

# **BID SPECIFICATIONS FOR** **FRONT END LOADING COMPACTION BODY**

## **8,000 Lbs Lift Arms with 40 Cubic Yard Body**

It is the intent of these specifications to describe the minimum requirements of a complete front end loading compaction body with lifting arms to service pick-up sleeve front loader containerized refuse equipment and provide off loading of collected waste by means of full ejection.

### **DUMP OFF LOADING BODIES WILL NOT BE CONSIDERED**

The omission of any standard feature description shall not alleviate the bidder from the responsibility of furnishing a complete body with all standard equipment of the manufacturer's latest improved model in current production as offered to commercial trade. The body shall conform in strength, quality of material and workmanship to that provided by the best manufacturing and engineering practices of the industry.

It is required that the units, as specified herein, shall be completely assembled and adjusted and that all equipment, including standard and optional equipment, be installed on a chassis furnished by others and the unit made ready for continuous operation.

As it is our desire to buy American, bidders using components or parts of other than American manufacture shall so state in their bid.

The bidder shall represent by his bid that all equipment to be furnished under this bid is new and unused.

All bidders shall attach a statement that the unit offered meets these specifications exactly, or list any exceptions fully and accurately.

The following bid specifications are the minimum acceptable specifications, based on economy and usability.

**EACH BIDDER IS REQUIRED TO COMPLETE EVERY SPACE IN THE BIDDERS RESPONSE COLUMN BY CHECK (X) UNDER YES OR NO TO INDICATE ITEM BEING BID IS EXACTLY AS SPECIFIED. ALL NO RESPONSES AND ALL DEVIATIONS WHATSOEVER MUST BE FULLY EXPLAINED ON A SEPARATE PAGE. FAILURE TO DO SO CAN BE USED AS BASIS FOR REJECTION OF BID. FAILURE TO DELIVER UNIT AS PROPOSED WILL RESULT IN REJECTION OF UNIT.**



**BIDDER'S RESPONSE COLUMN**

**BODY CONSTRUCTION (CONT'D.)**

**YES                  NO**

- 6) Supporting the radiused floor sheet shall be two (2) 7" high "Vee" flange formed long sills with 13" of width at the floor sheet and 3" of width at the truck frame. The sills shall be formed of 7 Ga. 100,000 PSI yield steel, fully gusseted internally. The front of the "Vee" long sills shall butt into a 6" x 4" x 1/4" wall structural tube crossmember. \_\_\_\_\_
- 7) The rear body floor shall be lower by 4" to maintain a 100 gallon sump for liquid containment and to aid in load retention. \_\_\_\_\_
- 8) The rear bolster shall be 7 Ga. 100,000 PSI yield formed channel 10-1/2" with 2-3/4" leg. The rear body corner post shall be 1/4" 100,000 PSI yield formed channel 7-1/2" x 8" wide. \_\_\_\_\_

**HOPPER CONSTRUCTION**

- 1) Hopper size: The hopper shall be a minimum of 10 cubic yards. The hopper opening (packer to roof) shall be 101" x 80-1/4" wide. \_\_\_\_\_
- 2) The hopper long sills shall be 10" high x 3" wide, 7 Ga. 100,000 PSI yield steel interlaced with five (5) full hopper width structural tube crossmembers. \_\_\_\_\_
  - A. Crossmembers shall be 4"x 3" x 3/16" wall full width structural tube. \_\_\_\_\_
    - A1. The transition crossmember shall be 6"x 4"x 1/4" wall tube located at the rear of the hopper floor. \_\_\_\_\_
  - B. The crossmembers shall support and be welded securely to a one-piece hopper floor sheet of 1/4" plate 400 BHN, 155,000 PSI yield. \_\_\_\_\_
  - C. The crossmembers shall be supported by 7 Ga. thick 8" long sleeves at each point of contact to the long sill and interlaced with long sill. \_\_\_\_\_
- 3) Hopper lower side walls shall be flat, 7 Ga. 100,000 PSI yield steel reinforced with 10 ga. 100,000 PSI yield steel liner above the guide rail up 22" to the first horizontal brace. Hopper upper side walls shall be flat, 10 ga. 100,000 PSI yield steel. \_\_\_\_\_
- 4) Each hopper side shall be braced by a minimum of four (4) horizontal braces. The braces shall be 4" x 2" x 7 Ga. formed channel, 1/4" front post 2"x 5" wide and 1/4" 100,000 PSI yield 7-1/2"x 6" wide center post. \_\_\_\_\_
- 5) An access door, 21" wide x 39" high, to the hopper area shall be provided on the streetside of the body. This door must be sliding type. No part of door opening shall be to the rear of packer panel. An interlock shall be provided to instantly stop all hydraulic operation if the access door is opened. \_\_\_\_\_

**TAILGATE**

**BIDDER'S RESPONSE COLUMN**

**YES                      NO**

1) The tailgate shall be a rounded type with a minimum 3.75 cu. yd on 40 cu. yd. body capacity. Construction shall be a minimum of 10 Ga. 100,000 PSI yield steel. The vertical and horizontal braces shall be 7 Ga. 100,000 PSI yield.

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2) The tailgate shall be opened and unlocked by two (2) double acting hydraulic cylinders.

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A. Tailgate cylinders shall be a minimum 3" I.D. 33" stroke with 1-3/4" induction hardened chrome rod, buffer seal, DU rod bearing and canned wiper.

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B. The tailgate shall be secured by two (2) steel locks powered automatically by hydraulic cylinders. Locks shall capture latch pins (2 per side), pull and hold tailgate tight to rear of body. The tailgate shall open above horizontal position for clean ejection of load. Bodies that require additional cylinders to lock and unlock the tailgate or tailgates that must first slide vertically to unlock are not acceptable.

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3) The tailgate shall be securely hinged, using 1" plates, to the reinforced rear edge of the roof, tied directly into the rear post, and rotate on cold rolled steel hinge pins with a minimum of 2-1/2" diameter. The tailgate hinge plates shall be four (4) 1/2" plates with 3-1/2" diameter 1/2" wall bosses.

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4) Tailgate shall include a single maintenance prop to prop tailgate open for servicing inside body.

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5) Tailgate shall have a bulb type gasket seal to prevent leakage at the bottom and 41" up each side of tailgate. Seal must be installed on the tailgate.

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6) An in-cab console mounted light and audible alarm will be provided to indicate the tailgate is not fully closed and locked.

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**LIFT ARMS**

1) The lift arms shall be two (2) "U" shaped weldments, minimum 3-1/2" x 9-1/2" at rear, 8" at front bolted to a full body width torque tube of 4" OD 5/8" wall seamless steel tube located at the forward bottom of the hopper directly behind the truck cab.

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2) The arms shall be constructed of, full length, 3/4" x 3" 80,000 psi yield outer and inner arm bars, with 1/4" 100,000 psi yield side plates, 1/2" 50,000 psi yield cylinder anchor point. The arm mounting to torque tube block shall be 1-1/2" thick. The fork assembly end shall have a bolt on bearing assembly with pressed-in 3" bronze bearing (split bearing block is not acceptable).

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**LIFT ARMS (CONT'D)**

**BIDDER'S RESPONSE COLUMN**

**YES                      NO**

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|---|-------|-------|
| 3) The lift arms shall be attached to the torque tube by (4) 3/4" grade 8 bolts per side and shall be interchangeable between sides and units. The torque tube shall extend through the arm mounting plate.   | _____ | _____ |
| 4) Body mounted torque tube shall rotate in two (2) bronze bearings easily accessible for lubrication, by the use of (2) zerks, one from the top and one from the bottom. The bearing caps shall be mounted by (4) 3/4-10 x 5" long, grade 8 bolts per cap, vertical in position (horizontal bolts not acceptable). | _____ | _____ |
| 5) Lift arms shall have a minimum structural capacity of 10,000 lb. and a minimum lift capacity of 8,000 lb., measured at the center line of a standard 8 cubic yard container.   | _____ | _____ |
| 6) With the arms full down, the lift-starting lever shall not be less than 24" and with arm full up, the arm lower-starting lever shall not be less than 11" to minimize torque tube bearing wear and bearing cap forces.   | _____ | _____ |
| 7) Arm and fork cycle times shall not be more than 20 seconds.  | _____ | _____ |
| 8) Pick up, dump and disengagement will be done without the need for assistance and without the driver leaving the cab.   | _____ | _____ |
| 9) The lift arms, during the dump cycle must not obstruct or interfere with the opening of the cab doors on either side.  | _____ | _____ |
| 10) The lift arms shall be capable of lifting loaded containers from a truck dock with 10' maximum pocket height.   | _____ | _____ |
| 11) The arm assembly shall be designed to carry in the full raised or lowered position during travel between stops.   | _____ | _____ |
| 12) In the full raised position the lift arm shall rest on rubber bumpers attached to the center post, 54" minimum above the floor.   | _____ | _____ |
| 13) Main arm lift cylinders shall mount outboard of the body for easy accessibility.  | _____ | _____ |
| A. Lift arms shall be powered by two (2) 4-1/2" I.D. double acting hydraulic cylinders, 49" stroke, having a minimum 2" diameter hardened chrome plated rod, buffer seal, DU rod bearing, and canned wiper. Arm rotation shall be 102 degrees.  | _____ | _____ |
| 14) The pick-up forks shall be a minimum of 1" thick, 100,000 PSI yield steel and 51" in length with rubber container stops for noise suppression.  | _____ | _____ |
| 15) The forks shall be installed on a full width 3-1/2" O.D. 3/4" wall seamless steel tube. The fork weldment shall be attached to the arms using 3" dia. pins and rotate in bolt-on pressed-in bronze bushed bearing equipped for easy lubrication. (Bolt on split bearing cap not acceptable).                    | _____ | _____ |

**LIFT ARMS (CONT'D)**

**BIDDER'S RESPONSE COLUMN**

**YES NO**

A. Fork rotation shall be by two (2) 4" I.D. double acting hydraulic cylinders 25" stroke, having a minimum 2" hardened chrome rod, buffer seal, DU rod bearing, and canned wiper. Fork rotation shall be 123 degrees.

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16) The design of the hopper, body and arms shall be such that the arms may be transported in the full raised position and the entire unit will not exceed an overall height of 13'6". (based upon 42" maximum chassis frame rail height)

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**BODY CAB SHIELD**

1) A full width all steel cab shield shall be provided to protect the cab from spillage and damage. Cab shield shall be fabricated from 12 Ga. 50,000 PSI yield steel. Cab shield shall extend rearward to the body front wall to provide protection over turbos, engine extension, transmission and mufflers/tailpipes.

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**PACKING MECHANISM**

1) The sweep of the hopper and load compaction shall be achieved by compactor panel traveling a minimum of 85-1/4".

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2) The compactor panel shall be engineered and designed with a 22-1/2" vertical section packing surface. (sloped packing section is not acceptable)

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3) The packer panel shall be constructed of (4) 3" x 3" x 1/4" vertical tubes, 1/4" steel 100,000 PSI yield lower 22-1/2" packing face, 7 Ga. 100,000 PSI yield sloped section, 10 gauge 100,000 PSI yield top vertical section reinforced by 1/4" plate full width top crossmember. The cylinder mounting, packing beam to be constructed of 1/4" plate 100,000 PSI yield, with 2" formed leg by 8" wide top brace, 1/2" plate 100,000 PSI yield, by 8" wide center brace and 1/4" plate 100,000 PSI yield, by 8" wide bottom brace.

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4) Compactor panel shall be powered by twin 5-3/8" dia. telescopic double acting hydraulic cylinders:

180" stroke, 3 stage - 40 cu. yd.

All cylinder stages shall be chrome plated. The cylinders shall have cold rolled steel pins of not less than 2" dia. stress proof steel on both ends. The pins shall be free floating design.

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A. Total compaction force generated by these cylinders shall be 119,275 pounds minimum.

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**PACKING MECHANISM (CONT'D)**

**BIDDER'S RESPONSE COLUMN**

**YES                      NO**

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|---|-------|-------|
| 5) Compactor panel guide rails in the hopper area shall be two (2) 3/8" formed angle 50,000 PSI yield steel welded to 4" x 2"x 1/4" steel tube. Each tube shall be topped with a wear bar of 3/8" x 3" AR500 180,000 PSI yield steel. Top of formed angle shall be reinforced with 1/4" plate. The guide rails shall be 2-3/8" off the floor and extend the full length of the body.  | _____ | _____ |
| A. Compactor panel shall ride on two (2) 3/8" x 3" x 48" AR500 180,000 PSI yield steel shoes on the outside edge of packer panel.   | _____ | _____ |
| B. Compactor panel shall also ride on two (2) 3/8" x 6" x 18" AR500 180,000 PSI yield steel shoes in the center of packer panel. The center shoes shall ride on two (2) 3/8" x 6" wide AR500 wear plates welded to the full length of hopper floor.   | _____ | _____ |
| 6) The hydraulic system shall incorporate a hopper sweep cycle. The compaction panel shall sweep the hopper area and return to rest at the forward end of the body. The complete sweep cycle shall be automatic after the push of a single start button. The control switches for the packing system must be micro type, operated by a push rod extending off the cylinder. (Pigtail or proximity switches are not acceptable.) | _____ | _____ |
| 7) The hydraulic system shall incorporate a dump limit control, when the packer is extended, to eliminate dumping behind the packer panel.  | _____ | _____ |
| 8) The body shall be equipped with - SLIDING - hopper cover. The hopper cover shall move forward and rearward to enclose the roof of the hopper.  | _____ | _____ |
| A. Hopper cover shall be constructed of 12 gauge 50,000 PSI yield sheet reinforced by 2-1/2" x 2-1/2" x 3/16" tube front crossmember, 3" x 2" x 10 ga. second crossmember, 2" x 2" x 3/16" third and fourth crossmember. Must have drain hole to eliminate water and ice build up in hopper cover.  | _____ | _____ |
| B. Hopper cover shall be powered by a hydraulic cylinder having a minimum, 3" I.D., 89" stroke, with a 1-3/4" chrome-plated rod. Cylinders to have hardened chrome rod, buffer seal, DU rod bearing, and canned wiper.  | _____ | _____ |
| C. Packer Blade to be equipment with (4) 4" sharks teeth  | _____ | _____ |
| D. Remote Lube Lines for Packer Blade Pins  | _____ | _____ |

**OFF LOADING BODY**

- 1) The body design shall be full eject off loading by use of the 2nd and 3rd stages of the packing cylinder. The 2nd and 3rd stages to be interlocked using a gate position switch within the tailgate and operate only with the tailgate in the full raised position.

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**OPERATING CONTROLS**

**BIDDER'S RESPONSE COLUMN**

**YES                      NO**

- 1) The operating controls for lift arms, container forks, packing panel, tailgate locking and opening, hopper door, body ejection system for unloading or any optional devise shall be located in the truck cab easily accessible to the operator while seated in a driving position. The controls shall be of the self-centering type, returning to neutral when released.
- 2) Control Panel shall be housed in a weather resistant control box provided with marine grade rocker type switches. Control box shall contain a circuit card with Self Diagnostic LED lights and control relay switches. A Warning Buzzer and Indicator Light shall be provided to alert the operator of an unsafe travel condition.
  - A. Each control function shall be properly labeled.
  - B. Body wiring to be connected directly into the control panel with common type cable connections.
- 3) Indicator lights shall be on a separate dash mounted console within direct view of the operator to indicate "System On", "Pump On", "Hopper Door Closed", "Tailgate Open", "Tailgate Full Open", "Unsafe Travel", " Body Up", "Service Filter", and "Side Door Open".
- 4) All fork and arm movements shall be controlled by a single joy stick or optional two lever control operating an air control valve.
- 5) Tailgate lock and lifting controls shall be a lock type switch to reduce the chance of an accidental operation. The tailgate shall have hardened safety lock pins (one per side) that must be removed manually before tailgate can be opened.
- 6) Control panel shall include an "Auto-Pack Cycle" switch, which when activated, the compactor panel will complete one packing cycle. An Emergency "STOP" button shall be included which when activated will instantly render control panel inoperative. An auto retract control is also to be provided.

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**HYDRAULIC SYSTEM (CONT'D)**

**BIDDER'S RESPONSE COLUMN**

**YES                      NO**

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|---|-------|-------|
| 1) The system shall be designed to operate at a maximum of 2500 PSI.  | _____ | _____ |
| 2) A factory sealed pressure relief valve shall be provided to protect the hydraulic system. All hydraulic lines and tubing shall be equipped with 37 degrees flare fittings of sufficient size for the oil flow. All high pressure hydraulic tubing shall be corrosion protected using Zinc Di-Chromate coating and clamped using bolt on molded clamps. All high pressure hoses shall have a protective nylon sock.   | _____ | _____ |
| 3) A driveline driven front engine mounted cast iron flow diverter type pump, Muncie MLS-M pump, with overflow protection and capacity of not less than 42 GPM at 1200 RPM shall be provided. The suction line feeding the pump from the reservoir shall be no less than 2-1/2" diameter and shall mate to a 2" diameter pump suction inlet opening.  | _____ | _____ |
| 4) The 47 gallon oil capacity reservoir shall be equipped with a suction screen mounted internally, 6 micron absolute return line replaceable element filter, with electrical by-pass indicator, shut-off valve, screened fill port , 10" long magnet mounted in lower corner of the tank, sloped top to shed water, return line defuser to eliminate aeration, channel over the suction screen to eliminate air ingestion, lower sump area, internal baffled and constructed of 3/16" plate. | _____ | _____ |
| A. The return line filter shall have a Beta rating of 200=4.6 and a dirt holding capacity of 146 grams.   | _____ | _____ |
| B. The hydraulic reservoir shall have two (2) 3 micron filtered breather caps.  | _____ | _____ |
| C. The hydraulic reservoir shall have a temperature gauge and An oil sight gauge with a minimum length of 5".   | _____ | _____ |
| 5) The hydraulic pump shall have a minimum 1-1/4" diameter pressure port and shall mate to a system pressure feed line with a minimum diameter of 1-1/4" and 1-1/2" pump overflow return to hydraulic reservoir.  | _____ | _____ |
| 6) The pressure line from the pump shall supply the body mounted five (5) spool main control valve. Control valve shall be air actuated by in cab controls.   | _____ | _____ |
| 7) All hydraulic functions shall be controlled by a sectional air operated hydraulic valve of no more than five (5) spools. Control valve shall be mounted at front of body. (Chassis mounted control valves are not acceptable.)   | _____ | _____ |
| 8) The control valve shall have a minimum of 1-1/2" return port equipped with a 2" diameter return line to the chassis mounted oil reservoir.   | _____ | _____ |

- 9) The hydraulic system shall have a fast retract valve in the packer system.

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**LIGHTING**

- 1) All lighting shall comply with D.O.T. and F.M.V.S.S. 108 regulations.
- 2) For long life and ease of service, all clearance, tail, stop and back-up lights shall be plug-in type, grommet mounted, shock resistant, waterproof, with Lexan lens. They shall be Truck-Lite or approved equal.

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**LIGHTING (CONT'D)**

**BIDDER'S RESPONSE COLUMN**

**YES                  NO**

- 3) Light package to include:
  - (2) 4" high mounted stop / tail
  - (2) 4" high mounted turn / tail
  - (1) mid body turn signal each side
  - (2) 4" low mounted stop / tail
  - (2) 4" low mounted turn / tail
  - (2) 4" low mounted back up lights
  - (1) license plate light
  - (1) center mounted brake light
- 4) Wiring harness in round convoluted soft conduit to be provided. Wiring harness to be numbered, with automotive type plug in connectors.

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**PAINTING**

- 1) Body to be cleaned, deburred, weld spatter and slag removed prior to multi-stage chemical treatment/high pressure wash. Provide powder coat primer and finish coat to assure a long-lasting durable paint system with excellent adhesion, color-fastness, solid-hiding, abrasive resistance and ultraviolet protection.  
In order to assure complete coverage and consistent thickness, the major assemblies will be painted prior to assembly.  
Dry film thickness is to be minimum 4 to 6 mills coverage.  
Paint to be baked at 325 degrees until fully cured.  
Paint must pass minimum 1250 hours salt spray test for corrosion resistance.  
Paint must pass UV test of 2000 hours for minimum loss of gloss and color shift.  
Hydraulic cylinders and valves to be painted black semi-gloss.  
Hose ends & hydraulic fittings to be anodized & be unpainted.  
Hydraulic tubing to be zinc dichromate plated and unpainted.  
Electrical harnesses, connections, switches, pneumatic tubing and fittings to be weatherproof and remain unpainted.

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**SILENCE OF SPECIFICATIONS**

The apparent silence of this specification and any supplemental specification as to any details or the omission from it of a detailed description concerning any point shall be regarded as meaning that only the best commercial practices are to prevail and that only materials of first quality and correct type, size and design are to be used. All workmanship is to be first quality. All interpretations of this specification shall be made upon the basis of this statement.

The right is reserved to reject any and all bids or to accept that deemed most advantageous to this office for value received.

Bid prices shall include delivery of the completed unit to: \_\_\_\_\_

Date: \_\_\_\_\_

Name of Firm Bidding: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Signed By: \_\_\_\_\_

Title: \_\_\_\_\_