

BID SPECIFICATIONS FOR (2) CLASS 8 MACK MRU613 DIESEL TRUCKS WITH 32' CUBIC YARD HIGH COMPACTION REAR LOADING BODIES

MINI-BID T16110014

CHASSIS

- MACK MRU613
- GVW: 66,000 LB. OR EQUIVALENT

ENGINE/TRANSMISSION/CLUTCH

- MP7-325M 325 HP @ 1500-1900 PRM
- 1200 FT. MAX TORQUE @1100-1350 RPM
- ALLISON 4500-RDS-6 TRANSMISSION
- EXHAUST/EMISSIONS
- DPF, CLEARTECH VV DPF VERTICAL LH SIDE BACK OF CAB W/SCR VERT RH SIDE BOC
- EXHAUST AFTER-TREATMENT SYSTEM, EXHAUST AFTER-TREATMENT SYSTEM DIESEL PARTIC FILTER CERAMIC PASSIVE REGEN
- DPF SMART SWITCH, NO INHIBIT DPF REGENERATION SWITCH
- EXHAUST, DPF, OUTBOARD, SINGLE (R/S) VERTICAL STRAIGHT EXHAUST STACK PLAIN END, SIDE OUTLET DIFFUSER

ENGINE EQUIPMENT

- AIR COMPRESSOR, MERITOR/WABCO 636 (AT LEAST 37.4 CFM)
- PRE-CLEANER (DRY TYPE CLEANER)
- ALTERNATOR, DELCO 12V 130 A (24SI) BRUSH-TYPE
- BATTERIES, (3) 12V 650/1950 CCA THREADED STUD TYPE
- TO -34 DEGREES F (-37 DEGREES C)
- COOLANT CONDITIONER

ENGINE BRAKE, POWERLEASH

- ENGINE BLOCK HEATER, 120V 1500 WATT ENGINE BLOCK HEATER
- FUEL-WATER SEPARATOR
- FURNISH FOR ALLISON TRANSMISSION W/DIRECT MOUNT COOLER
- VOCATIONAL PACKAGE – ALLISON, ALLISON GEN 5 PACKAGE #142 (AG) REFUSE WITH AUTO NEUTRAL ONE SELECTOR, TO NEUTRAL W/PARKING BRAKE ENGAGED

CAB

- AIR CONDITIONING, INTEGRAL W/HEATER (COMBO HEATER/AIR CONDITIONER UNIT) W/R134A REFRIGERANT

- AIR RESTRICTION MONITOR (INTAKE), GRADUATED LOCK-UP TYPE (W/MEMORY) DASH MOUNTED HOLDS READING AFTER ENGINE SHUTDOWN
- ANTISCUFF CAB ENTRY, DRIVER SIDE
- CAB CONFIGURATIONS, LOW-PROFILE COE (WELDED STEEL GALVANIZED SHELL), RUST PREVENTATIVE PROCEDURES
- CAB LIFT/TILT, LOCATED IN STD LOCATION
- CERTIFIED WEIGHT
- PARK BRAKE ACTIVATED
- MC DOOR ON LH SIDE (ROLL-UP WINDOW)
- ENGINE SHUTOFF, KEY TYPE
- FENDERS, POLYURIA FOR CHASSIS AND CAB SECTION
- GAUGE, EXHAUST PYROMETER
- GAUGE, ELECTRICAL
- GAUGES, ENGLISH DISPLAY
- GAUGE, SPEEDOMETER W/TRIP ODOMETER (ELECTRONIC 1% ACCURACY)
- GAUGE, TACHOMETER
- TRANSMISSION GAUGE AND TRANS. OIL HIGH TEMPERATURE LIGHT
- GLASS – CAB WINDOW, TINTED WINDSHIELD SIDE AND REAR WINDOWS
- FURNISH ADDITIONAL GRAB HANDLE ON DASH ON RIDER’S SIDE
- GRILLE, STANDARD FINISH
- W/O HEATER
- HORN – AIR, (1) TWIN TRUMPET (MOUNTED UNDER CAB)
- CHASSIS KEYED AT RANDOM – 2 KEYS
- MIRRORS – EXTERIOR, WEST COAST, RH & LH BRIGHT FINISH HEATED W/ STAINLESS STEEL ARMS AND BRACKETS
- MIRRORS – CONVEX TYPE, BRIGHT FINISH, LH & RH 8.9” DIA; MOUNTED BELOW WEST COAST MIRROR
- MIRRORS – PROXIMITY, RECT CONVEX ABOVE RH DOOR WINDOW
- FORWARD OVERHEAD STORAGE, (2) RADIO SHELF, DRIVER SIDE
- AM/FM STEREO, CD-PLAYER, MP3, WEATHERBAND
- RADIO ANTENNA, CH STYLE COWL MOUNTED ON LH SIDE
- SEAT – DRIVER, BOSTROM TALLADEGA 905 (MID-BACK) AIR SUSPENSION
- SEAT – RIDER, FIXED (MID-BACK) NON-SUSPENSION
- SEAT COVERING, ALL VINYL, SILVER GREY, DRIVER AND RIDER SEATS
- SEAT BELTS, LAP AND SHOULDER W/LOCKING SEAT BELT RETRACTORS
- DRIVER’S AND RIDER’S SEAT
- STEERING WHEEL, TWO SPOKE URETHANE GRIP PAINTED SPOKES
- TURN SIGNAL SWITCH, MANUAL CANCELLING TURN SIGNALS
- W/S CORNER WIND DEFLECTOR, BRIGHT FINISH WINDSHIELD CORNER
- WINDSHIELD PROTECTOR, FURNISH WINDSHIELD PROTECTOR
- WINDSHIELD WIPERS, 2 SPEED ELECTRIC MOTOR W/INTERMITTENT FEATURE

FRAME EQUIPMENT/FUEL TANKS

- BUMPER – FRONT, SWEPT BACK STEEL CHANNEL TYPE EXTENDED 63”/1600 MM BBC W/CENTER TOW PIN (92.62” X 11.25”)
- CROSSMEMBERS, STEEL ½” PL BOLTED BOC & INTERMDT 1/8” BELOW TOP OF RAIL

- CROSSMEMBER (BEHIND REAR AXLE), WEB CHANNEL TYPE
- 10" FRONT FRAME EXTENSION FOR REFUSE SERVICE
- SKID PLATE UNDER BUMPER AND RADIATOR
- TOWING DEVICE – FRONT, TOW PIN
- TOWING DEVICE – REAR W/O REAR TOWING DEVICE
- FUEL TANK – RH, 70 GALLON (265 L) ALUMINUM 26"X24" RECTANGULAR
- 6.6 GALLON (25L) 22" DIAMETER TANK RIGHT SIDE MTD
- FUEL DRAW/RETURN SYSTEM, AEROQUIP FIRE RESISTANT HOSE FOR RH FUEL TANK, INCLUDES SUMP
- RELOCATE FUEL TANK, LOCATE RH TANK AS FAR FORWARD AS POSSIBLE, 5" BELOW TOP OF RAIL

FRONT AXLE/EQUIPMENT/TIRES

- FRONT AXLES, 20000# (9072KG) WIDE PIVOT CENTER STRAIGHT SPINDLE/UNITIZED BEARINGS
- TIRES BRAND/TYPE – FRONT, MICHELIN – TUBELESS RADIAL PLY, (2) 315/80R22.5 20 L XZUS2 (ALL POSITION)
- WHEELS – FRONT, STEEL DISC (10-HOLE)
- (2) 22.5X9.0 (228 MM) HAYES LEMMERZ 10-HOLE HUB PILOTED (11 1/4"/286 MM BC)(FIVE HAND HOLE)(6.42" INSET)
- WHEELS – POLISHED (FRONT), W/O FRONT DISC WHEEL BRIGHT FINISH
- BRAKES – FRONT, BENDIX ES 165-06D, 16.5" X 6" CAST SPIDER
- BRAKE DRUMS – FRONT, CAST OUTBOARD MOUNTED
- DUST SHIELDS – FRONT BRAKE, FURNISH
- HUBS – FRONT, FERROUS
- SHOCK ABSORBERS, FRONT
- SLACK ADJUSTERS – FRONT, HALDEX – AUTOMATIC
- SPRINGS – FRONT, TAPERLEAF 20000# (9072KG) GROUND LOAD RATING
- STEERING, XD120 SHEPPARD STEERING GEAR (RATIO 23:1)

REAR AXLE/EQUIPMENT/TIRES/RATIOS

- REAR AXLE/SUSPENSION, 46000# (20866KG) CAST DUCTILE IRON HOUSING, MULTILEAF (CAMELBACK) 46000#
- 4S/4M SYSTEM REAR WHEEL END SENSORS
- TIRE BRAND/TYPE – REAR, MICHELIN – TUBELESS RADIAL PLY, (8) 11R24.5 16 H XDS2 (TRACTION)
- CARRIER/RATIO – REAR AXLE, CRDP150/151, 5.04 RATIO
- WHEELS – REAR, STEEL DISC (10 HOLE)
- (8) 24.5X8.25 (210 MM) HAYES LEMMERZ 10-HOLE HUB PILOTED (11 1/4"/286 MM BC)(TWO HAND HOLE)
- BRAKES – REAR, BENDIX ES165-08D, 16.5X8.0 CAST SPIDER
- BRAKE DIAPHRAGMS, W/O BRAKE DIAPHRAGM OPTION
- BRAKE DRUMS – REAR, CAST OUTBOARD MOUNTED
- DUST SHIELDS – REAR BRAKE, FURNISH
- HUBS – REAR, FERROUS
- OIL SEALS, STEMCO (VOYAGER)

- POWER DIVIDER LOCKOUT W/WARNING LIGHT AND BUZZER (INCLUDES IN CAB MANUAL AIR VALVE)
- RAISED REAR BRAKE CHAMBERS (REAR AXLE ONLY)
- W/O SHOCK INSULATORS
- SLACK ADJUSTERS – REAR, HALDEX – AUTOMATIC
- SUSPENSION – AXLE SPACING, 55” AXLE SPACING (BOGIE WHEELBASE)
- SPRINGS, ANTI-SWAY
- SPRING BRAKE CHAMBERS – VENDOR, MGM MODEL TR-T (TAMPER RESISTANT)
- REAR SPRING BRAKE CHAMBER 30/30 TYPE
- TRANSVERSE TORQUE ROD (REAR AXLE ONLY)
- DRIVER CONTROLLED INTER WHEEL DIFFERENTIAL LOCK BOTH RR AXLES, MANUAL AIR VALVE W/WARNING LIGHT
- BRONZE TRUNNION BUSHING

AIR/BRAKE

- AIR DRYER, MERITOR/WABCO HEADED AIR DRYER, 1800 W/COALESCING OIL FILTER
- AIR RESERVOIRS, ALUMINUM, UNPAINTED
- ANTI-LOCK BRAKE SYSTEM, BENDIX ABS
- AIR CONTROL VALVES – VENDOR, BENDIX SWITCHES AND VALVES WHERE POSSIBLE
- DRAIN VALVES, MANUAL DRAIN VALVES, WITH LANYARDS ON ALL TANKS
- HAND CONTROL VALVES FOR REAR SERVICE BRAKES

ELECTRICAL

- BACK-UP ALARM, W/INTERMITTENT FEATURE (AMBIENT NOISE SENSITIVE 87-112 DB)
- BATTERY BOX(ES), STEEL BASE
- BATTERY BOX COVERS, MOLDED PLASTIC BATTERY BOX – MOUNTING, MOUNT BATTERY BOX 11” BELOW TOP OF FRAME RAILS
- FLAMING RIVER BIG SWITCH WIRED ON POSITIVE SIDE
- COMPUTER AND 2-WAY RADIO DEDICATED CIRCUIT
- ELECTRICAL CIRCUIT PROTECTION PACKAGE, 12 VOLT W/CIRCUIT BREAKERS (HEADLAMP CIRCUIT: SAE TYPE I; ALL OTHER CIRCUITS SAE TYPE II) NEGATIVE GROUND SYSTEM
- WATERPROOF ELECTRICAL CONNECTIONS SPRAYED W/PROTECTIVE COATING
- CONTROL LINK II REFUSE BODYBUILDER ELECTRICAL CONNECTION SYSTEM
- CONSOLE INCLUDED WITH CONTROL LINK II
- HEADLIGHTS, (2) SINGLE ROUND HALOGEN LAMPS
- REAR LIGHTING, FURNISH STANDARD TAIL-LIGHTS
- PROVISION OF LOCAL INSTALLATION OF STROBE LIGHTS

PAINT

- PAINT – CAB EXTERIOR, SINGLE COLOR, WHITE (HIGH GLOSS)
- PAINT – CAB, URETHANE BASE COAT W/O CLEAR COAT
- PAINT – CAB INTERIOR, SAME COLOR AS CAB EXTERIOR COLOR

- PAINT – CHASSIS RUNNING GEAR, BLACK (URETHANE)
- PAINT – BUMPER, SAME AS CHASSIS RUNNING GEAR
- PAINT – FRONT SPOKE WHEELS, WITHOUT OPTIONAL SPOKE WHEEL PAINT
- WITHOUT OPTIONAL SPOKE WHEEL PAINT
- PRE-FINISHED POWDER COAT WHITE
- PRE-FINISHED POWDER COAT WHITE

PTO/SPECIALTY/ADDITIONAL EQUIPMENT

- PTO – CRANKSHAFT ADAPTER, 1350 SERIES FLANGE FOR FRONT END MIXER OR REFUSE PTO DRIVE (DOES NOT INCLUDE FRONT FRAME EXTENSION)
- PTO – REAR ENGINE (REPTO), WITHOUT REAR ENGINE POWER TAKE OFF
- FRONT MOUNTED PTO WITH FRAME EXTENSIONS
- HYDRAULIC PUMP, FURNISH PUMP MTG PROVISIONS FOR LOCAL INSTALLATION
- TORQUE CONVERTER TC541

V-MAC IV PROGRAMMABLE PARAMETERS

- CUSTOMER VEHICLE LIMITING SPEED (MPH) 65 mph
- PEDAL ROAD SPEED LIMITER (MPH) 65 mph
- LGVLS FEATURE ACTIVATION omit
- LOWER GEAR VEHICLE LIMITING SPEED (MPH) 00 mph
- SOFT RSL omit
- PDLO ENGAGED VLS FEATURE furnish
- PDLO ENGAGED VEHICLE LIMITING SPEED 25 rpm
- CRUISE CONTROL SETTINGS WITH ALLISON TRANSMISSION
 - CRUISE CONTROL MAX SET SPEED (MPH) 65 mph
 - CRUISE CONTROL MIN SET SPEED (MPH) 20 mph
 - CRUISE CONTROL AUTORESUME W/CLUTCH omit
 - CRUISE'N BRAKE ENGAGEMENT DELAY (MPH) 3 mph
 - SMOOTH CRUISE omit
 - ENGINE OVERSPEED COMPANY LIMIT (RPM) 2200 rpm
 - FUELED ENGINE OVERSPEED COMPANY LIMIT (RPM) 2100 rpm
 - VEHICLE OVERSPEED COMPANY LIMIT (MPH) 75 mph
 - FUELED VEHICLE OVERSPEED COMPANY LIMIT (MPH) 70 mph
 - IDLE LOGGING DELAY (MIN) 2
- MONTHLY TRIP SUMMARY
 - PERIODIC TRIP HOUR OF DAY 0 (disable)
 - PERIODIC TRIP DAY OF WEEK 0 (disable)
 - PERIODIC TRIP DAY OF MONTH 1
- EHT MAX ENGINE SET SPEED (RPM) 2100 rpm
- EHT MIN ENGINE SET SPEED (RPM) 700 rpm
- EHT VEHICLE SPEED RANGE LIMIT (MPH) 10 mph
- EHT RAMP RATE (RPM/SEC)
- EHT SINGLE SPEED CONTROL ACTIVATION omit
- EHT SINGLE SPEED CONTROL SET SPEED (RPM) 0000 rpm
- EHT JUMP-TO-MIN SET SPEED omit
- EHT HOLD TO NEAREST RPM 50 rpm
- EHT ACCEL-DECEL BUMP-UP RPM 50 rpm

- EHT ACCEL-DECEL BUMP-DOWN RPM 50 rpm
- ENGINE PROTECTION – OIL PRESSURE SHUTDOWN furnish
- ENGINE PROTECTION – COOLANT LEVEL SHUTDOWN omit
- ENGINE PROTECTION – COOLANT TEMP SHUTDOWN furnish
- ENGINE PROTECTION – ENGINE OIL TEMP SHUTDOWN furnish
- ENGINE PROTECTION TRANS OIL TEMP SHUTDOWN furnish
- ALLOW FAN OVERRIDE WHEN PARKED omit
- FAN ACTIVATION WITH PTO omit
- GOVERNOR SETTINGS FOR USE WITH AUTOMATIC TRANSMISSION
 - GOVERNOR TYPE, MIN-MAX GOVERNOR
 - ENGINE HIGH IDLE SPEED IF STOPPED 2100
 - VEHICLE ACCELERATION LIMITING FEATURE disable
 - REDUCED ENGINE RPM RANGE IN UPPER GEARS FEATURE disable
 - ENGINE RPM LIMIT IN UPPER GEARS 0000
 - 1ST TRANS RATION FOR REDUCED HIGH IDLE 0000
 - LAST TRANS RATIO FOR FULL HIGH IDLE 0000
 - ENGINE LOW IDLE SET SPEED (RPM) 650 rpm
 - DRIVER LOW IDLE ADJUST FEATURE ACTIVATION omit
 - SMART IDLE FEATURE ACTIVATION omit
 - SMART IDLE ELEVATED IDLE RPM TIME (MINS) 10
 - IDLE S/D ABS TAMPER CHECK omit
 - IDLE COOLDOWN FEATURE ACTIVATION omit
 - IDLE SHUTDOWN FEATURE ACTIVATION omit
 - IDLE SHUTDOWN TIME (MINS) 10
 - IDLE SHUTDOWN WARNING TIME (SECS) 30
 - IDLE SHUTDOWN WARM-UP TEMPERATURE (DEG-F) 100
 - IDLE SHUTDOWN WARM-UP TIMER (MINS) 5
 - IDLE S/D OVERRIDE W/EHT omit
 - IDLE S/D OVERRIDE W/PTO furnish
 - IDLE S/D OVERRIDE W/ENGINE LOAD omit
 - IDLE S/D OVERRIDE % ENGINE LOAD THRESHOLD 20
 - IDLE S/D CONTROL W/O IDLE SHUTDOWN
 - IDLE S/D OVERRIDE LOWER TEMP. THRESHOLD (DEG F) 60
 - IDLE S/D OVERRIDE UPPER TEMP. THRESHOLD (DEG F) 80
 - MAINTENANCE MONITOR FEATURE ACTIVATION furnish
 - PTO 1 MAX ENGINE SET SPEED (RPM) 2100 rpm
 - PTO 1 MIN ENGINE SET SPEED (RPM) 600 rpm
 - PTO 1 VEHICLE SPEED RANGE LIMIT (MPH) 10 mph
 - PTO 1 RAMP RATE (RPM/SEC) 100
 - PTO 1 SINGLE SPEED CONTROL ACTIVATION omit
 - PTO 1 SINGLE SPEED CONTROL SET SPEED (RPM) 1000 rpm
 - PTO 1 SINGLE SPEED CONTROL AUTOSET omit
 - PTO 1 JUMP-TO-MIN SET SPEED omit
 - PTO 1 VEHICLE LIMITING SPEED (MPH) 60 mph
 - PTO 1 HOLD TO NEAREST RPM 50 rpm
 - PTO 1 ACCEL-DECEL BUMP-UP RPM 50 rpm
 - PTO 1 ACCEL-DECEL BUMP-DOWN RPM 50 rpm
 - PTO 2 MAX ENGINE SET SPEED (RPM) 2100 rpm
 - PTO 2 MIN ENGINE SET SPEED (RPM) 600 rpm
 - PTO 2 VEHICLE SPEED RANGE LIMIT (MPH) 10 mph

- PTO 2 RAMP RATE (RPM/SEC) 100
- PTO 2 SINGLE SPEED CONTROL ACTIVATION omit
- PTO 2 SINGLE SPEED CONTROL SET SPEED (RPM) 1000 rpm
- PTO 2 SINGLE SPEED CONTROL AUTOSET omit
- PTO 2 JUMP-TO-MIN SET SPEED omit
- PTO 2 VEHICLE LIMITING SPEED (MPH) 60 mph
- PTO 2 HOLD TO NEAREST RPM 50 rpm
- PTO 2 ACCEL-DECEL BUMP-UP RPM 50 rpm
- PTO 2 ACCEL-DECEL BUMP-DOWN RPM 50 rpm
- SPEED SENSOR TAMPER DETECTION SYSTEM ACTIVATION furnish
- SPEED SENSOR TAMPER DETECTION SYSTEM TORQUE LIMIT (%) 50

BID SPECIFICATIONS FOR (2) 32 CUBIC YARD HIGH COMPACTION REAR LOADING BODIES

It is the intent of these specifications to describe the minimum requirements for (2) refuse collection bodies of the rear loading design. The capacity of the refuse body shall be 32 cubic yards, exclusive of tailgate. The refuse body described shall meet the minimum specifications that follow. New York State Office of General Services has evaluated different models of rear load refuse packers and has determined this published specification meets their needs in terms of quality and features. This specification shall not be interpreted as restrictive but rather as a measure of quality and performance against which all other bid offerings will be compared. All bidders are encouraged to offer the product they represent.

In comparing proposals, comparison will not be confined to price only. The successful bidder will be the one whose product is judged to best serve the interests of New York State when price, product, quality, and delivery are considered. All bidders shall attach a statement that the unit offered meets exactly, or exceeds, these specifications, or list any exceptions accurately and in detail in an attached submission. Detailed technical literature must be submitted for review. Failure to offer a complete explanation in response to specification exceptions or deceit in responding will render a bid irregular and non-responsive to the specifications, and the bid will be rejected. Decisions of equivalency will be at the sole discretion of New York State Office of General Services.

The successful bidder shall supply features, which are regularly furnished as standard with this unit. 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 unit, as specified herein, shall be completely assembled, painted, and ready for operation. The bidder shall represent by his bid that all equipment bid is new and unused.

GENERAL

- Refuse body to be a minimum 32 cubic yards capacity, exclusive of the hopper.
- Packer body shall be capable of packing 1,000 pounds per cubic yard, based on average household refuse.
- Packer body must meet all applicable ANSI Z-245.I Safety Standards.

BODY CONSTRUCTION

- The roof and side sheets are to be one piece, 11 gauge, 80,000-PSI minimum yield strength steel throughout with no seams. The rear one-third of the body is to incorporate a **double wall** for structural rigidity.

- Roof and sides are to be joined together by a one-piece formed corner formed of ¼” 50,000 PSI minimum yield strength steel.
- Body sides and roof must be curved design.
- The body must incorporate a longitudinal center floor-trough running the entire body length. The floor trough is to be constructed of a minimum 5/16”, 80,000-PSI yield strength steel. Flat floors not utilizing a liquid containing floor-trough will not be considered because such alternate designs raise the center of gravity of both the body and load.
- The floor sheets shall have a thickness of ¼” and be made out of 50,000-PSI minimum yield strength steel. The floor sheets are to have a formed flange, minimum 5-11/16” tall, that ties into side sheet.
- The floor support braces to be constructed of ½” x 6” steel bar 36,000 PSI yield strength, from the center floor trough outward.
- A steel, side hinged, access door located at the left front corner of the body, at floor level, is to be provided. Opening is to be a min. 30” x 32 ½”. Door to incorporate a spring loaded latch mechanism and a hydraulic interlock, ensuring all hydraulic functions cause when the door is opened.

BODY DIMENSIONS

- The inside height from bottom of floor-trough to center of roof sheet is to be no less than 90-7/8”.
- The overall height of body above the chassis frame is not to exceed 93” (prior to container lifting options, with no mounting sills).
- The maximum inside width is to be no less than 90”.
- The outside width is to be no more than 96”.

EJECTION SYSTEM

- Unloading shall be by full ejection method only. Dumping or raising of the body is not acceptable. Control level for ejection is to be located at the front, left side of the body.
- The ejection cylinder shall be telescopic consisting of multiple stages. A variable (adjustable) externally piloted resistance valve, which controls packing density and cylinder retraction, must be incorporated in the ejector panel/tailgate lift, two spool valve assembly. No portion of the ejection forces shall be directed toward the body floor (downward).
- The telescopic ejection system hydraulic cylinder must angle upward from its front mounting location to avoid forces being directed into the floor. Telescopic ejection cylinders mounted downward or horizontally are not acceptable. The case end of the cylinder must be attached to the ejection panel with full style bearing housings for easy removal and be secured approximately half way up the panel to counter the tipping forces applied to the ejection panel by the tailgate packing mechanism.
- The ejector panel face sheet is to be minimum 3/16” thick, 50,000-PSI steel. The panel must withstand the packing mechanism forces and the ejection of highly compacted refuse.
- The ejector panel is to travel the full length of the body and be equal in area to the cross section area of the body.
- The ejector panel must be designed to act as a bulkhead against which refuse is compressed and incorporate a “diamond-shaped deflector structure” which enhances compaction by directing material entering from the packing mechanism toward the upper corners of the body.
- The ejector panel shall travel on (4) 10 ½” long poly shoes on the lower panel guide and (4) 9-7/8” long poly shoes on the upper panel guide. These guide shoes must be replaceable without removing the ejection panel from the body.
- At no time may any portion of the ejector panel, when in its rearmost position, extend beyond the plane of the rear body opening.

TAILGATE

- The tailgate is to be top hinged to the body at the roofline utilizing cast steel hinges. It is to be raised for load ejection by (2) 4" bored, 3" rod, single acting "RAM style" cylinders mounted on the outside of the tailgate. Cylinders shall contain a restricting mechanism to prevent rapid descent of the tailgate and be manufactured with chrome-plated rods for durability.
- The tailgate is to be held in the closed position by (2) double lead thread screw clamps, one on each side of the tailgate. Clamps are to be equipped with a fast spin handle.
- Two tailgate props (one each side) externally mounted, shall be furnished. Tailgate to be open a minimum of 24", when in the propped position.
- An extruded rubber gasket is to be affixed to the tailgate to provide a watertight seal between the body and tailgate. Sealing must be effective up to a minimum height of 49".
- Bolt-on riding steps are to be provided on each side of the tailgate, and 1" minimum diameter grab handles will be located in a convenient place for rider safety. The steps must be 102" wide, made of grip-strut open grate material, and allow for a 4" vertical adjustment. Steps must comply with ANSI standards.
- The tailgate shall be equipped with a "tailgate ajar" switch with an indicator light in the cab. The purpose of this light is to indicate to the driver that the tailgate is not completely closed. The "tailgate ajar" switch with light must comply with ANSI safety standards.
- Tailgate top sheets are to be two-piece poly (for ease of removal, no tools required) and secured by quick release type fasteners.
- The standard tailgate load sill (no sill extensions for container handling) must be 5" below the chassis frame after mounting.
- Control level for the tailgate lift is to be located at the front left side of the body.

HOPPER

- The hopper floor is to be ½" 100,000 PSI minimum yield strength steel.
- The hopper sides are to be ¼" 50,000 PSI minimum yield strength steel.
- Inside hopper width is to be a minimum of 80".
- The hopper opening is to be a minimum of 80" wide x 54" high.
- The hopper capacity is to be a minimum of 3.5 cubic yards.
- The total cycle time is not to exceed 24 seconds.
- The hopper bottom is to incorporate a minimum of three (3) external longitudinal flat bar reinforcing members. Each bar to be ½" thick and 4" wide.
- The hopper tracks for the packer and carrier panels are to incorporate Hardox 450 175,000 PSI wear strips.

PACKING MECHANISM

- Packer plate shall be designed for heavy-duty commercial use. The packer face plate is to be ¼", 80,000 PSI yield steel with heavy duty reinforcing channels made from 3/16" thick steel. Formed channel 10" wide and 7-9/16" high shall run between the two packer panel cylinder towers. Two additional formed steel channels shall run from the 10" wide channel to the packer plate cutting edge.
- The carrier faceplate is to be a minimum of 3/16" 50,000 PSI yield strength steel.
- Minimum two (2) double acting, single stage, induction hardened, cushioned, 5 ½" bore x 4 ½" diameter rod, packer plate cylinders.
- Minimum two (2) double acting, single stage, induction hardened, cushioned, 5 ½" bore x 4 ½" diameter rod, carrier plate cylinders.

- The packer and carrier plate cylinders must be mounted inside the tailgate and all four cylinders must be interchangeable with each other.
- The packing plate is to compact material into the body against the ejector panel and not into the forward portion of the hopper itself. Pre-crushing of material in the hopper is not acceptable.
- The upper carrier plate is to utilize rollers rather than slides for easy movement. Rollers are to be 5" diameter made from forged 4150 steel induction hardened to 57-60 "Rockwell C" and have grease fittings accessible from external roller access openings.
- When the packing mechanism reaches the interrupt position, the packer plate must stop approximately 16" above the loading sill to avoid pinching action. The packing control handles must then be reactivated to complete the cycle. The packing control handles must be able to stop or reverse the packing mechanism at any position in the cycle.
- The packing plate shall be protected from overload by an independent packer (load edge stress sensing) circuit relief valve located at the operating valve.

HYDRAULIC SYSTEM

- The hydraulic pump is to be front-mounted, engine crankshaft-driven, gear type with wear compensating side plates using hydraulic pressure to keep them properly tensioned and positioned to maintain a consistent fluid flow rate. Pump shall allow "pack-on-the-go" operations. Engine overspeed protection to be wired and programmed through the Allison transmission.
- The capacity of the pump must not be rated at less than 42 gallons per minute at 1200 rpm.
- A factory sealed relief valve is to be set at a maximum of 2300 PSI.
- There shall be an internally mounted 141-micron (100 mesh) suction strainer with built-in bypass.
- A 10 micron return line filter, with a visual indicator to show when the filter is in a bypass mode, must be supplied.
- The hydraulic oil reservoir is to be located on the curbside, mounted on the body floor, and have an oil level sight gauge located for easy viewing through a port on the body sidewall.
- The hydraulic lines on the body roof must run from front to rear at a point that is below the roof crown, to keep them from being the highest part of the unit.
- The hydraulic oil reservoir is to have a combination filler/breather cap with 10-micron air filtration.
- The hydraulic oil reservoir shall supply adequate capacity to run all functions on the vehicle when on a 15% grade.
- All hydraulic cylinders are to operate without coming in direct contact with collected refuse.
- All hydraulic cylinder rods must be chrome plated to increase durability.
- The hydraulic system shall contain the following cylinders:
 - Two packer plate and two carrier plate cylinders- 5 1/2" bore, double acting, cushioned, with a stroke of 30-5/16". These four cylinders must have fully welded hydraulic fittings and must be interchangeable with each other. The cylinder rods must be induction hardened to a minimum 55 Rockwell "c".
 - Two tailgate lift cylinders – 4" bored, single acting "RAM style", with a stroke of 32-11/16".
 - Telescopic Ejection Cylinder – 5 State Telescopic 32 yard = 6 3/4"–5 1/2"–4 1/2"–3 1/2"–2 1/2" Bores; 170-5/16" Stroke
- Hydraulic hose construction to be SAE approved with a burst pressure at least 4x working pressure, reinforced with nylon wrap to prevent chafing. All hydraulic connections to have o-ring face seals. No "JIC" or pipefittings in high pressure or return lines.
- All hydraulic tubing to be zinc and yellow chromate plated. Must pass 100-hour salt spray.
- A manually operated control valve assembly utilizing direct mounted handles for ejection and tailgate lift is to be provided. This valve is to be located at the left front corner of the body. The

valve is to incorporate the main system relief valve, which is set and sealed at a maximum pressure of 2300 PSI.

- At no time shall control handles be inaccessible due to chassis components or configurations.
- The packing mechanism-operating valve shall be a two-spool stack style hydraulic valve and incorporate self-contained pressure release detent end cap assemblies.
- For ease of access, the valve assembly is to be located at the right hand side of the tailgate. The hydraulic valve work ports must point upward for ease of service. Also, all hydraulic lines going to the main valve must be isolated by bulkhead style connections from all moving hydraulic lines.
- There shall be hydraulic pump shut-off switches on both sides of the tailgate.

CONTROLS

- The manually operated controls for the packing mechanism are to be located curbside at the rear of the tailgate. An automatic throttle advance shall be provided. The dual lever controls must have the capability of stopping, starting, and reversing the packing mechanism. To avoid possible damage from rubbish, the dual lever control rods must be located outside the hopper.
- A push-button switch that activates a buzzer in the cab is to be provided on **both sides** of the tailgate to signal the driver.
- The tailgate lift and ejector controls, complete with a manually operated engine speed-up switch, are to be located at the left front corner of the body.
- PTO/pump controls are to be mounted inside the cab.
- A broom & shovel shall be supplied, with carrying provisions on both sides of the hopper provided by the manufacturer.

LIGHTING & ELECTRICAL

- Body lighting must comply with FMVSS #1098 regulations.
- For maximum visibility, a light panel above the hopper must also be provided, consisting of two 4" red stop/tail lights, two 4" amber turn signal lights, three individual I.D. lights, and one license plate bracket with light. All lights to be grommet-mounted except utility and license plate lights.
- Wiring shall be enclosed in a pre-assembled sealed harness to meet SAE specification #J2223-1-2-3.
- All electrical junction locations are to be within the body structure and must be weatherproof, meeting SAE spec #J2202. All junction locations are to be located so no overhead access is required.
- All wiring shall be color-coded and labelled.
- A back-up alarm conforming to current ANSI standards must be provided. The alarm must also sound when the tailgate is not closed.
- Two work lights shall be provided inside the hopper, along with (2) work lights outside the hopper to illuminate the loading area.
- Two LED 4" round amber lights shall be provided above the hopper, as well as (2) below the hopper, in addition to (2) on the top corners of the front bulkhead of the body, i.e., a total system of (6). These lights shall be activated by a switch in the cab. They shall flash in a strobe pattern, which shall be overridden by the turn signals. Once the turn signal is cancelled, the lights shall return to a strobe pattern.
- A rear vision camera system shall be provided, with a color 7" flatscreen monitor placed in the cab to provide a clear but non-obstructive view to the driver.

MOUNTING

- Mounting is to be done either at the factory or at an authorized distributor of the body manufacturer.

- Mounting is to incorporate rear pivot shoulder bolts, **double** spring supported front mounts with integral lateral restraints, and rubber mudflaps in anti-sail brackets in front of the rear axles.

COMMERCIAL PACKAGE

- The Commercial Tailgate is to have a 1/2" 100,000 PSI yield steel hopper floor and a 3/16" 50,000 PSI yield steel partition sheet. Also, two additional hopper side channels shall be added to each side to provide additional reinforcing to the area between the tailgate track channel and the hopper horizontal channel (increasing the total from 2 to 4 in this area on each side).
- The Commercial Package shall include full center bearings on the packer plate pivot shaft, and body ramp liners constructed of 1/4" 80,000 PSI yield steel.

OVERHEAD REEVING CYLINDER

- A hydraulically powered container-lifting device shall be mounted to the body roof. The Reeving cylinder shall have a 12,000# lift capacity, and be capable of emptying commercial containers of up to 10 cubic yards capacity.
- A set of container latches and ears for securing the container while it is being emptied into the hopper, shall be installed on the rear of the tailgate.
- An adjustable container stop bar, a top light guard, and a cable roller guide assembler shall also be furnished.
- A single level control for the Reeving Cylinder shall be mounted to the rear curbside of unit.

CART TIPPER FOR 95 GALLON POLY ROLL CARTS

- The body shall include (1) rotary-actuated poly cart tipper integrated into the rear loading sill of the hopper. This shall be powered by a factory-authorized hydraulic tap-in kit, complete with control handles & hydraulic flow controls. Please identify the make and model of the cart tipper proposed here: _____