included. The condenser shall be located on the cab roof. They shall be protected from damage with a fabricated aluminum treadplate cover, except for the fan opening at the top and openings for the hoses.

The A/C system exceeds the industry norm by providing, in 30 minutes, an average cab temperature of 75 degrees Fahrenheit from an ambient of 100 degrees Fahrenheit at 50% relative humidity.

21-23-5000

DEFROSTER FAN(S)

Two (2) adjustable 8" defroster fans shall be provided *on the tiller cab dash* with a two (2) speed control on the mounting pedestal.

21-26-1200

ADDITIONAL GRAB RAIL(S)

Four (4) 8" knurled grab rail(s) shall be provided and installed as directed by the fire department.

21-26-1500

CAB HANDRAILS AND GRAB HANDLES

Handrails to be 1-1/4" diameter extruded aluminum, knurled, with a bright anodized finish.

All handrail stanchions shall be chrome plated. They shall be bolted to the body with 1/4" stainless steel hex head bolts. Stanchions shall have a rubberized gasket placed between them and the body surface they are mounted on. A drain hole shall be provided in each bottom stanchion.

Handrails and handles shall be installed as follows:

One (1) 24" handrail shall be installed just to the rear of each cab door. Stanchions shall be offset to the rear to provide hand clearance (and prevent injury) when opening or closing cab doors.

One (1) 12" rubber covered grab handle shall be provided on the inside of each cab door.

One (1) 12" rubber covered grab handle shall be provided on driver's side and officer's side front window sill area.

One (1) 6" rubber covered grab handle shall be provided on the forward door post of each crew cab door opening to assist in entry to the cab.

22-00-0600

CAB DASH AND INSTRUMENTS

The cab dash shall be forward slanted and covered with linex to match the cab interior. A non-glare switch panel, custom designed to accommodate the appropriate functions, shall be provided on top of the engine enclosure. Rocker style switches with integral indicator lights shall be provided to advise that the switch has been energized. The panel shall be back lit with a dimmer switch for night operations.

Provide City / Freeway switching with White // Black // Red rocker switches. Ref Long Beach 76366 and drawing P1735500. Long Beach to approval layout and function.

Turn signal indicator lights shall be located to the right and left of the instrument panel with the high beam indicator light in the top center of instrument panel.

Windshield washer shall be provided with accessible controls and a five (5) quart reservoir.

A visual and audible alarm system shall be provided which shall include warning indicator lights for check engine and stop engine.

The apparatus shall be provided with a warning light and audible alarm to sense low battery voltage. The warning light and audible alarm shall alert the driver when the voltage drops below 11.9 volts.

If the apparatus is to be equipped with a pump, a green indicator light shall be installed in the driving compartment, which shall indicate when the pump shift has been completed and shall be labeled "Pump Engaged". A second green indicator light shall also be provided in the driving compartment and also on the pump operator's panel. These two (2) lights shall be energized when the pump shift has been completed, the chassis transmission is engaged in pump gear and the parking brake is applied. The light in the driving compartment shall be labeled "OK to Pump". The light on the pump panel shall be located just above the throttle control and shall be labeled "Warning: Do Not Open Throttle Unless Light Is On". Indicator lights in the cab shall be located adjacent to the pump shift control.

The main instruments panel shall include the following warning lights and indicators:

Spring brake "ON" indicator light
High beam indicator light
Engine status warning lights
Low air pressure warning light with buzzer & alarm
Turn signal indicator lights
Battery ON indicator light

The indicators shall be LED's.

A rocker type ignition switch with green indicator light and a headlight on/off switch with green indicator shall be provided to the left of the steering column. An engine starter switch shall be mounted on the dash to the left of the steering column.

A system shall be provided that interacts with the engine electronics and eliminate redundant senders and switches. The electronic engine gauges shall receive information on a SAE data link to improve reliability and gauge accuracy. Quick disconnect connectors shall be utilized for ease of service. Their faces shall be black with white lettering. They shall also have international non language symbols for the gauge function (except speedometer). Gauge shall be illuminated and have a 270 degree dial sweep for greater definition of scale.

The following gauges shall be provided:
-Fuel Level
-Speedometer (with built in LCD odometer)
-Tachometer (with built in LCD engine hourmeter)
-Voltmeter
-Engine Water Temperature
-Engine Oil Pressure
-Transmission Oil Temperature
-Front (Primary) Air Pressure
-Rear (Secondary) Air Pressure

22-00-1500

LCD INFORMATION CENTER

The LCD Information Center is a two line 20 character display with an amber LED indicator, a red LED indicator and an hour and minute set button. The display is one of the major components of the electrical system.

DISPLAY FUNCTIONS / FEATURES:

The display replaces the following 20 indicator lights:

"Step not nested"	"Top compartment open"
"Ladder rack down"	"Ladder not nested"
"Stabilizer not stowed"	"D/S door open"
"Rear door open"	"P/S door open"
"P/S upper door open"	"Light tower raised"
"Stop Engine"	"Check engine"
"Air restriction"	"High/Low voltage"
"Transmission temperature"	"Low air pressure"
"Water gun extended"	"Cab not locked"
"Pump overheat"	"ABS fault"

The display organizes the inputs from the 20 indicator signals to provide 3 clear levels of concern
-Steady red indicator is for mission critical issues.
-Flashing red indicator is for issues that may hinder the mission.
-Steady amber indicator is for issues that are dangerous in nature, but do not hinder the mission.
-Steady red will always take top priority if more than one signal is encountered.

The display coordinates the signals from 19 inputs to provide outputs to two alarms. This eliminates many additional alarms that are typically added for various options.

The display organizes the inputs from the 19 alarm signals to provide 2 clear levels of concern:
-Constant tone alarm for steady red or flashing red indicators
-Intermittent chime alarm for flashing amber indicators.

Via special manual switches, the display is used to indicate troubleshooting codes generated by the engine, transmission, and ABS brake system. This replaces 3 indicator lights.

The display has 4 built in hour meters as follows:
-Engine hourmeter
-Midship pump hourmeter
-PTO #1 hourmeter
-PTO #2 hourmeter
-These hourmeters can be displayed via a manual maintenance switch, and can be reset by pressing both the hour and minute buttons on the face of the display at the same time.

The display has a built in digital clock which will display whenever no other signals are present.

22-01-0600

AMMETER

A heavy duty ammeter shall be included with the cab dash gauges. The ammeter scale shall read from -300 amps to +300 amps indicating charging status of the engine alternator.

22-03-1300

12 VOLT PLUG AND RECEPTACLE

A 12 volt power plug receptacle and cover shall be provided on the officer's side of the dash. The plug and receptacle are made from corrosion resistant marine grade materials. The plug locks into the receptacle providing a positive moisture proof connection.

22-10-0700

BATTERIES

Six (6) 12V Group 31 950 CCA batteries shall be installed three each side of the cab under the rear entrance way.

Heavy-duty battery cables shall be provided to maximize power available to the electrical system.

22-10-5200

JUMPER CABLE STUDS

A pair or jumper cable studs with color coded covers shall be provided under the driver's side battery box.

22-11-0600

BATTERY BOXES

Battery compartments shall be constructed of stainless steel and shall be located one (1) each side mounted on the vehicle frame. They shall be well ventilated and enclosed to protect against road splash and debris. Suitable provisions shall be provided for drainage.

The batteries shall be held firmly in place by providing a full frame type top clamp which encloses the battery set on all four (4) upper corner sides. The one piece clamp shall be fabricated of 3/4" angles and be held in place by two (2) "J" shaped clamping bolts. Battery inspection shall be provided through latched drop down doors in the crew cab lower step area.

22-11-5100

BATTERY MATS

The batteries shall be installed on a non-corrosive mat.

22-15-1400

SELECTOR SWITCH - BLUE SEA 9003

One (1) single battery system switch mounted near the driver's side front entrance in a location so it may be turned off by a person standing on the ground outside the vehicle. It shall have the capacity to handle 350 amps of continuous power.

22-15-3800

BATTERY CHARGER

There shall be one (1) Kussmaul 1000 Auto Charge single battery charger system installed in the vehicle's electrical system. The charger shall be fully automatic and shall maintain the truck batteries at a full charge level when connected to a 110 VAC source. Remote voltage sensing shall be provided to compensate the charger output for the voltage drop in the charging wires. A remote mounted indicator shall be provided which will contain one bar graph to display the condition of the batteries. A "BATTERY SAVER" circuit shall be provided for the charging of rechargeable hand lights, portable radios and other loads to a maximum of 3 amps while the unit is connected to the 110 VAC source.

22-15-5000

BATTERY CHARGER COVER

A smooth aluminum cover shall be provided over the battery charger. The outside finish shall match the cab interior finish.

22-15-5300

CHARGING PLUG

A 110 volt receptacle with cover and matching plug shall be provided and located in the drivers step. Receptacle to be common inlet for the block heater and the battery charger. Ref Long Beach 76366 for make and model of the receptacle.

22-20-0500

ELECTRICAL WIRING

The apparatus shall have the ability to function in an electromagnetic environment most common to fire ground operations. The electrical system shall be designed for full compatibility with low level control frequencies and any high powered two-way radio systems.

All wiring shall be protected by circuit breakers or fuses. Circuit breakers shall be the automatic reset type unless operational requirements and/or safety concerns dictate manual reset type. Automotive type fuses shall be used when required to protect delicate electronic equipment. All circuit protection devices shall conform to the Society of Automotive Engineers (SAE) standards. All circuit protection devices shall be sized according to 125% of the anticipated load to prevent any wire and/or component damage when subjected to extreme current overload.

All apparatus builder supplied wiring (excluding battery cables) shall be GXL high temperature (250 degrees minimum) type, color and number coded and imprinted with circuit function every 2 inches (no exception). Wiring connectors shall be the crimp type with plastic sleeve or shrink tube insulation covering the crimped area to prevent accidental grounding. Externally exposed in-line connectors shall also utilize shrink tubing for a weather proof connection.

All externally exposed, non-plug type, electrical connections shall be given a hand applied or sprayed application of an industrial standard insulation coating with a minimum rating of 2100 volts per mil thickness. Insulation shall protect the connection from water induced electrical corrosion and accidental short circuiting. Should the connection be loosened or removed during the manufacturing process another coating shall be applied after it has been refastened or replaced.

All solenoids, relays, and circuit breakers shall be protected against corrosion, excessive heat, vibration, physical damage and water spray. They shall be located in two (2) easily accessible compartments.

The lower power distribution center shall be located in the center forward portion of the cab "dash". It shall be hinged and opened by unlocking two (2) top mounted, double hinged, lift and pull latches. This area shall contain relays and circuit breakers. These items, along with the associated wiring to and from them, shall be neatly installed in a logical and serviceable fashion. All relays shall be identified as to function and circuit breakers shall indicate amperage required. Nomenclature tags shall be installed on the actual device.

The upper power distribution area shall be located overhead, above the engine tunnel. It shall be hinged and easily accessible. It shall be painted to match cab interior.

Any electrical component or device installed in an exposed area on the outside of the cab or body shall be mounted in such a manner, or protected by a gasket, caulking or other means, so that moisture will not accumulate in it.

All exposed electrical wiring shall be run in an automotive type split plastic conduit or woven fabric type loom and shall have rubber grommets installed wherever the harness passes through any sheet metal panels.

An operational test shall be conducted to ensure that all installed electrical equipment is properly connected and is in working order. Additionally all warning lights shall be run continuously during the three (3) hour NFPA pump certification test (or at another time for not less than three (3) hours).

Run dealer furnished communication wire from the electrical compartment in the center of the dash to the rear of the ladder stakes. Do not cut off excess. Any excess to be coiled in the dash with at least eight feet [8'] coiled and secured at the rear of the ladder stakes.

23-00-0800

LIGHTS

Exterior cab lighting shall meet or exceed Federal Department of Transportation, Federal Motor Vehicle Safety Standards and any National Fire Protection Association requirements in effect at time of proposal.

Five (5) amber LED type clearance and identification lights are to be installed across the top leading edge of the cab roof. Light bases shall have a bright finish.

Seven (7) red LED marker and clearance lights shall be installed at rear of body. The three light marker cluster shall be installed behind the rear step vertical flange and a rectangular opening with circular ends shall be made in front of each light. The clearance lights shall also be located behind the step flange if design permits. Two lights shall be placed at each body corner with one light facing the rear and one the side.

Reflectors shall be placed on the cab and body as required by Federal standards. An amber reflector shall be placed on each side of cab and four red reflectors shall be located on the rear face and sides of body. Reflectors shall be rectangular in shape.

23-00-0900

TURN/MARKER LIGHTS

One (1) Trucklite model #60115Y amber turn/marker LED light shall be provided and installed on each side of the vehicle near the center or midship point.

23-00-1100

LICENSE PLATE LIGHT

A bright finished license plate light and bracket shall be installed on the rear of the vehicle.

23-00-2700

HEADLIGHTS

Front headlights are to be halogen rectangular quad type with bright finished trim rings and bezel. Headlights shall be flush mounted in the front face of the cab.

23-00-3300

ALTERNATING FLASHING HEADLIGHTS

The chassis high beam headlights shall flash alternately controlled by a rocker switch. *Flasher unit to be Code 3 #711.*

23-00-5000

TILLER DRIVING LIGHTS

Rectangular rubber mounted tiller driving lights shall be provided, one (1) each side mounted ahead of tiller wheels below the compartments. Lights shall be Trucklite #80396 with clear halogen bulbs. Lights to be controlled by Linemaster #491 switch on tiller cab floor.

23-01-0300

REAR PICKUP LIGHTS

Two (2) Collins FX-12 fixed mount, 750,000 candlepower, spot/flood decklights shall be installed at the rear to provide ground and hosebed lighting for the rear of the vehicle. Each light shall be manually operated and switched on and off at the light as well as in the cab.

23-01-5000

DECKLIGHT(S)

Two (2) Collins FX-12 fixed mount, 750,000 candlepower, spot/flood decklights shall be furnished mounting *on the outside upper rear corners of the rear cab face. [ref:76366 for mounting brackets]* Each light shall be manually operated and switched on and off at the light as well as in the cab.

23-02-1100

FRONT DIRECTIONAL LIGHTS

There shall be one (1) Whelen **60A00TAR** LED amber arrow directional signal light installed on each side of the cab front face. Light lens shall have an amber arrow shape with black background. They shall be mounted in a chrome plated dual light bezel that matches the headlight housing.

Provide Wagner red steady burning inboard in the other half of bezel each side.

23-02-9000

SIDE DIRECTIONAL LIGHTS

Side directional lights shall be provided in addition to the front turn signals. They shall be Weldon model 9186-8560-20 "bug eye" type. One (1) light shall be mounted just above the front fender on each side of the cab. Lights shall have an amber polycarbonate lens and highly polished stainless steel mounting flange or bezel.

23-03-1100

STOP, TURN AND BACK-UP LIGHTS

Stop/Tail, turn and backup lights shall be provided with individual fixtures. Lights be ***mounted on the tiller access ladder each side.*** Stop/Tail lights shall be red Whelen **60R00XRR** LED Series, backup lights shall be clear Whelen ***60J000CR*** and the directional lights shall be an amber Whelen ***60A00TAR*** LED Series. All lights shall be equipped with chrome plated trim ring.

NOTE: Top to bottom: REAR WARNING // TURN // STOP - TAIL // BACKUP //.

23-10-0600

STEPLIGHTS

Four (4) *LED* automatic steplights shall be provided, one (1) at each cab entrance door.

Additional *LED* step worklights will be provided to illuminate step surfaces that lead to the

turntable.

23-10-1060

ENGINE COMPARTMENT WORK LIGHTS

Two (2) Trucklite engine compartment worklights individual switches shall be provided and wired to illuminate automatically when the cab is tilted. The lights shall also be wired through the engine compartment access door switch, providing illumination of fluid dip sticks and coolant overflow reservoir.

23-10-1A00

GROUND LIGHTS

Eight (8) LED weatherproof ground lights shall be provided underneath the vehicle, location to be specified.

23-11-1000

INTERIOR CAB DOME LIGHTS

Four (4) Weldon 8086-6978-68 red/clear lights with push button shall be mounted in the cab ceiling. Two (2) in front (driver & officer) and two (2) in the crew cab. All lights shall be controlled by a switch by the lens.

One (1) clear switchable Trucklight 7203 shall be mounted above the engine hood.

23-11-2100

MAP LIGHT

A Sunnex #741-20 cab map light with flexible neck and integral switch will be provided on the dash on the officer's side of the cab.

23-11-2700

AUTOMATIC DOOR SWITCHES

Automatic door switches shall be provided for the cab dome lights.

23-25-0100

COMPARTMENT LIGHTS

A 5" diameter moonstone light shall be provided in the ceiling of each compartment. Light shall be mounted on a "hat" shaped metal bracket welded to the compartment ceiling to eliminate mounting holes through the top of the compartment. Lamp lens shall be opaque (not clear crystal type) with a white color for more effective illumination. Lens shall be easily removable for changing bulb by turning it 15 degrees and pulling down. Each light shall be automatically and individually illuminated by opening the respective compartment door. A switch, installed in the door jam, shall be used to activate light. Lamps shall not have another individual switch on the light base.

23-25-1020

RECESSED COMPARTMENT DOOR LIGHTS

Two (2) additional Weldon #1060-1100-30 compartment light(s) shall be provided and recessed into the interior face of the vertically hinged single compartment door(s) to provide area lighting when they are open. The center of each light shall be located 6" off the hinge side of the door. If

two (2) lights per door are chosen, the lights shall be located 8" off the inside edge of the door.

23-25-1200

HAZARD WARNING LIGHT IN CAB

A Trucklite Model 7221 hazard light shall be installed on the ceiling in the forward section of the cab. The warning light shall turn on when the parking brake is disengaged to alert the driver that there is a open compartment/cab door, extended telelite, unnested power ground ladder rack, etc., i.e. when the parking brake control is released the light shall activate only if any of the above noted conditions exist.

24-02-2000

LIGHTBAR

A Whelen Model ***#FN72VLED 72" Freedom LED lightbar shall be provided on the cab roof. The lightbar to include the following:***

1 - Freedom Lens to be Red & Clear . Rear face to be blacked out.
2 - FDL40000 additional modules installed
3 - 9592 Opticom w/9UOPT155 pre-wire
4 - FLALY alley lights installed
5 - MK-5 mount kit

Alley lights to be individually dash switched "Left Alley" and "Right Alley". Lights to be on // off with 23-01-5000 cab mounted FX-12's. Alley lights to be hot off of the ignition. Opticom to have a dash mounted on // off switch.

24-02-4300

WARNING LIGHT

Four (4) Whelen model Super-LED lights with flange shall be provided.

Two [2] to be located at the top of the stop / tail / turn. Lights to be amber on the right - red to the left and flash side to side. Flasher provided in QW # 24-03-1000

Two to be located on the rear of the tiller cab. Lights to be red and flash sided to side. Flasher provided in QW # 24-03-1000

Red lights to be model# 60R02FRR
Amber light to be model # 60A02FAR

24-02-4400

WARNING LIGHT

Ten (10) Whelen model 70R02FRR Super-LED red light(s) with flange shall be provided and located as directed.

24-02-7800

UPPER REAR WARNING LIGHTS

Two (2) Whelen Model ***B6TMR1P*** lights shall be provided on the upper rear of the apparatus. The upper level shall consist of a red Super-LED rotator light. The lower level shall consist of a red Linear Super-LED light. ***The front outboard corner of the red dome to be blacked out each side to prevent reflection in the truck rear view mirrors.***

24-03-1000

WARNING LIGHT FLASHER

A flasher will be provided for every four (4) halogen warning lights.

24-90-1500

CLASS ONE TOTAL SYSTEM LOAD MANAGER SEQUENCER

A Class One Total System Manager shall be provided which shall automatically sequence the electrical loads on and off to eliminate power surges. The unit shall also protect the vehicle's electrical system from overloads, by monitoring the battery voltage. If the current load exceeds the alternator output, the "Load Manager" shall shut down individual loads as required to maintain the required system voltage. The load shed priority shall be programmable, and may be determined by the fire department. An LED indicator that is energized whenever the load shed circuit is functioning shall be provided.

25-01-0100

BACKUP ALARM

One (1) Preco Model LDA-50 backup alarm shall be provided and activated when the vehicle transmission is placed in reverse. Alarm output shall be a minimum of 97 DBA.

25-16-1000

TWO-WAY TILLER TO CAB BUZZER SYSTEM

There shall be a two way signal and warning system provided to indicate truck movement as required by the NFPA. It shall consist of a buzzer mounted in the tractor cab that shall instruct the driver to go forward, backup or stop and a second buzzer located in the tiller cab to alert tillerman that the vehicle will be moving forward or backward. Buzzers shall be activated by a switch located in tractor cab and the "horn" button in the center of the tiller steering wheel. They shall be labeled: (1 - STOP) (2 - GO) (3 - BACKUP). ***Provide a Linemaster 491 foot switch on the RH floorboard IATS.***

The tillerman's buzzer button shall also be part of the engine starting system interlock that requires tillerman to be on board, i.e. he must activate buzzer to allow driver to start engine.

26-00-1100

AIR HORN WITH SWITCH

One (1) Grover 1510 chrome air horn shall be furnished. A pressure protection valve shall be installed in-line to prevent loss of all air from the vehicle air brake system. An air/electric horn selector switch shall be provided which will allow either the electric or air horn to be actuated by the horn button on the steering wheel.

26-00-3500

TILLER DRIVING LIGHTS FOOT SWITCH

A Linemaster Model 491 momentary foot operated switch ***to activate the Tiller Driving Lights*** will be ***installed on the tiller floor - RH side***.

26-10-7000

UNITROL TM-4 SIREN

A Unitrol TM-4 w/NCM provided and mounted In the overhead console. Unit to be hot off of the battery switch.

26-10-9000

SWIVEL MOUNTING BRACKET

The siren shall be installed on a swivel bracket. The bracket shall allow either the driver or officer to operate siren controls by turning the siren head.

26-11-1100

SIREN SPEAKER(S)

One (1) Whelen Model SA-340STS short round aluminum 100 watt speaker(s) shall be provided and recessed mounted in the front bumper.

26-12-0300

SIREN FOOT SWITCH

There shall be a floor mounted Linemaster Model 491 foot siren switch to operate the siren. Switch shall be mounted and located as directed.

26-15-5500

MECHANICAL SIREN

A Federal Model Q2B siren with chrome plated housing shall be recessed mounted in the front bumper extension with front and vane grille exposed. Two foot switches shall be provided, installed one each side of the cab, on the toe board. There shall be an electric brake control installed in the cab, at the driver's switch panel, properly labeled.

27-00-0030

Hydraulic Generators - Seagrave Stick Aerials

27-00-4000

ONAN 10.0 kW HYDRAULIC GENERATOR

An Onan 10.0 kW PTO driven hydraulically powered generator system shall be provided and installed in the open bin area above the pump housing on the apparatus. The genset shall be an Onan model CMHG. The genset system shall be capable of producing the nominal output power of 10.0 kW, 120V/240V, 60 Hz. The genset shall be installed per the manufacturer recommendations and shall be capable of supplying full power during all engine speeds or operation modes. The genset shall be capable of being switched on or off at any time, with or without electrical loads applied. the genset field and armature windings shall be of copper magnet wire, coated with a class 200 kVA and recover to 90% of rated voltage within ½ second. The genset shall be capable of continuous operation in 120°F ambient conditions.

A PTO adapter shall be used. The gear ratio of the PTO shall be selected to provide required genset pump speeds with respect to engine speeds. The hydraulic pump shall be directly mounted to the PTO using the standard SAE flange.

The hydraulic system reservoir shall be mounted at least 2' above the pump and shall have access for fluid filling, draining and viewing the sight glass fluid level indicator. Clearance of at least 10" above the reservoir shall be provided for hydraulic fluid filter service. The system reservoir shall be labeled with the type and approximate amount of fluid required. The fluid shall be Dexron III hydraulic fluid.

All connecting hydraulic hoses and fittings shall be of the size and pressure rating specified by the manufacturer. The hoses shall be adequately protected from chafing or abrasion during operation.

A display meter consisting of 4 numeric LED displays shall be used. The meter shall simultaneously display system voltage, frequency and amperage in each of the two 120V legs. The meter shall also have provisions for toggling to total hours run and oil temp via a mode switch. The display shall be mounted in an area clear for operation as is directed by the fire department. A high temperature visual and audible alarm shall be provided and installed.

27-02-0400

GENERATOR START/STOP SWITCH AND LIGHT

A remote start/stop switch and amber running light for the generator shall be provided ***adjacent to the breaker box.***

27-05-0400

BREAKER BOX

A twenty (20) place Square D brand, or approved equal, gray colored circuit breaker box shall be provided and installed in the front upper left hand side compartment. Manual reset circuit breakers, matching the rated output of each specific outlet or device shall be provided. All power supply assembly conductors, including neutral and grounding conductors from the line voltage power source to the circuit breaker box shall have an equivalent amperage rating and shall be sized to carry not less than 115 percent of the amperage of the nameplate current rating of the power source. Power supply conductors shall be run in nonmetallic liquid tight flexible conduit or type SO/SEO cord with a WA suffix. Conduit shall have a temperature range of -67°F (-55°C) to 221°F (105°C). Wiring from the circuit breaker box to the individual outlets and devices shall be sized in accordance with NFPA 70, *National Electrical Code* requirements. Branch circuit wiring conductors shall be run in (1) metallic or nonmetallic liquid tight flexible conduit rated for use in a temperature range of -67°F (-55°C) to 221°F (105°C) with stranded copper wire rated for wet locations and temperatures not less than 194°F (90°C) or (2) Type SOW, SOOW, SEOW, or SEOOW flexible cord, rated at 600 volts and at temperatures not less than 194°F (90°C). A power source specification label shall be permanently attached to the apparatus near the operators control panel.

27-05-1100

RECEPTACLE(S)

Four (4) 120 volt 3-wire twist lock receptacle(s) shall be provided and installed in weatherproof boxes with spring loaded covers. Outlets shall be located as directed by the Fire Department.

27-05-3100

CORD REEL

Two (2) Hannay Model ECR1616-17-18 power rewind cord reel for live electric cable shall be provided and installed in a suitable location to be determined by the Fire Department. Reel shall be 12 volt electric rewind and be equipped with an electrical collector ring with a minimum #10 gauge, 3-conductor wiring. Capacity of the reel shall be a minimum of 200 feet 10/3 gauge electric cable.

Reel end plates to be SS. Provide captive rollers each reel.

27-05-4400

CORD REEL CABLE

One (1) 200 foot length of 10/3 type SO electric cable shall be provided and installed on the cord reel. *Provide twist lock on end of cable compatible with plug on the "J" Box.*

27-05-5100

CABLE STOP

A molded plastic spherical type hose stop shall be provided near the end of the cable. It shall prevent damage to the electrical plug or connection when the reel is rewound. Stop shall be drilled for the correct cable size. It shall be a two piece design that clamps over the cable by tightening two bolts. Bolts shall be recessed into the ball to keep them from damaging the roller assembly when it is fully retracted.

27-05-5800

4-OUTLET JUNCTION BOX

A four (4) outlet junction box with built in pilot light manufactured by Extenda-Lite shall be provided on the end of the cord. Outlets shall be the twist lock type, Nema number L5-15R (15 Amp). The heavy duty 1/4" cast aluminum case measuring 9-1/4" W x 5-1/2" D x 8-3/4" H shall have a large integral handle making it easy to carry with or without a glove. Each side shall be fitted with 1/4" thick, polypropylene faceplates that are backlighted with a 25-watt lamp. The bright back lit receptacle panels shall make the junction box easy to locate and allow easy and correct orientation of plugs to the receptacles, even at the darkest work sites. A junction box mounting box shall be provided.

27-22-0400

FLOODLIGHT(S)

Two (2) scene light(s) shall be Fire Research NIGHTMASTER, Model LT530-M, side mounted, push up type. The entire assembly shall be UL listed as "Scenelight for Fire Service Use". The tightening mechanism shall be of a twist lock design. The use of a knob or latch to release the pole in order to raise and lower the telescoping portion of the pole shall not be acceptable. The outermost pole shall be of extruded aluminum that shall provide a non-slip grab surface that meets NFPA specifications for access handrails. The light(s) shall be wired into the hazard warning system.

27-22-5100

FLOODLIGHTS

Four (4) Fire Research Corp. 1000 Watt 120 volt Model FCA530-M10 Focus telescoping floodlights (bottom raise) shall be installed on the apparatus as directed by the fire department. The lights shall be wired into the hazard warning system.

Provide a "LOWER SLOWLY" label for the two lights mounted on the operator stand compartment.

27-22-5500

FLOODLIGHTS

Two (2) Fire Research Corp. 1000-Watt 120-volt Model ***FCA570 CA-M10 Focus fixed mount floodlights shall be top mounted on top of the 3rd tall trailer compartment each side. Lights shall be switched with the rest of the scene lights on the cab dash. All LH on // off and all RH on // off.***

27-40-0300

INDIVIDUAL REMOTE SWITCHES

Individual remote mounted floodlight switches shall be provided and mounted on the cab dash.

42-25-1100

TRACTOR FENDERS WITH STAINLESS STEEL FENDERETTES

Rear tractor fenders shall be fabricated assemblies of 12 gauge metal. Front and rear top corners of fender shall have a 10" radius. Top and front face of fender compartment shall have a 1/8" aluminum treadplate overlay. *Ref 76366 PE.*

Polished stainless steel fenderettes shall be installed in the rear tractor fender compartment wheel openings. Fenderette shall be sufficiently wide to completely cover the outside rear tire and reduce wheel splash along the sides of the tractor and trailer. They shall be installed with 1/4" hex head bolts (self-tapping sheet metal screws are not acceptable) and have a full width rubber welt placed between the fenderette and wheel opening flange. A liberal coating of anti-corrosive and rust preventative shall be applied to fenderette and wheel opening flange during the assembly process. Outside edge of welting shall form a "V" bead between fenderette and fender compartment to prevent moisture from entering. Inside edge shall also have a small raised bead. Outside edge of fenderette, at the wheel opening, shall be rolled inward to eliminate a sharp edge and avoid injury when cleaning apparatus.

Full circular innerliners shall be provided in each wheel housing. They shall be constructed of smooth aluminum and be bolted in place so they may be removed if damaged. An inset panel shall be provided for access to the spring shackle pins. Bottom edge of liner shall not have a formed reinforcement flange (to avoid trapping dirt and debris) but shall be reinforced along its full length. Top and front face of fender compartment shall have a 1/8" aluminum treadplate overlay.

44-00-0200

RUNNING BOARDS

The running boards shall be fabricated of 3/16" aluminum treadplate and supported by structural steel angle assemblies bolted to the chassis frame. Running boards shall be approximately 7.50" deep and shall be spaced 1/2" away from rear fender and side apron. Side aprons shall be constructed of .125" aluminum treadplate to provide kick plates behind the running boards and shall be removable to provide for complete access to fuel and hydraulic tanks for service. The running boards shall serve as steps for access to the turntable platform and shall also act as rub rails to protect the tractor mounted compartments from damage.

44-05-0100

TOOL BOX

A 15.00" wide x 13.00" high x 52.00" long tool box with lift-up door, constructed of .125" aluminum treadplate shall be transverse mounted on the tractor platform so as to serve as a step for access to the aerial turntable.

44-10-0200

COMPARTMENT-TRACTOR

Two (2) *26.00" wide* x 40.00" high x 20.00" deep compartments shall be tractor mounted, one each side located directly behind the cab. The center area between the compartments shall be provided with a rear ventilated, removable panel and lift up cover on the top side to accommodate a generator. Vertically hinged double doors shall be provided on each compartment facing the outside of the tractor. One (1) door each side shall be provided with Eberhard 206 locks, top and bottom, controlled by a single stainless steel "D" ring handle. The free door shall be held shut by the latched door.

The compartment doors shall be provided with stainless steel double spring door stays.

The top exterior and rearward exterior (nearest the turntable) of the compartments shall be covered with aluminum treadplate.

44-10-2000

LADDER PIPE COMPARTMENT

A 22.00" wide x 60.00" long x 11.00" high ladder pipe hose compartment shall be provided and installed on the top of the tractor compartment directly behind the cab. The compartment shall be constructed of 1/8" aluminum treadplate and shall include a full length hinged cover with gas door props. The bottom of the compartment shall be covered with Dri-Deck to provide ventilation below the hose.

44-10-3100

SIDE APRON COMPARTMENT

One (1) *45.00" wide* x 15.00" high x 15.00" deep side apron compartment shall be provided on each side of the tractor above the running boards. Each compartment shall have an aluminum treadplate drop down door.

44-20-0200

TILLER CAB

A permanently mounted, fully-enclosed tiller cab shall be provided, mounted to the rear of the aerial ladder. The cab is to have a tubular steel framework with stainless steel skin and is to have a minimum width of 36" and a minimum height of 54.00". The floor of the cab shall be aluminum treadplate with a forward area angled up to provide foot support for the tillerman. The front windshield shall be a flat piece of tinted safety glass, 23.31" high by 32.31" wide. The rear cab window is to be a minimum of 13.31" high by 29.31" wide and shall be a sliding type window. Two sliding back doors with side windows are to be provided, one each side of cab. Doors shall be mounted on A.S. America slides, top and bottom, and shall be lockable in either open or closed position. When locked in the open position, a minimum door opening 21.50" shall be provided for easy entrance into the cab.

The vehicle overall height at the tiller cab shall be 135.00". The minimum clearance between the tiller cab and the aerial ladder shall be 7.00".

The cab shall be equipped with the following features:

- Electric two-speed windshield wipers
- One (1) open/close air vent, in rear cab panel
- Two (2) open/close air vents, one each side in front side panel
- A 18" diameter steering wheel
- ***Two inch [2"] Amber jeweled*** turn signal indicator lights mounted on the dash
- A two-way signal buzzer system from the tiller cab to the tractor cab, with the buzzer button mounted in the center of steering wheel with interlock for engine starting
- One (1) sun visor for the front windshield
- A dome light with on/off switch on the light
- An audible & visual warning system to warn both the front cab and tiller drivers when jackknife approaches the maximum allowable position.

44-20-0600

TILLER STEERING COLUMN

The upper steering column shall be of the tilt and telescopic type.

44-20-1900

ALUMINUM TREADPLATE ROOF

The tiller cab roof shall be covered with 1/8" aluminum treadplate.

44-20-4000

TILLER'S SEAT

The tiller's seat shall be an H.O. Bostrom Sierra FX fixed ***low back*** seat. This seat shall have 5" horizontal adjustment. A DOT approved 3-pt. shoulder harness shall be furnished that is red in color.

44-20-5200

SLIDING GLASS

Sliding glass side windows manufactured by Young Window Inc. shall be provided in the tiller cab.

44-20-7000

TILLER MIRROR

A Velvac #708192-5, 6.5" x 10" flat glass mirror shall be installed to the cowl on each side of the tiller cab.

44-20-7099

TILLER MIRROR - CONVEX - 12"

Provide a 12" convex mirror each side on the rear face, outboard, of the rearmost tall trailer compartment.

44-20-8000

TILLER HANDRAIL

A 40" knurled aluminum handrail shall be vertically mounted in front of the tiller cab access door on each side of the tiller cab.

44-25-0200

TILLER HEATER

A diesel fueled tiller heater, 3100 - 7000 BTU's with adjustable controls, shall be provided in the tiller cab. One heater outlet will be for windshield and one outlet will be provided for cab floor. Installed on the front face of the tiller cab shall be a separate polyurethane diesel fuel tank. In-line between the fuel tank and the tiller diesel heater shall be an electric fuel pump, complete with check valve and shutoff valve. An informational label stating, "RUN HEATER CONTINUOUSLY FOR 20 MINUTES EVERY MONTH", will be provided.

44-30-0100

BODY CONSTRUCTION - TRAILER

The compartments shall be fabricated of 3CR12 stainless steel of modular design. Compartment floors to be integral with compartment and of 2.5 mm 3CR12 stainless steel. All compartments shall be the "sweep out" type with the floor higher than the compartment opening flange. All seams of compartments to be caulked with acrylic sealant.

Compartments shall be as follows:

44-31-0700

COMPARTMENTATION

The compartmentation shall consist of the following:

Two (2) compartments in the trailer gooseneck area immediately to the rear of each "A" frame ground jack, one (1) each side. Each compartment shall be 17.00" wide x 24.00" high x 26.00" deep and shall include a vertically hinged door.

One (1) full height transverse compartment behind the above compartments, with one (1) set of vertically hinged double doors each side. The compartment shall be 46.00" wide x 55.19" high. The lower section (12.25") and the upper 28.00" of the compartment shall be open through from side to side, a full 92.00" inside the doors. The center section of the compartment through which the trailer frame passes shall be 25.38" deep each side.

All trailer compartments ahead of the tiller axle to have full height doors. Ref 76366.

1st Tall Compartment - Provide five [5] Unistrut welded to the comapartment ceiling. Unistrut to run fore and aft. One to be centered the others to be spaced between the center one and the door opening. Exact spacing will be provided at pre-construction. Fifty [50] 1/4" x 20 nuts to be included.
2nd Tall Compartment - Provide a removable bulkhead from the shelf down to the frame.
3rd Tall Compartment - Compartment depth LH side above the frame to be as deep as ladder banking will allow. Shelf [59-15-0200] to be full depth of this compartment.
4th Tall Compartment - Compartment depth LH side above the frame to be as deep as ladder banking will allow. Shelf [59-15-0200] to be full depth of this compartment.
4th Tall Compartment - Below the frame LH side provide a removable bulkhead 42.5" in. Dimension is with door closed.

Each compartment shall have a .19" wide x 46.00" long drain located on the centerline of the compartment. The compartments shall be bolted to the trailer frame with 3" x 2" angle brackets. A minimum of two (2) flex joints shall be provided to allow proper flexing of the trailer body.

All vertical hinged doors shall be provided with stainless steel double spring door stays.

All horizontal hinged doors shall be provided with pneumatic piston operated door holders. The door holders shall support the weight of the door in the open position.

44-31-5100

ADDITIONAL TRAILER COMPARTMENT

Two (2) compartments shall be provided, one (1) each side behind the tiller axle, 54.00" wide x 24.50" high x 22.00" deep. Compartments shall include vertically hinged doors. Compartment to be through below the frame. Ref: 76366

Provide a removable bulkhead 26" in from the street side. Dimension is with the compartment door closed.

The two compartments shall be provided with stainless steel double spring door stays.

44-31-5200

ADDITIONAL TRAILER COMPARTMENT

An equipment compartment shall be provided at the rear of the trailer on the rear step directly below the frame. The compartment shall be provided with a drop down aluminum treadplate door with D-ring 2 point positive lock. The compartment shall be 36.00" wide x ***13" high [to the bottom of the frame high] x 23" deep [from the end of the tailboard to the rear body face] Sides and door to meet the bottom of the frame. To be weather resistant, not weather tight.***

44-31-5300

GOOSENECK COMPARTMENT

Provide a compartment on the curb side, with a drop down door, for SCBA bottle storage in the gooseneck below the turntable.

44-31-5400

AIR BOTTLE COMPARTMENTS

Four (4) compartments shall be provided, two (2) each side in the tiller fenders for storage of air bottles. The compartments shall be fabricated from 14 gauge steel to match the body type, and shall provide a minimum of 26.00" usable depth. Compartments shall be provided with single panel stainless steel doors and **chrome lift and turn latches.**

Compartments shall have 3 interior louvers in back of panel for ventilation. The compartment shall be provided with a wooden bottle rack with a polyurethane clearcoat finish. Rubber strips shall be installed on the cleats of the bottle rack to prevent damage to the paint finish on the compartment floor, and to keep the rack in it's proper position.

44-31-5499

TRAILER COMPARTMENT

Provide a compartment at the rear of the trailer frame. Access through a drop down door. Interior to have a floor and rear wall. Compartment not required to be weather tight. Compartment to be as large as possible. Ref 76366.

44-35-0100

INTERIOR COMPARTMENT LOUVERS

All compartments shall be furnished with back wall louvers to allow adequate ventilation of the compartments.

44-37-0100

ROLLOUT TRAY UNDER TRAILER FRAME

There shall be two [2] transverse roll out trays. One to be side to side above the frame and one to be side to side below the frame. Locate in 1st tall compartment .Trays to be as large as possible.

44-39-1100

ALUMINUM TREADPLATE DECKING

A 3/16" aluminum treadplate deck shall be provided over the ground ladder arches to protect the ladders and provide a walking surface along each side of the aerial ladder when it is in the bedded position.

44-40-0300

COMPARTMENT DOORS

The compartment doors, unless otherwise specified, are to be lap type, double panel construction. Outer pan edges that form the lap portion of the door shall be "hemmed" (bent over and back 180 degrees) over the inner pan edges. Inside corners, at the hem joint area, shall be welded and ground smooth. A minimum of one (1) "Z" shaped and formed support rail [two (2) if door is wider than 14"] shall be placed between the panels to stiffen and reinforce the door. Stiffener shall be welded to the inside pan and fastened to the outside pan with 3M two sided industrial strength tape. The door material shall be the same type as used in the body construction.

The doors shall be weatherstripped with an automotive bulb type extruded rubber inner seal. A second outer seal of closed cell rubber shall be placed on the lap edge of the door to prevent damage to the paint finish. Outer seal shall have corrugated surface to prevent sticking.

The doors shall be mounted on highly polished stainless steel piano hinges with a pin diameter of .25". Mounting holes shall be slotted vertically on one side of the hinge and horizontally on the other side to provide for proper adjustment of the door. The hinge pins shall have spun ends (crowns) at both ends to hold them in place and provide a finished look. Doors shall be bolted to door framing with 1/4", stainless steel, Phillips oven head bolts. Doors mounted with self-tapping sheet metal screws are not acceptable. Eberhard 206 latches with stainless steel "D" ring handles shall be provided. Isolation tape shall be furnished between the door hinge and door jamb. A rubber gasket shall be provided between the "D" ring handle and the door.

44-40-1040

KEYED COMPARTMENT DOORS

The stainless steel D-ring handles shall be provided with key type locks on compartment doors as specified by the customer. All locks shall be keyed alike (use the same key).

44-40-1050

The free door of each double door compartment ***shall be secured by the latching door.***

44-45-0300

FENDERS

Streamlined front and rear trailer fenders shall be provided. They shall be fabricated of 12 gauge metal matching the material used in the body. The top of the front fender shall be covered with aluminum treadplate decking to provide a platform for access to the turntable. No exception. The front trailer fenders shall house the "A" frame hydraulic jacks.

Polished stainless steel fenderettes shall be installed in the rear trailer fender compartment wheel openings. Fenderette shall be sufficiently wide to completely cover the outside of the tire (in the straight forward position) and reduce wheel splash along the sides of the trailer body. They shall be installed with 1/4" hex head bolts (no sheet metal screws) and have a full width rubber welt placed between the fenderette and wheel opening flange. A liberal coating of anti-corrosive and rust preventative shall be applied to fenderette and wheel opening flange during the assembly process. Outside edge of welting shall form a "V" bead between fenderette and fender compartment to prevent moisture from entering. Inside edge shall also have a small raised bead. Outside edge of fenderette, at the wheel opening, shall be rolled inward to eliminate a sharp edge and avoid injury when cleaning apparatus.

Rear trailer fender shall have full semi-circular innerliners installed in each wheel housing. They shall be constructed of smooth aluminum and be bolted in place so they may be removed if damaged. Top and rear face of fender compartment shall have a 1/8" aluminum treadplate

overlay.

44-50-0200

REAR STEP

The rear step shall be constructed of 3/16" aluminum treadplate and supported by a channel assembly bolted to chassis frame.

44-55-0100

ACCESS LADDER

One access ladder shall be provided on the curb side of the tiller cab. The ladder shall be constructed of two (2) aluminum side rails with aluminum "Gripstrut" steps. Ladder to be sloped inward a minimum of 6 degrees for easier access to the tiller cab. Ladder to be bolted to the body for easy replacement if damaged.

44-55-0300

OPTIONAL TILLER LADDER

An additional tiller cab access ladder matching the street side ladder shall be provided on the driver's side of the vehicle.

44-60-0100

HANDRAILS

Handrails shall be 1.25" diameter extruded aluminum with slip resistant rubber inserts and chrome plated end stanchions. A vertically mounted swimming pool style handrail for each access ladder to tiller cab to be provided. One (1) 18" handrail shall be provided on the upper right hand beam of the tiller access ladder(s). Two 8" long rubber covered grab handles, one mounted forward of each tiller cab door, are to be provided.

59-15-0200

ADJUSTABLE SHELF OR SHELVES

Five (5) adjustable shelf or shelves (with open corners) made from 12 gauge stainless steel shall be provided. Each shelf shall be supported by four (4) stainless steel angles bolted to "alumastrut" tracks for adjustability.

Location of shelves shall be:
LH:
Two [2] in the 3rd tall compartment to be full depth of the compartment
One [1] in the 4th tall compartment to be full depth of the compartment.

RH:
One [1] in operator stand compartment
One [1] in 3rd tall compartment

59-16-0099

FULL WIDTH ADJUSTABLE SHELF

Provide a full width adjustable shelf in the second full height trailer compartment. Shelf to be raw aluminum or SS, unpainted, and lip down. Locate approximately 12" down from the door opening.

59-17-1700

ROLLOUT TRAY

One (1) rollout tray constructed of stainless steel shall be provided. The tray shall have edges on all four sides for added strength and be mounted on heavy duty rollers able to support a minimum of 500 lbs. ***Tray to be 2/3 tray. [Across the top of the frame]*** Tray shall extend 70% of the slide length. **Tray shall be located in the 2nd tall compartment.**

59-20-0300

COMPARTMENT DOOR SILL SCUFF STRIPS

Brushed stainless steel scuff strips, approximately .50" wide, shall be provided on the compartment door sill(s) to protect the painted finish.

59-20-0500

COMPARTMENT DOOR SCUFFPLATES

Brushed stainless steel scuffplates shall be provided on the inside of each compartment door to protect the painted finish.

59-20-0600

COMPARTMENT DOOR SCUFFPLATES

Brushed stainless steel scuffplates shall be provided on the inside of each compartment door to protect the painted finish.

59-20-4200

RUB RAILS

Brushed stainless steel rub rails shall be provided along the lower portion of the body, beneath the compartment doors, on each side to prevent damage to the body and finish. The rub rails shall be a minimum of 2-5/8" wide x 1" deep and shall be mounted on rubber supports. The rub rails shall have a 1" x 1" chamfer at the front and rear. The rails shall protrude 1-11/16" from the face of the body.

91-01-5300

ADJUSTABLE SHELF FINISH, DA

Each adjustable shelf shall have a DA'd finish.

91-01-6300

ROLLOUT TRAY FINISH, DA

Each rollout tray shall have a DA'd finish.

60-00-0100

AERIAL HYDRAULIC SYSTEM

HOSE: High pressure hydraulic hose used for the circuits of the hydraulic system shall have a minimum burst strength of four (4) times operating pressure.

FILTER: An easily accessible 6 micron replaceable filter shall be installed in the hydraulic pressure line. A 10 micron return filter is installed in the reservoir.

RESERVOIR: The hydraulic system shall have a 30 gallon capacity oil reservoir with a dipstick to check oil level. The hydraulic oil reservoir shall be provided with shutoff valves or check valves on all inlets and outlets.

PUMP: The hydraulic system shall be supplied by a pressure compensated hydraulic pump with sufficient capacity to permit all ladder functions to operate simultaneously. The hydraulic system shall operate at a nominal 27 GPM flow at pressure up to 3,000 PSI.

60-05-0100

HOT SHIFT POWER TAKE/OFF FOR AERIALS

The apparatus shall be equipped with a power (hot) shift PTO driven by the chassis transmission. An indicator light shall be located in the cab next to the PTO switch to indicate when the PTO is engaged. The PTO shall be installed in such a manner that it will engage only if the parking brake is set and the transmission is in neutral. There shall be no exceptions to this interlock system since it is designed to protect and safeguard personnel and equipment.

60-10-0100

EMERGENCY PUMP

The apparatus shall be equipped with an emergency hydraulic pump. The pump shall be driven by a 12 volt electric motor with power from the truck batteries. It shall be capable of providing hydraulic power for limited (slower) ladder functions and for stowage of the unit in case of prime power failure. The control switch for the emergency pump shall be located at the outrigger control station. The control switch shall be a spring loaded momentary type to prevent prolonged operation of the emergency pump.

60-12-0100

HYDRAULIC SWIVEL

The aerial shall be equipped with a hydraulic swivel that connects the hydraulic lines from the hydraulic pump and oil reservoir to the aerial control valve bank. The swivel shall be located at the turntable bearing and shall permit 360 degree ladder rotation.

60-20-0100

HOIST SYSTEM

Two (2) double acting (power up and power down) lift cylinders shall provide smooth and precise elevation from -5 to 80 degrees above horizontal. Units that do not operate below 0 degrees shall not be acceptable. Elevation cylinders shall have a 6.00" internal diameter (bore), 2.50" cylinder rod diameter and a 39.00" stroke. The elevation cylinders shall be equipped with integral (on the cylinder) holding valves to prevent the unit from falling should a charged line be severed at any point within the hydraulic system.

60-25-0600

EXTENSION-RETRACTION SYSTEM

A full hydraulic powered ladder extension and retraction system shall be provided utilizing dual hydraulic cylinders and cables. Each cylinder shall be capable of operating the ladder in the event of a failure of the other. The extension cylinders shall have a 3-1/4" internal diameter (bore) and a 1-1/2" diameter double acting rod. The extension/retraction cylinders shall be equipped with integral (on the cylinder) holding valves to prevent the unit from falling should a pressurized hydraulic line be severed at any point within the system. The extension/retraction cables shall be

of the following diameters: 3/8" 2nd section; 5/16" 3rd section; 1/4" fly section.

Nylatron NSM wear pads shall be provided between the telescoping sections for smooth operation.

60-30-0100

ROTATION SYSTEM

A heavy-duty 34" center to center, 39.88 O.D., swing bearing shall be provided. This bearing shall feature four-point contact ball bearing design combined with offset raceway construction and individual ball separators to give maximum combined thrust and radial moment capacities. Races shall be deep induction hardened and precision ground. The bearing is to have a minimum of 61 precision, 1.38" diameter chrome alloy steel balls kept at uniform spacing by resilient spacers. Two (2) grease fittings shall be provided for proper lubrication.

The bearing shall be attached to both turntable and turntable support structure with grade 8 bolts. Both surfaces to which the bearing shall be mounted shall be milled to provide a level mounting. Welding of bearing to either support shall not be allowed, no exception. A planetary gear drive unit mounted on the turntable opposite of the control pedestal and powered by a hydraulic motor shall be provided. A spring applied, hydraulically released, disc type brake shall be furnished to provide positive braking of the turntable assembly.

60-30-5030

ROTATION INTERLOCK SYSTEM

The apparatus shall be supplied with a rotation interlock system. This interlock system shall not allow the aerial to be rotated over the side of the apparatus if the stabilizers on that side are not fully deployed. The interlock system shall include a light and audible alarm that will activate when rotation is no longer allowed. Once rotation is stopped the interlock system shall allow the operator to rotate away from the stopping point without the use of an override. A manual override feature shall be provided that will allow the operator at the turntable the ability to override the interlock system. There shall be NO EXCEPTIONS to this interlock system since it is designed to protect and safeguard personnel and equipment.

The rotation interlock system box/module shall be located in a junction box under the fifth wheel or gooseneck.

60-32-0100

TURNTABLE

The turntable shall consist of aluminum treadplate to provide a slip resistant surface while operating the ladder. Two 1-1/4" 12 gauge stainless steel tubing guardrails with ribbed rubber covering shall be furnished, one directly behind the control console and one on the left hand side. They shall be a minimum of 42" high. There shall be a minimum of 12 sq. ft. of useable walking surface on the turntable.

60-50-1500

OUTRIGGERS

Outrigger jacks shall be "A" frame type with two-man operation and fully capable of retraction on any angle without undue binding. The hydraulic cylinders shall have a 3" inside diameter, 1.75" rod diameter and 38" stroke. The cylinders shall be equipped with integral holding valves to prevent retraction in the event of a severed pressurized hydraulic line.

The jacks shall be fitted with swivel base pads with a ground contact area of 132 square inches.

Ground jack spread shall be a maximum of 150".

Not available with 500# TDA.

60-55-1600

OUTRIGGER CONTROLS

Outrigger controls, one valve body with two (2) handles, shall be located on the driver's side in an enclosed compartment in the extended front fender area of the trailer under the turntable .An indicator light shall illuminate when proper ground jack placement has been achieved. The valve will be controlled by electric joysticks.

60-60-0100

OUTRIGGER ALARM

An automatic electronic warning device (horn) shall be provided to warn personnel when the outriggers leave their nested position. Alarm shall operate only when outriggers are moving.

60-65-0300

OUTRIGGER LIGHTING

Two (2) red flashing lights shall be mounted, one (1) on each side adjacent to each outrigger.

All flashing lights shall be automatically activated if any outrigger leaves its nested position and shall not be switched off until all ground jacks are once again in their stowed position.

60-70-0100

AUXILIARY OUTRIGGER PADS

A set of two (2) auxiliary outrigger pads, 18" x 18" shall be provided for additional load distribution on soft surfaces. Each pad shall be designed to withstand the maximum possible loads without sustaining permanent deformation.

61-00-0100

LADDER DESIGN STANDARDS

The ladder shall be designed with a structural safety factor of two to one (2:1) based on the dead and live loads.

The unit shall meet the intent of ANSI which requires a static stability safety factor of one and one half to one (1.5:1) based on the rated load.

NOTE: These capabilities shall be established in the unsupported configuration.

The aerial device and all supporting structure shall be third party tested to confirm that the design meets the intent of the latest recommended NFPA standard for aerial devices. Such testing shall include the use of brittle lacquer stress coating to identify all stress concentrations followed by strain gauging to verify that all nominal stresses and stress concentrations have a safety factor that is equal to or greater than 2:1 based on the dead and live load.

Proof of conformance with this test requirement shall be provided.

61-05-0600

AERIAL LADDER CONSTRUCTION

The aerial ladder shall be comprised of four (4) sections and extend to a nominal working height of 100 feet above the ground as measured by NFPA 1901 recommendations. The ladder shall be constructed of welded, high-strength steel throughout. Each section shall be trussed diagonally, vertically and horizontally and be reinforced at critical points for extra rigidity. Ladder rungs shall be round. They shall extend through the web of each ladder section rail and be fully welded at both the inside and outside of the beam faces to provide excellent torsional rigidity. Rungs shall also be "K" braced. All rungs shall be covered with deeply serrated, replaceable, heavy-duty rubber sheaths, glued and clamped securely to the rungs.

Main ladder section beams or rails shall be the hollow I-beam design for superior lateral rigidity (as compared to a hollow rectangle) and a high strength to weight ratio. They shall be formed in the factory of the bidder and be welded together by a continuously fed automatic welding machine. Holes in the rails for the rungs shall be punched through the entire web of the I-beam. Holes shall be formed outward in a "dish" shape to obtain the widest separation between the two weld points on the rung.

Ladder construction shall complement the support of heavy or unbalanced loads at horizontal or low angle positions. To allow the passing of personnel on the ladder, the minimum inside width dimensions of the four ladder sections shall be as follows: Base section - 31"; 2nd - 27.55"; 3rd - 24.09" and fly - 21.13". To allow for safe climbing and good "handhold" positioning at any climbing angle, the minimum height of the handrails above the center line of the rungs of the four ladder sections shall be as follows: Base section - 21.75"; 2nd - 18.56"; 3rd - 15.37" and fly - 12.19". The rated capacity of the aerial ladder shall be 250# at the tip in accordance with NFPA 1901, current edition.

61-06-0100

AERIAL LADDER SLIDES

The aerial ladder slide rocker pads shall consist of Teflon^{tm} impregnated polyethylene wear pads between each section. They shall be provided to reduce the frictional forces between the individual sections of the ladder. No exceptions to this requirement.

61-10-0100

FOLDING STEPS

One (1) set of two (2) galvanized steel, grip strut, folding steps with locks shall be installed to provide substantial footing for an operator stationed at the tip of the fly section. Each step area shall be a minimum of 7 x 7" square. A 1" high stop shall be provided to prevent foot from sliding off the side of the step. A pull type, spring loaded, lock shall be provided to hold each step in the unused position. Lock shall be easily accessible to personnel climbing ladder. It shall lock automatically when step is folded up in the unused position. Steps shall not protrude more than 1-1/4" into the climbing area of the ladder when in the up position.

61-12-0500

DETACHABLE AERIAL LIFTING DEVICE

A detachable aerial lifting device for rescue lifting will be supplied. The lifting device can be easily and quickly attached to the tip of the ladder fly section and allows the load to be centered between the ladder rails. The device has a dual pulley (sheave) for use with a 1/2" rope. The sheave (pulley) has been designed for 1/2" rescue rope. This carries a rating not to exceed the tip load rating of the ladder.

61-15-0100

AERIAL TRAVEL SUPPORT

A heavy-duty rest shall be provided to support the aerial in the travel position. Stainless steel bedding plates shall be attached to the aerial base section to protect the aerial when the unit is in the travel position.

61-25-0100

AERIAL CONTROL CONSOLE

The aerial control console shall be located on the **right**-hand side of the turntable facing the ladder tip. The console shall be illuminated for night operation and shall have the following items clearly identified and conveniently located on or in close proximity to the console for ease of operation:

-Panel light switch
-***Three (3) pressure gauges (system, bottom & top hoist cylinder)***
-Green rung alignment light
-Ladder load chart
-Ladder overload buzzer and red light
-Angle indicator
-Three (3) control handles for ladder functions
-Ladder lights switch
-Emergency override rotation limit switch and red light
-Emergency pump switch
-Throttle switch
-Low voltage red light
-Provide a manual "Extension" flip over latch.

The controls for the three ladder functions may be operated independently or simultaneously and shall be of the "deadman" type. A foot pedal locking feature shall be incorporated to insure the controls are non-operable unless the foot pedal is engaged when the function is being performed.

61-25-3000

STARTER BUTTON

A remote engine start button shall be provided on the aerial control console.

61-25-3500

PUSH BUTTON SWITCH F/AIR HORNS ON AERIAL PEDESTAL

A push button switch for air horns shall be provided on the aerial pedestal.

61-25-5100

PEDESTAL COVER

A hinged aluminum treadplate cover shall be provided for the control pedestal. Gas springs shall hold the cover in either an open or closed position. ***Provide a butterfly latch to secure the lid in the closed position.***

61-50-0200

AERIAL LIGHTING

Three (3) spotlights shall be provided on the aerial ladder. Two (2) shall be mounted, one each side, at the base of the bed section and one at the tip of the fly.

61-50-1700

COLLINS FX-12 LIGHTS

The lights on the ladder shall be Collins FX-12 spot/flood type.

61-50-1799

AERIAL TIP LIGHT

Provide and install a FRC FCA 570-S75 Focus at the tip of the fly section. Light to be 750W, 120V, and adjustable with an insulated handle.

61-54-1400

110 VOLT SYSTEM ON LADDER

Wiring shall be provided to the tip of the fly section of the aerial device for use with 110 volt AC or DC current. The wiring shall run from a junction box mounted below the turntable through a collector ring assembly, and shall utilize a 12 gauge, type SJO, 3 conductor cable up the aerial.

61-54-2500

TWISTLOCK RECEPTACLE(S)

One (1) 120 volt 3-wire twist lock receptacle(s) shall be provided and mounted on the fly section in a weatherproof box with spring loaded cover.

61-55-1000

FIRE RESEARCH INTERCOM

The intercom shall be a Fire Research 2 station, master will be a Model IC 250, the hands free slave will be a model IC 450 interconnected with IC-C-150 cable.

61-58-0100

LOAD ALARM

An electronic load alarm (horn) shall be provided to alert the operator should the load capacity of the aerial be exceeded. The alarm shall in no way restrict the further operation of the aerial. There will be no exception to this safety requirement.

61-60-0200

LADDER CRADLE INTERLOCK SYSTEM

A ladder cradle interlock system shall be provided to prevent the lifting of the aerial from the nested position until the operator places all jacks in the load supporting configuration. Also a proximity switch at the cradle shall prevent operation of the outriggers once the aerial has been elevated from the nested position.

61-63-0300

ELECTRIC SWIVEL

The aerial device shall be equipped with an electric swivel installed within the axial centerline of the turntable to allow 360 degree rotation of the ladder. Swivel shall maintain electrical continuity of all necessary electrical circuits while ladder is rotating or when it is immobile. A minimum of twenty four (24) collector rings shall be provided.

61-64-1202

FIRE RESEARCH INTERCOM

A Fire Research ICA700-A11 2-station intercom system shall be installed. The "Master Station" at the turntable console shall have a push-to-talk button and volume control knob. The "Slave Station" at the tip of the fly section shall be hands-free; it shall be voice activated to transmit. The slave station shall also have a volume control.

Each station shall be designed for exterior use with an aluminum housing and water resistant speakers.

61-75-2300

LADDER MOUNTED RUBBISH HOOK

A six [6] foot Nupla "D" handle Rubbish Hook with fiberglass handle shall be mounted on the left hand side of the fly section of the ladder. Nupla part number 36-561-RH6-DA.

61-75-5100

LADDER SIGN

Two (2) 132" x 12" painted metal placards for department identification signs shall be provided. One shall be installed on each side of the bed section of the ladder. Placards shall be made of smooth aluminum sheet metal and be securely fastened to ladder trussing.

61-90-0000

AERIAL CAPACITIES

The aerial ladder capacities shall be established in the unsupported configuration. The capacities shall be based upon 360 degree rotation up to full extension and from 0 degrees to + 80 degrees.

61-95-0100

INSPECTION CERTIFICATE

A third party inspection service shall perform the following tests:

1. Magnetic particle inspection shall be conducted to assure the quality of the weldments and to detect any flaws or weaknesses.

2. Ultrasonic inspection shall be used to detect any flaws in pins, bolts and other critical mounting components.

3. Functional tests, load tests, stability tests and visual structural examinations shall be performed. These tests will determine any unusual deflection, noise, vibration or instability characteristics of the unit.

The Certificate of Inspection shall certify that all specified standards as set forth in NFPA pamphlet 1914, current edition have been satisfied.

The aerial device, turntable support/torque box, and outriggers shall be designed using finite element analysis. Using these design parameters, proof of third party strain gauge testing shall be provided to support the original design criteria.

90-00-0150

GROUND LADDERS

Ladders shall be provided in full compliance with NFPA 1901 requirements for aerial trucks.

Long Beach Fire Department

Ladders shall be individually mounted under the aerial ladder and tiller cab and properly labeled. Duo Safety ladders shall be provided as follows:

-***Two*** 35 ft., 2-Section	- Model 1200-A
-One ***28ft.***, 2-Section	- Model **1200**-A
-One 10 ft., Folding	- Model 585-A
-***One 20 ft., Roof***	- ***Model 875-A***
-Two 16 ft., Roof	- Model 875-A
-One 15 ft., Combination	- Model 300-A

Banking to be the same as 76366 as shown on EDR# F0176, Todd Ferguson.

90-01-9000

VERT MTD GROUND LADDER (TDA)

The specified ground ladders shall be vertically mounted, with slides top and bottom.

90-01-9400

GROUND LADDER CAM LOCK SYSTEM

The ground ladders shall be secured by cam actuated steel bars clamping down against the ladder beams. Actuation of the ladder locks shall be accomplished by a lever located on each side of the vehicle.

90-05-0500

PIKE POLES AND MISCELLANEOUS EQUIPMENT

The following pike poles shall be mounted in PVC tubing:

90-05-2300

8' PIKE POLE WITH FIBERGLASS HANDLE

Two (2) 8 ft. Duo-Safety pike pole(s) with hollow fiberglass handle(s).

90-05-2400

10' PIKE POLE WITH FIBERGLASS HANDLE

Two (2) 10 ft. Duo-Safety pike pole(s) with hollow fiberglass handle(s).

90-05-2500

12' PIKE POLE WITH FIBERGLASS HANDLE

One (1) 12 ft. Duo-Safety pike pole(s) with hollow fiberglass handle(s).

90-05-2600

16' PIKE POLE WITH FIBERGLASS HANDLE

One (1) ***16 ft.*** Duo-Safety pike pole(s) with hollow fiberglass handle(s).

90-21-0400

ZICO FOLDING ALUMINUM WHEEL CHOCKS

Four (4) Zico folding aluminum wheel chocks Model SAC-44 with SQCH-44-H holders shall be furnished and shipped loose by the apparatus manufacturer.

91-00-1500

PAINT PREP AND FINISH

To ensure proper quality and finish of the complete unit, the following items, as a minimum, shall be mounted while unit is being assembled and then removed prior to prime and paint.

1) All compartment doors
2) Aluminum treadplate including, but not limited to running boards, rear step, and fenders
3) Aluminum walkways
4) Grab handles and rails
5) Drip moldings
6) Ladder brackets
7) Cab trim
8) Glass
9) Lights

The cab and body shall be prime and finish painted prior to installation on the chassis to ensure paint coverage in all areas (including the difficult to reach places) meets or exceeds the mil thickness requirements of the paint manufacturer.

Cab and body shall be treated in critical areas during assembly with an anti-corrosive and rust preventative material.

To prevent corrosion and to insure bonding of primer, the body shall be pressure washed by a phosphatizing system. All irregularities in the prime painted surfaces shall be repaired before the application of the finish coats. After all seams have been caulked, a finish coat of polyurethane paint of highest quality shall be applied.

The inside of the base beams of each ladder section shall be fully rust proofed with "Auto Armor" or equal rust preventative. Application "wands" shall be run down each open section of the ladder beam.

Each ladder section shall be completely primed and finish painted before the ladder is assembled to insure that all surfaces of the ladder are painted. Painted areas of the turntable shall also be finish painted before assembly.

91-00-2600

PAINT PREPARATION

All substrates shall be thoroughly cleaned, before painting, with a chemical/phosphatizing cleaner, cleaner coater and sealer. The entire unit shall be wiped with 3919-S wax and grease remover. This process shall ensure a clean substrate free of all contaminants prior to priming.

PRIMER

All prepared surfaces shall be primed with a minimum of three (3) coats of primer, designed to provide excellent fill and corrosion resistance when used over properly prepared substrates. Two (2) cross-coats of 3980 urethane lead and chrome free primer.

TOPCOAT

The entire unit shall be DA sanded using 280 grit or finer to provide for the optimum topcoat appearance. 3939-S cleaner shall be used to remove all sanding dust prior to topcoat application. Three (3) wet coats of high quality two-component polyurethane PPG Del Fleet shall be applied to insure a long lasting premium performance finish.

PAINTERS

All painters shall be PPG certified. They shall be re-certified periodically in order to keep up to current standards and procedures in the paint industry.

FACILITY

The finishing facility shall be PPG certified. In order to be certified, the facility shall meet or exceed the extensive and stringent requirements demanded by PPG. The paint facility shall be audited quarterly to ensure proper equipment, procedures and safety regulations are being used and adhered to.

91-00-3000

CLEAR COAT PAINT

Upon completion of the color coats, a clear coat paint finish shall be applied to the entire exterior of the vehicle.

91-00-4700

FRAME & UNDERCARRIAGE FINISH

The chassis frame, bumper extension, suspension, axles, air tanks, fuel tank, battery boxes, etc shall have a matte black finish as supplied by the component manufacturer.

In addition to the standard matte black finish, the following areas shall be painted job color.

Tractor & trailer frame rails, crossmembers.
Tractor fifth wheel.
Trailer gooseneck.
Front bumper extension.
Tractor & trailer axles and suspension.
Battery boxes.
Fuel tank and fill tube.
Air reservoir tanks.
Hydraulic reservoir tank.
Body mounting brackets.
Tractor & trailer steering gear box and steering link arm.
Drive shafts.
Ground ladder storage stakes.

The following items will always be furnished with the finish as provided by their respective manufacturer.

Engine, transmission and accessories.

Exhaust system.
Retarder (when furnished).
PTO & hydraulic pump.
Cab lift cylinders & hydraulic pump.
Shock absorbers.
Fuel filter.
Air drier and air cleaner.
Electric wiring and loom.
Air brake lines, valves and mounting brackets.

91-00-5000

PAINT INSIDE OF CAB

The inside of the cab shall be provided with gray Zolatone paint.

91-00-5400

PAINT INSIDE OF CAB

The inside of the cab shall be clear coated.

91-00-5900

SINGLE COLOR CAB PAINT

The cab shall be painted one color. A decorative molding shall be installed horizontally across the front of the cab above the wipers and taper down with a radius even with the outside corners of the grille.

91-00-7000

CAB INTERIOR PAINT FINISH

The inside of the tiller cab shall be painted with gray Zolatone paint.

91-00-7280

SINGLE COLOR TILLER CAB PAINT

The tiller cab shall be painted one color.

91-00-A110

A decorative molding shall be provided around the cab. The decorative molding shall be horizontal across the front of the cab above the wipers and taper down with a radius even with the outside corners of the grille.

91-01-1000

COMPARTMENT PAINT FINISH

Each compartment interior shall be provided with gray Zolatone type paint.

91-01-1300

CLEAR COAT COMPARTMENT INTERIORS

The inside of the compartments shall be clear coated.

91-02-1000

BODY PAINT, SINGLE COLOR

The body of the apparatus shall be painted to match the primary cab color.

91-02-5100

OUTRIGGERS PAINTED SILVER BLUE METALLIC

The outriggers shall be painted PPG Silver Blue Metallic.

91-02-6000

LADDER AND COMPONENTS PAINTED WHITE

The ladder, turntable, lift cylinders and ladder rest will be painted PPG white.

91-02-7300

TORQUE BOX & LADDER STAKES PAINTED JOB COLOR

In lieu of the standard matte black finish, the torque box, turntable support pedestal, hydraulic reservoir tank and ground ladder storage stakes shall be painted job color.

91-02-8000

AERIAL LADDER PAINT

The aerial ladder, ladder rest, cylinders, and turntable shall be painted with a white polyurethane PPG paint.

91-03-0000

Delete Reflective Striping (DFI)

91-50-0100

SEAGRAVE FIRE APPARATUS, LLC

MANUFACTURER'S LIMITED WARRANTY

Seagrave Fire Apparatus, LLC, hereinafter referred to as the Company, warrants to the original owner that each new Seagrave fire apparatus manufactured shall be free from defects in material and workmanship under normal use and service for a period of one (1) year from the date of delivery. The Company's obligation under this warranty is limited to the repair or replacement, as the Company may elect, of any part or parts thereof, including equipment and trade accessories supplied by the Company, which shall be returned to the Company with transportation charges prepaid and which its examination shall disclose to the Company's satisfaction to have been defective. Such part or parts shall be returned not later than thirty (30) days after notification of the warranty claim.

Seagrave's obligation under this warranty is subject to the conditions precedent (1) that the claimed defect or perforation shall have first appeared during the warranty period; (2) that the original purchaser shall have notified Seagrave in writing of the claimed defect or perforation within thirty (30) days after the claimed defect or perforation shall have first appeared, and (3) that, unless Seagrave directs otherwise, the claimed defective or perforated item or items shall have been returned to Seagrave, or to Seagrave's designee, promptly after the notification, with transportation charges prepaid. Seagrave reserves the right to thoroughly examine the vehicle or parts thereof, prior to conducting or approving any repair or replacement, to determine whether the claimed defect or perforation is covered by this warranty.

This warranty shall not apply to:

1) Normal maintenance services or adjustments, including but not limited to fuel system cleaning, wheel alignment and balancing, engine tuneup, brake inspection or adjustment, nor to the replacement of fluids, oil seals or filters.

2) Any apparatus which shall have been repaired or altered in any way outside of the Company's factory, so as in its judgment would affect the stability or reliability, nor which has been subjected to misuse, abuse, negligence or accident, or to any apparatus which shall have been operated at a speed exceeding the factory rated speed or loaded beyond the factory rated capacity of the components.

Any repair or replacement effected by Seagrave under this warranty is itself warranted under this warranty for the duration of the applicable warranty period subject, however, to the provisions of this warranty as are applicable to the item or items repaired or replaced by Seagrave.

This warranty terminates upon transfer of possession or ownership of the vehicle from the original purchaser.

This warranty does not apply to or cover: (1) paint failures caused by improper care, abrasive polishes, cleaning agents, heavy duty pressure washing, or aggressive mechanical wash systems; (2) paint failures caused by abuse, accidents, acid rain, chemical fallout or acts of nature; (3) custom finishes, exotic finishes or decal not applied by the OEM; (4) paint failures resulting from product misuse or abuse; (5) normal maintenance services or adjustments; (6) any item that has been repaired, replaced or altered by a facility not approved in advance by Seagrave's Customer Service Department, or in a manner which, in Seagrave's judgment, may adversely affect the operation or longevity of the vehicle or item; (7) integral parts, components, aftermarket or trade accessories not manufactured by Seagrave; (8) special, incidental or consequential damages including, but not limited to, loss of time, inconvenience, loss of use, or lost profits; (9) any malfunction resulting from misuse, negligence, alteration, accident or lack of operational knowledge or normal maintenance adjustments; (10) time required to unload or reload the vehicle or item; (11) the vehicle undercarriage, or the cab or body interior, or compartment interiors; or (12) transportation fees or charges to or from any facility.

This warranty is void if Seagrave determines that the vehicle or item has been neglected, misused, altered, exposed to severe environmental or chemical conditions, or damaged. This warranty is also void if Seagrave determines that the warranty claim is false or misrepresented, that the vehicle or item has been damaged in an accident or by an act of God, or that the defect or perforation is attributable to use or operation of the vehicle or item in a manner or for a purpose other than that for which Seagrave intended or designed the vehicle or item.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED (INCLUDING, BUT NOT LIMITED TO, WARRANTIES ARISING BY OPERATION OF LAW, COURSE OF DEALING, COURSE OF PERFORMANCE, OR USAGE OF TRADE), ALL OTHER REPRESENTATIONS TO THE ORIGINAL PURCHASER, AND ALL OTHER OBLIGATIONS OR LIABILITIES WHATSOEVER, INCLUDING, BUT NOT LIMITED TO, ANY OBLIGATION OR LIABILITY FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES. SEAGRAVE NEITHER GIVES NOR ASSUMES, NOR AUTHORIZES ANY OTHER PERSON TO GIVE OR ASSUME, ANY OTHER WARRANTY, OBLIGATION OR LIABILITY ON SEAGRAVE'S BEHALF, UNLESS EXPRESSLY GIVEN OR ASSUMED IN WRITING BY SEAGRAVE.

Purchasers Acceptance Signature _____ Date _____

91-50-0200

SEAGRAVE FIRE APPARATUS, LLC

CAB TEN YEAR STRUCTURAL INTEGRITY LIMITED WARRANTY

Seagrave Fire Apparatus, LLC warrants the cab of each new custom fire and rescue vehicle manufactured by Seagrave to be free of structural failures caused by defective design or workmanship for a warranty period of ten years after the date on which the vehicle is first delivered to the original purchaser or 100,000 miles, whichever occurs first.

This warranty is limited to the cab tubular support and mounting structures and to the other structural components, as identified in Seagrave's specifications, of the cab.

Seagrave's obligation under this warranty is limited to repairing or replacing, as Seagrave may elect, without charge to the original purchaser, the structural component or components which Seagrave, after examination, finds, to Seagrave's satisfaction, to have structurally failed due to defective design or workmanship.

Seagrave's obligation under this warranty is subject to the conditions precedent (1) that the claimed failure shall have first appeared during the warranty period; (2) that the original purchaser shall have notified Seagrave in writing of the claimed failure within thirty (30) days after the claimed failure shall have first appeared, and (3) that, unless Seagrave directs otherwise, the claimed failed item or items shall have been returned to Seagrave, or to Seagrave's designee, promptly after the notification, with transportation charges prepaid. Seagrave reserves the right to thoroughly examine the vehicle or parts thereof, prior to conducting or approving any repair or replacement, to determine whether the claimed failure is covered by this warranty.

In advance of the original purchaser effecting repair or replacement of a structural component or components found by Seagrave to have structurally failed due to defective design or workmanship, approval for the repair or replacement must

be obtained from Seagrave's Customer Service Department. Repair or replacement must be made by a facility approved in advance by Seagrave. Failure to obtain either or both of the advance approvals voids this warranty. Coverage under this warranty of labor for repair or replacement is limited to the time or amounts reasonably necessary, as determined by Seagrave, to make the repair or replacement. Labor time or amount deemed excessive by Seagrave are not covered under this warranty.

Any repair or replacement effected by Seagrave under this warranty is itself warranted under this warranty for the duration of the warranty period subject, however, to the provisions of this warranty as are applicable to the structural component or components repaired or replaced by Seagrave.

This warranty terminates upon transfer of possession or ownership of the vehicle from the original purchaser.

This warranty does not apply to or cover: (1) normal maintenance services or adjustments; (2) any item that has been repaired, replaced or altered by a facility not approved in advance by Seagrave's Customer Service Department, or in a manner which, in Seagrave's judgment, may adversely affect the operation or longevity of the vehicle or item; (3) integral parts, components, aftermarket or trade accessories not manufactured by Seagrave; (4) special, incidental or consequential damages including, but not limited to, loss of time, inconvenience, loss of use, or lost profits; (5) any malfunction resulting from misuse, negligence, alteration, accident or lack of operational knowledge or normal maintenance or adjustments; (6) time required to unload or reload the vehicle or item; (7) nonstructural breakage or cracking; (8) material bending, buckling or other metal deformation unless caused by a structural failure of a structural component, as identified in Seagrave's specifications, of the cab due to defective design or workmanship; or (9) transportation fees or charges to or from any facility.

This warranty is void if Seagrave determines that the vehicle or item has been neglected, misused, altered, overloaded, loaded beyond specified compartment weight limits, loaded to a state of excessive imbalance side to side, or damaged. This warranty is also void if Seagrave determines that the warranty claim is false or misrepresented, that the vehicle or item has been damaged in an accident or by an act of God, or that the structural failure is attributable to use or operation of the vehicle or item in a manner or for a purpose other than that for which Seagrave intended or designed the vehicle or item.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED (INCLUDING, BUT NOT LIMITED TO, WARRANTIES ARISING BY OPERATION OF LAW, COURSE OF DEALING, COURSE OF PERFORMANCE, OR USAGE OF TRADE), ALL OTHER REPRESENTATIONS TO THE ORIGINAL PURCHASER, AND ALL OTHER OBLIGATIONS OR LIABILITIES WHATSOEVER, INCLUDING, BUT NOT LIMITED TO, ANY OBLIGATION OR LIABILITY FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES. SEAGRAVE NEITHER GIVES NOR ASSUMES, NOR AUTHORIZES ANY OTHER PERSON TO GIVE OR ASSUME, ANY OTHER WARRANTY, OBLIGATION OR LIABILITY ON SEAGRAVE'S BEHALF, UNLESS EXPRESSLY GIVEN OR ASSUMED IN WRITING BY SEAGRAVE.

Seagrave reserves the right to make changes to Seagrave's products without incurring any obligation to modify or improve previously manufactured products.

NOTE: Surety bond, if required, applies only to Seagrave's Basic One Year Limited Warranty, and not to this or any other or extended warranty made by Seagrave or any of Seagrave's suppliers.

Purchasers Acceptance Signature _____ Date _____

91-50-0300

SEAGRAVE FIRE APPARATUS, LLC

BODY TEN YEAR STRUCTURAL INTEGRITY LIMITED WARRANTY

Seagrave Fire Apparatus, LLC warrants the body of each new custom fire and rescue vehicle manufactured by Seagrave to be free of structural failures caused by defective design or workmanship for a warranty period of ten years after the date on which the vehicle is first delivered to the original purchaser or 100,000 miles, whichever occurs first.

This warranty is limited to the body tubular support and mounting structures and other structural components, as identified in Seagrave's specifications, of the body.

Seagrave's obligation under this warranty is limited to repairing or replacing, as Seagrave may elect, without charge to the original purchaser, the structural component or components which Seagrave, after examination, finds, to Seagrave's satisfaction, to have failed due to defective design or workmanship.

Seagrave's obligation under this warranty is subject to the conditions precedent (1) that the claimed failure shall have first appeared during the warranty period; (2) that the original purchaser shall have notified Seagrave in writing of the claimed

failure within thirty (30) days after the claimed failure shall have first appeared, and (3) that, unless Seagrave directs otherwise, the claimed failed item or items shall have been returned to Seagrave, or to Seagrave's designee, promptly after the notification, with transportation charges prepaid. Seagrave reserves the right to thoroughly examine the vehicle or parts thereof, prior to conducting or approving any repair or replacement, to determine whether the claimed failure is covered by this warranty.

In advance of the original purchaser effecting repair or replacement of a structural component or components found by Seagrave to have structurally failed due to defective design or workmanship, approval for the repair or replacement must be obtained from Seagrave's Customer Service Department. Repair or replacement must be made by a facility approved in advance by Seagrave. Failure to obtain either or both of the advance approvals voids this warranty. Coverage under this warranty of labor for repair or replacement is limited to the time or amounts reasonably necessary, as determined by Seagrave, to make the repair or replacement. Labor time or amounts deemed excessive by Seagrave are not covered under this warranty.

Any repair or replacement effected by Seagrave under this warranty is itself warranted under this warranty for the duration of the warranty period subject, however, to the provisions of this warranty as are applicable to the structural component or components repaired or replaced by Seagrave.

This warranty terminates upon transfer of possession or ownership of the vehicle from the original purchaser.

This warranty does not apply to or cover: (1) normal maintenance services or adjustments; (2) any item that has been repaired, replaced or altered by a facility not approved in advance by Seagrave's Customer Service Department, or in a manner which, in Seagrave's; judgment, may adversely affect the operation or longevity of the vehicle or item; (3) integral parts, components, aftermarket or trade accessories not manufactured by Seagrave; (4) special, incidental or consequential damages including, but not limited to, loss of time, inconvenience, loss of use, or lost profits; (5) any malfunction resulting from misuse, negligence, alteration, accident or lack of operational knowledge or normal maintenance or adjustments; (6) time required to unload or reload the vehicle or item; (7) nonstructural breakage or cracking; (8) material bending, buckling or other metal deformation unless caused by a structural failure of a structural component, as identified in Seagrave's specifications, of the body due to defective design or workmanship; or (9) transportation fees or charges to or from any facility.

This warranty is void if Seagrave determines that the vehicle or item has been neglected, misused, altered, overloaded, loaded beyond specified compartment weight limits, loaded to a state of excessive imbalance side to side, or damaged. This warranty is also void if Seagrave determines that the warranty claim is false or misrepresented, that the vehicle or item has been damaged in an accident or by an act of God, or that the structural failure is attributable to use or operation of the vehicle or time in a manner or for a purpose other than that for which Seagrave intended or designed the vehicle or item.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED (INCLUDING, BUT NOT LIMITED TO, WARRANTIES ARISING BY OPERATION OF LAW, COURSE OF DEALING, COURSE OF PERFORMANCE, OR USAGE OF TRADE), ALL OTHER REPRESENTATIONS TO THE ORIGINAL PURCHASER, AND ALL OTHER OBLIGATIONS OR LIABILITIES WHATSOEVER, INCLUDING, BUT NOT LIMITED TO, ANY OBLIGATION OR LIABILITY FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES. SEAGRAVE NEITHER GIVES NOR ASSUMES, NOR AUTHORIZES ANY OTHER PERSON TO GIVE OR ASSUME, ANY OTHER WARRANTY, OBLIGATION OR LIABILITY ON SEAGRAVE'S BEHALF, UNLESS EXPRESSLY GIVEN OR ASSUMED IN WRITING BY SEAGRAVE.

Seagrave reserves the right to make changes to Seagrave's products without incurring any obligation to modify or improve previously manufactured products.

NOTE: Surety bond, if required, applies only to Seagrave's Basic One Year Limited Warranty, and not to this or any other or extended warranty made by Seagrave or any of Seagrave's suppliers.

_____ _____

Purchasers Acceptance Signature Date

91-50-0400

SEAGRAVE FIRE APPARATUS, LLC

AERIAL DEVICE TWENTY YEAR
STRUCTURAL INTEGRITY LIMITED WARRANTY

Seagrave Fire Apparatus, LLC warrants each new aerial device manufactured by Seagrave to be free of structural failures caused by defective design or workmanship for a warranty period of twenty years after the date on which the vehicle is first

delivered to the original purchaser or 100,000 miles, whichever occurs first.

This warranty is limited to the torque box, turntable, aerial sections and other structural components, as identified in Seagrave's specifications, of the aerial device. This warranty applies only if the original purchaser provides to Seagrave dated test results showing that the aerial device (1) has been, at least annually, visually examined; and (2) has been nondestructive tested by a third party testing agency in accordance with the then latest revision of NFPA 1914. All results must be submitted to Seagrave's Customer Service Department within thirty days after the examination or test or otherwise this warranty is void.

Seagrave's obligation under this warranty is limited to repairing or replacing, as Seagrave may elect, without charge to the original purchaser, the structural component or components which Seagrave, after examination, finds, to Seagrave's satisfaction, to have structurally failed due to defective design or workmanship.

Seagrave's obligation under this warranty is subject to the conditions precedent (1) that the claimed failure shall have first appeared during the warranty period; (2) that the original purchaser shall have notified Seagrave in writing of the claimed failure within thirty (30) days after the claimed failure shall have first appeared, and (3) that, unless Seagrave directs otherwise, the claimed failed item or items shall have been returned to Seagrave, or to Seagrave's designee, promptly after the notification, with transportation charges prepaid. Seagrave reserves the right to thoroughly examine the vehicle or parts thereof, prior to conducting or approving any repair or replacement, to determine whether the claimed failure is covered by this warranty.

In advance of the original purchaser effecting repair or replacement of a structural component or components found by Seagrave to have structurally failed due to defective design or workmanship, approval for the repair or replacement must be obtained from Seagrave's Customer Service Department. Repair or replacement must be made by a facility approved in advance by Seagrave. Failure to obtain either or both of the advance approvals voids this warranty. Coverage under this warranty of labor for repair or replacement is limited to the time or amounts reasonably necessary, as determined by Seagrave, to make the repair or replacement. Labor time or amounts deemed excessive by Seagrave are not covered under this warranty.

Any repair or replacement effected by Seagrave under this warranty is itself warranted under this warranty for the duration of the warranty period subject, however, to the provisions of this warranty as are applicable to the structural component or components repaired or replaced by Seagrave.

This warranty terminates upon transfer of possession or ownership of the vehicle from the original purchaser.

This warranty does not apply to or cover: (1) normal maintenance services or adjustments; (2) any item that has been repaired, replaced or altered by a facility not approved in advance by Seagrave's Customer Service Department, or in a manner which, in Seagrave's judgment, may adversely affect the operation or longevity of the vehicle or item; (3) integral parts, components, aftermarket or trade accessories not manufactured by Seagrave; (4) special, incidental or consequential damages including, but not limited to, loss of time, inconvenience, loss of use, or lost profits; (5) any malfunction resulting from misuse, negligence, alteration, accident or lack of operational knowledge or normal maintenance or adjustments; (6) time required to unload or reload the vehicle or item; (7) nonstructural breakage or cracking; (8) material bending, buckling or other metal deformation unless caused by a structural failure of a structural component, as identified in Seagrave's specifications, of the aerial device due to defective design or workmanship; or (9) transportation fees or charges to or from any facility.

This warranty is void if Seagrave determines that the vehicle or item has been neglected, misused, altered, overloaded, loaded beyond specified compartment weight limits, loaded to a state of excessive imbalance side to side, or damaged. This warranty is also void if Seagrave determines that the warranty claim is false or misrepresented, that the vehicle or item has been damaged in an accident or by an act of God, or that the structural failure is attributable to use or operation of the vehicle or item in a manner or for a purpose other than that for which Seagrave intended or designed the vehicle or item.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED (INCLUDING, BUT NOT LIMITED TO, WARRANTIES ARISING BY OPERATION OF LAW, COURSE OF DEALING, COURSE OF PERFORMANCE, OR USAGE OF TRADE), ALL OTHER REPRESENTATIONS TO THE ORIGINAL PURCHASER, AND ALL OTHER OBLIGATIONS OR LIABILITIES WHATSOEVER, *INCLUDING, BUT NOT LIMITED TO,* ANY OBLIGATION OR LIABILITY FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES. SEAGRAVE NEITHER GIVES NOR ASSUMES, NOR AUTHORIZES ANY OTHER PERSON TO GIVE OR ASSUME, ANY OTHER WARRANTY, OBLIGATION OR LIABILITY ON SEAGRAVE'S BEHALF, UNLESS EXPRESSLY GIVEN OR ASSUMED IN WRITING BY SEAGRAVE.

Seagrave reserves the right to make changes to Seagrave's products without incurring any obligation to modify or improve previously manufactured products.

NOTE: Surety bond, if required, applies only to Seagrave's Basic One Year Limited Warranty, and not to this or any other or extended warranty made by Seagrave or any of Seagrave's suppliers.

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Purchaser's Acceptance Signature Date

91-50-0500

SEAGRAVE FIRE APPARATUS, LLC

CHASSIS FRAME RAIL
LIFETIME STRUCTURAL INTEGRITY LIMITED WARRANTY

Seagrave Fire Apparatus, LLC warrants each new chassis frame rail manufactured by Seagrave to be free of structural failures caused by defective design, material or workmanship for a warranty period equal to the vehicle's useful life after the date on which the vehicle is first delivered to the original purchaser.

Seagrave's obligation under this warranty is limited to repairing or replacing, as Seagrave may elect, without charge to the original purchaser, the frame rails, which Seagrave, after examination, finds to Seagrave's satisfaction, to have structurally failed due to defective design, material or workmanship.

Seagrave's obligation under this warranty is subject to the conditions precedent (1) that the claimed failure shall have first appeared during the warranty period; (2) that the original purchaser shall have notified Seagrave in writing of the claimed failure within thirty (30) days after the claimed failure shall have first appeared, and (3) that, unless Seagrave directs otherwise, the claimed failed item or items shall have been returned to Seagrave, or to Seagrave's designee, promptly after the notification, with transportation charges prepaid. Seagrave reserves the right to thoroughly examine the vehicle or parts thereof, prior to conducting or approving any repair or replacement, to determine whether the claimed failure is covered by this warranty.

In advance of the original purchaser effecting repair or replacement of the frame rails found by Seagrave to have structurally failed due to defective design, material or workmanship approval for the repair or replacement must be obtained from Seagrave's Customer Service Department. Repair or replacement must be made by a facility approved in advance by Seagrave. Failure to obtain either or both of the advance approvals voids this warranty. Coverage under this warranty of labor for repair or replacement is limited to the time or amounts reasonably necessary, as determined by Seagrave, to make the repair or replacement. Labor time or amounts deemed excessive by Seagrave are not covered under this warranty.

Any repair or replacement effected by Seagrave under this warranty is itself warranted under this warranty for the duration of the warranty period subject, however, to the provisions of this warranty as are applicable to the structural component or components repaired or replaced by Seagrave.

This warranty terminates upon transfer of possession or ownership of the vehicle from the original purchaser.

This warranty does not apply to or cover: (1) normal maintenance services or adjustments; (2) any item that has been repaired, replaced or altered by a facility not approved in advance by Seagrave's Customer Service Department, or in a manner which, in Seagrave's; judgment, may adversely affect the operation or longevity of the vehicle or item; (3) integral parts, components, aftermarket or trade accessories not manufactured by Seagrave; (4) special, incidental or consequential damages including, but not limited to, loss of time, inconvenience, loss of use, or lost profits; (5) any malfunction resulting from misuse, negligence, alteration, accident or lack of operational knowledge or normal maintenance or adjustments; (6) time required to unload or reload the vehicle or item; (7) nonstructural breakage or cracking; (8) material bending, buckling or other metal deformation unless caused by a structural failure of a structural component, as identified in Seagrave's specifications, of the chassis frame rail due to defective design, material or workmanship; (9) transportation fees or charges to or from any facility; or (10) any item which is manufactured by a party other than Seagrave and which is separately warranted by that party.

This warranty is void if Seagrave determines that the vehicle or item has been neglected, misused, altered, overloaded, loaded beyond specified compartment weight limits, loaded to a state of excessive imbalance side to side, or damaged. This warranty is also void if Seagrave determines that the warranty claim is false or misrepresented, that the vehicle or item has been damaged in an accident or by an act of God, or that the structural failure is attributable to use or operation of the vehicle or item in a manner or for a purpose other than that for which Seagrave intended or designed the vehicle or item.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED (INCLUDING, BUT NOT LIMITED TO, WARRANTIES ARISING BY OPERATION OF LAW, COURSE OF DEALING, COURSE OF PERFORMANCE, OR USAGE OF TRADE), ALL OTHER REPRESENTATIONS TO THE ORIGINAL PURCHASER, AND ALL OTHER OBLIGATIONS OR LIABILITIES WHATSOEVER, INCLUDING, BUT NOT LIMITED TO, ANY OBLIGATION OR LIABILITY FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES. SEAGRAVE NEITHER GIVES NOR ASSUMES, NOR AUTHORIZES

ANY OTHER PERSON TO GIVE OR ASSUME, ANY OTHER WARRANTY, OBLIGATION OR LIABILITY ON SEAGRAVE'S BEHALF, UNLESS EXPRESSLY GIVEN OR ASSUMED IN WRITING BY SEAGRAVE.

Seagrave reserves the right to make changes to Seagrave's products without incurring any obligation to modify or improve previously manufactured products.

NOTE: Surety bond, if required, applies only to Seagrave's Basic One Year Limited Warranty, and not to this or any other or extended warranty made by Seagrave or any of Seagrave's suppliers.

Purchasers Acceptance Signature _____ Date _____

91-50-0600

SEAGRAVE FIRE APPARATUS, LLC

PAINT/CORROSION LIMITED WARRANTY

Seagrave Fire Apparatus, LLC warrants the paint on each new cab and body manufactured by Seagrave for a period of six (6) years after the date on which the vehicle is first delivered to the original purchaser. Seagrave warrants that the areas finished will be free throughout the warranty period from defects causing paint failures resulting in corrosion, blistering, cracking, peeling, hazing, chalking, delamination or unreasonable loss of gloss throughout the entire area finished. Seagrave also warrants each new cab and body manufactured by Seagrave against exterior corrosion perforation for a warranty period of ten (10) years after the date on which the vehicle is first delivered to the original purchaser or 100,000 miles, whichever occurs first.

This warranty is limited to exterior painted surfaces of the cab and body of the vehicle.

Seagrave's obligation under this warranty is limited to repairing or replacing, as Seagrave may elect, without charge to the original purchaser, the item or items which Seagrave, after examination, finds, to Seagrave's satisfaction, to have an adhesion defect or defects caused by defective manufacturing methods or material selection, or a corrosion perforation or perforations.

Seagrave's obligation under this warranty is subject to the conditions precedent (1) that the claimed defect or perforation shall have first appeared during the warranty period; (2) that the original purchaser shall have notified Seagrave in writing of the claimed defect or perforation within thirty (30) days after the claimed defect or perforation shall have first appeared, and (3) that, unless Seagrave directs otherwise, the claimed defective or perforated item or items shall have been returned to Seagrave, or to Seagrave's designee, promptly after the notification, with transportation charges prepaid. Seagrave reserves the right to thoroughly examine the vehicle or parts thereof, prior to conducting or approving any repair or replacement, to determine whether the claimed defect or perforation is covered by this warranty.

In advance of the original purchaser effecting repair or replacement of an item or items found by Seagrave to have an adhesion defect or defects caused by defective manufacturing methods or material selection, or a corrosion perforation or perforations, approval for the repair or replacement must be obtained from Seagrave's Customer Service Department. Repair or replacement must be made by a facility approved in advance by Seagrave. Failure to obtain either or both of the advance approvals voids this warranty. Coverage under this warranty of labor for repair or replacement is limited to the time or amounts reasonably necessary, as determined by Seagrave, to make the repair or replacement. Labor time or amounts deemed excessive by Seagrave are not covered under this warranty.

Any repair or replacement effected by Seagrave under this warranty is itself warranted under this warranty for the duration of the applicable warranty period subject, however, to the provisions of this warranty as are applicable to the item or items repaired or replaced by Seagrave.

This warranty terminates upon transfer of possession or ownership of the vehicle from the original purchaser.

Notwithstanding any provision of this warranty to the contrary, with respect to the foregoing six year warranty regarding the paint on each new cab and body manufactured by Seagrave being free of adhesion defects caused by defective manufacturing methods or material selection, the following portion, and only the following portion, of the cost of repair or replacement of the item or items found by Seagrave to have an adhesion defect or defects caused by defective manufacturing methods or material selection is covered under the warranty based upon when during the warranty period the claimed defect first appears:

Period	Portion of Cost Covered
0-36 Mo.	100%
37-48 Mo.	75%

49-60 Mo.	50%
61-72 Mo.	25%

This warranty does not apply to or cover: (1) paint failures caused by improper care, abrasive polishes, cleaning agents, heavy duty pressure washing, or aggressive mechanical wash systems; (2) paint failures caused by abuse, accidents, acid rain, chemical fallout or acts of nature; (3) custom finishes, exotic finishes or decal not applied by the OEM; (4) paint failures resulting from product misuse or abuse; (5) normal maintenance services or adjustments; (6) any item that has been repaired, replaced or altered by a facility not approved in advance by Seagrave's Customer Service Department, or in a manner which, in Seagrave's judgment, may adversely affect the operation or longevity of the vehicle or item; (7) integral parts, components, aftermarket or trade accessories not manufactured by Seagrave; (8) special, incidental or consequential damages including, but not limited to, loss of time, inconvenience, loss of use, or lost profits; (9) any malfunction resulting from misuse, negligence, alteration, accident or lack of operational knowledge or normal maintenance adjustments; (10) time required to unload or reload the vehicle or item; (11) the vehicle undercarriage, or the cab or body interior, or compartment interiors; or (12) transportation fees or charges to or from any facility.

This warranty is void if Seagrave determines that the vehicle or item has been neglected, misused, altered, exposed to severe environmental or chemical conditions, or damaged. This warranty is also void if Seagrave determines that the warranty claim is false or misrepresented, that the vehicle or item has been damaged in an accident or by an act of God, or that the defect or perforation is attributable to use or operation of the vehicle or item in a manner or for a purpose other than that for which Seagrave intended or designed the vehicle or item.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED (INCLUDING, BUT NOT LIMITED TO, WARRANTIES ARISING BY OPERATION OF LAW, COURSE OF DEALING, COURSE OF PERFORMANCE, OR USAGE OF TRADE), ALL OTHER REPRESENTATIONS TO THE ORIGINAL PURCHASER, AND ALL OTHER OBLIGATIONS OR LIABILITIES WHATSOEVER, INCLUDING, BUT NOT LIMITED TO, ANY OBLIGATION OR LIABILITY FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES. SEAGRAVE NEITHER GIVES NOR ASSUMES, NOR AUTHORIZES ANY OTHER PERSON TO GIVE OR ASSUME, ANY OTHER WARRANTY, OBLIGATION OR LIABILITY ON SEAGRAVE'S BEHALF, UNLESS EXPRESSLY GIVEN OR ASSUMED IN WRITING BY SEAGRAVE.

Seagrave reserves the right to make changes to Seagrave's products without incurring any obligation to modify or improve previously manufactured products.

NOTE: Surety bond, if required, applies only to Seagrave Basic One Year Limited Warranty, and not to this or any other or extended warranty made by Seagrave or any of Seagrave's suppliers.

_____ _____

Purchaser's Acceptance Signature Date

91-50-5000

MAINTENANCE MANUALS

The manufacturer shall supply a minimum of {qty} complete operation and maintenance manuals, including wiring diagrams in CD format covering the completed apparatus as delivered.

Operation and maintenance manuals shall include vendor provided instruction booklets describing function, control and service procedures. Separate pump manufacturers manuals shall be provided. Charts illustrating the individual wire color, number code, and function shall accompany electrical diagrams.

91-50-5100

PARTS MANUALS

Two (2) parts manuals in CD format shall also be provided for the vehicle that shall include an overall (5 view) vehicle layout to assist in spare parts selection and identification.

Parts manuals shall be keyed to manufacturer's bill of materials code system for ease of locating replacement parts. Where expedient, expanded drawings shall be included to assist in part identification.

94-00-2100

NFPA and LOOSE EQUIPMENT

The NFPA and loose equipment listed below and that listed separately within this specification is included as a part of this contract. Items, tools, and equipment required by NFPA and not specifically included within this document are not included in the cost of this proposal. It is the purchasers responsibility to equip the apparatus to NFPA Standards prior to placing the apparatus in service.

1 - One [1] Akron 1495 Ladder Pipe w/Mounting Bracket, Stacked Tips, and Stream Shaper.

2 - One [1] TFT M-R-NJ Master Stream Nozzle with halo handle

3 - Communication installation per the attached 911 Vehicle proposal.

94-00-3100

DEALER PREPARATION and DELIVERY

The apparatus will be delivered to California Seagrave and prepared for delivery. The apparatus will be inspected for any damage that may have occurred enroute from the manufacturer, the apparatus will be cleaned and generally made ready for final acceptance. Fluids and filters will not be changed unless specified and so noted within this document. The purchaser will be given 24 hour notice that the apparatus is ready for delivery.

94-00-1100

LETTERING and STRIPING

The apparatus will be lettered and striped similar to the existing apparatus at or before the time of delivery.

911vehicle

2130 E. Winston Road Anaheim, CA 92806
P:714-808-0911 F:714-808-0916 www.911vehicle.com

Your Single Source Provider for Emergency Vehicle Solutions

Quote# 10707

To: Jim Firth | From: Dan Walters

Company: California Seagrave | Date: October 7, 2007

Fax # 310-283-0902 | Phone # 562-431-3941

Regarding: Communications Installations in New Seagrave Truck for Long Beach Fire

1 Number of Pages sent including cover sheet

Qty	Breakdown with labor:			
	INSTALL REMOVED EQUIPMENT INTO NEW ENGINE			
1	Motorola XTL5000 VHF Single 05 Head, cable, speaker, mic(CS)			
1	Motorola XTL5000 UHF Single 05 Remote Head Radio(CS)			
4	Additional Speakers in cab for VHF & UHF Radio			
1	Overhead Radio Box for UHF & AM/FM Radio			
1	Panasonic Toughbook (CS)			
1	Panasonic Toughbook Port Replicator and Power Supply			
1	Motorola VRM for Toughbook (CS)			
6	Antenna Kits / Configuring / Connections / Metering			
	NEW SIGTRONICS INTERCOM SYSTEM			
6	911 Vehicle Headsets w/volume and mic mute			
1	911Vehicle Dual Radio Intercom System			
6	In Cab Roof Jack Stations w/ volume mod			
4	Dash Mounted PTT switches			
?	Tiller Jack Station Termination (1-Training)			
0	Beldon 8723 4-Conductor Shielded Cable per ft.			
2	Mobile Radio Interfaces			
	NEW STEREO SYSTEM AND HEADSET INTERFACE			
1	AM/FM/CD Homeland Security / Weather Band Radio			
1	SRS-6 Stereo Headset switcher unit			
	OTHER EQUIPMENT			
1	RSI AVL Unit (CS)			
	NEW POWER AND ANTENNA CABLES			
1	Power Distribution Fuse Block 8 x 30 amps			
1	Ground Distribution Block and 15' Black 4 Ga. Cable			
1	Battery Switched Relay (intercom/radio ignition fuse block)			

SUBTOTALS

SALES TAX

TOTAL

(CS)= customer supplied

PRICES ARE PER VEHICLE / QUOTE IS GOOD FOR 1 YEAR