FOR HIGH COMPACTION REAR LOADING REFUSE COLLECTION TRUCK BODY

INTENT:

This specification describes a hydraulically actuated packer body of the rear loading type with the following minimum specifications necessary to perform the work assigned. The body shall be capable of compacting and transporting refuse to a landfill or transfer station and dispensing the load by means of hydraulically ejecting the load from the body.

GENERAL TERMS:

The manufacturer of all equipment provided under this contract shall be ISO 9001-2008 certified. All equipment furnished under this contract shall be new, unused and the same as the manufacturer's current production model. Accessories not specifically mentioned herein, but necessary to furnish complete unit ready for use, shall also be included. Unit shall conform to the best practice known to the body trade in design, quality of material and workmanship. Body shall be made in the United States of America. Assemblies, sub-assemblies and component parts shall be standard and interchangeable throughout the entire quantity of units as specified in this invitation to bid. The equipment furnished shall conform to ANSI Safety Standard Z245.1-2012

WARRANTY:

Unit shall include a One-Year Complete Body warranty as standard. This warranty will cover parts and labor not including normal wear items.

PARTS MANUAL:

Bidder shall furnish a complete part, maintenance, and operator's manual with each body sold.

BID QUOTATION:

Bidder shall complete every space in the specification bidder's proposal column with a check mark to indicate if the item being bid is exactly as specified. If not, the "NO" column must be checked and a detailed description of the deviation from the specification to be supplied.

BIDDER SHALL COMPLETE BY CHECKING THE FOLLOWING. IF NOT COMPLIANT, STATE SPECIFICALLY ITEM BEING OFFERED.

YES

			YES	NO	OFFERED
1.	CAF	PACITY			
	a.	The packer body shall have a capacity, excluding the receiving hopper, of not less than:			
		27 Y ³			
	b.	The hopper shall have a capacity of three and ninety-four hundredths (3.94) cubic yards.			
	C.	The structural integrity of the body shall allow high density loading of up to 1,000 pounds per cubic yards of normal refuse.			
2.	BOE	DY DIMENSIONS			
	a.	Maximum width, outside 96"			
	b.	Maximum overall length of the body and tailgate combined shall not exceed the following:			
		<u>CAPACITY</u> <u>LENGTH</u>			
		27 YD ³ 282"			
	C.	Body width, inside 89"			
	d.	Body height, inside 79"			
	e.	Body height, outside (above chassis) 96"			
3.	BOD	Y CONSTRUCTION			
	a.	The body interior shall have a smooth floor without a trough. The sides and roof shall also be smooth.			
	b.	In order to prevent damage from corrosion and fire, no hydraulic cylinders, valve or other hydraulic components shall come in contact with refuse packed into the body.			
	C.	Body sides & roof shall be of curved stress skin construction interfacing with the corner mainframe bolsters. Rear bolsters shall be 5" x 20" formed channel @ the major upper & lower connecting points			

		YES	NO	OFFERED
form conr	ne mainframe. Front bolster shall be a 5" x 8" ned channel @ the major upper & lower necting points. All sidewall and roof members I be continuous welded.			
typic leng cont	y roof shall be minimum 8 gauge, 80,000 PSI cal yield hi-tensile steel sheet fully welded to a full th 11 gauge 50,000 PSI yield roof crown rail to cain and dissipate forces equally through the body cture.			
typic	y sides shall be minimum 8 gauge, 80,000 PSI cal yield high tensile steel sheet, fully welded to crown rail and to a 4.7" x 18" floor skirt rail.			
mini with, Rein	r mainframe body side bolsters shall be a mum 3" x 20" and contoured shaped to sidewall minimum 7 gauge 80,000 PSI typical yield. If orcement bolsters shall be full welded to the ed body side sheets.			
inbo	y Floor shall be flat full width and must not have ard guide rails or a trough. Floor shall be a mum 7 gauge 80,000 PSI typical yield steel et.			
trape gaug	r longitudinals (long members) shall be a formed ezoidal shape 9.6" x 11" with a 3.3" base sill of 7 ge 80,000 PSI typical yield formed steel channels shall be continuous welded to the floor sheet.			
80,0 mem mem supp	r cross members shall be 3" x 6" x 7 gauge 00 PSI typical yield steel channels. Cross obers shall be interlaced through the long obers on approximately 18" centers to fully port the floor. Cross members shall be full width, the piece.			
Ters	body and attaching parts shall be sealed with otat Joint Sealer and CavityCoat for rust ention protection.			

		IES	NO	OFFERED
k.	The body shall be undercoated with a Thixotropic material to provide protection to the underside of the refuse body.			
4. TAI	LGATE DIMENSIONS			
a.	Maximum overall width at the hopper opening shall be 84 $\frac{1}{2}$ ".			
b.	Inside tailgate loading width shall be minimum of 80".			
C.	Hopper opening height shall be minimum of 55".			
d.	Loading sill height below chassis rail shall be 3.8" exclusive of any container handling mechanisms			
e.	Overall height above the chassis frame with the tailgate raised shall not exceed 207 ½".			
5. TAI	LGATE CONSTRUCTION			
a.	Tailgate sides shall be single piece 3/16" AR400 abrasion resistant plat steel with typical 184,000 PSI tensile strength and 145,000 PSI yield strength.			
b.	Tailgate side reinforcement shall consist of 6" x 1 7/8" 11 gauge 50,000 PSI formed steel channels fully welded to the perimeter edge of the tailgate side sheets. An interlaced network of 6" x 1 7/8" 11 gauge 50,000 PSI and 6 5/8" x 1 7/8" 7 gauge 80,000-PSI typical yield formed steel channels shall also be fully welded to the tailgate side for superior support.			
C.	Hopper floor shall be minimum 3/16" AR400 abrasion resistant plat steel with typical 184,000 PSI tensile strength and 145,000 PSI yield strength.			
d.	Hopper floor lateral reinforcement shall consist of a 3/16" 80,000 PSI typical yield formed "Z" channel crossmember. Forward hopper reinforcements shall be provided by a lateral network of 3/16" 80,000 PSI and 3/8" 50,000 PSI typical yield formed steel channel crossmembers.			

		YES	NO	OFFERED
e.	Hopper front compaction face shall be minimum 5/16" AR400 abrasion resistant plat steel with typical 184,000 PSI tensile strength and 145,000 PSI yield strength.			
f.	Tailgate shall be equipped with heavy duty 1" diameter turnbuckles, one on each side of body, to secure the tailgate in the closed position against the body to prevent leakage.			
g.	Two (2) grab handles (3/4" hot rolled steel bar) shall be located on each side of the tailgate for operator safety and comfort. One handle is to be mounted horizontally no less than 49" above the riding step. The other shall be mounted in the vertical plane, with the bottom edge no less than 44" above the steps. The latter shall also be attached to the rearward face of the perimeter of the tailgate reinforcement. (If unit is equipped with a container handling attachment, the latter will be omitted.)			
h.	The rear steps shall be bolt-on design fabricated from 12 gauge, 3 diamond Grip Strut, slip resistant, self-cleaning material. Located on each side of the tailgate, they shall provide for a minimum of 396 square inches of footing area for a single rider. The steps must conform to ANSI standards.			
i.	The tailgate shall be raised with two (2) single acting 4" bore x 26" stroke hydraulic cylinders. The cylinders shall incorporate an integral orifice which will limit the descent speed of the tailgate in the event of hydraulic failure.			
j.	The tailgate shall be equipped with a one piece, removable rubber gasket. The gasket, which shall have a durometer rating of 35-45 and tensile strength of 1500-1800 PSI shall extend across the entire bottom width of the tailgate and provide for water tight seal vertically up the side for no less than 21".			
k.	The hopper sill shall be formed from 3/16", 80,000 PSI high tensile steel.			

			YES_	NO	OFFERED
6.	PAC	CKING MECHANISM			
	a.	Packing cycle control shall be mechanical, lever operated on the right hand side of the tailgate. A two lever design, the operator shall have the capability to start, stop and reverse the direction of any function at any time throughout the packing cycle.			
	b.	Packing mechanism control valve shall be centrally located within the upper confines of the hopper, under upper light crossmembers.			
	C.	The packing cycle time shall be no greater than 17-19 seconds. Operator reload time shall be no greater than 6-8 seconds.			
	d.	Packing mechanism shall consist of two primary structures, the upper packing panel and the packing blade.			
7.	UPF	PER PACKING PANEL			
	a.	The upper packing panel shall be mounted to the tailgate weldment with two (2) sets of upper and lower link arms. Each upper link arm shall be secured to the panel and tailgate with two (2) 2" diameter induction hardened C-1045 cold drawn steel pins. The lower link arms shall be connected to the tailgate with 2" diameter induction hardened C-1045 pins and to the panel with 2 5/16" heat treated, induction hardened 4340 cold rolled steel hinge pins.			
	b.	The upper packing panel shall be constructed from 3/16" AR400 abrasion resistant plat steel with typical 184,000 PSI tensile strength and 145,000 PSI yield strength in all areas of refuse contact. The packing blade hinge lugs shall be constructed from 3" thick 50,000 PSI typical yield steel plate.			
	C.	Primary compaction by the upper panel shall be accomplished with two (2) double acting 5" bore x 36" stroke hydraulic cylinders. Located outside of the hopper confines, the cylinders shall produce a minimum force of 73,600 pounds.			

		1E3	NO	OFFERED
d.	Forward hinged side doors on each side of the tailgate shall provide access to the outside cylinders. The doors shall be easily opened without hand tools. The side doors shall prevent operator contact with the packing mechanism components as well as protect the components from the outside elements.			
8. PAC	CKING BLADE			
a.	The packing blade shall be mounted to and pivot on the upper panel hinge lugs with heat treated, induction hardened ASTM 4340 cold rolled 3" steel pins.			
b.	The packing blade shall be constructed with 3/16" AR400 abrasion resistant plat steel with typical 184,000 PSI tensile strength and 145,000 PSI yield strength and capable of resisting shearing and breaking forces of large objects during the compacting cycle.			
C.	Pre-compaction by the packing blade shall be accomplished with two (2) double acting, 5 ½" bore x 24" stroke cushioned hydraulic cylinders. Located inside the hopper confines, the packing blade cylinders shall produce a minimum force of 111,670 pounds (33.25 PSI).			
d.	All packing mechanism links shall have replaceable hardened steel bushings for extended service life. Wear shoes or rollers shall not be acceptable in high compaction packing mechanisms.			
e.	All cylinder and link pivot pins shall be kept in place with minimum Grade 5 retaining bolts, lock nuts and lock collars.			
f.	Each hopper full of material shall be compressed between the packing blade, upper panel and ejector panel. The ejector panel shall be automatically advanced by an ejector unload valve. No operator attention shall be required to advance the ejector panel as the body fills.			

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						<u>YES</u>	NO	OFFERED
	g.	The packing rate automatic cross enable the pactine load which damage the state of the load machine the load	wd" pressure s cking mechani n will neither tructure therel	sensing devi sm to find a stall the me	ice, which will path through echanism nor			
9.	DIS	CHARGE OF LO	DAD					
	a.	The load shall ejection system cylinder shall efull length of attach to the drawn, C1045, ½" and position damage from control of the control	n. A double acextend and retouch the body. The body and the pins having a coned diagona	cting, telesco ract the ejector of e ejector pa a minimum of lly to minin	opic hydraulic ctor panel the cylinder shall inel via cold-diameter of 1			
	b.	The ejector dimensional ch		all have t	he following			
		CAPACITY	<u>STAGES</u>	BORE	STROKE			
		27 YD ³	4	6"	145.8"			
	C.	The ejector p from 11 gaug formed steel one (1) trapez vertical panel steel. A 7 gashall be provicentact with the	e hi-tensile s channels shal oidal crossme corner posts uge hi-tensile ided to keep	steel. Four Il span hori ember at floo shall be 0.3 steel proted refuse froi	(4) hi-tensile zontally, with or level. The 375 hi-tensile ctive covering			
	d.	The ejector pa						
	e.	Smooth moves shall be achie each side of to conform to specific minimum controls shoe side and Each shoe shoe shoe shoe shoe shoe shoe sho	eved with two he ejector parecification 28C act surface of having a typic	(2) cast all nel. Shoe o 358-A0201 f 18 square cal hardness	castings shall possessing a inches each of 260 BHN.			

			<u>YES</u>	NO	OFFERED
		C1045, removable cold drawn stub pin held within the fully boxed 4" x 12" base frame of the ejector panel. Four (4) shoes shall be provided for each ejector panel and shoes must be replaceable without removing the ejector from the body. Rollers shall not be used.			
	f.	Ejector guide bottom edge shall be located .375" above longitudinal floor corners. The guide channel shall have interior dimensions of 3.5" x 4.2". The top flange of the guide channel shall be reinforced with a 45° plate, which shall also serve as a self-cleaning device. The track shall also minimize pivotal movement of the ejector panel as refuse is packed against it.		П	
	a	Plastic (non-metallic) ejector shoe material is not		_	
	9.	acceptable.			
	h.	The rod end of the ejector cylinder shall be pin mounted at the front of the body to the main lateral bolster of the body longitudinal members thus affording maximum resisting bending moment.			
10.	CO	NTROLS			
	a.	The ejector panel and tailgate raise controls shall be mounted outside the body on the front left hand side of the body. Direct connection of the control handles to the valve spool shall exist to minimize moving parts and allow for ease of service.	П	П	
	h	An electrical device shall be supplied to automatically		LI	
	D.	raise the engine speed to the proper RPM during the packing cycle.			
	C.	An additional throttle advance switch shall be located at the front left hand side of the body within hands reach of the ejector and tailgate raise controls.			
	d.	Power take off controls shall be conveniently mounted in the cab, preferably to right side of the driver.			

		YES	<u>NO</u>	OFFERED
11. HY	DRAULIC SYSTEM			
ŧ	a. A heavy duty pump motive drive shall be provided and shall be compatible with that of chassis transmission. The pump drive shall be activated by:			
	Electrical Signal Hot Shift Clutch PTO			
k	the pump motive drive must run quietly. Gearing shall be selected for minimum engine RPM compatible with recommended pump RPM for correct operating pressure and rates of flow for the refuse body.			
C	to minimize hydraulic cylinder weight, a high- pressure hydraulic system shall be employed. The operating pressure of the system shall be 2400-2500 PSI. Low-pressure systems shall not be acceptable.			
C	l. A heavy-duty gear pump shall be provided with a rated capacity of 42 GPM at 1200 RPM.			
6	 The hydraulic pump shall be designated to operate continuously with peak loading at frequent, short intervals. 			
f	The hydraulic system shall incorporate adjustable relief valves to protect all components from excessive pressure and overloads.			
g	. All hydraulic tubes will be securely clamped to prevent vibration, abrasion, and excessive noise.			
ŀ	a. All hydraulic tubes running the length of the body shall be routed over the roof on the street side bias of the body.			
i	All hydraulic hoses shall conform to S.A.E. standards for designed pressure. Bends shall not be less than recommended by S.A.E. standards. Flat spots in hoses will not be acceptable.			
j	All high-pressure hoses shall be sheathed with fabric protective covering.			

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YES

NO

			YES	NO	OFFERED
	k.	The hydraulic oil reservoir shall be frame mounted underneath the body and shall have a gross capacity of 50 gallons filled with hydraulic fluid.			
	I.	The tank shall be complete with a screened fill pipe and cap, filter breather, clean out cover, and shut off valve.			
	m.	The hydraulic system shall be protected by a three (3) micron return line filter along with a 100 mesh (140 micron) reusable oil strainer in the suction line.			
	n.	The return line filter shall also include an in-cab filter by-pass monitor, which shall alert the operator or service personnel when the filter is in need of replacement.			
	0.	All multi-spool control valves shall be of a section design such that servicing would not require replacement of the entire valve assembly.			
12.	HYE	RAULIC CYLINDERS			
	a.	All cylinders must have a working pressure rating of no less than 2500 PSI.			
	b.	Inside packing cylinders must be of the internal cushion design so that hydraulic shock and audible noise is minimized. This shall be accomplished by a design which will decrease the speed of the cylinder for the last one-half (1/2") inch of cylinder stroke on both directions of travel.			
	C.	Rods of inside and outside packing cylinders must be induction hardened to a surface hardness of 55-65 Rockwell C scale.			With the same of the same species and the same species are same species are same species and the same species are
	d.	Rods of all cylinders shall be chrome plated.			
	e.	All packing cylinder end lugs shall be forged steel material.			
2					

13. ELECTRICAL

			IES	NO	OFFERED
	a.	All electrical wiring connectors to be automotive double-seal, with wiring in split convoluted loom.			
	b.	All wiring connections to be soldered with rubber-molded covering or crimp type connectors with shrink-wrap. Unprotected wiring in any application is unacceptable.	П		
	_	All along the second second		Ш	
	C.	All electrical limit switches shall be epoxy impregnated to minimize effects of excess moisture.			
14.	LIG	HTING			
	a.	Clearance, back up, and directional lights shall be Lexan lens, shock mounted in a protective housing. The whole unit shall be pop out and replaceable.			
	b.	All lights shall be LED and provided in accordance with FMVSS#108, plus mid body turn signals on each side of the body and a center brake light on the rear.			
15.	PAII	NTING			
	a.	First Step – Smoothing - All weld slag, splatter or roughness shall be removed with the appropriate hand tools. No sand, shot or glass air blasting shall be permitted to eliminate contamination and possible damage to bearings or pin surfaces and possible distortion of higher gauge sheet materials used on the body.			
	b.	Second Step – Purgation - A heated pressure wash shall drench the entire body with a silicated alkaline phosphate based pre-cleaner to clean all metal surfaces. This solution shall soak through and break down the oil film and other contaminants found on steel. The solution shall be non-corrosive to metals and shall be environmentally friendly.			
	C.	Third Step – Pre-Treatment – An organically accelerated phosphoric acid based pretreatment will be applied to all metal surfaces. This step provides a chemical conversion coating which changes the chemical and physical nature of the surface by			

		<u>YES</u>	NO	OFFERED
	providing a surface that the next application (prime) will adhere to.			
d	Fourth Step – Sealing - The entire body shall be coated with an application of the patented Dry-In-Place Seal from Henkel Surface Technologies. This process shall dramatically improve the surface finish's resistance to rusting that occurs from general wear and tear, and shall provide improvements to paint adhesion and other related corrosion that occurs over the life of the products. This shall help retain the "as new" appearance of the factory paint surface.			
e.	Fifth Step - Primer Coat Paint - The seal coat shall be painted using DuPont Corlar - a high performance, low VOC/HAPS epoxy polyamide primer-sealer. Corlar is a two-component gray primer-sealer that is lead and chromate free. This shall be applied in an amount necessary to achieve a dry film thickness of 1.2 mil.			
f.	Sixth Step - Finish Top Coat Paint - A high luster finish coat shall be applied using DuPont Imron Elite — a high-performance, low VOC (<3.5 lbs/gal RTS) two-component polyurethane enamel. An ample amount shall be applied to achieve a dry film thickness of 2 mil and shall result in a finish of 3.2 mil minimum film thickness.			
16 1154 5				
16. Unit Si	nall be equipped with two Tuckaway Style tipper.			
17. Unit sl	nall be equipped with dual inside hopper work lights.			
18. Unit sl	nall be equipped with SMART Lights on tailgate.			
19. Unit sl	nall be equipped with dual outside hopper work lights.			
20. Unit sł systen	nall be equipped with reeve cylinder with Lip and Latch			