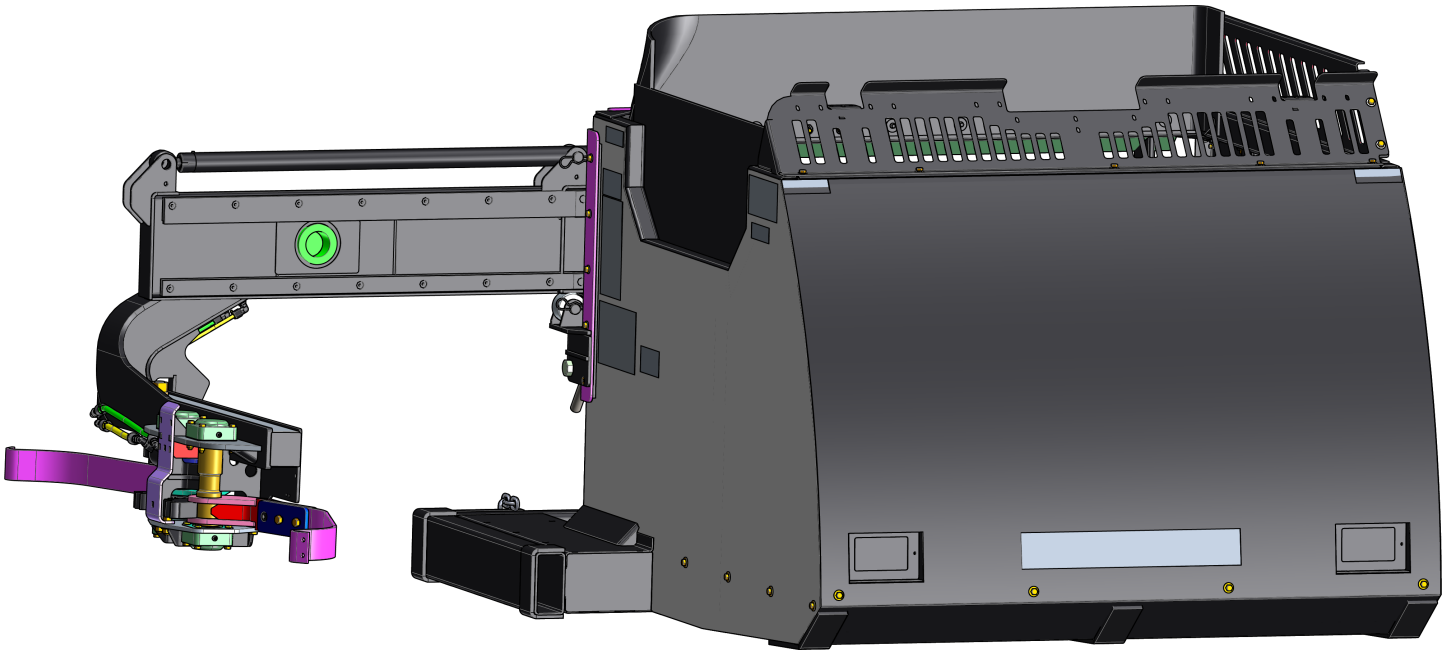
Curotto-Can®

THE FUTURE OF AUTOMATED COLLECTION

OPERATION AND SERVICE MANUAL

ISSUED APRIL 2020

TP1CC-OSM-0420



Environmental Solutions Group
201 W. Main Street, Ste 300
Chattanooga, TN 37408
Heil Customer Care: 866.275.4345

WARNING

IF INCORRECTLY USED, THIS EQUIPMENT CAN CAUSE SEVERE INJURY. THOSE WHO USE AND MAINTAIN THE EQUIPMENT SHOULD BE TRAINED IN ITS PROPER USE, WARNED OF ITS DANGERS, AND SHOULD READ AND FULLY UNDERSTAND THIS ENTIRE MANUAL BEFORE ATTEMPTING TO SET UP, OPERATE, ADJUST OR SERVICE THE EQUIPMENT. KEEP THIS MANUAL FOR FUTURE REFERENCE

IMPORTANT SAFETY NOTICE

Proper service and repair are important to the safe, reliable operation of Curotto-Can's products. Service procedures recommended by Curotto-Can are described in this service manual and are effective for performing service operations. Some of these service operations may require the use of tools or blocking devices specially designed for the purpose. Special tools should be used when and as recommended. It is important to note that some warnings against the use of specific methods that can damage the product or render it unsafe are stated in the service manual. It is also important to understand these warnings are not exhaustive. Curotto-Can could not possibly know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each method. Consequently, Curotto-Can has not undertaken any such broad evaluations. Accordingly, anyone who uses service procedures or tools which are not recommended by Curotto-Can must first satisfy himself thoroughly that neither his safety nor the product safety will be jeopardized by the method he selects.

“Curotto-Can, as manufacturer of the equipment that is covered by this manual, is providing a product to the user who has acknowledged to have superior knowledge of the conditions of the use to which the product will be put. Curotto-Can relies upon the user’s superior knowledge in specifying any changes or modifications including, but not limited to, the inclusion or non inclusion of options that are required by the user and the Curotto-Can product, and for the particular application of the user relative to the Curotto-Can product.”

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Curotto-Can®

NOTES

SECTION 1
INTRODUCTION

PREFACE

Thank you for choosing the Curotto-Can®.

Reach out with the Curotto-Can® and depend upon over 20 years design experience and four generations in the refuse collection business. The Curotto-Can® has emerged as the industry leader for automated refuse collection with the highest productivity of any automated system. Maximizing the performance and versatility of the front loader, the Curotto-Can® features a simple interface with the host unit, rapid connection and disconnection, and easy to understand hydraulic and electrical systems.

The Curotto-Can® has been manufactured with care and pride. We have developed a tradition of fine craftsmanship and attention to detail, using only skilled craftsmen to ensure the highest standards. Your Curotto-Can® is designed to be a productive workhorse; proper operation and maintenance will ensure peak performance. Please take the time to read and follow these instructions carefully.

We are dedicated to customer satisfaction. If you have any comments or concerns, please do not hesitate to contact us.

Welcome to the Curotto family.

1. This Operation and Maintenance Manual describes the operation and maintenance instructions for the Detachable and Integrated Curotto-Can® Automated Carry Container. For the purpose of this manual, the Curotto-Can® system comprises the following:
    a. Curotto-Can® Container Assembly
    b. Arm Assembly
    c. Curotto-Can® hydraulic system (includes OEM body mounted hydraulic components)
    d. Curotto-Can® electrical control system.
2. This manual is the primary source for operation and maintenance procedures during the conduct of operations and maintenance.
3. The Curotto-Can® Automated Carry Container System consists of a 4.6 cy detachable container mounted to a host front end load refuse collection vehicle. Modification of the existing hydraulic system provides dedicated hydraulic fluid to the cart dump, slide and grip mechanism. Simple electrical controls are added to the driver/host vehicle interface. Once full, the container is emptied into the collection vehicle hopper using the front load arms and forks. The container is removed from the hopper and the host unit provides compaction, transportation and ejection of the refuse.
4. The Curotto-Can® system may have been purchased as part of a factory OEM completed unit, installed with controls per Curotto-Can® specifications, or the hydraulic and electrical controls may have been retrofitted to an existing unit using specific guidelines detailed in Curotto-Can® documentation. All Curotto-Cans, wiring harnesses and hydraulic components are manufactured or assembled at Curotto-Can® facilities in Fort Payne, Alabama, USA.

INTRODUCTION

WILL, SHALL AND MAY

Will, shall, and may. The words “will”, “shall”, and “may” as used in this manual are defined as follows:

1. Will: Expresses a declaration of intent or purpose
2. Shall: Expresses a requirement or obligation
3. May: Expresses a possibility or permission

SYSTEM SAFETY

Operation and maintenance of this system requires alertness and safety consciousness. All instructions in this manual have been prepared with safety as paramount. All Curotto-Can® systems operations and maintenance personnel shall thoroughly understand their duties and be familiar with the system prior to operating or maintaining the system. Dangers, warnings, cautions, and notes call attention to procedures that require particular attention and shall be observed at all times.

IMPORTANT NOTES

Read and understand your Operation and Maintenance Manual before using this equipment. Failure to follow all safety precautions carefully may result in serious injury or death.

With your safety in mind, we would like to remind you that only QUALIFIED PERSONNEL should service the systems on the Curotto-Can®. In addition, technicians should be fully versed in the operation of the system.

The Curotto-Can® company cannot accept any responsibility for failures and/or injuries caused by repairs carried out by the user.

LIABILITY STATEMENT

The Curotto-Can® company assumes no liabilities for any incidental, consequential or other liability from the use of this information. All risks and damages, incidental or otherwise arising from the use or misuse of the information contained herein are entirely the responsibility of the user. Although careful precaution has been taken in the preparation of this material, we assume no responsibility for omissions or errors.

TRAINING

Curotto-Can® recommends that all individuals who will be operating and maintaining the systems detailed within this Operations and Maintenance Manual be properly trained and familiar with all Curotto-Can® functions and systems.

The employer is responsible for operator assessment and suitability of operator’s skill before putting the unit into service.

SERIAL NUMBER PLATE LOCATION

1. The Serial Number Plate is attached to the can body at the rear of the container assembly. The 4 digit serial number is unique to each Curotto-Can® and should be recorded with the maintenance department.
2. The serial number is required for all issues pertaining to warranty and may be required when calling the service department for parts and service.

Fig. 1-3 Curotto-Can® Serial Number Plate

MANUAL CONTENT OUTLINE

1. This manual is divided into the following parts which describe the Curotto-Can system and details operation and maintenance:
    a. Part 1 – Introduction and Description
    b. Part 2 – Safety
    c. Part 3 – Operation
    d. Part 4 – Maintenance and Adjustment
    e. Part 5 – Schematics

OPTIONS

Various options are available for the Curotto-Can® system and may be available with a new system or as part of after sales. These options may include but are not limited to: Paint Color, Brush Kit, Autocover, RFID/Lift Counter, Forward Work Lamps, Curb Access Controls, 300HD Gripper and Commercial Gripper. See **Curotto-Can Options** 12 for more information.

NEW UNIT INSPECTION

1. Every effort is made during manufacturing to ensure all quality and applicable safety standards are met. The Curotto-Can® company has worked for many years with all of the major refuse body manufacturers and has issued specific quality standards for the installation of the control components. The Curotto-Can® company has detailed instructions and quality checks for retrofitted systems added to existing units.
2. Due to the many possible variations, for example the end user may be the first to connect the Curotto-Can® to the truck, the end user is responsible for ensuring that the completed unit is inspected prior to use.
3. Inspection checklists are found at **Curotto-Can Master Checklists**.

NEW UNIT LUBRICATION

1. The Curotto-Can® is lubricated during the installation and quality control phases of production. This lubrication is intended for production purposes only.
2. The Curotto-Can® is to be FULLY LUBRICATED prior to be put into service. Lubrication instructions and chart can be found on **Weekly Checks**, **Lubrication Chart** and **Weekly Lubrication**.

REQUIRED DOCUMENTATION

1. The following documents may be referenced in this manual and should be used in conjunction with this manual:
   a. Chassis Operator and Maintenance Manual
   b. Body OEM Operator and Maintenance Manual.
2. It is the responsibility of the end user to ensure that these documents are available for operations and maintenance for the purpose of training and maintenance instructions.

TOOLS AND EQUIPMENT

1. No special tools or equipment are required during the service and maintenance of the Curotto-Can®.
2. It is assumed that all common shop tools and test equipment are available, including a flow meter (0-20 gpm), oil filled hydraulic pressure gauge (0-3000 psi) and electrical volt/multi meter.

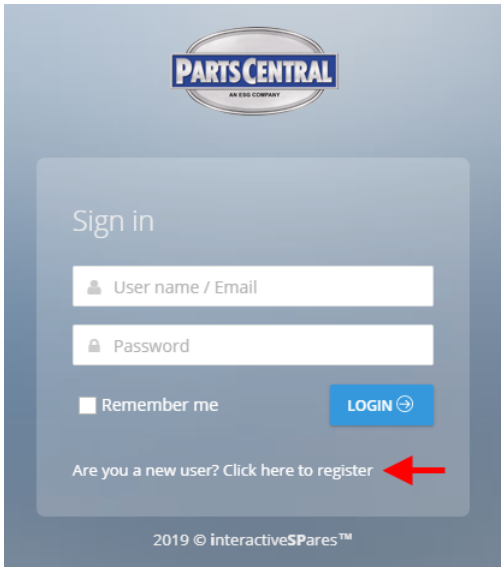
ELECTRONIC PARTS CATALOG (EPC)

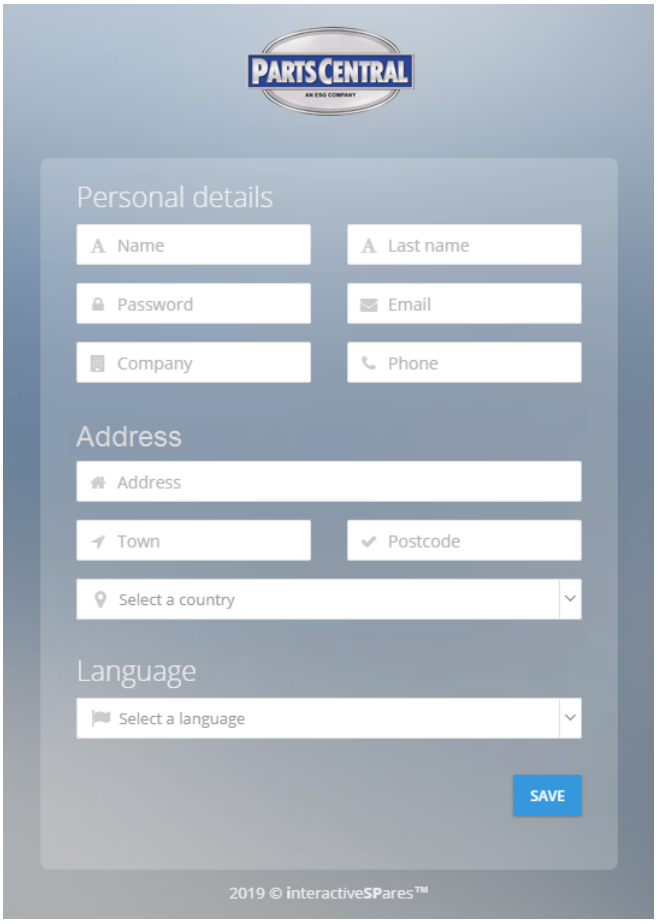
The Parts Central EPC includes electronic versions of the Curotto-Can® Parts Manuals. After registering and logging in, the user can search by **Keyword(s) or Part Number** and/or **Curotto-Can Serial Number** to quickly identify a spare part or browse a parts catalog.

Note: This tool is currently for reference use only and the cart functionality is disabled. Please contact your local Curotto-Can® Dealer for parts quoting and ordering.

Registration and Login

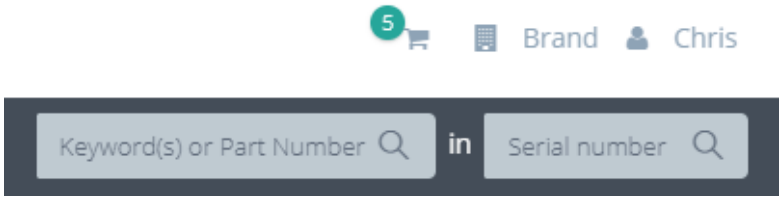
Register online to gain access: **https://epc.partscentral.com**. Upon registration, you will receive an email notification confirming registration. Within 24 hours, your registration will be approved and you can log in using the **login page**.





Search by Part Keyword(s) or Part Number in Serial Number

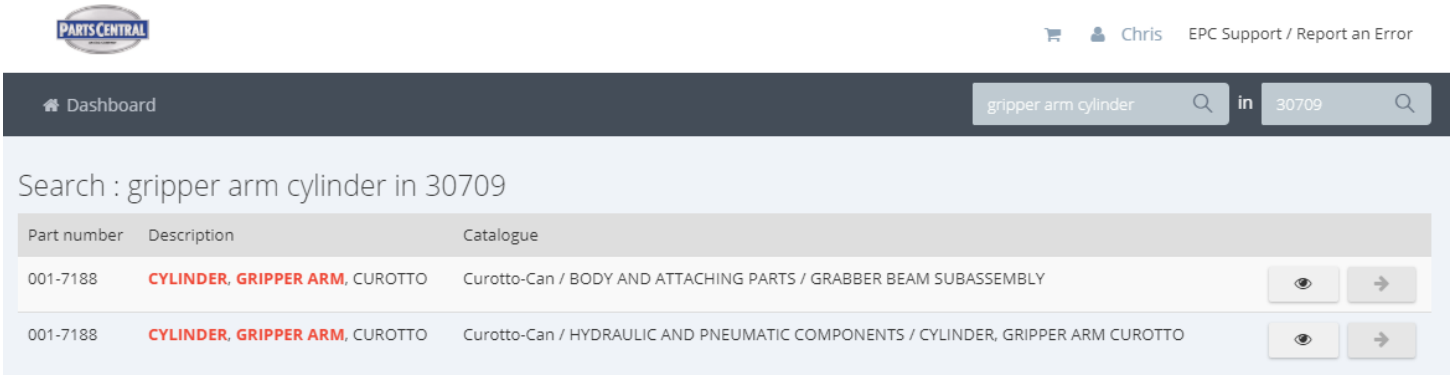
After login, you will land on the User Dashboard. At the top right of the Dashboard, there will be two search fields, as shown in the image below.



ELECTRONIC PARTS CATALOG (CONTINUED)

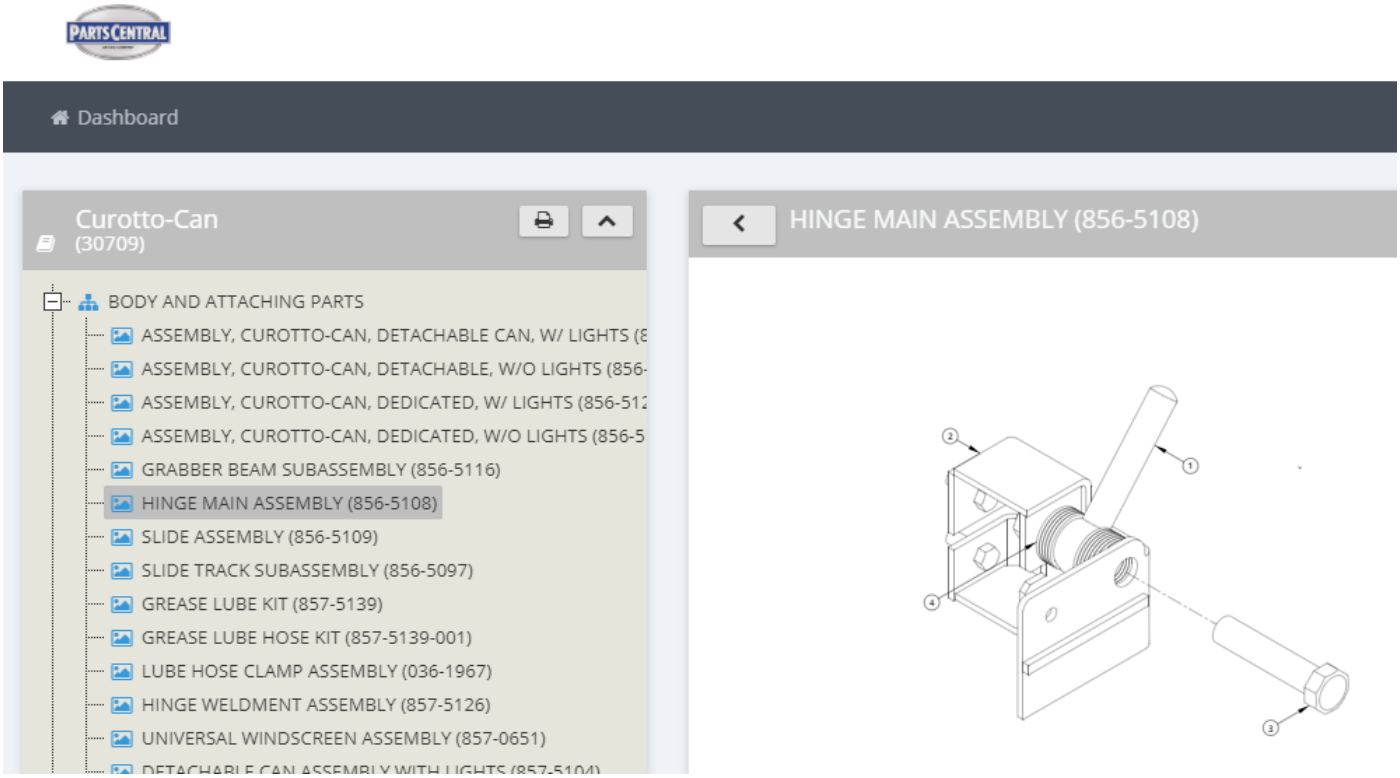
You can search by **Keyword(s) or Part Number** within a specific Curotto-Can® **Serial Number**. For example, if you are looking for a **gripper arm cylinder** for Curotto-Can® Serial Number **30709**, you can enter this information into these two fields and the search results will include all parts within the **30709** Curotto-Can® that contain the keywords **gripper** and **arm** and **cylinder** within their part descriptions. See the image below.

From the search results list, you can select the right arrow icon to view the part within its associated assembly/kit, helping you identify the needed part. Alternatively, you can select the eye icon on the right to see part specifics (including any notes) and quickly add to cart (although this functionality is not yet turned on in the Parts Central EPC).



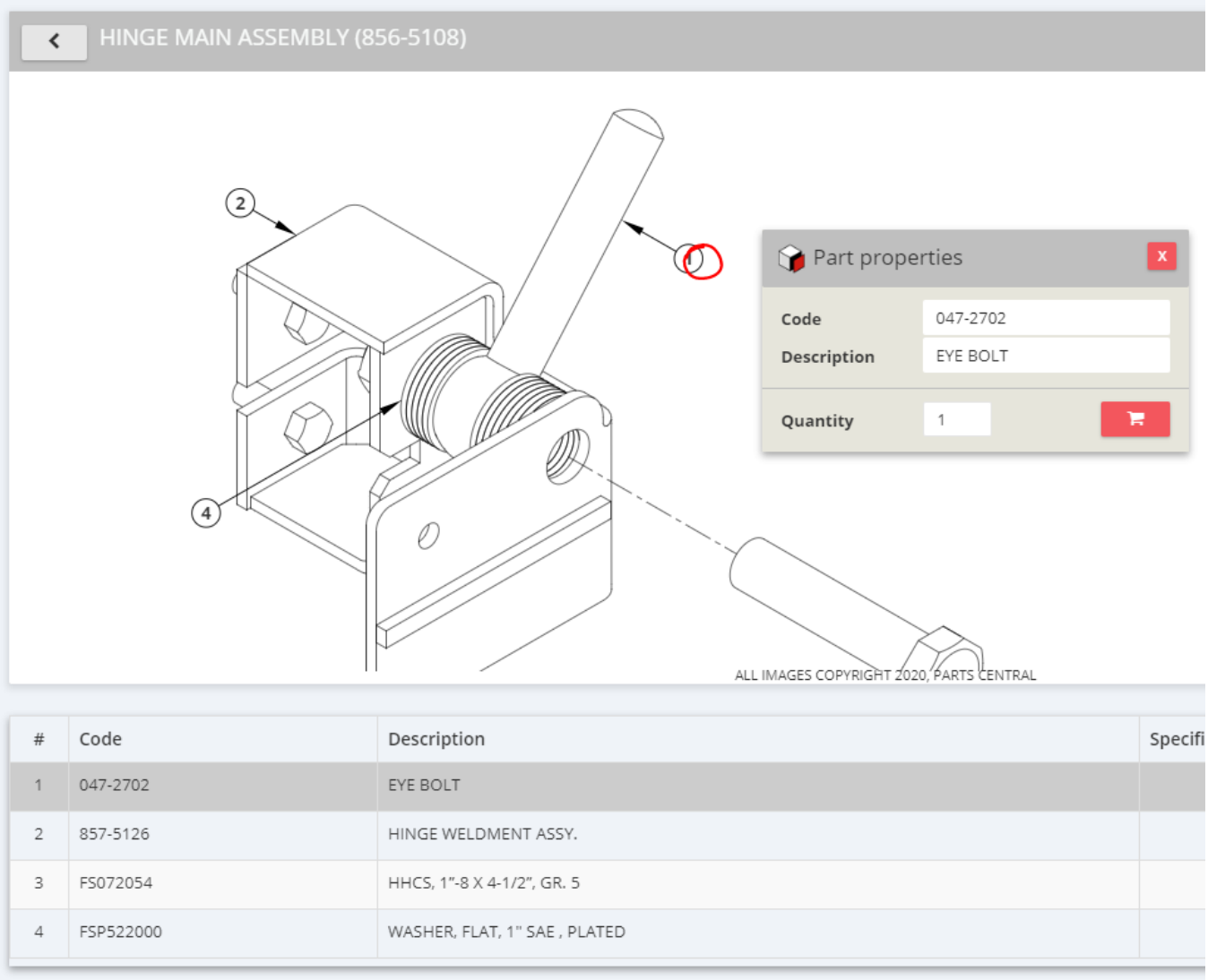
Search by Serial Number

If you wish to view an entire parts catalog for a particular Curotto-Can® unit, you can search by only the Curotto-Can® **Serial Number**, leaving the **Keyword(s) / Part Number** field blank. The search result will then be the Curotto-Can® parts catalog with familiar catalog sections that you can browse. You can navigate through the catalog using the section/topic menu in the left panel and then adjust an assembly/kit illustration size in the right panel with the mouse center scroll wheel. Additionally in the right panel, you can drag the image when holding down the left mouse button. See the image below.



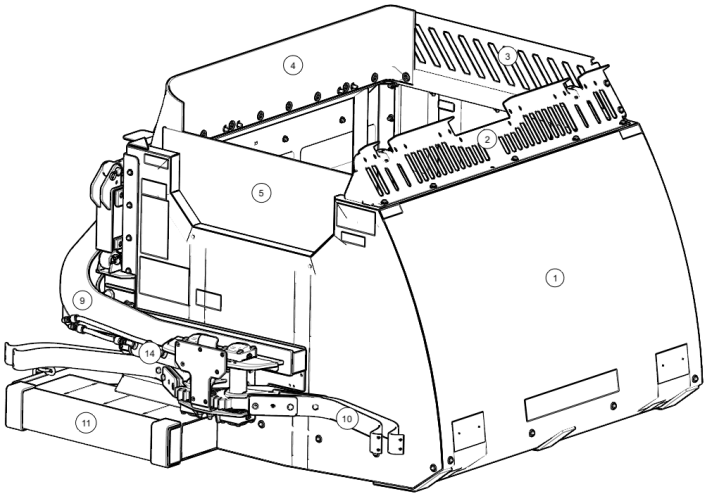
ELECTRONIC PARTS CATALOG (CONTINUED)

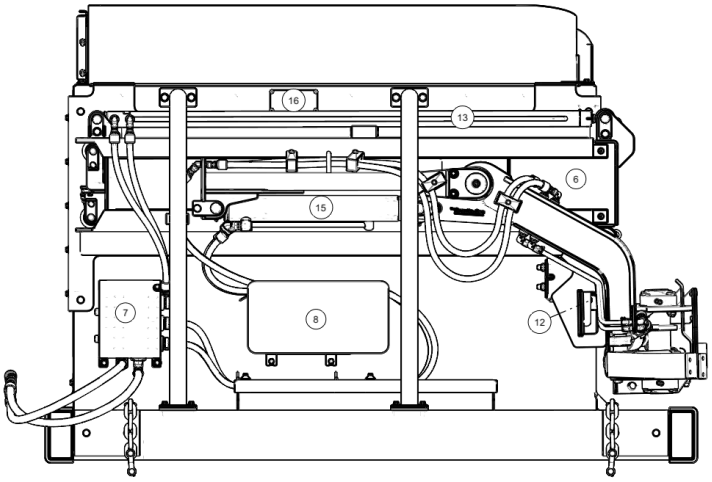
For each assembly/kit, you can click on the interactive part callout reference numbers to highlight the corresponding part in the parts list, or you can click on a parts list line item to highlight its position on the illustration. See the image below.



#	Code	Description	Specifi
1	047-2702	EYE BOLT	
2	857-5126	HINGE WELDMENT ASSY.	
3	FS072054	HHCS, 1"-8 X 4-1/2", GR. 5	
4	FSP522000	WASHER, FLAT, 1" SAE , PLATED	

CUROTTO-CAN NOMENCLATURE





ITEM	DESCRIPTION	ITEM	DESCRIPTION
1	Curotto-Can® Body	9	Grabber Beam Subassembly
2	Front Windscreen	10	Gripper Arms x 2
3	Street Side Windscreen	11	Fork Pocket Assembly x 2
4	Rear Spill Guard	12	Hinge Main Assembly
5	Curb Side Spill Guard	13	Slide Cylinder
6	Slide Assembly	14	Gripper Arm Cylinder
7	Hydraulic Valve/Manifold	15	Can Pivot Arm Cylinder
8	Controller Module	16	Serial Number Plate

NOTE: To order Curotto-Can® replacements parts, refer to the Curotto-Can® Electronic Parts Manual and contact Heil Parts Central at 800-528-5308.

CUROTTO-CAN® OPTIONS

Auto Cover

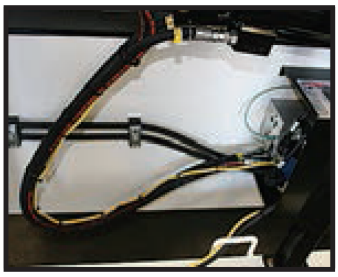
The Auto Cover closes a high strength, low weight fabric cover over the collected material as the operator starts a hopper dump. This prevents lighter material from being blown out of the Curotto-Can® as it is raised and dumped into the hopper. As the Can returns to the working position the Cover opens out of the way. The cover is air-powered and is activated either automatically or manually from a switch inside the cab.


Brush Kit - Hopper Seal

The brush kit effectively seals the gap between the Can and the hopper opening which prevents material from being suctioned out when the truck is in transit. Installation requires three Can mounted brushes and one truck mounted brush. These two kits are sold separately. When ordering a new Can the body manufacturer provides the truck side brush.


RFID / Lift Counter

This option is used either as a mechanical counter or in conjunction with RFID systems. The Lift Counter indicates a lift has occurred using a proximity switch embedded in the slide and a modified arm. If considering RFID systems this option is highly recommended because it avoids expensive retrofit modifications later on.

Forward Work Lamps

Curotto-Can® forward work lamps are shock resistant high output halogen beams. Wiring conduits are hidden and sealed.

Curb Access Controls

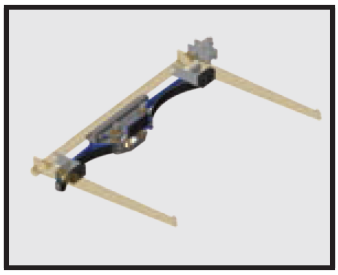
When the operator has to empty multiple carts in one location, such as a multi-family residence, curb access controls allow the operator to tip carts without having to repeatedly return to the controls inside the cab. Controls mount in a curbside accessible location and are for grip and dump function only.


300HD Gripper

The 300HD option makes one front loader capable of multiple service requirements: commercial bins, automated residential (32-96 gal carts), automated commercial (300 gal carts) and take-all. The 300HD gripper head and arm feature optimized geometry, superwide gripper belt, oversized arm and greater lifting capacity. The 300HD allows a hauler to either transition to or transition from 300HD carts.

CUROTTO-CAN® OPTIONS

Commercial Gripper



While on route collecting commercial bins you can also collect the heaviest of carts filled with green waste, food waste, baled cardboard or recycled material such as crushed glass using our Commercial Grippper. Avoid “chasing the route” with a rear loader or side loader. The Commercial Gripper mounts on the fork tube and tucks out of the way. You can mount both a Commercial Gripper and Curotto-Can® on the same front loader.

Curotto-Can®

NOTES

SECTION 2
SAFETY

PRECAUTIONARY STATEMENTS

Read this entire manual and especially this safety section before you operate the vehicle. Failure to follow these important precautions could result in serious injury, death, or property damage.

This safety alert symbol indicates important safety messages in this manual and on safety decals attached to the equipment. Make sure you read all of these messages and follow the instructions and precautions.

In the general text of the manual and in the safety labels attached to the product, signal words indicate the type and seriousness of risk that you could encounter if you do not follow the precautions. The signal words and their definitions follow:

DANGER

DANGER indicates a hazardous situation which, if not avoided, WILL result in DEATH or SERIOUS INJURY.

WARNING

WARNING indicates a hazardous situation which, if not avoided, COULD result in DEATH or SERIOUS INJURY.

CAUTION

CAUTION indicates a hazardous situation which, if not avoided, COULD result in MINOR or MODERATE INJURY.

NOTICE

NOTICE addresses practices not related to personal injury, such as property damage or damage to the equipment.

SAFETY

1. This Operations and Maintenance Manual is provided with your safety in mind. In accepting delivery of this equipment, The Curotto-Can® recognizes that you, the end user, is qualified and knowledgeable in the business of refuse collection and in all aspects of operational health and safety.
2. Read the entire Operations and Maintenance Manual before operating this equipment.

⚠ WARNING

Read and understand your Operations and Maintenance Manual before using this equipment. Failure to follow all safety precautions carefully may result in serious injury or death.

SAFETY OVERVIEW

1. This section contains the following safety related information:
   a. General Safety Precautions, Employer and Operator Responsibilities
   b. **Symbols and safety decals** 20; safety decal locations
   c. **Shutdown and Lockout procedures** 27 for operations and maintenance
   d. **Exclusion Zones** 29
2. Publication of Part 2, Safety in this manual does not imply or in any way represent an all inclusive document on the complete unit or refuse collections operations and maintenance procedures. Further documentation and training may be required and this may include:
   a. Body manufacturer (OEM) operational, safety and technical literature
   b. Chassis manufacturer operational safety and technical literature
   c. Occupational Safety and Health Act (OSHA) training and documentation
   d. American National Standards Institute (ANSI) literature
   e. Company “in-house” training programs and posted regulations.

SAFETY STATEMENT

1. Safety is everyone's business. This equipment is designed with the operator's safety in mind, however, as with any industrial hydraulic equipment, it can be extremely dangerous if operated or maintained incorrectly. Always observe all posted safety information and never operate this equipment if you believe an issue concerning the safety of yourself, or persons around you is present. Consult your supervisor with any issues or concerns you may have.
2. The ultimate responsibility rests with you – the user. An alert, conscientious attitude and observance of all known operating practices are the best ways to prevent accidents.
3. All operations and maintenance personnel shall thoroughly understand their duties and be familiar with the system prior to operating or maintaining the system. An untrained operator presents a safety hazard.
4. Danger, warnings, cautions and notes call attention to procedures that require particular attention and shall be observed at all times. See **Danger, Warning and Caution**.

GENERAL SAFETY PRECAUTIONS

1. Inspect the Curotto-Can® and your vehicle (per relevant guidelines) at the beginning of each day. Follow inspection checklists found at **Curotto-Can Master Checklists** of this manual.
2. Check the area is clear of people and possible obstructions before operating. Small children are especially difficult to see. Be extremely cautious when operating the equipment with children present. Be aware of your surroundings and always expect the unexpected.

GENERAL SAFETY PRECAUTIONS (CONTINUED)

3. Wear all safety equipment as mandated by your company. This may include, but is not limited to, the following:
   a. Approved safety boots
   b. Leather safety gloves
   c. Safety glasses
   d. High visibility vest/clothing
4. Inspect for overhead obstructions, such as power lines, before raising and dumping the Curotto-Can. Refer to body OEM literature for instructions.
5. Obey all warning and operation decals.

⚠ WARNING

All operations and maintenance personnel shall thoroughly understand their duties and be familiar with the system prior to operating or maintaining the system. Serious injury may result if this equipment is operated by untrained personnel.

⚠ WARNING

To prevent accidents, stay away from hazardous areas and ensure the equipment is safe to operate before starting. Serious injury may result from persons standing too close to the operating arm. Refer to **Exclusion Zones** 29.

⚠ WARNING

All Warnings, Cautions and Danger signs contained within supporting documentation shall be adhered to at all times. Failure to comply with posted warnings may result in serious personal injury or death.

EMPLOYER RESPONSIBILITY

1. Ensure that operational daily, weekly, monthly checks are completed on the Curotto-Can®. Checklists are found in this manual at **Curotto-Can Master Checklists**.
2. Ensure that planned maintenance is performed per guidelines found at **Curotto-Can Master Checklists**.
3. Ensure that all issues raised during routing inspections are corrected to manufacturers specifications prior to operating the equipment.
4. Keep records of inspections, maintenance, repairs and malfunctions.
5. Provide training to all operators and technicians in the safe operating and handling of the Curotto-Can®.
6. Monitor the employees operation of the equipment and take appropriate action to ensure the safe-use of the equipment.
7. Provide necessary personal safety equipment.

EMPLOYEE RESPONSIBILITY

1. Learn the safe operating procedures for this equipment and the entire unit. Read this manual fully.
2. Consult your supervisor if any operation, function or procedure is unclear.
3. Wear your personal protective equipment.
4. Use the equipment per manufacturers guidelines only.
5. Perform routine daily, weekly and monthly inspections.
6. Report any malfunctions or damage to your supervisor immediately through company channels.
7. Do not use damaged equipment.
8. Obey all warning and operation decals.

LOCK-OUT/TAG-OUT PROCEDURES

NOTICE

Always use your employer's Lock-Out/Tag-Out procedures. If your employer does not have Lock-Out/Tag-Out procedures, use the procedures that follow. Contact your supervisor or Curotto-Can® Technical Services if you have any questions about Lock-Out/Tag-Out procedures.

⚠ DANGER

Failure to follow and apply Lock-Out/Tag-Out rules may result in serious injury or death.

Put the unit in a Lock-Out/Tag-Out mode:

- BEFORE you enter the truck body or carry can.
- BEFORE you do maintenance, repair or cleaning procedures on the truck body or carry can.

Lock-Out/Tag-Out (Do Not Operate) Tag

1. This lockout procedure is to be followed before repairs are carried out on the Curotto-Can®.
2. Prior to maintenance, shut down the equipment as follows:
   a. Follow the procedure for an Operational Shutdown.
   b. Switch OFF the truck engine and reset the key to IGNITION only.
   c. TOGGLE the Curotto-Can® joystick back and forth through each of the Curotto-Can functions (this will relieve any hydraulic pressure in the lines)
   d. Switch OFF the Curotto-Can® Activate switch.
   e. Refer to **Connecting and Disconnecting the Curotto-Can** 40 and unplug the hydraulic and electrical connections.
   f. Restart the engine.
   g. Reverse the front loader away from the Curotto-Can® taking care to lower the forks slightly so that the fork tips clear the Curotto-Can® pockets.
   h. Secure the vehicle and apply Lock-Out/Tag-Out per body manufacturers guidelines and company directives.
3. To return to full operations, this shutdown procedure is to be reversed.
4. For removal of the Curotto-Can® for commercial collection purposes, refer to **Connecting and Disconnecting the Curotto-Can** 40.

PRECAUTIONARY STATEMENTS

Read this entire manual and especially this safety section before you operate the vehicle. Failure to follow these important precautions could result in serious injury, death, or property damage.

This safety alert symbol indicates important safety messages in this manual and on safety decals attached to the equipment. Make sure you read all of these messages and follow the instructions and precautions.

In the general text of the manual and in the safety labels attached to the product, signal words indicate the type and seriousness of risk that you could encounter if you do not follow the precautions. The signal words and their definitions follow:

DANGER

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CAUTION indicates a hazardous situation which, if not avoided, COULD result in MINOR or MODERATE INJURY.

NOTICE

NOTICE addresses practices not related to personal injury, such as property damage or damage to the equipment.

The following pages provide a summary of some of the more important safety precautions that are in this manual. There are additional safety precautions in other sections of this manual that are not contained in this section. You must also read, understand and follow those messages.

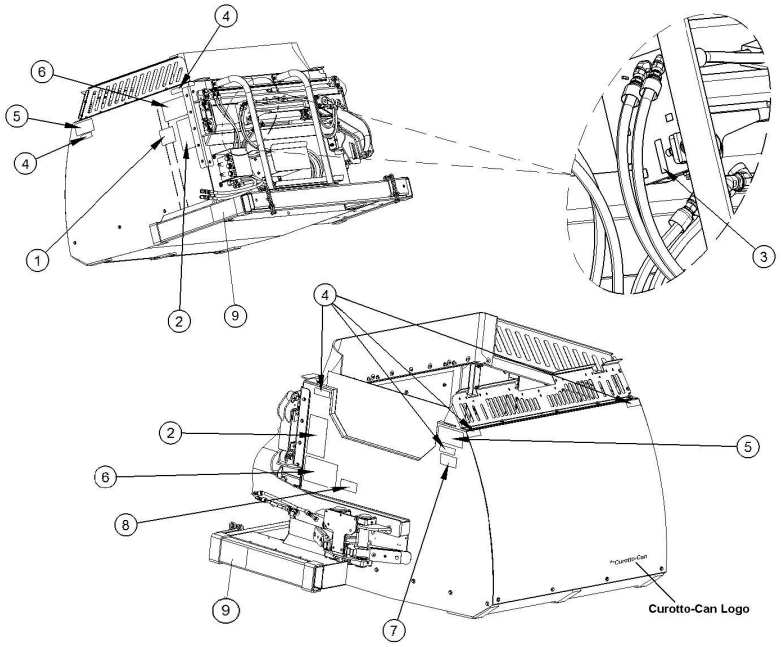
SYMBOLS AND SAFETY DECALS

1. This Section contains the safety and informational decals that appear on the Curotto-Can® only. Refer to body OEM and chassis manufacturers' literature for decals specific to those units.
2. Safety decals on the Curotto-Can® conform to ANSI Z535-2011.
3. Safety and operational decals should be kept clean at all times. Decals can be ordered through Parts Central, 800-528-5308. Refer to the decals on next pages for reorder part numbers.

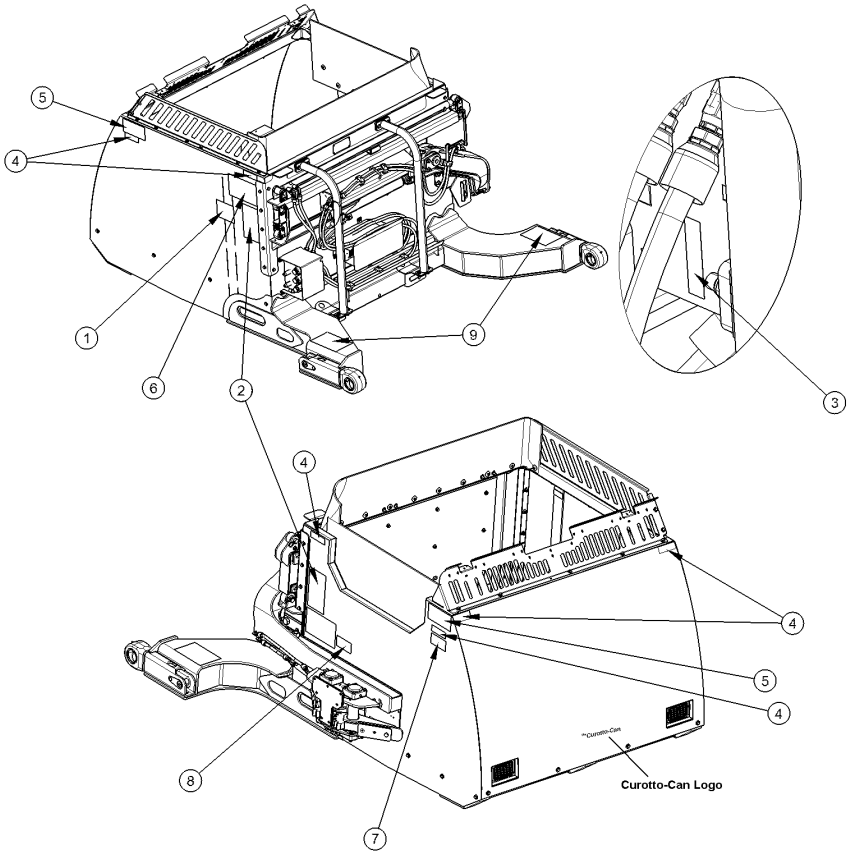
DECAL PLACEMENT

Decals on the Curotto-Can are located as shown on the figure below.

A. Detachable Can



B. Integrated Can



DECAL PARTS LIST

ITEM	PART NUMBER	DESCRIPTION	QTY
-	856-5125	**KIT, DECAL DETACHABLE CUROTTO-CAN**	**REF**
-	856-5126	**KIT, DECAL INTEGRATED CUROTTO-CAN**	**REF**
-	212-3273	DECAL, LOGO, CUROTTO-CAN	-
1	212-3404	DECAL, ADJUSTABLE ROLLER	1
2	212-3408	DECAL, STAND CLEAR OF LIFT	2
3	212-3409	DECAL, LUBRICATION POINT	1
4	212-3410	DECAL, CAUTION PINCH POINTS	6
5	212-3411	DECAL, WARNING, FOOT CRUSH	2
6	212-3412	DECAL, LUBRICATION GUIDE	2
7	212-3414	DECAL, WARNING, PINCH POINTS	1
8	212-3416	DECAL, WARNING, PINCH POINTS	1
9	212-3417	DECAL, WARNING, NOT A STEP	2

DECAL IMAGES

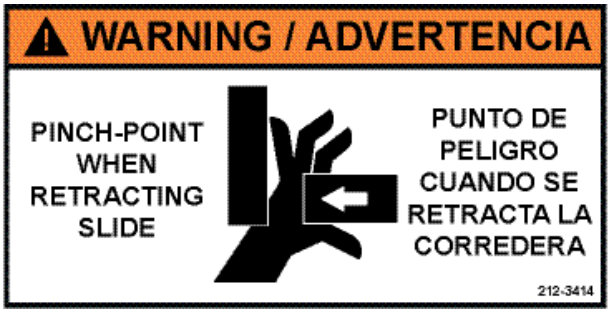


Figure: Pinch Point, 212-3414

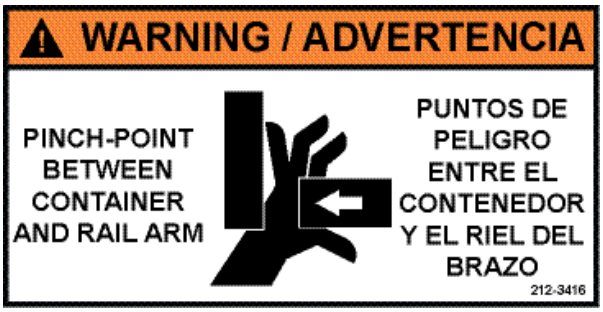


Figure: Pinch Point, 212-3416

Figure: Warning Foot Crush Hazard, 212-3411

Figure: Caution Pinch Points Decal, 212-3410

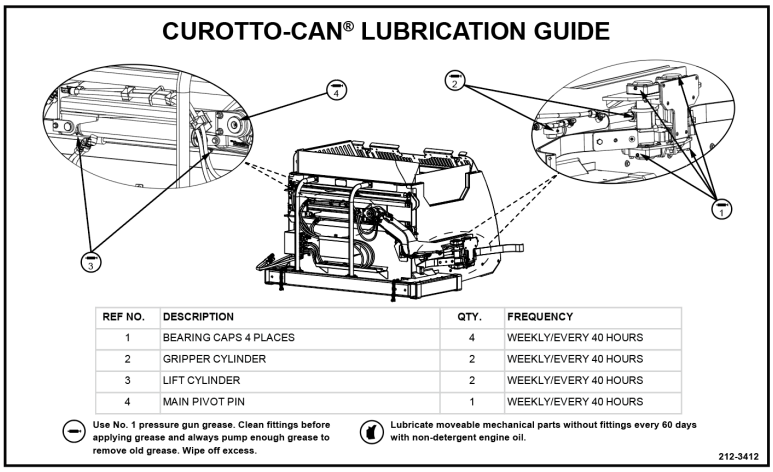


Figure: Lubrication Guide, 212-3412

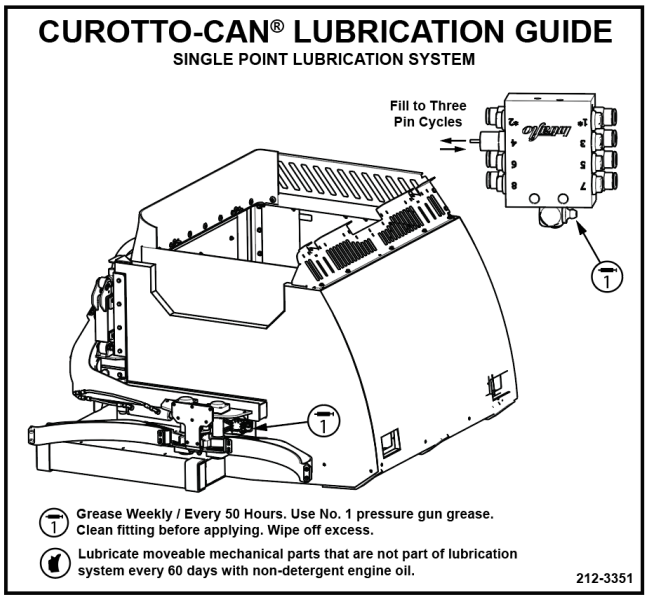


Figure: Curotto-Can Optional Single Point Lubrication Guide, 212-3351

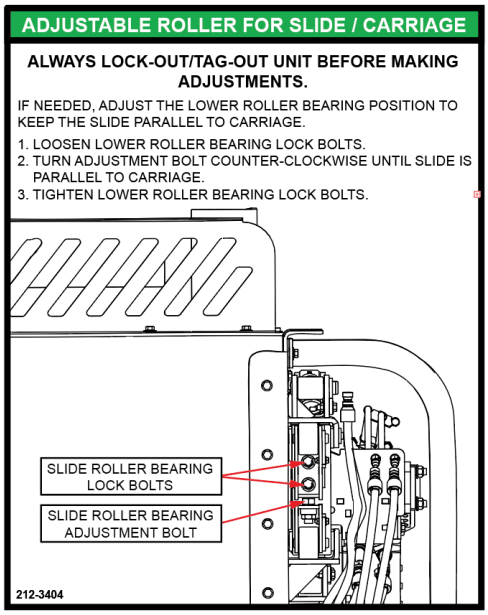


Figure: Adjustable Roller for Slide / Carriage, 212-3404

Figure: Warning Not a Step, 212-3417

Figure: Danger Stand Clear of Lift Decal, 212-3408

Figure: Lubrication Point, 212-3409

Figure: Curotto-Can Logo

DECALS ON THE UNIT

Make sure you can read all hazard and instruction decals. Clean decals if you cannot read the words. See for directions on cleaning decals.

Replace any decal that is damaged, missing, or is not readable.

When you replace a part that has a decal, make sure a new decal is installed on the new part. See the Parts and Service manual for a complete decal kit and individual decals. Order the decal kit or individual decals from your Curotto-Can® Dealer or from Heil.

DECAL CARE

It is important that the decals are properly cleaned to make sure that they are readable and do not come off the unit. Use the following steps to clean the decals.

A. General Instructions

Following these instructions helps the decals adhere longer.

- Wash the decals with a blend of mild car wash detergent and clean water
- Rinse with clean water
- Let the vehicle air-dry or dry with a micro-fiber cloth
- Do not allow fuels to stay in contact with the decal for an extended period of time. Remove the fuel contamination as quickly as possible
- Do not use carnauba-based wax over the decals
- Do not use a mechanical brush while washing the decals.

B. Pressure Washer Precautions

Pressure washing can cause damage to decals. It can cause the edges of the decals to lift and peel the decal away from the unit. Over time, the decal can fade, crack or chip away.

Use pressure washing only when other cleaning methods are not effective. If you use a pressure washer, use the following precautions.

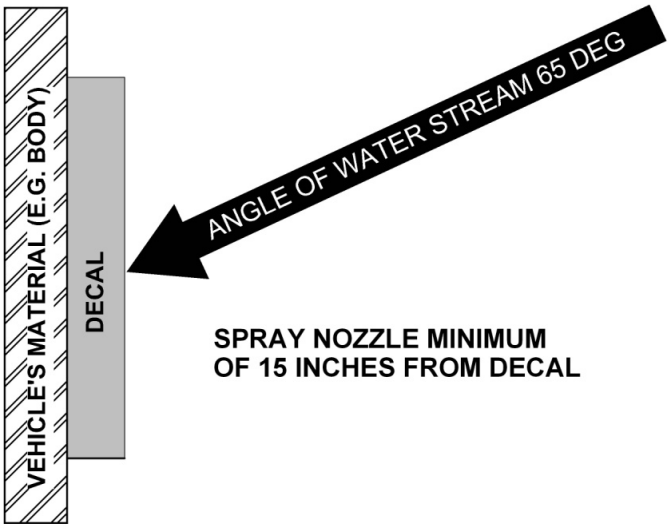
- Spray nozzle opening: 40° wide pattern
- Spray angle: 65° from vehicle' s body (do not use sharp angles – this can lift the decals from the unit)
- Distance of nozzle to decal: 15" minimum
- Water pressure: <= 800 psi
- Length of time: not more than 30 sec.
- NEVER use a "turbo pressure nozzle".

C. Remove Difficult Debris

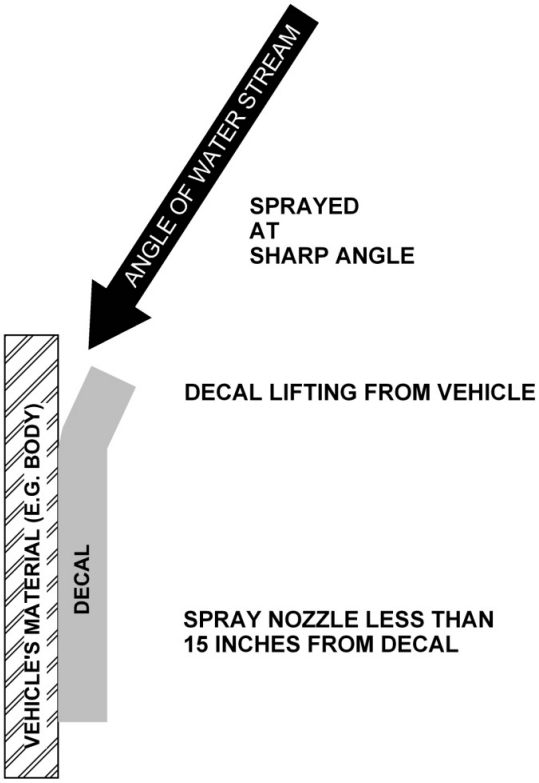
When normal cleaning procedures do not remove difficult debris from the decals, try the following:

- Spot clean the decal with Isopropyl Alcohol and a micro-fiber cloth (rag)
- If these methods do not work on a problem area, call a Heil Dealer or Heil Customer Support.

DECAL CARE (CONTINUED)



RECOMMENDED TECHNIQUE



INCORRECT TECHNIQUE

SHUTDOWN

1. This Section details the recommended practices for ensuring that the Curotto-Can is made safe in an operational condition and put in Lock-Out/Tag-Out for maintenance purposes. It is not intended to be a final and definitive document for complete vehicle Lock-Out/Tag-Out procedures. Additional information is required and detailed in para. 4.
2. The ONLY time the Curotto-Can® is completely safe is when it has been correctly disconnected from the host vehicle, all hydraulic functions are at rest with the dump arm fully lowered, slide fully retracted and gripper fully open, and the entire container assembly is placed on firm, level ground.
3. All **Lock-Out/Tag-Out** 19 procedures in effect at your company must be adhered to at all times. Disciplinary action, up to and including dismissal is often in effect for those who do not adhere to Lock-Out/Tag-Out procedures.
4. Operators and technicians must consult additional reference material in consideration of Lock-Out/Tag-Out procedures which may include, but is not limited to, the following:
   a. Body manufacturer (OEM) **Lock-Out/Tag-Out** 19 information
   b. Chassis manufacturer **Lock-Out/Tag-Out** 19 information
   c. Occupational Safety and Health Act (OSHA) **Lock-Out/Tag-Out** 19 advice
   d. American National Standards Institute (ANSI) lockout advice
   e. Company “in-house” training programs and posted regulations.

⚠ DANGER

Failure to follow and apply **Lock-Out/Tag-Out** 19 rules may result in serious injury or death.

The section contains the following shutdown and **Lock-Out/Tag-Out** 19 procedures:

a. Operational Shutdown – short term
b. Operational Shutdown – long term
c. Maintenance **Lock-Out/Tag-Out** 19
d. It should be noted that while these instructions appear in this manual before the operating instructions, a clear understanding of the operation of the front loader and Curotto-Can is required before attempting these procedures.

OPERATIONAL SHUTDOWN – SHORT TERM

1. A short term operational shutdown – for example when the operator is on a break or away from the vehicle for a short period, or if the Curotto-Can is to be stowed for transport – is one where the Curotto-Can® is “Made Safe” but can be returned to full operating condition almost immediately.
2. During operations, shut down the equipment as follows (assumes the unit is running with the Curotto-Can® in the collection position):
   a. Return all Curotto-Can® functions to their HOME position i.e. slide fully retracted, lift arm fully lowered, gripper arms fully open
   b. Using the front loader controls, RAISE the arms to the fully up position, then ROTATE the Curotto-Can® into the hopper by operating the front loader fork UP control
   c. DO NOT SWITCH OFF THE CUROTTO-CAN® ACTIVATE SWITCH (see **Operations** 48)
   d. Switch OFF the main pump switch
   e. Refer to chassis information and switch the driving position to the left hand drive sit down position
   f. Refer to chassis information and safely and securely shut down the vehicle.
3. To return to full operations, this shutdown procedure is to be reversed.

OPERATIONAL SHUTDOWN – LONG TERM

1. A long term operational shutdown – for example when the unit is to be shutdown for a period in excess of 4 hours at night and weekends – is one where the Curotto-Can® is “Made Safe” and may be returned to operating condition following start up checks (pre-trip inspection).
2. Following operations, shut down the equipment as follows (assumes the unit is running with the Curotto-Can® stowed in the hopper):
   a. Park the vehicle in it's designated parking space
   b. Switch ON the main pump switch and ensure the Curotto-Can® Activate switch is ON
   c. Using the front loader controls, ROTATE the Curotto-Can® out of the hopper using the front loader fork DOWN control, then LOWER the arms to the fully down position
   d. Using the fork DOWN control, LOWER the Curotto-Can® so that the nose of container rests on the ground
   e. Return all Curotto-Can® functions to their HOME position i.e. slide fully retracted, lift arm fully lowered, gripper arms fully open
   f. Carry out and document the Post Trip inspection per company guidelines
   g. DO NOT SWITCH OFF THE CUROTTO-CAN® ACTIVATE SWITCH (see **Operations** 48)
   h. Switch OFF the main pump switch
   i. Refer to body and chassis information and safely and securely shut down the vehicle
   j. It should be noted that the long term operational shutdown leaves the Curotto-Can® in the down position in front of the unit. This is to ensure that pre-trip inspections are carried out while the unit is still in the yard. This will eliminate the possibility of a road call to attend to a start up malfunction.
3. To return to full operations, this shutdown procedure is to be reversed.

EXCLUSION ZONES

The term "Exclusion Zone" refers to the areas around the Curotto-Can® that MUST NOT BE ENTERED while the Curotto-Can® is in a working condition.

1. During operations, and while the equipment is in an operational condition – i.e. engine running with the pump switch ON and the Curotto-Can activate switch in the ON position – the Exclusion Zones shown in Fig. 2-4 must be respected.
2. If the Exclusion Zone must be entered during operations, for example, to collect fallen trash, the following procedure shall be followed:
   a. Using the fork control, lower the Curotto-Can® fully so that it is resting on the ground
   b. Using the Curotto-Can® joystick, lower the dump arm fully
   c. Switch OFF the Curotto-Can® activate switch
   d. Switch OFF the pump switch
   e. Apply the park brake or work brake (if equipped)
   f. When safe to do so, exit the cab
   g. Clear the debris
   h. Return to the cab, activate controls and continue collections

⚠ DANGER

Failure to observe Exclusion Zones may result in serious injury or death.

EXCLUSION ZONES (CONTINUED)

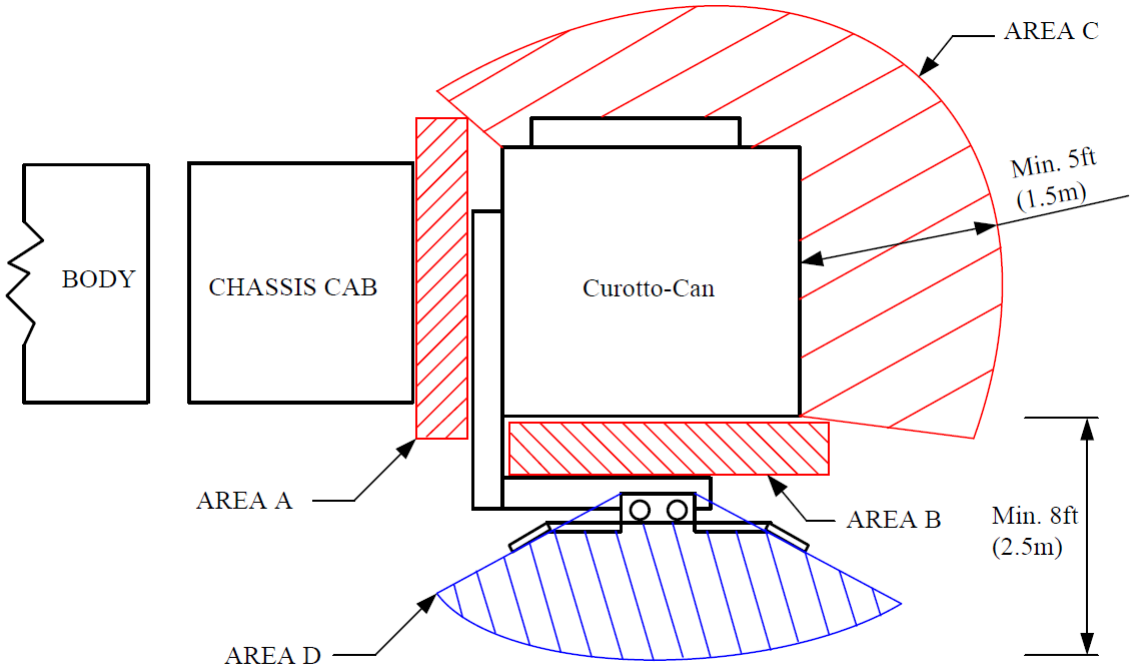


Fig. 2-4 Exclusion Zones (not to scale)

AREA	EXCLUSION ZONE
A	Between the front of the cab and the rear of the Curotto-Can®
B	Between the side of the Curotto-Can® and an extended slide/arm (includes under a raised dump arm) up to 5ft (1.5m)
C	In front of, to the side of, and underneath the Curotto-Can® for a distance of 5ft (1.5m)
D	Working area - may be entered for collection and hand loading of un-carted trash, when correct conditions are met

SECTION 3
OPERATION

OPERATIONAL SAFETY WARNINGS

All warnings and posted safety signs must be adhered to at all times.

Observe all operational warnings contained in body and chassis manufacturers literature and those posted in the cab and on the body.

Operation of the Curotto-Can® requires that the operator is qualified to operate the front loader. The operator is experienced and has been fully trained in the operation of the body and the chassis.

⚠ DANGER

NEVER stand beneath a raised, unsupported Curotto-Can.

⚠ DANGER

NEVER enter the area between the front of the cab and the Curotto-Can unless Shutdown and/or Lockout procedures are in place (refer to **Exclusion Zones** 29).

⚠ DANGER

NEVER operate this equipment with persons present anywhere near the Curotto-Can. Hydraulic activity may occur without warning (refer to **Exclusion Zones** 29).

⚠ WARNING

Improper use of this equipment may result in serious injury or even death. Carefully observe all warnings and take appropriate precautions.

⚠ WARNING

Be aware of pinch points and foot crush hazard.

OPERATIONAL POSITIONS

This section deals with the operation of the Curotto-Can® only. Refer to body OEM and chassis manufacturer for details on the cab, chassis and body operation.

1. The Curotto-Can® is connected to the host unit. For complete instructions on connecting and disconnecting the Curotto-Can® refer to **Connecting and Disconnecting the Curotto-Can** 40. Section 3 contains the following information:
   a. Positioning the Curotto-Can® for long distance travel
   b. Positioning the Curotto-Can® for short distance travel
   c. Positioning the Curotto-Can® for collection
   d. Curotto-Can® working height
   e. Operator position in the cab.
2. Ensure that Pre-trip inspections have been carried out and documented. Report any defects found to your route supervisor.

⚠ CAUTION

Do not use damaged equipment.

TRAINING

1. It is strongly advised that training is conducted with all operators.
2. Operators new to this type of collection may benefit from practicing in the yard before going to the route.

POSITIONING THE CUROTTO-CAN® FOR LONG DISTANCE TRAVEL

Long distance travel is identified as that which exceeds 1 mile (1.6km) or as per company policy. This may also include travel to the route, intersections, speeds in excess of 10 mph, travel to the dump site or at any time that the left hand position is utilized.

1. The Curotto-Can® is loaded into the hopper and the fork cylinders fully retracted.

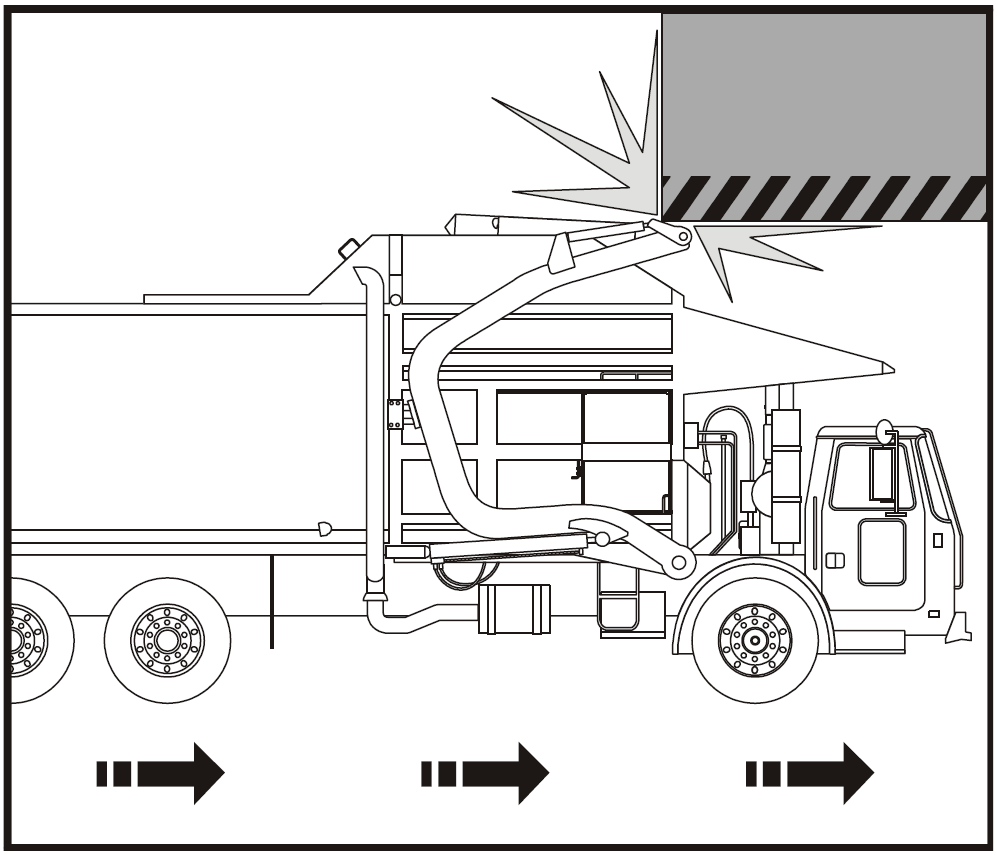


Fig. 3-1 Positioning the Curotto-Can for long distance travel

POSITIONING THE CUROTTO-CAN® FOR SHORT DISTANCE TRAVEL

Short distance travel is identified as that which is less than 1 mile (1.6km) or as per company policy. This may include travel on the route, such as between pick-ups, or any time that the right hand side position is utilized.

1. The Curotto-Can® is lowered in front of the cab in the collection position, level to the ground and lowered onto the cradles if the truck is so equipped.
2. Raise the Curotto-Can® enough to clear any dips or bumps in the road.
3. Be aware of your increased need for front clearance when turning.

⚠ CAUTION

Always maintain optimum visibility of the road.

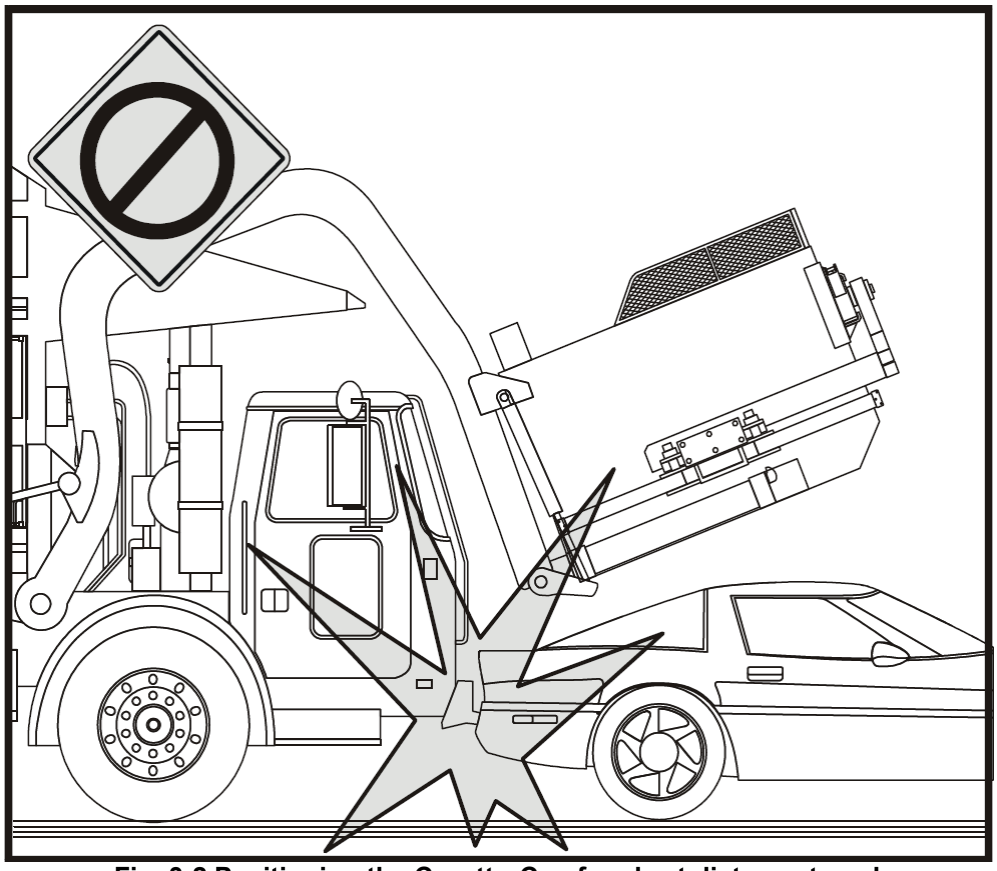


Fig. 3-2 Positioning the Curotto-Can for short distance travel

POSITIONING THE CUROTTO-CAN® FOR COLLECTION

1. Once on the route, the front loader should be prepared for operations per the chassis and body manufacturers specifications.
2. The front loader arms and forks should be lowered so that the Curotto-Can® is level to the ground in the collection position. Refer to Fig. 3-3 Curotto-Can® in collection position.
3. Correct installation by the manufacturer will ensure that the Curotto-Can® is spaced correctly on the fork assembly to give adequate clearance to the right side fork cylinder. If the Curotto-Can® is tilted back toward the cab rather than being level as shown in Fig. 3-3, it is possible for the rear gripper arm to contact the fork cylinder, causing damage.

⚠ CAUTION

Failure to properly position the Curotto-Can® in the collection position may result in damage to components.

Tilting the Curotto-Can® too far forward may cause damage to the front of the container.

Fig. 3-3 Curotto-Can in Collection Position

4. All Curotto-Can® equipped units should have support cradle assemblies fitted to the the front of the chassis frame. Consult your front load body supplier for more information.
5. The fork pivot tube must rest on these cradles when the Curotto-Can® is in the working position. The cradles provide support for the arm assemblies and a stable platform for operations.

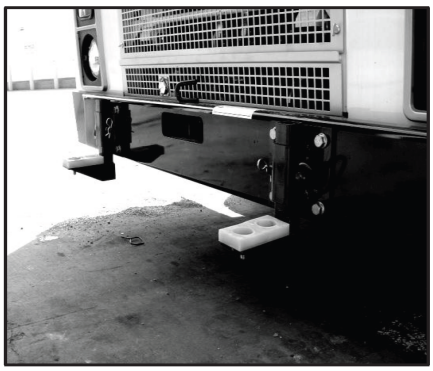


Fig. 3-4 Adjustable Support Cradle Assemblies

POSITIONING THE CUROTTO-CAN® FOR COLLECTION (CONTINUED)

6. Some support cradle assemblies may be adjustable. Refer to **Curotto-Can working height** 32.

⚠ CAUTION

Failure to rest the fork pivot tube on the cradle assemblies may result in structural damage to the arm assemblies and related components.

CUROTTO-CAN® WORKING HEIGHT

1. The working height is defined as the distance from the ground (flat level surface) to the center of the fork pivot tube with the arms fully lowered and the fork pivot tube resting on the support cradle assemblies.
2. If the support cradle assemblies are adjustable, the following guidelines should be used to make the adjustment.
3. This is a critical dimension since it will establish the working height of the Curotto-Can® gripper assembly so that it has the ability to engage carts from 20 gal. to 96 gal. It will also allow for easier loading by hand.
4. When measured from a flat level surface, the distance to the center of the fork pivot tube is to be >9" <15" (>23cm <38cm). Ensure that the arms down deceleration valve is adjusted to cut off any hydraulic flow as the arms come down to rest on the cradles.

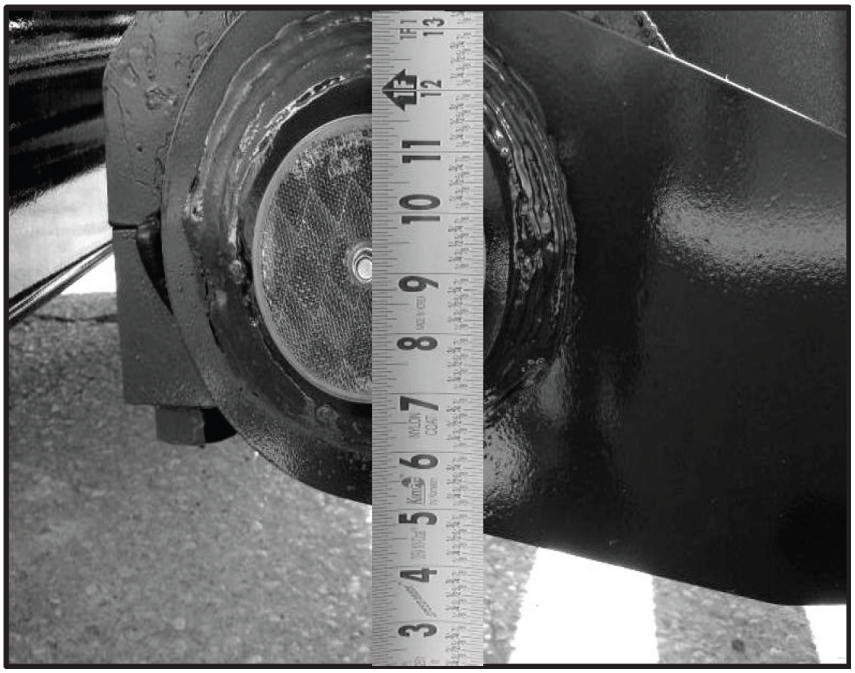


Fig. 3-5 Curotto-Can Working Height Measurement

5. Factors governing the final working height measurement include:
   - chassis make and configuration
   - body make and configuration
   - tire size
   - cart type
   - collection environment (curbs, berms, sidewalks, snow etc.)
6. Fig. 3-6 shows the engagement height with a 96 gal. cart.

CUROTTO-CAN® WORKING HEIGHT (CONTINUED)

Fig. 3-6 96 Gal. Cart Engagement When the Fork Pivot Tube is at the 9" (23cm) Working Height

OPERATOR POSITION IN THE CAB

1. Maximum performance of the Curotto-Can® collection system is obtained using a cab configured for right hand drive, or dual sit-down operation for fully carted operation. The operator has visibility of the cart engagement and dumping and can observe that only the correct waste stream is being collected. The forward looking collection position means that the operator always has visibility of the road ahead and any obstructions that may appear.
2. Driving a right-hand drive stand-up vehicle takes practice and care. Unaccustomed operators should always be supervised until they have reached an acceptable level of safety and proficiency. Always follow your company directives when operating from the stand up side of the vehicle.
3. The following should be observed when operating from the right hand side (this list may not be inclusive):
   a. Always use the supplied safety harnesses, seat belts and or restraining devices
   b. Ensure that your position is such that all controls and foot pedals can be reached and operated without interference
   c. Adjust mirrors and rear vision monitors
   d. Keep the foot well free from obstructions and ensure that mud does not accumulate so that it presents a slip hazard
   e. Observe all chassis and body manufacturers recommendations for the stand-up drive side.

⚠ DANGER

Never exit the cab until the vehicle has come to a complete stop and the parking or work brake (if equipped) has been applied. See chassis manufacturers instructions. Failure to comply may result in serious injury, even death.

⚠ WARNING

Only use right-hand side stand up position (if equipped) during collection activities and for distances of less than 1 mile (1.6km) or as directed by your company policy.

4. Configuration of the stand-up side controls for the body and the Curotto-Can® may vary depending upon chassis type and body manufacturer. The joystick for the Curotto-Can® and the arms/forks, and the body control console should be within easy reach of the operator.

HEIL MULTI-FUNCTION JOYSTICK

The following instructions are for the Heil Multi-Function Joystick installed on a Heil Half/Pack® (featuring Odyssey® Controls) or Half/Pack® Factor AFL™ unit. Also refer to the decal in the cab of the unit (shown on next page).

A. Manual Mode

With the AutoLift Switch OFF (located on the Control Panel), the unit is in Manual Mode. In this mode, the Front Loader AutoLift function is OFF. Use Manual Mode to manually control the Front Loader Arm and Fork functions.

- Thumb Switch Button = Inactive
- Rocker Switch = Inactive
- Joystick FORWARD = Arms DOWN
- Joystick BACKWARD = Arms UP
- Joystick RIGHT = Forks DOWN
- Joystick LEFT = Forks UP

B. Carry Can Mode

With the AutoLift Switch ON, **Carry Can Mode is active when the Thumb Switch Button is NOT depressed**. Use Carry Can Mode to control the Carry Can Arm Extend/Retract and Carry Can Arm Raise/Lower functions to dump customer cans into the Curotto-Can.

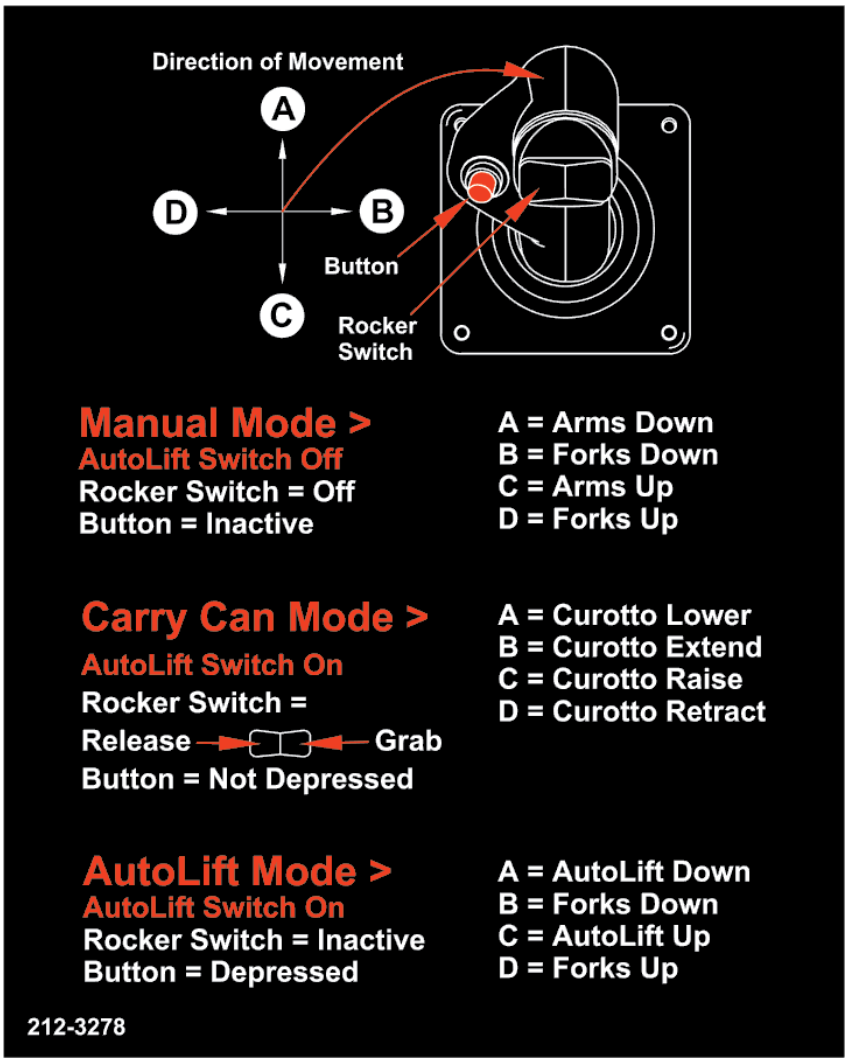
- Thumb Switch Button = NOT Depressed
- Rocker Switch RIGHT = GRAB
- Rocker Switch LEFT = RELEASE
- Joystick FORWARD = Curotto-Can Arm LOWER
- Joystick BACKWARD = Curotto-Can Arm RAISE
- Joystick RIGHT = Curotto-Can Arm EXTEND
- Joystick LEFT = Curotto-Can Arm RETRACT

C. AutoLift Mode

With the AutoLift Switch ON, **AutoLift™ Mode is active when the Thumb Switch Button is depressed**. Use AutoLift Mode to control the automated Front Loader Arms and Forks functions. This mode automatically tucks/untucks the forks as it dumps the Curotto-Can into the Front Loader hopper

- Thumb Switch Button = Depressed
- Rocker Switch = Inactive
- Joystick FORWARD = AutoLift Arms DOWN
- Joystick BACKWARD = AutoLift Arms UP
- Joystick RIGHT = Forks DOWN
- Joystick LEFT = Forks UP

HEIL MULTI-FUNCTION JOYSTICK (CONTINUED)



Heil Multi-Function Joystick Decal

CUROTTO-CAN® JOYSTICK OPERATION

This optional electric joystick is a dual axis (left and right, forward and back) controller with a thumb switch on the top. The joystick may be operated anywhere in the axis planes – i.e. at 45° to enable the operation of two functions at the same time. At any time, the thumb-switch may be used as well.

1. The selected function will continue to operate for as long as the joystick is engaged by the operator, or until the function reaches maximum travel.

Fig. 3-15 Curotto-Can electric joystick

2. Slide function:
   - moving the joystick to the left retracts the slide
   - moving the joystick to the right extends the slide.

Fig. 3-16 Slide function

CUROTTO-CAN JOYSTICK OPERATION (CONTINUED)

3. Dump function:

- moving the joystick forward lowers the dump arm
- moving the joystick backward raises the dump arm.

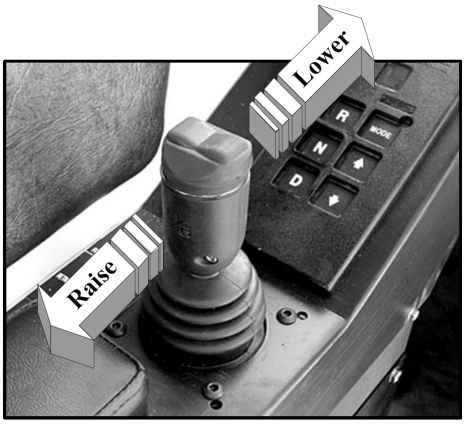


Fig. 3-17 Dump function

4. Gripper function:

- pressing the left thumb-switch releases the gripper
- pressing the right thumb-switch closes the gripper.

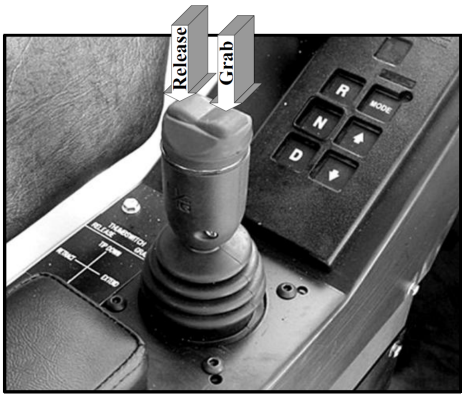


Fig. 3-18 Gripper function

CART COLLECTION AND LOADING THE CONTAINER USING THE CUROTTO-CAN® JOYSTICK

The following sequence is used to complete a collection, dump and return cycle:

1. Position the vehicle so that the arm and gripper assembly are in line with the refuse roll-out cart on the curb
2. Move the joystick to the right to extend the slide – to a point just short of contacting the cart
3. Depress the right side thumb-switch to close the gripper and engage the cart
4. The following step is only required if the cart is not placed in the street or on a smooth surface. Move the joystick backward slightly to raise the dump arm and lift the cart off the ground.
5. Move the joystick to the left to retract the slide
6. Move the joystick backward fully to raise the cart and dump the contents into the Curotto-Can®
7. Move the joystick forward to lower the cart and clear the side of the Curotto-Can®
8. Move the joystick to the right to return the cart close to the curb
9. Move the joystick forward to fully lower the cart to the ground
10. Depress the left side thumb-switch to open the gripper and disengage the cart
11. Move the joystick to the left to return the slide to the home position.

All functions may be operated simultaneously (i.e. the slide may be retracted while raising the arm) to produce a seamless, rapid collection, dump and return cycle. As with any joystick control, it may take some practice but as the operator becomes more proficient, high levels of productivity can be achieved.

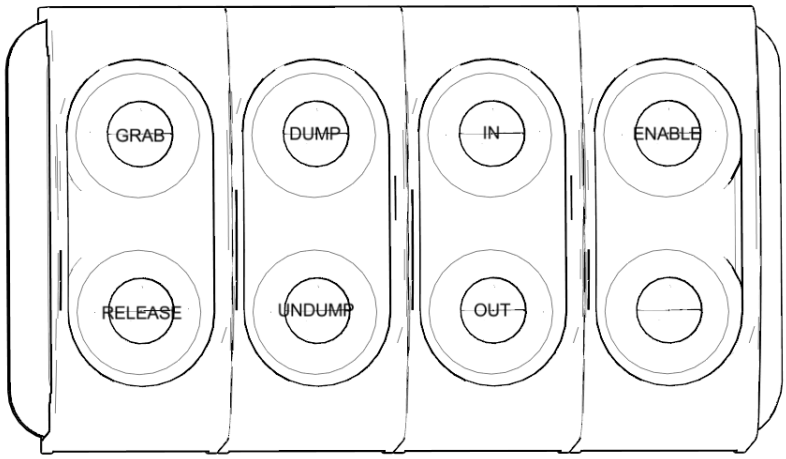
CUROTTO-CAN® CURB ACCESSIBLE (OUTSIDE) CONTROL OPERATION (OPTIONAL)

This outside switch is best located inside cab, curb side by door

Description:

This option allows the operator to efficiently handle multiple carts at one stop as in a multi-family home stops or carted commercial stops. This option allows the driver to remain outside the cab and quickly shuffle carts as they are loaded into the Curotto-Can® much like a tipper. The outside control option includes rocker switches that run the grip and lift circuit, and a remote control box mounted in a curb accessible location.

The following sequence is used to complete a collection, dump and return cycle:



Optional Curotto-Can Controls

⚠ WARNING

Moving equipment can be dangerous to bystanders. Serious injury or death can occur if a person is in the area of operation or is not attentive to the operations. Clear the area of all unnecessary people before you operate the controls.

Listed below are the switches and functions on the Outside Control Panel. See the figure above.

- Curotto-Can Grabber: Grab/Release
- Curotto-Can Arm: Dump/Undump (to raise residential container into Curotto-Can and dump/lower arm)
- Curotto-Can Arm: In/Out
- Curotto-Can Enable: On/Off

1. Position the vehicle so that the arm and gripper assembly are in line with the refuse roll-out cart on the curb
2. Depress the GRAB rocker switch to GRAB the refuse can
3. Depress the DUMP rocker switch to DUMP the refuse into the Curotto-Can
4. Depress the UNDUMP rocker switch to fully LOWER the cart to the ground
5. Depress the RELEASE rocker switch to OPEN the gripper and disengage the cart

LOADING UN-CARTED REFUSE BY HAND

A feature of the Curotto-Can® system is that it is easy to load the container by hand due to it's low loading height.

Always follow your company guidelines for exiting the cab and observe the posted signs in the vehicle. The following advice should not be considered an all inclusive list:

1. Return the Curotto-Can® grip and dump arm assemblies to their home position
2. Gently lower the nose of the Curotto-Can® to the ground.
3. Switch the Curotto-Can® activate switch to the OFF position (see **Operations** 48)
4. Switch the main pump switch (see body manufacturers instructions) to the OFF position
5. Set the park or work brake (if equipped) to the ON position (see chassis manufacturer's instructions)

⚠ DANGER

Never exit the cab until the vehicle has come to a complete stop and the parking or work brake (if equipped) has been applied. See chassis manufacturers instructions. Failure to comply may result in serious injury, even death.

1. Ensure that it is safe to exit the cab – you should be wearing your high visibility vest/clothing and protective gloves per company policy where applicable
2. Collect the trash at the curb and place it into the container
3. Return to the cab
4. Switch the Curotto-Can® activate switch and the main pump switch to the ON positions
5. Release the park/work brake and return to normal collection.

FRONT LOADER ARMS DUMP CYCLE

1. When the Curotto-Can® container is full, the front loader arms are to be operated to empty the contents into the vehicle hopper.
2. Follow the body manufacturers guidelines on raising and lowering the front loader arms, and raising and lowering the forks.
3. While it is normal procedure when dumping commercial refuse containers to lower the forks during the arms up operation in order to keep the container level. This is not necessary with the Curotto-Can® due to the design of the rubber extension fitted to the rear of the container, the Spill Guard (**Curotto-Can Nomenclature** 5 Fig. 1-2).
4. The Spill Guard allows for the Curotto-Can® to be dumped into the hopper using the ARMS UP FUNCTION ONLY (Step 1)

NOTE: Do not overfill Container. Overfilling requires leveling of the Curotto-Can® when the arms are raised above the cab. This adds a step and lowers productivity.

5. When the arms reach the fully up position, USE THE FORK RETRACT FUNCTION (Step 2) to invert the Curotto-Can® and dump the contents. There should be no requirement to dump the Curotto-Can® any further than a 45° angle.
6. Some manufacturers offer an Auto Dump feature. This feature allows the operator to use a single control to cycle the arms and forks through a complete dump sequence and returning the container to the correct operating height in front of the cab. This feature is recommended as it shortens training time and eliminates operator error.

FRONT LOADER ARMS DUMP CYCLE (CONTINUED)

Step 1. Before making a hopper dump check to make sure you are clear of overhead obstacles such as trees or power lines

Step 2. Raise the Curotto-Can® using the arms up function only until it is in the position shown - arms against the bumper

Step 3. Use the fork retract function to invert the Curotto-Can® and dump the contents

FRONT LOADER ARMS DUMP CYCLE (CONTINUED)

7. Use the forks lower function to raise the Curotto-Can® out of the hopper.
8. During this phase, it is useful to have a the convex mirror mounted to the cab mirror arm so that the operator can observe the Curotto-Can® coming out of the hopper. When the Curotto-Can® floor is visible, it is generally OK to engage the arms lower function and return the Curotto-Can® to the front of the vehicle. This procedure will take some practice but will soon become second nature.
9. Operate the arms DOWN function to return the Curotto-Can® to the collection position at the front of the vehicle (see **Positioning the Curotto-Can for collection** 32 Fig. 3-3)

Fig. 3-21 Curotto-Can coming out of the hopper viewed in convex mirror

FRONT LOADER DECELERATION

1. The body manufacturer is responsible for installing a method of slowing the arm cycle at the limits of travel in the up and down directions. Mechanical deceleration valves are recommended for the arms up and down function. Cushioned cylinders provided by some body manufacturers are NOT recommended.
2. This will increase operator efficiency and control since there is no requirement to ‘feather’ the front loader joystick control at the limits of the arms travel.
3. Consult body manufacturer technical literature for proper adjustment and further information.

⚠ CAUTION

It is important that the deceleration are equipped on the host unit and functioning properly.

Malfunctioning deceleration may cause component damage.

CUROTTO-CAN® AUTO-RETRACT SYSTEM

The Curotto-Can® controls feature an auto-retract device to ensure the slide, arm and grippers are returned to their fully 'home' positions automatically during the front loader arms dump cycle. This feature operates during two functions:

1. Arms up – as the front loader arms up joystick is operated, and BEFORE the arms move, the three Curotto-Can® functions (slide retract, arm down, grippers open) will briefly energize to ensure they are in the 'home' position.
2. Forks lower – as the forks lower joystick is operated, and BEFORE the forks move, the three Curotto-Can® functions (slide retract, arm down, grippers open) will briefly energize to ensure they are in the 'home' position.

The auto-retract feature runs only very briefly (factory setting is 1.4 seconds) and is therefore only intended to ensure the components are fully home. It is not intended to enable the operator to return these functions from a fully extended position.

Note: For front loaders equipped with double vane or piston pumps, the arms up and fork lower functions will move without delay. This is normal with this kind of pump system.

The Curotto-Can® auto-retract feature must be checked daily prior to operation. Refer to **Checklists**.

⚠ CAUTION

Daily checks must be performed prior to operation to ensure the auto-retract system is functioning.

Component damage may occur if the auto-retract system does not function as intended.

USING THE AUTO-PACK SYSTEM

1. The front load collection vehicle may be equipped with an auto-pack feature to provide a one-touch packing control on the body control console. Refer to body manufacturers literature for detailed information.
2. Once the refuse in the Curotto-Can® has been emptied into the hopper and the Curotto-Can® is returned to the collection position, the operator may initiate an auto-pack cycle.
3. The hydraulic system will provide priority to the Curotto-Can® enabling the operator to continue curb side collections. The auto-pack system may be temporarily interrupted while the next collection is made, but will continue to cycle between stops until the packer panel returns to the home position.
4. The auto-pack and manual pack features will be electrically locked out while the arms are raised over the cab. This lock-out feature must be checked daily prior to operation. Refer to **Checklists**.

⚠ CAUTION

Daily checks must be performed prior to operation to ensure the lock-out system is functioning.

Serious component damage may occur if the packer lock-out system does not function as intended.

KNOWING YOUR CAPACITY

Fig. 3-22 Knowing Your Capacity

1. Always ensure that you leave enough room in the hopper to fully stow the Curotto-Can® before you proceed to the dump site.
2. Refer to body manufacturers literature for further information.

⚠ CAUTION

Failure to correctly stow the Curotto-Can® may result in an over height condition of the collection vehicle.

Serious damage may occur if this vehicle is operated in an over height condition.

Refer to posted height warning signs.

NOTICE

If the container is not able to fully lower into the hopper due to the operator overfilling the Front Loader hopper, the Curotto-Can® must be removed from the Front Loader and stored in a safe place before transit of front loader.

SYSTEM OPERATION

This section is provided to give the operator a basic understanding of how the system functions.

This section contains the following information:

1. Curotto-Can® activate switch
2. Basic operation principles
3. Dump principles
4. Benefits of the off-set arm.

CUROTTO-CAN® ACTIVATE SWITCH

1. This switch is installed in the cab by some body manufacturers and is often located on the body control console. Other manufacturers wire direct to power to ensure the activate mode is on at all times.
2. When in the activate position, this switch provides electrical power to the Curotto-Can® system. It provides an electrical supply to the joystick and ensures that whenever the Curotto-Can is connected, the auto-retract system has a power supply. Refer to Curotto-Can® **auto-retract system** 40.
3. The purpose of this switch is to allow the operator to disable the Curotto-Can® system when running a commercial pick up so the auto-retract system does not interfere with a normal front loader arms dump cycle. Refer to **Front Loader Arms Dump Cycle** 40.
4. This switch MUST remain in the ON position whenever the Curotto-Can® is attached to the forks. The only exception is when the operator temporarily exits the cab to make a manual collection. Refer to **Loading un-carted trash by hand** 40.

⚠ CAUTION

This switch MUST remain ON whenever the Curotto-Can is connected to the forks.

⚠ CAUTION

Serious components damage may result if the front loader arms/forks are operated with the switch in the OFF position.

⚠ CAUTION

Failure to engage this switch will disable the Auto Retract feature and may cause severe damage to components.

5. Engaging either the slide, grip or dump functions on the Curotto-Can® joystick does two things simultaneously:
   a. sends an electric signal to shift an electric/air valve on the front loader unit body. The air valve directs air pressure to shift a spool in the main valve working section (depending on the configuration), sending oil to the hydraulic valve body mounted on the Curotto-Can®.
   b. sends an electric signal to the appropriate valve section on the Curotto-Can® mounted valve body, opening the spool and sending a flow of hydraulic oil to the slide, grip and/or dump cylinder(s).

DUMP PRINCIPLES

1. Maximum arm extension is 60" and with the Curotto-Can® being mounted ahead of the steer axle results in a boom-like action allowing the operator to pivot and engage carts placed in front of obstacles.

Fig. 3-12 Maximum Arm Extension is 60"

2. Carts may be dumped using the lift function alone. Simply steer the Curotto-Can® close to the cart, grip it and dump. This will result in a 4 second dump cycle per collection.

3. The hydraulic circuit enables the operator to engage three functions at the same time, in this case (Fig.3-13), the arm dump and slide retract.

4. When the pack cycle is engaged, the Curotto-Can® arm may still be used for collection.

Fig. 3-13 Showing Lift Function Alone

BENEFITS OF THE OFF-SET ARM

1. The offset arm design does not require the operator to retract the slide all the way in order to dump the cart.

2. The position of where the cart dumps into the Curotto-Can® depends on the extension of the slide which results in even distribution and loading of trash.

3. This ensures the Curotto-Can® is completely and evenly loaded before dumping the arms, giving higher productivity and fewer arm dumps per day which reduces wear and tear on the front loader arms and forks.

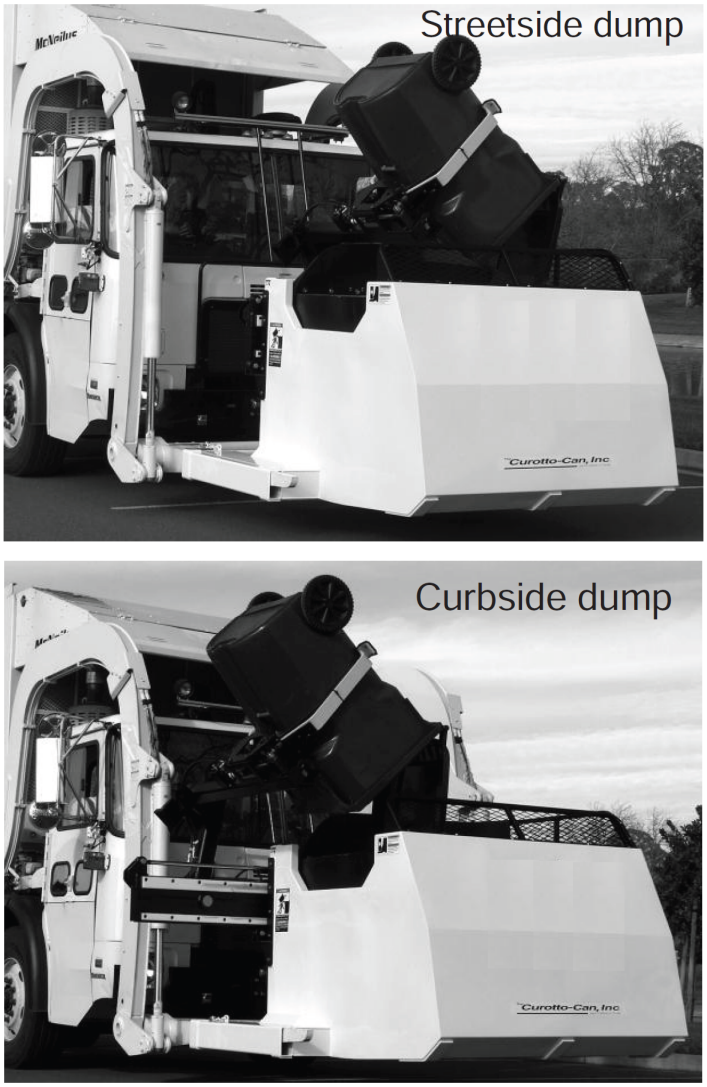


Fig. 3-14 Benefits of The Off-set Arm

DISCONNECTING AND CONNECTING THE DETACHABLE CUROTTO-CAN

The Curotto-Can® can be disconnected from the host truck for maintenance purposes or to service a commercial container. If you have any questions about this procedure, contact Curotto-Can® Technical Services at 866-310-4345.

⚠ WARNING

This procedure must be used in conjunction with the Chassis and Body Manufacturer Manuals of the host truck that incorprates the Curotto-Can®. For additional information on operation and maintenance procedures for the Curotto-Can®, refer to the Curotto-Can® Operation and Service Manual supplied with the Curotto-Can®.

⚠ WARNING

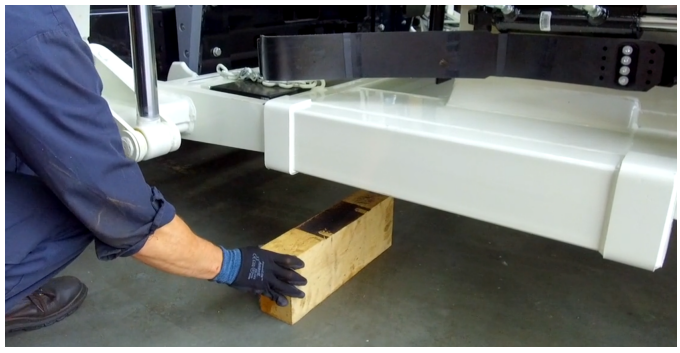
The Autolift switch (or Curotto-Can Activate Switch for pre-2014 Heil Half/Pack Residential units and non-Heil units) MUST remain OFF while the Curotto-Can® is removed from the host truck. This will ensure that the **auto-retract system** will remain inoperable and therefore not interrupt normal commercial container collection.

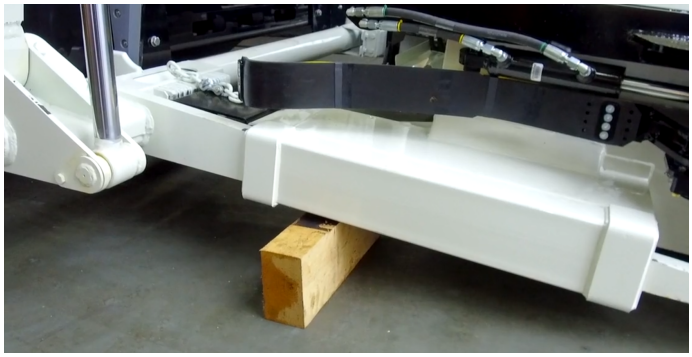
⚠ WARNING

The Autolift Switch (or Curotto-Can Activate Switch for pre-2014 Heil Half/Pack Residential units and non-Heil units) MUST remain ON whenever the Curotto-Can® is connected to the forks. Serious component damage may result if the front loader arms/forks are operated with this switch in the OFF position.

A. To Disconnect the Curotto-Can®:

1. Find a suitable area that is flat and level and lower the Curotto-Can® to within 4" of the ground.
2. Place chock blocks underneath the curb and street rearward sides of the Curotto-Can® so the Curotto-Can® is approximately 4" off the ground. See images below. This will make it easier to remove the Curotto-Can® from the forks and to replace the Curotto-Can® on the forks. If blocks are not available, lower the arms and carefully lower the forks, resting the nose of the container on the ground.





3. For post-2018 Heil Half/Pack® (featuring Odyssey® Controls) units:
   (a) Turn ON the Depressurize Curotto Hydraulics function on the in-cab display. Refer to the Half/Pack® (featuring Odyssey® Controls) Operation Manual for instructions on how to do this.
   (b) Turn OFF the Autolift Switch to place the unit into Manual Mode.
4. For pre-2018 Heil Half/Pack® (featuring Odyssey® Controls) units and non-Heil units:
   (a) Turn OFF the truck engine and reset the key to IGNITION only. Make sure the Pump Switch is ON. TOGGLE the Curotto-Can® joystick back and forth through each of the Curotto-Can® functions (this will relieve any hydraulic pressure in the lines).
   (b) Turn OFF the Curotto-Can® Activate Switch (or AutoLift Switch for post-2014 Heil Half/Pack Residential units).
5. Turn OFF the truck engine and place keys in pocket. Then turn OFF the truck Battery Disconnect.

Curotto-Can®
Operation

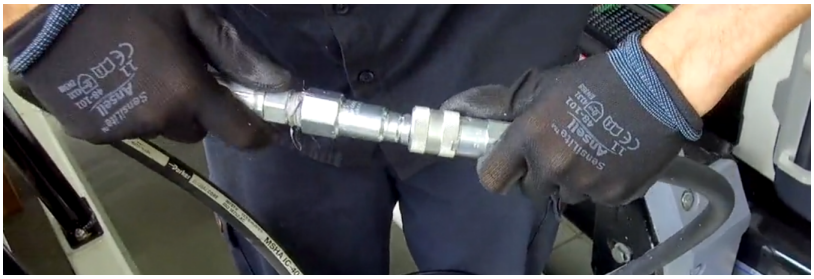
A. To Disconnect the Curotto-Can® (Continued):

6. Twist the hydraulic quick disconnect coupler collars and pull the collar back to split the pressure and return hydraulic lines. Keep the couplers clean and protected when not in use. Clean each coupler before re-installing. See images below.


7. Disconnect the two Packard electrical connectors and the Curotto-Can® work lights harness connector (if equipped). Remove any cable ties securing the electrical cables to the truck-side. See images below.


8. Disconnect the two Curotto-Can® Auto Cover air lines (if equipped). See images below.


9. Un-route the electrical cables and hydraulic hoses from underneath the routing guide bar. Then connect the Curotto-Can® pressure and return lines together to help keep them clean. See image below.



B. To Disconnect the Curotto-Can® (Continued):

10. Secure all electrical cables and hydraulic hoses to the Curotto-Can®, making sure that these are off of the ground.
11. Disconnect both safety chains. Attach each cotter and clevis pin to its can-side chain, so that these do not get lost. See images below.

10. Turn ON the truck Battery Disconnect.
11. Restart the truck engine and carefully reverse the vehicle to remove the forks from the Curotto-Can® pockets.

B. To Reconnect the Curotto-Can®:

1. Carefully move the truck forward so that the forks fully enter the Curotto-Can® pockets. Make sure the Curotto-Can® spacers are secure against the truck's fork container stops.
2. Turn OFF the truck engine and place keys in pocket. Then turn OFF the Truck Battery Disconnect.
3. Properly route the electrical cables and hydraulic hoses underneath the routing guide bar. See image below.

4. Clean each hydraulic quick disconnect coupler before re-installing. Then reinstall the hydraulic quick couplers.
5. Connect the two Packard electrical connectors and the Curotto-Can® work lights harness connector (if equipped). Secure all cables and hoses that were detached during Curotto-Can® disconnect.
6. Connect the two Curotto-Can® Auto Cover air lines (if equipped).
7. Making sure the safety chains are not kinked or tangled, connect both safety chains. Make sure the cotter and clevis pins are securely fastened to the safety chains.
8. Turn ON the Truck Battery Disconnect and then turn ON the truck engine.
9. For post-2014 Heil Half/Pack® (featuring Odyssey® Controls) units, turn ON the Autolift Switch to place the unit into Carry-Can/AutoLift Mode.
10. For pre-2014 Heil Half/Pack® Residential units and non-Heil units, turn ON the Curotto-Can® Activate Switch.
11. Raise the forks/can and remove the chock blocks.

Curotto-Can®

NOTES

SECTION 4
MAINTENANCE AND ADJUSTMENT

MAINTENANCE AND ADJUSTMENTS

1. The electrical and hydraulic systems used in the operation of the Curotto-Can are the simplest of any automated collection device. An electric joystick runs a 12 V system that energizes solenoids on the Curotto Can's directional control valves and the valve on the Front Loader stack, shifting hydraulic oil from the unit supply to the cylinders on the Curotto Can as required.
2. Some components used in the system and their location on the host unit will differ due to the various chassis and body manufacturers involved. All information contained herein is subject to change without notice.
3. This section contains the following information:
   a. **Maintenance safety warnings** 57
   b. **Electrical system description, components and schematics**
   c. **Hydraulic system description, components and schematics**
   d. Basic troubleshooting.

TOOLS

1. This section assumes that basic maintenance facilities exist on site equipped with shop tools and qualified personnel.
2. The following test equipment is required:
   a. Flow meter (0-20gpm)
   b. Pressure gauge (0-3000psi)
   c. Electrical volt/multi circuit tester.

MAINTENANCE SAFETY WARNINGS

All warnings and posted safety signs must be adhered to at all times.

1. Observe all maintenance safety warnings contained in body and chassis manufacturers literature and those posted in the cab and on the body.
2. Maintenance personnel shall be familiar with the operation of the Curotto-Can and observe all warnings and cautions in this manual Part 2, **Safety** 15.

GENERAL WARNINGS

⚠ DANGER

Read and understand your Operations and Maintenance Manual before maintaining or troubleshooting this equipment. Failure to follow all safety precautions carefully may result in serious injury or death.

⚠ DANGER

Human skin can be easily penetrated by high pressure hydraulic systems at 2000 psi. Hydraulic fluid and components can reach temperatures high enough to cause serious burns. Failure to take appropriate safety precautions may result in serious injury or death.

⚠ DANGER

Failure to follow and apply Lock-Out/Tag-Out rules may result in serious injury or death. See **Lock-Out/Tag-Out Procedures** 19.

⚠ DANGER

Failure to observe Exclusion Zones may result in serious injury or death. (Refer to Part 2 Section 4 **Exclusion Zones** 29).

PREVENTIVE MAINTENANCE INSPECTIONS AND CHECKS

⚠ WARNING

Always complete an Operational Lock-Out/Tag-Out before starting inspections, checks or adjustments. If any check does not complete successfully, the Curotto-Can® must be repaired before use, otherwise the Warranty is void and equipment damage or operator injury could result.

NOTICE

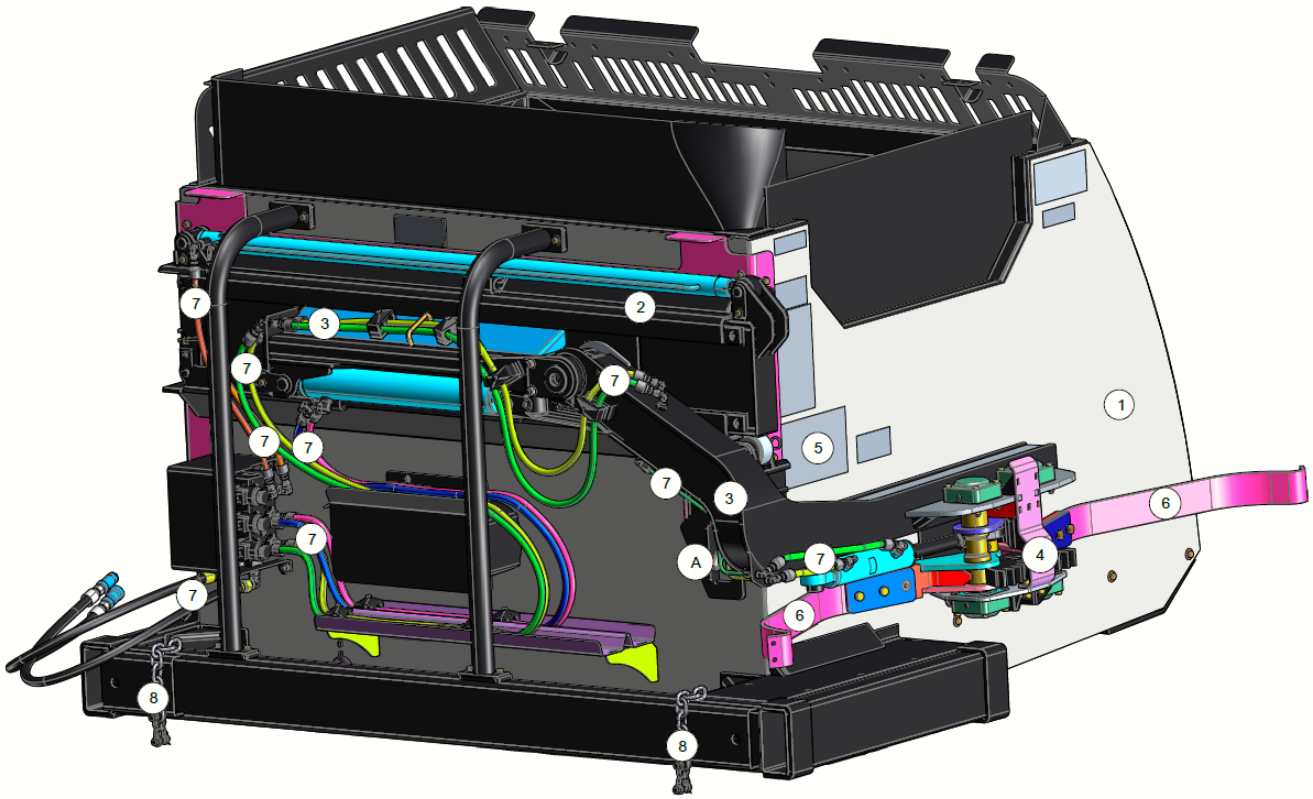
These inspections, checks and adjustments must be done in conjunction with the Chassis and Body Manufacturer Preventive Maintenance Schedule of the host truck that incorprates the Curotto-Can®.

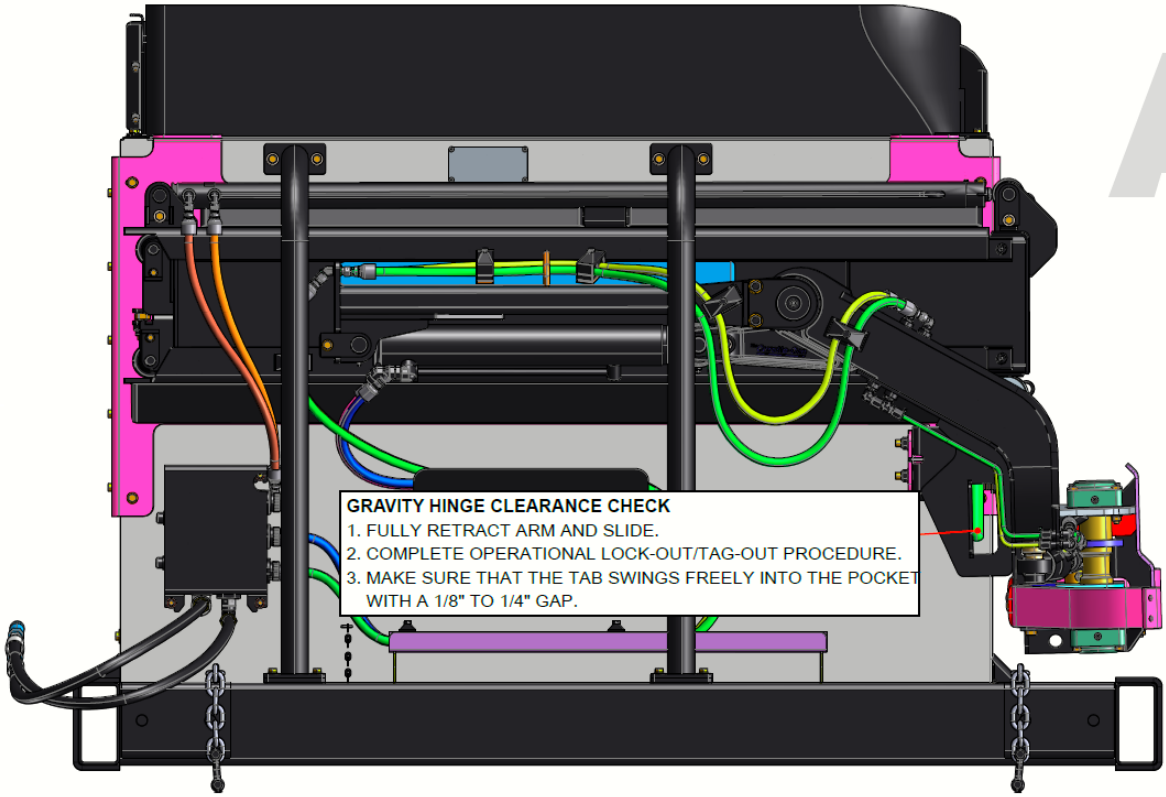
A. Daily (Pre-Trip) Inspections/Checks

Reference the REF numbers in the table below with those in the images on the next page.

CUROTTO-CAN® PREVENTIVE MAINTENANCE CHART	
REF #	**CAN DAILY (PRE-TRIP) INSPECTIONS / CHECKS**
1-4	OVERALL STRUCTURAL INTEGRITY, NO DAMAGE TO CONTAINER, SLIDE OR ARM
5	ALL DECALS ARE IN PLACE, WITHOUT DAMAGE AND READABLE
6	GRABBER BELTS ARE **ADJUSTED PROPERLY** 67, WITHOUT TEARS AND NO EXTENSIVE WEAR
7	NO OIL LEAKS FROM HYDRAULIC COMPONENTS
8	SAFETY CHAINS AND PINS ARE IN PLACE, WITHOUT DAMAGE AND WORKING PROPERLY
A	GRAVITY HINGE CLEARANCE CHECK
N/A	AUTO-RETRACT FUNCTION CHECK 1. Extend all cylinders 2” - 4”. Engage ARMS UP function. All cylinders should auto retract. 2. Extend all cylinders again 2” - 4”. Engage FORKS EXTEND function. All cylinders should auto-retract. 3. If auto-retract does not work, repair before using.
N/A	CYLINDER CUSHION CHECK 1. Extend the slide cylinder halfway, then fully retract. Check for cushion on the retract function, there should be approximately 1” of cushion. 2. Close the grippers then fully extend and retract the dump cylinder. Check for cushion at the top of the stroke of the dump cylinder. There should be a smooth cushion of approximately 1” on the dump function. The piston should not slam into the barrel in the slide retract or dump cycle. If there is no cylinder cushioning observed, the unit must be repaired prior to use.
REF #	**HOST TRUCK DAILY (PRE-TRIP) CHECK**
N/A	PACKER BLADE LOCKOUT CHECK (ALSO REFER TO HOST TRUCK BODY MANUAL) 1. Fully retract all cylinders to their home position. 2. Raise the Curotto-Can slightly above the canopy. Note: DO NOT put the Curotto-Can in the hopper. See image below.  3. Engage AUTOPACK. Packer blade should NOT move. 4. Do not run unit if packer blade moves. Unit must be repaired before using.

PREVENTIVE MAINTENANCE INSPECTIONS AND CHECKS (CONTINUED)





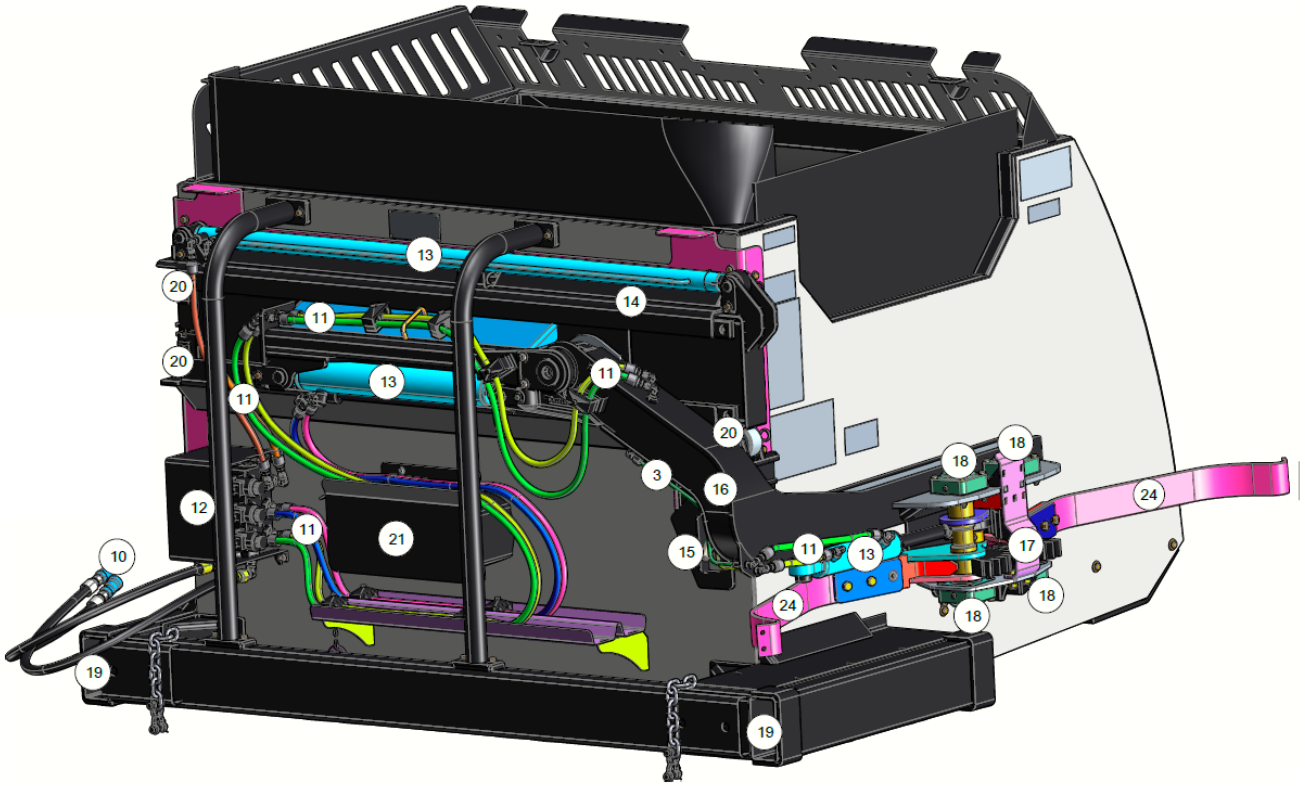
PREVENTIVE MAINTENANCE INSPECTIONS AND CHECKS (CONTINUED)

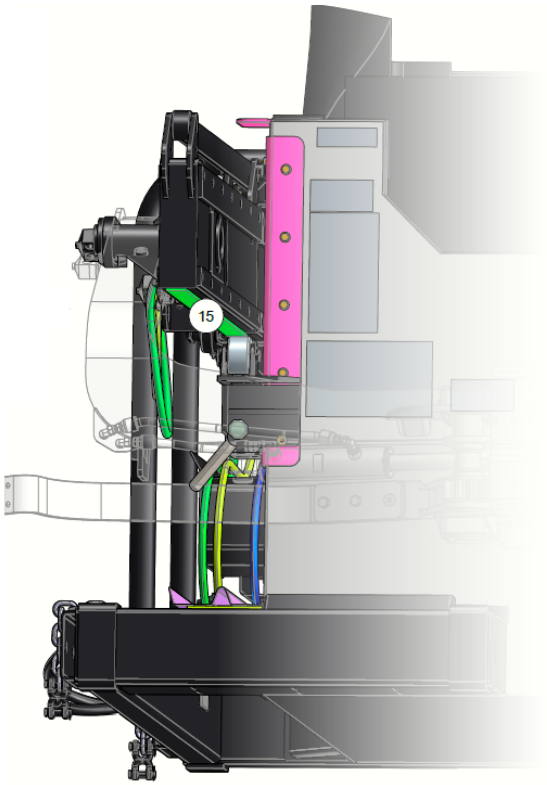
B. Weekly and Monthly Inspections/Checks

Reference the REF numbers in the table below with those in the images on the next pages.

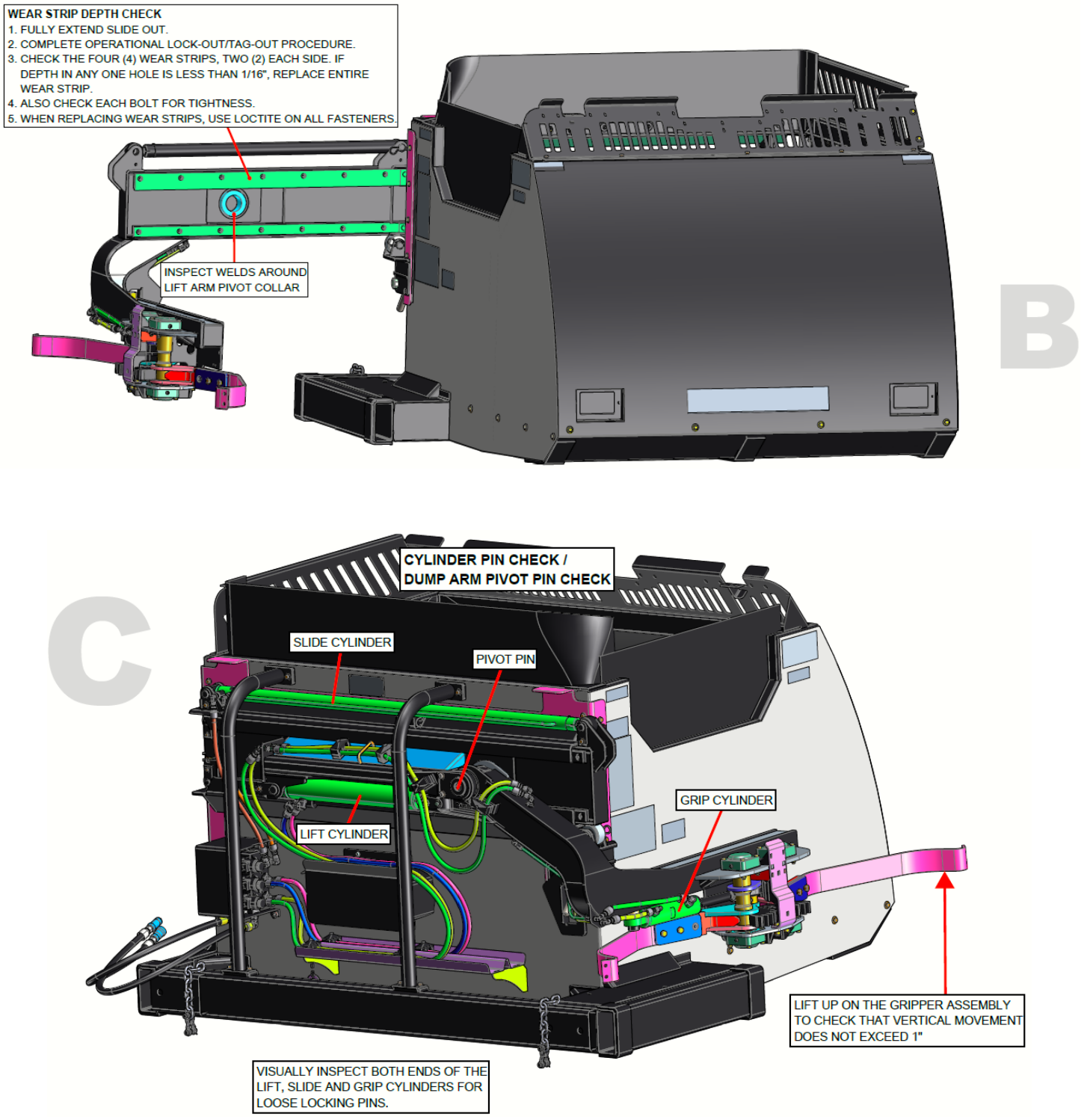
CUROTTO-CAN® PREVENTIVE MAINTENANCE CHART	
REF #	**CAN WEEKLY INSPECTIONS / CHECKS**
10	QUICK DISCONNECTS ARE SECURE WITH NO LEAKS OR DAMAGE
11	HYDRAULIC HOSES ARE SECURE AND FREE FROM OBSTRUCTION WHEN THE CUROTTO-CAN IS DUMPED.
11	HYDRAULIC HOSES ON CUROTTO-CAN TO THE CYLINDERS ARE SECURE NO LEAKS OR DAMAGE.
12	CUROTTO-CAN HYDRAULIC VALVE IS SECURE NO LEAKS OR DAMAGE.
12	ELECTRICAL SOLENOIDS ON MAIN VALVE ARE SECURE WITH NO DAMAGE.
13	ALL CYLINDERS ARE SECURE WITH NO LEAKS OR DAMAGE. ALL CYLINDER MOUNTING BRACKETS ARE WITHOUT CRACKS OR DAMAGE.
14	INSPECT CARRIAGE ASSEMBLY, SLIDE AND BRACKETS FOR CRACKS AND DAMAGE.
15	INSPECT SLIDE CARRIAGE LOWER STEEL WEAR STRIP FOR WEAR AND DAMAGE.
16	INSPECT COMPLETE DUMP ARM FOR CRACKS AND DAMAGE.
17, 18	INSPECT GRIPPER ASSEMBLY FOR CRACKS AND DAMAGE. BEARING CAPS ARE PRESENT ON TOP AND BOTTOM OF GRABBER PIVOT PINS.
17	INSPECT GRIPPER HEAD ASSEMBLY FOR CRACKS AND DAMAGE.
17	GRIPPER HEAD BOLTS ARE SECURE AND PROPERLY TORQUED (50 FT/LBS TOP NUTS AND 100 FT/LBS FOR BOTTOM).
17	GRIPPER ASSEMBLY SHOWS NO SIGN OF RUBBING ON CUROTTO-CAN FORK POCKET OR HOPPER WALL.
19	INSPECT CUROTTO-CAN FORK POCKETS AND CORNERS FOR CRACKS AND DAMAGE.
20	INSPECT TOP AND BOTTOM SLIDE ROLLERS (3 PCS) FOR EXCESSIVE WEAR.
21	CORTEX CONTROLLER MODULE (NODE) SECURE WITH HARNESS PLUG SECURE.
21	WIRING HARNESS FROM COUPLER TO CUROTTO-CAN HYDRAULIC VALVE IS SECURE AND WITHOUT DAMAGE.
B	LIFT ARM PIVOT COLLAR INSPECTION
B	WEAR STRIP DEPTH CHECK
C	CYLINDER PIN CHECK / DUMP ARM PIVOT PEN CHECK
D	DOGBONE CLEARANCE CHECK
E	ADJUSTABLE ROLLER FOR SLIDE / CARRIAGE CHECK
F	GRIP CYLINDER BOLTS CHECK
-	GRIP BELT TENSION CHECK (REFER TO CUROTTO-CAN MANUAL)
G	LUBRICATE CAN PER THE LUBRICATION GUIDE.
REF #	**HOST TRUCK WEEKLY INSPECTION**
-	INSPECT ARM CYLINDER MOUNTING BRACKETS FOR CRACKS AND DAMAGE.
-	INSPECT UPPER AND LOWER FORK CYLINDER BRACKETS FOR CRACKS OR DAMAGE.
-	ARM HYDRAULIC HOSES ARE SECURE NO DAMAGE OR WEAR. REFER TO HOST BODY MANUAL.
-	ELECTRICAL AND HYDRAULIC LINES ARE SECURE AND PROPERLY ROUTED AROUND THE FORK PIVOT AREA.
REF #	**CAN MONTHLY CHECKS**
MANUAL	CHECK FUNCTION OF UPPER AND LOWER DECELERATION VALVES ON THE MAIN ARMS FUNCTION.
MANUAL	CHECK CUROTTO-CAN CYCLE TIMES PER THE CUROTTO-CAN MANUAL.
MANUAL	CHECK HYDRAULIC OIL FLOW TO THE CUROTTO-CAN PER THE CUROTTO-CAN MANUAL.

PREVENTIVE MAINTENANCE INSPECTIONS AND CHECKS (CONTINUED)



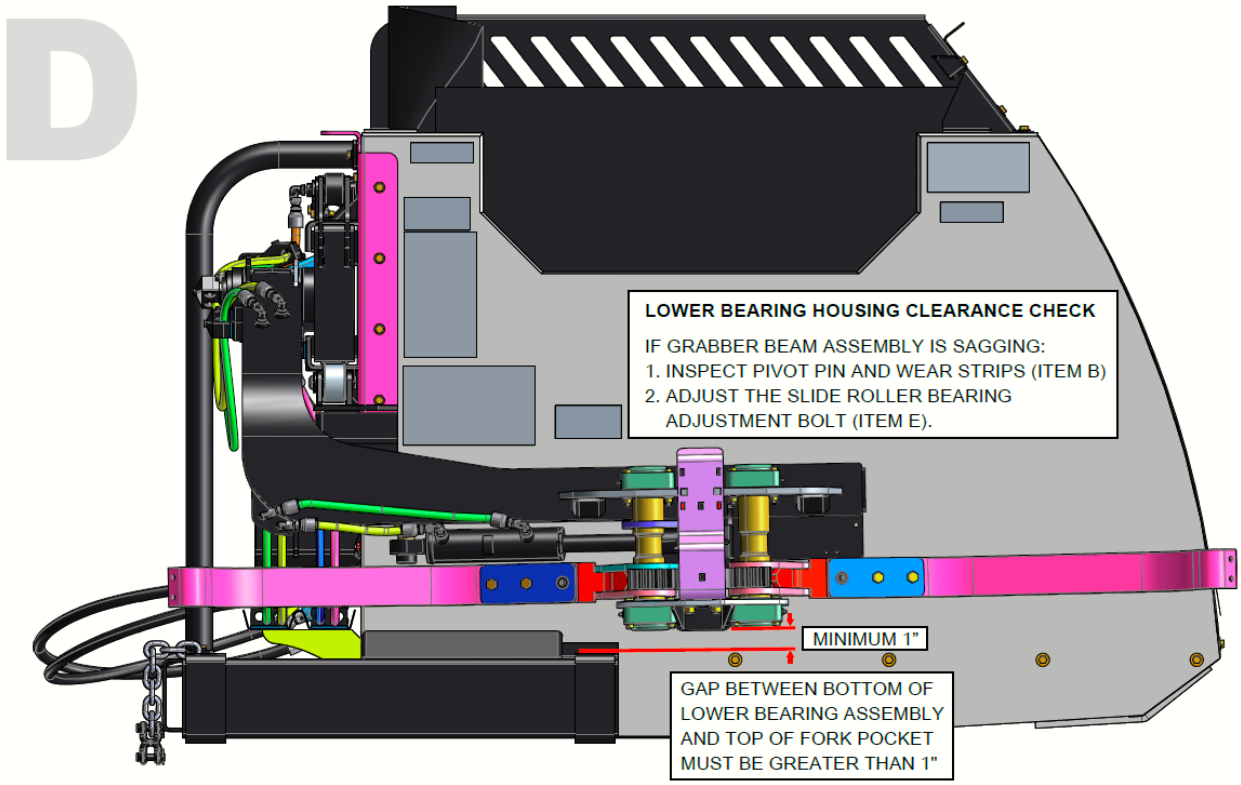


PREVENTIVE MAINTENANCE INSPECTIONS AND CHECKS (CONTINUED)



PREVENTIVE MAINTENANCE INSPECTIONS AND CHECKS (CONTINUED)

D



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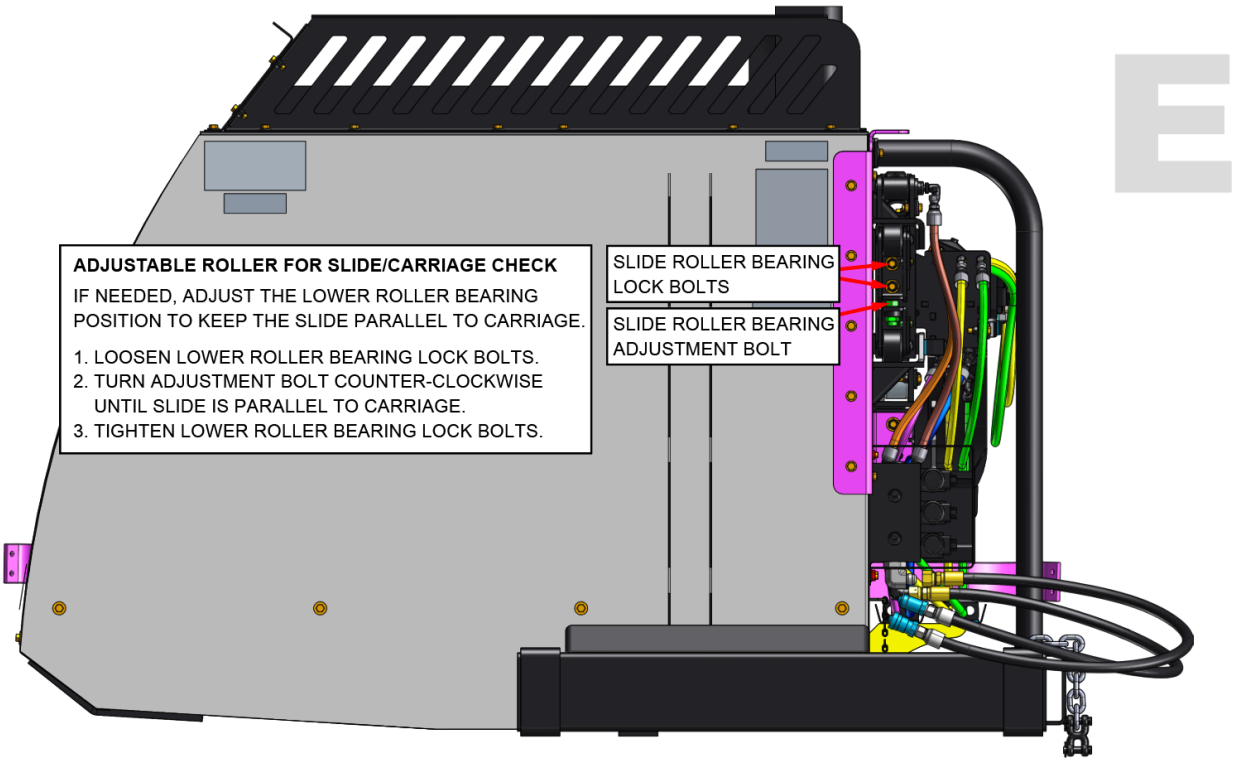

PREVENTIVE MAINTENANCE INSPECTIONS AND CHECKS (CONTINUED)

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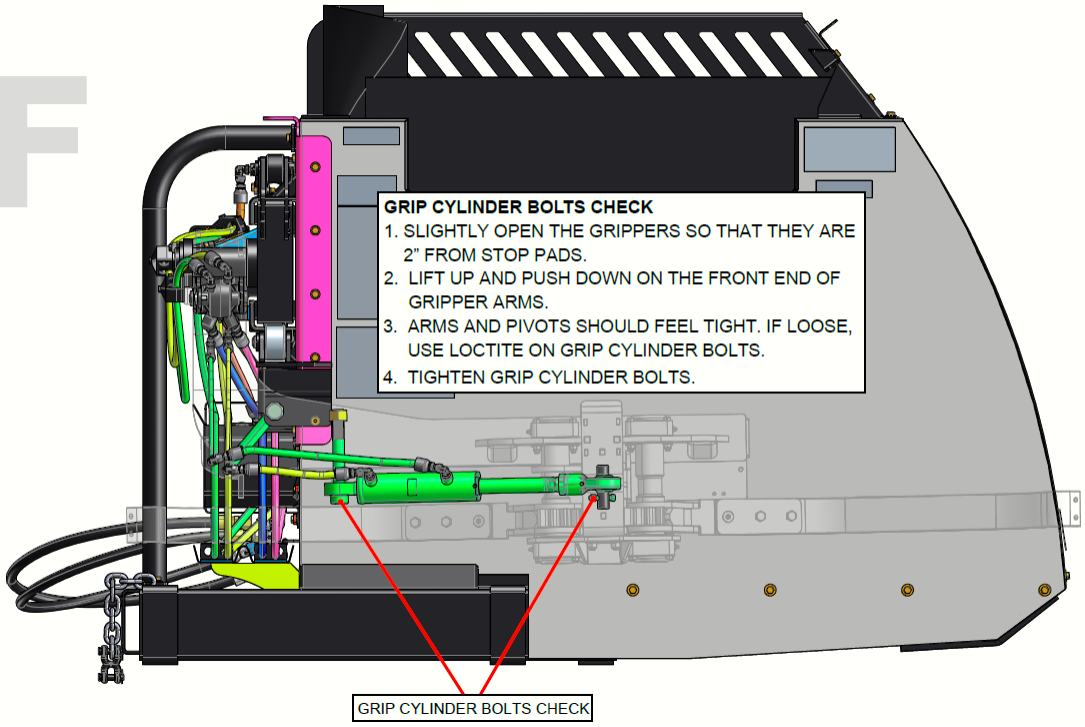

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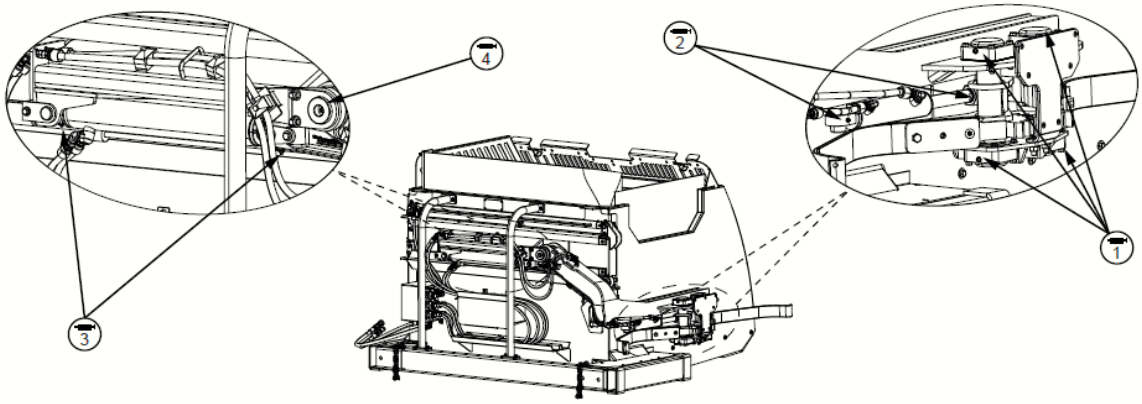
CUROTTO-CAN LUBRICATION GUIDE



REF NO.	DESCRIPTION	QTY.	FREQUENCY
1	BEARING CAPS 4 PLACES	4	WEEKLY/EVERY 40 HOURS
2	GRIPPER CYLINDER	2	WEEKLY/EVERY 40 HOURS
3	LIFT CYLINDER	2	WEEKLY/EVERY 40 HOURS
4	MAIN PIVOT PIN	1	WEEKLY/EVERY 40 HOURS

Use No. 1 pressure gun grease. Clean fittings before applying grease and always pump enough grease to remove old grease. Wipe off excess.

Lubricate moveable mechanical parts without fittings every 60 days with non-detergent engine oil.

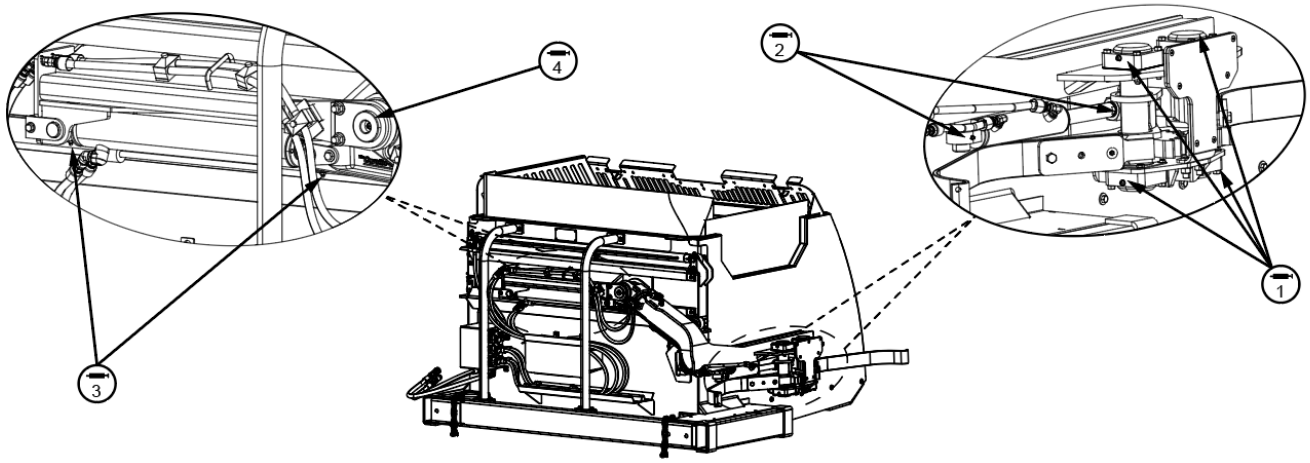
212-3412

CUROTTO-CAN® LUBRICATION GUIDE

Clean fittings before applying grease and always pump enough grease into joint to remove the old grease. Wipe off excess grease. Lubricate moveable mechanical parts without fittings every 60 days with non-detergent engine oil.

The Curotto-Can® comes standard with a multiple point lubrication system or with an optional single point lubrication system.

CUROTTO-CAN® LUBRICATION GUIDE



REF NO.	DESCRIPTION	QTY.	FREQUENCY
1	BEARING CAPS 4 PLACES	4	WEEKLY/EVERY 40 HOURS
2	GRIPPER CYLINDER	2	WEEKLY/EVERY 40 HOURS
3	LIFT CYLINDER	2	WEEKLY/EVERY 40 HOURS
4	MAIN PIVOT PIN	1	WEEKLY/EVERY 40 HOURS

Use No. 1 pressure gun grease. Clean fittings before applying grease and always pump enough grease to remove old grease. Wipe off excess.

Lubricate moveable mechanical parts without fittings every 60 days with non-detergent engine oil.

212-3412

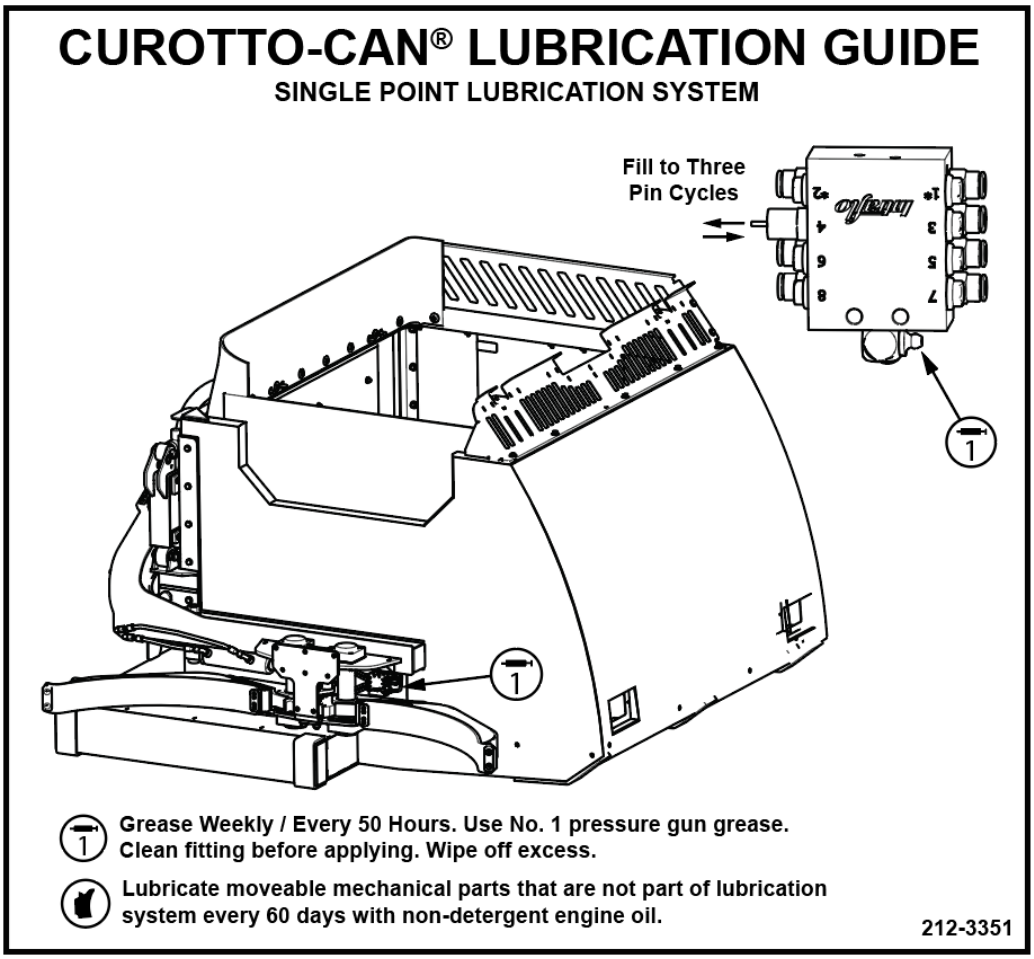
CUROTTO-CAN® OPTIONAL SINGLE POINT LUBRICATION GUIDE

Clean fittings before applying grease and always pump enough grease into joint to remove the old grease. Wipe off excess grease. Lubricate moveable mechanical parts without fittings every 60 days with non-detergent engine oil.

The Curotto-Can® comes standard with a multiple point lubrication system or with an optional single point lubrication system.

For the Single Point Lubrication System:

- Both the grease and the fittings MUST be clean
- There MUST not be any blocked lines or ports due to its series operation. Never cap or block any of the lubrication lines as this will the block flow of grease to the entire system. Repair any damaged lines or system components immediately.



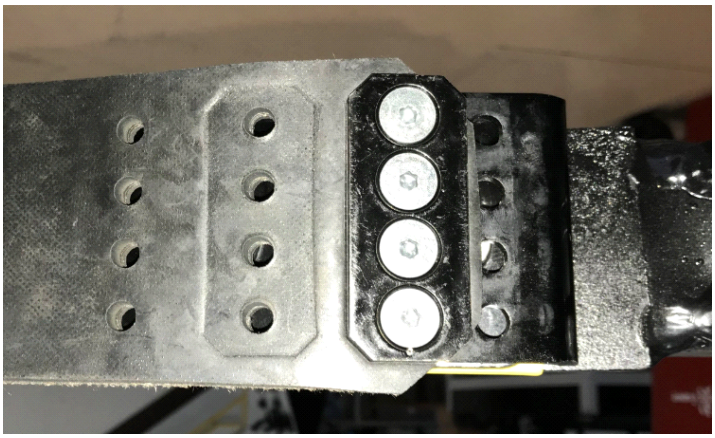
GRABBER BELTS ADJUSTMENT

Make sure that the unit is in Lock-Out/Tag-Out mode before performing re-work. Refer to and follow your company's Lock-Out/Tag-Out policies and procedures. At a minimum, refer to and follow the Lock-Out/Tag-Out procedure found in this manual. Always wear appropriate Personal Protective Equipment when repairing a unit or performing scheduled maintenance on a unit. Clear the work area around the unit of all unnecessary people and equipment.

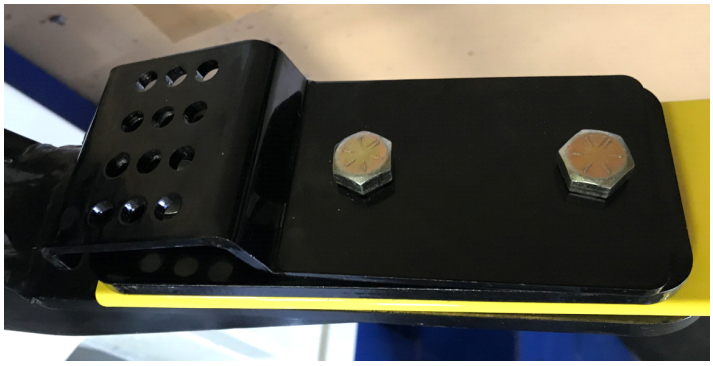
The Curotto-Can® Grabber Belts are delivered from Curotto-Can® in the loosest configuration. This provides for good grip on most 90-gallon cans without excessive mashing of the container. This configuration also works for some 65-gallon cans but is not ideal for all can manufacturers and will not work for smaller 20 to 35-gallon cans. The Grabber Belts only need adjustment to accommodate different size residential cans.

The 2018 Curotto-Can® (Serial Number 30006 and after) includes more adjustment options than the previous version. There is now 4" of total belt adjustment that can be performed in 1/2" intervals.

The grabber belt has 3-hole positions on 1-1/2" spacings. See the figure below.



The grabber belt bracket has 3-hole positions on 1/2" spacings. See the figure below.



Daily (Pre-Trip), check to see that grabber belt tension is adjusted properly.

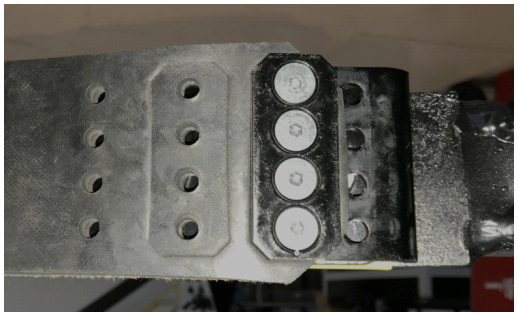
1. Check buck - it must be tight, touching the inside of the gripper and not have any play or movement.
2. Check that the belt has enough tension so that it does not touch the arm. If the belt touches the arm, carts might be damaged.
3. Check that the band retainers are present and not damaged.

GRABBER BELTS ADJUSTMENT (CONTINUED)

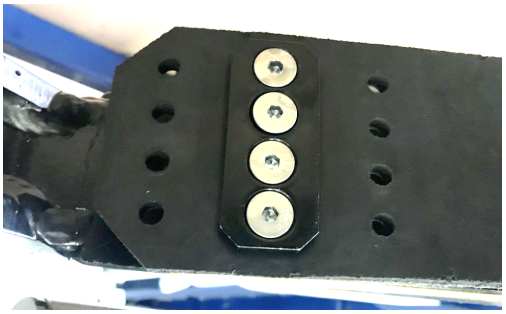
Follow the procedure below to adjust the grabber belts to accommodate smaller containers.

1. To adjust the belt, Remove the two (2) grabber belt bracket bolts using 3/4” wrenches. Then remove the four (4) flat head screws holding the belt to the bracket. This requires a 3/16” hex driver and a 9/16” wrench.
2. Align the holes in the belt to the holes in the belt bracket that will tighten the belt. This process may need to be repeated until you find the ideal placement due to the difference in can shapes between the different manufacturers. See the figures below.

   The Curotto-Can® also offers 6” and 8” wide belt kits for cans needing more friction with less distortion of the larger cans while also picking up smaller cans.



Belt as Shipped



Belt Bolted Through Middle Set of Holes on Belt and Bracket

90-Gallon Can with Belts as Shipped

90-Gallon Can with Belt Bolted Through Middle Set of Holes on Belt and Bracket

GRABBER BELTS ADJUSTMENT (CONTINUED)

65-Gallon Can with Belts as Shipped

65-Gallon Can with Belt Bolted Through Middle Set of Holes on Belt and Bracket

37-Gallon Can with Belts as Shipped

37-Gallon Can with Belt Bolted Through Middle Set of Holes on Belt and Bracket

HYDRAULIC SYSTEM

⚠ DANGER

The pressure in this hydraulic system is high enough to easily pierce human skin and inflict significant human injury.

⚠ DANGER

The hydraulic energy in this equipment is strong enough to inflict significant human injury and even death.

⚠ DANGER

All personnel should stay clear of this equipment when it is operating.

⚠ DANGER

All safety and Lock-Out/Tag-Out procedures must be followed before making repairs and adjustments.

⚠ DANGER

Failure to observe safe operating procedures may result in serious personal injury and even death.

1. The hydraulic system has been designed to provide for simple installation, operation and diagnostics.
2. This section deals with all of the components and routing used by the various body manufacturers. While the components may differ slightly, they all provide the Curotto-Can® hydraulic system with dedicated priority oil to run the Curotto-Can® functions independent of the main unit.
3. This section also details the components used when an existing unit has been retrofitted with a Curotto-Can® system.
4. The hydraulic system components are installed on the host unit and on the Curotto-Can® itself.

DEDICATED HYDRAULIC OIL SUPPLY: MAIN VALVE

1. In this application, the body manufacturer will install an additional working section to the main directional control valve on the host unit.
2. This work section should be the first section to receive oil from the pump within the main valve stack. This is important for two reasons:
    a. performance – the first-in-line position will ensure that the Curotto-Can® functions are able to receive oil and operate normally, regardless of the operating condition of the host (packer operating)
    b. equipment safety – the Curotto-Can® auto retract functions will have primary dedicated oil to fully close the cylinders before any movement of the fork or arm cylinders can occur, thus causing damage to the Curotto-Can® components.

⚠ CAUTION

If this oil supply criteria is not met, collection productivity will be affected and serious damage may result to the Curotto-Can® components.

3. This work section is shifted when the Curotto-Can® joystick is operated which will send all incoming oil onto the priority divider.
4. The priority divider sleeves off the oil requirement to the Curotto-Can® and returns the remaining oil to the valve stack via the return port in the work section.
5. When the Curotto-Can® joystick is released, the work section returns to the neutral position, and oil supply to the priority divider is halted.
6. This work section is fitted with a work port relief valve and should be set to 2200 psi. Refer to **Standard Pressure Settings and Cycle Times** 75.

NOTICE

The jam nut on the solenoid coil should not be tightened in excess of 7-10ft lbs, or 1/2 flat past finger tight.

HYDRAULIC LINES, ROUTING AND CONNECTIONS

1. The body manufacturer is responsible for the selection of tubing, fittings and routing of the conductors on the body.
2. Tubing. It is recommended that seamless hydraulic tubing is used wherever possible and that it is securely clamped along its length. The recommended minimum Outside Diameter (OD) for tubing is as follows:
    a. Pressure lines to Curotto-Can®: 3/4" OD
    b. Return lines from Curotto-Can®: 3/4" OD
    c. Return lines to tank on body: 1" OD
3. Hoses. Hydraulic hoses shall be routed correctly so as not to rub and be adequately clamped. Correct minimum bend radius requirements must be met. The recommended hose specification to OEM's is SAE100R12, half minimum bend radius, 4000 psi working pressure, abrasion resistant cover.
4. The Curotto-Can® uses only premium quality, braided high tensile steel wire high pressure hydraulic hose designed specifically for use in hydraulic systems. This hose exceeds SAE100R17 requirements. All hoses have a working pressure of 3,000 psi and a burst rating of 12,000 psi with an abrasion resistant cover. When replacing any hydraulic hose on the Curotto-Can®, it is important to ensure that the replacement hose meets the specifications of the original hose.
5. Hoses that show signs of damage, such as abrasion, should be replaced immediately. Parker series 451TC and Aeroquip FC639 hose may also be used.

⚠ CAUTION

Only trained and qualified technicians should assemble hydraulic hose and fittings.

6. Quick couplers: The hydraulic connection between the host and the Curotto-Can® is designed to be connected and disconnected without the use of hand tools. Male and female quick couplers are used to allow this and to ensure that the lines are connected properly.
7. The recommended quick coupler is the flush face type since these are a non-spill rated coupler and are proven to contribute less back pressure than other couplers. Use of other couplers may affect hydraulic performance and reliability.

Fig. 4-21 Flush Face Type Quick Couplers

8. The coupler installed to the Curotto-Can® and those recommended to the body manufacturers is the Parker FF series coupler.
9. The male and female couplers supplied on the Curotto-Can® are flush face type:
   a. Pressure hose to P port on Can valve – coupler (female)
   b. Return hose to T port on Can valve – nipple (male)

OPERATING SPECIFICATIONS	
Max Operating Pressure	5100 psi
Max Flow	21 gpm
Max permissible fluid contamination	ISO 20/18/15

CYLINDERS

1. There are 3 cylinders in the hydraulic circuit:
   a. gripper cylinder
   b. slide cylinder
   c. arm (lift) cylinder.
2. All cylinders feature induction hardened, chromed rods. The rod end of the cylinders feature a spherical bushing to reduce side loads and grease nipples on both ends for servicing the pins. Maximum operating pressure is 2400 psi.
3. The lift cylinder features internal cushions in order to prevent the cylinder from banging at the end of the stroke in either direction. The cushion takes effect approx. 1" (2.5 cm) before the stroke limit. It is important that the daily operator checks verify that the cushions are operative. If either cushion becomes inoperative, the cylinder will need to be replaced.

⚠ CAUTION

Serious damage to the Curotto-Can® may occur if operation continues without effective cylinder cushions.

4. The slide cylinder features an internal cushion in each ends of the cylinder. The grip cylinder does not have any cushions.
5. The internal cushion operates by forcing the oil exiting the barrel of the cylinder through a stepped drilling within the cylinder piston. As the piston is returning to the butt end of the cylinder, oil is free to flow out of the outlet port. As the piston passes the outlet port, the oil can only exit through the smaller passage in the piston, therefore slowing down the oil velocity and reducing the speed of the cylinder travel.

HYDRAULIC OIL SPECIFICATIONS

Hydraulic fluid is one of the most important component in hydraulic system. It transmits power, provides lubrication and cooling function and has following features:

- High viscosity index
- Long service life
- Outstanding cold temperature flow properties
- Fast water separation
- Excellent anti-wear performance
- Long term oxidation stability
- Superior rust and corrosion protection
- Exceptional shear stability / filterability
- Excellent thermal and hydrolytic stability
- Anti-foam characteristics
- High performance of air release characteristics

Current Heil standard hydraulic oil is Shell Tellus S2 VX 32. Please see product TDS and MSDS for more detail information about it. We strongly recommend to use it on Heil products to get best system performance and oil service life.

The following oils can be used on Heil products if Heil standard hydraulic oil (Shell Tellus S2 VX 32) is not available. But system performance and/or oil service life may be compromised.

- Castrol Dual Range HV 32
- Chevron Rando HDZ 32
- Mobil DTE 10 Excel 32

HYDRAULIC OIL CLEANLINESS REQUIREMENT

1. The oil cleanliness requirement for the entire hydraulic system on the Curotto-Can is ISO 20/18/15.
2. Keeping hydraulic oil clean is the single greatest opportunity to increase component life and reduce equipment downtime. Effective fluid filtration is provided by the host unit. Components that show signs of gross fluid contamination in excess of ISO 20/18/15 will not be applicable for warranty consideration.

STANDARD PRESSURES AND CYCLE TIMES

STANDARD PRESSURES AND CYCLE TIMES - CUROTTO-CAN									
MODEL	**MAIN RELIEF**	**GRIPPER PORT RELIEF**	**REQUIRED FLOW**	**FULL SLIDE EXTEND**	**FULL SLIDE RETRACT**	**DUMP CYCLE UP**	**DUMP CYCLE DOWN**	**GRABBER - CLOSE**	**GRABBER - OPEN**
Curotto-Can®	2200 PSI	1800 PSI	12-14 GPM @ 2000 PSI	2.5 - 3.0 SEC	1.5 - 2.0 SEC	2.0 - 2.5 SEC	1.2 - 1.7 SEC	0.5 - 0.75 SEC	0.5 - 0.75 SEC
NOTES:	1: Main Pressure settings have a tolerance range of +/- 50 p.s.i. and are to be set at operating speed - WI594								
	2: Port Relief Pressure settings have a tolerance range of +/- 100 p.s.i. and are to be set at operating speed - WI594								

The manifold contains two preset relief valves:

- Main relief preset to 2200 psi
- Gripper port relief preset to 1800 psi

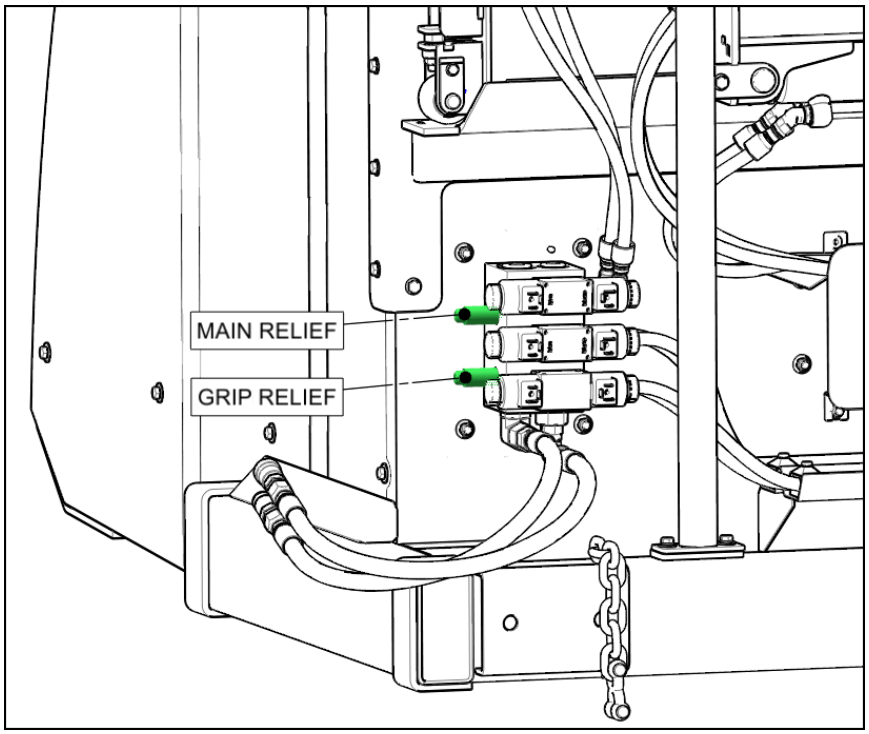


Fig. 4-6 Electric Solenoids Mounted to Directional Valve

TORQUE SPECIFICATIONS

When tightening fasteners, always use the Curoto-Can® spec for torque values.

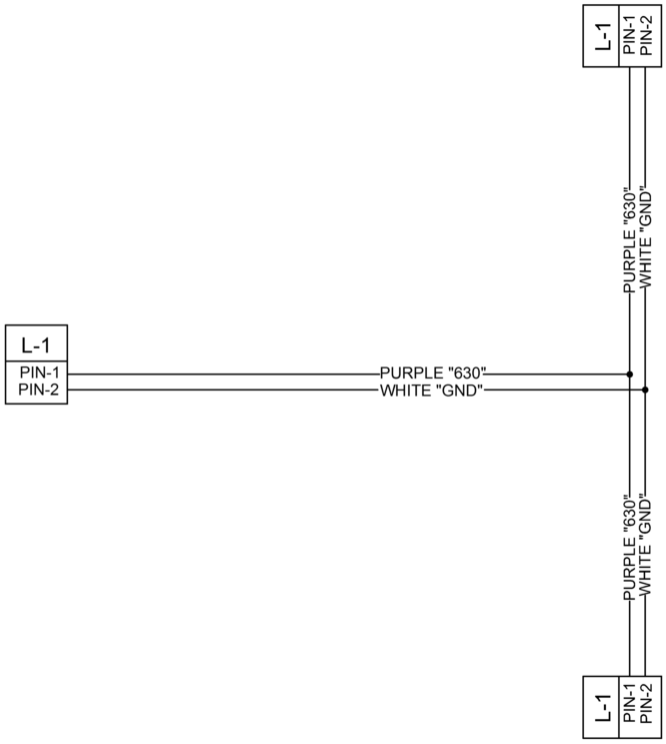
Torque Specifications Table - US Standards			
Grade 8 bolts used on the Curotto Can®			
Bolt Dia. (Inch)	**Thread per inch**	**Max Torque (ft-lbs)**	**Curotto-Can® Spec Unless Noted (ft-lbs)**
1/4	20	14	14
1/4	28	16	16
5/16	18	25	25
5/16	24	29	N/A
3/8	16	45	45
3/8	24	50	N/A
7/16	14	70	N/A
7/16	20	80	80
1/2	13	110	110
1/2	20	120	120
9/16	12	150	N/A
9/16	18	170	N/A
5/8	11	210	N/A
5/8	18	240	180
3/4	10	380	N/A
3/4	16	420	180
7/8	9	600	N/A
7/8	14	670	N/A
1	8	910	200
1	12	1020	N/A

SECTION 5
SCHEMATICS

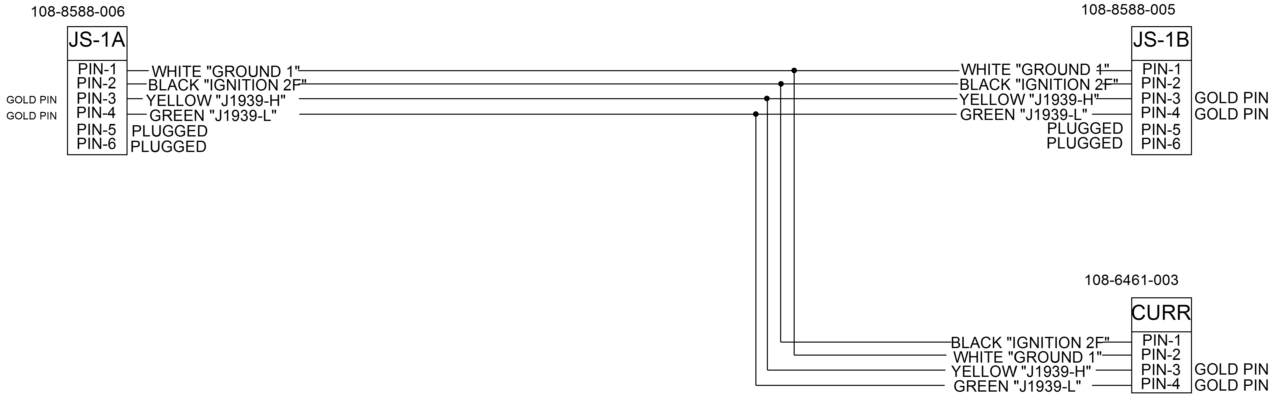
Curotto-Can®

Schematics

CAN FLOOD INTERFACE HARNESS – 263-1409-004

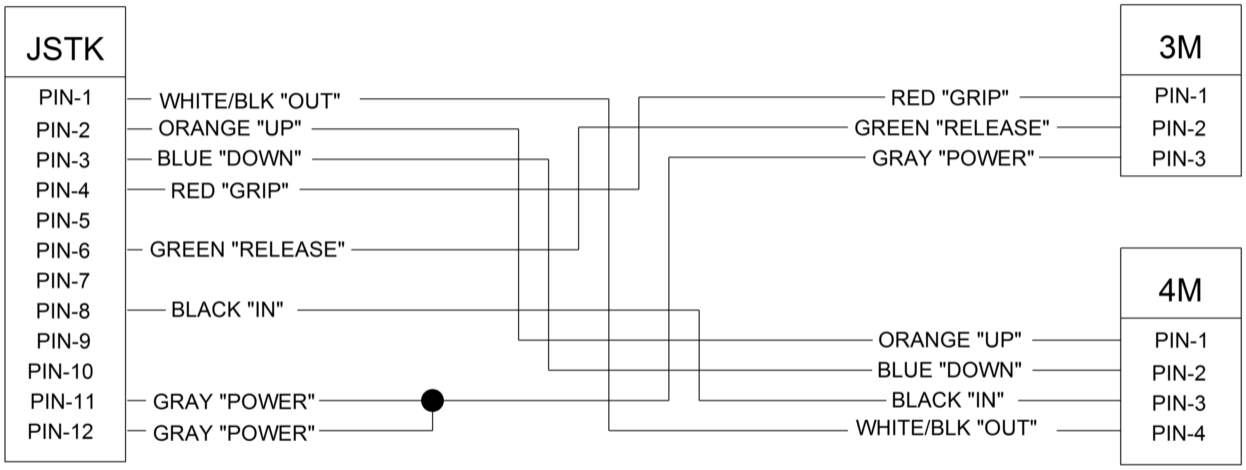


AUXILIARY CUROTTO CONTROLS HARNESS – 263-1738-020

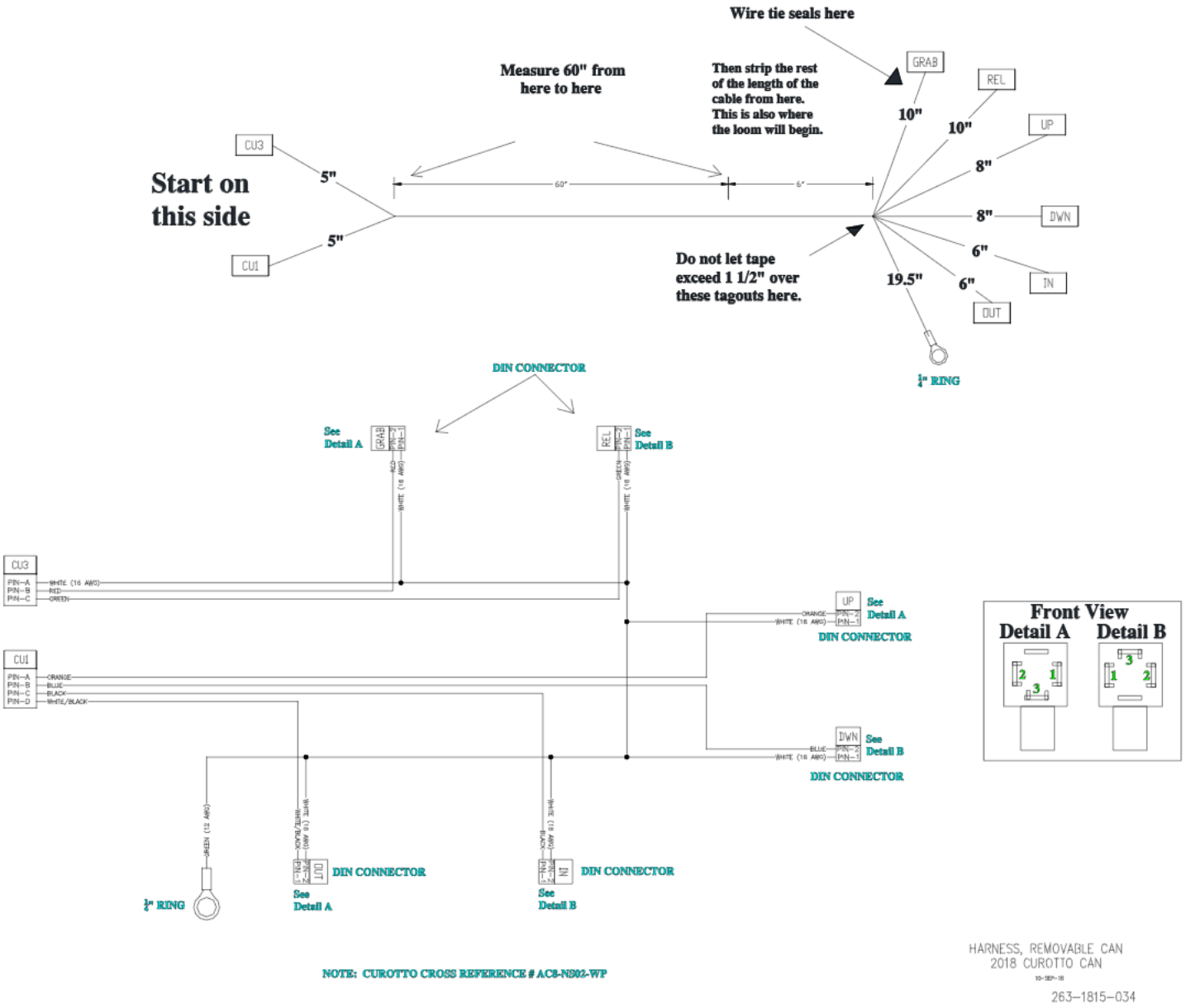


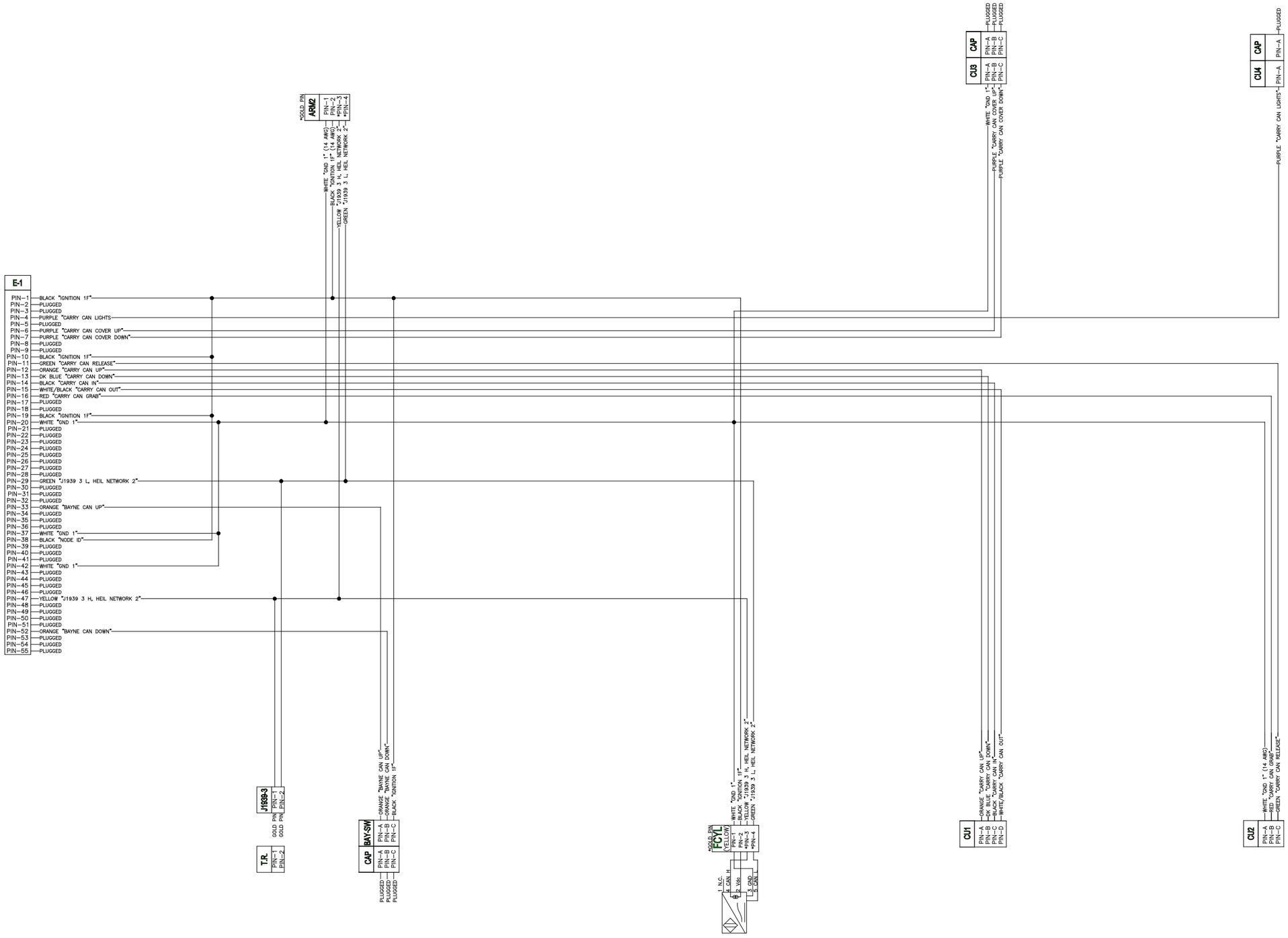
Curotto-Can®
Schematics

CUROTTO JOYSTICK HARNESS – 263-1707



2018 CUROTTO-CAN REMOVABLE CAN HARNESS – 263-1815-034





SCHEMATIC, REMOVABLE REMOTE
CAN CONTROLLER, ODESSEY GEN III

8/30/16

701-9214-008

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NOTES

WARRANTY

LIMITED ONE-YEAR WARRANTY

WARRANTY IS APPLICABLE TO ONLY THOSE CUROTTO-CAN PRODUCTS THAT ARE WARRANTY REGISTERED TO THE CUROTTO-CAN, INC. WARRANTY REGISTRATION FORM CAN BE FOUND WITHIN THIS MANUAL OR ON OUR WEB SITE HYPERLINK:

http://www.thecurottocan.com

www.thecurottocan.com

1. The Curotto-Can, Inc. warrants its products to be free from defects in material and workmanship under normal use for a period one (1) year or 2,000 hours of operation from the delivery to the first buyer.
2. Warranty is expressly limited to the repair or replacement of any component or part of Curotto-Can products and is proven to Curotto-Can's satisfaction to have been defective in material and workmanship. This warranty does not obligate Curotto-Can to bear the cost of labor or transportation charges in connection with the repair or replacement of defective parts, and it shall not apply to a product upon which repairs or alterations have been made unless authorized in writing by Curotto Can. Any improper use, substitution of parts not approved by Curotto-Can, modifications other than those done at the factory or as authorized in writing by the factory, or any alteration or repair by others in such a manner which, in Curotto-Can's judgment, materially and adversely affects the product shall void this warranty.
3. This warranty excludes: 1) wear parts such as belts, hydraulic hose or wear strips, and 2) damage or failure due to negligence, misuse accident, improper operation or improper installation.
4. Curotto-Can makes no warranty of product manufactured by others and supplied by Curotto-Can, the same being subject to warranties, if any, of their respective manufacturers.
5. Curotto-Can assumes no liability for any incidental, consequential, direct, or indirect damages, losses of delays, including, but not limited to, loss of profits, product or time.
6. Any service parts sold by Curotto-Can shall have a ninety (90) day warranty for replacement only. The warranty item must be returned to Curotto-Can for evaluation upon its request. Labor to replace such part shall be the responsibility of the owner.
7. The Curotto-Can reserves the right to improve its products through changes in design and/or materials as it may deem desirable without obligation to incorporate such changes in product of prior manufacture.
8. The above warranty supersedes and is in lieu of all other express or implied warranties, including, but not limited to, any implied warranties of merchantability or fitness. No employee or any other representative of The Curotto-Can is authorized to change this warranty in any way or to grant any other warranty.

The Curotto-Can®

The Future of Automated Collection

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