CITY OF PLANO
COUNCIL AGENDA ITEM

CITY SECRETARY'S USE ONLY	
☐ Consent ☐ Regular ☐ Statutory	
Council Meeting Date:	2/8/2016
Department:	Public Works/ Environmental Waste
Department Head	Gerald Cosgrove
Agenda Coordinator (include phone #):	**Nancy Corwin x7137**

CAPTION

To approve and authorize Contract Modification No. Three (3) for the purchase of Cart Maintenance in the estimated amount of $537,986 from Otto Container Management, L.L.C. for Public Works Environmental Waste. This modification will provide for an extension to the current contract, 2001-6-C.

FINANCIAL SUMMARY

☐ NOT APPLICABLE ☒ OPERATING EXPENSE ☐ REVENUE ☐ CIP

FISCAL YEAR: **2015-16**	**Prior Year (CIP Only)**	**Current Year**	**Future Years**	**TOTALS**
Budget	0	932,086	0	**932,086**
Encumbered/Expended Amount	0	-235,738	0	**-235,738**
This Item	0	-537,986	0	**-537,986**
BALANCE	0	158,362	0	**158,362**

FUND(S): SUSTAINABILITY & ENVIRONMENTAL SERVICES FUND

COMMENTS: Funding is available in the 2015-16 Sustainability & Environmental Services Fund for this item. An extension to the current cart maintenance contract through September 2016, in the amount of $537,986, will leave a current year balance of $158,362 available for future expenditures to support solid waste collection in Plano.

STRATEGIC PLAN GOAL: Obtaining an extension to the current cart maintenance contract relates to the City's goal of a Financially Strong City with Service Excellence.

SUMMARY OF ITEM

See recommendation memo.

List of Supporting Documents:	Other Departments, Boards, Commissions or Agencies
Recommendation Memo	

Plano
City of Excellence

Memorandum

Date: November 25, 2015

To: Nicole Mucha, Purchasing Agent

From: Gerald P. Cosgrove, Director of Public Works GPC

Subject: Recommendation to Otto Container Management (OCM), L.L.C contract extension

Currently all residential 95 gallon and 65 gallon trash and recycling carts are provided, serviced and maintained through our existing contract with OCM, which has been in place since February 8, 2000. However, the current contract is set to expire on February 8, 2016. In advance of completing our "Request for Proposal" (RFP) to identify our future vendor of these services and products; I am seeking the approval of an eight (8) month extension of the current agreement with OCM. This extension will provide staff additional time to complete the RFP project and coordinate the transition between our current vendor and future vendor, if it should change. The associated cost of $537,986 for this extension will be funded from the $818,800 budgeted for this service in our 2015-16 Budget. OCM has agreed to the requested extension under the existing terms and conditions, while supporting their ability to use either the OCM "Classic" or "Edge" cart models.

Please let me know if you have any questions on this request.

THE STATE OF TEXAS	§	**Third Modification of Contract**
	§	**By and Between City of Plano and**
	§	**Otto Container Management, L.L.C.**
	§	**2001-06-C**
COUNTY OF COLLIN	§	

THIS THIRD MODIFICATION OF Contract (hereinafter "Third Modification") is by and between **OTTO CONTAINER MANAGEMENT, L.L.C.**, a Delaware limited liability company (hereinafter "Contractor") and the **CITY OF PLANO, TEXAS**, a home-rule municipal corporation (hereinafter "City"), acting by and through its City Manager or his designee.

W I T N E S S E T H:

WHEREAS, City and Contractor entered into an Agreement on February 8, 2001 (hereinafter "Agreement") for the maintenance, repair, replacement and distribution of roll out trash and recyclable carts (hereinafter "Services"); and

WHEREAS, City and Contractor executed a First Modification of Contract to provide for yearly rate adjustments and a Lease Agreement for outside storage area at City's Parkway Service Center; and

WHEREAS, City and Contractor executed a Second Modification of Contract on March 11, 2009 to increase services rate per cart and to waive certain provisions of section **IV. ANNUAL PRICE ADJUSTMENT**; and

WHEREAS, City and Contractor desire to further amend such Agreement in certain respects as set forth herein in this Third Modification.

NOW THEREFORE, the Agreement is incorporated herein as if written word for word. Except as provided below, all other terms and conditions of the Agreement shall remain unchanged and shall remain in full force and effect. In the event of any conflict or inconsistency between the provisions set forth in this Third Modification and the Agreement, priority of interpretation shall be in the following order: Third Modification, Second Modification, First Modification, Agreement. In consideration of the foregoing, and for other good and valuable consideration, the parties hereto agree as follows:

I.

Beginning on the effective date of this Modification and continuing through the remaining term of the Agreement, **the first paragraph of section II. TERM OF CONTRACT** is hereby modified to read in its entirety as follows:

"II.
TERM OF CONTRACT

The initial term of this Contract shall be a period of ten (10) years commencing upon the effective date hereof; provided however, that the City shall have the right and option to extend the term hereof by an additional five (5) year period by giving written notice to Contractor of the City's election to so extend the term hereof, such notice to be given not less than sixty (60) days prior to the expiration of the initial term. The contract expiration is extended to September 30, 2016."

II.

Beginning on the effective date of this Modification and continuing through the remaining term of the Agreement, **Exhibit "D"** is hereby removed and replaced with **Exhibit "D-1"**, updating specifications for automated refuse container.

III.

Beginning on the effective date of this Modification and continuing through the remaining term of the Agreement, **Exhibit "D-2"**, additional cart specifications, is hereby added to the Agreement.

IN WITNESS WHEREOF, this Modification shall be effective from and after the date of execution by the last signatory hereto as evidenced below.

OTTO CONTAINER MANAGEMENT, L.L.C.

By: _____
Name: John W. Bowers
Title: General Counsel

Date: _____

CITY OF PLANO, TEXAS

Date: _____

By: _____
Bruce D. Glasscock
CITY MANAGER

APPROVED AS TO FORM:

_____
Paige Mims, CITY ATTORNEY

ACKNOWLEDGMENTS

STATE OF North Carolina §
§
COUNTY OF Mecklenburg §

This instrument was acknowledged before me on the 8 day of January, 2016 by John Bowers, *(Authorized representative)* General Counsel *(Title)* of **OTTO CONTAINER MANAGEMENT, L.L.C.**, a Delaware limited liability company, on behalf of said limited liability company.

Kristy Ballard
Notary Public, State of North Carolina

STATE OF TEXAS §
§
COUNTY OF COLLIN §

This instrument was acknowledged before me on the _____ day of _____, 20__ by **BRUCE D. GLASSCOCK**, City Manager of the **CITY OF PLANO, TEXAS**, a home-rule municipal corporation, on behalf of said corporation.

_____
Notary Public, State of Texas

SECTION IV

SPECIFICATIONS FOR AUTOMATED REFUSE CONTAINER

DETAILS	SPECIFICATIONS	BIDDER'S PROPOSAL
MAKE/MODEL	MAKE	Otto Industries, Inc. MSD-952
COLOR	The container body, lid and other plastic components shall be green	X Yes ____ No
DIMENSION	The exterior dimensions (approximate) of the completely assembled container shall be as follows:	
	Height 41" Min. 47" Max.	Height 43.25" cart body height Height 46.50" overall height
	Depth 36" Max.	Depth 33.62"
	Width 31" Max.	Width 26.38"
CAPACITY	The container capacity shall be a minimum of 95-gallons level full, excluding additional volume achieved by crowned lid in the closed position.	X Yes ____ No Capacity 95.6 gallons
CONTAINER	The container shall be designed to be dumped by both semi-automated and fully automated truck systems. It will be the responsibility of the bidder to acquaint themselves with the dumping system used by the City.	X Yes ____ No
	The container body shall be free of pockets or handle recesses to trap refuse.	X Yes ____ No
	The container shall be capable of accommodating a minimum load of 200 pounds, excluding weight of the container.	X Yes ____ No

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COMPANY NAME Otto Industries, Inc

MATERIAL

The body of the container, the lid and all parts other than tires and axles shall be composed of high density polyethylene. Minimum wall thickness must be no less than .175 inch.

X Yes ____ No

Thickness .175"

Polyethylene resin shall be one hundred percent (100%) virgin material and cannot include any recycled or regenerated material.

X Yes ____ No

LID

The lid shall be composed of high density polyethylene, crowned and not flat. The lid shall be of such configuration that it will not warp, bend, slump or distort to such an extent that it no longer fits the container properly or becomes otherwise unserviceable.

X Yes ____ No

The lid must be designed in such a manner to ensure that the container will be watertight and be permanently attached to the container with a hinge density polyethylene, without the use of a metal hinge, metal bar, pvc, plastic glued connections, or any hidden bar. The lid shall open 270 degrees.

X Yes ____ No

No lid hatches will be accepted. Lid will be held closed by its weight only.

X Yes ____ No

MARKINGS

All containers shall be marked with a unique sequential eight-digit alpha-numeric inventory number on one side of the container. The inventory number shall be permanently hot-stamped onto the container in numerals and letters no less than 111 in height, white in color.

X Yes ____ No

"Property of City of Plano" will be hot-stamped in white with letters no less than ill in height on the 21same side

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of the container as the inventory number.

X Yes ____ No

COMPANY NAME Otto Industries, Inc.

"Keep Plano Beautiful" will be hot-stamped in white with letters no less than 111 in height on the opposite side of the container from the inventory number.

X Yes ____ No

The following information shall also be hot stamped in white on the lid of the container as specified below:

NO ASHES, PAINT, OIL, CHEMICALS, OR SOLVENTS MUST CLOSE LID BEFORE MOVING

X Yes ____ No

The following precaution will be placed on the underside of the lid in a position readily visible when container lid is raised:

"LIDS MUST BE CLOSED WHEN MOVING"

X Yes ____ No

RECORDS

Records must be kept by the supplier as to the coded month and year during which each serial numbered cart was produced to aid in any potential warranty claim.

X Yes ____ No

WEIGHT

Weight of the completely assembled container shall be approximately 40 lbs. minimum and 55 lbs. maximum.

X Yes ____ No

Weight 43.3 lbs.

MOBILITY

The container shall be easy to wheel whether full or empty. The container shall be constructed with foot-operated tilt feature designed into the axle area to facilitate ease of container tipping.

X Yes ____ No

STABILITY

The container shall be stable and self-balancing when in the upright position, when either loaded or empty, lid open or closed. The container must remain upright when the lid is thrown open.

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X
Yes

No

COMPANY NAME Otto Industries, Inc.

The container when empty must be designed to prevent being turned over by wind of up to 35 mph as applied to the cart from any direction.

X
Yes

No

MPH Design 45

HANDLE

The handle mounts must be an integrally molded part of the cart body and be comprised of two side handle holds.The clearance between the cart body and the inside edge of the handle shall be no less than 2". The external handle diameter shall be 1.25".

Otto's container has a clearance between the cart body and the handle that measures 1.65". The handle diameter is 1.00".

Yes

X
No

WHEELS AND AXLE

Each container shall be equipped with an axle and two wheels. The wheels shall be 12" x 1.75" blow molded plastic suitable for automated application. Wheels shall be fully functional for supporting a minimum of 200 lbs. of garbage weight. The axle shall be galvanized solid steel, minimum of 7/8" in diameter.

X
Yes

No

Wheel Diameter 12"

Axle Diameter 7/8"

Wheels will be attached to the axle in a tamper-resistant method and cannot be easily removed by use of pliers, hammer or like hand tools.

X
Yes

No

The supplier will provide wheel removal tools at a rate of one (1) tool per each 3,000 carts purchased.

X
Yes

No

LIFT BARS

Unitized-recessed lift system.

X

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Yes No

TESTING FOR AUTOMATED CARTS

A. Spec Requirements Testing

1. Dimensions-and Weight
2. Capacity (gallons; load pounds)
3. Materials Thickness (all sides, bottom, top, corners)

4. Tilt feature
5. Rain requirement
6. wheel removal
7. Wheel and Axle Diameter

B. Durability Testing - to evaluate the strength and durability of the stress points of the cart which may be of concern over a 10-year period.

1. Lift Stress Points and Compatability with Existing Hydraulic Lifting Equipment. The cart will be loaded with 200 lbs material. After lifting the cart 520 times, the cart will be serviceable condition without any cracks or tears to the life system or surrounding area.

2. Drop/Impact - The carts will be loaded with 200 pounds distributed load (eight burlap bags filled with 25 lbs of sand and wood chips) and dropped from a height of 5 feet for a minimum of 20 times and the cart will be in serviceable condition. Results will be recorded. The cart will continue to be dropped until the cart is damaged or rendered unserviceable. Results will be recorded.

3. Bottom Wear - The cart will be towed over concrete for a total distance of 390 feet loaded and 390 feet empty. Material thickness will be measured and recorded upon completion of this test.

4. Lid/Hinge Life Cycle Test. Each lid will be manually opened and closed for 4,160 cycles.

C. Stability Testing

1. Lid Opening - The lid will be thrown open five times with the container empty and results recorded.

2. Wind Stability Testing - Construction Consulting Lab., Inc. will use a jet engine to produce winds up to 35 mph and the carts will be placed in the wind from each side. Results will be recorded.

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SECTION V.

SPECIFICATIONS FOR AUTOMATED DIVIDED RECYCLING ROLL-OUT CONTAINERS

DETAILS	SPECIFICATIONS	BIDDER'S PROPOSAL
MAKE/MODEL	MAKE	Otto Industries, Inc. MSD-953
COLOR	The container body shall be green. The lid shall be black.	X Yes ____ No
DIMENSION	The exterior dimensions (approximate) of the completely assembled container shall be as follows:	
	Height 41" Min. 47" Max.	Height 43.25" cart body height Height 46.50" overall height
	Depth 36" Max.	Depth 33.62"
	Width 31" Max.	Width 26.38"
CAPACITY	The container capacity shall be a minimum of 95-gallons level full, excluding additional volume achieved by crowned lid in the closed position.	X Yes ____ No Capacity 95.6
CONTAINER	Meets requirements set forth in ANSI Z-245.30.	
	The container shall be designed to be dumped by Heil Rapid Rail fully automated split body recycling truck. It will be the responsibility of the bidder to acquaint themselves with the dumping system used by the City.	
	The container body will have a flat frontal area, side areas and back to help square the cart to the grabber. This will ensure divider placement to hopper to prevent cross contamination.	X Yes ____ No
	The container shall be designed to contain two streams of recyclables in separated compartments. The cart will be divided with a removable rotational or blow molded panel.	X ____

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	Yes	No
The container body must be designed with a rib and slot detail to attach a removable side to side blow molded divider panel. This feature allows the container to collect separated recyclables. The panel will be held in place by plastic removable clips at the top lip and by molded in slots in the container floor, or other attachment method approved by the City of Plano.	X	
The container body shall be free of pockets which could trap recyclables.	X	
Molded in place upper bar is unacceptable due to interference with automated grabber lift system.	X	
The container shall be capable of accommodating a minimum load of 200 pounds, excluding weight of the container.	X	

MATERIAL

The body of the container, the lid and all parts other than tires and axles shall be composed of high density polyethylene. Average minimum wall thickness of the Container body must be no less than .175 inch.	X	
Thickness .175"		
Polyethylene resin shall be one hundred percent (100%) virgin material and cannot include any recycled or regenerated material.	X	
Non-recyclable material such as cross linked polyethylene will not be acceptable.	X	

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LID

The lid shall be composed of high density polyethylene, crowned and not flat. The lid shall be of such configuration that it will not warp, bend, slump or distort to such an extent that it no longer fits the container properly or becomes otherwise unserviceable.

X Yes ____ No

The lid must be designed in such a manner to ensure that the container will be watertight and be permanently attached with a hinge of high density polyethylene to the container without the use of a metal hinge, metal bar, pvc, plastic glued connections, or any hidden bar. The lid shall open 270 degrees.

X Yes ____ No

The lid will incorporate a molded in "tab" to facilitate automated lid opening by pneumatic cylinder on the truck lifter system. The "tab" will be made of high density polyethylene. It will be located on the left side of the cart lid. It will measure 4.00 inches front to back in length and extending 3.00 inches from the side, beginning 8.25 inches from the front of the cart lid. See attached drawing.

No lid hatches will be accepted.
Lid will be held closed by its weight only.

X Yes ____ No

MARKINGS

All containers shall be marked with a unique sequential eight-digit alpha-numeric inventory number on one side of the container. The inventory number shall be permanently hot-stamped onto the container in numerals and letters no less than 1" in height, white in color.

X Yes ____ No

"Property of City of Plano" will be hot-stamped in white with letters no less than 1" in height on the same side of the container as the inventory number.

X Yes ____ No

"Keep Plano Beautiful" will be hot-stamped in white with letters no less than 1" in height on the opposite side of the container

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from the inventory number.

X Yes ____ No

The following information shall also be hot stamped in white on the lid of the container, as specified below:

RECYCLING ONLY (1 ½" letters)
NO PAINT, OIL OR CHEMICALS,
MUST CLOSE LID BEFORE MOVING

X Yes ____ No

A permanent sticker will be placed on the underside of the lid in a position readily visible when container lid is raised. The sticker on the front half of the lid will read:

NEWSPAPERS & MAGAZINES ONLY

The sticker on the back half of the lid will read:

ALUMINUM & TIN/STEEL CANS,
GLASS BOTTLES, PLASTICS 1 & 2,
AEROSOL CANS

X Yes ____ No

Provide two stickers for each container with same wording as the stickers for the inside of the lid. These will be placed on the panel during cart assembly and set-out.

X Yes ____ No

All markings must be submitted for approval by the City of Plano.

X Yes ____ No

RECORDS

Records must be kept by the supplier as to the coded month and year during which each serial numbered cart was produced to aid in any potential warranty claim.

X Yes ____ No

WEIGHT

Weight of the completely assembled container shall be approximately 40 lbs. minimum and 55 lbs. maximum.

X Yes ____ No

Weight 43.3 lbs.

MOBILITY

The container shall be easy to wheel whether full or empty. The

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container shall be constructed with foot-operated tilt feature designed into the axle area to facilitate ease of container tipping.

X Yes ____ No

STABILITY

The container shall be stable and self-balancing when in the upright position, when either loaded or empty, lid open or closed. The container must remain upright when the lid is thrown open.

X Yes ____ No

The container when empty must be designed to prevent being turned over by wind of up to 35 mph as applied to the cart from any direction.

X Yes ____ No

MPH Design 45

HANDLE

The handle mounts must be an integrally molded part of the cart body and be comprised of two side handle holds or one continuous handle hold. The clearance between the cart body and the inside edge of the handle shall be no less than 1.50"

X Yes ____ No

WHEELS AND AXLE

Each container shall be equipped with an axle and two wheels. The wheels shall be a minimum of 10" x 1.75" blow molded plastic suitable for automated application. Wheels shall be fully functional for supporting a minimum of 200 lbs. The axle shall be zinc plated steel, minimum of 5/8" in diameter.

X Yes ____ No

Wheel Diameter 12"

Axle Diameter 7/8"

Wheels will be attached to the axle in a tamper-resistant method and cannot be easily removed by use of pliers, hammer or like hand tools.

X Yes ____ No

The supplier will provide wheel removal tools at a rate of one (1) tool

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X Yes ____ No

DELIVERY

Containers are to be supplied fully assembled except for axles, wheels, divider panels, and clips which will be assembled by the City. Unit price quoted shall include delivery to a single location of the City's designation.

X Yes ____ No

Delivery of 7,000 containers will be made within 90 days of award of contract with the remaining 18,000 containers delivered over the next 60 days in shipments designated by the City.

*N/A per Tom Johnson on 11/27/00.

* Yes * No

Divider panels and clips shall be shipped separately.

X Yes ____ No

SERVICE

Bidders must have their own parts and service facility and be able to respond to any service problem within a forty-eight (48) hour notice.

X Yes ____ No

WARRANTY

The container,divider panel, lid, wheels, axle and all necessary hardware must be covered by a ten (10) year warranty. Any component parts which fail in materials or work-manship to perform as originally designed shall be replaced or repaired by the cart representative at NO CHARGE to the City.

X Yes ____ No

No original manufacturer's warranty will be acceptable.

X Yes ____ No

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No pro-rated warranty will be accepted.

X Yes _____ No

Warranty includes, but is not limited to one or more factors listed below:

1. Failure of the lid to prevent rain water from entering the container when closed on the containers body.

2. Failure of the lid and/or container body in preventing penetration by squirrels and other rodents.

3. Damage to the container body, the lid, or any component parts through opening or closing the lid.

4. Failure of the lid hinge to remain fully functional and continually hold the lid in the originally designed and intended positions when either opened or closed.

5. Failure of axle to remain free of excessive red rust and corrosion, to be determined by the City.

6. Failure of any plastic component to be resistant to damage in the event of contact with any common household or residential product/chemicals other than those listed by the Contractor.

7. Failure of any portion of the bottom of the container body to remain impervious to damage or wear-through repeated contact with rough and abrasive surfaces.

   At any time during the ten-year warranty period any container of which the bottom becomes worn through normal wear and tear and fractures, or has holes so that it leaks when filled with water, such container body shall be replaced in its entirety and without charge under the warranty.

8. Failure of the container body, lid hardware, or any component parts to maintain their original shape.

9. Failure of the wheels to provide continuous, easy mobility, as originally designed or intended.

10. Failure of any container body, lid, wheels,

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or other component part to conform to the minimum standards specified herein; i.e., failure to use only first quality, high density, virgin resin.

11. Damage or failure of container assemblies caused by any incompatibility of the container and the City's hydraulic dumping units.

12. Breakage of the lid or lid tab during normal automated collection.

13. Failure of the container divider to remain in the container during normal collection operations.

TESTING FOR AUTOMATED RECYCLING CARTS

A. Spec Requirements Testing

1. Dimensions-and Weight
2. Capacity (gallons; load pounds)
3. Materials Thickness (all sides, bottom, top, corners)
4. Tilt feature
5. Rain requirement
6. wheel removal
7. Wheel and Axle Diameter

B. Durability Testing - to evaluate the strength and durability of the stress points of the cart which may be of concern over a 10-year period. The recycling collection program will consist of servicing the containers every other week; therefore, the containers will be dumped a maximum of 260 times over ten years.

1. Lift Stress Points and Compatibility with Existing Hydraulic Lifting Equipment. The cart will be loaded with 200 lbs material. After lifting the cart 260 times, the cart, including tab, will be in serviceable condition without any cracks or tears to the lift system or surrounding area.

2. Drop/Impact - The carts will be loaded with 200 pounds distributed load (eight burlap bags filled with 25 lbs of sand and wood chips) and dropped from a height of 5 feet for a minimum of 20 times and the cart will be in serviceable condition. Results will be recorded. The cart will continue to be dropped until the cart is damaged or rendered unserviceable. Results will be recorded.

3. Bottom Wear – The cart will be towed over concrete for a total distance of 390 feet Loaded and 390 feet empty. Material thickness will be measured and recorded upon completion of this test.

C. Compatibility

1. Containers will be tested to ensure material from one stream does not cross over to the other stream during the dumping process.

D. Stability Testing

1. Lid Opening - The lid will be thrown open five times with the container empty and results recorded.

2. Wind Stability Testing - Construction Consulting Lab., Inc. will use a jet engine to produce winds up to 35 mph and the carts will be placed in the wind from each side. Results will be recorded.

All bidders are invited to observe testing which will be performed by City staff with the exception of Wind Stability which will be performed by Construction Consulting Lab., Inc. and Drop Impact which will be performed by Southwestern Laboratories, Inc.

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OTTO INDUSTRIES, INC.

CHEMICAL SUBSTANCES

The container body, lid, wheels and other plastic components will not be damaged through contact with any common household and residential products or chemicals.

Otto carts have been tested by immersion in 100% solutions of over 150 liquid chemicals at temperatures up to 140° for periods of one to twelve months. Resins are then checked for any changes in their stress strain behavior as well as hardness. At temperatures of -30° to 140°F, the plastic is resistant to all household and residential chemical substances which should properly be disposed of in domestic refuse.

However, substances which are flammable or labeled toxic or hazardous by the Environmental Protection Agency should not be disposed of in household wastes. For example, small quantities of paint, turpentine, fuel oils, or chlorine could discolor the plastic. However, they are potentially far more hazardous to the sanitation workers and their equipment. Further, should these substances then be disposed of in a landfill, they could cause serious pollution to ground water.

The following list represents substances found in household wastes that have been found to change the properties of plastic. In contrast to metal where corrosive substances cause a chemical change to take place in the material, plastics undergo mainly physical changes which could include distortion or changes in weight.

While 100% solution of these substances could harm the carts, there are a few occasions where 100% solutions occur in household chemical substances. We recommend that special procedures for disposing of these wastes should be set up by the city and made available to citizens.

Decahydronaphthalene-Naphtha - Highly Flammable.
Chemical found in lighter fluid. Plastic is resistant except at temperatures exceeding 120° F.

Bromine - Combined with tetraethyl, produces anti-knock gas treatments such as STP. Cart is not resistant to 100% concentration of Bromine.

Chlorine - Chlorine found in fire extinguishers, swimming pool chemicals and water purification additives. Concentrations for household use are no more than 10%.

Hydrogen Peroxide - Cart resists up to 90% concentrations. Household products contain no more than 5% concentration.

Petro - Cart is resistant to all petrol fuels except super grade of 90% octane and above at temperatures over 120° F.

MSD-95 Gallon Container Specifications

(Revised 3/99)
Six Pages

The MSD-95 Gallon Container consists of injection molded, high density polyethylene plastic body, hinged lid, two plastic wheel assemblies, a solid steel axle, and four hinge pins.

The MSD-95 Gallon Container comes in three versions, making it compatible with all types of lifter systems. The MSD-952 version is intended for use with fully automated arm lifter systems and standard, semi-automated bar lifter systems. The MSD-953 version can be used with both fully automated arm lifter systems and European comb lifter systems. The MSD-954 version is exclusively designed for the vacuum cup lifter system. The MSD-954 version can also be used with fully automatic lifter systems and European comb lifter systems.

The MSD-95 Gallon Containers also offers a unique feature. The container body can be divided into two equal parts by installing a divider panel. The divider panel segregates the container either side-to-side or front-to-back into two equal sections. This feature allows the container to collect separated recyclables, such as glass and plastics. The divider panels can be retrofitted with the containers at a later date.

VOLUME CAPACITY:

The actual volume is 97 gallons with lid closed. This volume does not include any portion of the lid that is above the rim of the container.

LOAD RATING:

The MSD-95 Gallon Container is capable of accommodating a load of up to 335 pounds.

WEIGHT:

The completed assembly weight of the container is 43.3 pounds when equipped with OTTO's plastic molded wheels.

DIMENSIONS:

Cart Body Height:	43.25"
Overall Height:	46.50"
Overall Width:	26.38"
Overall Depth:	33.62"

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Quality Components. Successful Systems.

CONTAINER BODY:

The Container Body is injection molded from High Density Polyethylene (HDPE). The container body has smooth surfaces both inside and outside. The interior is free of crevices and recesses where refuse could become trapped, thus preventing complete emptying. The minimum wall thickness is 0.175 inch on the container sidewalls and 0.200" on the bottom section. The high density polyethylene has a density of 0.947 to 0.968 grams cm3. The Melt Index (MI) of the HDPE is 4.0 to 6.0.

The top of the container body is reinforced with a rim that extends around the entire perimeter. This feature adds structure and stability to the container and provides a flat surface for the lid. The handles are integrally molded into the container body at the top rim.

The front of the container on the MSD-952 and MSD-953 versions is recessed. The lower bar is integrally molded into the container base in the front recess. The tearout strength of the lower bar is in excess of 1800 pounds.

The bottom of the container has molded in wear strips that extend around the bottom perimeter. The wear strips and ribs protect the container and add strength and structure to the container. A recessed area in the middle of the axle acts as a molded in tilting feature. This recessed detail allows the container to be easily tilted, even with a full load.

The MSD-95 gallon container body is designed with a rib and slot detail to allow the option of a front-to-back or side-to-side divider panel. The divider splits the container into two separate compartments.

The front rim on the OTTO container is reinforced with internal ribs. These ribs add strength and structure to the rim area.

The OTTO containers are designed to be nested or stacked for transport. This saves on transportation and handling costs. Stacking ribs are molded into the top rim of the container body to prevent jamming (sticking together) and allows for easy unstacking.

The weight of the container body is 30 pounds. This weight does not include any other components.

LID:

The Lid is injection molded from HDPE. The lid is installed to the container body using four hinge pins and rotates freely a full 270 degrees. The lid, when closed, rests on the top rim of the container body. This allows a secure tight fit around the entire perimeter between the lid and base. This prevents rain, insects, and vermin from entering the container, and odors are contained, when the lid is closed. A molded in rain lip on the top rim of the container base prevents rain from entering. The lid does not require a latch or snap fit, therefore, children cannot get trapped inside. The lid and container, when empty, withstands winds up to 45 MPH without tipping over or causing the lid to open.

EXHIBIT D-1

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The entire front rim of the lid is recessed to form a hand hold area. This allows the lid to be easily opened from any position.

The minimum material thickness in the lid is 0.130 inch.

The weight of the lid is 4.41 pounds.

HINGE PIN:

The Hinge Pin is injection molded from HDPE. The hinge pin secures the lid to the integrally molded lid hinge and handle detail. The hinge pin is installed using a rubber mallet. At installation, the truncated conical end of the hinge pin compresses and snaps into the pocket detail in the handle detail. The hinge pin can be removed with a special tool available from OTTO. This prevents vandalism and securely fastens the lid to the container base. Four (4) hinge pins are used to secure the lid.

LID HINGE AND HANDLE DETAIL:

The lid hinge is integrally molded to the container body. Handles are located at two places. The handle has a 1.00" diameter and provides two 5.75" handle gripping areas. The clearance between the handle and the container rim is 1.65".

AXLE:

The machined solid steel axle has an 0.844" diameter and is 22.62" long. The axle is zinc plated to protect against rust and corrosion. The large diameter of the axle allows the container to be easily rolled on any surface and supports a fully loaded container. The axle will withstand an 800 pound load without permanent deformation. The weight of the axle is 3.35 pounds.

WHEELS:

The Wheels are slightly recessed into the container body. The wheel assembly consists of a 12" diameter plastic molded wheel with spacers and an end cap.

The wheels on the OTTO container are capable of supporting a 200 pound load per wheel.

The wheel assembly takes only seconds to install on the axle.

EXHIBIT D-1
PAGE 17 OF 25

MARKINGS:

All carts can be hot stamped with a unique sequence number to facilitate distribution and control. The customer's name or logo can be hot stamped on the container's lid or body.
The containers are permanently marked with the month and year of production, tool number, material identification, patent number, and manufacture's insignia.

All carts can be labeled with the following notice:

OTTO INDUSTRIES, INC.

OTTO REFUSE CARTS AND CONTAINERS:
INSTRUCTIONS FOR OPERATION AND USE

LOADING: The containers are designed to hold domestic refuse, yard trash and similar waste products.

DO NOT PUT IN : Anything Hot
: Liquids
: Fire, Barbecue Ashes
: Chemicals

DO NOT OVERLOAD, do not put in sand, soil, other heavy materials.

LOCATION: Locate the container in a safe place.

DO NOT PLACE IT - on an elevated platform-it might fall off
- on a steep slope-it might run away
-close to a driveway or road-it might be run over.

ROLL: The containers are built to roll freely, do not overload or you may have difficulty controlling the container on a slope. Do not strain, just tilt the container slightly towards you and pull gently, you will find that it rolls easily, even over curbs, sand and snow.

WORKMANSHIP:

The plastic material, high density polyethylene, is manufactured from virgin raw materials by major petrochemical companies, (i.e. Exxon, Quantum, Phillips) and includes no recycled or regenerated plastic or foreign material.

Up to 20% recycled material (PCR) content is available upon request.

Molded parts show no foreign substances, shrink holes, cracks, blow holes or webs. There are no color streaks.

COLOR:

The standard colors are Green, Forest Green, Gray, Blue, and Dark Blue. Other colors are available to special order.

All injection molded parts are specifically prepared to be colorfast so that the plastic material does not alter appreciably in normal use. Due to the high quality pigment package and injection molding process, OTTO containers have excellent color fastness. Our containers have a nominal 3% pigment by weight.

EXHIBIT D-1
PAGE 18 OF 25

Quality Components.
Successful Systems.

UV LIGHT STABILIZATION:

The OTTO container is stabilized against ultraviolet degradation with not less than one half of one percent of a Hindered Anime Light Stabilizer (HALS) additive. An additional anti-oxidant package is included to assure the integrity and longevity of the container. This stabilization package and load assure a 10 year life.

THERMAL STABILIZATION:

The OTTO container is stabilized against thermal degradation with an anti-oxidant additive. The thermal stabilizer package consists of a 800 - 1000 PPM anti-oxidant additive. Thermal degradation will occur due to environmental or process related influences without this package. The occurrence of thermal degradation results in container failure.

RECYCLABILITY:

The MSD-95 Gallon Container is produced with a fully recyclable thermoplastic High Density Polyethylene (HDPE) resin. This allows the container to be recycled and reused after its useful life.

QUALITY ASSURANCE PROCEDURES AND PERFORMANCE TESTING:

The MSD-95 Gallon Container is designed to withstand the following series of performance tests. The performance test requirements were designed to simulate the type of situations encountered in actual use. The severity of some tests was scaled to anticipate an expected 10 year life.

Test Description	Test Requirements
Semi-Automated Lifter Life Cycle	3000 Cycles without Damage
Fully-Automated Lifter Life Cycle	1500 Cycles without Damage
Drop Test (300 Lb. @ 12 Feet)	30 Drops without Damage
Crush Test and Recoverability	Must recover within 25% of shape after crushing
Wind Test	Must withstand 45 MPH winds without tipping
Abrasion (Bottom Wear) Test	100 LB load drag for 9500 feet without leaks
Axle Durability (Bend) Test	800 LB without permanent deformation
Wheel Durability (Step) Test	200 LB per wheel for 11.8 Miles

EXHIBIT D-1
PAGE 19 OF 25

Quality Components. Successful Systems.

The additional Quality Assurance tests are performed according to ASTM procedures.

1. Melt Flow Index Test: To check that only 100 percent pure polymers are used. They meet testing procedure ASTM D1238, Condition P.

2. Xenon Test: Speed-up simulation of weathering and UV radiation in accordance with CAM-162 (Xenon arc and water spray).

3. Material Thickness Test:

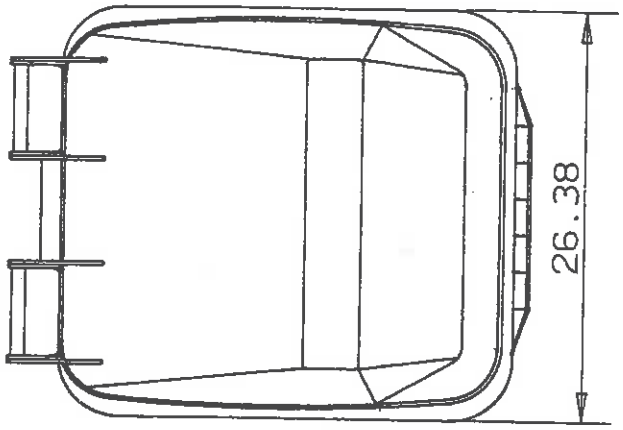
4. Stress Crack Bath:

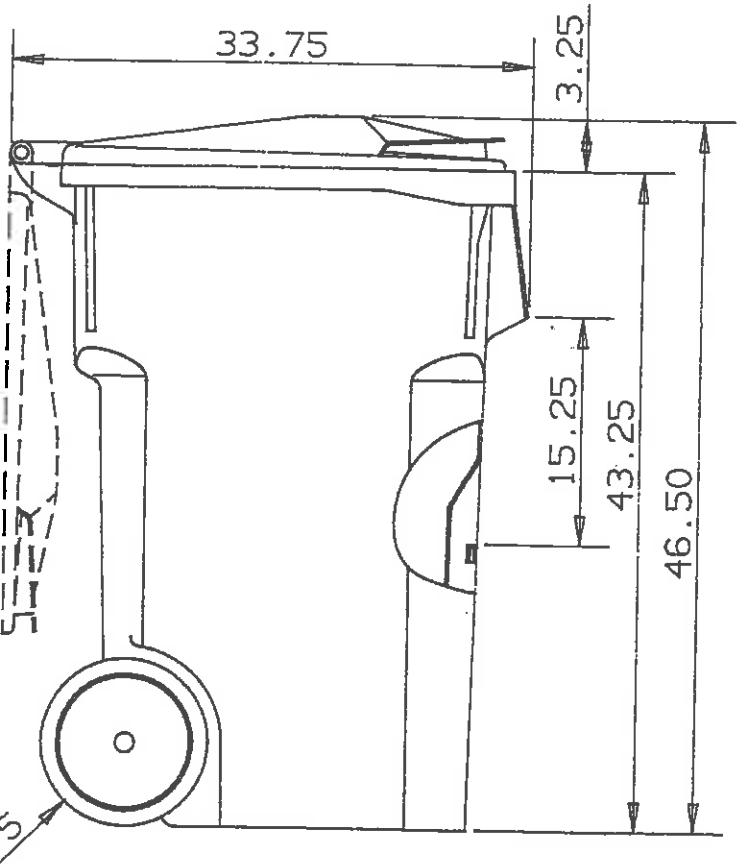
All designs, specifications, and components are subject to change at the manufacturer's sole discretion at any time without notice. Data published herein is informational in nature and shall not be construed to warranty suitability of the unit for any particular purpose as performance may vary with the conditions encountered.

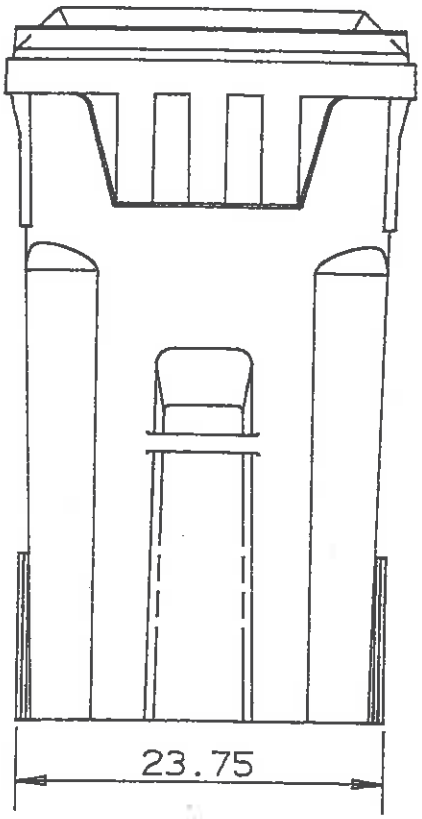
EXHIBIT D-1
PAGE 20 OF 25

MSD-95 Gallon Cart

PART NUMBER CRT0952EXX







Measurements are in inches

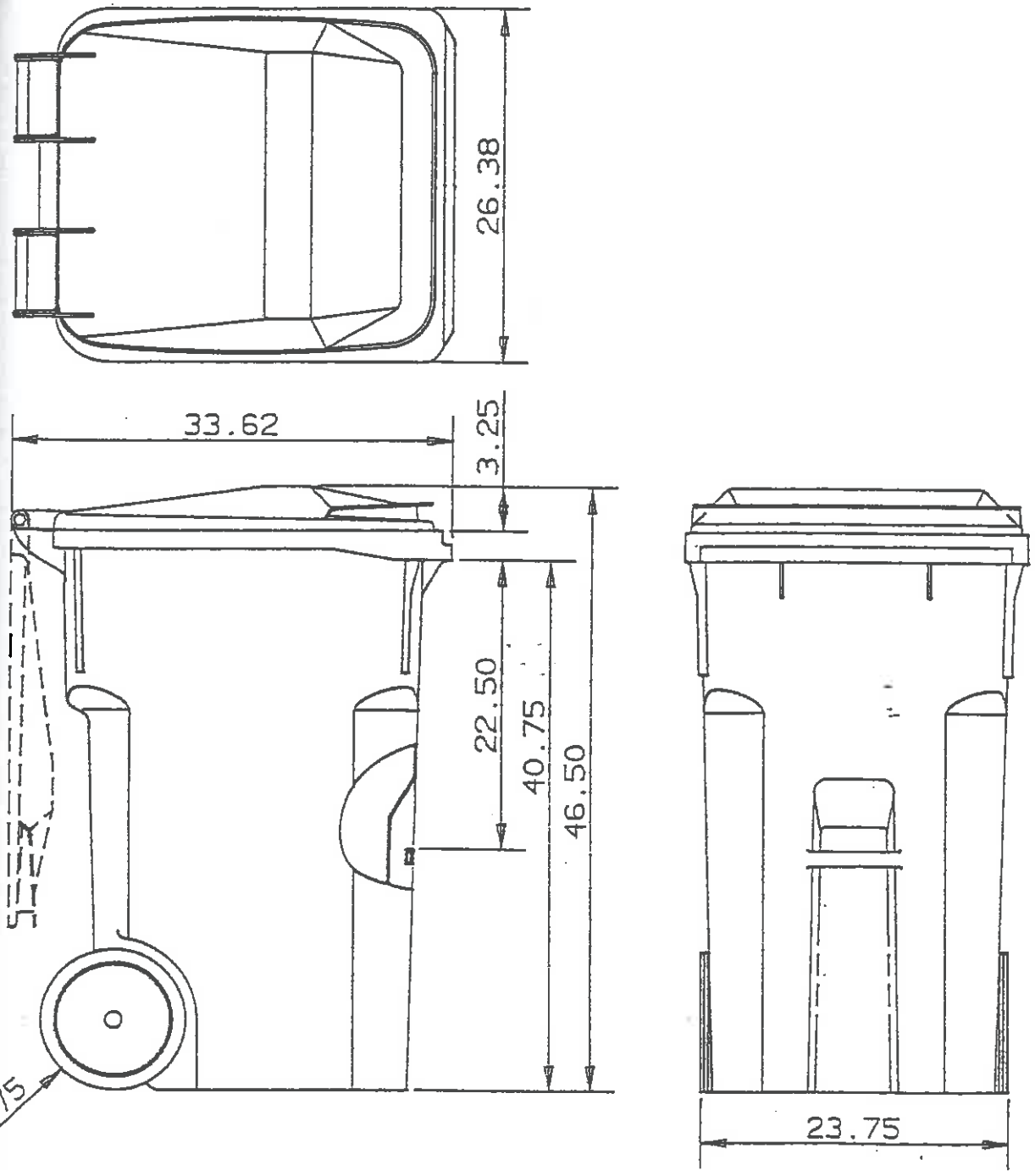
Mar, 94

EXHIBIT D-1

PAGE 21 OF 25

MSD-95 Gallon Cart

PART NUMBER CRT0953EXX

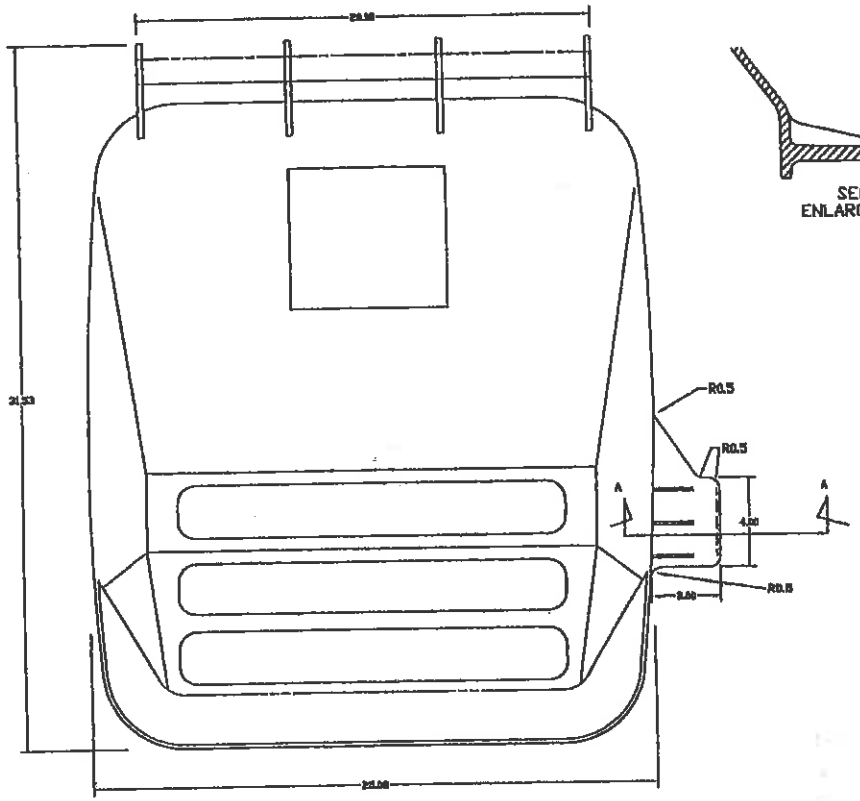


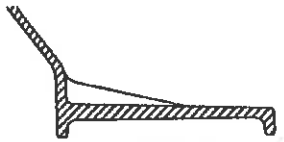
Measurements are in inches

Mar. 94

EXHIBIT D-1

PAGE 22 OF 25

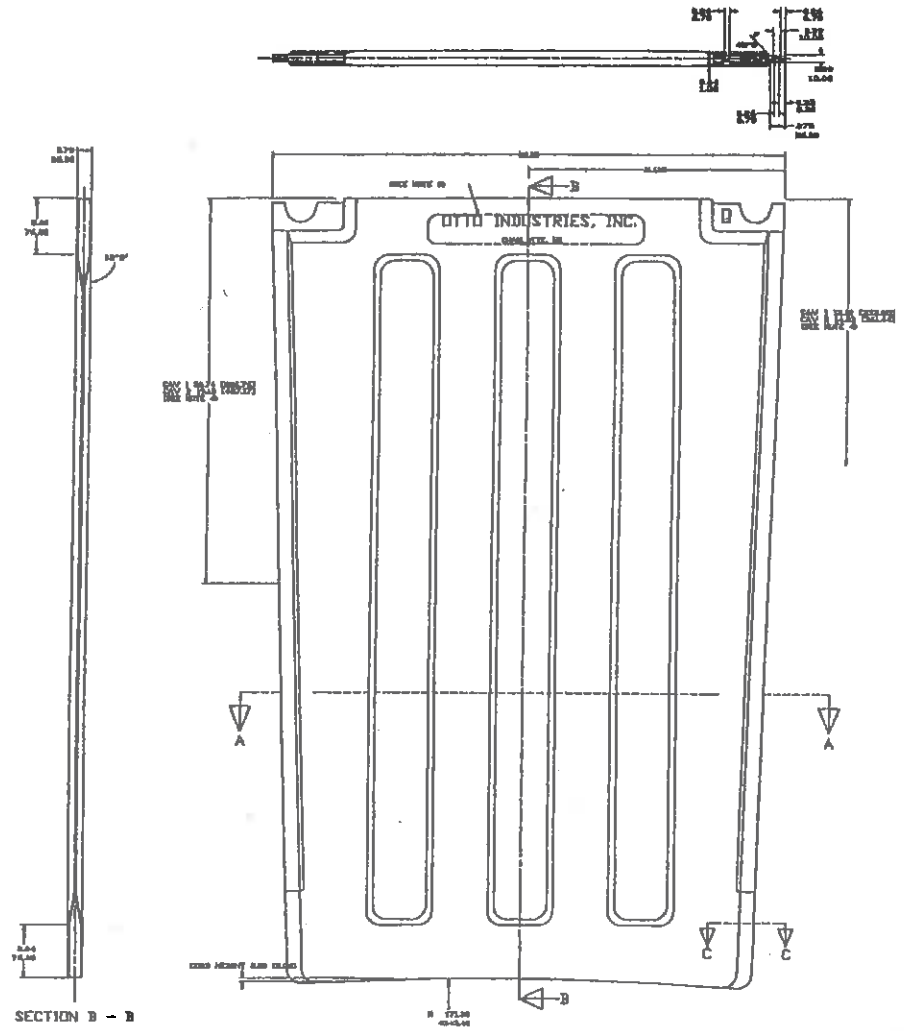


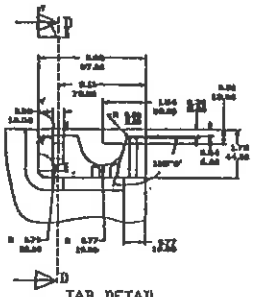


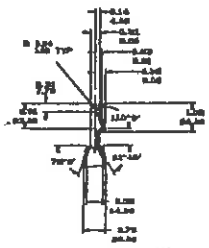
SECTION AA
ENLARGED FOR CLARITY

CONFIDENTIAL	TOLERANCES UNLESS SPECIFIED	OTTO INDUSTRIES, INC.
THIS DOCUMENT IS THE PROPERTY OF OTTO INDUSTRIES, INC. IT IS CONFIDENTIAL AND IS SUBMITTED TO YOU FOR USE EXCLUSIVELY IN OTTO INDUSTRIES, INC. BEHALF. THIS DOCUMENT SHALL NOT BE COPIED, REPRODUCED, OR USED WITHOUT OTTO INDUSTRIES, INC. PERMISSION AND MUST BE RETURNED IMMEDIATELY TO OTTO INDUSTRIES, INC. UPON REQUEST.	INCHES DECIMAL .X ±.030 .XX ±.010 .XXX ±.005	12700 GENERAL DRIVE, CHARLOTTE, NC 95 GAL. LID TAB (ROUGH DRAFT)
MATERIAL:		Dr by: Tim O'Hare | App by: | Rev. 0
FINISH:		Scale: NTS | Sheet of | 10/15/98

EXHIBIT D-1
PAGE 23 OF 25







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NOTES

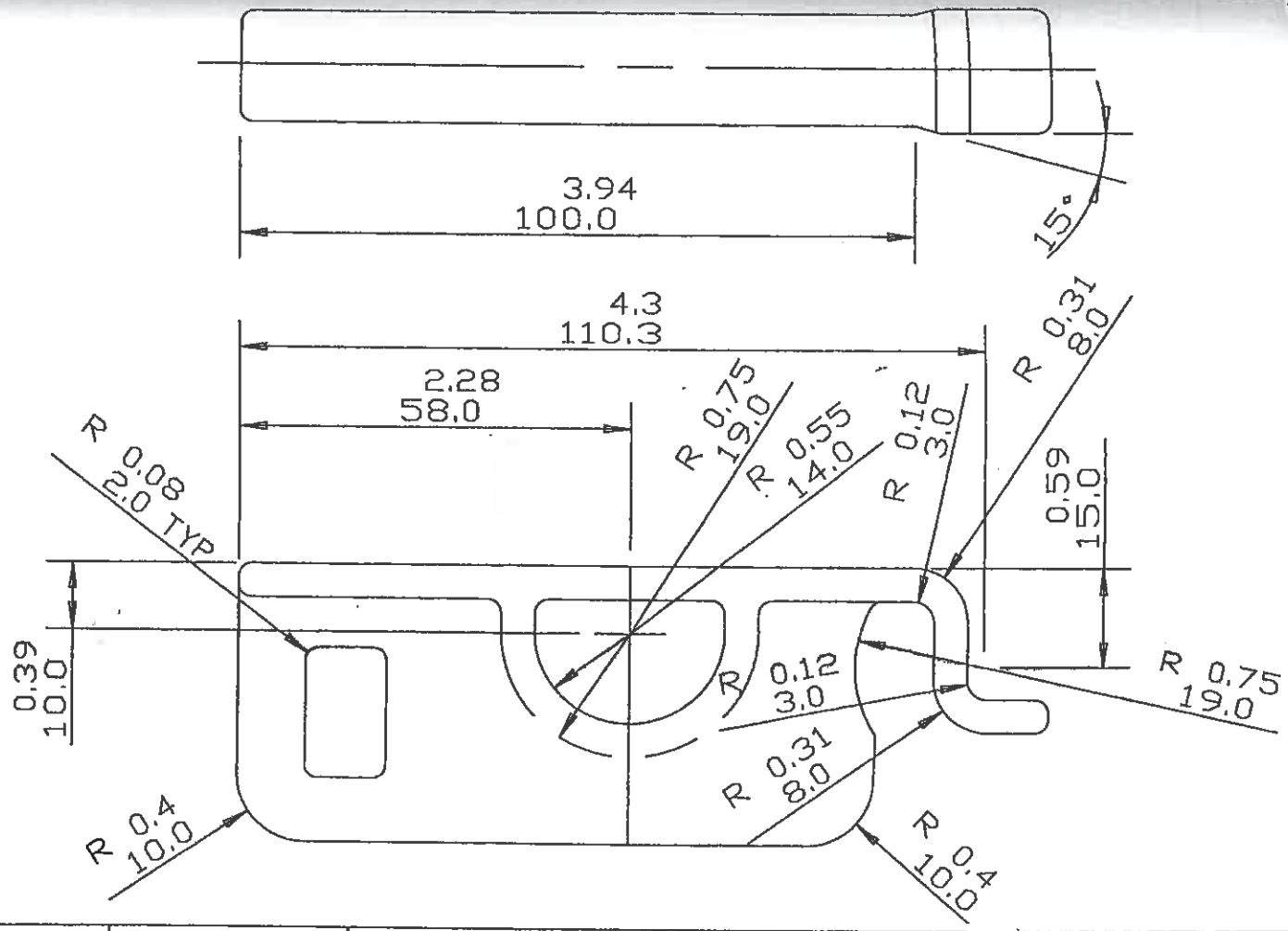
1. Dimensions are inches over mm
2. Draft is 1.78 degrees unless otherwise noted
3. Conversion Factor: 1inch = 25.40 mm
4. Interchangeable Mold Inserts at areas affected by CAV 1 & CAV 2 Dimension Requirements. Inserts must conform to CAV 1 & CAV 2 dimension requirements. Assume draft and designated dimensions and angles are Unchanged.
5. Unless otherwise specified:
   Fillets, Radii .078" [2 mm]
   Wall Thk Tol: .010" [.25 mm]
6. Otto Logo and address to be located and centered on both sides of divider near the top. Character height to be 1.00" [25.4mm] for large letters and .50" [12.7mm] for small.
   Characters are to be raised .020" [.50mm] and be .100"[2.54mm] wide with rounded edges.
7. Date wheel to be located at bottom of part

EXHIBIT D-1
PAGE 24 OF 25

Otto Industries, Inc	
Divider S/S 95	
DIV 095 SS XX	

NOTES

1.) TAB DETAILS INSERTED IN MOLD FOR EITHER 20 MM (SHORT) OR 25 MM (LONG) LENGTH. SEE DWG# DVCXXX03KX FOR LONG TAB OPTION
2.) REDRAWN FROM DWG E-0007-09-X & E-0007-09-3
3.) MATERIAL: 30 - 33% GLASS FILLED NYLON
4.) DIMENSIONS ARE INCHES OVER MILLIMETERS
5.) UNLESS OTHERWISE SPECIFIED: FILLETS, RADII - .078"[2.0MM]



CONFIDENTIAL

MATERIAL: 33% GF NYLON BLACK

FINISH: SPI D-3 OR BETTER

TOLERANCES UNLESS SPECIFIED

INCHES

DECIMAL	
.X	±.030
.XX	±.015
.XXX	±.005
ANGULAR	
X.	±1.0°
X.X	±0.5°
X.XX	±0.1°

OTTO INDUSTRIES, INC.
12700 GENERAL DRIVE, CHARLOTTE, NC

DIVIDER CLIP (SHORT)

DVCXXX01KX

Dr by: JD Griffin	App by:	Rev.1
Scale: 1:1	30 JUN, 1993	Sheet 2 of 2

EXHIBIT D-1
PAGE 25 OF 25

Edge

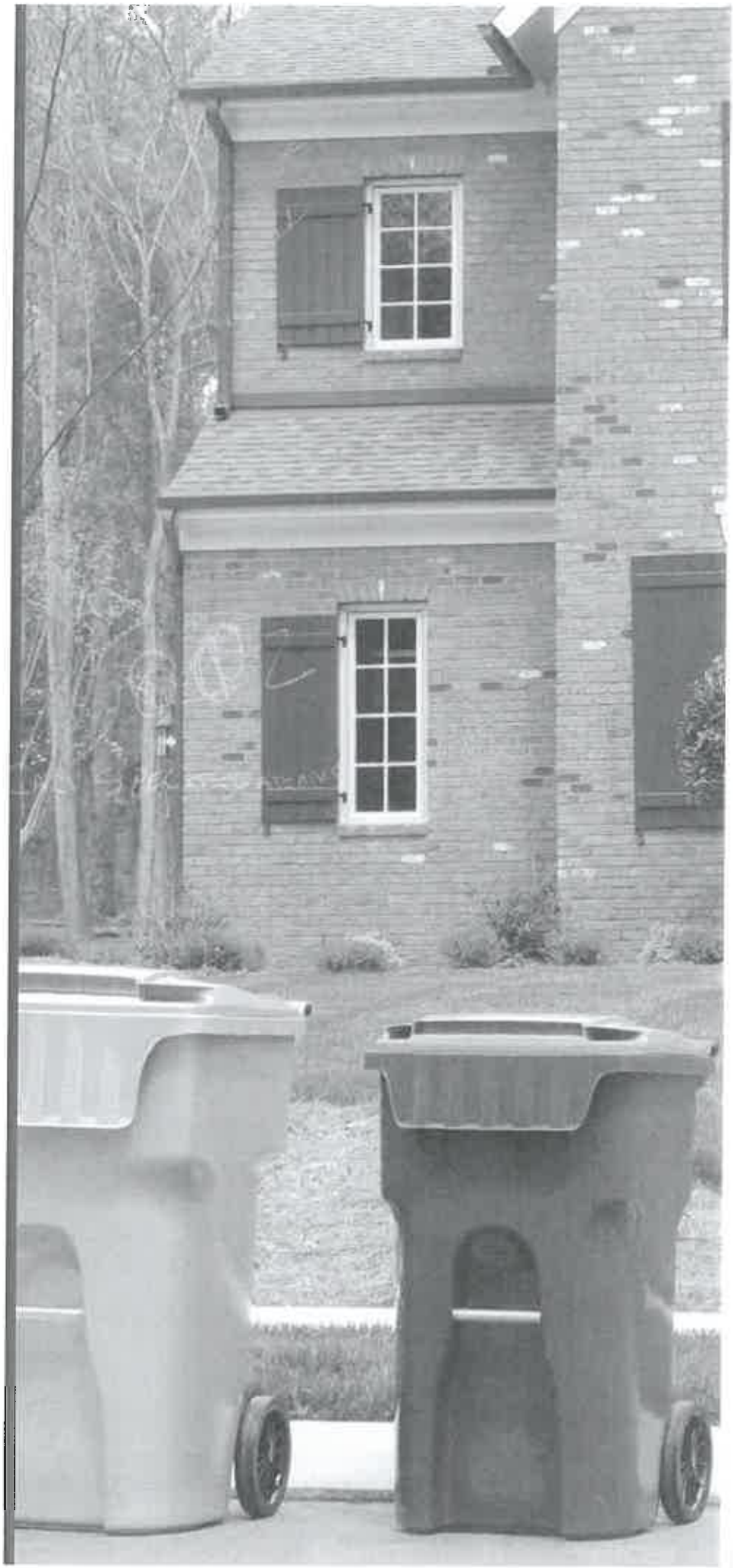


EXHIBIT D-2

PAGE 1 OF 18

Edge

Versatility For Today's Collection Needs

- Available in 95, 65, 45, and 25 gallons
- Unique, contoured body is optimized for automated lifting equipment
- Patented molded-in feature at sides of cart for added gripping power
- Contoured lid reduces warp and water entrapment
- Lift lip across front and around front corners increases opening convenience
- Durable "double-pinned" lid attachment
- Large comfortable handles with extra clearance provide ease when handling cart

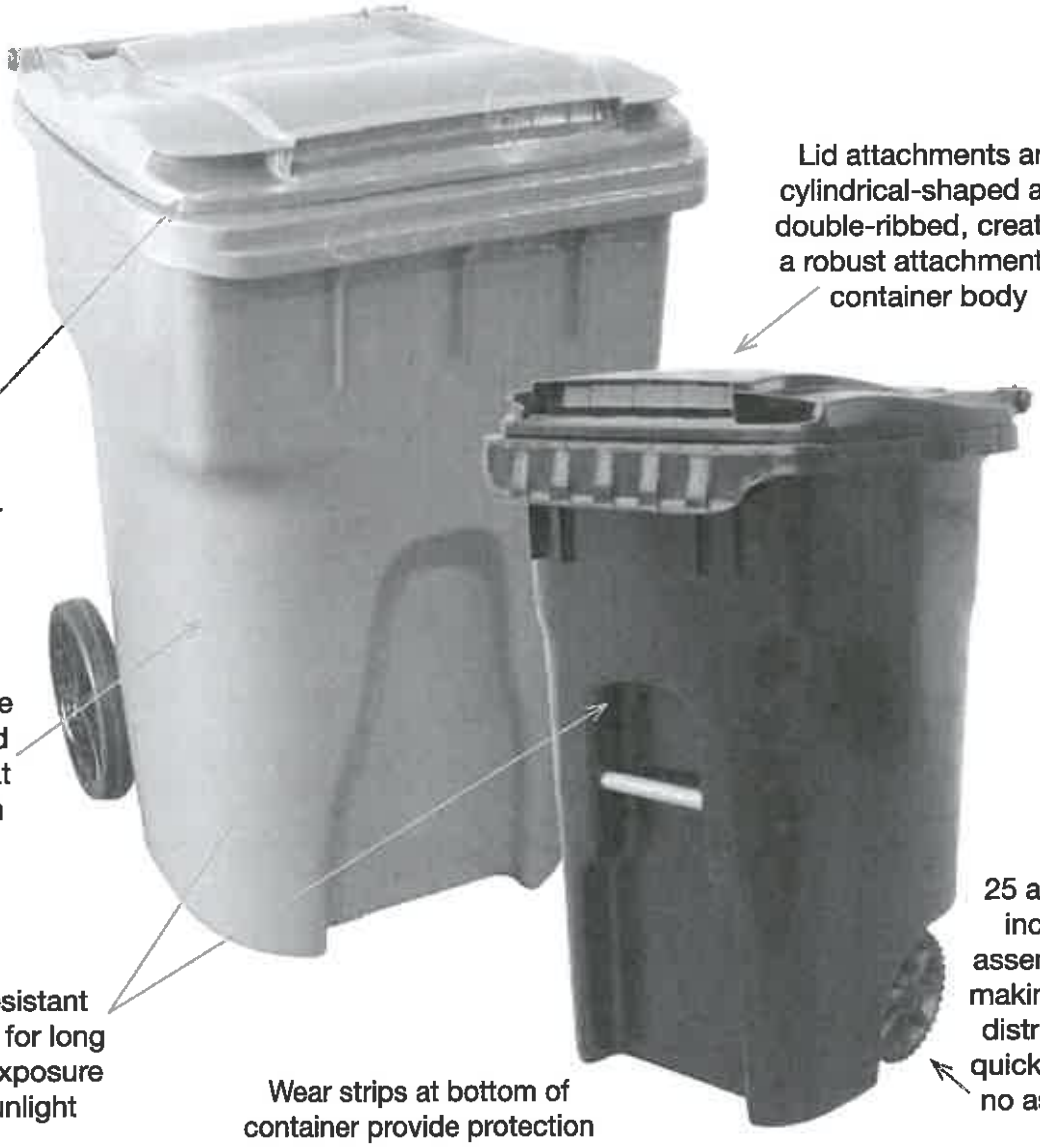


EXHIBIT D-2

PAGE 2 OF 18

Features

- Designed to allow for composition of up to 98% post-consumer material
- Empty container sustains winds averaging 43-63 mph
- Zinc-plated hardware protects against rust and corrosion

Nestable 25 and 45 gallon provides the option for containers to be shipped with no additional assembly required.

Nested

Stacked

Molded Recess at bottom allows foot to be placed directly on axle, providing leverage for maneuvering.

Secure-Fitting Lid keeps pests and precipitation away from container contents.

Lid Contour is engineered to allow for ample drainage during time of precipitation.

Customize Your Cart

- Provide instructions to users with in-mold labeling
- Brand your cart with hot stamps on sides, front, or lid. ColorFUSE technology available on sides and lid
- Sequential serial numbers
- RFID tag or barcode
- Lid options include lid with circular opening, slot lid for paper disposal, and locking lid for added security

Cart Options

- Available with bib or no bib (Euro) option
- Available with metal, plastic, or no lift bar option
- Available in unassembled and stacked or fully assembled and nested*

*Nestable option only available on 25 and 45 gallon

Wheel Options

Wheels: 10" wheels are standard on the 65 and 95. 8" wheels are standard on the 25 and 45. 95 gallon also available with 12" wheels. Popular wheel options are shown here. Other options are available upon request.

25 & 45 Gallon Wheel Options:

65 & 95 Gallon Wheel Options:

Wheel options may change without notice.

Collection With The 25 Gallon

Otto's 25 gallon Edge cart suits existing collection systems. Use fully-automated gripping arms or a semi-automated lifter using a proprietary adapter plate.

Fully-Automated Side Load

Semi-Automated Rear Load With Adapter Plate

Available Colors

The Edge container is available in 8 standard colors. Custom colors available upon request.

Colors as shown in this document may differ slightly from the actual product.

EXHIBIT D-2

PAGE 3 OF 18

Edge

95 65 45 25

Cart Specifications

MODEL	HEIGHT	WIDTH	DEPTH	LOAD RATING
MSD-95 E	45 3/8"	27 1/2"	33 1/4"	335 LBS.
MSD-65 E	42 3/8"	25 1/8"	29 1/2"	230 LBS.
MSD-45 E	39 1/5"	22 3/5"	27 2/5"	160 LBS.
MSD-25 E	28" 4/5"	19 4/5"	24 4/5"	88 LBS.

[illegible] molds. *ANSI [illegible] per gallon

Shipping Information

MODEL	ASSEMBLY WEIGHT	STACKING	LTL STACKING	T/L QTY (53' TRUCK)
MSD-95 E	40 LBS.	8 HIGH	7 HIGH	456
MSD-65 E	35 LBS.	9 HIGH	8 HIGH	720
MSD-45 E (N)	23 LBS.	8 HIGH	8 HIGH	672
MSD-45 E (U)	23 LBS.	10 HIGH	10 HIGH	760
MSD-25 E (N)	17 LBS.	9 HIGH	9 HIGH	954
MSD-25 E (U)	17 LBS.	12 HIGH	12 HIGH	1,272

Shipping information varies slightly based on product mold and mold loca[illegible] containers. (U) represents unassembled, stacked containers.

OTTO02252015

Otto Environmental Systems North America, Inc.
12700 General Drive, Charlotte, North Carolina 28273
800-795-OTTO (6886) • info@otto-usa.com • otto-usa.com

EXHIBIT D-2
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Full Service Solutions

MSD-65E "Edge" Container

The Otto Multi-System Design MSD-65E "Edge" rollout container consists of injection-molded, high density polyethylene plastic body, hinged lid, two (2) hinge pins, two (2) plastic wheel assemblies, and a solid steel axle.

The MSD-65E rollout refuse container is compatible with fully automated arm lifter systems and standard, semi-automated bar lifter systems.

This container complies with ANSI Z245.30-2008 and ANSI Z245.60-2008 standards for Container Safety and Compatibility Requirements.

VOLUME CAPACITY:

The total actual volume of the Otto MSD-65E container is 66.7 gallons (per ANSI Z245.30-2008, Appendix A, Volumetric Loading Capacity).
Base: 64.8 gal Lid: 1.9 gal

LOAD RATING:

Per the ANSI Z245.30-2008 Standard, the Otto MSD-65E rollout refuse container is capable of accommodating a load of 230 lbs.

WEIGHT:

The completed assembly weight of the Otto MSD-65E container is 29.36 lbs when equipped with Otto's 10" injection molded wheels. Other wheel options are also available.

DIMENSIONS:

Overall Height: 42.3"
Loading Height: 39.1"
Overall Width: 25.125"
Overall Depth: 29.5"
Minimum Grip Diameter: 24.0"

EXHIBIT D-2
PAGE 5 OF 18

CONTAINER BODY:

The Otto MSD-65E Container Body is injection-molded from High Density Polyethylene (HDPE). The container body has smooth surfaces both on the interior and exterior. The interior is free of crevices and recesses where refuse could become trapped, in order to allow complete emptying. The average wall thickness is 0.14" on the container sidewalls and 0.14" on the bottom section. The high-density polyethylene has a density of 0.945 to 0.954 grams cm3. The Melt Index (MI) of the HDPE is 3.5 to 6.0.

The top of the container body is reinforced with a rim around its entire perimeter. This feature adds structure and stability to the Otto MSD-65E container and provides a flat surface for the lid to close on. The top of the rim has a rain lip to prevent water from entering the container with the lid closed. The handles are integrally molded into the container body at the top rim. The underside of the rim is reinforced with a total of thirty-one (31) integrally molded-in gussets/ribs spaced around the entire circumference of the container.

The front of the container has a molded recess that provides for the front "catch," or lower lift, bar. The Otto MSD-65E container is offered with either an integrally molded plastic front catch bar or a 1" rotating steel catch bar. Both the steel bar and plastic bar versions are nestable with this feature fully installed/integrated. The plastic lower catch bar is integrally molded into the container base in the front recess. Plastic bar containers have no openings into the container bodies.

The clip-style metal catch bar is freely rotating, 1" OD (outside diameter) roll-formed steel with formed ends for added strength. The wall thickness of this bar is .050", hot rolled steel with an iron zinc clear chromate top coat shielding for corrosion protection. The clip-style metal catch bar allows for speedy installation of the bar from the outside of the container without requiring the use of any hand tools. Metal spring clips are compressed during installation and spring back once inside the container for a solid stop once installed.

The bottom of the container has molded-in wear ridges that extend around its perimeter. The wear ridges provide additional protection against abrasive wear if the container is slid on asphalt or pavement and improve impact resistance of the bottom of the container. There is a recessed area molded above the middle of the axle which allows a person's foot to be placed directly upon the axle to allow the container to be easily tilted, even with a full load.

The inside bottom of the container has a cylindrical-shaped energy absorbing detail, approximately 4.5" in diameter, integrally molded into its floor. This detail has been engineered to protect the floor of an empty container from impact when being loaded with heavy objects.

EXHIBIT D-2
PAGE 6 OF 18

The Otto MSD-65E rollout container has an integrally molded front "pouch" to facilitate semi-automated lifting. The front wall of the pouch has eleven (11) corrugations in order to support the lifting platform under maximum load lifting forces. This upper pouch is reinforced with a pattern of eight (8) internal ribs. These ribs add strength and structure to the lifting pouch and front of the container.

Otto containers are designed for nesting and easy stacking for shipment and storage. Stacking ribs are molded onto the exterior of the top rim to prevent containers from becoming wedged together during shipment.

The weight of the container body is approximately 19.3 lbs. This weight does not include any other components.

LID:

The Otto MSD-65E container Lid is injection- molded from HDPE and is attached to the container body using two HDPE snap-lock hinge pins. The lid rotates freely about the hinge a full 270 degrees. The lid, when closed, rests on the top rim of the container body, providing a secure, tight fit around the entire perimeter between the lid and base. This prevents rain, insects and vermin from entering the container, as well as preventing the escape of most odors when the lid is closed.

The lid is molded with a hand-hold lip that extends across the full width of the front of the lid, and wraps around both corners. This allows the lid to be easily opened from three sides without contact with refuse or residue.

The Otto MSD-65E lid attachments are cylindrical-shaped and double-ribbed, creating an extremely robust attachment to the container body. The locking mechanism for the lid hinge pin, which is inserted into the attachments, is retained beneath a molded-in step feature within the lid.

The minimum material thickness in the lid is 0.10".

The weight of the lid is approximately 2.9 lbs.

HINGE PIN:

The Otto MSD-65E lid Hinge Pins are injection-molded from HDPE. The hinge pins secure the lid to the integrally molded lid hinge and handle detail. Two (2) hinge pins are used to secure the lid. The hinge pins are installed at the factory using a rubber mallet. At installation, the truncated conical center portion of the hinge pin compresses and snaps into the open slot in each side of the handle detail. This prevents vandalism and securely fastens the lid to the container base. The hinge pins can be removed with a special tool available from Otto.

EXHIBIT D-2

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LID HINGE AND HANDLE DETAIL:

The Otto MSD-65E Lid Hinge is integrally molded to the container body and lid. The handle diameter is 1.2" and provides 1.87" clearance for gloved hands.

AXLE:

The Otto MSD-65E machined solid steel Axle has a 27/32" diameter. The axle is zinc plated to protect against rust and corrosion. The large diameter of the axle allows the container to be easily rolled on any surface and supports a fully loaded container. The axle will withstand an 800-lb load without permanent deformation. The weight of the axle is 3.5 lb.

WHEELS:

The Otto MSD-65E container may be fitted with various 10" Wheels.

	Plastic Blow-molded	Snap-on Blow-molded	Cushion-Tread	Solid Rubber Tire	Injection Molded 10"
Description	HDPE, blow-molded, separate spacers.	HDPE, blow-molded, integrated spacers.	Injection-molded hub (HDPE) with rubberized cushion tread, separate spacers.	Injection-molded hub (HDPE) with pressed-on solid rubber tire, integrated spacers.	Injection-molded hub (HDPE), integrated spacers.
Wheel Diameter	10" diameter 1.75" width – or – 12" diameter 1.75" width	10" diameter 1.75" width – or – 12" diameter 1.75" width	10" diameter 1.75" width – or – 12" diameter 1.75" width	10" diameter 1.75" width – or – 12" diameter 1.75" width	10" diameter 1.75" width
Load Rating	200 lbs.	200 lbs.	200 lbs.	200 lbs.	200 lbs.
Attachment	Zinc-plated palnut end caps.	Internal "snap-lock" attachment.	Internal "snap-lock" attachment.	Internal spring-loaded steel detent for snap-on.	Internal spring-loaded steel detent for snap-on.
Weight (per wheel assembly)	1.27 lbs. (10")	1.27 lbs. (10")	1.48 lbs.(10")	2.92 lbs. (10")	1.39 lbs. (10")

EXHIBIT D-2
PAGE 8 OF 19

	1.8 lbs. (12")	1.96 lbs. (12")	2.15 lbs. (12")	4.02 lbs. (12")	

MARKINGS:

All Otto MSD-65E carts are hot stamped with a unique sequenced serial number to facilitate distribution and control. The customer's name or logo can be hot stamped on the container's body or lid. The containers are permanently marked with the month and year of production, mold number, material identification, patent number, model, and manufacture's insignia.

WORKMANSHIP:

The Otto MSD-65E plastic material — high-density polyethylene — is manufactured from virgin raw materials by major petrochemical companies, (e.g., Exxon, Chevron-Phillips, Quantum) and includes no recycled or regenerated plastic or foreign material. Up to 50% recycled material (PCR) content may be available upon request on particular colors, where suitable feedstock is available.

COLOR:

Otto's standard colors are Dark Blue, Light Blue, Green, Forest Green, Dark Gray, Light Gray, Brown, and Black. Other colors are available to special order.

All injection-molded parts are specifically prepared to be colorfast so that the plastic material does not alter appreciably in normal use. Due to the use of UV (ultraviolet) stable pigment and injection molding process, Otto containers have excellent color fastness.

UV LIGHT STABILIZATION:

The Otto MSD-65E container is stabilized against ultraviolet degradation with not less than 0.3% UV additives. This is a state-of-the-art package that meets or exceeds older systems requiring 0.5% UV additive by weight, and provides product viability for a minimum of 10 years of outdoor exposure.

RECYCLABILITY:

The Otto MSD-65E container is produced with a fully recyclable thermoplastic High Density Polyethylene (HDPE) resin. This allows the material to be recycled and reused after the useful life of the container.

EXHIBIT D-2
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QUALITY ASSURANCE PROCEDURES AND PERFORMANCE TESTING:

The Otto MSD-65E Container is designed to withstand the following series of performance tests. The performance test requirements were designed to simulate the type of situations encountered in actual use. The severity of some tests was scaled to anticipate an expected 10-year life.

Test Description	Test Requirements
Semi-Automated Lifter Life Cycle	ANSI Z245.30-2008
Fully-Automated Lifter Life Cycle	ANSI Z245.30-2008
Drop Test (200 Lb. @ 12 Feet)	10 Drops without Damage
Wind Test	See 3rd party wind resistance testing
Axle Durability (Bend) Test	ANSI Z245.30-2008
Durability During Pulling Test	ANSI Z245.30-2008

The following Quality Assurance tests are performed according to ASTM procedures.

Material Testing

1. Melt Flow Index Test: To check that the polymer batch matches the supplier certification. This is testing procedure ASTM D1238.
2. Colorant Color Match: Compare lot based color chips to the color chip master to ensure consistency.

In-Process Quality Tests

1. Drop Test: Cart is raised 12' under load and dropped 4 consecutive times. This provides that there is not a processing issue.
    a. 65 gallon- 200lbs
2. Bib Pull Test: Bib pulled to failure to evaluate brittleness. Bib should break tensile.
3. Bar Pull Test: Bar pulled to failure. Determines if there is weakness at knit line at center of plastic bar. Bar should break off center.
4. Fit Checks: Mating components (axle, lift bar, lid) installed onto carts after cooled to ensure proper fit, form & function.
5. Weight & Thickness Checks: Evaluates molding process.

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All designs, specifications, and components are subject to change at the manufacturer's sole discretion at any time without notice. Data published herein is informational in nature and shall not be construed to warranty suitability of the unit for any particular purpose as performance may vary with the conditions encountered.

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MSD-95E "Edge" Container

The Otto Multi-System Design MSD-95E "Edge" rollout container consists of injection-molded, high density polyethylene plastic body, hinged lid, two (2) hinge pins, two (2) plastic wheel assemblies, and a solid steel axle.

The Otto MSD-95E rollout refuse container is compatible with fully automated arm lifter systems and standard, semi-automated bar lifter systems.

This container complies with ANSI Z245.30-2008 and ANSI Z245.60-2008 standards for Container Safety and Compatibility Requirements.

VOLUME CAPACITY:

The total actual volume of the Otto MSD-95E container is 102.6 gallons (per ANSI Z245.30-2008, Appendix A, Volumetric Loading Capacity).
Base: 96.8 gal Lid: 5.8 gal

LOAD RATING:

Per the ANSI Z245.30-2008 Standard, the Otto MSD-95E rollout refuse container is capable of accommodating a load of 340 lbs.

WEIGHT:

The completed assembly weight of the Otto MSD-95E container is 36.66 lbs when equipped with Otto's 10" injection molded wheels. Other wheel options are also available.

DIMENSIONS:

Loading Height: 41.75"
Overall Height: 45.375"
Overall Width: 27.5"
Overall Depth: 33.25"
Minimum Grip Diameter: 27.1"

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CONTAINER BODY:

The Otto MSD-95E Container Body is injection-molded from High Density Polyethylene (HDPE). The container body has smooth surfaces both on the interior and exterior. The interior is free of crevices and recesses where refuse could become trapped, in order to allow complete emptying. The average wall thickness is 0.15" on the container sidewalls and 0.15" on the bottom section. The high-density polyethylene has a density of 0.945 to 0.954 grams cm3. The Melt Index (MI) of the HDPE is 3.5 to 6.0.

The top of the container body is reinforced with a rim around its entire perimeter. This feature adds structure and stability to the Otto MSD-95E container and provides a flat surface for the lid to close on. The top of the rim has a rain lip to prevent water from entering the container with the lid closed. The handles are integrally molded into the container body at the top rim. The underside of the rim is reinforced with a total of thirty-one (31) integrally molded-in gussets spaced around the entire circumference of the container.

The front of the container has a molded recess that provides for the front "catch," or lower lift, bar. The Otto MSD-95E container is offered with either an integrally molded plastic front catch bar or a 1" rotating steel catch bar. Both the steel bar and plastic bar versions are nestable with this feature fully installed/integrated.

The plastic lower catch bar is integrally molded into the container base in the front recess. Plastic bar containers have no openings into the container bodies.

The clip-style metal catch bar is freely rotating, 1" OD (outside diameter) roll-formed steel with formed ends for added strength. The wall thickness of this bar is .050", hot rolled steel with an iron zinc clear chromate top coat shielding for corrosion protection. The clip-style metal catch bar allows for speedy installation of the bar from the outside of the container without requiring the use of any hand tools. Metal spring clips are compressed during installation and spring back once inside the container for a solid stop once installed.

The bottom of the container has molded in wear ridges that extend around its perimeter. The wear ridges provide additional protection against abrasive wear if the container is slid on asphalt or pavement and improve impact resistance of the bottom of the container. There is a recessed area molded above the middle of the axle which allows a person's foot to be placed directly upon the axle to allow the container to be easily tilted, even with a full load.

The inside bottom of the Otto MSD-95E container has a cylindrical-shaped energy absorbing detail, approximately 7" in diameter, integrally molded into its floor. This detail has been engineered to protect the floor of an empty container from impact when being loaded with heavy objects.

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The Otto rollout container has an integrally molded front "pouch" to facilitate semi-automated lifting. The front wall of the pouch has eleven (11) corrugations in order to support the lifting platform under maximum load lifting forces. This upper pouch is reinforced with a pattern of eight (8) internal ribs. These ribs add strength and structure to the lifting pouch and front of the container.

Otto containers are designed for nesting and easy stacking for shipment and storage. Stacking ribs are molded onto the exterior of the top rim to prevent containers from becoming wedged together during shipment.

The weight of the container body is 25.8 lbs. This weight does not include any other components.

LID:

The Otto MSD-95E container Lid is injection- molded from HDPE and is attached to the container body using two (2) HDPE snap-lock hinge pins. The lid rotates freely about the hinge a full 270 degrees. The lid, when closed, rests on the top rim of the container body, providing a secure tight fit around the entire perimeter between the lid and base. This prevents rain, insects and vermin from entering the container, as well as preventing the escape of most odors when the lid is closed.

The lid is molded with a hand-hold lip that extends across the full width of the front of the lid and wraps around both corners. This allows the lid to be easily opened from three sides without contact with refuse or residue.

The Otto MSD-95E lid attachments are cylindrical-shaped and double-ribbed, creating an extremely robust attachment to the container body. The locking mechanism for the lid hinge pin, which is inserted into the attachments, is retained beneath a molded-in step feature within the lid.

The minimum material thickness in the lid is 0.12".

The weight of the lid is 4.1 lbs.

HINGE PIN:

The Otto MSD-95E lid Hinge Pins are injection-molded from HDPE. The hinge pins secure the lid to the integrally molded lid hinge and handle detail. Two (2) hinge pins are used to secure the lid. The hinge pins are installed at the factory using a rubber mallet. At installation, the truncated conical center portion of the hinge pin compresses and snaps into the open slot in each side of the handle detail. This prevents vandalism and securely fastens the lid to the container base. The hinge pins can be removed with a special tool available from Otto.

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LID HINGE AND HANDLE DETAIL:

The Otto MSD-95E Lid Hinge is integrally molded to the container body and lid. The diameter is 1.2" and provides 1.87" clearance for gloved hands.

AXLE:

The Otto MSD-95E machined solid steel Axle has a 27/32" diameter. The axle is zinc plated to protect against rust and corrosion. The large diameter of the axle allows the container to be easily rolled on any surface and supports a fully loaded container. The axle will withstand an 800-lb load without permanent deformation. The weight of the axle is 3.8 lbs.

WHEELS:

The Otto MSD-95E container may be fitted with either 10" or (optional) 12" wheels.

	Plastic Blow-molded	Snap-on Blow-molded	Cushion-Tread	Solid Rubber Tire	Injection Molded 10"
Description	HDPE, blow-molded, separate spacers.	HDPE, blow-molded, integrated spacers.	Injection-molded hub (HDPE) with rubberized cushion tread, separate spacers.	Injection-molded hub (HDPE) with pressed-on solid rubber tire, integrated spacers.	Injection-molded hub (HDPE), integrated spacers.
Wheel Diameter	10" diameter	10" diameter	10" diameter	10" diameter	10" diameter
	1.75" width – or –	1.75" width – or –	1.75" width – or –	1.75" width – or –	1.75" width
	12" diameter	12" diameter	12" diameter	12" diameter	
	1.75" width	1.75" width	1.75 width	1.75" width	
Load Rating	200 lbs.	200 lbs.	200 lbs.	200 lbs.	200 lbs.
Attachment	Zinc-plated palnut end caps.	Internal "snap-lock" attachment.	Internal "snap-lock" attachment.	Internal spring-loaded steel detent for snap-on.	Internal spring-loaded steel detent for snap-on.
Weight (per wheel assembly)	1.27 lbs. (10")	1.27 lbs. (10")	1.48 lbs.(10")	2.92 lbs. (10")	1.39lbs (10")
	1.8 lbs (12")	1.96 lbs(12")	2.15 lbs(12")	4.02 lbs (12")	

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MARKINGS:

All Otto MSD-95E carts are hot stamped with a unique sequenced serial number to facilitate distribution and control. The customer's name or logo can be hot stamped on the container's body or lid. The containers are permanently marked with the month and year of production, mold number, material identification, patent number, model, and manufacture's insignia.

WORKMANSHIP:

The Otto MSD-95E plastic material — high-density polyethylene — is manufactured from virgin raw materials by major petrochemical companies, (e.g., Exxon, Chevron-Phillips, Quantum) and includes no recycled or regenerated plastic or foreign material. Up to 50% recycled material (PCR) content may be available upon request on particular colors, where suitable feedstock is available.

COLOR:

Otto's standard colors are Dark Blue, Light Blue, Green, Forest Green, Dark Gray, Light Gray, Brown, and Black. Other colors are available to special order.

All injection-molded parts are specifically prepared to be colorfast so that the plastic material does not alter appreciably in normal use. Due to the use of UV (ultraviolet) stable pigment and injection molding process, Otto containers have excellent color fastness.

UV LIGHT STABILIZATION:

The Otto MSD-95E container is stabilized against ultraviolet degradation with not less than 0.3% UV additives. This is a state-of-the-art package that meets or exceeds older systems requiring 0.5% UV additive by weight and provides product viability for a minimum of 10 years of outdoor exposure.

RECYCLABILITY:

The Otto MSD-95E container is produced with a fully recyclable thermoplastic High Density Polyethylene (HDPE) resin. This allows the material to be recycled and reused after the useful life of the container.

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QUALITY ASSURANCE PROCEDURES AND PERFORMANCE TESTING:

The MSD-95E Container is designed to withstand the following series of performance tests. The performance test requirements were designed to simulate the type of situations encountered in actual use. The severity of some tests was scaled to anticipate an expected 10-year life.

Test Description	Test Requirements
Semi-Automated Lifter Life Cycle	ANSI Z245.30-2008
Fully-Automated Lifter Life Cycle	ANSI Z245.30-2008
Drop Test (335 Lb. @ 12 Feet)	10 Drops without Damage
Wind Test	See 3rd party wind resistance testing
Axle Durability (Bend) Test	ANSI Z245.30-2008
Durability During Pulling Test	ANSI Z245.30-2008

The following Quality Assurance tests are performed according to ASTM procedures.

Material Testing

1. Melt Flow Index Test: To check that the polymer batch matches the supplier certification. This is testing procedure ASTM D1238.
2. Colorant Color Match: Compare lot based color chips to the color chip master to ensure consistency.

In-Process Quality Tests

1. Drop Test: Cart is raised 12' under load and dropped 4 consecutive times. This provides that there is not a processing issue.
    a. 95 gallon- 335lbs
2. Bib Pull Test: Bib pulled to failure to evaluate brittleness. Bib should break tensile.
3. Bar Pull Test: Bar pulled to failure. Determines if there is weakness at knit line at center of plastic bar. Bar should break off center.
4. Fit Checks: Mating components (axle, lift bar, lid) installed onto carts after cooled to ensure proper fit, form & function.
5. Weight & Thickness Checks: Evaluates molding process.

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