

**CITY OF SAN LEANDRO,
CALIFORNIA**

**PROPOSAL FOR PURCHASE
OF**

**EZ LINER
CUSTOM PAINT STENCIL
TRUCK**

**USING
SOURCEWELL
CONTRACT NO. 052417-EZL
ROADWAY MAINTENANCE
EQUIPMENT**

CITY OF SAN LEANDRO, CALIFORNIA
PROPOSAL FOR
EZ LINER CUSTOM STENCIL TRUCK

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November 13, 2020

City of San Leandro-(Sourcewell Member ID #30778)
Attn: Mr. Freddy Barajas
835 E. 14th Street
San Leandro, CA 94577-3782

Re: Sourcewell Contract No. 052417-EZL Purchase of EZ Liner Stencil Truck

Mr. Barajas,

Thank you for the opportunity to submit a proposal to the City of San Leandro for the purchase of an EZ Liner Model Custom Paint Stencil Truck using Sourcewell Contract No. 52417-EZL mounted on Ford F-450 chassis.

As part of this proposal the following information is being provided:

1. Proposal Price Sheet for the Custom Paint Stencil Body with Chassis.
2. A copy of EZ Liner's "Sourcewell Contract No. 052417-EZL-Specifications for EZ Liner Model PS-ST110 Pallet Series Base Unit Product Code #18F dated 9/14/2020".
3. A copy of Sacramento County's "Internal Services Agency Fleet Services Division Specification RFB8373" dated 04/22/2016 revised with updates 11/02/2020 with changes made by the City of San Leandro.
4. Comparison document comparing EZ Liner's Sourcewell specifications and the Sacramento County's specifications with changes by the City of San Leandro summarizing the changes.
5. Technical literature packet outlining what EZ Liner is proposing to provide.

Pricing does not include any taxes or fees. The anticipated completion date on the City's EZ Liner Model Custom Paint Stencil Truck is 270 days ARO or 90 days ARC, whichever is longer.

If you have questions on EZ Liner's proposal, please give Mike Petersen, Regional Sales Manager, a call at 712-360-2108. EZ Liner looks forward to working with the City of San Leandro by providing quality paint application equipment supported by superior customer service!

Respectfully submitted,
EZ LINER


Norm Scholten

Design & Bid Project Manager I

November 13, 2020

City of San Leandro-(Sourcewell Member ID #30778)
 Attn: Mr. Freddy Barajas
 835 E. 14th Street
 San Leandro, CA 94577-3782

Re: Sourcewell Contract No. 052417-EZL Purchase of
 EZ Liner Custom Paint Stencil Truck-Price Sheet

<u>Item</u>	<u>Description</u>	<u>List Price</u>
18F	PS-ST110 Base Unit	\$37,280.00
Subtotal		\$37,280.00
3% Discount		(\$1,119.00)
Net Amount Published Pricing		\$36,161.00
Delivery		
18F-10-02	Freight Charges to any Continental US destination	\$2,080.00
Chassis		
	2021 Model Year Ford F-450 Chassis	\$37,491.00
Chassis pricing includes the following aftermarket items:		
Full Sized Spare Tire & Wheel		
Easily Accessible HD Battery Jumper Terminals		
ECCO RMA 907E electronic back-up alarm		
EGIS Mobile Power Timer Part #5601		
Model #10.7000.12.HDPE Work Organizer		
Federal Signal Littelite Model #LF18ES-LED Task Light		
Sourced Goods		
	Model RVS-4CAM-A-16 Rear View Safety Backup Camera Sys	\$ 2,340.00
	Stencil body with Compartments ILO Palletized Channel Body	18,325.00
	Body Lighting ILO Base	2,118.00
	Honda Model EU3000 Gas Generator	3,639.00
	Two Model 1020A-4 Message Boards w/Vertical Actuators	47,502.00
	Warning Lights & Reflectors	8,135.00
	Two ARO AF0623G11FF47 Air Powered HP Paint Pumps ILO Base	16,030.00
	(2) Spring Return Paint Hoses Reels w/50' Hose ILO Base	3,694.00
	Two Graco Silver Handguns w/50' hoses w/Ss Gun Holsters ILO Base	No charge
	Pressurized Glass Beads System w/Hose Reel & Dispenser	5,490.00

PTO driven rotary screw air compressor ILO Honda Power Pack	18,617.00
One regulated quick disconnect air coupler	444.00
(2) Air Powered Paint Agitators, \$3,201.00 ea. x 2	6,402.00
Aluminum stencils with Rolled Edges	6,361.00
Special Stencil Rack ILO Basic Stencil Rack	9,039.00
Deduct for Hydraulic System	(2,290.00)
Total for Sourced Goods	<u>\$145,846.00</u>
 TOTAL AMOUNT	 \$221,578.00

Respectfully submitted,

EZ LINER

Norm Scholten
 Design & Bid Project Manager I
 712-707-9778

Prepared for: Mr. Norm Scholten, Manager, Vogel Traffic Services dba EZ Liner Industries
1920 Albany Place S. E., P.O. Box 140
Orange City, IA 51041
Office: 712-737-4016 | Fax: 712-737-4148
Email: norm.scholten@ezliner.com

2021 F-450 Chassis 4x2 SD Regular Cab 169" WB DRW XL (F4G)

Price Level: 115



Client Proposal

Prepared by:
Kent Kuehn
Office: 402-334-7387
Email: akkuehn@cox.net
Quote ID: EZNS2101
Date: 09/04/2020



Prepared for: Mr. Norm Scholten

Manager, Vogel Traffic Services dba EZ Liner Industries

Prepared by: Kent Kuehn

09/04/2020

Midway Ford Truck Center, Inc. | 7601 NE 38th St Kansas City Missouri | 64161



2021 F-450 Chassis 4x2 SD Regular Cab 169" WB DRW XL (F4G)

Price Level: 115 | Quote ID: EZNS2101

Mr. Norm Scholten, Manager, Vogel Traffic Services dba EZ Liner Industries

1920 Albany Place S. E., P.O. Box 140

Orange City, IA 51041

Office: 712-737-4016 | Fax: 712-737-4148

Email: norm.scholten@ezliner.com

Re: Quote ID EZNS2101 09/04/2020

Dear Mr. Scholten,

Thank you very much for your interest in acquiring a vehicle from our dealership. We concur that your interest is well deserved. We hope that an outstanding product lineup and our dedication to customer service will enhance your ownership experience should you decide to buy a vehicle from us.

Attached, please find additional information that I hope will assist you in making a more informed decision. Please feel free to contact me at any time as I would truly appreciate the opportunity to be of service to you.

Sincerely,

Kent Kuehn

Outside Fleet Sales

402-334-7387

akkuehn@cox.net

Prepared for: Mr. Norm Scholten

Manager, Vogel Traffic Services dba EZ Liner Industries

Prepared by: Kent Kuehn

09/04/2020

Midway Ford Truck Center, Inc. | 7601 NE 38th St Kansas City Missouri | 64161



2021 F-450 Chassis 4x2 SD Regular Cab 169" WB DRW XL (F4G)

Price Level: 115 | Quote ID: EZNS2101

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Prepared for: Mr. Norm Scholten
 Manager, Vogel Traffic Services dba EZ Liner Industries
 Prepared by: Kent Kuehn
 09/04/2020



Midway Ford Truck Center, Inc. | 7601 NE 38th St Kansas City Missouri | 64161

2021 F-450 Chassis 4x2 SD Regular Cab 169" WB DRW XL (F4G)

Price Level: 115 | Quote ID: EZNS2101

As Configured Vehicle

Code	Description
Base Vehicle	
F4G	Base Vehicle Price (F4G)
Packages	
650A	<p>Order Code 650A</p> <p><i>Includes:</i></p> <ul style="list-style-type: none"> - Engine: 7.3L 2V DEVCT NA PFI V8 Gas - Transmission: TorqShift 10-Speed Automatic Includes neutral idle and selectable drive modes: normal, tow/haul, eco, deep sand/snow and slippery. - 4.88 Axle Ratio - GVWR: 16,500 lb Payload Package - Tires: 225/70Rx19.5G BSW A/P - Wheels: 19.5" x 6" Argent Painted Steel Hub covers/center ornaments not included. - HD Vinyl 40/20/40 Split Bench Seat Includes center armrest, cupholder and driver's side manual lumbar. - Radio: AM/FM Stereo w/MP3 Player Includes 4 speakers. - SYNC Communications & Entertainment System Includes enhanced voice recognition, 911 Assist, 4.2" LCD center stack screen, Applink, 1 smart-charging USB C port and steering wheel audio controls.
Powertrain	
99N	Engine: 7.3L 2V DEVCT NA PFI V8 Gas
44G	<p>Transmission: TorqShift 10-Speed Automatic</p> <p><i>Includes neutral idle and selectable drive modes: normal, tow/haul, eco, deep sand/snow and slippery.</i></p>
X48	4.88 Axle Ratio
STDGV	GVWR: 16,500 lb Payload Package
Wheels & Tires	
TGJ	Tires: 225/70Rx19.5G BSW A/P
64Z	<p>Wheels: 19.5" x 6" Argent Painted Steel</p> <p><i>Hub covers/center ornaments not included.</i></p>
512	<p>Spare Tire, Wheel & Jack</p> <p>Required in Rhode Island.</p> <p><i>Excludes carrier.</i></p> <p><i>Includes:</i></p> <ul style="list-style-type: none"> - 6-Ton Hydraulic Jack

Seats & Seat Trim

Prices and content availability as shown are subject to change and should be treated as estimates only. Actual base vehicle, package and option pricing may vary from this estimate because of special local pricing, availability or pricing adjustments not reflected in the dealer's computer system. See

Prepared for: Mr. Norm Scholten

Manager, Vogel Traffic Services dba EZ Liner Industries

Prepared by: Kent Kuehn

09/04/2020

Midway Ford Truck Center, Inc. | 7601 NE 38th St Kansas City Missouri | 64161



2021 F-450 Chassis 4x2 SD Regular Cab 169" WB DRW XL (F4G)

Price Level: 115 | Quote ID: EZNS2101

As Configured Vehicle (cont'd)

Code	Description
A	HD Vinyl 40/20/40 Split Bench Seat <i>Includes center armrest, cupholder and driver's side manual lumbar.</i>
Other Options	
PAINT	Monotone Paint Application
169WB	169" Wheelbase
STDRD	Radio: AM/FM Stereo w/MP3 Player <i>Includes 4 speakers.</i> <i>Includes:</i> <i>- SYNC Communications & Entertainment System</i> <i>Includes enhanced voice recognition, 911 Assist, 4.2" LCD center stack screen, AppLink, 1 smart-charging USB-C port and steering wheel audio controls.</i>
90L	Power Equipment Group <i>Deletes passenger side lock cylinder. Includes upgraded door-trim panel.</i> <i>Includes:</i> <i>- Accessory Delay</i> <i>- Advanced Security Pack</i> <i>Includes SecurILock Passive Anti-Theft System (PATS) and inclination/intrusion sensors.</i> <i>- MyKey</i> <i>Includes owner controls feature.</i> <i>- Power Front Side Windows</i> <i>Includes 1-touch up/down driver/passenger window.</i> <i>- Power Locks</i> <i>- Remote Keyless Entry</i>
67P	Extra Heavy-Duty Front End Suspension - 7,500 GAWR <i>Includes upgraded front axle and max 7,500 lbs. Front springs/GAWR rating for configuration selected. Incomplete vehicle package - requires further manufacture and certification by a final stage manufacturer.</i>
63C	Aft-Axle Frame Extension Pack <i>32.4" aft-of-axle frame extension increases AF dimension to 79.6"</i>
61J	6-Ton Hydraulic Jack Required in Rhode Island.
62R	Transmission Power Take-Off Provision <i>Includes mobile and stationary PTO modes.</i>
54K	Folding Trailer Tow Mirrors w/Power Heated Glass <i>Includes manual telescoping, heated convex spotter mirror and integrated clearance lamps/turn signals.</i>
63A	Utility Lighting System <i>Includes LED side-mirror spotlights.</i>
52B	Trailer Brake Controller <i>Includes smart trailer tow connector. Verified to be compatible with electronic actuated drum brakes only.</i>

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Manager, Vogel Traffic Services dba EZ Liner Industries
Prepared by: Kent Kuehn
09/04/2020



Midway Ford Truck Center, Inc. | 7601 NE 38th St Kansas City Missouri | 64161

2021 F-450 Chassis 4x2 SD Regular Cab 169" WB DRW XL (F4G)

Price Level: 115 | Quote ID: EZNS2101

As Configured Vehicle (cont'd)

Code	Description
18B	Platform Running Boards
59H	Center High-Mounted Stop Lamp (CHMSL)
153	Front License Plate Bracket Standard in states requiring 2 license plates and optional to all others.

Fleet Options

525_	Steering Wheel-Mounted Cruise Control
942	Daytime Running Lamps (DRL) (LPO) Requires valid FIN code. <i>The non-controllable 942 Daytime Running Lamps (DRL) replace the standard Daytime Running Lamps (DRL) on/off cluster controllable.</i>
927	Speed Limitation - 75-MPH Governed Top Speed (LPO) Requires valid FIN code.
63G	Bright Grille (LPO) Requires valid FIN code.
17F	XL Decor Group (LPO) Requires valid FIN code. <i>Includes:</i> <i>- Chrome Front Bumper</i>
D9D	Built: Ohio Plant
31H	Ship-Thru: Manning Truck Equipment
FLADCR	Fleet Advertising Credit
96V_	XL Value Package (Fleet) <i>Includes:</i> <i>- XL Decor Group (LPO)</i> <i>- Chrome Front Bumper</i> <i>- Steering Wheel-Mounted Cruise Control</i>

Emissions

425	50-State Emissions System
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Interior Colors

AS_01	Medium Earth Gray
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09/04/2020



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2021 F-450 Chassis 4x2 SD Regular Cab 169" WB DRW XL (F4G)

Price Level: 115 | Quote ID: EZNS2101

As Configured Vehicle (cont'd)

Code	Description
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Primary Colors

Z1_01	Oxford White
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General Info

ORDER1	Initial Order Date: TBD
START1	Start-Up Date: TBD
FINAL1	Final Order Date: TBD
BUILD1	Build-Out Date: TBD

Upfit Options

AKK-056	Install EGIS P/N 5601 Low-amp Time Delay Relay <i>ATTACHED TO THE POSITIVE SIDE OF BATTERY. ALSO, CONNECT THE GROUND FROM THE RELAY TO BODY COMPANY FUSE BLOCK.</i>
AKK225	F.O.B. Hull, IA. <i>Pickup from Vanair Manufacturing, Michigan City, IN.</i>
AKK242	Install Federal Interior Light <i>MODEL LF18ES-LED LITRTLELITE INTERIOR LIGHT WITH 18" FLEXIBLE GOOSENECK; CHOICE OF RED OR WHITE LIGHT FROM THE TOBBLE SWITCH SELECTOR. CONNECTED DIRECTLY TO TIMED OUTPUT.</i>
AKK257	F.O.B. Michigan City, IN. <i>Vanair Manufacturing</i>
AKK128	Install SVP Model 10-7000.12 HDPE console <i>25.5"L x 11"W x 16"H; INCLUDES HANGING FILE COMPARTMENT; EXTRA LARGE DRINK HOLDERS; FLIP UP WRITING SURFACE WITH CLIP LAPTOP SHELF; CONSOLE MOUNTING BRACKET.</i>
AKK147	F.O.B. Authorized Ford Drop Ship Point <i>Pre-delivery inspection</i>
AKK201	PDI, Ship to location <i>DOES NOT INCLUDE CLEANUP AND DETAILING</i>

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09/04/2020

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2021 F-450 Chassis 4x2 SD Regular Cab 169" WB DRW XL (F4G)

Price Level: 115 | Quote ID: EZNS2101

Pricing Summary - Single Vehicle

	MSRP
<i>Vehicle Pricing</i>	\$47,173.00
<i>Discount Adjustments</i>	
Discount	-\$9,682.00
Total	\$37,491.00

Customer Signature

Acceptance Date

Prepared for: Mr. Norm Scholten

Manager, Vogel Traffic Services dba EZ Liner Industries

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2021 F-450 Chassis 4x2 SD Regular Cab 169" WB DRW XL (F4G)

Price Level: 115 | Quote ID: EZNS2101

Warranty

Standard Warranty

Basic

Distance	36,000 miles	Months	36 months
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Powertrain

Distance	60,000 miles	Months	60 months
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Corrosion Perforation

Distance	Unlimited miles	Months	60 months
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Roadside Assistance

Distance	60,000 miles	Months	60 months
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2021 F-450 Chassis 4x2 SD Regular Cab 169" WB DRW XL (F4G)

Price Level: 115 | Quote ID: EZNS2101

Selected Equip & Specs

Dimensions

* **Exterior length: 287.2"** • Cab to axle: 84.0" • Exterior width: 80.0" • Exterior height: 81.5" • Wheelbase: 169.0" • Front track: 74.8" • Rear track: 74.0" • Turning radius: 24.2' • Rear tire outside width: 93.9" • Min ground clearance: 8.3" • Front legroom: 43.9" • Front headroom: 40.8" • Front hiproom: 62.5" • Front shoulder room: 66.7" • Passenger volume: 64.6cu.ft. • Cargo volume: 11.6cu.ft. • Maximum cargo volume: 11.6cu.ft.

Powertrain

* **350hp 7.3L OHV 16 valve V-8 engine with DEVCT variable valve control, SMPI** • Recommended fuel : regular unleaded • federal • TorqShift 10 speed automatic transmission with overdrive • Rear-wheel drive • Fuel Economy City: N/A • Fuel Economy Highway: N/A * **Transmission PTO provision**

Suspension/Handling

• Front Mono-beam non-independent suspension with anti-roll bar, HD shocks • Rear DANA M300 rigid axle leaf spring suspension with anti-roll bar, HD shocks • Firm ride Suspension • Hydraulic power-assist re-circulating ball Steering • Front and rear 19.5 x 6 argent steel wheels • LT225/70SR19.5 GBSW AS front and rear tires • Dual rear wheels

Body Exterior

• 2 doors * **Driver and passenger power remote heated, manual folding door mirrors with turn signal indicator** * **Turn signal indicator in mirrors** • Black door mirrors * **Chrome bumpers** * **Side steps** • Trailer harness • Clearcoat paint • Front and rear 19.5 x 6 wheels • 2 front tow hook(s)

Convenience

• Manual air conditioning with air filter * **Cruise control with steering wheel controls** * **Power front windows** * **Driver and passenger 1-touch up** * **Driver and passenger 1-touch down** * **Remote power door locks with 2 stage unlock and illuminated entry** • Manual tilt steering wheel • Manual telescopic steering wheel • Day-night rearview mirror • FordPass Connect 4G internet access • Emergency SOS • Wireless phone connectivity • AppLink smart device integration • 2 1st row LCD monitors • Front cupholders • Passenger visor mirror * **Driver and passenger door bins** • Upfitter switches

Seats and Trim

• Seating capacity of 3 • Front 40-20-40 split-bench seat • 4-way driver seat adjustment • Manual driver lumbar support • 4-way passenger seat adjustment • Centre front armrest

Entertainment Features

• AM/FM stereo radio • SYNC external memory control • Steering wheel mounted radio controls • 4 speakers • Streaming audio • Fixed antenna

Lighting, Visibility and Instrumentation

• Halogen aero-composite headlights • Delay-off headlights • Fully automatic headlights • Variable intermittent front windshield wipers • Light tinted windows • Front reading lights • Tachometer • Oil pressure gauge • Compass • Outside temperature display • Trip computer • Trip odometer

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Manager, Vogel Traffic Services dba EZ Liner Industries

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**2021 F-450 Chassis 4x2 SD Regular Cab 169" WB DRW XL (F4G)**

Price Level: 115 | Quote ID: EZNS2101

Selected Equip & Specs (cont'd)**Safety and Security**

• 4-wheel ABS brakes • Brake assist • 4-wheel disc brakes • Driveline traction control • Dual front impact airbag supplemental restraint system with passenger cancel • Dual seat mounted side impact airbag supplemental restraint system • Safety Canopy System curtain 1st row overhead airbag supplemental restraint system * **Remote activated perimeter/approach lighting** * **Power remote door locks with 2 stage unlock and panic alarm** * **Security system with SecuriLock immobilizer** * **MyKey restricted driving mode** • Manually adjustable front head restraints

Dimensions*General Weights*

* Curb	6,885 lbs.	GVWR	16,500 lbs.
Payload	9,790 lbs.		

Front Weights

* Front GAWR	7,500 lbs.	* Front curb weight	3,855 lbs.
* Front axle capacity	7,500 lbs.	* Front spring rating	7,500 lbs.
Front tire/wheel capacity	7,500 lbs.		

Rear Weights

Rear GAWR	13,660 lbs.	* Rear curb weight	3,030 lbs.
Rear axle capacity	13,660 lbs.	Rear spring rating	13,660 lbs.
Rear tire/wheel capacity	15,000 lbs.		

Trailer Type

Harness	Yes	* Brake controller	Yes
Trailer sway control	Yes		

General Trailering

5th-wheel towing capacity	20200 lbs.	Gooseneck towing capacity	20200 lbs.
Towing capacity	17340 lbs.	GCWR	28000 lbs.

Fuel Tank type

Capacity	40 gal.
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Off Road

Min ground clearance	8 "
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Interior cargo

Cargo volume	11.6 cu.ft.	Maximum cargo volume	11.6 cu.ft.
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Rear Frame

Height loaded	28 "	* Height unloaded	35 "
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Powertrain

Prepared for: Mr. Norm Scholten

Manager, Vogel Traffic Services dba EZ Liner Industries

Prepared by: Kent Kuehn

09/04/2020

Midway Ford Truck Center, Inc. | 7601 NE 38th St Kansas City Missouri | 64161

**2021 F-450 Chassis 4x2 SD Regular Cab 169" WB DRW XL (F4G)**

Price Level: 115 | Quote ID: EZNS2101

Selected Equip & Specs (cont'd)*Engine Type*

Block material	Iron	Cylinders	V-8
Head material	Aluminum	Ignition	Spark
Injection	Sequential MPI	Liters	7.3L
Orientation	Longitudinal	Recommended fuel	Regular unleaded
Valves per cylinder	2	Valvetrain	OHV
Variable valve control	DEVCT		

Engine Spec

Bore	4.21"	Compression ratio	10.5:1
Displacement	445 cu.in.	Stroke	3.98"

Engine Power

SAEJ1349 AUG2004 compliant	Yes	Output	350 HP @ 3,900 RPM
Torque	468 ft.-lb @ 3,900 RPM		

Alternator

Type	HD	Amps	240
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Battery

Amp hours	78	Cold cranking amps	750
Run down protection	Yes	Type	HD

Transmission

Electronic control	Yes	Lock-up	Yes
Overdrive	Yes	Speed	10
Type	Automatic		

Transmission Gear Ratios

1st	4.696	2nd	2.985
3rd	2.146	4th	1.769
5th	1.52	6th	1.275
7th	1	8th	0.854
9th	0.689	10th	0.616
Reverse Gear ratios	4.866		

Transmission Extras

Driver selectable mode	Yes	Sequential shift control	SelectShift
Oil cooler	Regular duty	* PTO provision	Yes

Drive Type

Type	Rear-wheel
------	------------

Drive Feature

Traction control	Driveline	* Power take-off provision	Yes
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**2021 F-450 Chassis 4x2 SD Regular Cab 169" WB DRW XL (F4G)**

Price Level: 115 | Quote ID: EZNS2101

Selected Equip & Specs (cont'd)*Drive Axle*

Ratio 4.88

Exhaust

Material Stainless steel System type Single

Emissions

CARB Federal

Fuel Economy

Fuel type Gasoline

Driveability*Brakes*ABS 4-wheel ABS channels 3
Type 4-wheel disc Vented discs Front and rear*Brake Assistance*

Brake assist Yes

Suspension Control

Ride Firm

Front Suspension

Independence Mono-beam non-independent Anti-roll bar Regular

Front Spring

Type Coil * Grade HD

Front Shocks

Type HD

*Rear Suspension*Independence DANA M300 rigid axle Type Leaf
Anti-roll bar Regular*Rear Spring*

Type Leaf Grade HD

Rear Shocks

Type HD

Steering

Activation Hydraulic power-assist Type Re-circulating ball

Steering Specs

of wheels 2

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Price Level: 115 | Quote ID: EZNS2101

Selected Equip & Specs (cont'd)

Exterior

Front Wheels

Diameter 19.5" Width 6.00"

Rear Wheels

Diameter 19.5" Width 6.00"
Dual Yes

Spare Wheels

* Wheel material **Steel**

Front and Rear Wheels

Appearance Argent Material Steel

Front Tires

Aspect 70 Diameter 19.5"
Sidewalls BSW Speed S
Tread AS Type LT
Width 225mm LT load rating G
RPM 647

Rear Tires

Aspect 70 Diameter 19.5"
Sidewalls BSW Speed S
Tread AS Type LT
Width 225mm LT load rating G
RPM 647

Spare Tire

* Mount **Frame mounted** * Type **Full-size**

Wheels

Front track 74.8" Rear track 74.0"
Turning radius 24.2' Wheelbase 169.0"
Rear tire outside width 93.9"

Body Features

* Front license plate bracket **Yes** Front splash guards **Yes**
Body material **Aluminum** Side impact beams **Yes**
* Side steps **Yes** Front tow hook(s) **2**

Body Doors

Door count **2**

Exterior Dimensions

Prepared for: Mr. Norm Scholten

Manager, Vogel Traffic Services dba EZ Liner Industries

Prepared by: Kent Kuehn

09/04/2020

Midway Ford Truck Center, Inc. | 7601 NE 38th St Kansas City Missouri | 64161

**2021 F-450 Chassis 4x2 SD Regular Cab 169" WB DRW XL (F4G)**

Price Level: 115 | Quote ID: EZNS2101

Selected Equip & Specs (cont'd)

* Length	287.2"	Body width	80.0"
Body height	81.5"	Cab to axle	84.0"
* Axle to end of frame	79.6"	Frame section modulus	12.7cu.in.
Frame yield strength (psi)	50000.0	Frame rail width	34.2"
Front bumper to Front axle	38.3"	* Cab to end of frame	163.6"
Front bumper to back of cab	123.7"		

Safety*Airbags*

Driver front-impact	Yes	Driver side-impact	Seat mounted
Overhead Safety Canopy System curtain 1st row		Passenger front-impact	Cancellable
Passenger side-impact	Seat mounted		

Seatbelt

Height adjustable	Front
-------------------	-------

Security

* Immobilizer	SecuriLock	* Panic alarm	Yes
* Restricted driving mode	MyKey		

Seating*Passenger Capacity*

Capacity	3
----------	---

Front Seats

Split	40-20-40	Type	Split-bench
-------	----------	------	-------------

Driver Seat

Fore/aft	Manual	Reclining	Manual
Way direction control	4	Lumbar support	Manual

Passenger seat

Fore/aft	Manual	Reclining	Manual
Way direction control	4		

Front Head Restraint

Control	Manual	Type	Adjustable
---------	--------	------	------------

Front Armrest

Centre	Yes
--------	-----

Front Seat Trim

Material	Vinyl	Back material	Vinyl
----------	-------	---------------	-------

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Price Level: 115 | Quote ID: EZNS2101

Selected Equip & Specs (cont'd)**Convenience***AC And Heat Type*

Air conditioning	Manual	Air filter	Yes
------------------	--------	------------	-----

Audio System

Radio	AM/FM stereo	Radio grade	Regular
Seek-scan	Yes	External memory control	SYNC

Audio Speakers

Speaker type	Regular	Speakers	4
--------------	---------	----------	---

Audio Controls

Steering wheel controls	Yes	Voice activation	Yes
Streaming audio	Bluetooth yes		

Audio Antenna

Type	Fixed		
------	-------	--	--

LCD Monitors

1st row	2	Primary monitor size (inches)	4.2
---------	---	-------------------------------	-----

*Cruise Control**** Cruise control With steering wheel controls***Convenience Features*

* Retained accessory power	Yes	12V DC power outlet	2
Emergency SOS	Mobile device	Wireless phone connectivity	Bluetooth
Smart device integration	App link	Upfitter switches	Yes

Door Lock Activation

* Type	Power with 2 stage unlock	* Remote	Keyfob (all doors)
* Integrated key/remote	Yes		

Door Locks Extra FOB Controls

Remote engine start	Smart device only		
---------------------	-------------------	--	--

Instrumentation Type

Display	Analog		
---------	--------	--	--

Instrumentation Gauges

Tachometer	Yes	Oil pressure	Yes
Engine temperature	Yes	Transmission fluid temp	Yes
Engine hour meter	Yes		

Instrumentation Warnings

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Price Level: 115 | Quote ID: EZNS2101

Selected Equip & Specs (cont'd)

Oil pressure	Yes	Engine temperature	Yes
Battery	Yes	Lights on	Yes
Key	Yes	Low fuel	Yes
Door ajar	Yes	Service interval	Yes
Brake fluid	Yes		

Instrumentation Displays

Clock	In-radio display	Compass	Yes
Exterior temp	Yes	Systems monitor	Yes

Instrumentation Feature

Trip computer	Yes	Trip odometer	Yes
---------------	-----	---------------	-----

Steering Wheel Type

Material	Urethane	Tilting	Manual
Telescoping	Manual		

Front Side Windows***Window 1st row activation Power****Window Features**

* 1-touch down	Driver and passenger	* 1-touch up	Driver and passenger
Tinted	Light		

Front Windshield

Wiper Variable intermittent

Rear Windshield

Window Fixed

Interior**Passenger Visor**

Mirror Yes

Rear View Mirror

Day-night Yes

Headliner

Coverage Full Material Cloth

Floor Trim

Coverage Full Covering Vinyl/rubber

Trim Feature

Gear shifter material Urethane Interior accents Chrome

Lighting

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2021 F-450 Chassis 4x2 SD Regular Cab 169" WB DRW XL (F4G)

Price Level: 115 | Quote ID: EZNS2101

Selected Equip & Specs (cont'd)

Dome light type	Yes	Front reading	Yes
* Illuminated entry	Yes	Variable IP lighting	Yes
<i>Storage</i>			
* Driver door bin	Yes	Front Beverage holder(s)	Yes
Glove box	Locking	* Passenger door bin	Yes
Illuminated	Yes	Instrument panel	Covered bin
Dashboard	Yes		
<i>Legroom</i>			
Front	43.9"		
<i>Headroom</i>			
Front	40.8"		
<i>Hip Room</i>			
Front	62.5"		
<i>Shoulder Room</i>			
Front	66.7"		
<i>Interior Volume</i>			
Passenger volume	64.6 cu.ft.		

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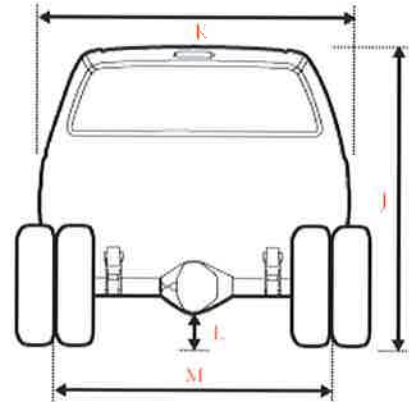
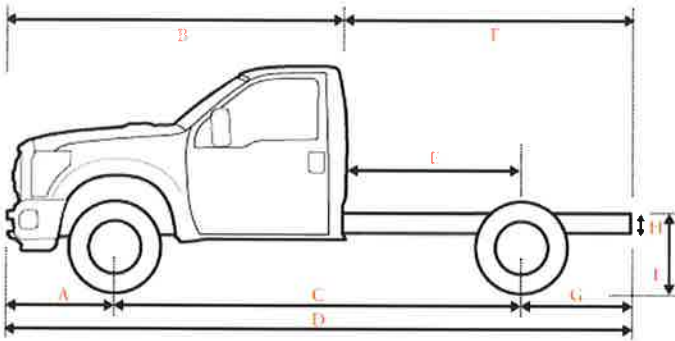


2021 F-450 Chassis 4x2 SD Regular Cab 169" WB DRW XL (F4G)

Price Level: 115 | Quote ID: EZNS2101

Vehicle Dimension and Performance Summary

Performance predictions in this report represent an estimate of vehicle performance based on standard operating conditions. Variations in customer equipment, load configuration, ambient conditions, and/or operator driving techniques can cause significant variations in vehicle performance. These values are not representative of results that may be shown in actual dynamometer tests. This report should therefore be used as a guide for comparative vehicle performance.



Dimensions

A	Front of Bumper to Front Axle	38.30 in.
B	Front Bumper to Back of Cab (BBC)	123.70 in.
C	Wheelbase (WB)	169.00 in.
D	Overall Length (OAL)	287.20 in.
E	Back of Cab to Rear Axle (CA)	84.00 in.
F	Back of Cab to End of Frame	163.60 in.
G	Rear Axle to End of Frame (AF)	79.60 in.
H	Frame Section Height	N/A
I	Rear Frame Height Unloaded	34.60 in.
I	Rear Frame Height Loaded	28.50 in.
J	Cab Height	81.50 in.
K	Body Width	80.00 in.
L	Maximum Ground Clearance	N/A
L	Minimum Ground Clearance	8.30 in.
M	Front Tread	74.80 in.
M	Rear Tread	74.00 in.

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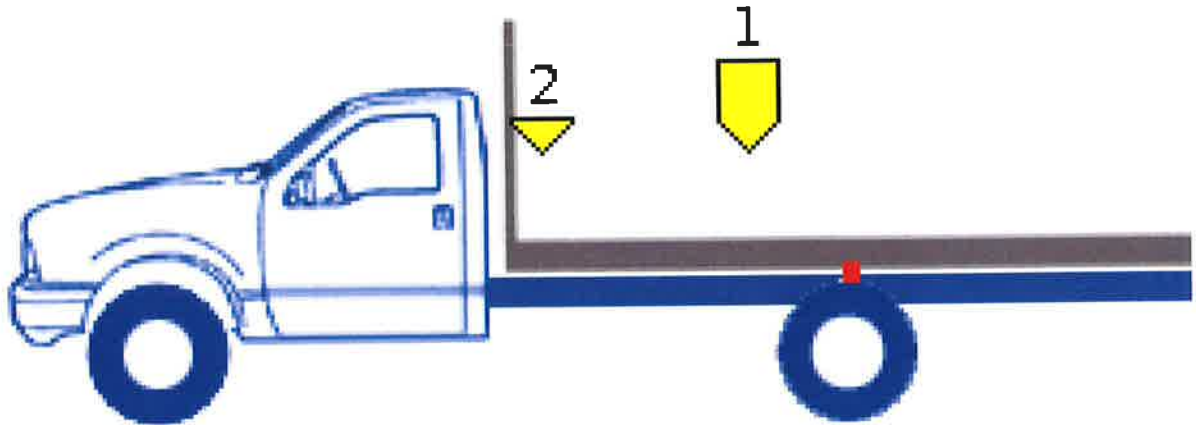
2021 F-450 Chassis 4x2 SD Regular Cab 169" WB DRW XL (F4G)

Price Level: 115 | Quote ID: EZNS2101

Vehicle Dimension and Performance Summary (cont'd)

Body Specs

Truck body style:	Platform/Stake
Cab to body gap:	3.00 in.
Body length:	13.40 ft
Body tare weight:	4,500 lbs
Body width:	96 in.
Body height from ground:	114 in.
Body Centre gravity (from front):	80.30 in.



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**2021 F-450 Chassis 4x2 SD Regular Cab 169" WB DRW XL (F4G)**

Price Level: 115 | Quote ID: EZNS2101

Vehicle Dimension and Performance Summary (cont'd)*Weight*

<u>GVW</u>	<u>Front Axle</u>	<u>Rear Axle</u>	<u>Totals</u>
Chassis	3,855 lbs	3,030 lbs	6,885 lbs
Body	27 lbs	4,473 lbs	4,500 lbs
Occupants Weight	300 lbs	150 lbs	450 lbs
1 Point Load - (Point Load)	966 lbs	5,834 lbs	6,800 lbs
2 Point Load - (Point Load)	107 lbs	143 lbs	250 lbs
TOTAL	5,255 lbs	13,630 lbs	18,885 lbs

<u>Ratings</u>	<u>Front Axle</u>	<u>Rear Axle</u>	<u>GVWR</u>
GAWR	7,500 lbs	13,660 lbs	16,500 lbs
Wheels/Tires	7,500 lbs	15,000 lbs	
Suspension	7,500 lbs	13,660 lbs	
Axle	7,500 lbs	13,660 lbs	
Legal Axle Limit	0 lbs	0 lbs	

Start, Grade and Speed

<u>Start</u>	<u>Ratio</u>	<u>Desired</u>	<u>Calculated</u>
Start grade capability in 1st gear	4.70	15.00 %	34.34 %
Start grade capability in reverse	4.87	15.00 %	35.58 %
<u>Grade</u>	<u>Ratio</u>	<u>Desired</u>	<u>Calculated</u>
Maximum grade in 8th gear	0.85	3.00 %	6.24 %
Maximum grade in 9th gear	0.69	3.00 %	5.04 %
Maximum grade in 10th gear	0.62	3.00 %	4.50 %
<u>Speed</u>		<u>Desired</u>	<u>Calculated</u>
Top Speed (level grade)		75 mph	120 mph
<i>To meet your requirement you need a maximum axle ratio of 9.39</i>			
Top Speed on 3.0% grade		55 mph	
<i>To meet your requirement you need a maximum of 119 hp</i>			
Cruise Speed		60 mph	80 mph
Engine RPM at desired cruise speed			1,945 rpm

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2021 F-450 Chassis 4x2 SD Regular Cab 169" WB DRW XL (F4G)

Price Level: 115 | Quote ID: EZNS2101

Vehicle Dimension and Performance Summary (cont'd)

Variables in Use

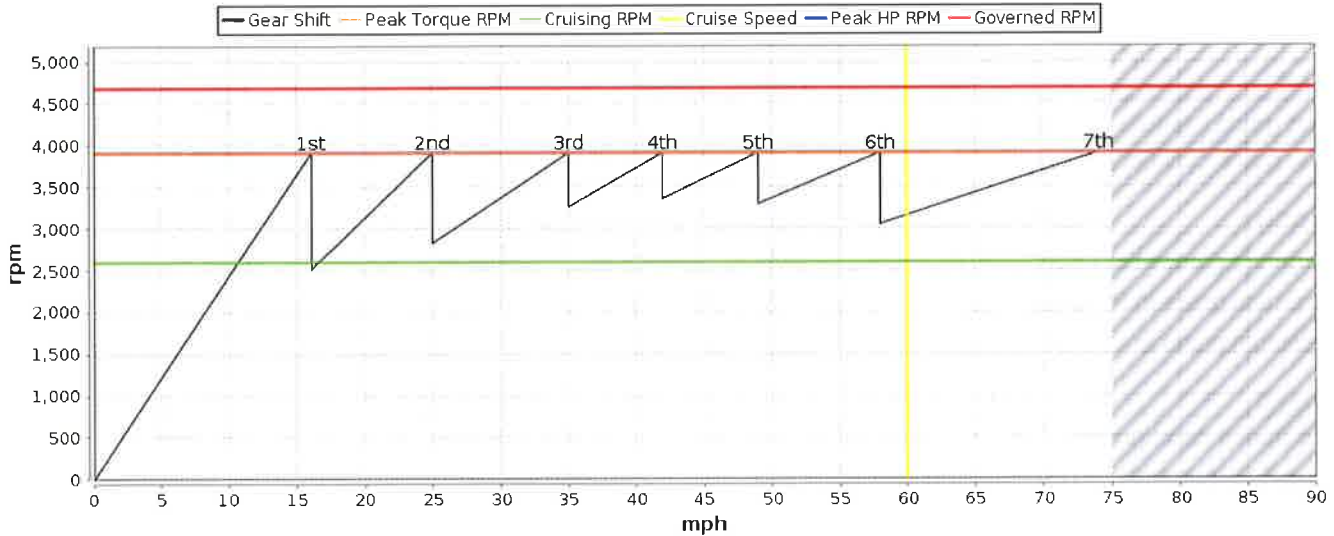
Rear axle ratio:	4.88/4.88	Peak Torque RPM:	3,900 rpm
Tire size:	225/70R19.5 (647 rev/mile)	Frontal Area:	40.28 Sq.Ft.
Gross Vehicle Weight (GVW):	18,885 lbs	Cruising RPM	2,600 rpm
Clutch engagement torque:	234 ft.lbs.	Worst road surface	Typical Highway
Torque conversion ratio:	2.00	Final Drive Ratio:	0.62
Peak engine torque:	468 ft.lbs.	Drag Coefficient	0.80
Engine Power:	350 hp @ 3,900 rpm		

Shift Chart

Shift Chart displays mathematical geared speed.

Diesel engines use Governed RPM for shift points.

Gas engines use Peak Torque RPM for shift points.



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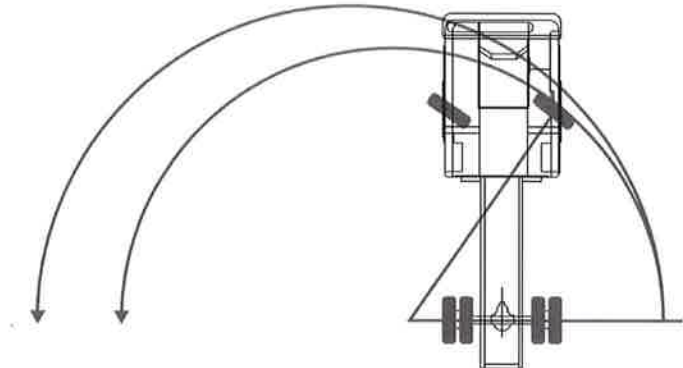
Price Level: 115 | Quote ID: EZNS2101

Vehicle Dimension and Performance Summary (cont'd)

Turning Radius

Turning Radius

24.25 ft



EZ LINER MODEL PS-ST110, Product Code #18F**PALLETIZED STENCIL STRIPER ONLY**

Item	Description	List Price
18F	PS-ST110 Base Unit	\$ 37,280.00
18F-02-01	250# Glass Bead System	\$ 5,560.00
18F-02-02	Hand Gun and 25' Hose (Paint & Bead) (w/Glass Bead System purchase)	\$ 930.00
18F-02-03	Pole Gun and 25' Hose (Paint & Bead) (w/Glass Bead System purchase)	\$ 1,590.00
18F-02-04	Hose Reel & Hand Gun (Paint & Bead)	\$ 3,250.00
18F-02-05	Hose Reel & Pole Gun (Paint & Bead)	\$ 3,190.00
18F-03-01	Drum Mount Agitators Assy (each)	\$ 1,010.00
18F-03-02	Hydraulic Agitators for Paint Tank (with Paint Tank purchase)	\$ 1,090.00
18F-04-01	Pole Gun and 25' Hose (Paint Only)	\$ 1,090.00
18F-04-02	Hose Reel & Hand Gun (Paint Only)	\$ 1,760.00
18F-04-03	Hose Reel & Pole Gun (Paint Only)	\$ 2,160.00
18F-04-04	Add'l paint pump	\$ 5,330.00
18F-04-05	50 Gallon SS Paint Tank ILO Base	\$ 3,040.00
18F-10-01	Storage Stand	\$ 1,330.00

FOB FACTORY. TRAINING AND DELIVERY PRICED SEPARATELY.

A 3% DISCOUNT ON BASE UNIT AND ITEMS LISTED ON THIS PRICING PAGE IS AVAILABLE TO SOURCEWELL MEMBERS.

EFFECTIVE DATE: OCTOBER 19, 2020

DELIVERY SCHEDULE

Item	Description	Price
18A-10-01	Delivery Charge F.O.B. Destination within 0 to 250 miles from Orange City, IA	\$1,300.00
18A-10-02	Delivery Charge F.O.B. Destination within 251 to 999 miles from Orange City, IA-price per mile	\$5.20/mile
18A-10-03	Delivery Charge F.O.B. Destination within 1000 miles or more from Orange City, IA-price per mile	\$3.90/mile
18B-10-01	Delivery Charge F.O.B. Destination within 0 to 250 miles from Orange City, IA	\$1,300.00
18B-10-02	Delivery Charge F.O.B. Destination within 251 to 999 miles from Orange City, IA-price per mile	\$5.20/mile
18B-10-03	Delivery Charge F.O.B. Destination within 1000 miles or more from Orange City, IA-price per mile	\$3.90/mile
18C-10-01	Delivery Charge F.O/B. Destination within 0 to 250 miles from Orange City, IA	\$1,300.00
18C-10-02	Delivery Charge F.O.B. Destination within 251 to 999 miles from Orange City, IA-price per mile	\$5.20/mile
18C-10-03	Delivery Charge F.O.B. Destination within 1000 miles or more from Orange City, IA-price per mile	\$3.90/mile
18D-10-05	Freight Charges to any Continental US destination	\$2,080.00
18E-10-03	Freight Charges to any Continental US destination	\$2,080.00
18F-10-02	Freight Charges to any Continental US destination	\$2,080.00
18G-10-01	Delivery Charge F.O.B. Destination within 0 to 250 miles from Orange City, IA	\$1,300.00
18G-10-02	Delivery Charge F.O.B. Destination within 251 to 999 miles from Orange City, IA-price per mile	\$5.20/mile
18G-10-03	Delivery Charge F.O.B. Destination within 1000 miles or more from Orange City, IA-price per mile	\$3.90/mile

SOURCEWELL CONTRACT #052417-EZL
SPECIFICATIONS FOR
EZ LINER MODEL PS-ST110 BASE UNIT
Product Code #18F
9/14/2020

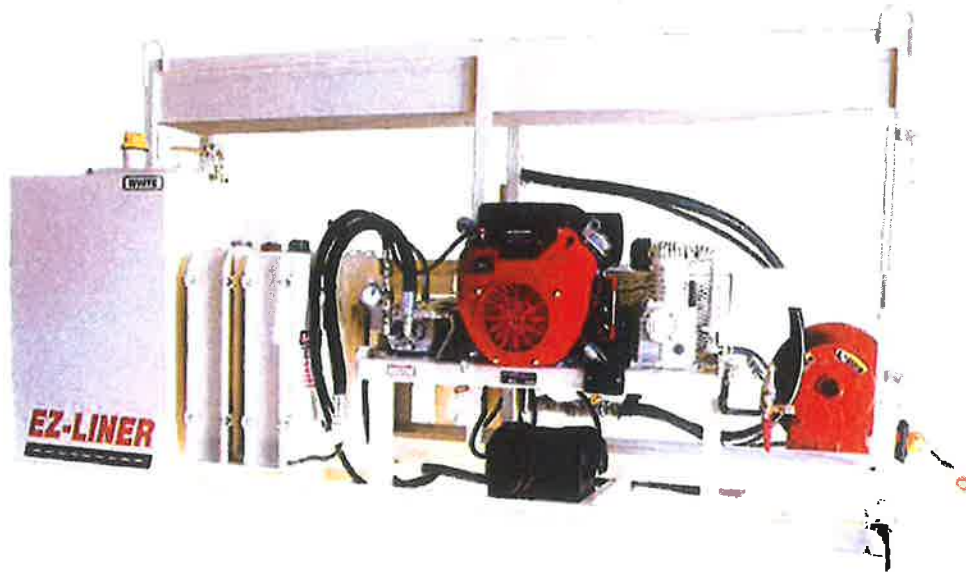
- 1.0 **Performance specification:** Unit shall be capable of applying specialty hand applied markings such as crosswalks, stop bars, and stencil markings.
- 2.0 **Equipment platform:** Unit shall be installed on a palletized skid mount and extend the length of an 8 to 10-foot bed. The construction shall be formed steel channel, 5-inch members with cross members for support. Unit shall be so constructed to evenly distribute the weight and have hooks located on the front and rear to facilitate the lifting of the unit on and off of the truck chassis. Unit shall be held in truck bed by means of a zinc plated, tiedown bracket with turnbuckles on rear bumper. The auxiliary engine and air compressor shall remain their original factory colors. The underside of the frame will be painted the same color as the top. All coatings shall be lead free. The Unit shall be prime coated with a two-component urethane primer system. The topcoat shall be a two-component polyurethane coating. White is the standard factory paint color.
- 3.0 **Stencil holding rack:** One (1) steel constructed stencil rack shall be approximately 9 feet long and 4 feet tall overall. Six (6) slots at 3" wide each shall accommodate multiple poly vinyl or aluminum stencils of various sizes. A roller shall allow for easy stencil removal when hinged down and shall provide a stop to hold stencils in place when roller bracket is hinged up and locked in the up position. A horizontal slide out and removable drip tray shall be provided under the entire bottom section of the rack.
- 4.0 **Paint Gun hose reel:** One (1) Graco Flex paint gun with heavy duty reversible spray tip on a retractable hose reel with 25' of 3/8" ID nylon lined paint hose rated at 3000 psi working pressure shall be provided.
- 5.0 **Paint supply:** Drum or bucket holding pockets shall be bolted to the front of the frame, capable of holding 55 gal. paint drums or multiple 5-gallon buckets securely held in place with a web strap retention system. Paint re-circulation shall be provided. A 4" diameter x 43" water-tight stand tube shall be supplied for each paint suction hose suction tube to hold the suction hose and bleeder line tube, mounted in a way that it can be removed from the frame for ease of cleaning.
- 6.0 **High pressure paint pump:** One (1) Titan/Specflo Model paint pump with a combination of leather/UHMWPE packings rated at 2.84 GPM @ 2000 PSI shall be provided. Pump shall be equipped with an 18 sq. in. high-pressure stainless-steel paint filter with 40 mesh screens and check valve.
- 7.0 **Air supply:** A belt driven 30 cfm air compressor shall be installed with pipe extension on the oil drain out to be easily drained. The system shall include a 2-gallon air tank and LaMan 107F extractor/ dryer with auto drain. Air supply take off with quick connect fitting shall be provided.
- 8.0 **Auxiliary engine:** A Honda Model GX690 23 hp gas engine shall be mounted on a 3/16" steel motor mount attached to the frame by 4-inch C channel supports with controls at the engine.

Hydraulic pump and air compressor shall have adjustable mounts for tightening of the drive belts. All moving belts and pulleys shall be enshrouded by expanded metal guards. A separate CARB compliant 7-gallon gas tank and battery shall be provided for the Honda gas engine.

- 9.0 **Hydraulic power:** A 12-gallon hydraulic oil reservoir with sight level/temperature gauge, suction screen and return line filter with condition indicator shall be provided along with a belt driven pressure compensated piston type hydraulic pump. A ball valve shall be provided for hydraulic by-pass valve to allow a no-load start for the auxiliary engine. High pressure paint pump shall be manually controlled at pump.
- 10.0 **Electrical system:** Battery tray shall be located beneath engine with 1" lip constructed of 1/8" steel welded to main frame. Battery to be housed in a heavy-duty polypropylene case, totally enclosed to be protected from weather. The wiring harnesses between the junction blocks to be protected by protective split loom covering. The electrical junction blocks and main components of the timer system shall be installed in a weatherproof electrical box.
- 11.0 **Technical literature:** Descriptive literature, technical data and photographs shall be included with proposal.
- 12.0 **Technical support:** Two (2) sets of Operation/Maintenance manuals shall be provided for the paint striping body on flash drives.
- 13.0 **Chassis:** Cab and chassis are not included. Specifications for the customer supplied cab and chassis must be approved by EZ Liner Engineering prior to purchase to ensure modification costs will not be incurred.
- 14.0 **Delivery:** The estimated delivery time is 90 days ARO (after receipt of order). The completed unit may be driven out for delivery or delivered via trailer. The production schedule along with the time frame for delivery will be discussed and confirmed at time of order.
- 15.0 **Warranty:** EZ Liner warrants all equipment manufactured by it and bearing its brand names to be free from defects in material and workmanship at the time of sale by EZ Liner or an authorized distributor. EZ Liner will for a period of twelve months from the date of sale, repair or replace any part of the equipment proven defective. Due to specialty equipment conditions and a limited service and repair network, EZ Liner will reimburse customer at current EZ Liner rate for any labor that can be done by the customer.

PS-ST110 Pallet Series

Custom built striper



Note: This picture is representative of the PS-ST110 only. It may show optional equipment not included in our base model.

BASE UNIT

- Palletized construction fits in pickup or on a flat bed
- Stencil racks available for both poly and aluminum stencils
- Self-contained power pack
- Honda GX690 23 hp gas engine with separate battery; controls @ engine
- 7-gallon CARB compliant fuel tank
- Pressure compensated hydraulic pump belt driven
- Hydraulic system-12-gallon hydraulic oil reservoir, HP pump manual control, easy start hydraulic by-pass.
- Paint draw systems for drum or pails
- (1) ARO Model 2.84 gpm hydraulic powered paint system
- 25' paint hose reel with Graco Model handgun
- Drum holder for (2) 55 gal. drums
- Paint re-circulation
- Y strainer type LP paint filter at inlet of HP paint pump
- (1) ARO HP paint filter
- (2) operations/maintenance manuals

Published Options for EZ Liner Model PS-ST110

- Air Hose Reel w/ 25' Hose
- Additional Graco hand Flex gun with hose reel & 25' HP hose
- 25-gallon poly flush tank with 12vDC pump with quick disconnect at each gun carriage & spray wand with 25' hose
- Gallon counts-price each per color
- 3'x6' LED 25 lamp arrow board
- Aluminum toolbox
- 30 cfm belt driven piston air compressor-2-gallon air tank, LaMan 107F extractor/dryer with auto drain
- Whelen TAC8 LED arrow stick
- PS-ST110 recommended spare parts kit

NOTE: Changes & notations listed in red for 2021 specifications for the purchase of two stencil trucks.
Updated specifications 11/2/2020

City of San Leandro, CA has requested to use the Sacramento Stencil Truck specifications for their new Stencil Truck. The City has requested some changes that will work better for their operation. These changes are noted in blue.

COUNTY OF SACRAMENTO INTERNAL SERVICES AGENCY FLEET SERVICES DIVISION

SCOPE: This specification is intended to describe the design and fabrication of three (3) sixteen thousand five hundred (16,500) pound GVWR, paint stencil trucks to be used by the County of Sacramento for the application of roadway markings.

NOTE: References to CNG option have been eliminated or struck through because the County is not interested in a CNG chassis at this time. Per email dated 10/20/2020 from Ron Wirth, Fleet Advance Planning & Sustainability Manager, “Operators wish to have the exact same specs. To include the rear panel mounted regulator controls and gauges that were installed on the last trucks.”

I. GENERAL

1. It is the intent of the County of Sacramento to purchase equipment that will provide optimum benefit to the County. This does not necessarily mean that the County will buy the lowest priced product. Consideration will be given to the product warranty, service and parts support available in the Sacramento area, the number of satisfied users in this area, delivery dates and bidders past performance.
2. After mission consideration, the single most important factor in the bid evaluation will be emissions reduction factor of the engine. The County of Sacramento is committed to purchasing engines for vehicle(s)/equipment that meet or exceed actual tailpipe emissions standards for current year, specified by the EPA for the engine manufacturer.
3. **CARB CERTIFICATION:** CARB certification is required for all engines included in bid submissions. California ARB engine executive order(s) will be included with engines offered within the bid response. A bid response that does not include this document for standard and optional engines **may be rejected**.
4. **REDUCED EMISSIONS OPTION:** Sacramento County is committed to using low emission, clean air engines. If there is an optional engine available, which offers a greater emissions reduction than the minimum specified, it will be included. This must be shown as an added cost option. Show the up-charge for the engine upgrade in the bid response. CARB reduced emissions certificate will be included with bid response.

- 5. GRANT FUNDS AND PURCHASE INCENTIVES:** Bidders are encouraged to use available grant or incentive monies to help reduce the final price of the vehicle / equipment offered. Bidders are required to disclose any grant or incentive monies available and the total amount of each grant or incentive. The bid submission should show the full cost of the vehicle / equipment and itemize separately the amount(s) of the grant or incentive monies available. This information is necessary for the County of Sacramento to determine if any conflicts exist with other grants, incentives or funding sources that the County may already have in place. The County of Sacramento, at its sole discretion, shall decide which grants and / or incentives are appropriate to be used for the purchase of the vehicle / equipment. The bidder shall be responsible for all administrative work to complete the application process and facilitate the funding for any grants or incentives offered by the bidder at the time of the bid submission and accepted by the County of Sacramento. Acceptance of grants or incentives by the County shall take place at the time of issuance of a purchase order after a bid has been awarded.
- 6. USERS LIST:** Bidder will provide with the bid a user's list showing the names and addresses of businesses or other agencies within the Sacramento area using the bid product. This may be used as a reference list by the County and consideration may be given to the number of satisfied users in this area.
- 7. DOCUMENT REVIEW:** The bidder will provide for the County's review, at the County's request prior to bid award, copies of shop and service manuals for the equipment that was bid. Incomplete shop or service information may be cause for rejecting a bid.
- 8. DEMONSTRATION:** At the request of the County the bidder may be required to provide a demonstration of the product bid. At the request of the County, failure to provide a demonstration as soon as reasonably possible but not to exceed thirty (30) days from the time of the request or failure of the product to perform satisfactorily during the demonstration may be grounds for bid rejection.
- 9. BIDDER'S BASIC DATA SHEET:** A Sacramento County's Bidder's Basic Data Sheet will be completed and submitted with the bid submission.
- 10. REGULATIONS:** The unit(s) furnished to meet these specifications, including all equipment and accessories, will comply with all current applicable regulations of (1) California Vehicle Code; (2) California Code of Regulations; (3) California Air Resources Board; (4) Cal-OSHA; (5) National Highway Traffic Safety Administration; (6) Federal Motor Vehicle Safety Standards and Regulations; (7) California Environmental Protection Agency; (8) California Air Resources Board.
- 11. INDUSTRY STANDARDS:** Applicable standards of (1) American National Standards Institute (ANSI), (2) Natural Gas Vehicle Association (NGV-2), and (3) National Fire Protection Association (NFPA) shall be applied during the manufacturing and assembly of the vehicles.

- 12. RESPONSIBILITY:** Vendor / Dealer will be responsible for vehicle / equipment compliance with all applicable codes, regulations, laws, etc., governing such vehicle / equipment at the time of delivery. Acceptance of such vehicle / equipment by the County will not relieve Dealer / Vendor of the responsibility of items that do not meet such requirements. Should any of these specifications conflict with any code, regulation, law, etc., the Dealer / Vendor will notify the County before manufacturing starts. Dealer / Vendor will not be held responsible for changes required by codes, laws, regulations, etc., to vehicle / equipment after the time of delivery.
- 13. SWITCHES AND INDICATOR LIGHTS:** All switches and indicator lights inside the cab will be within easy reach and view of the operator. Lights will not be concealed, mounted or positioned in such a way that the operator while seated is not able to determine if a light is illuminated.
- 14. LABELS:** All controls (levers, pedals, push buttons, switches, etc.) indicator lamps and accessories will be clearly labeled as to function and direction of operation. Unless otherwise specified herein, all labeling will be **permanent placard type nameplates**. Labels will be engraved metal or engraved laminated plastic attached with screws or rivets and will not utilize glues or press-on attachments. Hand engraving is not acceptable. Factory embossed knobs or handles are acceptable.
- 15. FACTORY CAB AUXILIARY SWITCHES:** Should factory auxiliary switches be available for equipment such as strobes, work lights, PTO, pumps, body control circuits, etc. the chassis will be provided with such switches sufficient to control all equipment outlined within these specifications. When the factory auxiliary switches are available they will be used to provide the control for the intended equipment, **NO EXCEPTIONS**. Switches will also conform to "SWITCHES AND INDICATOR LIGHTS" and "LABELS" above.
- 16. HOSES, CABLES AND ELECTRICAL:** For all motor vehicle body, ancillary equipment installation and trailer construction all hoses, lines, electrical cables and wiring will conform to the following:
- a. All will be securely supported using properly sized vinyl coated or rubber cushion "P" type metal clamps (see <http://www.mcmaster.com/#cushioned-cable-clamps/=ckmkdw> for example).
 - b. Tie-wraps **will be used only as necessary to aid** in the securement of hose bundles. Tie-wraps **will not** be used for the primary supporting or securing of hoses/lines. **Stick-on or glue-on retainers are not acceptable. Tie wrap tails will be cut flush and smooth with the buckle and not leaving a point or sharp edge to injure personnel.** Any tie wraps not finished in this manner will be rejected during inspections.
 - c. Grommets will be used where any hoses, cables or electrical wires pass through compartments, frame members, bulkheads or any other material that may cause abrasion.
 - d. Positive protection or metal shielding will be used to prevent chaffing against frame members, sharp edges, fasteners, components, etc.
 - e. Any penetration of a weather resistant or proof type tool box, cabinet or compartment will be sealed to avoid water intrusion.
 - f. Wiring, internal and external, will be enclosed in loom and hoses and cables will be properly secured and routed in a neat professional manner.

- g. Any wiring passing through a compartment, tool or materials supply or work area will be encased in steel tubing for protection. Tube ends will be properly cleaned and de-burred to prevent any wire chaffing.
- h. Electrical Tape is not permitted in wrapping wiring, connections or as a loom support.
- i. The use of “Scotch Lock” or equivalent wiring harness connectors is not acceptable.
- j. Any wire splices and/or butt connections will be soldered with shrink tube, or finished using heat shrink butt connectors or butt connectors with shrink tube. **“All electrical & lighting connections shall be made in conjunction with the specifications with heat shrink applied to approved connections. The easiest way to accomplish this is by using the crimp terminals with heat shrink already on the connectors-marine type crimp connectors.” (SAC PPM; Item #4)**

17. INVOICES: Dealer/Vendor will deliver invoice(s) for vehicle(s)/equipment to the following address:

County of Sacramento
Fleet Services Division
4001 Branch Center Road
Sacramento, CA. 95827
ATTN: Ronald Wirth

18. FEDERAL EXCISE TAX EXEMPTION: All pricing is to exclude Federal Excise Tax. An exemption certificate will be furnished by the County of Sacramento if applicable.

19. DELIVERY: The completed vehicle(s)/equipment will be delivered with standard tool kits, manuals and any optional equipment or accessories to the below listed address. It is recommended to make contact prior to delivery to verify hours of operation and acceptable delivery times.

Fleet Services Division Repair Shop, Bldg. #38
Sacramento Regional Wastewater Treatment Plant
8521 Laguna Station Rd.
Elk Grove, CA. 95758
Contact: Tom Martin at (916) 875-9249

20. DMV DOCUMENTATION: Dealer/Vendor will be responsible for registering and titling the vehicle(s)/equipment with the California Department of Motor Vehicles as required by the County. Each unit will be delivered with a completed “EXEMPT” registration and license plates. A temporary registration or operating permit will be acceptable to facilitate delivery of the unit in cases where the registration has not yet been completed. DMV title and registration documents will reflect registered owner information as follows:

County of Sacramento
4001 Branch Center Road
Sacramento, CA. 95827

- 21. PAYMENT:** The County will not accept the vehicle/equipment until all the conditions of this specification are met. The time period of terms and conditions of payment will not begin until **after** the County has accepted the vehicle/equipment.
- 22. NOISE LEVEL:** The maximum allowable operating noise level for this vehicle/equipment, including all mechanical or hydraulic systems will not exceed 85dB(A) within the cab with the windows open unless pre-approved by the County.
- 23. WARRANTY AND OTHER REQUIREMENTS:**
- a. Minimum of one (1) year parts and labor commencing from the date and mileage that the County accepts the unit.
 - b. If the vehicle/equipment standard warranty or any component standard warranty exceeds one (1) year, that standard warranty will supersede the minimum requirements in these specifications.
 - c. All equipment on vehicle/equipment will be installed so that all manufacturers' warranties remain in effect. Vendor/Dealer will be responsible for any equipment installed in such a way that voids any manufacturer warranties of those components.
 - d. Vendor/Dealer will be responsible for transportation and associated costs from the County facility to the designated warranty repair facility and return to the County facility for the unit(s) bid throughout the entire warranty period including extensions.
 - e. Warranty coverage will commence upon the acceptance of the completed unit by the County. The dealer shall be responsible for all registrations and notifications to the manufacturer(s) to ensure that the warranty period commences as of the acceptance date so that the County receives all of the benefits of the full term of the warranty coverage.
- 24. MANUALS:** Vendor/Dealer will provide for each unit or series of like units and each of the units accessories (such as a compressor, generator, pumps, crane, body, hydraulic pump, etc.), the manuals listed below. Manuals provided will be current and of the same model provided to the County, not for "similar" models.
- a. **Two (2) copies** each of the operator's manuals.
 - b. **Two (2) copies** each of any safety manuals.
 - c. **One (1) copy** of the body builder's layout book.
 - d. **A copy** of the line-set ticket showing options installed on the unit will be furnished if available.
 - **Please list the type of media to be supplied on response page.**
 - **Should any of the above manuals not be available for the vehicle/equipment it will be listed on the exception page of the bid response.**
 - **All manuals, software and other media provided shall be original and complete as provided by the manufacturer. Facsimiles, photo copies, and copies of software or other media is not acceptable.**
 - **Bid disqualification will result in a bidder not following the above requirement.**
- 25. MODEL SELECTION:** Only new models in current production, which are catalogued by the manufacturer, and for which printed literature and specifications, are available, will be acceptable.

All equipment catalogued as standard will be furnished with the vehicle/equipment whether or not it is listed in these specifications.

- 26. COMPONENTS:** The component parts of the unit will be of proper size and design to safely withstand maximum stresses imposed by a maximum capacity load, and the manufacturer's rated loads for axles and bearings will not be exceeded when the unit is loaded to such capacity. All driving parts will have a torque capacity sufficient to transmit maximum power developed by the engine. All components will be OEM unless not available as an OEM option. All components will be mounted or installed as per component manufacturer's specifications.
- 27. CONSTRUCTION:** Any apparent silence within any part of this specification as to any detail, or the omission from it of a detailed description concerning any point, will be regarded as meaning that only the best commercial practice is to prevail, and that only materials and workmanship of first quality are to be used. Corners will be rounded, edges and surfaces will be free of sharp edges and burrs. County personnel frequently service and maintain the equipment and will not at any time be exposed to injury from unfinished parts. Body and all components will allow for full movement of tires and suspension without rubbing, interfering or limiting in any way. **“The concern is quality related but mostly safety of operators and mechanics.” (SAC PPM; Item #7); “All items mounted on top of the deck shall be fully sealed after installation to prevent water from seeping in.” (SAC PPM; Item #7)**
- 28. COMPLETED VEHICLE LABELS:** If this vehicle/equipment is a chassis with a manufactured body, the body manufacturer will be registered with the National Highway Traffic Safety Administration. The completed unit will be affixed with a label certifying compliance with all applicable Federal Motor Vehicle Safety Standards and displaying vehicle identification and weight ratings. Labels will comply with Title 49 Code of Federal Regulations Parts 565 through 568 for but not limited to information and placement.
- 29. FLUIDS AND SERVICING:** The new vehicle/equipment will be completely serviced by the successful bidder or their authorized agent. All fluid levels including crankcase, differential, transmission, and any auxiliary equipment included in this bid will be filled to manufacturer's recommended capacity prior to receiving at the delivery destination. Vehicles / equipment will be delivered to the County with less than 1,000 odometer miles. This mileage may be exceeded but only due to transporting the vehicle / equipment over the road for delivery to the County. Should the mileage exceed 1,000 miles due to transportation, the vendor or qualified service provider for the vendor will change the engine oil, filter and lube the chassis before delivery to the County. In addition the vendor will supply the County a document of service from the servicing provider.
- 30. FUEL:**
- 1. Gasoline or Diesel fueled vehicles / equipment:** will be delivered to the County with a minimum ten (10) gallons of fuel per fuel tank.
 - 2. Auxiliary equipment:** Any vehicles / equipment equipped with an auxiliary engine(s) which operates on a separate fuel tank shall be delivered with a minimum of ten (10) gallons of fuel unless the fuel tank(s) have a capacity of less than a ten (10) gallons, in which case the equipment will be delivered with a minimum of one half (1/2) tank of fuel per fuel tank.

- 31. QUESTIONS:** After a successful bidder has been awarded a bid, should at any time during the construction process that vendor have a question or doubt about any of the specifications listed in this document they will notify the Fleet Services Vehicle Specifications Office at (916) 875-4783 for clarification before continuing. All questions prior to the bid award will be directed to the Contracts and Purchasing Division agent listed on the front of this RFB.
- 32. KEYS:** Dealer/Vendor will supply **four (4) complete** sets of keys for each vehicle/equipment. This will include chipped and remote keys, individual remotes and all locks on vehicle/equipment (such as cabinets, drawers, doors, pad locks, equipment boxes, etc.). Each units body locks and compartments will be keyed alike unless unfeasible to do so or directed otherwise by these specifications. If unfeasible, the bidder will state so in the exception page of the bid package. If more than one unit is requested in the bid then the units will have different key sets for ignition, cabinets and other locks. **One unit's keys will not be capable of opening other unit's locks. All keys for boxes and compartments shall be flat cut type keys. Barrel type keys are not acceptable. Standard key cuts in the industry will not be used such as CH501 or CH545.**
- 33. EQUIVALENTS:** All components specified that include the language "or equivalent" will mean the same in configuration, specifications and minimum performance of the component. Equivalent must be approved by the Fleet Services Vehicle Specifications Office at (916) 875-4783 before that equivalent may be used.
- 34. ENGINE LABELS:** All engines provided in vehicles / equipment will bear the required California emission label attached to the engine. Along with all required information the labels will include the following:
- a. Engine manufacturers name.
 - b. Engine model.
 - c. Engine serial number.
 - d. Engine displacement.
 - e. Engine horsepower.
 - f. Engine family number.
 - g. Engine emission certification level.
 - h. Any vehicles / equipment delivered without this required label **will not** be accepted.
- 35. WEIGHT CERTIFICATE:** **The bidder will present a weight study and drawing displaying the proposed weight of the completed unit(s) with the bid submission.** All units provided to the County under these specifications, when complete and full of all necessary fluids shall allow for a minimum net payload of three thousand (3,000) pounds without exceeding the manufacturer's maximum GVWR rating. Prior to delivery the bidder will scale the unit(s) and provide a certified weight certificate from an independent third party weigh master. Each individual unit shall have its own certified weight certificate. The certificate(s) will show the front axle, the rear axle or rear tandem axle weights and the total completed vehicle weight. The bidder shall be responsible for all weigh master charges and fees.
- 36. MEETINGS AND INSPECTIONS:**
- a. **A pre-production meeting** is required by the County of Sacramento to discuss the specifics of how the vehicle/equipment will be built before construction starts.

- b. **A pre-paint inspection** by the Vehicle Specifications Office is also required before painting to ensure that the mounting and fabrications meet County specifications and requirements. - **NO trip to factory for Pre-paint inspection Meeting, EZ Liner to send pictures for approval prior to powder coating to Ron Wirth at wirthr@saccounty.net (SAC PPM; Item #7)**
- c. **A pre-delivery inspection** will be performed by the County just prior to the delivery of the vehicle/equipment for specification compliance.
- d. **An in-service inspection** will be performed by the County after delivery of the vehicle/equipment during which all operations and functions will be tested. Additionally, the vehicle/equipment will again be inspected for compliance with these written specifications.
- e. **It will be the responsibility of the Dealer/Vendor to contact the County for these inspections.** Please contact the Vehicle Specifications Office @ (916) 875-4783 when the vehicle/equipment is ready for inspections.
- f. Any defects or deficiencies identified as a result of any of the above listed inspections shall be corrected by the vendor/dealer in accordance with the warranty provisions within this specification. Corrections previously made as a result of prior inspections shall not excuse the dealer/vendor from correcting any additional deficiencies identified at any time within the warranty period.
- g. **Travel, lodging and meals** for up to two (2) designated County representatives will be furnished by the vendor if the location of the pre-paint inspection and/or pre-delivery inspection should take place farther than a 150 mile radius from the Fleet Services facility located at 4001 Branch Center Road, Sacramento, Ca. 95827. The units will be as complete as possible for the inspections.

II. CAB AND CHASSIS REQUIREMENTS

A. **CAPACITY:**

Sixteen thousand five hundred (16,500) pound GVWR rating.

B. **DIMENSIONS:**

1. Cab to axle: Approximately eighty-four (84) inches.

C. **ENGINE:**

1. **Type:** Gasoline. See "IV. CNG FUEL OPTION" for requirements of optional CNG fueled engine.
2. **Horsepower:** Three hundred sixty (360) horsepower minimum.
3. **Torque:** Four hundred fifty (450) minimum.
4. Spin on oil filter.
5. Heavy duty air filter with resettable restriction gauge.
6. Heavy duty cooling system with long life coolant.
7. Fan clutch.
8. Governed engine to limit maximum speed to 65 MPH.-75 MPH max, road speed per email from [Freddy Barajas 9/03/2020](#)
9. Horizontal exhaust to exit at right rear of body.
10. **Engine hour meter.**

D. **TRANSMISSION:**

1. Automatic with five (5) speeds minimum.
2. PTO compatible.
3. Dash mounted temperature gauge.

4. Magnetic drain plug.
5. Heavy duty oil cooler.
6. Synthetic fluid.

E. FRAME:

1. Carbon steel channel frame. Frame and cross members consistent with maximum GVWR.
2. Two (2) front tow hooks.
3. Heavy duty steel front bumper.

F. FRONT AXLE & SUSPENSION GAWR:

1. Manufacturers rated capacity of not less than five thousand six hundred (5,600) pounds.
2. Leaf or coil springs consistent with GAWR.
3. Power steering.
4. Sway bar.
5. Dual action shock absorbers.

G. REAR AXLE & SUSPENSION GAWR:

1. Manufacturers rated capacity of not less than twelve thousand (12,000) pounds.
2. Dual rear wheels.
3. Leaf springs consistent with GAWR.
4. Magnetic drain plug.
5. Sway bar.
6. Dual action shock absorbers.

H. WHEELS AND TIRES:

1. Six (6) tubeless 225/70R19.5, G rated.
2. Highway tread front and rear.
3. Six (6) steel disc wheels consistent with GVWR.
4. Full size spare tire and wheel to be shipped loose.

I. BRAKES:

1. Front and rear axle disc brakes.
2. Hydraulic dual circuit with power assist.
3. Full ABS.
4. Mechanical parking brake.
5. Maximum brake surface available on specified axles. Brake linings shall be non-asbestos type. If non-asbestos type is not available it must be noted on bid sheet.

J. ELECTRICAL SYSTEM:

1. **Battery:** One (1) seven hundred fifty (750) CCA.
2. **Alternator:** One hundred fifty (150) amps minimum.

SPECIAL NOTE:

Successful bidder shall review the all of the electrical requirements of this specification and provide a charging system that shall maintain the system voltage no less than 13.2 volts at the battery(ies). This may require a larger than specified alternator. Voltage shall be measured at the batteries with full electrical demand (worst case scenario) of the specified vehicle and the engine at idle for an extended period of time.

3. Daytime running lights or lights on with wipers feature.
4. Circuit breakers in lieu of fuses where available. -“Circuit breakers are preferred, but we realize sometimes a fuse is better for certain applications. EZ Liner should use proven electrical system using circuit breakers where practical.” (SAC PPM; Item #9)
5. “Scotch Lock” wiring harness connectors are not acceptable.

6. All necessary wire splices and/or butt connections will be soldered and adhesive shrink wrapped, or finished using adhesive heat shrink butt connectors or crimped butt connectors with adhesive shrink-wrapping.
7. **Heavy-duty battery jumper terminals** shall be installed for positive and negative sides of battery, **no exceptions**. Terminals **shall be easily accessible**, without exposing batteries, protected with covers, and positioned in a way or location that will prevent shorting terminals from tools, equipment storage, etc. should covers be left off. (**Cole Hersee part # 46210-02 & #46210-03**). Jumper terminals shall be located as close to batteries as possible. Terminals shall be easily visible from the outside or if installed in a hidden location, such as a cabinet or box, the location of the terminals shall be adequately labeled as per GENERAL # 14 in these specifications.
8. Electronic Back-up alarm **ECCO RMA 907E**, (contact ECCO at 800 635-5900 if assistance is needed). The alarm shall activate when the transmission is shifted into reverse, or when rotation of the driveline is detected. The alarm shall be circuit breaker protected to be energized full time, with ignition on or off. This system utilizes two magnets installed on the driveline and a sensor which detects driveline rotation. ECCO has two methods to install the magnets on the driveline. Installation instructions are included in the kit.

INSTALLATION NOTE: The preferred installation method is to bond the magnets to the driveline tube with epoxy. Use the two (2) magnets of equal size and weight (supplied with the kit) attached to opposite sides (180 degrees apart) of driveline tube with epoxy adhesive (on unpainted metal) then wrap with the supplied special adhesive tape. This method does not require any disassembly of the factory installed driveline components. The alternate installation uses two (2) magnets attached to u-joint cap bolt lock tabs and MUST ONLY BE USED WITH THE PROPER U-JOINT CAPS. If the bolt on magnets are used, the u-joint cap bolts must be properly torqued to factory specifications and the lock tabs properly locked. DO NOT DRILL OR MODIFY THE FACTORY DRIVELINE COMPONENTS.

9. Provide & installed by Ford dealer as aftermarket item Power Timer Part #5601 from EGIS Mobile. Install according to manufactures' instructions and configured to 1 hr, 11v low-voltage disconnect (LVD) and connected to ignition source to active. Power Timer to be mounted as close to the battery as possible and connected with 40A fuse protection to battery; or jumper terminals; or factory provided battery hot stud at engine compartment fuse junction block.

K. FUEL TANK:

1. Forty (40) gallon gasoline capacity.
2. Fuel tank filler shall be labeled for the type of fuel stored.

L. CAB:

1. Regular cab construction.
2. Seats:
 - a. Front – Vinyl bucket seating configuration with open area between for the specified aftermarket console.
 - b. Minimum thirty eight (38) inches head room measured from cab ceiling to top surface of seat in upper-most position.
 - c. Outside seat belts to have boot type retractors.
 - d. Sacramento County prefers to have vehicle driver and all passenger seat positions provided with "Whip Lash" protection by way of padded head restraints. If the manufacturer lists such a restraint system as an option, then it is to be provided.

3. A work organizer from SVP Manufacturing, Inc. model #10-7000F will be mounted between the bucket seats utilizing the factory attachment points in the floor. See website www.workingmobile.com for information. Provide & install Model 10.7000.12.HDPE Work Organizer for San Leandro stencil truck shall be aftermarket installation by Ford dealer.
4. Aftermarket installation by Ford dealer of Federal Signal Littlelite LED type task light model #LF18ES-LED. Task light will be a Federal Signal Littlelite LED type task light Model #LF18ES-LED. The task light has a mounting base with adjustable stalk for positioning the light above the file box. Task light power circuit shall be wired direct to timed output from Power Timer and operated with the built-in switch.
5. Tilt steering wheel.
6. Cruise control.
7. Electric windows and door locks.
8. Dual speed electric wipers with intermittent switch & windshield washers.
9. Daytime running lights or "lights on with wipers on" feature.
10. Dual sun visors.
11. Dual arm rests.
12. Dual note electric horn.
13. Tinted glass.
14. Dual mirrors. Electric, motorized, four (4) way, retractable, heated mirrors. Controls shall be mounted within easy reach of the operator. Six (6") inch convex mirrors shall be mounted below each of the side mirrors. Integrated factory spot mirrors may substitute the six (6) inch spot mirrors if they are of similar size and provide an adequate wide view. Mirrors supplied shall provide sufficient view to rear with given body width.
15. Fresh air heater and defroster with variable speed fan.
16. Factory Air Conditioning.
17. Two (2) 12-volt power point receptacles (cigar lighter type) with covers and labeled "12 VDC" shall be provided in cab for additional plug-in accessories.
18. AM/FM, Bluetooth radio with speakers and antenna.
19. Door activated dome light.
20. Dual map lights.
21. Rubber floor covering.
22. Factory exterior cab steps in forward seating positions.
23. ~~Factory~~ forward splash guards behind steer axle tires. -available aftermarket & not from factory.
24. Cargo light at rear of cab.
25. Factory roof mounted cab identification / clearance lights.
26. Two grab handles to assist driver and passenger entry.
27. Factory auxiliary switches for switching of body circuits if available. Shall be labeled as specified.
28. Factory electric trailer brake controller.
29. Paint shall be Fleet White.
30. Black grille. (SAC PPM; Item #8)
31. Body vendor to provide and install a Rear View Safety wireless backup camera system Model RVS-4CAM-A-16. (This model number includes the options the City requires.)

M. INSTRUMENTATION:

1. Standard gauge instrumentation.
2. Engine hour meter.
3. Factory dash mounted transmission temperature gauge.

III. BODY REQUIREMENTS:

A. DIMENSIONS:

1. Bed Length: Approximately one hundred sixty four (164) inches.
2. Width: Ninety Six (96) inches maximum.

B. CONSTRUCTION:

1. **Main Body:** Flatbed body with sub frame to incorporate two (2) inch by two (2) inch by three sixteenths (3/16) inch box tube cross members spaced sixteen (16) inches on center and at closer spacing of eight (8) inches on center under fifty five (55) gallon barrel locations. The entire deck shall be one eighth (1/8) inch minimum thickness steel diamond plate. All seams shall be fully welded. In the design of the body, consideration shall be given to the finished deck height to keep it is low as possible without sacrificing structural integrity. -To minimize warp EZ Liner prefers to use skip welds & to caulk between welds- the County requested to make the skip welds as long & substantial as possible (PCM; Item #11); "Use proven manufacturing, but ensure welds are substantial and evenly spaced and gaps are not excessive. Any gaps shall be fully seam sealed." (SAC PPM; Item #11)
2. All edges of bed under structure shall allow water, mud and debris to fall off. Bed and under structure shall not be constructed in such a way that water mud or debris will become trapped. Edges that are turned up or blind pockets are unacceptable.
3. The bed shall be constructed and mounted in such a manner to allow for full wheel travel and for removal of tires and wheels during maintenance without the tires rubbing on the bed. Side skirts shall be twelve (12) gauge steel. Wheel openings shall have a fully finished rolled edge and shall be properly trimmed for a professional appearance. There shall be no blunt or sharp edges. -"Flat fender filler panels are acceptable, cut round leaving enough room to remove and install tires with a full load on the unit. Inner edges should be fully chamfered or finished ground eliminating any sharp edges." (SAC PPM; Item #12)
4. **Headboard:** The headboard on the front of the body shall be a boxed enclosure to house two (2) message boards back to back. The headboard shall incorporate a motorized system, operated from the cab, to raise and lower the message boards vertically. The top panel of the headboard shall be attached to a structural component of the message board system to raise and lower with the message boards. In the lowered position, the top of the headboard shall be enclosed. The headboard shall occupy the forward twelve (12) inches (approximately) of deck length. Width shall be the full width of the deck. Height shall extend just above the height of the cab (and CNG tank enclosure if so equipped). The design and dimensions of the headboard shall raise the message boards high enough that view is not obstructed front or rear by any equipment or fixtures mounted on the cab or body. In the design of the headboard, thought shall be given to accessibility to service and repair the message board system. The body, and head board shall be properly engineered, and reinforced to sustain the wind load and other stresses when the message boards are raised. See "**D. MESSAGE BOARD & WARNING LIGHTS:**" for more information on the message boards. -"Message board top plate shall have a rubber isolation/weather strip around the perimeter (SAC PPM; Item #12)
5. **Paint Drum Storage Area:** Lowered outer deck sections shall be incorporated on both sides of the body immediately aft of the headboard. These decks shall be stepped down in height as much as practical to accommodate easy loading, storage and securement of 55 gallon paint drums weighing approximately five hundred (500) pounds each. -San Leandro wants storage for a single 55 gallon drum on the driver's side & (4) 5 gallon pails on the passenger side. These lowered storage areas shall be properly reinforced to carry the weight of the paint drums, paint pumps, and other miscellaneous items. The stepped down

drum storage areas shall be directly behind the headboard and extend approximately forty six (46) inches in length. The inside vertical panel shall be as close to the truck frame as reasonably possible to allow maximum depth, approximately twenty seven (27) inches deep. Total drop in height from the main deck shall be approximately twenty two (22) inches. Tie downs shall be provided in the bottom of the drum storage areas to accommodate standard drums. Recessed "D" rings or other suitable flush tie downs may be used for attachment points for strap hooks to retain the drums. Each drum storage area shall be equipped with two (2) removable bars along the outside open edge, one (1) bar at mid height and one (1) bar at the top, to securely enclose them. All bars shall be identical so that they can be installed in any position on the truck. Bars shall be equipped with a means to positively hold them in place to prevent loss. Any retention hardware shall be tethered or otherwise attached to prevent loss.

6. **Compartments:** The compartments listed below, with the exception of the above deck compartment, shall be integral to the body. They shall not be separate, stand alone or bolt on tool boxes. All compartment doors shall be dual panel design, or if single panel shall be constructed of material of adequate thickness to provide structural rigidity and prevent dents. All doors shall have automotive type seals and spring over center type door stops. All compartments shall have a rain gutter or drip rail that protrudes over the top of the door to prevent leaks. Hinges shall be full length attached on the leading edge of the door and shall be attached with screws or rivets. Each compartment shall have two drain holes with plugs installed. Latches on all doors shall be stainless steel "T" handle type locking latches. **All cabinets on each unit shall be keyed alike, but the keys of one unit shall not open any of the cabinets on any other units in this group. All keys shall be flat cut keys. Barrel type keys are not acceptable. Standard key cuts in the industry such as CH501 and CH545 will not be used.** Size and configuration of compartments shall be as follows:
 - a. Directly aft of the rear axle wheel wells, under the body on both sides shall be compartments measuring approximately twenty two (22) inches long by twenty four (24) inches high by twenty (20) inches deep. These compartments shall have an open design with no shelves. Doors shall hinge on the forward leading edge.
 - b. The rearmost underbody compartments on both sides shall measure approximately thirty six (36) inches long by twenty four (24) inches high by twenty (20) inches deep. These compartments shall have an open design with no shelves. Doors shall hinge on the forward leading edge.
 - c. One (1) above deck storage compartment shall be mounted on the left (road) side near the rear of the deck. Placement shall be flush with the outer rail and shall allow proper clearance for the cone holders to the front, and allow for the compressor system control panel to mount on the rear facing surface without protruding beyond the rear of the deck. Dimensions shall be thirty (30) inches long by thirty six (36) inches high by eighteen (18) inches deep. This compartment shall have two (2) fully adjustable shelves. Shelves shall have rolled finished edges with no exposed sharp surfaces. Door shall hinge on the forward leading edge.

-"The above deck rear box is a box purchased by EZ Liner to meet the specifications. The same latch and like keys were not available for this box. **Fleet Services has accepted this box and the latch. Kathy Bryan agreed that the box will meet the job application.**" (Body & Chassis Upfit; Item #4; PDI MTG 5/4/2017) NOTE: RKI, Inc. Model V303618 with (2) shelf kits per toolbox. Above deck toolbox shall have perimeter of base sealed to prevent water intrusion. (SAC PPM; Item #8); Acceptable to bolt to deck. (SAC PPM; Item #14)
7. **Apron:** Rear apron shall be equipped as follows:
 - a. Please see drawings for general layout including all lighting described in **"C. BODY LIGHTING AND WIRING:"**
 - b. Recessed license plate and license light mounting location.

- c. One (1) pair of Whelen 5V3A LED lights. See “**D. MESSAGE BOARD AND WARNING LIGHTS: Item 3.**” for further details.
 - d. Two (2) spray wand holsters shall be easily removable for cleaning. See “**G. HOSE AND GUN: item 3.**” for further details.-Approx, 18” extensions; make sure the tip guards don’t bottom out in holsters (PCM; Item #18)
 - e. Two (2) air couplers shall be standard brass automotive type “C” female quick couplers installed rear facing in the upper right (curb) side of the apron. One (1) coupler shall be plumbed to the unregulated air supply labeled “SYSTEM AIR” and one (1) coupler shall be plumbed to the regulated air supply labeled “REGULATED AIR”
8. **Bumper:** Full width steel diamond plate rear step bumper ten (10) inches deep. Bumper shall have a fully finished skirt. Bumper corners shall be mitered or rounded and top edge rounded as much as practical to eliminate blunt corners.
 9. **Traffic Cone Posts:** Six (6) traffic cone storage posts to accommodate sixty (60), twenty eight (28) inch high cones with fourteen (14) inch square base, and six (6) inch inner diameter. There shall be three (3) cone posts installed on each side of the body above the rear wheels. Posts shall be made from one (1) inch diameter pipe, capped smooth on top and triple gusseted at the bottom. Posts shall be mounted fifteen (15) inches apart on center. **There shall be no cone storage on the front of the truck.**
 10. A bracket shall be provided at the right rear of the body to hold a standard plastic five gallon bucket. The bracket shall incorporate two steel flat bar rings, one at the bottom and the second not to exceed eleven (11) inches from the bottom.
 11. An open space on the front right side of the deck forward of the cone storage posts shall be reserved for a five gallon water jug and bracket to be installed by the County after delivery of the units.

C. BODY LIGHTING AND WIRING:

1. All lighting shall conform to California Vehicle Code, National Highway Traffic Safety Administration, California Bureau of Motor Carrier Safety, Code of Federal Regulations and any other legal requirements that may apply.
2. Grommet type lamps mounted through the body cabinet walls or door panels will not be acceptable. This may allow water intrusion into the cabinets. **All grommet type lamps mounted on the rear or sides of the body shall be mounted in light boxes attached to the body. For single marker or clearance light applications a Truck-Lite #10722 surface mount bracket may be used.**
3. The following lights shall be LED and installed as follows, no exceptions:
 - a. **Taillights, turn signals & stoplights** shall be Truck-Lite #44302R four (4”) inch round, grommet mounted, or Truck-Lite #60250 oval, grommet mounted. Minimum two (2) on left and two (2) on right rear. All taillight elements shall illuminate when activated. Tail/stop/ turn lights shall not be located more than eighteen (18) inches forward from the rearmost extremity of the vehicle. Both tail/stop/turn shall be visible per FMVSS 571.108.
 - b. **Marker lights** shall be Truck-Lite #10250R or 10250Y grommet mounted, two and one half (2 ½”) inch diameter. Two (2) red lights shall be mounted one (1) on right and one (1) on left sides at rear facing the side and shall be located no more than eighteen (18) inches forward from the rearmost portion of the vehicle. If required due to vehicle length, two (2) yellow lights shall be mounted on front sides of body facing the side, one (1) on right and one (1) on left. Rear markers shall not be located more than eighteen (18) inches forward than the rearmost extremity of the vehicle.
 - c. **Clearance lights** shall be Truck-Lite #10250R or 10250Y grommet mounted two and one half (2 ½”) inch diameter. Two (2) red lights shall be mounted on rear facing rear, one (1) on right and one

(1) on left as wide as possible on vehicle. Clearance lights shall not be located more than eighteen (18) inches forward from the rearmost extremity of the vehicle. **These clearance lights shall be in addition to taillights.** If required, two (2) yellow lights shall be mounted on front of body facing forward, one (1) on right and one (1) on left to indicate width of body. Thought shall be given to the placement of these lights to avoid lights being mounted in a position that would reflect into drivers view from mirrors. Rear clearance and front (if required in front) clearance lights shall be placed to indicate the extreme width of the vehicle.

- d. **Identification lamps** shall be Truck-Lite #10250R or Truck-Lite ID bar #15050 and shall be protected from damage. Individual identification lamps shall be spaced at six (6) inches on center.
 - e. **License plate light:** Truck-Lite LED Model 15 with bullet connectors. Light may require protection from being stepped on depending on location.
 - f. **Back-up lights** will be Whelen V series lights. The **“take down” LED function** of the “V” series lights will function as the vehicle’s back up lights and will be wired to the backup light circuit and energize when the transmission is shifted into reverse gear. See **“D. MESSAGE BOARD & WARNING LIGHTS: Item 3.”** for more details on the additional functions of these lights. Refer to drawings for mounting location. **-Per change order two Truck-Lite Model #44350C LED back up lights; lights to be tied to chassis backup circuit; take down lights Whelen 5V3A will also be used for back up lights (SAC PPM; Item #11)**
4. **No wiring adapters shall be used for lights.** All pigtails shall be wired directly to the body lighting harness per these specifications.
 5. The use of **“Scotch Lock” or equivalent wiring harness connectors is not acceptable. Any necessary wire splices and/or butt connections will be soldered and heat shrink tube sealed, or finished using heat shrink butt connectors or crimped butt connectors with heat shrink tube.**
 6. **Wiring harness must be resealed when opened.** All electrical wiring shall be in conduit or loom as possible.
 7. Wiring junction box at the rear of frame for tail, marker and clearance lights and all electrical connectors.
 8. Grommets shall be used where loom or wires pass through compartments, frame members, bulkheads or any other material that may abrade wiring.
 9. Positive protection or metal shielding shall be used to preclude the chaffing of wiring against frame members chassis, components, adjacent hoses/lines, etc.
 10. Any wiring passing through a compartment, tool or materials supply or work area shall be encased in steel tubing for protection. Tube ends shall be properly cleaned and de-burred to prevent any wire chaffing.
 11. Wiring shall be securely fastened and supported using properly sized metal cushion clamps, metal clips or other industry accepted supporting non-plastic hardware. Tie-wraps will be used only between primary wiring supports as necessary to aid in the securement of wire bundles. Tie-wraps shall not be used for the primary supporting or securing of wiring. Stick-on, glue-on or plastic wire retainers or clamps are not acceptable.
 12. **All wiring, internal and external, will be enclosed in loom and properly secured and routed in a professional manner.**
 13. **Electrical Tape** is not permitted in wrapping wiring or connections or as a loom support.
 14. **Heavy-duty battery jumper terminals** shall be installed for **positive and negative** sides of battery, **no exceptions.** Terminals shall be **easily accessible**, without exposing batteries shall be protected with covers, and positioned in a way or location that will prevent shorting terminals from tools, equipment storage, etc. should covers be left off. **(Cole Hersee part # 46210-02 & #46210-03).** Terminals shall be

spaced adequately apart from each other and away from body or components to avoid shorting of jumper cable clamps together or on body or components. Jumper terminals shall be located as close to batteries as possible. Terminals shall be easily visible from the outside or if installed in a hidden location, such as a cabinet or box, the location of the terminals shall be adequately labeled per “**I. GENERAL, 14. LABELS.**”

15. A Honda Model EU3000 gas powered generator shall be installed on the deck of the truck rated at 3000 watts, 25A with two (2) receptacle 20A 125V and one (1) 30A 125V locking plug.

D. MESSAGE BOARD & WARNING LIGHTS:

1. **Message Boards:** Two (2) LiteReader Model 1020A-4, 2 line, ten (10) inch character matrix LED programmable message signs. Signs shall be mounted back to back, facing to the front and rear. Signs shall be installed within the head board assembly directly behind the cab on a motorized system, operated from the driver’s seated position that raises and lowers both message boards simultaneously. The message boards shall remain vertical at all times when stored or raised. They shall not fold flat when stored. The complete system shall be incorporated into the headboard design to protect the signs from damage or paint. The system shall be properly engineered, and the body properly reinforced to sustain the wind load and other stresses when the message boards are raised. When the signs are raised and in operation they shall not be obstructed by the cab or racks on the body. A warning light and buzzer shall activate when the vehicle is put into drive thereby signaling the driver that the signs are raised or not fully in the stored position. Message boards shall be supplied with all equipment to make the boards fully functional. Controllers shall be labeled “Front” and “Rear”. The labels shall meet the requirements within these specifications. Contact LiteReader at (406) 388-9317 for information or see the manufacturer web site at: <http://www.litesys.com/products.html>

2. **Whelen M9 Series Super LED lights:** Four (4) Whelen M9 series amber LED lights. See the Whelen web site at: http://www.whelen.com/auto/product.php?head_id=12&cat_id=74&prod_id=423 for more details. These lights will be mounted as follows:
 - a. Two (2) Whelen part # M9A forward facing on the upper corners of the head board as high and as wide as practical above the roof line of the cab. One (1) light on each side.
 - b. Two (2) Whelen part # M9V2A side facing centered high on the side panels of the headboard at a height matching that of the forward facing lights. One (1) light on each side.
 The above lights shall function as follows:
 - i. The **amber strobe** function of all of the M9 series lights will be programmed to “Double Flash 75” pattern “phase 1” and “phase 2”. One side will be programmed to the “phase 1” program and the other side will be programmed to the “phase 2” program. This will allow one side to be on when the other is off in an alternating pattern.
 - ii. The **white “scene light” LED** function of the #M9V2A lights on the sides of the headboard will be used as scene and work lighting. Switching for scene lighting is detailed below in this section in item 5.
 - iii. Switching of the M9 series lights requires a Whelen part # ULF44 light controller / flasher. Switching is detailed below in this section in item 5.

3. **Whelen 500 V Series Super LED lights:** Two (2) Whelen 500 V series amber model # 5V3A LED lights. These lamps are **multi-function lamps** with amber strobes and two (2) separate white illumination functions. Lamps are designed for horizontal applications and will be mounted so. See the Whelen web site at:

http://www.whelen.com/auto/product.php?head_id=12&cat_id=74&prod_id=140 for more details.

The lights will be mounted rear facing high on the rear apron. Refer to drawing.

- a. **The amber strobe function** of the 500 V series will be programmed to “Double Flash 75” pattern “phase 1” and “phase 2”. One light will be programmed to the “phase 1” program and the other will be programmed to the “phase 2” program. This will allow one side to be on when the other is off in an alternating pattern.
 - b. **The white “take down” LED function** of the 500 V series lights will function as the vehicle’s back up lights and will be wired to the backup light circuit and energize when the transmission is shifted into reverse gear.
 - c. **The white “puddle light” LED function** (directed down) on the 500 V series lights will be used as scene and work lighting.
 - d. Switching of the 500 V series lights is detailed below in this section in item 5.
4. **Whelen ION series Super LED surface mount strobe lights:**
- a. Two (2) part # WIONSMA mounted forward facing in the grille as high and as wide as practical. The part number shown has a black housing. If the grille is chrome, the chrome ION housings shall be substituted (part# WIONSMCA) in order to match the grille.
 - b. The ION lights shall be programmed to “Double Flash 75” pattern “phase 1” and “phase 2” and will be activated by the same switch as the other amber strobes on the truck.

NOTE TO INSTALLER REGARDING WHELEN LAMPS: Do not remove the small yellow membrane on the back of the lamp. This is not a sticker. **The lamp must be installed with this membrane in place.** See Whelen instructions on lamp package for more important information.

5. **Switching Detail for Whelen Lighting:** All lighting shall be switched utilizing the factory auxiliary switches provided by the chassis manufacturer. All switches shall be labeled as specified in “**I. GENERAL, 14. LABELS**”. Switching and labeling shall be as follows:
 - a. All amber strobes including the M9A, M9V2A, 5V3A and IONs shall be activated simultaneously by one switch labeled “STROBES”.
 - b. The right side # M9V2A scene light shall be activated by one switch labeled “RIGHT LIGHT”
 - c. The left side # M9V2A scene light shall be activated by one switch labeled “LEFT LIGHT”
 - d. The rear pair of # 5V3A the “puddle light” function shall be activated by one switch labeled “REAR LIGHTS”.
 - e. The rear pair of # 5V3A the “take down light” function shall function as the back-up lights and activate automatically when the transmission is shifted into reverse gear.
- E. REFLECTORS:**
1. Reflectors shall also be provided to meet State of California Vehicle Code. Should individual reflectors be required they shall be Truck-lite (Signal-Stat) model **43 (Red)** or **43A (Yellow)** armored type with recessed lens or equivalent. Stick on or glue on is unacceptable.
 2. Reflectors shall be installed in the following positions regardless of the width of the vehicle. Two (2) red at rear facing rear. One (1) red on each side at rear facing the side. Red reflectors shall be mounted no further forward than eighteen (18) inches from the rearmost extremity of the vehicle. One (1) amber on each side facing the side at midpoint *only* if required due to length of vehicle. One (1) amber on each side facing the side at front (cab factory integrated reflectors in marker or signal lenses are acceptable).
- F. PAINT SPRAY SYSTEM:**
1. Two (2), ARO, air motor driven, two ball piston pumps, Model # 650683-C43, wall mount, airless paint

spray pump systems shall be supplied. They shall have a 3.7 GPM capacity with a 23:1 ratio and be constructed of 100% stainless steel wetted parts. The pumps shall be fully plumbed and ready for use with the remainder of the spray equipment mounted on the body. For more information please see the manufacturer web site at: <http://www.ingersollrandproducts.com/IS/modelComp.aspx?item=23160>
-New model is acceptable. (PCM; Item #17) & (SAC PPM; Item #17) Model AF0623G11FF47 with muffler with fluid section 66300-C43.

G. HOSE AND GUN:

1. Two (2) each, fifty (50) foot, high pressure, thirty three hundred (3,300) PSI static grounded hoses with three (3) foot whip end hoses mounted on the left rear.-Two (2) spring return paint hoses reels shall be provided and installed in the body compartments.
2. Two (2) each Graco "Silver Plus" airless spray guns with wands. These spray assemblies have the paint feed tube forward of the trigger, not in the handle. Each spray wand shall have a sixteen (16) inch (approximate) extension and tip compatible with pumps furnished. For more information please see the manufacturer web site at: <http://www.graco.com/us/en/products/contractor/silver-plus-gun.html>
3. Two (2) paint gun holsters shall be provided at the left rear of the truck flush mounted in the apron. The holsters shall be sufficiently sloped to retain water or solvent and hold paint guns while in transit. Holsters shall be eighteen (18) inches deep and constructed of square stainless steel. Holsters must be securely attached but easily removable for cleaning.
4. A pressurized bead system shall be provided with a 50# deck mounted bead tank. A spring return bead hose reel with a 50' bead hose and bead dispenser shall be provided with hose reel installed in one of the body compartments. Pressure regulation for the bead tank shall be mounted on the tank lid.

H. AIR COMPRESSOR SYSTEM:

1. A PTO driven rotary air compressor shall be supplied and installed on the unit. The system shall be capable of eighty five (85) CFM at one hundred (100) PSI minimum and one hundred (100) percent duty cycle. The rotary compressor shall be mounted under deck and shall drive directly off of the PTO.
2. The complete installed system in its operating condition shall meet all applicable OSHA safety standards, as well as any other applicable industry safety standards.
3. All components of the system, with the exceptions of the PTO, drive components and the rotary compressor shall be mounted above the cargo deck, in the area between the stencil rack and headboard, and shall be easily accessible for periodic service and repairs.
4. All above deck components shall be properly guarded to prevent access to moving or high temperature parts during operation.
5. All components of the air system shall be part of the complete engineered and tested system meeting the requirements of this application from one primary manufacturer. A system compiled of random components that is untested will not be acceptable.
6. The complete system shall be installed in accordance with the manufacturer installation requirements to ensure that the County receives the benefit of the full manufacturer's warranty.
7. The system shall include all of the following components including, but not limited to:
 - a. Hot shift PTO meeting the air system requirements.
 - b. Rotary air compressor.
 - c. Intake air filter
 - d. Discharge air condenser line
 - e. Receiver tank shall be ASME approved ten (10) gallon minimum capacity tank rated at one hundred seventy five (175) psi minimum working pressure. Receiver tank drain shall be easily accessible for

- service.
- f. Discharge air / oil separator / coalescer.
 - g. Necessary pressure relief valves.
 - h. Lubrication system to include: oil cooler with electric cooling fan, accessible oil fill location, oil level site glass, and in line oil filter in accessible service location.
 - i. Compressed air drier.
 - j. Air pressure regulators as described in item 10. below.
8. A master switch inside the cab shall be supplied to turn the compressed air system on and off. Switch labeling shall meet requirements in **"I. GENERAL, 14. LABELS"**.
 9. When the system is engaged and running, the chassis engine speed shall automatically increase to provide the necessary air output to continuously and simultaneously run the two (2) paint pumps described in **"F. PAINT SPRAY SYSTEM"**. The engine speed will return to normal idle speed when the system is turned off.
 10. A Control Panel shall house all air system controls and gauges. The control panel shall be mounted rear facing at the back of the body on the above deck storage compartment easily accessible to operators in the standing position. All controls, gauges and switches on the panel shall be labeled to meet requirements in **"I. GENERAL, 14. LABELS"**. The control panel shall include the following components, including but not limited to:
 - a. Air system gauges to include:
 - i. Receiver Tank Pressure
 - ii. Hour Meter
 - iii. Discharge air temperature
 - iv. Regulated air pressure
 - v. Paint pump 1 regulated pressure
 - vi. Paint pump 2 regulated pressure.
 - b. Air system switches to include:
 - i. Master reset push button switch
 - ii. ~~Air compressor PTO toggle switch~~ **"There is no dedicated PTO switch. There is also not an indicator light that indicates the PTO is engaged. This was accepted because the parking brake must be set in order to engage the PTO. The PTO disengages as soon as the parking brake is released." (Van Air System; Item #1; PDI MTG 5/4/2017)**
 - iii. Paint pump 1 toggle switch
 - iv. Paint pump 2 toggle switch
 - c. Air regulators to include:
 - i. Regulated air pressure mounted adjacent to related gauge.
 - ii. Paint pump 1 regulated pressure mounted adjacent to related gauge.
 - iii. Paint pump 2 regulated pressure mounted adjacent to related gauge.
 11. Two (2) brass standard type "C" three eighths (3/8) inch female automotive quick disconnect air couplers shall be installed rear facing on right rear on body high on the apron. The couplers shall be plumbed to, and properly labeled as "SYSTEM AIR" and "REGULATED AIR".
 12. Provide two (2) air powered paint agitators with speed adjustment one to be used for the paint drum on the left side of the deck and one to be used for mixing paint in the 5-gallon pails on the right side. Storage brackets are to be provided on each side for the agitators to secure them and are easily to reach from the ground.

I. STENCILS:-Stencils can be shipped directly to the County at County of Sacramento Dept. of

Transportation-Signs & Pavement Markings, 4135 Traffic Way, Sacramento, CA 95827 (SAC PPM; Item #20). Stencils to have rolled edges.

1. All stencils supplied shall be aluminum and comply with "old style" CalTrans specifications.
2. Two (2) "YIELD".
3. One (1) Stop bar.
4. Two (2) "S".
5. Two (2) "O".
6. One (1) "T".
7. One (1) "L".
8. One (1) "C".
9. One (1) "H".
10. One (1) "P".
11. One (1) "W".
12. One (1) "X".
13. One (1) "N".
14. One (1) "G".
15. One (1) "I".
16. One (1) "E".
17. One (1) "Y".
18. One (1) "D".

J. STENCIL RACK:

1. Stencil rack capable of storing eighteen (18) stencils on edge.
2. The outer frame of the rack shall be constructed of one (1) inch by two (2) inch by one eighth (1/8) inch wall thickness rectangular steel tubing set on edge. The rack shall be fabricated with no open tube ends. All tube ends shall be capped, welded and ground smooth.
3. The overall dimensions of the rack, not including the upper attachments described in items 12. and 13. below, shall be approximately one hundred ten (110) inches long by thirty eight (38) inches wide by forty three (43) inches high.
4. The rack assembly shall be center mounted on the cargo deck as far to the rear as possible without allowing any attachments to protrude over the end of the cargo deck.
5. The cargo deck shall be properly reinforced at the attachment locations to prevent sagging and cracking of the deck over time. It is preferable for the rack to attach directly above the body cross members for support.
6. The bottom of the rack shall be equipped to securely hold a removable paint drip pan which matches the full inside dimensions of the rack.
7. The drip pan shall be fabricated of aluminum and shall be capable of containing any wet paint that drips from stencils stored above. The tray shall be equipped with handles to allow easy removal for cleaning, and a latch or retention system to keep it in place during travel.
8. Above the drip tray system, the rack shall be divided by vertical dividers. Dividers will be two (2) inch by one quarter (1/4) inch steel flat bar. Dividers shall be installed upright in rows on two (2) inch centers resulting in a total of eighteen (18) one and three quarter (1 3/4) inch wide openings approximately thirty six (36) inches high in which stencils can be stored on end accessible from the rear of the truck. The rearmost row of dividers shall be placed six (6) inches from the extreme rear of the rack. Two (2) additional rows of identical vertical dividers shall be installed forward in the rack spaced at approximately thirty six (36) inches apart. Each row of vertical dividers shall be joined by a steel tube

cross member at the top and bottom welded between the rack longitudinal tubes to support the stencils. All dividers and storage slots shall be properly aligned to allow easy storage and removal of stencils.

9. In addition to the upper and lower longitudinal rails, the outer frame of the rack shall have one (1) full length longitudinal rail on each side at an approximate height of twelve (12) to fourteen (14) inches above the bottom longitudinal rail to enclose the stencil storage area.
10. A stencil roller/stop shall be provided at rear of the rack across the stencil slots. Roller/stop shall automatically flip up to secure the stencils for transport. A full stop shall be provided on the forward end.
11. Four (4) flat bar paint hose hooks, two (2) per side, facing each side shall be installed at the rear of the rack. The hooks shall be spaced out from the side of the rack approximately six (6) inches. Individual hook dimensions shall be approximately six (6) inches high by three (3) inches wide. The top opening of the hooks shall be placed approximately four (4) inches below the top of the main rack frame.
12. A traffic sign storage area shall be fabricated on top of the main stencil rack structure on the right (curb) side to be fabricated as follows:
 - a. The frame shall consist of one (1) inch steel square tubing perimeter with full length longitudinals. The four corners shall be formed by steel tube vertical members. Each side, as well as the front, shall have two (2) evenly spaced vertical tube uprights for support forming a ladder type structure for the sides and front.
 - b. The frame shall be sheeted on the inside with flat expanded metal on the bottom, sides and forward end. The rear shall remain open. The flat expanded metal will be punched clean, not having any burrs or sharp edges in the opening of the strands. All cutting of the flat expanded metal will be on the bond of the sheet and no sharp points will exist. The installation of expanded metal will be with the "long way of design (LWD)" installed horizontally.
 - c. Dimensions shall be one hundred sixteen (116) inches long by fifteen (15) inches wide by twelve (12) inches high.
 - d. Placement of the above described assembly shall be above and attached to the main stencil rack aligning the right side outer edges with the rear inset six (6) inches from the rear of the stencil rack. The front will protrude over the front of the stencil rack approximately seven (7) inches.
13. A storage tray for the stop bar stencil shall be fabricated on top of the main stencil rack structure on the left (road) side to be fabricated as follows:
 - a. The frame shall consist of three (3) inch by three (3) inch by three sixteenths (3/16) inch angle as two full length longitudinals set with the flange of the angle facing upwards on the outside edge to form an open tray.
 - b. The forward end shall be capped with the same steel angle material welded across the front with one flange over the top to form a boxed end three (3) inches deep.
 - c. A flat metal strap shall be welded across the tops of the angle flanges at the rear approximately six (6) inches from the end for support and to retain the stencil.
 - d. At the rear, on the bottom shall be an adjustable four (4) inch wide flat bar hook which shall adjust forward and aft out to approximately eight (8) inches beyond the end of the stencil rack to retain the stencil. Adjustment shall be made with no tools and shall positively secure the flat bar hook. Carriage bolts with wing nuts, or knurled threaded knobs will be acceptable for this purpose.
 - e. Dimensions shall be approximately one hundred twenty two (122) inches long by twenty three (23) inches wide by three (3) inches high.
 - f. Placement of the above described assembly shall be above and attached to the main stencil rack aligning the left side outer edge with the rear aligned with the rear of the stencil rack. The front will protrude over the front of the stencil rack approximately seven (7) inches.

K. BODY PAINT:

1. Body and cabinet color shall match the cab white.
2. **COLOR COAT shall be Sherwin Williams Genesis 3.5 Low VOC Acrylic Urethane, single stage or DuPont Imron 5000. Two (2) to three (3) coats shall be applied resulting in a total dry thickness of 2.0 to 2.5 mil minimum.**
3. **PRIMER shall be as specified by color coating manufacturer. Two coats shall be applied with a total dry thickness of 1.5 to 2.0 mil minimum.**
4. **TOTAL FINISH THICKNESS (primer and color) shall be 3.5 mil minimum.**
5. **Manufacturer's procedures shall be followed in the application of the primer and finish coats that will result in the validation of Manufacturer's warranty for finish coat used.**
6. Powder coating is an acceptable alternative.
7. The underside of body and toolboxes shall be properly prepped, primed and seal coated to prevent rust and corrosion. ~~Undercoating is not needed because body & toolboxes are powder coated (PCM; Item #23); "With powder coating & good coverage of undercarriage, under coating is not necessary."~~ (SAC PPM; Item #23)
8. Cabinet interiors shall be primed and painted white.
9. ALL brackets and welds shall be primed and painted.
10. **During the pre-delivery inspection a paint inspection may be conducted to determine preparation, coats of paint applied, total thickness and type of paint used, etc. This may be accomplished by but not limited to adhesion, thickness or other on site testing and sending paint chips to laboratories for evaluation. Should it be determined that the paint has been applied improperly, the paint thickness or coats are insufficient, or a non-specified paint has been used then the bidder shall correct the problem and shall be responsible for any costs to the County in determining the inconsistent process or materials with these specifications.**
11. The bidder shall be responsible for the pre-mature failure of the paint due to incorrect preparation, application, mixing, or materials. Bidder shall not be responsible for the failure of the specified paint due to manufacturer's product defects.

L. DRAWINGS AND WEIGHT STUDY:

1. **A complete set of professional quality blueprint or CAD drawings and weight distribution chart must be submitted with the bid. This requirement shall apply to both the base bid and the CNG option separately.** These drawings will show the deck layout and plumbing design of the paint stencil truck. Manufacturer's standard literature for model bid and for major components proposed shall also be submitted.
2. **Any bid not including these drawings and/or literature may be rejected at the County's discretion.**

IV. CNG FUEL OPTION**NOTE: County is not interested in CNG Option at this time.**

~~In addition to the base gasoline fuel bid, all bidders are required to offer a CNG fuel option. Following are the chassis and fuel system requirements specific to the CNG option. Any items that are not specifically identified in this section shall meet the base gasoline specification requirements. General requirements for the CNG fuel system are as follows:~~

- ~~1. The completed vehicle(s), CNG fuel tanks, all components of the CNG fuel delivery system, and all installations must meet all requirements of FMVSS 303, FMVSS 304, NFPA Code 52,~~

ANSI, and NGV-2 as applicable.

2. The CNG fuel system and all of its components must be fully engineered and tested for the exact chassis model and engine proposed.
3. The engine(s) must have been purposely manufactured to burn CNG by the original engine manufacturer.
4. The CNG fuel option must be a normally offered option by the chassis and engine manufacturer.
5. All components of the CNG fuel system shall be installed by a vehicle modifier that is qualified and certified by the chassis and engine manufacturer for installation of the CNG fuel system.
6. The vehicle modifier must be an authorized dealer for the manufacturer of the CNG fuel system and must offer full warranty and service support within the immediate Sacramento region in accordance with **"I. GENERAL, 23. WARRANTY AND OTHER REQUIREMENTS:"**.
7. All original manufacturer warranties must remain in force after the installation of the CNG fuel tanks and fuel delivery system.

A. CAPACITY:

1. Shall be rated not more than nineteen thousand five hundred (19,500) pounds GVWR. The GVWR rating may be increased from the base sixteen thousand five hundred (16,500) pound GVWR if necessary accommodate the added weight of the CNG components and maintain the required payload capacity.

B. DIMENSIONS:

1. Back of CNG tank, or fuel system tank enclosure to rear axle: Approximately eighty four (84) inches.

NOTE: Placement of CNG fuel tank(s) and necessary frame space shall be considered in the CA calculation of the chassis. The amount of frame space needed for the fuel tank enclosure behind the cab, plus the required clearance between the fuel tank enclosure and the cab, shall be added to the eighty four (84) inch CA dimension shown in the base bid specifications to achieve the required clear frame space for the body. The wheelbase dimension of the unit shall be increased by the same amount as the CA to achieve proper weight distribution.

C. ENGINE:

1. **Type:** CNG fueled engine. Engine must be provided from the original manufacturer designed, manufactured and tested for CNG as the primary fuel.
2. **Horsepower:** Three hundred sixty (360) horsepower minimum.
3. **Torque:** Four hundred fifty (450) minimum.
4. Spin on oil filter.
5. Heavy duty air filter with resettable restriction gauge.
6. Heavy duty cooling system with long life coolant.
7. Fan clutch.
8. Governed engine to limit maximum speed to 65 MPH.
9. Horizontal exhaust to exit at right rear of body.

D. FRONT AXLE & SUSPENSION GAWR:

1. Manufacturers rated capacity of not less than five thousand six hundred (5,600) pounds and not to exceed six thousand five hundred (6,500) pounds.
2. Leaf or coil springs consistent with GAWR.

3. ~~Power steering.~~
4. ~~Sway bar.~~
5. ~~Dual action shock absorbers.~~

E. REAR AXLE & SUSPENSION GAWR:

1. ~~Manufacturers rated capacity of not less than twelve thousand (12,000) pounds and not to exceed fourteen thousand seven hundred fifty (14,750) pounds.~~
2. ~~Dual rear wheels.~~
3. ~~Leaf springs consistent with GAWR.~~
4. ~~Magnetic drain plug.~~
5. ~~Sway bar.~~
6. ~~Dual action shock absorbers.~~

F. CNG FUEL TANK AND FUEL SYSTEM REQUIREMENTS:

1. ~~Type 4 CNG tanks with a minimum service pressure of three thousand six hundred (3,600) psi. and twenty (20) year minimum tank life.~~
2. ~~Fuel tanks shall be mounted in an enclosure which shall be frame mounted behind the cab. The tanks, enclosure, and all mounting hardware shall be a complete assembly engineered and tested for installation on the subject chassis. Experimental or non-production components or assemblies will not be acceptable~~
3. ~~CNG fuel capacity shall be forty (40) gasoline gallon equivalent (GGE) minimum to fifty (50) GGE maximum. Minimum fuel capacity may be achieved through the use of multiple manifolded tanks if necessary.~~
4. ~~CNG fuel tanks shall be properly mounted and protected from impact in accordance with all applicable industry standards and regulations.~~
5. ~~All fuel system components and installations shall meet all applicable requirements of FMVSS 303 and 304, NFPA code 52, ANSI, and NGV-2.~~
6. ~~The vehicles shall be labeled as CNG vehicles with a decal meeting the requirements of NFPA code 52 section 6.11. Decals shall be placed on the lower right side at the rear on a vertical surface other than the bumper.~~
7. ~~Requirements for all other decals and labeling detailed in this section can be found in NFPA code 52 section 6.11.~~
8. ~~Individual tank labels shall be placed in a location easily accessible and easily viewed for periodic inspections. Individual tank labels shall include the following information:~~
 - a. ~~Manufacturer Name.~~
 - b. ~~Tank Type.~~
 - c. ~~Model Number.~~
 - d. ~~Serial Number.~~
 - e. ~~Fuel Type.~~
 - f. ~~Service Pressure Rating.~~
 - g. ~~Expiration Date or "Do Not Use After" date.~~
9. ~~The initial tank inspection shall be provided by the installer at the time of installation.~~
10. ~~Emergency high pressure fuel supply shut off valve. Manual one quarter (1/4) turn emergency shut off valve easily accessible from the outside of the vehicle. The location of the shut off valve shall be labeled per "I. GENERAL, 14. LABELS".~~
11. ~~Each individual fuel tank shall have a pressure relief device (PRD) installed at the high pressure outlet of the fuel tanks. The PRD valves shall be vented to a safe location outside of the fuel tank enclosure up and away from the vehicle with the use of stainless steel tubing. The tubing shall meet the same~~

minimum requirements as the tubing used for the high pressure fuel lines in the system. A protective cap shall be used at the end of each vent tube to prevent water and debris from entering.

12. ~~Manual high pressure gauge accessible and visible from the filling location on the vehicle with minimum 3,600 psi. capacity.~~
13. ~~Low pressure shut off valve and pressure relief valve on the low pressure side of the fuel system for the purpose of venting fuel pressure for periodic service. The location of this valve shall be easily accessible to service personnel and properly labeled.~~
14. ~~Fuel filter installed on the low pressure side of the fuel system. The filter shall be easily accessible to service personnel to allow for periodic maintenance.~~
15. ~~NGV1 type fill nozzle with check valve. A tethered dust cap shall be included. Fill nozzle shall be on the left (road) side adequately protected in a recessed compartment adjacent to the tank enclosure with a hinged cover. The location shall allow easy access for filling outside of the vehicle without bending or stooping.~~
16. ~~Fill nozzle location shall be labeled and shall include:~~
 - a. ~~Identification as a CNG fueled vehicle.~~
 - b. ~~System maximum service pressure.~~
 - c. ~~Fuel tank expiration date or "do not use after" date.~~
 - d. ~~Inspection decal which states when the next tank inspection is due and the required inspection intervals. This decal shall also provide space for subsequent inspections to be recorded over the life of the vehicle.~~
17. ~~Engine compartment labels shall be installed in a prominent location and shall include:~~
 - a. ~~Identification as a CNG fuel system~~
 - b. ~~System maximum service pressure~~
 - c. ~~Name of company that installed the CNG fuel system.~~
 - d. ~~Total fuel tank volume.~~
 - e. ~~Fuel Tank Expiration Date or "Do Not Use After" date.~~
 - f. ~~Inspection decal which states when the next tank inspection is due and the required inspection intervals.~~
18. ~~Extra care shall be taken to ensure fuel hoses and tubing meet all of the applicable industry standards and regulations regarding; proper type and pressure rating, labeling, routing, support, protection, vibration damping and isolation from heat sources.~~
19. ~~All fuel system components shall be securely mounted in a dedicated location on the vehicle and shall not be attached to other existing components on the vehicle(s).~~
20. ~~All fuel system wiring harnesses, electrical components, and their installation shall meet the requirements of "I. GENERAL, 16. HOSES, CABLES AND ELECTRICAL;" and "III. BODY REQUIREMENTS, C. BODY LIGHTING AND WIRING".~~
21. ~~Engine ECM parameters shall be properly calibrated for CNG fuel per the engine manufacturer requirements and / or recommendations.~~

G. INSTRUMENTATION:

1. ~~**FOR CNG OPTION:** CNG fuel level gauge. Conversion of factory fuel level gauge to read CNG fuel pressure.~~

November 13, 2020

City of San Leandro-(Sourcewell Member ID #30778)

Attn: Mr. Freddy Barajas

835 E. 14th Street

San Leandro, CA 94577-3782

Comparison: Sourcewell Contract No. 052417-EZL Specifications for EZ Liner Model PS-ST110 Base Unit Product Code #18F dated 9/14/2020

To: County of Sacramento Internal Services Agency Fleet Services Division Specification dated 04/22/2016 Revised 11/02/2020 with Changes Added to Accommodate City of San Leandro's Operational Needs

The following items listed in the County's specifications are **changes to the contract specifications that come under Sourced Goods:**

1. **Page 8; Section II.; A.-Thru P. 11)-Ford F-450 Chassis with Aftermarket Items-Page 2; 13.0**-The Ford F-450 chassis with aftermarket items have been added to the specifications. An addition has been included for these changes.
2. **Page 11; Section II.; L.31-Rear View Camera Backup Camera System-Page 2; 10.**-The Model RVS-4CAM-A-16 Rear View Safety wireless backup camera system has been added. An addition has been included for this change.
3. **Page 11; Section III. Thru P. 14)-Stencil body with enclosed compartments ILO palletized channel frame-Page 1; 2.0**-The body has been changed from a palletized unit to a full stencil body with compartments. An addition has been included for this change.
4. **Page 14; Section III.; C.-Body Lighting ILO Base-Page 2; 10.0**-Body lighting has been added. An addition has been included for this change.
5. **Page 16; Section III.; C.15.-Honda Generator-Page 2; 10.**-A Model EU3000 Honda gas generator has been added with outlets on the unit. An addition has been included for this change.
NOTE: The City requested additional outlets at the front of the truck. For safety reasons EZ Liner will not be providing outlets at the front of the truck.
6. **Page 15; Section III.; D.1.-Two Model 1020A-4 Message Boards w/vertical actuators-Page 2; 10.0**-Two message boards with a special headboard enclosure and vertical actuation for the message boards have been added. An addition has been included for these changes

7. **Page 15; Section III.; D.2. Thru Page 17; E.-Warning Lights & Reflectors-Page 2; 10.-** Warning lights and reflectors have been added. An addition has been included for these changes.
8. **Page 17; Section III.; F.-Two ARO AF0623G11FF47 air powered HP paint pumps ILO one hydraulic powered HP paint pump with related plumbing-Page 1; 6.0-**The paint system has been changed from a single hydraulic powered HP paint pump to two air powered pumps with the required plumbing. An addition has been included for these changes.
9. **Page 18; Section III.; G.1.-Two Paint Hose Reels-Page 1; 4.0-**Two spring return paint hose reels with 1/4"x50' paint hoses are to be provided ILO one paint hose reel with 1/4"x25' paint hose. An addition has been included for this change.
10. **Page 17; Section III.; G.-Two Graco Silver Plus handguns w/50' hoses w/two stainless steel paint gun holsters ILO one Graco Flex handgun w/ 25' of hose on paint hose reel-Page 1; 4.0-**The single Graco Flex gun with 25 feet to hose & hose reel has been changed to two Graco Silver Plus handguns with 50 feet of paint hose each. These changes add nominal cost so they have been listed as a NO Charge item so they are not overlooked.
11. **Page 18; Section III.; G.4.-Pressurized Glass Bead System-**A pressurized glass bead system with tank, spring return hose reel with 50' hose and bead dispenser has been added. An addition has been included for this change.
12. **Page 18; Section III.; H.-PTO driven rotary screw air compressor ILO piston air compressor & Honda power pack-Page 1; 7.0 & 8.0-**The Honda power unit with piston air compressor has been replaced with a Vanair rotary screw PTO driven air compressor. An addition has been included for these changes.
13. **Page 19; Section III.; H.11.-One regulated quick disconnect air coupler-Page 1; 7.0-**A regulated air take-off has been added. An addition has been included for this change.
14. **Page 19; Section III.; H.12.-Two Air Powered Paint Agitators-Page 1; 5.0-**Two (2) air powered paint agitators with speed adjustment with storage brackets with one on each side at paint storage areas have been added. An addition has been included for this change.
15. **Page 19; Section III.; I.-Aluminum stencils with rolled edges-**A set of aluminum stencils have been added. An addition has been included for this change.
16. **Page 19; Section III.; J.-Special stencil rack ILO basic stencil rack-Page 1; 3.0-**A Specially designed stencil rack that fits the needs of the County has replaced the standard stencil rack. An addition has been included for this change.
17. **Deduct for Hydraulic System-Page 2; 9.0-**Since the air compressor is powered off the chassis transmission and the HP paint pumps are air powered the hydraulic system has been eliminated. A deduction has been included for eliminating the hydraulic system.

DESCRIPTIVE
NOT RESTRICTIVE



DESCRIPTIVE
NOT RESTRICTIVE







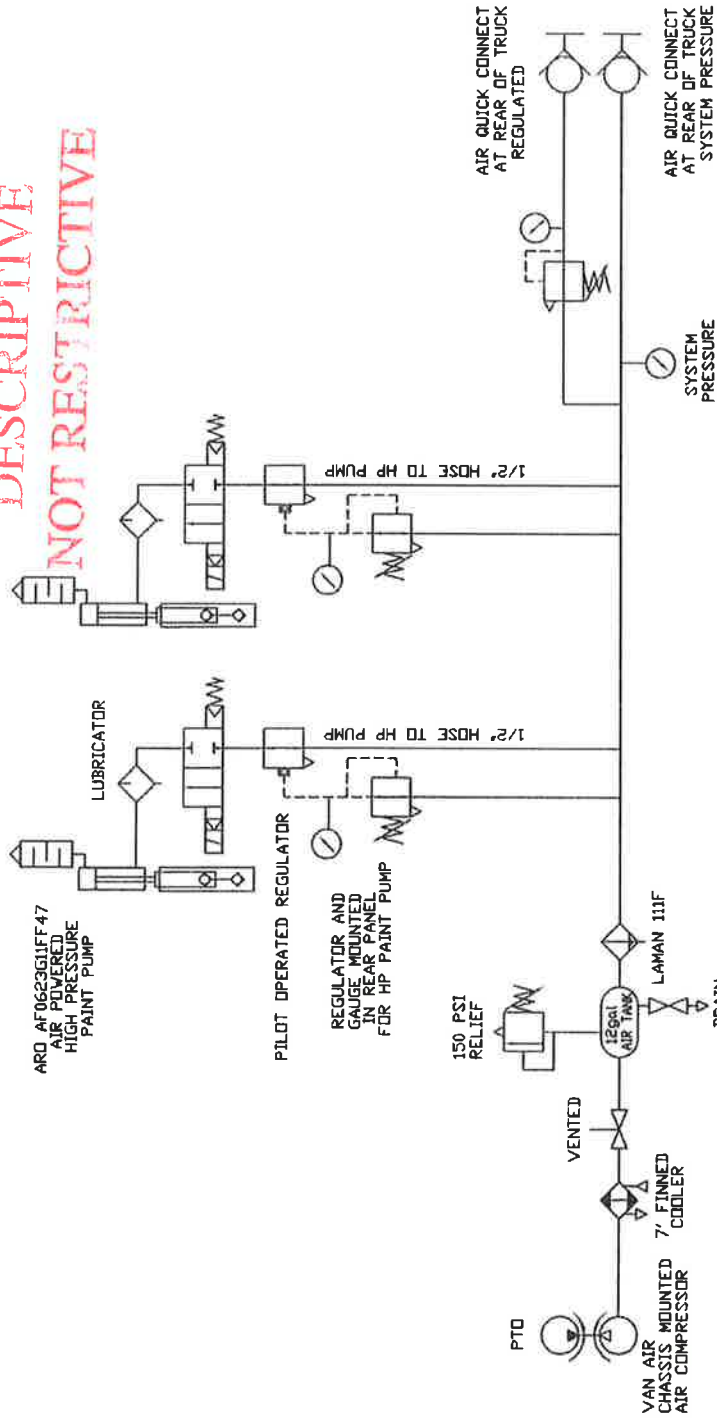
CAUTION
HOT SURFACES
DO NOT TOUCH



DESCRIPTIVE
NOT RESTRICTIVE

PNEUMATIC SCHEMATIC

**DESCRIPTIVE
NOT RESTRICTIVE**



BALL VALVE	SILENCER	LUBRICATOR	3PT 2WAY SOL OPERATED SPRING RETURN DIRECTIONAL CONTROL VALVE	AIR VESSEL
3 WAY BALL VALVE	GAUGE	COOLER	5PT 4WAY SOL OPERATED SPRING RETURN DIRECTIONAL CONTROL VALVE	PRESSURE REGULATOR RELIEVING
CHECK VALVE	FILTER	BYPASS CHECK WITH FLOW CONTROL		2PT 1WAY SOL OPERATED SPRING RETURN DIRECTIONAL CONTROL VALVE
FIXED PRESSURE RELIEF VALVE	FILTER WITH DRAIN			
	QUICK CONNECT			

drawn	EAW
approved	
date created	5/9/17
date	rev
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EZ-LINER INDUSTRIES

ORANGE CITY, IOWA 51041

AIR FLOW
SACRAMENTO STENCIL

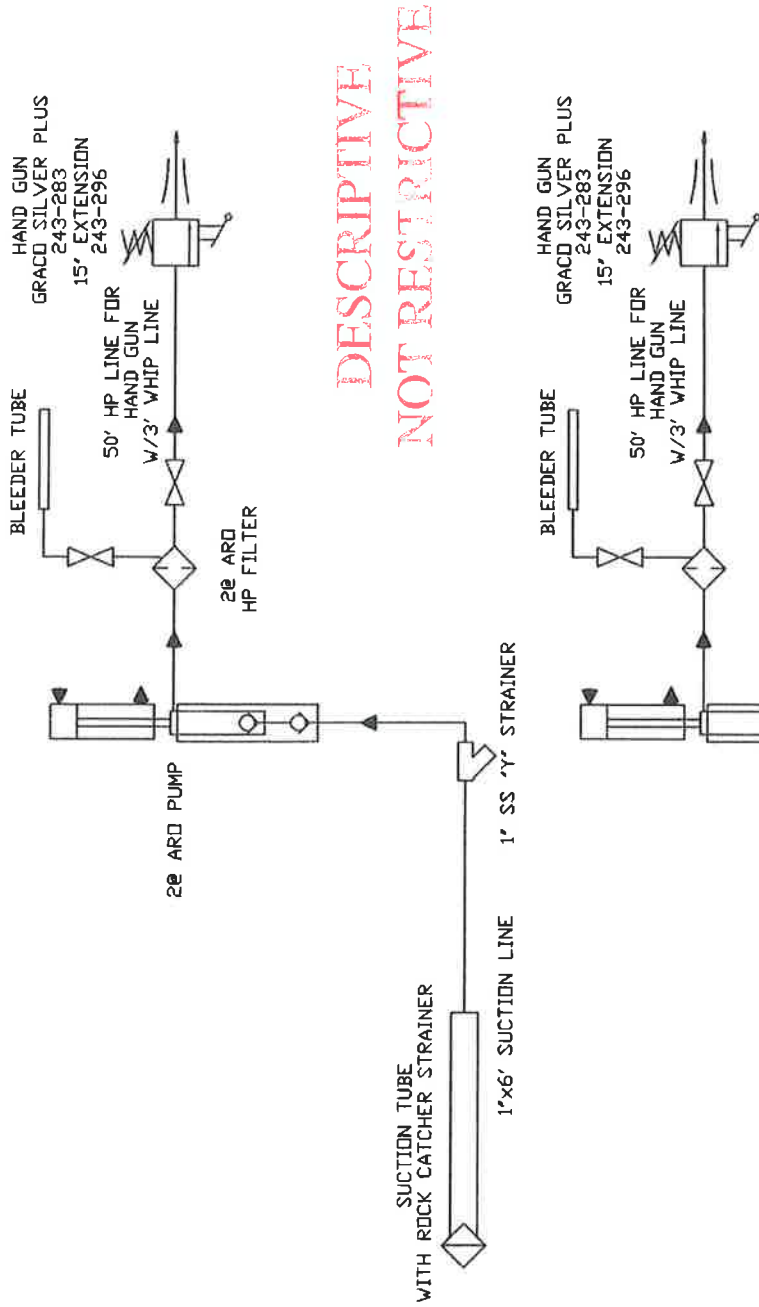
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SCS-AIR

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REV

PAIN T FLOW SCHEMATIC



LEGEND

BALL VALVE OPEN	CONNECTOR	HIGH PRESSURE PAINT PUMP
3 WAY BALL VALVE	GAUGE	
CHECK VALVE	PAINT GUN	
FIXED PRESSURE RELIEF VALVE	FILTER	QUICK CONNECT
	SILENCER	

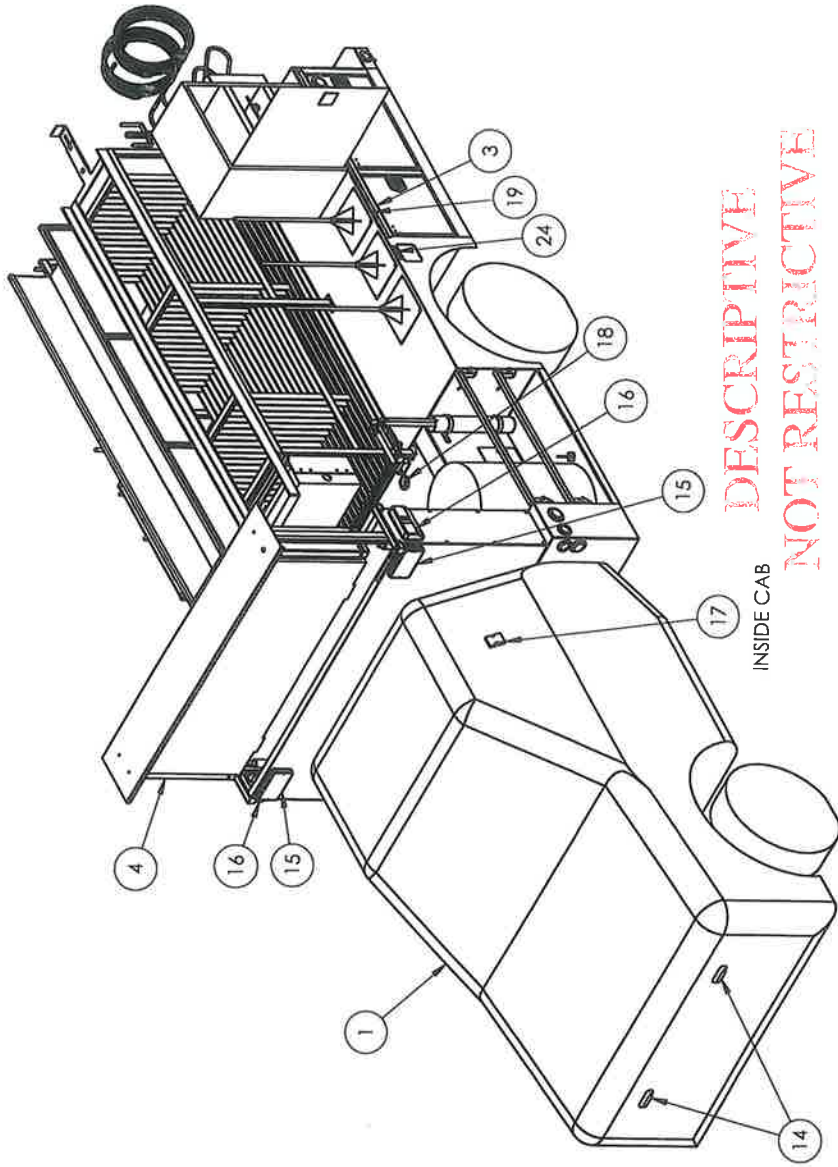
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date	rev

EZ-LINER INDUSTRIES
ORANGE CITY, IOWA 51041

PAIN T FLOW

SACRAMENTO STENCIL

SCS-PNT 10N SWD SHIT REV



INSIDE CAB

ITEM NO.	PART NUMBER	REV	DESCRIPTION	QTY
1	SCS-A100-00		SACRAMENTO STENCIL STAGE 1	1
2	SCS-W002-00		FIN COOLER SHIELD	1
3	SCS-A100-02		DRIP EDGE	2
4	SCS-A040-00		MSG BOARD ASSY	1
5	SCS-A201-00		PNT PUMP ASSY	1
6	SCS-A200-01		FIN COOLER SPACER PLT	2
7	SCS-A204-00		SUCTION TUBE ASSY	2
8	SCS-A205-00		HAND GUN ASSY	2
9	SCS-A206-00		CTRL BOX ASSY	1
10	SCS-A207-00		AIR TAKEOFF ASSY	1
11	SCS-A210-00		AIR TANK ASSY	1
12	120-A504-00	A	AL120 BLEEDER TUBE ASSY	2
13	007-A206-00	F	FIN COOLER ASSY, 7 FT, 2 SECTIONS	1
14	W10NSMA		SURFACE MNT ION LIGHT AMBER	2
15	M9A		LED FLASHER AMBER	2
16	M9V2A		LED STROBES	2
17	ULF44		UNIV FLASHER	1
18	B143-18		LIGHT, GROMMET, 2 1/2	1
19	Z12-91-9999		5/32"X .402 SEALING RIVET SS	16
20	D40-08-4034		HP PNT HOSE 1/2"X96" SS BLK	2
21	G35-00-7070		GRMT 1-3/4" HOLE 1" ID	1
22	G35-00-7078		PLUG, PLASTIC, BLACK, GROMMET, 1" OD	2
23	J99-00-0170		PLUG, PLASTIC, BLACK, ROUND LOCKING, 1" ID X 1-13/64" OD	4
24	SCS-L010-05		FUEL PLACARD	1
25	SCS-A200-02		TRIM ANGLE	2
26	SCS-A200-03		FRT PANEL SPT	2

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EZ-LINER INDUSTRIES
ORANGE CITY, IOWA 51041

STAGE 2 ASSY

DATE	11/21/16
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THIRD ANGLE PROJECTION	

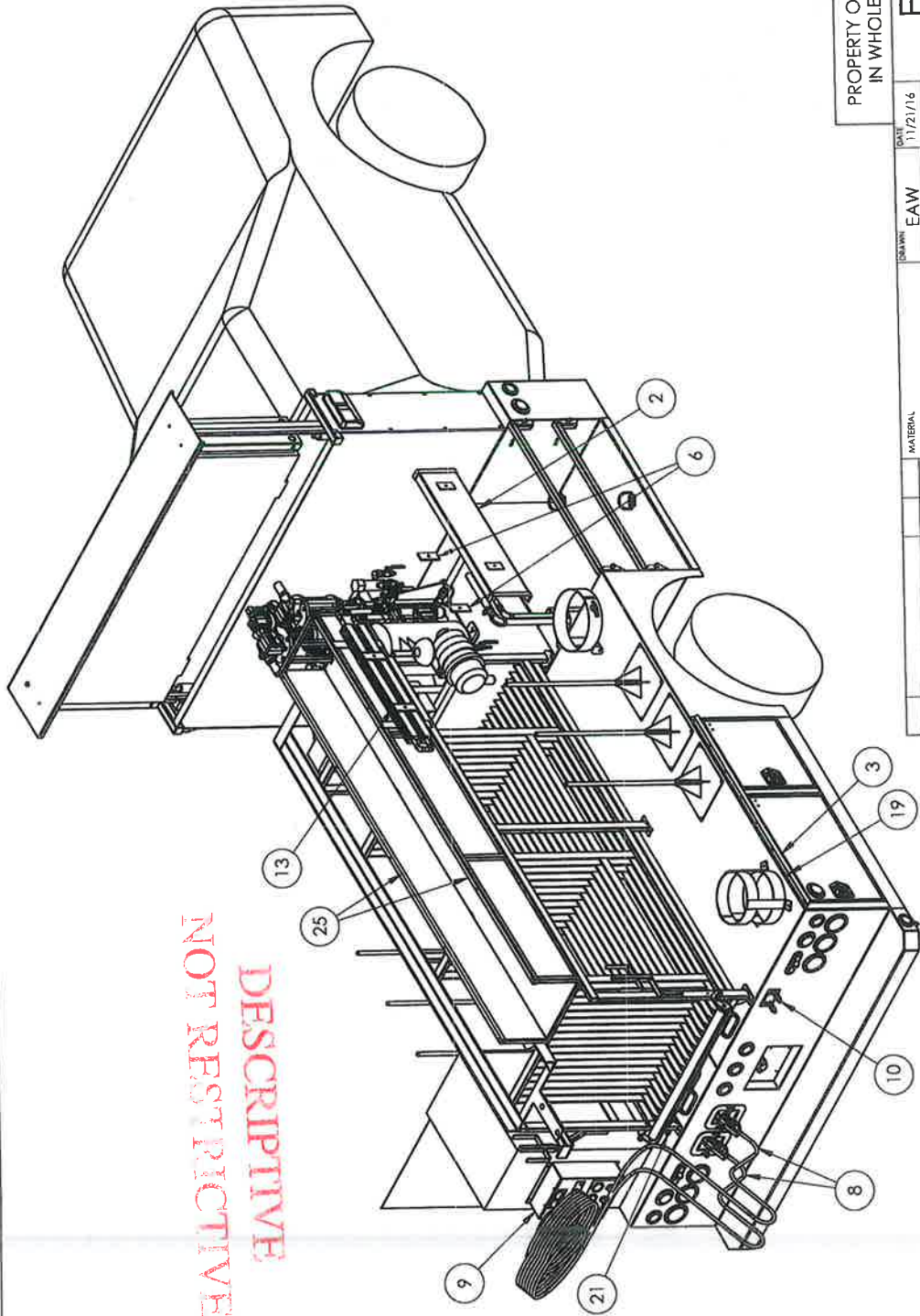
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	DIMENSIONS CONFORM TO ASME Y14.5M-1994		
	GENERAL TOLERANCES		
	X±.03 XXX±.05 ANGULAR ±1°		
	BREAK ALL EDGES .01 X 45°		

SIZE	B
DWG NO.	SCS-A200-00
SCALE	1:30
PREVIOUS NO.	
SHEET	OF 5

DWG NO. SCS-A200-00

DATE 2

REV



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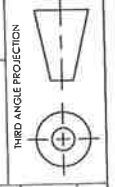
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EZ-LINER INDUSTRIES
ORANGE CITY, IOWA 51041
STAGE 2 ASSY

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DATE 11/21/16
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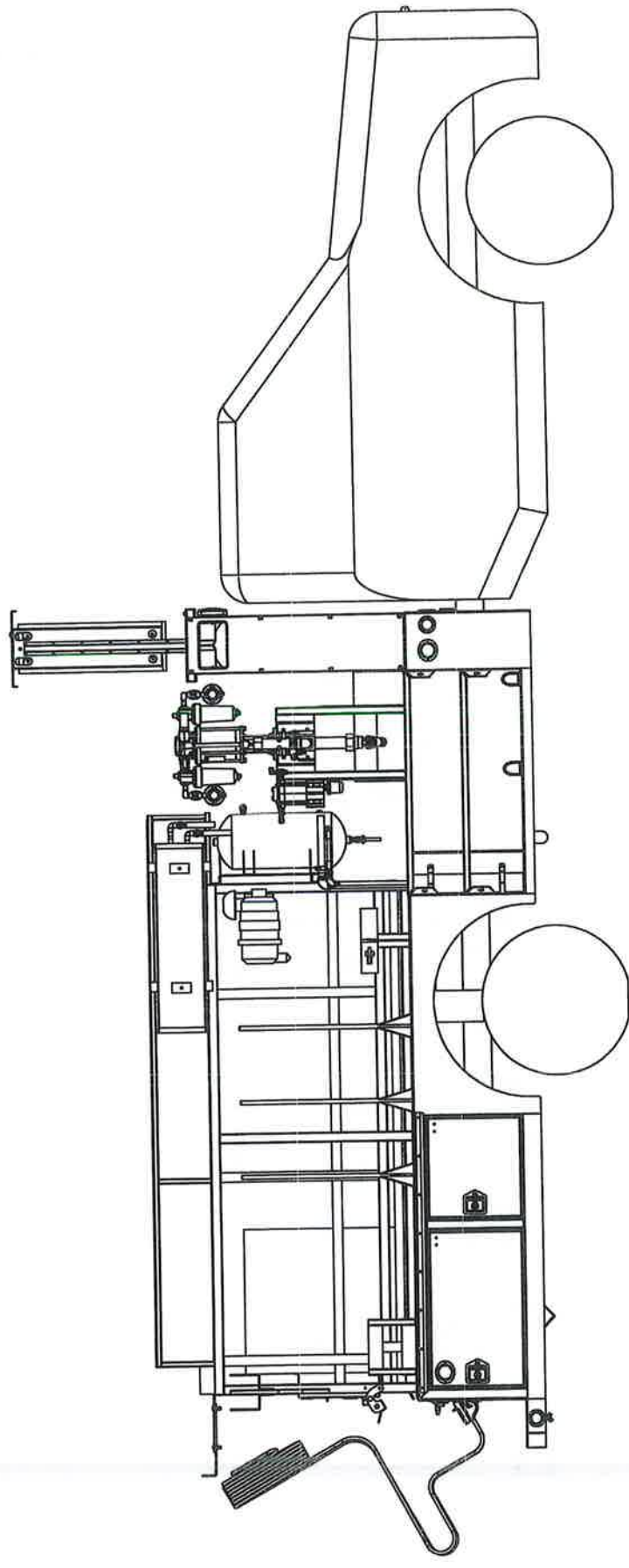
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GENERAL TOLERANCES
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SCALE 1:24
PREVIOUS NO.

SHEET 2 OF 5

DWG NO. SCS-A200-00



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EZ-LINER INDUSTRIES
ORANGE CITY, IOWA 51041
STAGE 2 ASSY

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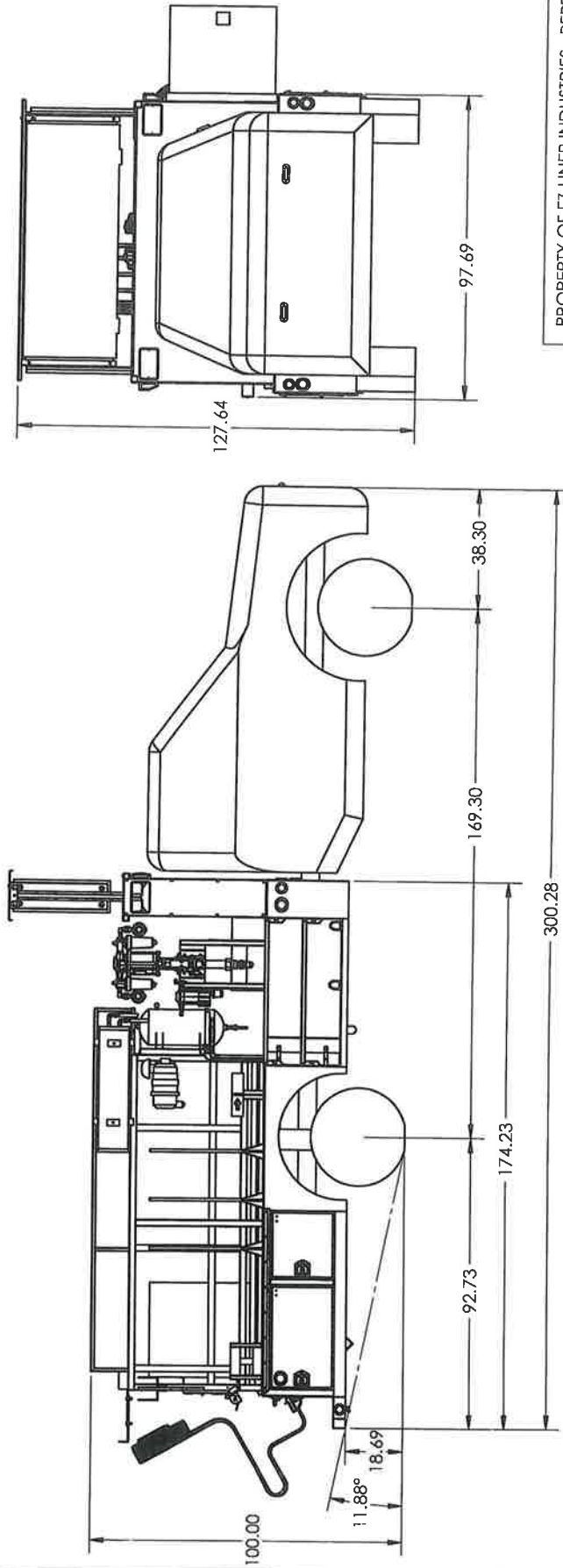
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	GENERAL TOLERANCES		
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NOT RESTRICTIVE
DESCRIPTIVE

SHEET 1 OF 5
SCALE 1:22
PREVIOUS NO. SCS-A200-00
REV

OVERALL WEIGHT: 12350 LBS

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EZ-LINER INDUSTRIES
ORANGE CITY, IOWA 51041

STAGE 2 ASSY

DATE	11/21/16
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THIRD ANGLE PROJECTION



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UCS SURFACE FINISH	
BREAK ALL EDGES .01 x 45°	

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GENERAL TOLERANCES
XX ± .03 .XX ± .005 ANGULAR ± 1°

REV	DESCRIPTION	DATE	APVD
REVISIONS			

DATE	11/21/16
SIZE	B
DWG NO	SCS-A200-00
SCALE	1:34
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SHEET	5 OF 5

EZ-LINER LIMITED WARRANTY

EZ-Liner warrants all equipment manufactured by it and bearing its brand names to be free from defects in material and workmanship at the time of sale by EZ-Liner or an authorized EZ-Liner distributor. EZ-Liner will for a period of twelve months from the date of sale, repair or replace any part of the equipment proven defective. Repair or replacement under this warranty shall be purchaser's sole remedy for breach of the warranty. Products furnished by but not manufactured by EZ-Liner (such as chassis, engines, compressor, etc.) will carry only the warranty of the original equipment manufacturer.

This warranty shall not apply if the product has been subject to misuse, negligence, accident or tampering or has not been operated in accordance with EZ-Liner's recommendations. This warranty does not cover and EZ-Liner shall not be liable for any damage, wear or malfunction caused by improper or inadequate maintenance, or substitution of components not supplied by EZ-Liner. Warranty does not apply to normal wear and tear due to equipment operation or to consumable replacement parts.

This warranty applies only to the original purchaser and only when the equipment is operated and maintained in accordance with EZ-Liner's written recommendations or instructions. Purchaser must, with transportation prepaid, return the equipment claimed to be defective to EZ-Liner for verification of the claimed defect. If the alleged defect is verified, EZ-Liner will, at EZ-Liner's option, repair or replace any defective parts. The equipment will be returned including prepayment of transportation charges to the original purchases. Expedited fees will be paid by the customer if requested. If no defects in material and workmanship are found, repairs will be made by EZ-Liner at a reasonable charge. Charges may include the cost of parts, labor and freight.

EZ-LINER DISCLAIMS TO THE FULL EXTENT PERMITTED BY LAW ALL WARRANTIES, EXPRESSED OR IMPLIED INCLUDING ANY WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE AND ANY NON CONTRACTUAL LIABILITIES INCLUDING PRODUCT LIABILITY BASED ON NEGLIGENCE OR STRICT LIABILITIES. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION OF THE FACE HEREOF.

Every form of liability is expressly excluded and denied for direct, indirect, special or consequential damages or loss. The warranty shall be in lieu of any other warranty expressed or implied. The terms of this warranty constitute purchaser's sole and exclusive remedy. In no case shall EZ-Liner liability exceed the amount of the purchase price. Any action for breach of warranty must be brought within one (1) year of the date of sale or in service date.

The following list is intended to act only as an example of these warranties, which are subject to change without notice but may not be limited to only the following:

- ❖ Industrial/Commercial engines carry a one year limited warranty
- ❖ Air compressors carry a one year limited warranty
- ❖ ASME pressure pots are pressure tested, certified and carry a one year limited warranty
- ❖ Bead guns carry a one year limited warranty
- ❖ Hydraulic pumps carry a one year warranty
- ❖ Paint pumps carry a one year limited warranty
- ❖ Paint guns carry a one year limited warranty
- ❖ Air solenoids carry a one year warranty
- ❖ Electronic controllers carry a one year limited warranty

For a list of wearable items, see AD-0002-DOC – EZ-Liner Warranty-Wearable Parts.

Prepared for: Mr. Norm Scholten, Manager, Vogel Traffic Services dba EZ Liner Industries
1920 Albany Place S. E., P.O. Box 140
Orange City, IA 51041
Office: 712-737-4016 | Fax: 712-737-4148
Email: norm.scholten@ezliner.com

2021 F-450 Chassis 4x2 SD Regular Cab 169" WB DRW XL (F4G)

Price Level: 115



Client Proposal

Prepared by:
Kent Kuehn
Office: 402-334-7387
Email: akkuehn@cox.net
Quote ID: EZNS2021SC
Date: 11/04/2020



Wireless Backup Camera System 7" Quad View Display with Built-in DVR

REAR VIEW
SAFETY
A Safe Fleet Brand

RVS-4CAM

*SHOWN WITH WIRELESS BACKUP CAMERA
(ALSO AVAILABLE WITH WIRELESS SIDE CAMERA)



Added safety, multiple configurations and easy install is what this wireless backup camera system is all about. With a quad view display, the system can connect and view simultaneously up to four cameras and can even record video footage from each camera individually! Footage records onto an SD card and loops over oldest recordings when the card gets full. Perfect for RV's, Trucks, Trailers and all commercial vehicles, this system is ahead of the game when it comes to vehicle safety.

Monitor Specifications

Type	TFT LCD	SD Card Capacity	128GB
Screen Size	7"	Vibration/Shock Rating	20G/100G
Pixel Resolution	800 X 480	Input Voltage	DC 12V-36V
Wireless System	2.4G Digital Wireless System	Frequency	2.4GHz
Automatic Start	Yes (Can Be Turned Off)	Transport Power	10mW
Display Brightness	400cd/m ²	Transmission Distance	150M (No Obstruction) 20M (Obstruction)
Video Input	4 Channel	Operating Temperature	-40°C ~ +75°C
Audio Input	1 Channel	Video System	Auto NTSC/PAL
Trigger Capacity	3 Triggers		

Wireless Backup Camera System
7" Quad View Display with Built-in DVR
RVS-4CAM



Backup Cam Specifications

Camera	1/4" Sharp® Color CCD
Picture Elements	250,000 pixels
Gamma Correction	r=0.45 to 1.0
Image Sensor	540 TV lines, PAL: 752 (H) x 582 (V), NTSC: 769 (H) x 494 (V)
Lens	2.1mm
Waterproof Rating	IP68
View Angle	130°
Sync System	Internal Synchronization
Infra-red distance	50 Feet (9 Infrared)
Usable Illumination	0 Lux (IR On)
Power Source	DC 12V/3A (+/- 10%)
S/N Ratio	More than 48dB
Electronic Iris	1/50, 160-1/100,000sec
Video Output	1Vp.p 75ohm
IR Switch Control	ACDS Automatic Control
Vibration & Shock Rating	20G / 100G
Operating Temperature	-30°C ~ +80°C / RH 95% Max
Storage Temperature	-30°C ~ +60°C / RH 95% Max

Side Cam Specifications

Camera	1/4" Sharp® Color CCD
Picture Elements	250,000 pixels
Gamma Correction	r=0.45 to 1.0
Image Sensor	420 TV lines, PAL: 500 (H) x 582 (V), NTSC: 510 (H) x 492 (V)
Lens	2.1mm
View Angle	120°
Sync System	Internal Synchronization
Infra-red distance	30 Feet (9 Infrared)
Usable Illumination	0 Lux (IR On)
Power Source	DC 12V-24V (+/- 10%)
S/N Ratio	More than 48dB
Electronic Iris	1/50, 160-1/100,000sec
Video Output	1Vp.p 75ohm
IR Switch Control	ACDS Automatic Control
Vibration and Shock Rating	20G / 100G
Operating Temperature	-30°C ~ +80°C / RH 95% Max
Storage Temperature	-30°C ~ +60°C / RH 95% Max

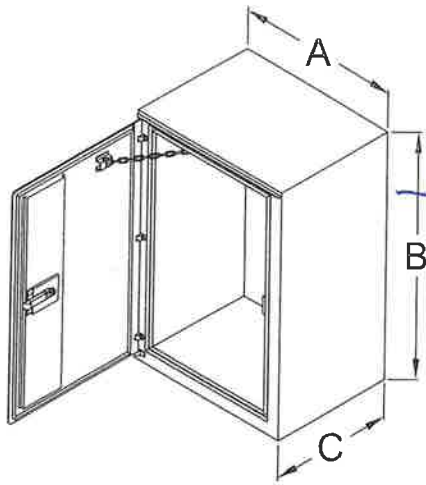
V-SERIES TRUCK BOXES

Versatile and vertically hinged RKI truck boxes let you configure a solution to protect your tools and equipment. You can even combine them with our H-Series for superior storage options.

- Can be bolted or welded together on the truck bed in a variety of arrangements.
- Designed with a drip rail, channel drain, full perimeter seal support channel and knife edge to compress the door seal, producing no seal interruption at the door latch.
- All V-Series truck boxes are available in white powder coat finish at no additional cost - use special order code "PAINTCSTWHT" to designate white powder coat finish.



Vertically Hinged Truck Box Specifications



Model	A Length	B Height	C Depth	Number of Doors	Approximate Weight (lbs.)
STEEL					
V243618•	24"	36"	18"	1	104
V243624•	24"	36"	24"	1	123
V246318-20•	24"	63"	18"	2	192
V246324-20•	24"	63"	24"	2	208
V303618•	30"	36"	18"	1	127
V303624•	30"	36"	24"	1	144
V306318-20•	30"	63"	18"	2	203
V306324-20•	30"	63"	24"	2	233
V363618•	36"	36"	18"	1	141
V363624•	36"	36"	24"	1	161
V366318-20•	36"	63"	18"	2	227
V366324-20•	36"	63"	24"	2	256
V423618-20•	42"	36"	18"	2	165
V423624-20•	42"	36"	24"	2	188
V426318-20•	42"	63"	18"	2	251
V426324-20•	42"	63"	24"	2	275
V483618-20•	48"	36"	18"	2	192
V483624-20•	48"	36"	24"	2	217
V486318-20•	48"	63"	18"	2	275
V486324-20•	48"	63"	24"	2	325
V562418-2	56"	24"	18"	2	155
V562424-2	56"	24"	24"	2	178
V602418-2	60"	24"	18"	2	159
V602424-2	60"	24"	24"	2	187
V602424-20•	60"	24"	24"	2	230
V603618-20•	60"	36"	18"	2	219
V603624-20•	60"	36"	24"	2	247

V-SERIES TRUCK BOX MODEL NUMBER DESIGNATION

V-Series truck boxes are 14 gauge with 14 gauge double panel doors. They are vertically hinged with the A, B, and C dimensions called out in that order after the hinge designation. V-Series truck boxes with two doors are designated by "-2" after the model number. V-Series truck boxes with two doors that overlap without a center door facing are designated with a "-20". Single or two door "-2" V-Series truck boxes are left hand hinged. Right hand hinged doors are available as an option. V-Series truck boxes come in a black polyester powder coat finish.

• Shelf option available

*(2) shelf kits per toolbox
SAC County Stenel trucks - 2017*

[Home](#) / Super 44, LED, Red, Round, 6 Diode, Stop/Turn/Tail, Fit 'N Forget S.S., 12V /

Super 44, LED, Red, Round, 6 Diode, Stop/Turn /Tail, Fit 'N Forget S.S., 12V

44302R

Faster illumination offers significant safety benefit for following drivers to react quicker, resulting in an average distance of 3' for every 10 mph|LEDs have no filament, therefore are extremely resistant to shock and vibration, Less current draw, resulting in increased battery and alternator life while allowing more power for other vehicle requirements

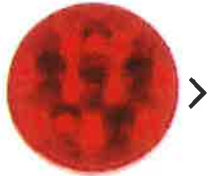


44302rf_6

Need To Order By Phone? [\(800\) - 562 - 5012](tel:800-562-5012)



Click Image to Enlarge Viewer



Specification

Bulk

Related Products

Product Name	Super 44, LED, Red, Round, 6 Diode, Stop/Turn/Tail, Fit 'N Forget S.S., 12V
ViewPoint (Y/N)	No
New	No
Sale	No
Best Sellers	No
Show Size Chart	No
Brand	TL

Business Unit	Truck-Lite (NA)
Category	Stop/Turn/Tail
Warranty	Lifetime
Compliance Family	FMVSS 108 CMVSS 108 DOT SAE
Common Root	44302R
Common Size	4"
Country of Origin	ZZ
Current Minor	0.03
Diamond Shell (Yes/No)	No
Features & Benefits	Faster illumination offers significant safety benefit for following drivers to react quicker, resulting in an average distance of 3' for every 10 mph LEDs have no filament, therefore are extremely resistant to shock and vibration, Less current draw, resulting in increased battery and alternator life while allowing more power for other vehicle requirements
Itm Id	2139065
KIT (Yes/No)	No
Lens Shape	Round
Lighting Technology	LED
Lamp Connection	Fit 'N Forget S.S.
Lamp Connection (Simplified)	Fit 'N Forget S.S.
Lens Color	Red
Lens Height_INH	4.35
Lens Material	Polycarbonate
Lens Width_INH	4.35
Mount Type	Grommet Mount
NAPA Part Number	44302R
Number of Diodes/Bulbs	6

Did you mean

[10300r](#)

[12200r](#)

Related search terms

[10250R3](#)

Sort By: [Relevance](#)

10250R



10 SERIES, LED, RED ROUND, 2
DIODE, MARKER CLEARANCE LIGHT,
P2, FIT 'N FORGET M/C, 12V

You've reached the end of the page.



BACK TO TOP

Did you mean

[15200y](#)

[12200y](#)

Related search terms

[10250y3](#)

[10250y harness](#)

[10250Y4-N](#)

[10250y n](#)

Sort By: [Relevance](#)

10250Y



10 SERIES, LED, YELLOW ROUND, 2
DIODE, MARKER CLEARANCE LIGHT,
P2, FIT 'N FORGET M/C, 12V

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Did you mean

[1500](#)

[1550](#)

Sort By: [Relevance](#)

15050R



15 SERIES, LED, IDENTIFICATION
BAR, RECTANGULAR, RED, 3 LIGHTS,
6" CENTERS, SILVER, 12V, KIT

You've reached the end of the page.



BACK TO TOP



SOCIAL



Truck-Lite 15011 Model 15 License Plate Light and Mounting Bracket kit

795-15011

Not Yet Rated | [Write the First Review](https://www.anythingtruck.com/mm5/merchant.mvc?Screen=GD_WREVIEW&Product_Code=795-15011) (https://www.anythingtruck.com/mm5/merchant.mvc?Screen=GD_WREVIEW&Product_Code=795-15011)

\$5.79



Availability

Qty in Stock: **59**

Add'l Qty (1-4 days): **150**

Quantity in Stock reflects available inventory as of 5:00 AM CST.

— 1 +

♥ Add To Wish List



[Home](#) / Super 44, LED, Clear Round, 6 Diode, Back-Up Light, Fit 'N Forget S.S., 12V /



Super 44, LED, Clear Round, 6 Diode, Back-Up Light, Fit 'N Forget S.S., 12V

44350C

Features robust, cost effective, efficient design | Surpasses back-up specifications with one lamp, eliminating two-lamp systems | Resembles Super 44 Series S/T/T lamp diode appearance for consistent look | Epoxy encapsulated with exclusive Fit N Forget plug assembly keeps corrosives away from lamp | Not recommended for dome lamp use | US Registered TM #3483147

- No Plug
- Fit 'N Forget S.S.
- 12 V

Need To Order By Phone? [\(800\) - 562 - 5012](tel:8005625012)

Click Image to Enlarge Viewer



Specification Bulk Related Products

Product Name	Super 44, LED, Clear Round, 6 Diode, Back-Up Light, Fit 'N Forget S.S., 12V
ViewPoint (Y/N)	No
New	No
Sale	No
Best Sellers	No
Show Size Chart	No
Brand	TL

Business Unit	Truck-Lite (NA)
Category	Back-Up Light
Series	Super 44
Warranty	Lifetime
Compliance Family	FMVSS 108 CMVSS 108 DOT SAE
Common Size	4"
Country of Origin	ZZ
Current_AMP	0.53
Diamond Shell (Yes/No)	No

Features & Benefits Features robust, cost effective, efficient design| Surpasses back-up specifications with one lamp, eliminating two-lamp systems| Resembles Super 44 Series S/T/T lamp diode appearance for consistent look| Epoxy encapsulated with exclusive Fit N Forget plug assembly keeps corrosives away from lamp| Not recommended for dome lamp use| US Registered TM #3483147

Feature Highlights No Plug| Fit 'N Forget S.S. | 12 V

Housing Material Polycarbonate

Image Highlighters TL.jpg| Lifetime.jpg| LED.jpg

Itm Id 3081328

KIT (Yes/No) No

Lens Shape Round

Lighting Technology LED

Lamp Connection Fit 'N Forget S.S.

Lamp Connection (Simplified) Fit 'N Forget S.S.

Lens Color Clear

Lens Height_INH 4

Lens Material Polycarbonate

[Features](#) ▾ [Specs](#) ▾ [Accessories](#) ▾ [Applications](#) ▾ [Manuals](#) ▾ [How to Videos](#) ▾ [Reviews](#) ▾ [Questions](#) ▾ [Where to Buy](#)



EU3000iS

EU3000IS1A

3000 watt 120V inverter generator

★★★★★ 4.6 (197) [Write a review](#)

- Power for furnace, fridge, most 13,500 BTU RV AC units, & more
- Super quiet
- Electric start
- Fuel efficient - up to 20 hrs on 3.4 gal of gas
- Inverter - stable power for computers & more

MSRP



LiteReader® Model 1020A-4 2 Line, 10" Character Matrix LED Changeable Message Sign Specifications

SIGN DISPLAY

10" Character Height (Small) "Programmable"	
Number of Message Lines.....	2
Number of Characters per line.....	8
23" Character Height (Large) "Nonprogrammable"	
Number of Message Lines.....	1
Number of Characters per line.....	4
LED Pixel.....	4 per pixel, Amber-Yellow (590nm or 592nm peak)
LED Viewing Angle.....	30° (nominal)
Character Module Matrix.....	5 pixels per row x 8 pixels per column
Legibility.....	650+ feet (198 m)
Operating Temperature Range.....	-40° to +185° F (-40°C to +85°C)

MESSAGE MANAGEMENT

Message Library.....	92 Messages plus Arrows and other Large Characters
User Programmable.....	48 Messages
Each message able to display up to three (3) pages (panels).	
Link function enables up to four (4) messages or up to twelve (12) pages (panels) to alternate.	

STANDARD HIGHWAY SYMBOLS- Sequencing Arrow, Flashing Arrow, Double Arrow, Sequencing Chevron, and 4 Corner Warning Lights.

CONTROL KEYPAD-All programming and message selections made from handheld device.

Dimensions.....	9.2" x 5.1" x 1.7 "" (234mm x 129mm x 43mm)
Display.....	320 x 240 Pixel LCD
Operating Temperature Range.....	-4° to +135°F (-20° to +60° C)

CABINET

Outside Dimensions.....	75" x 31" x 5" (190.5 cm x 76.2 cm x 12.7 cm)
Total Sign Weight.....	78 lbs (38 kg)
Cabinet Construction.....	Sturdy Welded Aluminum
Window.....	Scratch Resistant, UV Stabilized Polycarbonate
Finish.....	Powder Coat, Flat Black Face, Balance White

CABINET TEMPERATURE CONTROL

Thermostatically Controlled Fan with Rain Tight Vents (vertical and horizontal positions).

POWER

Supply Voltage.....	12 volts DC nominal (vehicle battery)
Supply Current.....	4.5A @ 12 volts (avg. flashing)

OTHER

- No Moving Parts.
- No PC/Laptop computer required for any programming or message selection function.

Lighthoods - Warning



M9 Series

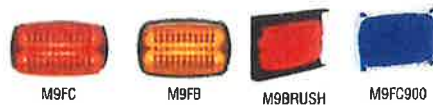
- Available in warning and warning with scenelight models
- Patented Linear-LED® designed reflector assembly
- Hard-coated lenses minimize environmental damage from the sun, salt and road chemicals
- Surface mounted via two screws
- Built-in flasher models are synchronizable
- Choose solid, left/right, top/bottom, in/out, or diagonal sequencing
- Meets KKK 1822F, NFPA 1901, SAE, and EC65 specifications
- Includes California Title XIII compliant flash patterns
- Five year HDP® Heavy-Duty Professional warranty



Model	Mounting	Technology	Color	Flashes	Power	Dimensions
M9*	Directional	Super-LED®	A, R, B, W	Color	159 Scan-Lock™	6-1/2" (165mm) H x 10-3/8" (263mm) W x 1-3/8" (35mm) D
M9*C			Clear	64 Scan-Lock		
M9#			R/A, R/B, R/W		Color	
M9*S			A, R, B, W	Color		
M9*CS			Clear	Color		
M9V2*	V-Series™ (includes Chrome flange)	Super-LED®	A, R, B, W warning with W illumination	Color for warning, Clear for illumination	25 Scan-Lock	6-1/2" (165mm) H x 10-3/8" (263mm) W x 2-5/8" (66mm) D
M9V2*C	Clear		Clear			

Replace symbol* in model number with letter indicating color desired: A=Amber, B=Blue, C=White, R=Red, W=White
 Replace symbol# in model number with letter indicating split color desired: D=Red/White, F=Amber/White, J=Red/Blue, K=Red/Amber, M=Blue/Amber

Model	Part	Description
M9FC	-	Chrome plated flange
M9FB	M9FB	Black flange
M9BRUSH	-	Black brush guard
M9FC900	M9FC900	Chrome flange, adapts M Series to 900 Series style lighthoods



2015 Ford Transit Mounting Options with M9V2R Lighthouse

Part Number	Location
Mid-Roof mounting Chrome housing with M9V2R lighthouse, Red Lens	
1873800	Front, driver side
1873801	Front, passenger side
1873802	Rear, driver side
1873803	Rear, passenger side
Mid-Roof mounting Chrome housing with M9V2RC lighthouse, Clear Lens	
1873804	Front, driver side
1873805	Front, passenger side
1873806	Rear, driver side
1873807	Rear, passenger side

Part Number	Location
High-Roof mounting Chrome housing with M9V2R lighthouse, Red Lens	
1873400	Front, driver side
1873401	Front, passenger side
1873402	Rear, driver side
1873403	Rear, passenger side
High-Roof mounting Chrome housing with M9V2RC lighthouse, Clear Lens	
1873404	Front, driver side
1873405	Front, passenger side
1873406	Rear, driver side
1873407	Rear, passenger side



1873801



1873802

Lighthheads - LED Warning

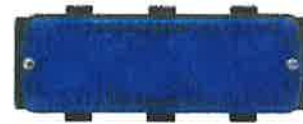


500 Super-LED® Series

- **NEW V-Series™** has 3-in-1 combination warning, alley/flood and ground illuminating puddle light
- **NEW Single color combination 180° and TIR directional warning light**, does not include White alley/flood or puddle light feature
- **Hard-coated lenses** minimize environmental damage from the sun, salt and road chemicals
- **Requires optional mounting**
- **Solid color available with Clear or color lens**
- **V-Series and split color lights have Clear lens**
- **LEDs are rated for thousands of hours of operation**
- **Five year HDP® Heavy-Duty Professional warranty**



50RA3ZCR



50B03ZBR



50R02ZRR



50RB2ZCR



5V1A



5V3R

Model	Series	Technology	Mounting	Colors	Beam Pattern	Mounting	Dimensions	
50*02Z*R	Directional	Linear-LED®	Horizontal, requires optional mounting	A, R, B, W	1.0/peak .40/avg	25 Scan-Lock™	6" Pigtail	
50**2ZCR				A/A, B/B, W/W R/R, A/W, B/W, W/R	.50/peak .20/avg per side			B (A/B) C D (A/B)
5V*02Z*R			A, R, B, W	1.0/peak .40/avg	B (R) C D			
50*03Z*R	TIR6™ Super-LED	Horizontal Requires optional mounting	A, R, B, W	.63/peak .315/avg				1-5/8" (41mm) H x 1-3/8" (35mm) D x 5" (127mm) L
50**3ZCR			A/A, B/B, W/W R/R, A/W, B/W, W/R	.315/peak .125/avg per side				
5V1*	V-Series with directional	TIR Super-LED	Horizontal Requires optional mounting	A, R, B, W	1.5/peak 0.6/avg			B (B) D
5V3*	V-Series	Super-LED		A, R, B, W warning, with W illumination	0.12 warning 1.0 alley 0.5 puddle			

Replace symbol* in model number with letter indicating color desired: A=Amber, B=Blue, C=White, R=Red First * or ** is for LED color, last * is for LENS color.

5FLANGEB	Black flange kit
5FLANGEC	Chrome plated flange kit
5FLANGEP	Polished aluminum flange kit
5GROMMET	Rubber grommet kit
5GBKT	L Bracket for use with grommet mount lighthead
5TSMAB	Black surface mount adapter, TIR6 Super-LED only
5TSMAC	Chrome plated surface mount adapter, TIR6 Super-LED only
5LSMAB	Black surface mount adapter, Linear-LED® only

5LSMAC	Chrome plated surface mount adapter, Linear-LED only
5BRUSH	Aluminum brush guard for TIR6 only, requires flange
5GMZLRC	Chrome plated grille mount for 2015 Freightliner M2, pair
5IMZLRC	Chrome plated fender mount for 2015 Freightliner M2, pair
5BKT1	Universal mounting bracket for Super-LED



5FLANGEB

5FLANGEC

5FLANGEP

5GROMMET

5BKT1

5GBKT1

5TSMAC

5LSMAC

5BRUSH

Lightheads - Warning



ION™ Series

- Hard-coated lenses minimize environmental damage from the sun, salt and road chemicals
- Integrate with other Whelen products through synchronize feature
- **NEW** Go undercover with all new, SAE Class 1 certified smoked lenses. Consult pricelist for details
- Five year HDP® Heavy-Duty Professional warranty



WIONSMCR



NEW Smoked lens shown unlit with Black flange



WIONB



IONWA

ION & WION

- ION models feature TIR directional optic
- WION models feature wide-angle optic
- Available in single or split colors
- Includes steady-burn, alternating and simultaneous patterns

NEW ION DUO™ & TRIO™

- Interleaved technology and new Linear-LED® optics
- DUO models feature independent control of color one and color two
- TRIO models feature any combination of color one, color two and color three. Color three has steady-burn override



I2F



I3JC

Model	Optic	Mount	Colors	Lens	Peak	Avg	Scan-Lock™	Mount	Dimensions										
ION*	Directional	Universal	A, R, B, W	Black	12	1/peak 0.40/avg	25 Scan-Lock™	6" Pigtail	B, C, D (A/B/R)	1" (25mm) H x 1-1/4" (32mm) D x 4" (101mm) L									
IONW*			White	C, D (W)															
ION#			R/B, R/W, B/A						Black		A, B, C, D (A/R)								
IONW#			White	A, C, D (W)															
WION*	Wide-angle		A, R, B, W						Black		Surface, includes flange	12	25 Scan-Lock™	6" Pigtail	B, C, D (A/B/R)	1-11/16" (43mm) H x 1-1/8" (28mm) D x 5-15/16" (150mm) L			
WIONW*			White	C, D (W)															
WION#			R/B, R/W, B/A						Black						A, B, C, D (A/R)				
WIONW#			White	A, C, D (W)															
IONSM*	Directional	A, R, B, W	Black					12	1/peak 0.40/avg	25 Scan-Lock™					6" Pigtail		B, C, D (A/B/R)	1-11/16" (43mm) H x 1-1/8" (28mm) D x 5-15/16" (150mm) L	
IONSMW*		White	C, D (W)																
IONSMC*		Chrome		A, B, C, D (A/R)															
IONSM#		R/B, R/W, B/A	Black														A, C, D (W)		
IONSMW#	White	A, B, C, D (A/R)																	
IONSMC#	Chrome		B, C, D (B)																
WIONSM*	Wide-angle	A, R, B, W		Black							12			1/peak 0.40/avg		25 Scan-Lock™	6" Pigtail		A, B, C, D (A/R)
WIONSMW*		White	C, D (W)																
WIONSMC*		Chrome		A, B, C, D (A/R)															
WIONSM#		R/B, R/W, B/A	Black		A, C, D (W)														
WIONSMW#	White	A, B, C, D (A/R)																	
WIONSMCD	R/W		Chrome	B, C, D (B)															
I2#	Linear-LED	Universal	A/W B/W R/W B/R B/A		Black	1/peak 0.40/avg per color	64					25	6" Pigtail		B, C, D (A)			1" (25mm) H x 1-1/4" (32mm) D x 4" (101mm) L	
I3#			R/B/W R/B/A R/A/W B/A/W																

Replace symbol* in model number with letter indicating color desired: A=Amber, B=Blue, C=White, R=Red
 Replace symbol# in model number with letter indicating split color desired: D=Red/White, F=Amber/White, J=Red/Blue, K=Red/Amber, M=Blue/Amber

IONK1W	Swivel mount bracket, White
IONK1B	Swivel mount bracket, Black
IONGROM	Grommet mount kit
IONPEDB	Black pedestal mount

IONPEDC	Chrome plated pedestal mount
IONBKT1	License plate bracket for 2 lights
IONBKT4	Rear hatch bracket, 2013-15 Ford Police Interceptor Utility for 2 lights
IONBKT5	Universal mount, reversed, remove screws without removing light
IONBKT6	Rear hatch bracket, 2015 Chevy Tahoe for 2 lights



IONK1W



IONK1B



IONGROM



IONPEDB



IONPEDC



IONBKT1



IONBKT5



IONBKT6



Home / All Products / Lighting / Accessories / Non-Programmable Flashers / ULF44

ULF44





~~Share~~ ULF44 Universal® Flasher is designed for heavy-duty, long life operation.

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FEATURES

- LED or Super-LED® flasher with synchronization
- 60 Watts per outlet
- Four outlet, four channel flasher with 62 Scan-Lock™ flash patterns allowing for alternating, simultaneous
- Each channel can drive up to 5 amps (60 watts) and is short circuit and thermally protected

DOCUMENTS

MODELS



WARNING: These products may contain chemicals known to the State of California to cause cancer. For more information, visit [whelen.com/regulatory](https://www.whelen.com/regulatory).

DIMENSIONS

OPERATOR'S MANUAL & SALES AND ENGINEERING DATA

INCLUDING: SPECIFICATIONS, SERVICE KITS, GENERAL INFORMATION, TROUBLESHOOTING.
 INCLUDE MANUALS: AF06XX-XX Air Motor (pn 97999-1467), 66300-XXX Lower Pump End (pn 97999-646) &
 S-632 General Information Manual (pn 97999-624).

RELEASED: 9-30-10
 REVISED: 8-19-16
 (REV: C)

6" AIR MOTOR
23:1 RATIO
6" STROKE

AF0623GXXXXXX-XX-X TWO-BALL PUMP SERIES 300 Series Stainless Steel



**READ THIS MANUAL CAREFULLY BEFORE INSTALLING,
 OPERATING OR SERVICING THIS EQUIPMENT.**

It is the responsibility of the employer to place this information in the hands of the operator. Keep for future reference.

SERVICE KITS

- Use only genuine ARO® replacement parts to assure compatible pressure rating and longest service life.
- **637489** for repair of air motor section.
- **637305-X43** for repair of lower pump end. Refer to the chart on page 2 for description of -X43 options.

SPECIFICATIONS

Model Series (refer to option chart)	AF0623GXXXXXX-XX-X
Pump Type	Air Operated, Two-Ball Double Acting Pump
Ratio	23:1
Air Motor	AF0660-XX
Motor Repair Kit	637489
Motor Diameter	6" (15.2 cm)
Stroke (double acting)	6" (15.2 cm)
Air Inlet (female)	1/2 - 14 NPTF - 1
Air Exhaust (female)	1-1/4 - 11-1/2 NPTF - 1
Lower Pump End Series	66300-XXX
Lower Pump Repair Kit	637305-X43
Material Inlet (female)	1 - 11-1/2 NPTF - 1
(male)	2 - 11-1/2 PTF SAE short
Material Outlet (female)	1 - 11-1/2 NPTF - 1
Weight	46.2 lbs (21.0 kgs)

PUMP PERFORMANCE

Air Inlet Pressure Range	30 - 150 psig (2 - 10.3 bar)
Fluid Pressure Range	690 - 3495 psig (48 - 241 bar)
Maximum Rec'd Cycles / Minute	60
Displacement Per Cycle	14.5 in ³ (237.6 cc)
Cycles Per Gallon	15.9
Flow @ 60 Cycles / Minute	3.7 gpm (14.0 lpm)
Noise Level @ 60 psig - 40 cpm	84.7 dB(A)Ⓞ

Ⓞ The pump sound pressure level has been updated to an Equivalent Continuous Sound Level (LA_{eq}) to meet the intent of ANSI S1.13-1971, CAGI-PNEUROP S5.1 using four microphone locations.

PUMP DATA

MODEL AF0623GXXXXXX-XX-X

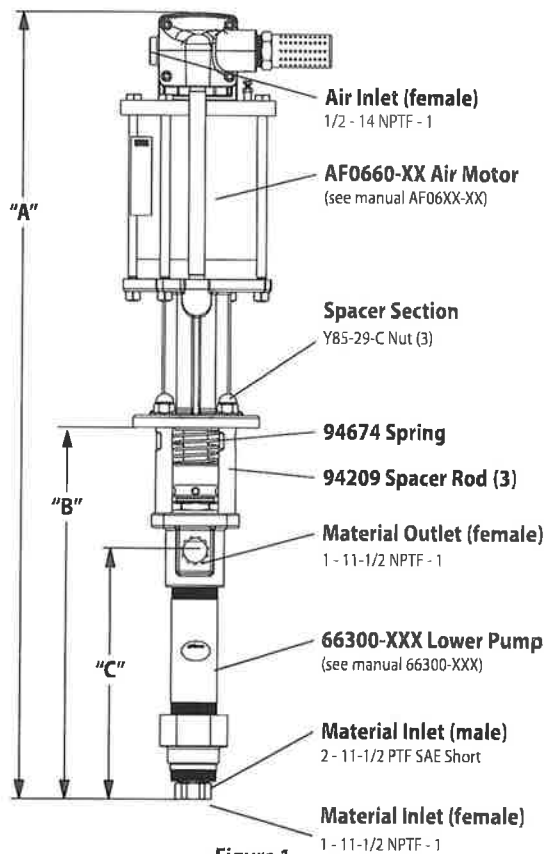


Figure 1

NOTE: Dimensions are shown in inches and (mm) and are supplied for reference only.

"A" (mm)	"B" (mm)	"C" (mm)
40.099" (1018.5)	18.911" (480.3)	12.661" (321.6)
(for -1 model)		
42.184" (1071.5)	18.911" (480.3)	12.661" (321.6)

IMPORTANT

This is one of four documents which support the pump. Replacement copies of these forms are available upon request.

- AF0623GXXXXXX-XX-X** Model Operator's Manual (pn 97999-1505)
- S-632** General Information - Industrial Piston Pumps (pn 97999-624)
- 66300-XXX** Lower Pump End Operator's Manual (pn 97999-646)
- AF06XX-XX** Air Motor Operator's Manual (pn 97999-1467)

PUMP OPTION DESCRIPTION CHART

	Pump Model	Lower Pump End	Lower End Repair Kit
	AF0623G11XXXX-X 	66300-XXX 	637305-X43
Packing Material			
Glass Filled PTFE (upper) Glass Filled PTFE (lower)	KK	3	3
UHMW-PE (upper) UHMW-PE (lower)	FF	C	C
UHMW-PE/ Leather Staggered (upper) UHMW-PE/ Leather Staggered (lower)	HH	G	G
UHMW-PE/ Glass filled PTFE Staggered (upper) UHMW-PE (lower)	GF	P	P
Glass filled PTFE / UHMW-PE staggered (upper) Glass filled PTFE (lower)	RK	R	R

Spring Type

Multiple Wave Spring w/ 316 Stainless steel balls	4	4	4
Multiple Wave Spring w/ alternate balls (hard stainless steel)	7	7	4

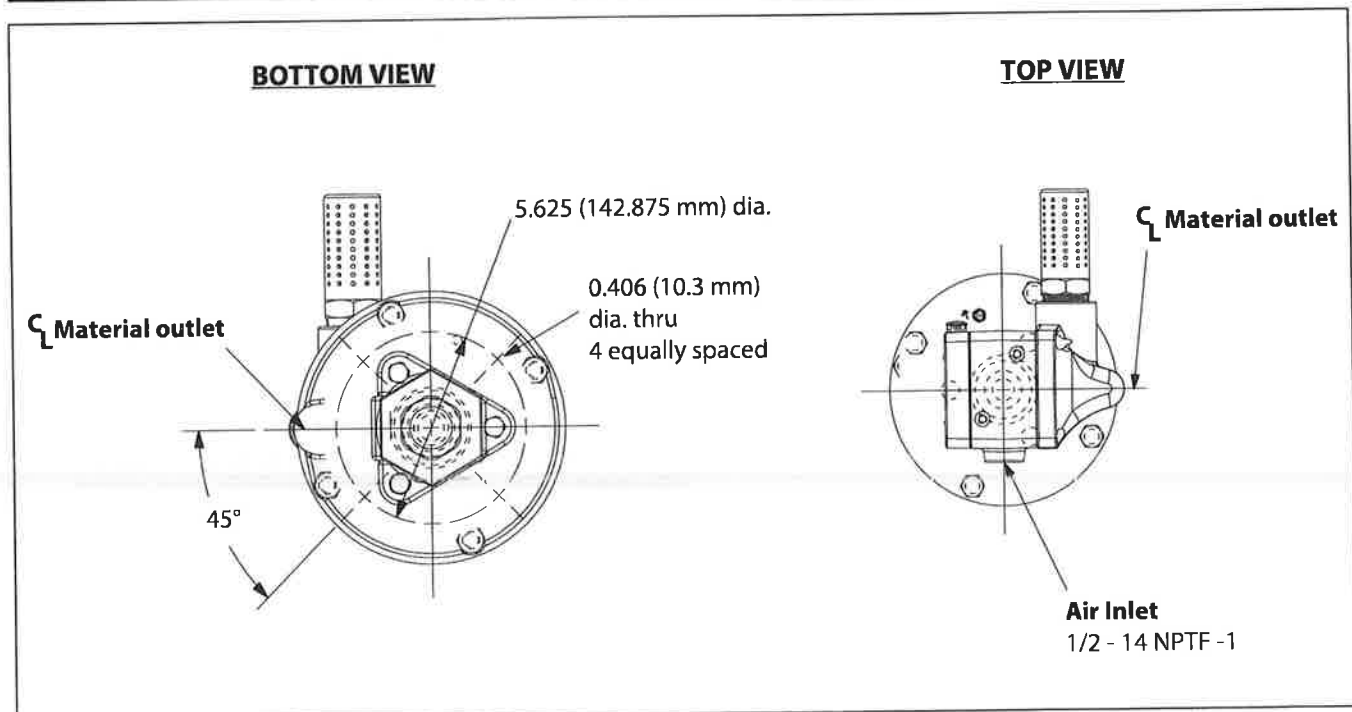
Plunger Type

Hardened Stainless Steel w/ Hard Chrome plating	7	3	3
Hardened Stainless Steel w/ Ceramic coating	8	B	3

Air Motor Option

No Option		N/A	N/A
Intergrated ball valve regulator	1	N/A	N/A

DIMENSIONS



GENERAL DESCRIPTION

The two-ball pumps are primarily designed for the pumping of medium viscosity fluids. Stainless steel construction offers compatibility with a wide range of fluids. The two-ball design provides better priming of the lower foot valve. The double acting feature is standard in all ARO industrial pumps. Material is delivered to the pump discharge outlet on both the up and down stroke.

The motor is connected to the lower pump end by a spacer section. This allows for lubrication of the upper packing gland and prevents motor contamination because of normal wear and eventual leakage through the material packing gland. Be sure the solvent cup is adequately filled with lubricant to protect the upper packings and insure longest service life.

⚠ WARNING HAZARDOUS PRESSURE. Do not exceed maximum operating pressure of 3495 psig (241 bar) at 150 psig (10.3 bar) inlet air pressure.

Pump Ratio X	=	Maximum Pump
Inlet Pressure to Pump Motor		Fluid Pressure

Pump ratio is an expression of the relationship between the pump motor area and the lower pump end area. **EXAMPLE:** When 150 psig (10.3 bar) inlet pressure is supplied to the motor of a 4:1 ratio pump, it will develop a maximum of 600 psig (41.4 bar) fluid pressure (at no flow) - as the fluid control is opened, the flow rate will increase as the motor cycle rate increases to keep up with the demand.

⚠ WARNING Refer to general information sheet for additional safety precautions and important information.

NOTICE: Thermal expansion can occur when the fluid in the material lines is exposed to elevated temperatures. **Example:** Material lines located in a non-insulated roof area can warm due to sunlight. Install a pressure relief valve in the pumping system.

Replacement warning label (pn 92325) is available upon request.

TROUBLE SHOOTING

Pump problems can occur in either the air motor section or the lower pump end section. Use these basic guidelines to help determine which section is affected.

Pump will not cycle.

- Be certain to first check for non-pump problems including kinked, restrictive or plugged inlet / outlet hose or dispensing device. Depressurize the pump system and clean out any obstructions in the inlet / outlet material lines.
- Refer to the motor manual for trouble shooting if the pump does not cycle and / or air leaks from the air motor.
- Damaged motor. Service the motor.

Pump cycles but does not deliver material.

- Refer to the lower pump end manual for further trouble shooting.

PUMP CONNECTION - UPPER / LOWER

NOTE: All threads are right hand.

1. Lay the pump assembly on a work bench.
2. Remove the three (Y85-29-C) nuts from the three spacer rods (see figure 1).
3. Pull the air motor from the lower pump end until the motor piston rod is in the "down" position and the lower pump end rod is in the "up" position.
4. Using e-ring pliers, slide the retaining ring up far enough to allow the sleeve to move upward and release the two connectors (see figure 2).

PUMP CONNECTION DETAIL

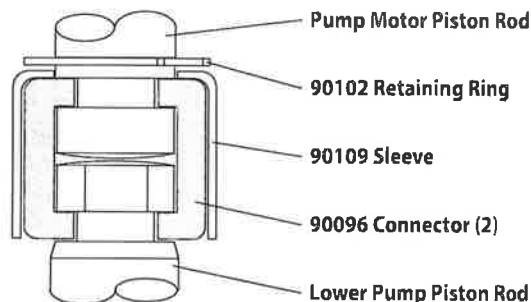
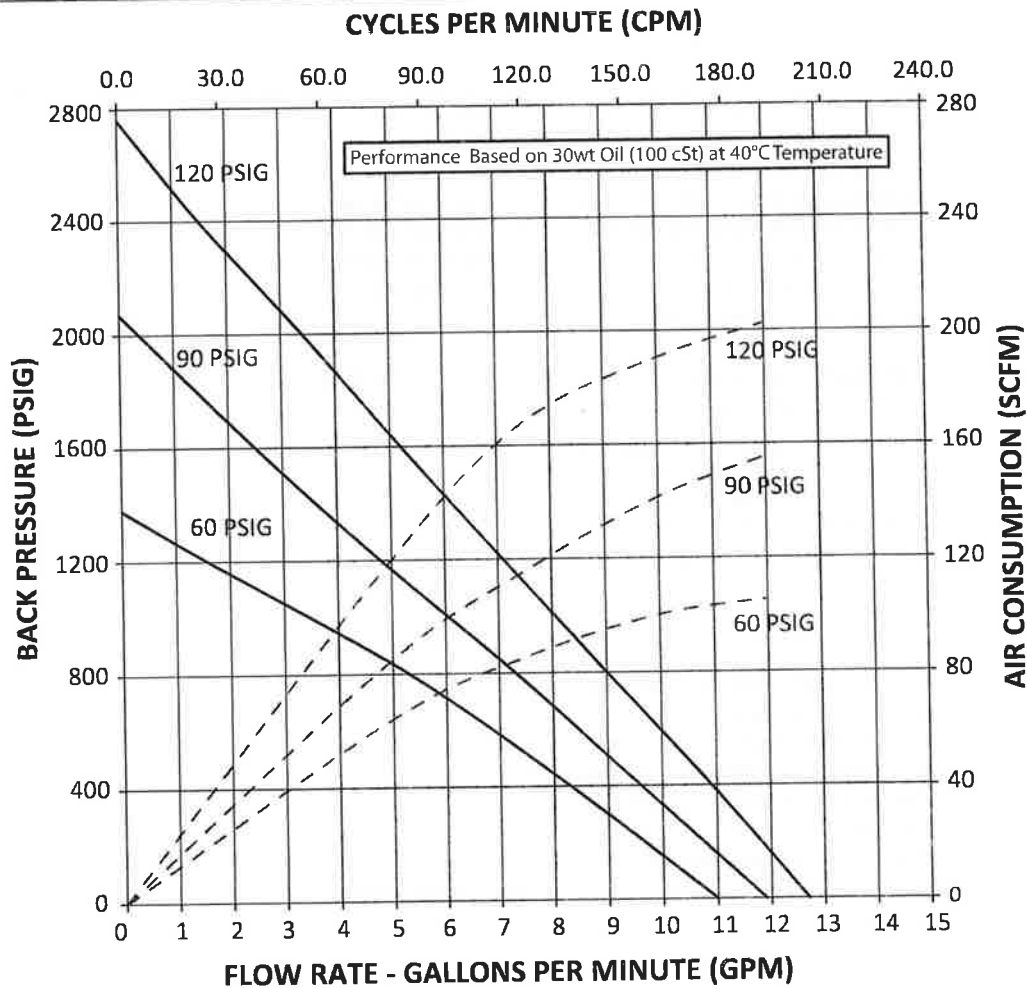


Figure 2

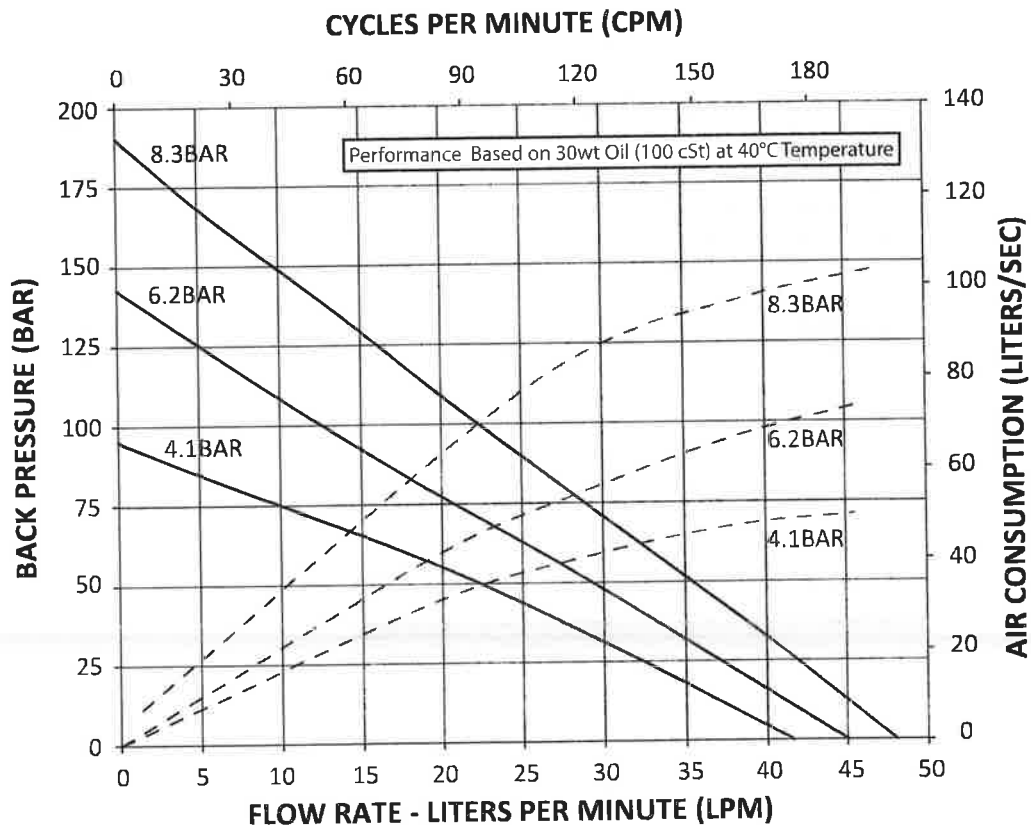
REASSEMBLY

1. Align the pump motor with the lower pump end. Position the air inlet of the motor 90° from the material outlet.
2. Install the two (90096) connectors and retain with the (90109) sleeve. Slide the (90102) retaining ring back into position.
3. Reinstall the spacer rods to the pump motor.
4. Bring the motor and lower pump together and retain with three (Y85-29-C) nuts.

PERFORMANCE CURVES



NOTE: NON SHADED AREA OF THE GRAPH REPRESENTS RECOMMENDED OPERATING RANGE



NOTE: NON SHADED AREA OF THE GRAPH REPRESENTS RECOMMENDED OPERATING RANGE

MATERIAL FILTER MAXIMUM INLET PRESSURE 6,000 P.S.I. (414 Bar)



**READ THIS MANUAL CAREFULLY BEFORE INSTALLING,
OPERATING OR SERVICING THIS EQUIPMENT.**

It is the responsibility of the employer to place this information in the hands of the operator. Keep for future reference.

THIS MANUAL COVERS THE FOLLOWING MODELS:

	CARBON STEEL	300 STAINLESS STEEL	CARTRIDGE	MESH SIZE
		651422-3T	94597-3T	None
		651422-30	94597-30	30
651420-40		651422-40	93944-40	40
651420-70		651422-70	93944-70	70
651420-100		651422-100	93944-100	100
			93944-200	200

SERVICE KITS

- Use only genuine ARO replacement parts to assure compatible pressure rating and longest service life.
- Refer to figure 3 to order replacement parts.

MATERIAL FILTER DATA

Models see Model Description Chart for "-XXX" (optional screen)
Material see Model Description Chart
Maximum Fluid Pressure 6,000 p.s.i.g. (414 bar)

OPERATING AND SAFETY PRECAUTIONS

- Read and heed all warnings, cautions and safety precautions before operating this pump.
- WARNING** HAZARDOUS PRESSURE. Can result in serious injury or property damage. Do not service or clean pump, hoses or dispensing valve while the system is pressurized.
- CAUTION** Be certain all operators of this equipment have been trained for safe working practices, understand it's limitations, and wear safety goggles / equipment when required.
- WARNING** Do not exceed the maximum inlet air pressure as stated on the air motor model plate. Operating pump at higher pressure may cause pump damage.
- WARNING** HAZARDOUS MATERIALS. Can cause serious injury or property damage. Do not attempt to return a pump to the factory or service center that contains hazardous material. Safe handling practices must comply with local and national laws and safety code requirements. Obtain Material Safety Data Sheets on all materials from the supplier for proper handling instructions.

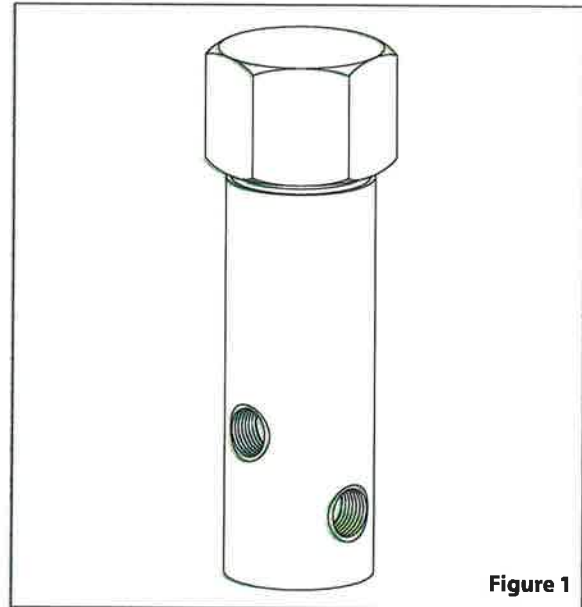


Figure 1

GENERAL DESCRIPTION

The ARO model 65142X-XX material filter is used to separate foreign materials, like dirt, stones and sweeping compound, from the material handling section. Material filters and strainers can be installed in a system to combat this problem, thereby achieving longer service life. Filters and strainers are normally located in one of two places in the pumping system. At this point, where the fluid enters the material handling section, the strainer prevents foreign material from entering the system.

DISASSEMBLY

1. Unscrew and remove (1) cap from the (7) body.
2. Remove (2) gasket from (1) cap.
3. Remove (3) spring and (4) button guide from the (7) body.
4. Pull the (6) cartridge and (5) ball from the (7) body.

TYPICAL SYSTEM VIEW

1. Install the material filter either at the inlet of material handling section or upstream from the other accessories (control handle, etc.).
2. Refer to typical installation (figure 2).
3. The filter unit was tested at the factory with a maximum working pressure of 6,000 p.s.i. (414 bar).
4. Two (8) pipe plugs are included with this unit to plug the inlet and outlet ports not being used.

① These system components are shown for installation purposes only and must be purchased separately.

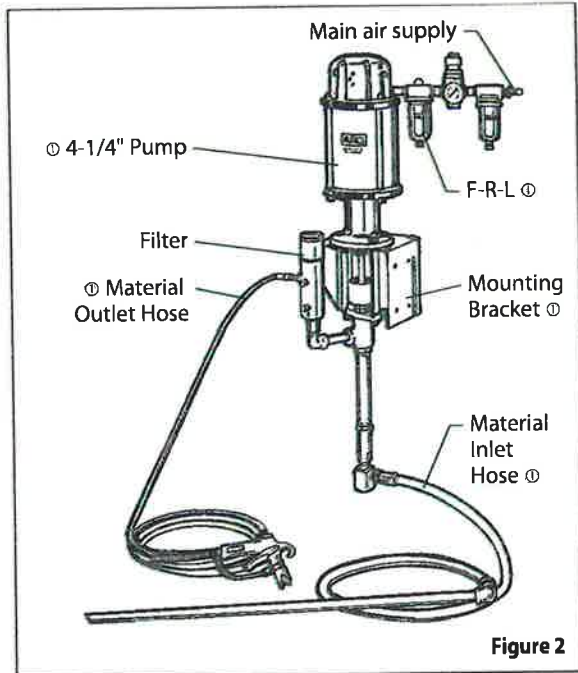


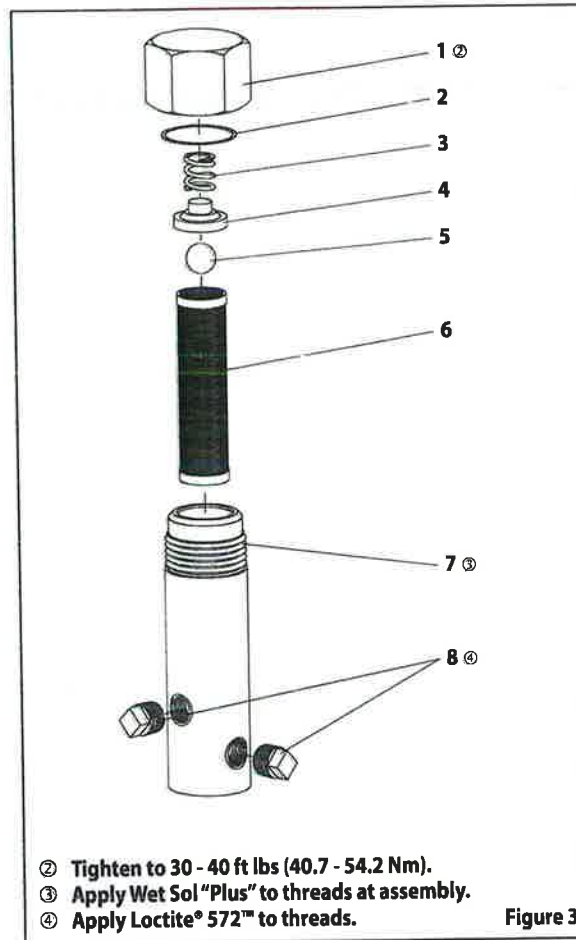
Figure 2

PARTS LIST / 65142X-XX

Item	Description (size)	(Qty)	Part No.	[Mtl]
1	Cap (651420-XX)	(1)	92990-1	[C]
	(651422-XX)	(1)	92990-2	[SS]
2	Gasket	(1)	91447	[D]
3	Spring	(1)	90408	[SS]
4	Guide Button	(1)	93949	[SS]
5	Ball (13/16" o.d.) (651420-XX)	(1)	Y16-126	[SH]
	(651422-3T)	---	-----	---
	(651422-30, -40, -70, -100)	(1)	90815	[SS]
6	Cartridge (see table, page 1)	(1)	-----	[SS]
7	Body (651420-XX)	(1)	92992-1	[C]
	(651422-XX)	(1)	92992-2	[SS]
8	Pipe Plug (1/2 - 14 N.P.T.) (651420-XX)	(2)	Y17-13-C	[C]
	(651422-XX)	(2)	Y17-13-S	[SS]

MATERIAL CODE

[C] = Carbon Steel
 [D] = Acetal
 [SH] = Hard Stainless Steel
 [SS] = Stainless Steel



- ② Tighten to 30 - 40 ft lbs (40.7 - 54.2 Nm).
- ③ Apply Wet Sol "Plus" to threads at assembly.
- ④ Apply Loctite® 572™ to threads.

Figure 3

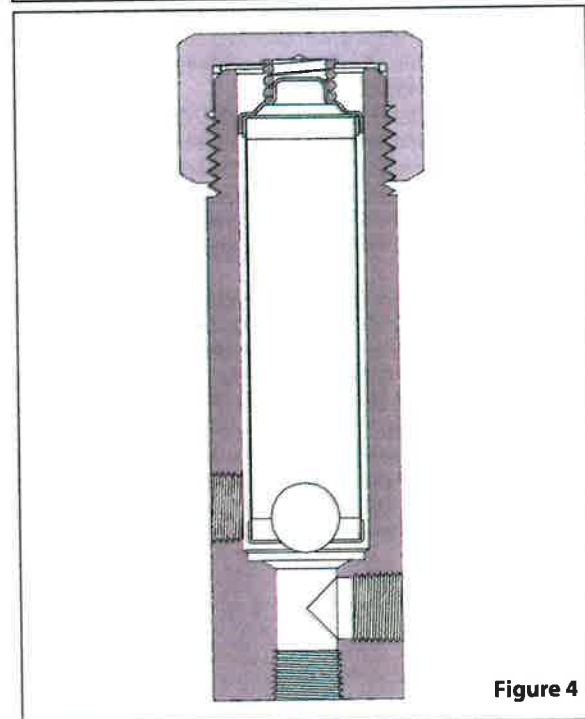


Figure 4

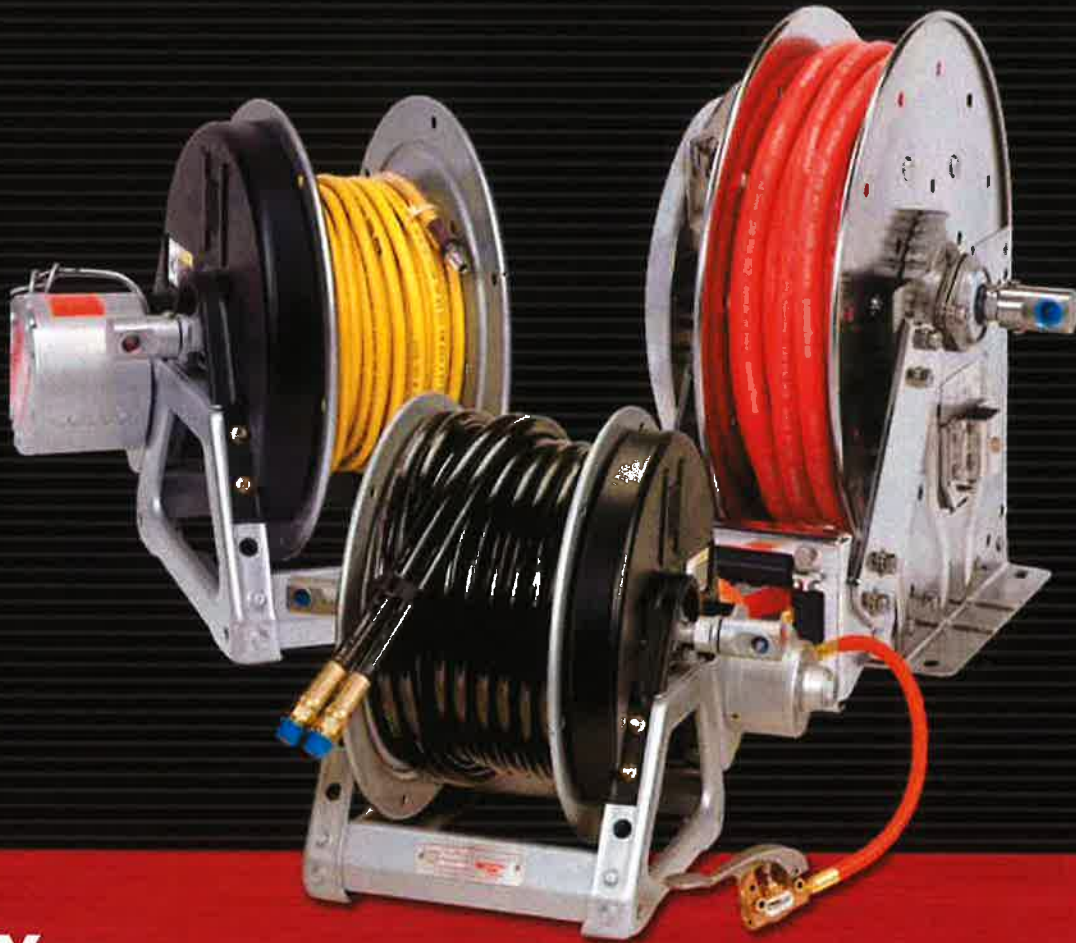
- ARO® is a registered trademark of Ingersoll-Rand Company •
- Loctite® is a registered trademark of Henkel Loctite Corporation •
- 572™ is a trademark of Henkel Loctite Corporation •

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N700

SPRING REWIND REELS

To handle 1/4" through 1/2" I.D. hose.

- Standard N Series has a narrow frame and compact mounting base.
- Non sparking ratchet assembly.
- Declutching arbor to prevent damage from reverse winding.
- Standard inlet 90° balanced pressure swivel joint 1/2" female NPT threads.
- Standard outlet 1/2" female NPT threads.
- Standard Pressures to 3000 psi (207 bar) (available up to 10,000 psi 690 bar).
- Temperatures from -60° F to +250° F (-51° C to +121° C).
- Consult factory for other pressures & temps.
- 4-way roller assembly.
- Constant Tension is available – consult factory.



Shown with Optional TR Roller Position

For:

- Lubrication
- Air/Water
- Assembly Operations
- Washdown
- Air Tools
- General Industrial Applications

Parts Drawing – ISO 79

Model Number	Hose Capacity of Reel				Approx. Weight			Standard Roller Assy	Reel Dimensions***							
	feet				lb.				inches							
	m.				kg.				mm.							
	I.D. (in)	1/4"	3/8"	1/2"	NET	UPS/ FedEx	Freight		A	B	C	E	F	G	H	X
	I.D. (mm)	5/8"	3/4"	7/8"		SHIP Wt.	SHIP Wt.									
N716-14-16-8C	-	25	25	25	52	64*	87	N204	10	4	8	17.62	11.25	16.25	9.12	8
	-	8	8	8	24	29	39		254	102	203	448	286	413	232	203
N716-16-17-10.5C	-	35	35	35	55	67*	90	N204	10	4	10.5	18.5	11.25	17	9.12	8
	-	11	11	11	25	30	41		254	102	267	470	286	432	232	203
N716-16-17-8L	-	50†	50†	50†	63	75	105	N204	10	4	8	18.5	11.25	17	9.12	8
	-	15	15†	15†	29	34	48		254	102	203	470	286	432	232	203
N716-19-20-10.5J	-	50	50	50	64	82*	99	N204	10	4	10.5	20.75	11.25	20	10.62	8
	-	15	15	15	29	37	45		254	102	267	527	286	508	270	203
N716-23-24-15.5J	-	65	65	65	79	86*	114	N204	10	4	15.5	23.75	11.25	24	12.62	8
	-	20	20	20	36	39	52		254	102	394	603	286	610	321	203
N716-23-24-15.5G	100	75	65	65	94	101*	129	N204	10	4	15.5	23.75	11.25	24	12.62	8
	30	23	20	20	43	46	59		254	102	394	603	286	610	321	203
N716-25-26-15.5B	-	75	75	75	90	-	125	N204	10	4	15.5	25.25	11.25	26	13.62	8
	-	23	23	23	41	-	57		254	102	394	641	286	660	346	203
N718-25-26-15.5G	-	100	100	100	96	-	131	N206	12	6	15.5	25.25	13.25	26	13.62	10
	-	30	30	30	44	-	59		305	152	394	641	337	660	346	254

Notes: A hose stop is necessary on hose to keep spring from unwinding.

1. Specifications subject to change.
2. Reel models and capacities shown are for standard drag applications; for vertical lift applications consult factory.
3. Other sizes, from standard components, available on request.
4. **Finish:** refer to Page 4.
5. **Be sure to check dimensions and weights prior to ordering.**

NOTICE: A Flexible Connector must be used between the inlet pipe and the inlet swivel joint.

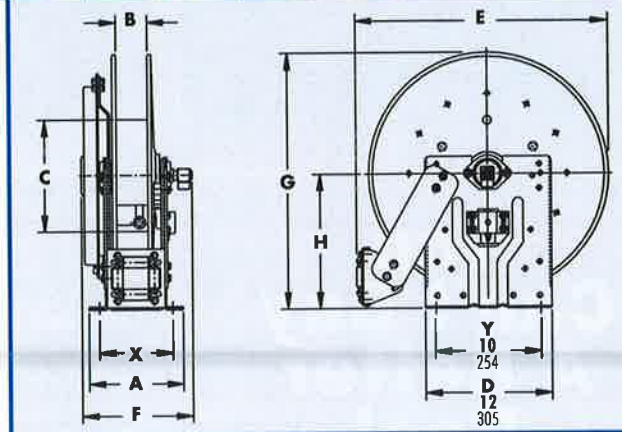
* Dimensional weight may apply when shipped as a parcel package (via FedEx or UPS Ground).

*** x,y indicate mounting holes. See page 2

† Capacity based on low pressure air hose only



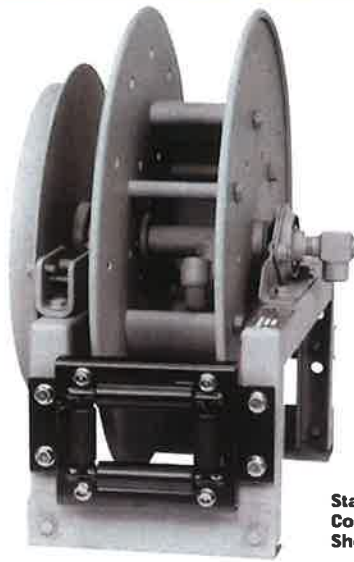
Available Roller Positions



700

SPRING REWIND REELS

To handle 1/4" through 1/2" I.D. hose.



Standard Configuration Shown

For:

- Lubrication
- Air/Water
- Assembly Operations
- Washdown
- Air Tools
- General Industrial Applications

- Rollformed channel frame for heavy-duty applications.
- Non sparking ratchet assembly.
- Declutching arbor to prevent damage from reverse winding.
- Standard inlet 90° balanced pressure swivel joint 1/2" female NPT threads.
- Standard outlet 1/2" female NPT threads.
- Standard Pressures to 3000 psi (207 bar) (available up to 10,000 psi 690 bar).
- Temperatures from -60° F to +250° F (-51° C to +121° C).
- Consult factory for other pressures & temps.
- 4-way roller assembly.
- Constant Tension is available – consult factory.

Parts Drawing – ISO 66

Model Number	Hose Capacity of Reel			Approx. Weight			Standard Roller Assy	Reel Dimensions***									
	feet			lb.				inches									
	m			kg.				mm.									
	I.D. (in)	3/8"	1/2"	NET	UPS/ FedEx	Freight		A	B	C	D	E	F	G	H	X	Y
	I.D. (mm)	10	13		SHIP												
716-23-24-15.5J		65	65	79	86*	114	R204	9.25	4	15.5	23.25	24.38	12.75	23.88	12.5	4.5	20
		20	20	36	39	52		235	102	394	591	619	324	607	318	114	508
716-23-24-15.5G		75	65	94	102*	129	R204	9.25	4	15.5	23.25	24.38	12.75	23.88	12.5	4.5	20
		23	20	43	46	59		235	102	394	591	619	324	607	318	114	508
716-25-26-15.5B		75	75	90	-	125	R204	9.25	4	15.5	25	26.12	12.75	25.88	13.5	4.5	21.75
		23	23	41	-	57		235	102	394	635	663	324	657	343	114	552
718-25-26-15.5G		100	100	96	-	131	R206	11.25	6	15.5	25	26.12	14.75	25.88	13.5	6.5	21.75
		30	30	44	-	59		286	152	394	635	663	375	657	343	165	552
718-30-31-20D		150	125	127	-	162	R206	11.25	6	20	28.5	29.62	15.5	31.38	17	6.5	25.25
		46	38	58	-	73		286	152	508	724	752	394	797	432	165	641

Notes: A hose stop is necessary on hose to keep spring from unwinding.

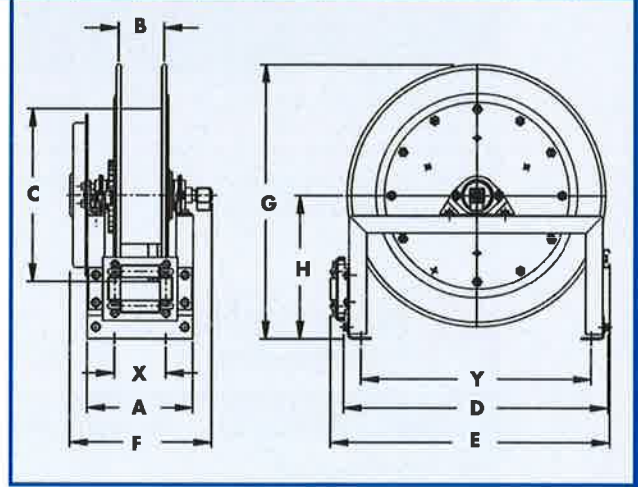
1. Specifications subject to change.
2. Reel models and capacities shown are for standard drag applications; for vertical lift applications consult factory.
3. Other sizes, from standard components, available on request.
4. **Finish:** refer to Page 4.

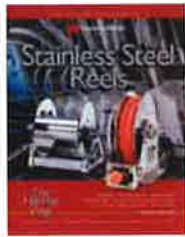
5. Be sure to check dimensions and weights prior to ordering.

NOTICE: A Flexible Connector must be used between the inlet pipe and the inlet swivel joint.

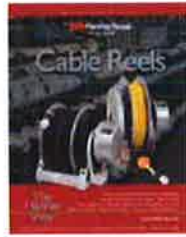
* Dimensional weight may apply when shipped as a parcel package (via FedEx or UPS Ground).

*** x,y indicate mounting holes. See page 2

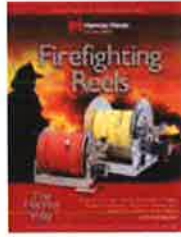




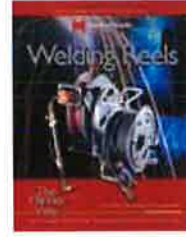
Stainless Steel Reels



Cable Reels



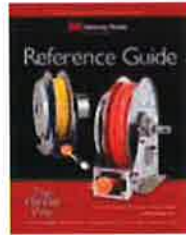
Firefighting Reels



Welding Reels



Pumper/Cleaner Reels



Reference Guide



Pressure Wash and Spray Reels



Audio/Video Reels



Ordering & Accessory Guide



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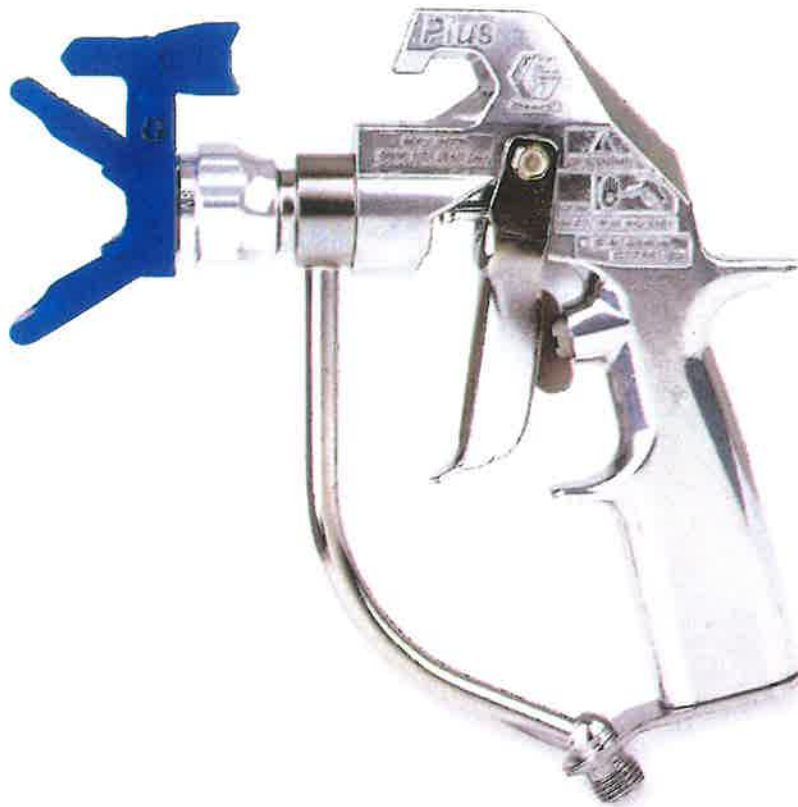
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5-, 10-, and 15-Gallon Pressure Tanks

308369M

ENG

Industrial grade pressure tanks used to supply, agitate, and pressurize finishing liquids. For professional use only.

Maximum Air Inlet Pressure: 100 psi (0.7 MPa, 7 bar)

Maximum Working Fluid Pressure

Low-Pressure Regulated Tank: 15 psi (0.1 MPa, 1 bar)

(for HVLP or low-pressure, fine-adjustment applications)

High-Pressure Regulated Tank: 100 psi (0.7 MPa, 7 bar)

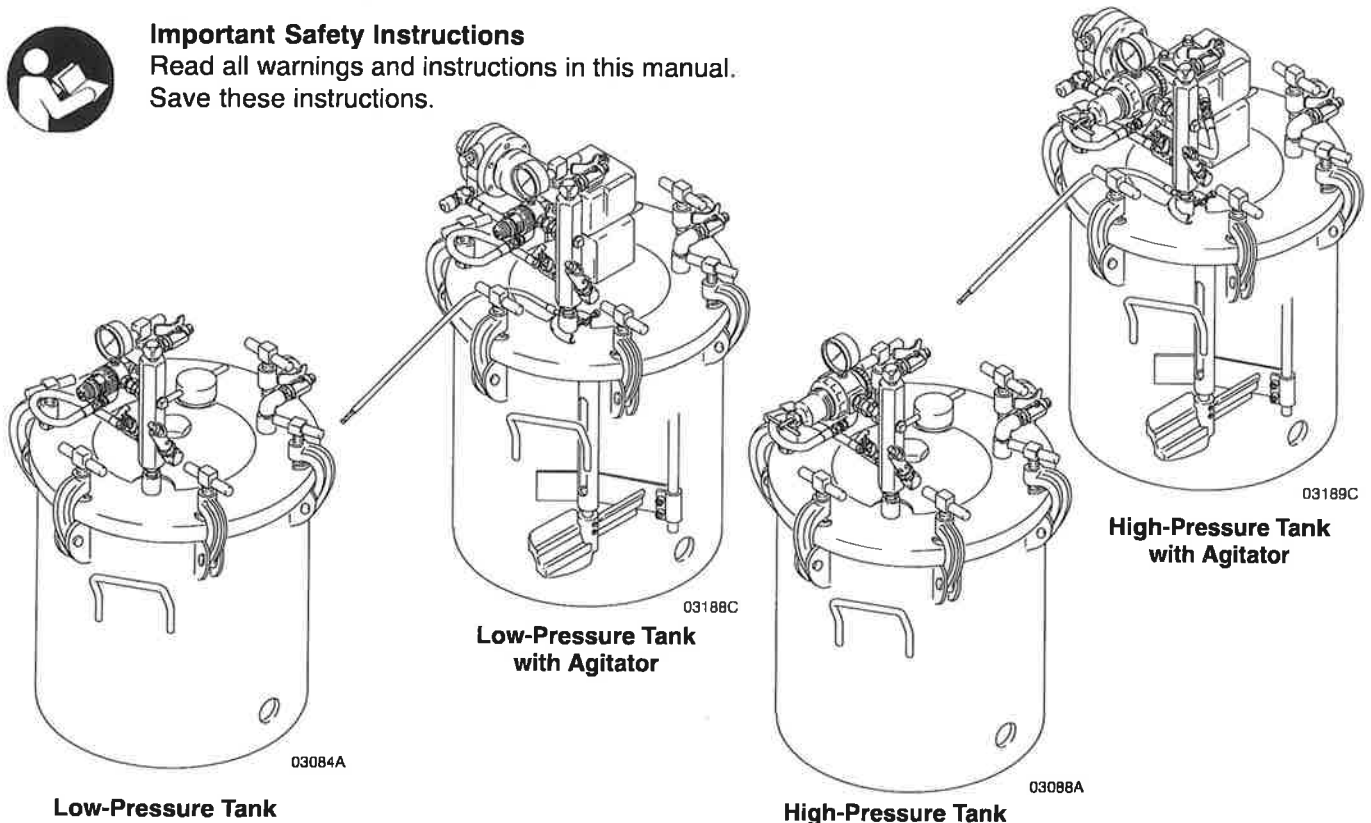
Tank Size gallons (liters)	Low-Pressure Tank Series B	Low-Pressure Tank with Agitator Series C	High-Pressure Tank Series B	High-Pressure Tank with Agitator Series C
5 (19)	236143	236146*	236149	236152*
10 (38)	236144	236147*	236150, 243589	236153*
15 (57)	236145	236148*	236151	236154*

*These items are 0359 II 1/2 G T6
ITS03ATEX11251



Important Safety Instructions

Read all warnings and instructions in this manual.
Save these instructions.



Low-Pressure Tank

Low-Pressure Tank with Agitator

High-Pressure Tank

High-Pressure Tank with Agitator

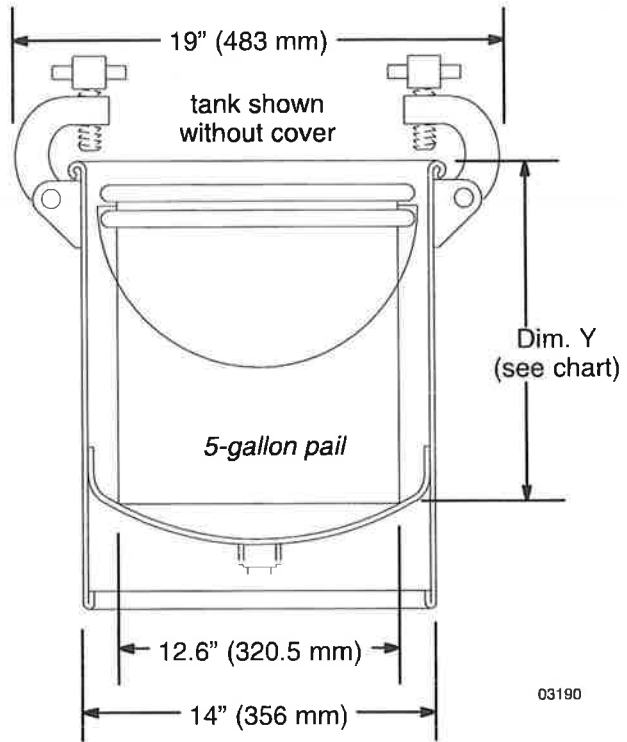
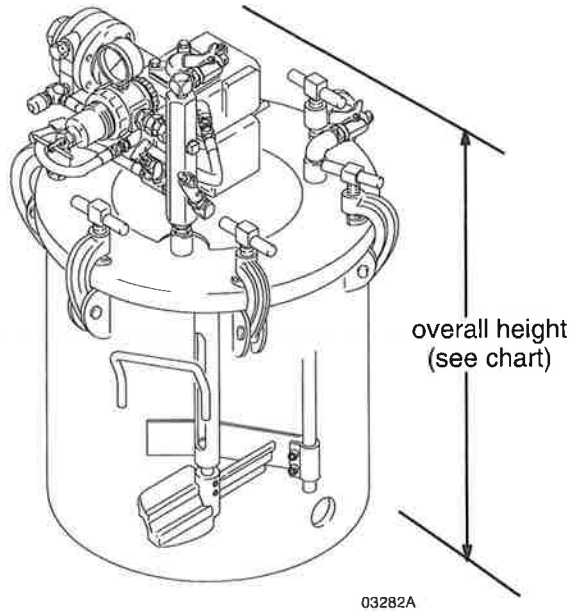


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Dimensions

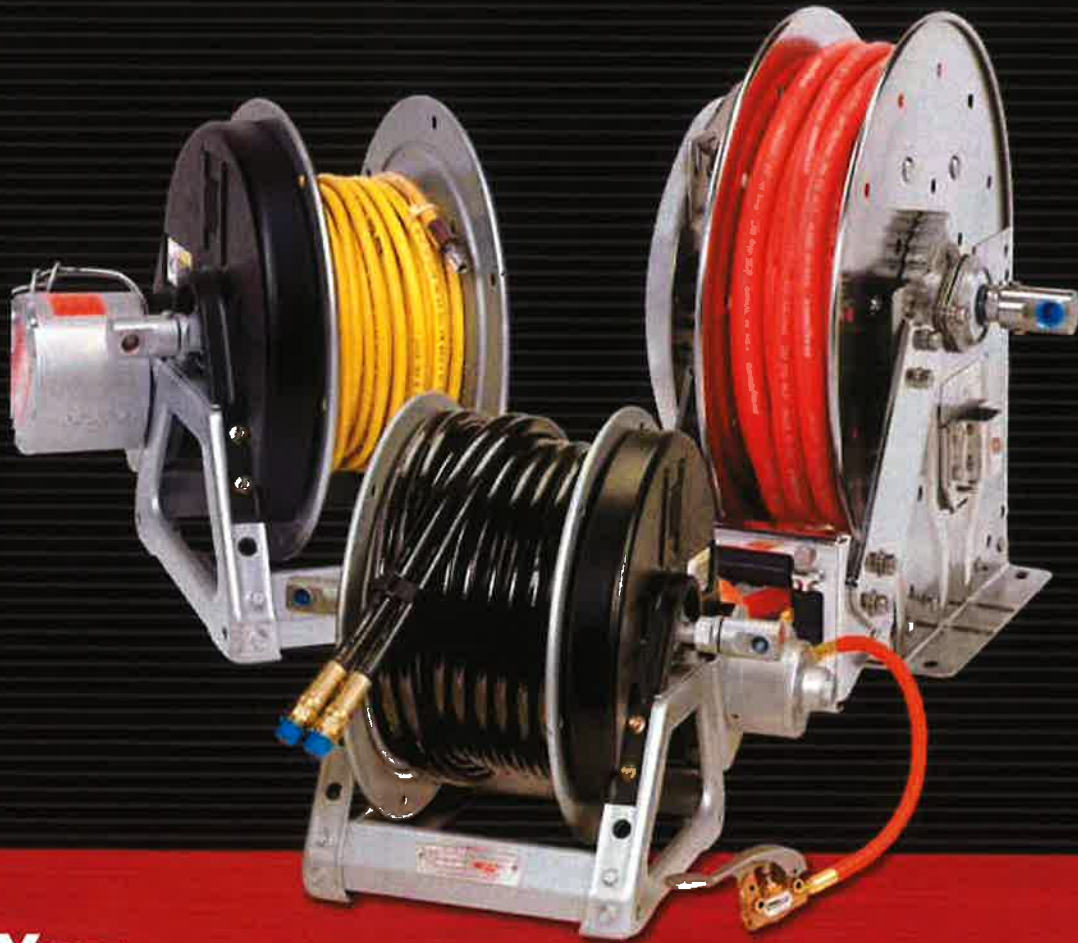


Size	Model	Overall Height	Net Weight	Paint Bucket Dim. Y
5 Gallon	236143	30.5" (775 mm)	65 lb (30 kg)	13.19" (335 mm)
	236149	30.5" (775 mm)	65 lb (30 kg)	
	236146	30.5" (775 mm)	86 lb (39 kg)	
	236152	30.5" (775 mm)	74 lb (34 kg)	
10 Gallon	236144	33.87" (860 mm)	76 lb (35 kg)	18.19" (462 mm)
	236150	33.87" (860 mm)	76 lb (35 kg)	
	236147	33.87" (860 mm)	97 lb (44 kg)	
	236153	33.87" (860 mm)	85 lb (39 kg)	
15 Gallon	236145	44.57" (1132 mm)	92 lb (42 kg)	28.94" (735 mm)
	236151	44.57" (1132 mm)	92 lb (42 kg)	
	236148	44.57" (1132 mm)	113 lb (51 kg)	
	236154	44.57" (1132 mm)	101 lb (46 kg)	

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N700

SPRING REWIND REELS

To handle 1/4" through 1/2" I.D. hose.

- Standard N Series has a narrow frame and compact mounting base.
- Non sparking ratchet assembly.
- Declutching arbor to prevent damage from reverse winding.
- Standard inlet 90° balanced pressure swivel joint 1/2" female NPT threads.
- Standard outlet 1/2" female NPT threads.
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- Temperatures from -60° F to +250° F (-51° C to +121° C).
- Consult factory for other pressures & temps.
- 4-way roller assembly.
- Constant Tension is available – consult factory.



Shown with Optional TR Roller Position

For:

- Lubrication
- Air/Water
- Assembly Operations

- Washdown
- Air Tools
- General Industrial Applications

Parts Drawing – ISO 79

Model Number	Hose Capacity of Reel				Approx. Weight			Standard Roller Assy	Reel Dimensions***						
	feet				NET	UPS/ FedEx	Freight		inches						
	m								A	B	C	E	F	G	H
I.D. (in) I.D. (mm)	1/4" 6	3/8" 10	1/2" 13												
N716-14-16-8C	–	25 8	25 8	52 24	64* 29	87 39	N204	10 254	4 102	8 203	17.62 448	11.25 286	16.25 413	9.12 232	8 203
N716-16-17-10.5C	–	35 11	35 11	55 25	67* 30	90 41	N204	10 254	4 102	10.5 267	18.5 470	11.25 286	17 432	9.12 232	8 203
N716-16-17-8L	–	50† 15	50† 15	83 29	75 34	105 48	N204	10 254	4 102	8 203	18.5 470	11.25 286	17 432	9.12 232	8 203
N716-19-20-10.5J	–	50 15	50 15	64 29	82* 37	99 45	N204	10 254	4 102	10.5 267	20.75 527	11.25 286	20 508	10.62 270	8 203
N716-23-24-15.5J	–	65 20	65 20	79 36	86* 39	114 52	N204	10 254	4 102	15.5 394	23.75 603	11.25 286	24 610	12.62 321	8 203
N716-23-24-15.5G	100 30	75 23	65 20	94 43	101* 46	129 59	N204	10 254	4 102	15.5 394	23.75 603	11.25 286	24 610	12.62 321	8 203
N716-25-26-15.5B	–	75 23	75 23	90 41	–	125 57	N204	10 254	4 102	15.5 394	25.25 641	11.25 286	26 660	13.62 345	8 203
N718-25-26-15.5G	–	100 30	100 30	96 44	–	131 59	N206	12 305	6 152	15.5 394	25.25 641	13.25 337	26 660	13.62 346	10 254

Notes: A hose stop is necessary on hose to keep spring from unwinding.

1. Specifications subject to change.
2. Reel models and capacities shown are for standard drag applications; for vertical lift applications consult factory.
3. Other sizes, from standard components, available on request.
4. **Finish:** refer to Page 4.
5. **Be sure to check dimensions and weights prior to ordering.**

NOTICE: A Flexible Connector must be used between the inlet pipe and the inlet swivel joint.

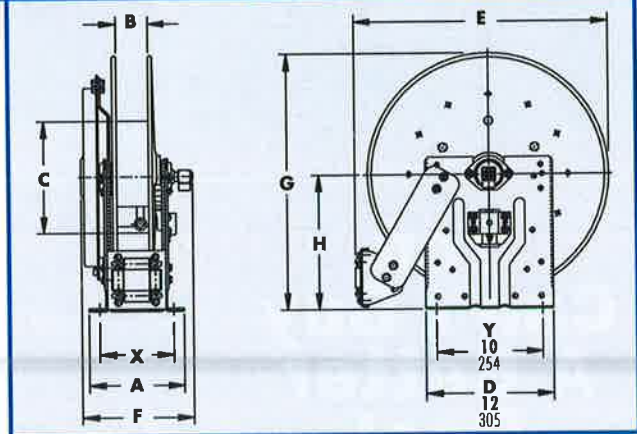
* Dimensional weight may apply when shipped as a parcel package (via FedEx or UPS Ground).

*** x,y indicate mounting holes. See page 2

† Capacity based on low pressure air hose only



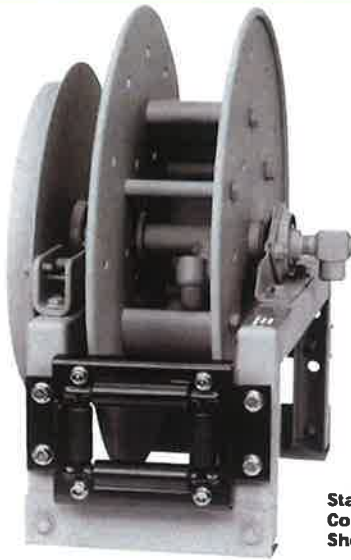
Available Roller Positions



700

SPRING REWIND REELS

To handle 1/4" through 1/2" I.D. hose.



Standard Configuration Shown

For:

- Lubrication
- Air/Water
- Assembly Operations
- Washdown
- Air Tools
- General Industrial Applications

- Rollformed channel frame for heavy-duty applications.
- Non sparking ratchet assembly.
- Declutching arbor to prevent damage from reverse winding.
- Standard inlet 90° balanced pressure swivel joint 1/2" female NPT threads.
- Standard outlet 1/2" female NPT threads.
- Standard Pressures to 3000 psi (207 bar) (available up to 10,000 psi 690 bar).
- Temperatures from -60° F to +250° F (-51° C to +121° C).
- Consult factory for other pressures & temps.
- 4-way roller assembly.
- Constant Tension is available – consult factory.

Parts Drawing – ISO 66

Model Number	Hose Capacity of Reel			Approx. Weight			Standard Roller Assy	Reel Dimensions***									
	feet			lb.				inches									
	m.			kg.				mm.									
	I.D. (in)	3/8"	1/2"	NET	UPS/ FedEx	Freight		A	B	C	D	E	F	G	H	X	Y
	I.D. (mm)	10	13		SHIP Wt.	SHIP Wt.											
716-23-24-15.5J		65	65	79	86*	114	R204	9.25	4	15.5	23.25	24.38	12.75	23.88	12.5	4.5	20
		20	20	36	39	52		235	102	394	591	619	324	607	318	114	508
716-23-24-15.5G		75	65	94	102*	129	R204	9.25	4	15.5	23.25	24.38	12.75	23.88	12.5	4.5	20
		23	20	43	46	59		235	102	394	591	619	324	607	318	114	508
716-25-26-15.5B		75	75	90	-	125	R204	9.25	4	15.5	25	26.12	12.75	25.88	13.5	4.5	21.75
		23	23	41	-	57		235	102	394	635	663	324	657	343	114	552
718-25-26-15.5G		100	100	96	-	131	R206	11.25	6	15.5	25	26.12	14.75	25.88	13.5	6.5	21.75
		30	30	44	-	59		286	152	394	635	663	375	657	343	165	552
718-30-31-20D		150	125	127	-	162	R206	11.25	6	20	28.5	29.62	15.5	31.38	17	6.5	25.25
		46	38	58	-	73		286	152	508	724	752	394	797	432	165	641

Notes: A hose stop is necessary on hose to keep spring from unwinding.

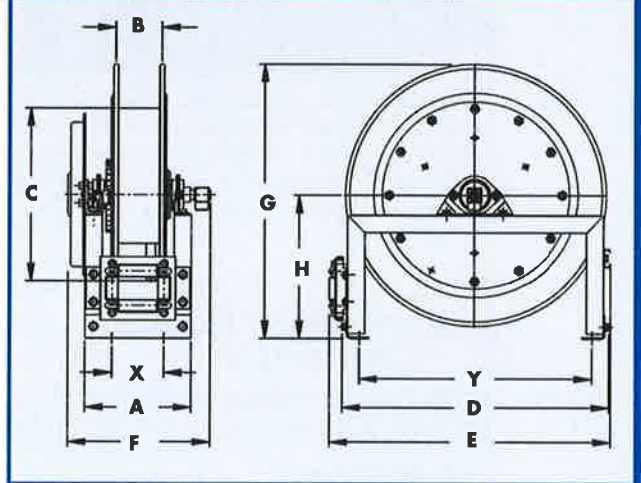
1. Specifications subject to change.
2. Reel models and capacities shown are for standard drag applications; for vertical lift applications consult factory.
3. Other sizes, from standard components, available on request.
4. **Finish:** refer to Page 4.

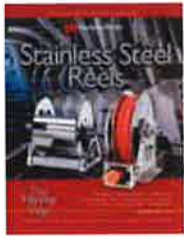
5. Be sure to check dimensions and weights prior to ordering.

NOTICE: A Flexible Connector must be used between the inlet pipe and the inlet swivel joint.

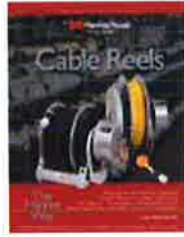
* Dimensional weight may apply when shipped as a parcel package (via FedEx or UPS Ground).

*** x,y indicate mounting holes. See page 2

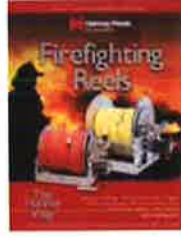




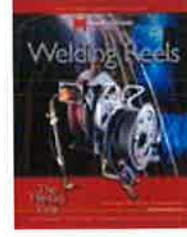
Stainless Steel Reels



Cable Reels



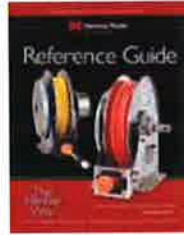
Firefighting Reels



Welding Reels



Pumper/Cleaner Reels



Reference Guide



Pressure Wash and Spray Reels



Audio/Video Reels



Ordering & Accessory Guide



Family owned and operated since 1933, Hannay Reels is the world leader in both OEM and aftermarket applications. Hannay offers thousands of standard hose reel and cable reel models, as well as unmatched custom capabilities. We can easily and affordably customize a reel to meet your exact specifications – built to last, delivered fast. Additional catalogs are available through your local Hannay Reels dealer or online at www.hannay.com.



553 State Route 143 • Westerlo, New York 12193
Toll Free Phone: 1-877-GO-REELS • Toll Free Fax: 1-800-REELING

E-mail: reels@hannay.com

Intl. Phone: 1-518-797-3791 • Intl. Fax: 1-518-797-3259

www.hannay.com

All Hannay reels are constructed of quality Heavy Gauge Steel (optional Aluminum or Stainless Steel also available on most models.)



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PTO Shaft Driven System - 100 to 185 CFM for Ford® UDSM



Get a Quote



Shown 100 CFM kit

Now you can get the air power you need
with your FORD®!



- Type:** Vanair® 100/125/160/185 CFM PTO driven air compressor for Ford® 2WD Super Duty vehicles. New and in current production.
- Capacity:** 100-185 CFM free air at up to 150 PSIG.
- Compressor:** Vanair® design oil flooded rotary screw air end with built-in proper directional gearing for Ford automatic transmissions. No external to-the-compressor reversing gear box allowed.
- Input Speed:** Air compressor shall produce
 100 CFM at 1595 RPM input speed
 125 CFM at 1625 RPM input speed
 160 CFM at 2085 RPM input speed
 185 CFM at 2415 RPM input speed
 Ratings per CAGI/PNEUROP PN2CPTC3
- Gear Ratio:** Air compressor gear ratio shall be 2.71:1 to ensure lowest possible engine speed.
- Air Intake Filters:** Separate two-stage, heavy duty, dry-type air filters shall be provided for air compressor.
- Air Separation Tank:** The tank shall be ASME code approved rated at a 250 PSIG maximum relief pressure. It shall be equipped with a tank mounted O-Ring sealed manifold containing an integrated; minimum pressure valve, blow down valve, pressure regulator, provisions for dual pressure regulator, pressure transducer, provisions for redundant pressure transducer, Resistance Temperature Detector (RTD), and ASME air pressure relief valve. The receiver shall be equipped with a fill cap and easily readable sight glass. The unit shall be equipped with a tank mounted O-ring sealed oil filter head assembly with an integrated; thermostatic valve, RTD and a 10 micron full flow spin-on replaceable oil filter canister with built in bypass protection. Receiver tank manifold assemblies to contain JIC and SAE-O-Ring fittings for all hose connections. Receiver tank to have provisions for in-tank engine coolant oil heater. Receiver tank (In.): 10.30D x 22.5L
- _____ (With/Without) Optional Patent-Pending Vanair FailSafe™ Dual Redundancy System 2X Technology with redundant transducers and RTD with automatic seamless switching to maintain extremely high levels of functional integrity and availability.
- _____ (With/Without) Optional Ultrasonic Oil Level Sensor
- _____ (With/Without) Optional Patent-Pending ThermalGuard™ weather protection kit for cold weather/moisture elimination
- _____ (With/Without) Optional Dual Pressure Regulators
- Air/Fluid Separator:** UltraLife™ Separator element to be located internally in air separation tank. Separator shall be constructed with metallic end cap with mechanical grounding strap and staples. Vanair separator shall provide for enhanced air quality, reduced operating and maintenance cost and optimized compressor performance with 6000 hour separator life.

Continued on next page

**FORD® 2WD SUPER DUTY
100/125/160/185 CFM UNDERDECKSIDE-MOUNT PTO SHAFT DRIVEN AIR COMPRESSOR**

- Instrument Panel:** The V-TEC II™ system consists of an all-in-one I/O and LCD module. The module receives sensor information and modulates infinitely variable engine speed based on air demand. The module also presents system information including system hours, service intervals, air pressure, and oil temperature. The V-TEC II™ is IP66/67 weatherproof rated and features a 3.5 inch LCD display panel that is viewable in low and bright light conditions with 5 navigation buttons.
- V-TEC II™ System is equipped with torque-management technology providing soft-start PTO engagement which eliminates high torque spikes at start-up.
- The Vanair® V-TEC II™ Speed Control system utilizes a micro-processor in conjunction with solid state electronics and is designed with a chassis-specific plug and play wiring harness. Wiring harnesses shall be built in accordance with IPC WHMA-A-620C standards and use weatherproof connections and woven loom material. Harness to utilize sealed buss block design for all power and ground circuits eliminating all butt connections and splices. The V-TEC II™ controller is pre-programmed to specific applications based on engine, transmission, PTO gear ratio, and Vanair Underdeck model.
- PTO will disengage in case of high compressor temperature, over pressurization, over speed, under speed, and failure to set parking brake.
- The Vanair® V-TEC II™ presents troubleshooting information on the display to eliminate the need for external connections to a laptop and additional software.
- The V-TEC II™ Controller logs faults and fault conditions for easy troubleshooting diagnostics.
- Cooling System:** Compressor air-to-oil cooling system shall allow rated air delivery and pressure operation continuously in 125°F ambient temperatures. Fan assembly to be solid-state brushless design with integral thermal protection. Cooler to be mounted in a powder coated sheet metal enclosure with a fan assembly and utilize SAE O-ring fittings (No ABS plastic shrouding). When using the V-TEC II™, a fan temp switch is not used. The RTD, thermal valve and V-TEC II™, control the compressor cooling. A dual cooler shall be provided for 185 and 200 CFM at 150/200 PSI.
- Controls:** Pneumatic inlet control valve shall be integrated into compressor system and automatically modulate output from 0 to 100% in response to air demand.
- Driveline:** 2 ½" 1310 series driveline with universal joint, yoke and companion flange.
- General:** The compressor shall be manufactured in an ISO 9001 certified quality system.



**FORD® 2WD SUPER DUTY
100/125/160/185 CFM UNDERDECKSIDE-MOUNT PTO SHAFT DRIVEN AIR COMPRESSOR**

- Warranty:** The air end is warranted for life when adhering to the prescribed maintenance schedule. This warranty does not cover damage caused by accident, misuse, or negligence. If the compressor unit is disassembled the warranty is void. All other parts including the compressor unit shaft seal are warranted for twelve months subject to the same conditions.
- Service Centers:** The air compressor manufacturer MUST have factory authorized service centers located in each state of the United States of America and Canadian provinces.
- Installation:** Systems must be installed by a factory authorized installation center.
- Options:**
- Service/Control Line Moisture Separators
 - Filter/Lubricator/Regulator (FLR)
 - Air Hoses, Hose Reels and fittings
 - OSHA Safety Valve (Velocity Fuse)
 - Tool Oiler/Lubricator
 - Biodegradable Vanguard Green™ Synthetic Oil

BEDFORD

PRECISION PARTS CORP.

290 ADAMS STREET / P.O. BOX 357
BEDFORD HILLS, NEW YORK 10507

AIR LINE LUBRICATORS

Size	Unit with Transparent Bowl		Unit with Oversized Metal Bowl		Bowl Guards
	Part No.	Bowl Size	Part No.	Bowl Size	Part No.
1/4"	27-732	5 Oz.	27-752	8 Oz.	24-707
3/8"	27-733	5 Oz.	27-753	8 Oz.	24-707
1/2"	27-734	8 Oz.	27-754	16 Oz.	24-708
3/4"	27-736*	16 Oz.	27-756	32 Oz.	24-709
1"	27-738*	16 Oz.	27-758	32 Oz.	24-709

* UNIT HAS METAL BOWL WITH SIGHT GLASS

INSTALLATION, OPERATING and MAINTENANCE INSTRUCTIONS

REVISED 11/1/8

PIPING – Before installing, blow out pipe line to remove scale and other foreign matter. This unit has DRYSEAL pipe threads; use pipe compound or tape sparingly to male threads only. Install lubricator with bowl vertical in pipe line so that air will flow in direction indicated on lubricator body. Install as near as possible to equipment to be lubricated. To assure trouble-free performance a filter should be installed upstream of the lubricator.

LUBRICANT – For average conditions, the use of a high quality SAE #10 (S.U.V. 150-200 SEC. @ 100°F.) oil is recommended. Other lubricating oils as specified by the maker of the equipment to be lubricated may be used if not heavier than SAE #40 (S.U.V. 800 SEC. @ 100°F.). Caution is advised in the use of oils containing additives as many such agents are not compatible with plastic bowls.

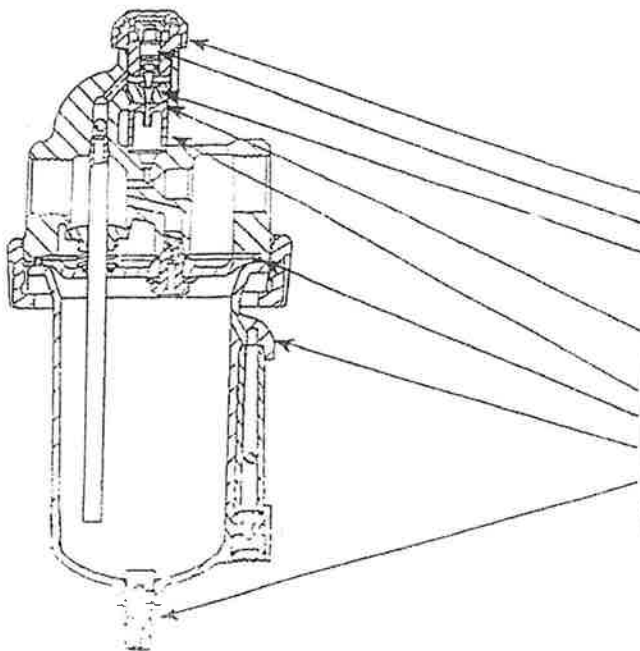
NOTE: The oil and its container must be clean as dirt will clog the lubricator necessitating shut-down and cleaning.

FILLING – Lubricators can be filled while under pressure and without shutting down equipment – slowly remove either fill plug and fill to within 1/4" of top of bowl using correct oil. For best results use a long spout oil can so that the tip can be inserted into top of bowl.

OPERATION – The "Dial Set" knob is factory set so that when turned to zero (0) no oil is delivered to the venturi for atomization and equipment is not being lubricated. Turn on the air to start flow and set knob to obtain the desired drops per minute visible through the sight glass. As a start one drop per minute is suggested, correct lubrication being a matter of experience and demand. Clockwise rotation of knob decreases oil feed rate. To check lubrication hold the thumbnail or a mirror near the equipment exhaust, a heavy film indicates over-lubrication and the drops per minute should be reduced by turning knob to a lower setting.

MAINTENANCE – If both air and oil are kept clean and the oil level never allowed below end of tube in the bowl the lubricator should provide long periods of unattended service. Cessation of oil dripping through the sight glass, irrespective of knob adjustment is an indication that cleaning is necessary.

CLEANING – To clean, it is not necessary to remove lubricator from the line. Disassembly is simple, use drawing below as a guide. In most instances cleaning is needed only in the oil metering area. Pull off adjusting knob and remove needle valve assembly by turning out large hex nut, remove needle valve seat and clean removed parts with methanol making sure hole in seat is clear. With a #57 drill make sure hole in bottom of sight glass area is open. Blow out lubricator body with compressed air before reassembly. Clean bowl only with household soap, NEVER use carbon tetrachloride, trichlorethylene, thinner, acetone or similar solvents.



REPLACEMENT PARTS

ORDER BY: SIZE AND KIT NUMBER

PART NAME	KIT NAME	1/4", 3/8"	1/2"	3/4", 1"
ADJUSTING CAP	REPAIR KIT	24-1031	24-1031	24-1031
NEEDLE VALVE ASSEMBLY				
NEEDLE VALVE SEAT				
FILL PLUG*	KIT	24-1029	24-1029	24-1029
ADJUSTING CAP**				
SIGHT GLASS TOP				
O RINGS BOTTOM				
SIGHT GLASS	BOWL KIT	24-739	24-740	24-741
BOWL GASKET				
BOWL				
DRAIN COCK				
BOWL GUARD & FLANGE RING ASSEMBLY***				

* FILL PLUG ONLY - PART NO 24-1033

** ADJUSTING CAP ONLY - PART NO. 24-1035

*** PLASTIC BOWL KITS ONLY



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Extractor/Dryers®



FAMILY OF LA-MAN EXTRACTOR/DRYERS AND MODEL NUMBERS

Not shown: Model #195A - 2000 SCFM

Extractor/Dryer®

The patented Extractor/Dryer is a two-stage, point-of-use compressed air filter. Designed for the final usage of air, it will remove water, oil and other contaminants from compressed air. Developed for air driven tools, paint spraying, manufacturing equipment or any other compressed equipment to produce clean, dry, compressed air. In return you receive extended equipment life, improved product quality, reduced downtime, and savings on costly repairs to damaged equipment. These advantages will pay for themselves in a short amount of time.

Standard Features include:

- **Differential Pressure Gauge** (All models except 520's and 195A) - Allows the user to visually see the change from green to red, indicating a pressure drop of 10 PSI and the need to service the elements. Service Kits available for all models.
- **Weep Drain** - Allows minimal, continuous flow of contaminated air to escape the base of the unit.
- **Mounting Brackets** (All models except 520's and 195A) - Allows for easy and protective mounting of your Extractor/Dryer.

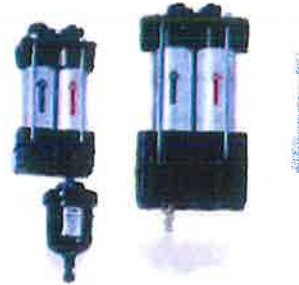
Point-of-Use:

La-Man® takes a different approach to cleaning up contaminated compressed air line

Extractor/Dryer provides the best service when it is located at the point-of-use in an application allows the air from the compressor to cool, thus condensing to liquid and enabling the Extractor to do its job. The shortest distance from our filter to the point-of-use ensures cleaner air, it protecting valuable machinery and equipment.

Additional Features- Benefits

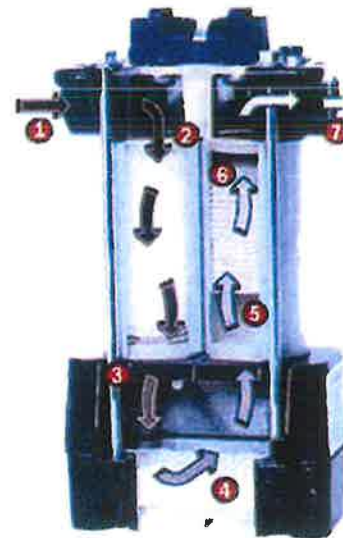
- Models range from 15 SCFM thru 2,000 SCFM
- Standard 5 micron ratings (lower micron rating available)
- Removes 99.9% of the liquids entering the Extractor/Dryer
- Easy to install and maintain without removal
- Lightweight aluminum housing
- Immediate cost savings from decreased downtime
- Standard inlet and outlet NPT sizes
- Improve equipment performance and product quality
- Standard Differential Pressure Gauge for rust and dirt particles



Additional options available: float drain, regulator, lockout valve and electronic drain

How it Works:

- 1 Compressed air containing tiny particles of dirt, dust, oil and moisture enters the first stage of the Extractor/Dryer.
- 2 A coalescing effect occurs as air passes through a cartridge mesh filter that captures particles and causes moisture to form larger droplets.
- 3 Air velocity lessens as it enters the extraction chamber allowing particles to collect and moisture to condense on the honeycomb.
- 4 Particle laden water flows along the bottom and out the drain.
- 5 Air passes through the second stage wire supported fiber filter cartridge that captures remaining particles down to 5 micron.
- 6 Remaining moisture and contaminants are dried and filtered in the second stage filter.
- 7 Exhaust air is clean and dry - no dirt, rust, oil or water droplets to disrupt air equipment operation.



Specifications:

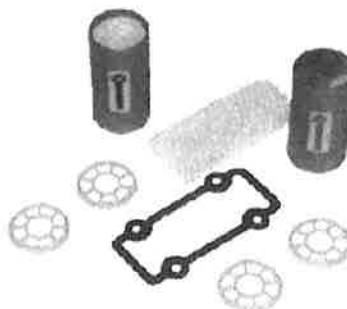
MODELS	520A	520B	105	106	107	110	111	120	140	180	1
NPT	1/4"	1/4"	1/4"	3/8"	1/2"	1/2"	3/4"	1"	1-1/2"	2"	FL

SCFM	15	15	50	50	50	80	80	150	250	500	
MAX PSI	250	250	250	250	250	250	250	250	250	150	
SERVICE KIT #	015SK	015SK	050SK	050SK	050SK	080SK	080SK	150SK	250SK	500SK	
SIZE (INCHES)	7-1/8 x 3 x 1-1/4	8-1/4 x 3 x 1-3/4	8-1/4 x 4 x 2-1/2	8-1/4 x 4 x 2-1/2	8-1/4 x 4 x 2-1/2	11-3/4 x 6 x 3-1/4	11-3/4 x 6 x 3-1/4	15 x 9-1/2 x 5-1/2	20 x 12-1/2 x 7-1/4	27 x 18 x 9-3/4	42 x 30
APPROX WT. LBS	2#	2#	3#	3#	3#	6#	6#	15#	36#	70#	

Maintenance:

All compressed air filters require servicing of the elements. Proper maintenance is important in keep the Extractor/Dryer performing at optimum levels. La-Man has taken great efforts to create that makes servicing user friendly. By simply removing one bolt, the Extractor/Dryer never has disconnected from the airline in order to replace the elements.

On average, we recommend servicing the Extractor/Dryer every 6 months. Each model complete Service Kit available (see specifications for service kit numbers) that provides ev needed for proper servicing. Service Kits include a 1st stage replacement element, 2nd replacement element, cap gaskets, base gasket, and base core (honeycomb).



EXTRACTOR/DRYER SERVICE KIT
050SK Service Kit pictured

4400 Eastport Parkway Port Orange, FL 32127

Phone: (800) 348 - 2463 or (386) 304 - 0411 Fax: (888) 905 - 2626 or (386) 304 - 0861 Site Credits: Ecreative

Binks agitators, drives and covers for 5 gallon containers

■ Models 41-3306, 41-3312 and 31-133 for 5 Gallon Pails

- Furnished alone or as an assembly, mounted to container covers.
- Agitator and drive assembly only, standard

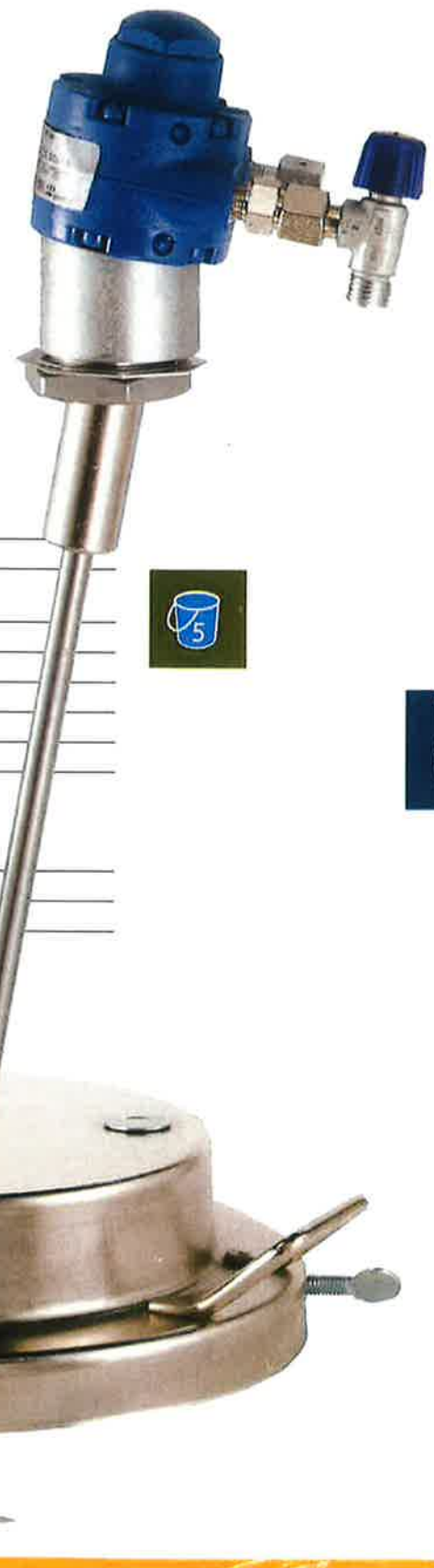
Speed: Speed of propeller shaft is determined by fluid, 3000 RPM maximum

Air Supply: Air supply to the motor should be 60 psi gauge pressure minimum.

An air filter and moisture trap is recommended.

Specifications:

Model Number:	41-3306	41-3312	31-133
Includes:	Agitator & Drive Assembly Only	Agitator & Drive Assembly Only	Agitator Drive and Cover Assembly
Shaft/Propeller Material:	Steel	Stainless Steel	Stainless Steel
Container Size:	5 Gallon Pail	5 Gallon Pail	5 Gallon Pail
No. of Propellers or Paddles:	1	1	1
Propeller/Paddle Diameter:	3-1/8 in.	3-1/8 in.	3-1/8 in.
Shaft Speed:	To 3000 RPM	To 3000 RPM	To 3000 RPM
Air Drive			
Type:	Direct	Direct	Direct
HP:	1/4	1/4	1/4
CFM:	10-14	10-14	10-14
Shipping Weight:	12 lbs.	12 lbs.	33 lbs.
Part Sheet Reference:	77-1474	77-1474	—



■ Model 41-3205

- Cover for open-top container
- Used for 5-gallon container
- For Pogo, Pogo B, and Transmatic
- Shipping Wt.: 5-1/2 lbs.
- Ref. Part Sheet: 77-1470



Binks gear drive agitator for heavy fluids in open top 55 gallon drums



Model 31-397 Gear Drive Agitator (with cover)

- For open top 55 gallon drums
- Gear drive, 40 RPM
- For heavier fluids such as paints and mastics

Furnished with:

- 1/2 HP air motor (10 to 14 CFM)
- Two 14-1/2 in. diameter stainless steel paddles with stainless steel shaft
- Zinc Plated Clear Chromate cover (31-124)

Ref. Part Sheet: 77-2804

Speed: Speed of the air motor is regulated by an air adjusting valve (part no. HAV-500). The speed of the agitator shaft below the reduction gear box should not run faster than 30 to 40 RPM maximum.

Air Supply: Air used to operate this unit should come directly from a high pressure source; do not use air that has passed through a regulator. Air supply to the motor should be a minimum of 60 psi gauge pressure.

An air filter and moisture trap is recommended.

Model 202-55-2 Gear Drive Agitator (with cover)

- For open top 55 gallon drums
- Gear drive, 1 HP
- Two Stainless Steel Paddles
- For heavier fluids such as paints and mastics

Ref. Part Sheet: 77-2814

Model 202-55-4 Gear Drive Agitator (with cover)

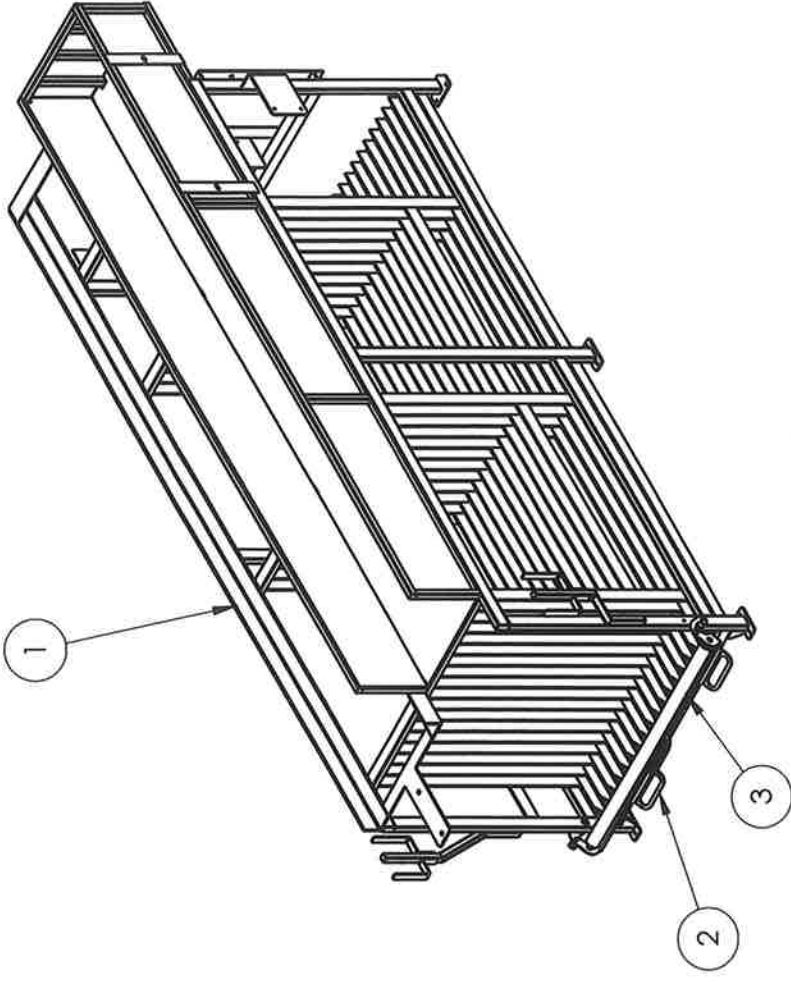
- For open top 55 gallon drums
- Gear drive, 1 HP
- Four Stainless Steel Paddles
- For heavier fluids such as paints and mastics

Ref. Part Sheet: 77-2814

Specifications:

Model Number:	31-397	202-55-2	202-55-4
Container Size:	55 Gallon Drum	55 Gallon Drum	55 Gallon Drum
Motor Specifications			
Air Motor Model:	Gear	Gear	Gear
HP:	1/2	1-1/2	1-1/2
CFM:	10-14	45 CFM @300 RPM @60 PSI	45 CFM @300 RPM @60 PSI
Shaft Specifications			
Mount:	Flange	Flange	Flange
Diameter:	1/2 in. (12.7 mm)	1 in. (25.4mm)	1 in. (25.4mm)
Speed:	30 to 40 RPM	300 RPM max.	300 RPM max.
Propeller Specifications			
Number of Props:	2	2	4
Diameter:	4-1/2 in. (114.3 mm)	—	—
Material:	Stainless Steel	Stainless Steel	Stainless Steel
Cover Specifications			
Model Number:	31-124		
Size:	55 Gallon		
Material:	Zinc Plated Clear Chromate Cover		
Shipping Weight:	60 lbs.	75 lbs.	78 lbs.





ITEM NO.	PART NUMBER	REV	DESCRIPTION	QTY
1	SCS-W020-00		STNCL RACK WLDMT	1
2	SCS-W021-00		DRIP TRAY	1
3	SCS-A023-00		STENCIL HOLD BAR ASSY	1

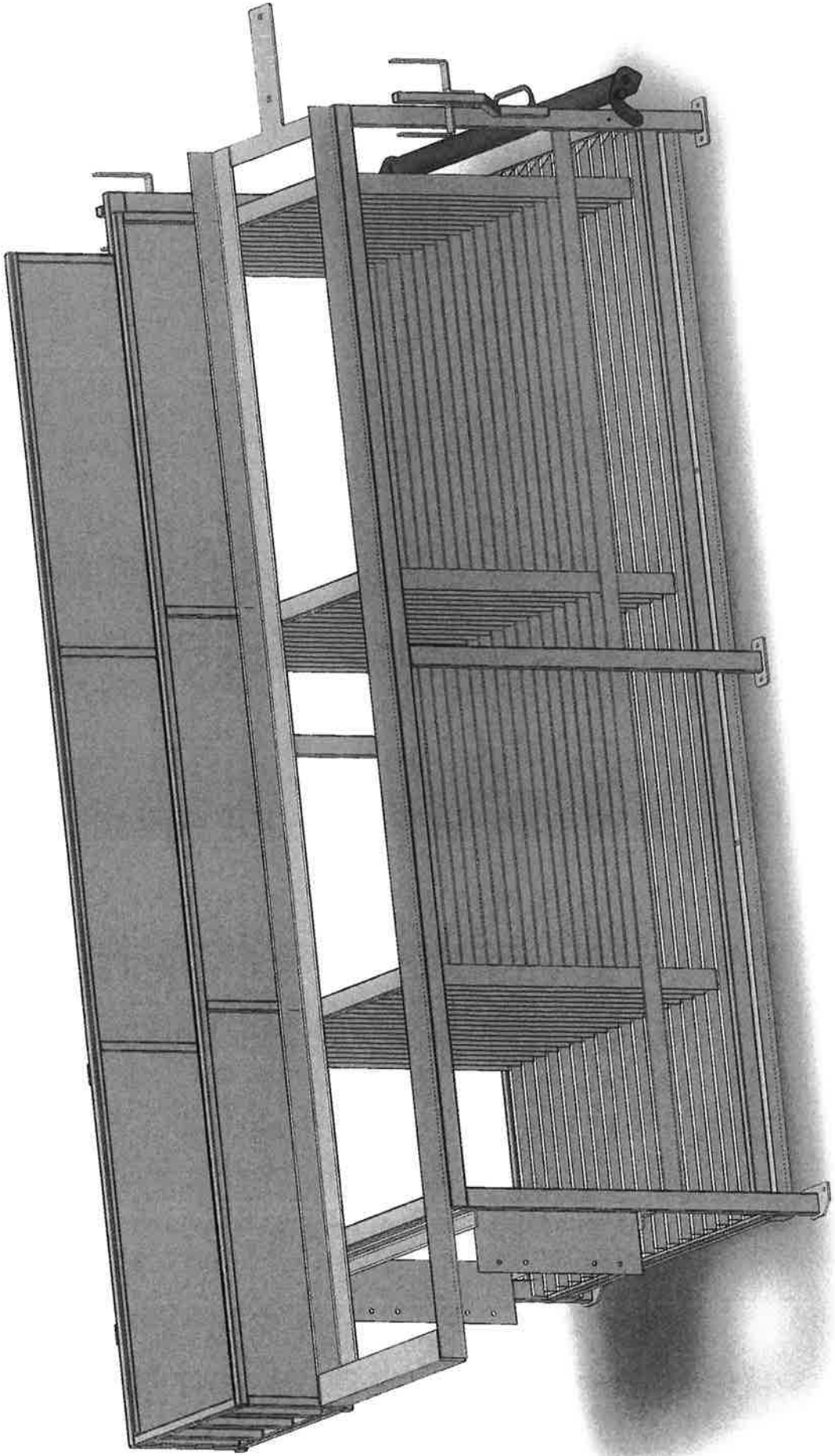
DRAWN	EAW	DATE	11/4/16
CHECKED		DATE	
APPROVED		DATE	
THIRD ANGLE PROJECTION			
MATERIAL		UOS ALL RADII	
UOS SURFACE FINISH		UOS SURFACE FINISH	
REVISIONS		REVISIONS	
REV	DESCRIPTION	DATE	APVD

UOS DIMENSIONS ARE IN INCHES
 DIMENSIONS CONFORM TO ASME Y14.5M-1994
 GENERAL TOLERANCES
 .XX ± .03 .XXX ± .005 ANGULAR ±1°
 BREAK ALL EDGES .01 x 45°

PROPERTY OF EZ-LINER INDUSTRIES, REPRODUCTION IN WHOLE OR IN PART IS EXPRESSLY PROHIBITED

EZ-LINER INDUSTRIES
 ORANGE CITY, IOWA 51041
STENCIL RACK

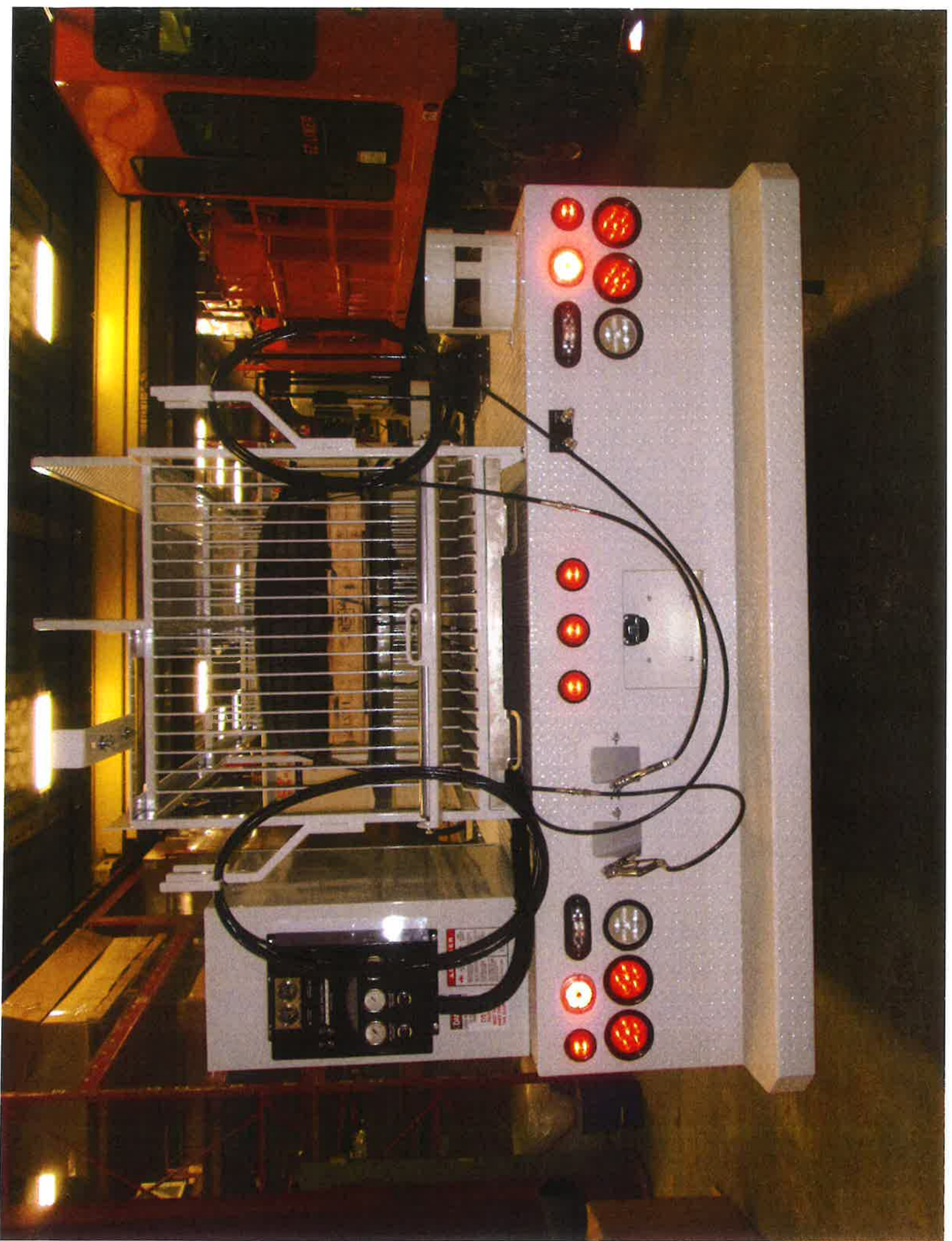
SIZE	A	DWG NO.	SCS-A020-00	REV
SCALE	1:48	SUPERSEDES NO.		SHEET 1 OF 1



This document may be out-of-date because
it has file references that may have been updated. (more...)



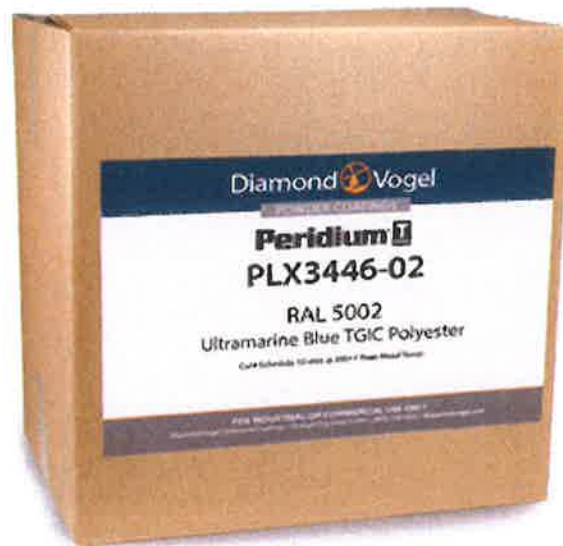




Diamond Vogel[®]

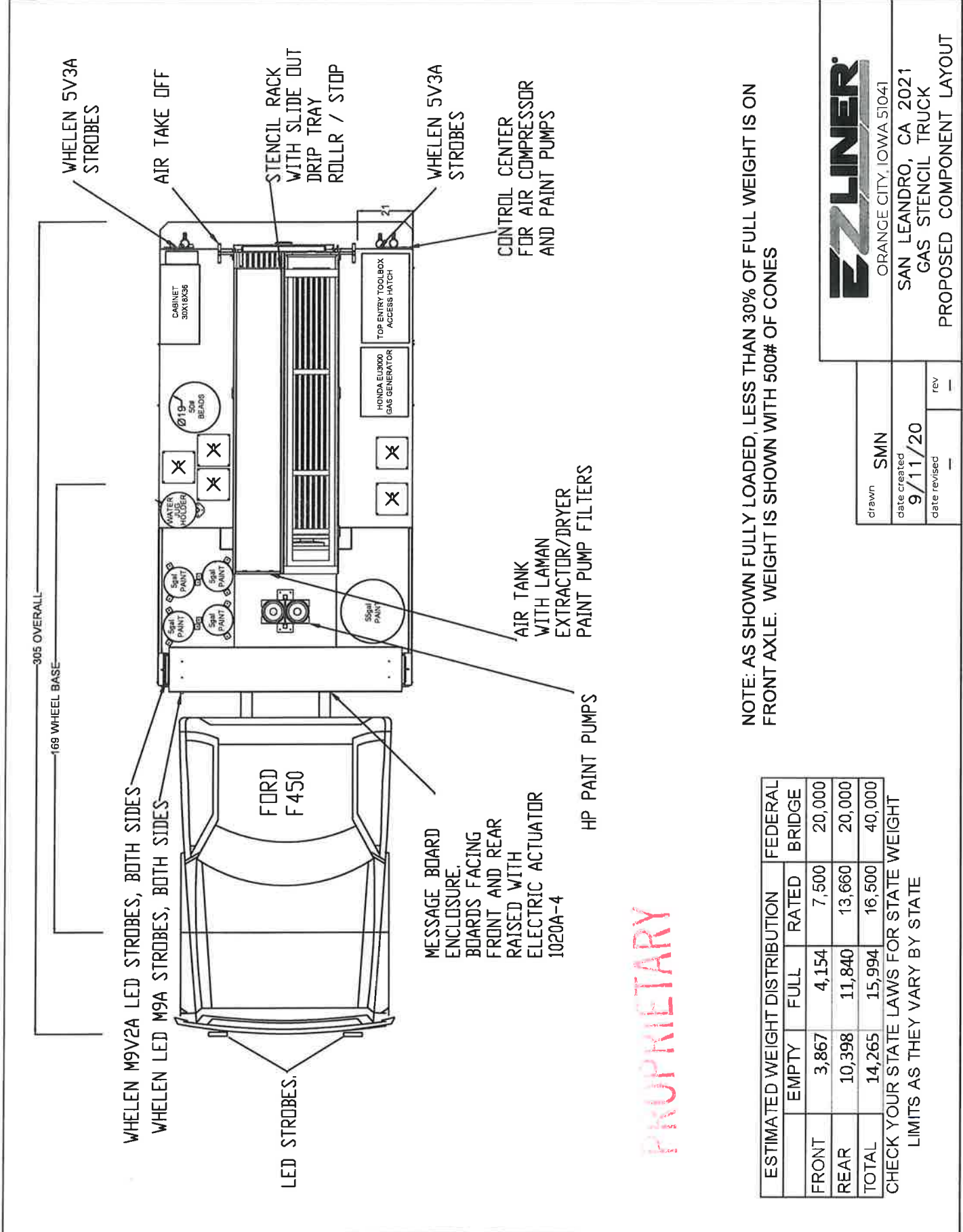
INDUSTRIAL COATINGS

Diamond Vogel Powder Coatings offer excellent application and performance that exceeds expectations. Our state-of-the-art technology allows for tightly-controlled particle distribution. This means that you can count on Diamond Vogel for impressive first-pass edge coverage, and smoothness. At Diamond Vogel, we are here for you on every project providing service that is both personal and professional. With unparalleled service and expert color matching, and reliable inventory, our team is here to help you fulfill all of your coatings needs.



POWER80

Power 80 On Demand is in-stock and ready to ship. It combines the hottest colors with the proven performance of our innovative powder coating technology. All of the premium finishes are produced with TGIC Polyester technology, providing superior interior and exterior durability. All products are available in five pound and fifty pound quantities.



NOTE: AS SHOWN FULLY LOADED, LESS THAN 30% OF FULL WEIGHT IS ON FRONT AXLE. WEIGHT IS SHOWN WITH 500# OF CONES

	ESTIMATED WEIGHT DISTRIBUTION			FEDERAL BRIDGE
	EMPTY	FULL	RATED	
FRONT	3,867	4,154	7,500	20,000
REAR	10,398	11,840	13,660	20,000
TOTAL	14,265	15,994	16,500	40,000

CHECK YOUR STATE LAWS FOR STATE WEIGHT LIMITS AS THEY VARY BY STATE

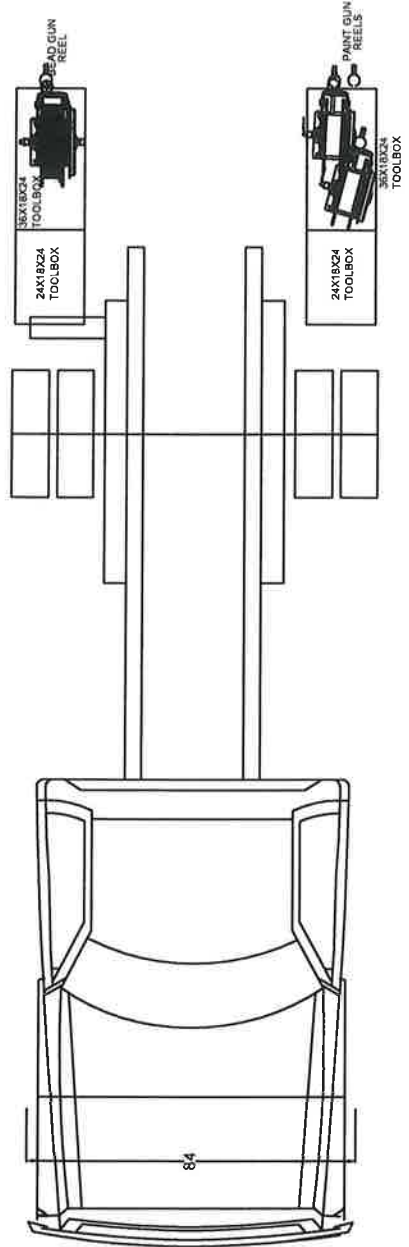


ORANGE CITY, IOWA 51041
 SAN LEANDRO, CA 2021
 GAS STENCIL TRUCK

PROPOSED COMPONENT LAYOUT

drawn	SMN
date created	9/11/20
date revised	rev

PROPRIETARY



PROPRIETARY

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