

## **G – S PRODUCTS MODEL COLLECSTAR CS9116A**

### **SPECIFICATIONS FOR 16 CUBIC YARD AUTOMATED, FULL EJECT**

#### **SCOPE**

This specification describes a truck mounted, hydraulic refuse packer. This machine must be equipped with an automated loading mechanism on the curb side of the material receiving hopper near the front of the body. Body must be designed so that optimum load distribution can be achieved when installed on a 33000-40000 G.V.W. truck cab and chassis. Body installation shall not require modification to a standard truck chassis forward of the rear suspension. (NO DROP FRAME) THIS BODY MUST BE FULL EJECT MODEL. NO DUMP BODIES ALLOWED.

#### **I. BODY**

##### **A. CAPACITY**

1. The body shall have a usable capacity of sixteen (16) cubic yards including the tailgate.

##### **B. DIMENSIONS**

1. Body length – 185” – (including bustle tailgate).
2. Overall height above chassis – 94” – (lift mechanism in “down” position).
3. Overall height above chassis –MUST NOT EXCEED 120” – (lift mechanism in full “up” position with 90-100 gallon cart in grabbers).
4. Overall width-102”- with arm in parked position.

##### **1. CONSTRUCTION**

1. The body floor shall be constructed of 1/4” HARDOX 450 steel plate.
2. The body floor shall have 8” x 13.5 lbs./ft. structural channel long – members.
3. Body sides shall be curved shell style, eleven (11) gauge HARDOX 450 steel sheet.
4. Body roof shall be curved shell style, eleven (11) gauge HARDOX 450 steel sheet.
5. All external welds shall be continuous.

#### **II. TAILGATE**

##### **A. CAPACITY**

1. The tailgate shall have a usable capacity of 6.30 cubic yards minimum.

##### **B. CONSTRUCTION**

1. Body tailgate shall be bustle type, top hinged, with heavy-duty hinges and tapered-pin plunger style locks. Pivots and lock pins must have grease fittings.

2. Tailgate shall be equipped with a flow control device to assure smooth, even operation.
3. Tailgate to be constructed from 11 gauge Hardox steel sheet and framed with formed steel channel.
4. Gate shall have a seal across the bottom and at least 16" up each side to control liquid leakage.

#### **C. OPERATION**

1. For greater operational stability and safety the tailgate shall be raised and lowered with two 2 1/2" bore x 28" stroke double acting hydraulic cylinders.
2. All tailgate controls shall be located inside the truck cab within easy reach of the operator's position. I.E. tailgate operation shall not require exit of the cab by the driver. Controls shall be electric/air/hydraulic and spring returned to the "neutral" position.
3. Tailgate to lock and release hydraulically through the use of positive acting, tapered rod, plunger-style locks.
4. Tailgate ajar and lock status warning light and alarm to be installed in the truck cab.
5. Safety prop for tailgate to be included.
6. All exterior welds to be continuous.

### **III. PACKER HOPPER**

#### **A. FUNCTION**

1. The receiving hopper shall have 3.8 cubic yards capacity minimum.
2. Hopper shall act as receiving chamber for materials dumped by the lifting mechanism.

#### **B. CONSTRUCTION**

1. Hopper floor to be constructed of 1/4" HARDOX 450 steel plate with a 1/4" HARDOX 450 overlay extending 18" past the hopper.
2. Hopper side walls to be 1/4" HARDOX 450 steel plate.
3. All welds in areas that may be damaged by abrasive material such as fine glass MUST be "HARD SURFACED" with appropriate composite over-weld.

#### **C. HOPPER ACCESS**

1. Hopper must have access door on "street-side" of vehicle.  
Entry area must have O.H.S.A. compliant ladder and system kill Switch.

### **IV. COMPACTOR**

#### **A. FUNCTION**

1. Compactor is to move the material dumped by the arm from the receiving hopper into the body chamber. Also, compactor is to

compress the loaded material to such an extent that the vehicle is loaded to its recommended capacity.

#### **B. OPERATION**

1. Compactor to be powered by one (1), 5" bore x 60" stroke, single section, dual acting hydraulic cylinder.
2. Packer cycle shall be 25 seconds @ 1200 R.P.M.
3. When fully extended, compactor must penetrate the body by 18" minimum. This aids compaction of the material and reduces fallback into the loading hopper.
4. Compactor shall displace 2.0 cubic yards/cycle minimum.
5. Compactor shall have "on-demand" style controls with both "AUTOMATIC PACK" and "MANUAL PACK" selector console mounted in the truck cab and convenient from both sides of cab.
6. Compactor stroke shall be automatically reversible through the use of high quality automotive grade switches sensitive to both position and pressure.
7. Unit to be equipped with a "near-loaded" warning alarm to alert operator that body is approaching its maximum capacity.

#### **C. CONSTRUCTION**

1. Compactor to be guided by a floor mounted "T" track beam.
2. Both the "T" track beam and compactor guide shoes must be made of HARDOX 450 steel plate.
3. The compactor shall be constructed of engineered steel sections and fully tested using state-of-the-art Finite Stress Analysis technology.

### **V. AUTOMATED LOADING ARM**

#### **A. FUNCTION**

1. Loading arm shall be sleeve mounted on the curbside of the loading hopper. Arm horizontal and vertical supports shall be centered in relation to the hopper and the load to be lifted. No part of the loading arm shall be mounted underneath the chassis frame, inside the hopper, or in front of the body. Due to operational stresses under load and over time, NO OFF-SET OR CANTILEVER DESIGNS ARE ACCEPTABLE.
2. Arm must have the ability to pick up containers, dump and return without the need to extend.
3. Once can is engaged, lift MUST move vertically for the first 38" before tipping. This allows cans that may be placed above grade on snow banks or retaining walls to be safely serviced. This vertical movement must be controllable by the operator as needed from the in-cab control position.
4. Arm must have horizontal extension of 120" (144" reach to can center line without tilting or any vertical motion).

5. The container "lift" motion must be operated by one (1) 2" bore x 41" stroke hydraulic cylinder.
6. The container tilt/dump must be operated by one 3" bore x 12 3/8" stroke hydraulic cylinder with 1 1/2" cushion in rod end.
7. Lift cycle time shall be approximately seven (7) seconds (ground to ground) at engine idle.
8. Lifted container shall not "arc" outboard more than 25" during ground to ground movement.
9. Lift must stow within legal width with lift in down/grab open position.
10. Container dump cycle shall not exceed thirteen (13) feet, six (6) inches from the ground at its highest point. (May vary slightly with different chassis.)
11. Container dump angle when in full "up" position shall be 50 degrees minimum.
12. Lift vertical motion shall be track guided by replaceable, non-grease, NYLATRON NSM wear shoes
13. Lift cycle shall be smooth, non-binding and non-violent.
14. Lift load capacity shall be 1,000 lbs. at full extension.
15. Lift horizontal movement shall be track guided by NYLATRON NSM non-grease wear guides. Guides must be replaceable without track or lift dis-assembly.
16. Lift in/out motion shall be sequenced so that the first 48 inches of motion (stage 1) always extends first. This essentially eliminates wear to stage 2 wear guides since reach beyond 48" is used in less than 5% of average route conditions.
17. Grabbers shall be belt-type capable of handling containers ranging in size from 48 gallon to 100 gallon interchangeably. Grab pressure must be adjustable to suit different types of container manufacturing methods and materials.

## **B. CONSTRUCTION**

1. Loading lifting arms must be constructed of solid high tensile steel plate. Due to their tendency to deflect under load, tubular load lifting components are NOT acceptable.
2. All tilt mechanism connecting pins shall be 1.25" minimum diameter with self-aligning bearings and grease fittings.
3. Lift shall have a top rotator shaft that lifts grab mechanism through its motion while powered by a single hydraulic cylinder.
4. Top shaft shall be retained by replaceable NYLATRON NSM non-grease split bearings (two sets) and grade 8 bolts.
5. Lift arm rotator cam must have NYLATRON NSM non-grease bearing rotating on a 3" diameter shaft.
6. Cylinder pivots for grab, in-out as well as up/down shall be Teflon backed self-aligning greaseless bearings properly installed with 1" grade 8 bolts.

7. Grab pivots must use chromed steel pins with fiber filled greaseless bearings.
8. Grab cylinders (2) shall be 2" bore x 6" stroke.
9. In-out cylinders shall be two (2) 2" bore x 60" stroke with rubberized bumper on base end.
10. Up-down cylinder shall be 2" bore x 40" stroke.
11. Tilt cylinder must be 3" bore x 12 3/8" stroke

### **C. CONTROLS**

1. Outside controls for loading mechanism shall be located in the chassis cab and convenient for operator access from the ground.
2. In-cab control to be a joystick or rocker- style switches mounted in cab. Joystick or rocker switches shall control in/out, up/down/dump and grab functions.
3. Lift functions must operate without the need for computers, PLC's, proximity switches, or relays.

## **VI. BODY UNLOADING**

### **A. FUNCTION**

1. Body payload to be offloaded by hydraulically powered HORIZONTAL EJECTION.
2. Ejector panel to be operated by two (2), 3" bore x 80" stroke, SINGLE- SECTION, DOUBLE ACTING hydraulic cylinders. NO MULTI-STAGE TELESCOPIC CYLINDERS ALLOWED.
3. Ejector operation shall be sequenced so that panel will "extend" only when packer panel is in full "extend" position and tailgate is fully "up".
4. Controls to be mounted convenient to operator's in-cab driving location.

### **B. CONSTRUCTION**

1. Ejector panel to have a structural steel tubular frame.
2. Panel guide tracks to be formed 3/16" steel plate.
3. Panel guide/cylinder enclosure tube shall be 5" x 7" x 3/16" structural steel tube equipped with HARDOX 450 steel wear strips.
4. Floor level wear pads must be HARDOX 450.
5. HOIST TO DUMP OR MULTI- STAGE EJECTION CYLINDERS ARE UNACCEPTABLE.

## **VII. HYDRAULICS**

### **A. PUMP**

All body and lift functions shall be powered by a tandem-section gear type pump (36 G.P.M. @ 800 R.P.M.). This pump shall be powered by a transmission mounted Chelsea Model 890 power take- off. Each pump section shall automatically unload to tank when factory flow settings are exceeded. This feature prevents unintended or accidental over-speed of the system.

## **B. BODY CONTROL VALVES**

1. The body main valve must be a Parker hydraulics model VA-35 with main system pressure set @ 2,500 P.S.I. This valve must have one (1) control section to act as directional control for the packer. This valve must be electric/air/hydraulic controlled by automotive style relays. NO COMPUTERS OR PLC'S.
2. The valve assembly that controls all other lift and body functions shall be Parker hydraulics model VA-20 with relief set @ 2,500 P.S.I. Valve spool controls must be pneumatic. Lift functions must operate with no computers, PLC's, limit switches, or proximity switches.

## **C. HYDRAULIC RESERVOIR**

The body shall be equipped with a "street-side" frame mounted hydraulic reservoir with a minimum capacity of sixty (60) gallons. This reservoir shall be equipped with a fill cap, breather, fluid level indicator and temperature gauge. Under normal operating conditions, hydraulic oil temperature MUST NOT EXCEED 75 degrees above ambient temperature without the need for external cooling. NO AUXILIARY COOLING ALLOWED. NO EXCEPTIONS.

## **D. FILTRATION AND SERVICE**

System cleanliness and protection against contamination shall be accomplished through the use of the following devices:

1. All oil shall be routed through a 10 micron return line filter. This filter shall be installed at or near the front of the hydraulic reservoir and properly sized so that 100% of the flow is filtered under normal operating conditions without bypass. Filter must be located so that all periodic service can be performed from ground level. Filter service must be possible without loss of fluid.
2. IN-LINE SHUTOFF.  
For ease of service the suction line shall be equipped with a shutoff valve plumbed adjacent to the reservoir.
3. SUCTION STRAINER.  
A 100-mesh oil strainer must be installed in the hydraulic system suction line. This strainer must be serviceable without draining the system reservoir.

## **E. PLUMBING**

All body and lift plumbing not requiring flexibility to complete its function must be constructed of seamless steel hydraulic tubing correctly sized for each operation. Plumbing requiring hoses shall be routed in such a way as to prevent rubbing, chafing and undue bending.

### **VIII. IN-CAB CONTROLS**

The following controls must be mounted inside the truck cab for safe and convenient operation.

1. Hydraulic system on/off switch.
2. Body tailgate control.
3. Body ejector control.
4. Work light and strobe light switches.
5. Hopper cover control.
6. Lift joystick/ Rocker Switches
7. Packer over-ride switch

### **IX. LIGHTS**

1. Standard lights shall be supplied in accordance with FMVSS#108.
2. All body lights must be TRUCKLITE Model "SUPER 44" L.E.D. with SERIES 50 wiring harness.
3. Automated lift working area must have implement style adjustable work lights.

### **X. ACCESSORIES**

1. Federal under-ride bumper shall be installed.
2. Tailgate safety prop shall be provided.
3. Tailgate "ajar" and tailgate "unlock" alarm shall be provided.
4. Back up alarm shall be provided.
5. Both body and hopper shall have access doors on each side for cleaning behind the packer and ejector panels. Doors must be sealed when closed.
6. Hydraulically operated hopper cover/crusher panel..
7. Unit shall be equipped with a TRIPLE CAMERA SYSTEM by ZONE DEFENSE, MODEL ZD.323.1 LCD 2 camera system MODEL CAM 313C camera with 7" color LCD 22 pin, soft button monitor. Must include ASSC-400D PanaVice HD adjustable mount and all cables.

### **XI. PAINTING PROCEDURES**

1. The body and lift shall be free of all weld slag, dirt and grease and be prepared prior to painting in accordance with the paint manufacturers specifications.
2. Body and loading mechanism shall receive at least one coat of primer and one finish coat of polyurethane enamel. Primer shall be approved for use with the finish coat material.

### **XII. WARRANTY**

1. A minimum two-year warranty against manufacturing defects shall be provided by the manufacturer.
2. BODY MANUFACTURER MUST BE EQUIPPED TO PROVIDE ON-SITE SERVICE IF NEEDED.

3. SUFFICIENT ON-SITE TRAINING FOR BOTH OPERATORS AND MECHANICS SHALL BE CONDUCTED WHEN COMPLETED UNIT IS DELIVERED.

**XIII. BODY MUST BE MANUFACTURED IN THE U.S.A.**