



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

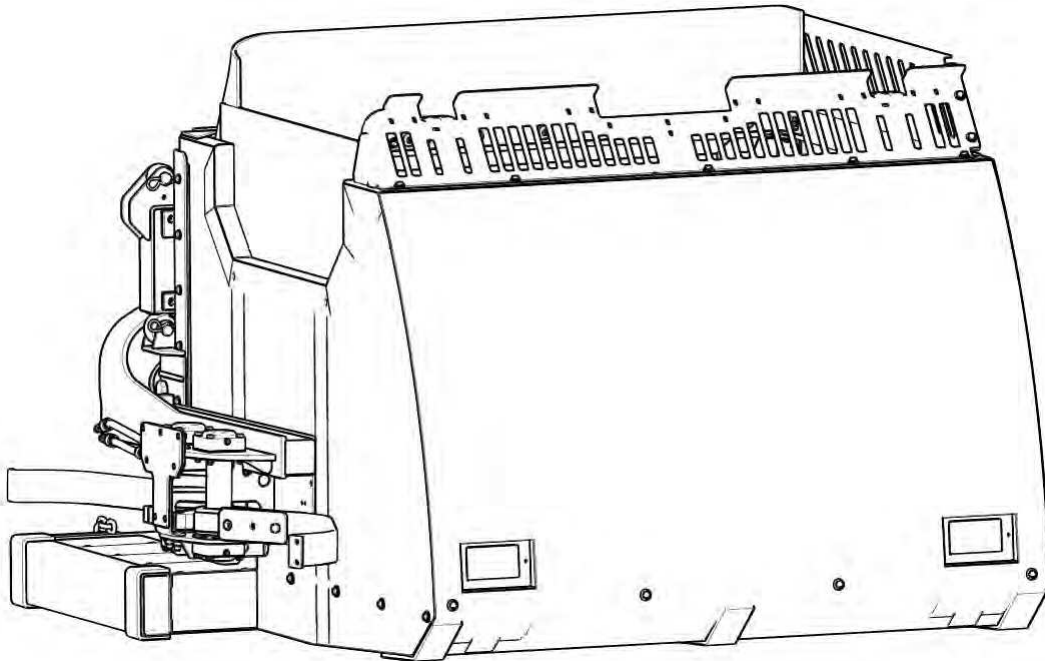
Proper service and repair are important to the safe, reliable operation of Curotto-Can's products. Service procedures recommended by Curotto-Can are described in this service manual and are effective for performing service operations. Some of these service operations may require the use of tools or blocking 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.”

PARTS AND SERVICE MANUAL

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Parts Manual.....	TP1CC-PM-0418
Service Manual.....	TP1CC-OSM-0418





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Curotto-Can

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Curotto-Can
AUTOMATED CARRY CAN

PARTS MANUAL
ISSUED APRIL 2018
TP1CC-PM-0418

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SECTION 1

GENERAL INFORMATION

Curotto-Can

UNDERSTANDING THE PARTS MANUAL

Not all illustrations in this section are from this Parts Manual. We have used illustrations from other Parts Manuals in order to have a common Section 1 for all Parts Manuals and to be consistent in our explanation across all Parts Manuals.

A. Parts Manual Sections

1. The Parts Manual includes illustrations and parts listings of serviceable assemblies and attaching parts.
2. The Parts Manual is made up of five sections including Section 1 - General Information, for easy access and use. Sections 2-6 contain the parts lists and technical illustrations for the unit divided into logical sections. There is a Numerical Index at the end of the Parts Manual to quickly find pages of known part numbers.
3. The Table of Contents provides a listing of all serviceable assemblies and attaching parts ordered by the page number on which it can be found.
4. Each section can be divided into logical sub-sections. Each logical sub-section has a page number and starts the sub-section.

Section 2 - Body and Attaching Parts	←	Section
Body Assemblies and Attaching Parts.....	16	← Divider
28 Yard Body Assembly.....	18	← Assembly/Part
Arm Installation.....	28	
Composite Top Door.....	30	
Packer Panel.....	32	
Cab Protector Assembly.....	34	

Figure 1. Table of Contents Listings

B. Parts Lists and Illustrations

1. The Parts Lists and Illustrations (when available) show serviceable assemblies and sub-assemblies broken down to weldments, wear parts and attaching parts.
2. Weldments that have no attaching parts or wear parts are not illustrated or shown in a Parts List., unless the weldment has a sub-assembly with wear parts or attaching parts.
3. Schematics are not included in the Parts Lists unless parts are identified in a schematic with a Parts List. Refer to the Service Manual Schematics section.
5. The top of each page identifies the name of the assembly or multiple similar assemblies followed underneath with the part number for each assembly.
6. Each assembly given in a section of the manual may have an illustration and will always have a Parts List.
7. The left page (even-numbered page) is an illustration (when available) with callouts and the right page shows the matching Parts List.
8. An illustration and Parts List may show two or more similar assemblies. The Parts List will identify the parts differences between the similar assemblies.

UNDERSTANDING THE PARTS MANUAL (CONTINUED)

C. Illustration Page

See Figure 2.

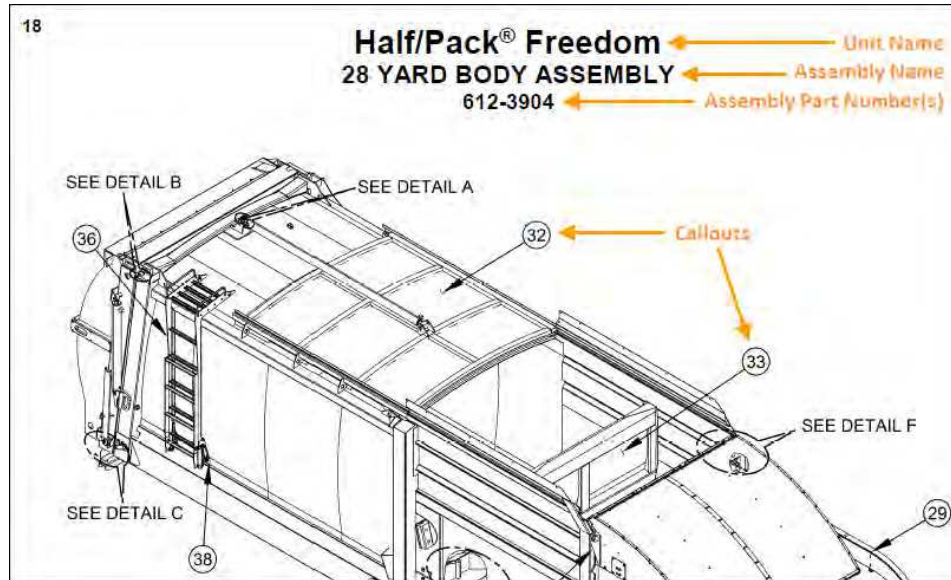


Figure 2. Titles and Part Numbers

1. Each illustration page consists of a drawing with numbered callouts showing all the parts of the assembly listed in the Parts List.
2. Each callout on the page is a number, which is the same as the item number in the ITEM column in the Parts List.
3. As we continue to upgrade the manuals, the illustrations will not show welded parts, unless the part is an assembly with a sub-assembly with wear parts or loose attaching parts.

D. Parts List Page

See Figure 3.

1. The parts list is organized into five columns:
 - ITEM – This number corresponds to the callout on the illustration
 - PART NO. – The Heil part number associated with the referenced part on the illustration
 - DESCRIPTION – Description of the associated part
 - EFF – This is a letter code to identify each top assembly
 - QTY – This is the number of parts needed in the top assembly.

UNDERSTANDING THE PARTS MANUAL (CONTINUED)

Half/Pack® Freedom				
MACK FRONT DRIVE PUMP KIT INSTALLATIONS				
272-3460, 272-3460-001				
Page number (odd for parts lists) → 141				
Effectivity code for 272-3460				
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	272-3460	KIT, Installation, Pump w/o Cover, Mack	A	REF
-	272-3460-001	KIT, Installation, Pump w/Cover, Mack	B	REF
1	211-3298	BRACKET, Pump, 1/2" (Depends on Pump)	-	1
2	030-0661	ASSEMBLY, Driveline	-	1
3	311-3502-009	BRACKET, Pump (Depends on Pump)	-	1
4	047-1794	HHCS, 7/16"-20 x 1", Gr.8, Yellow, Zinc Dichromate Plated	-	4
6	112-9882	PANEL, Cover, Pump, #11 Ga., Front Mount, Mack	B	1
7	035-2592	GUARD, Cover, Pump, 1/4" x 3" x 3"	B	1
9	211-6917	GUARD, Pump Shaft	-	1

These items are not illustrated
 Read as "Pump Shaft Guard"
 These parts are just in the second top assembly, 272-3460-001.
 This part is in both top assemblies

Figure 3. Parts List

2. A hyphen (-) preceding an item number shows that the item is not illustrated.
3. The item number in the ITEM column for each part number has the same number as a call out on its matching illustration.
 - a. When there are two assemblies identified at the top of the page, and each assembly uses a different (usually similar) part at the same location, the following item numbers are given an alpha variant designation after the item number.
 - b. For example, when the assemblies at the top of a Parts List are 612-1111 and 612-1122, and 612-1111 uses a bolt (part number FS070714) at a location, it is given the designation as Item 12. When the 612-1122 assembly uses a bolt (part number FS070712) at the same location, it is given the designation as Item 12a.
4. Part numbers are typically in the following format, where "n" is a number: nnn-nnnn. Some part numbers may look like nnn-nnnn-xxx. Use these numbers when you order parts.
5. The descriptions are given in the following format: NOUN, MODIFIER, MODIFIER. For example, ASSEMBLY, Body, 16 yd.
6. An effectivity code ("A" thru "Z" (does not include "I" or "O")) or "-" is given in the EFF column for each top assembly (and its parts) listed at the top of the page.
 - a. For example, when there is only one assembly part number at the top of the page, the effectivity code is "-" in the EFF column.
 - b. For example, if the assembly part numbers at the top of the page are 272-3460 and 272-3460-001, the effectivity code "A" is shown in the EFF column for 272-3460 and the effectivity code "B" is shown in the EFF column for 272-3460-001.
7. An effectivity code, as defined above, is also given to each sub-assembly and part for each top assembly given at the top of the page.
 - a. A "-" is in the EFF column for each assembly or part that is the same between two or more top assemblies.
 - b. Each sub-assembly or part that is different for one or more of the part numbers at the top of the page is assigned the same effectivity code as the top assembly that the part or sub-assembly is in.
 - c. For example, when the assembly part numbers at the top of the page are 612-1111 and 612-1122 and each top assembly uses the same bolt at Item 11 (FS070715), then the effectivity code for that bolt is "-".
 - d. When 612-1111 uses a bolt (part number FS070714) at Item 12 and 612-1122 uses a bolt (part number FS070712) at Item 12a, Item 12 is given an effectivity code of A and Item 12a is given an effectivity code of B.

UNDERSTANDING THE PARTS MANUAL (CONTINUED)

8. The following entries can appear in a parts list:

- A/R - AS REQUIRED (in the QTY column)
- NSS - NOT SERVICED SEPARATELY (in the PART NO. column). This means the part is not available for ordering individually. It is probably a part in another part number for ordering purposes, such as in a seal kit
- REF – REFERENCE (in the QTY column).

9. When REF is in the QTY column, it indicates:

- The part is an assembly shown at the top of the page.
- The part is in another assembly and listed and/or shown for reference purposes.

10. The DESCRIPTION column may contain references to other pages in the current section of the Parts Manual; another section in the Parts Manual; a section in the Service Manual. See Figure 3.

- a. See “Pg. xxxx” in the DESCRIPTION column indicates the page number where the Parts List is located for this assembly or part in this section of the Parts Manual.
- b. See “SM XX” in the DESCRIPTION column indicates the Section in the Service Manual where you find more information, which in this case is the schematic and is in Service Manual Section 10 – Schematics.
- c. See “Section X” in the DESCRIPTION column indicates is the Section in the Parts Manual where this assembly or part is shown with an illustration (when available) and a Parts List.

NUMERICAL INDEX

The Numeric Index consists of all parts with their respective page number. Use the Numeric Index to help find part numbers in the Parts Manual. See Figure 4.

A. Finding a Part Number in the Manual

You use the Numerical Index to find the Parts List page or pages that a part number is on. When you find the Part Number in the Numerical Index, the Numerical Index shows you what page or pages where the Part Number is listed in the Parts Manual.

B. Part Numbers in the Numerical Index

The parts are listed in ascending order, that is, the lowest numbered part starts the Numerical Index and the last part number is the highest alpha character.

1. If part number 001-4105 (a cylinder) is the lowest part number in a manual, then it is the first part number given in the Numerical Index with the page or pages you can find the part number in one or more Parts List.
2. If a part number is TAS-F158-050 and it is the highest alpha-based part number, then this part number would be the last part number in the Numerical Index with the page or pages you can find the part number in one or more Parts Lists.
3. Once you have a Parts List page number for a part number, then you find the part number and its Item Number in the Parts List and can see the part in the related illustration, if available.

Half/Pack® Freedom						831
NUMERICAL INDEX						
PART NO.	PAGE NO.	PART NO.	PAGE NO.	PART NO.	PAGE NO.	
001-3682	688, 692	003-3553	568	020-1972	564	
001-6369-003	430	003-3567	688	020-1992	558	
001-6369-005	430	003-4013	44, 732	020-2584	130	
001-6369-006	430	003-4207	28, 62, 74	020-2585	130, 132	
001-6369-007	430	003-4248-001	68	020-2585-003	132	
001-6386-001	432	003-4297	44, 46, 732	020-2585-004	132	
001-6386-003	432	003-4297-001	46	020-2585-006	132	


 The first part number in ascending order

Figure 4. Numerical Index

SERIAL PLATE

A. Serial Plate Location and Information

1. The serial plate is the “birth certificate” of the unit. It is located on the top-rear exterior body of the can. See [Nomenclature](#) ¹⁰ on the next page.
2. Information stamped or printed in the three fields on the serial plate shows:
 - Model
 - Body Size
 - Unit’s unique serial number



Figure 5. Sample Serial Plate

CUROOTTO-CAN CUSTOMER SUPPORT

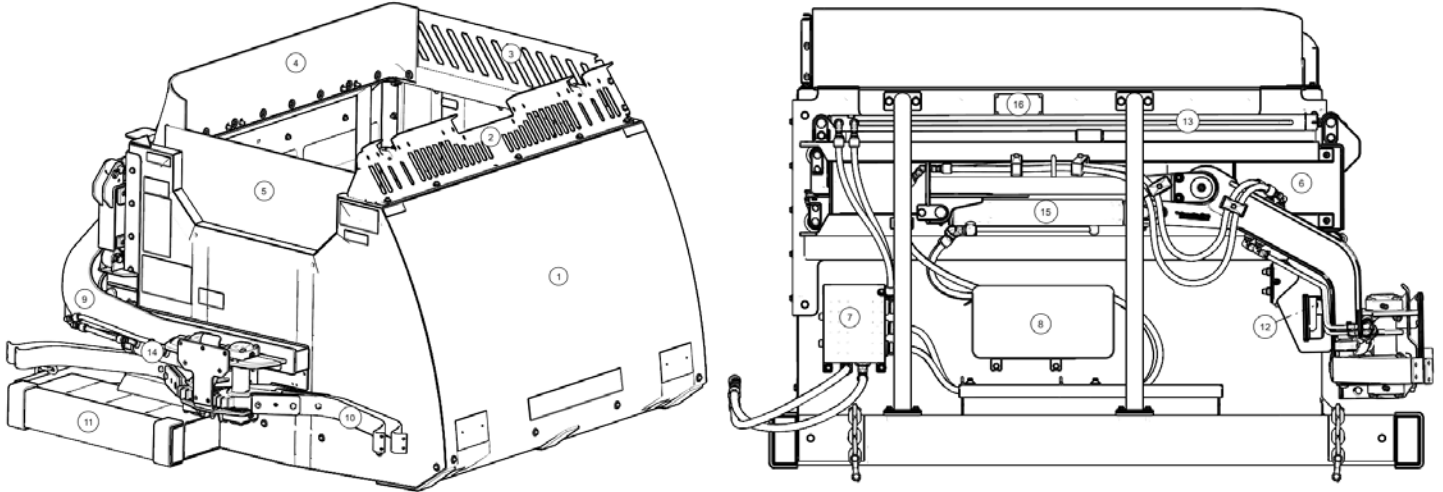
For inquiries about units, call Customer Care at 866-ASK-HEIL 866-275-4345.

For inquiries about parts, call Parts Central at 800-528-5308.

For Technical Service, call 866-310-4345.

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NOMENCLATURE

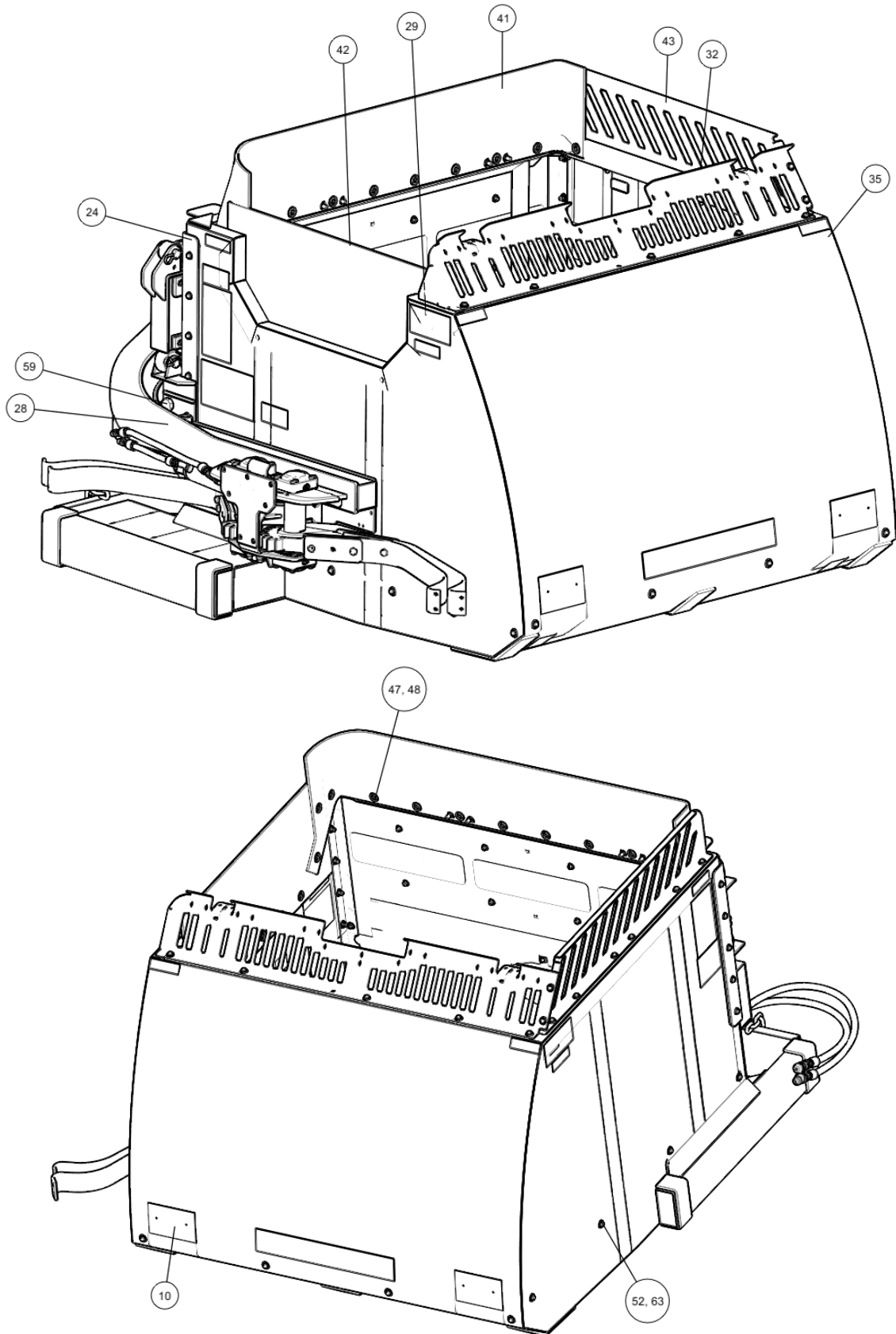


ITEM	DESCRIPTION	ITEM	DESCRIPTION
1	Curotto-Can Body	9	Grabber Beam Subassembly
2	Front Windscreen	10	Gripper Arms x 2
3	Street Side Windscreen	11	Fork Pocket Assembly x 2
4	Rear Spill Guard	12	Hinge Main Assembly
5	Curb Side Spill Guard	13	Slide Cylinder
6	Slide Assembly	14	Gripper Arm Cylinder
7	Hydraulic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

SECTION 2 BODY AND ATTACHING PARTS

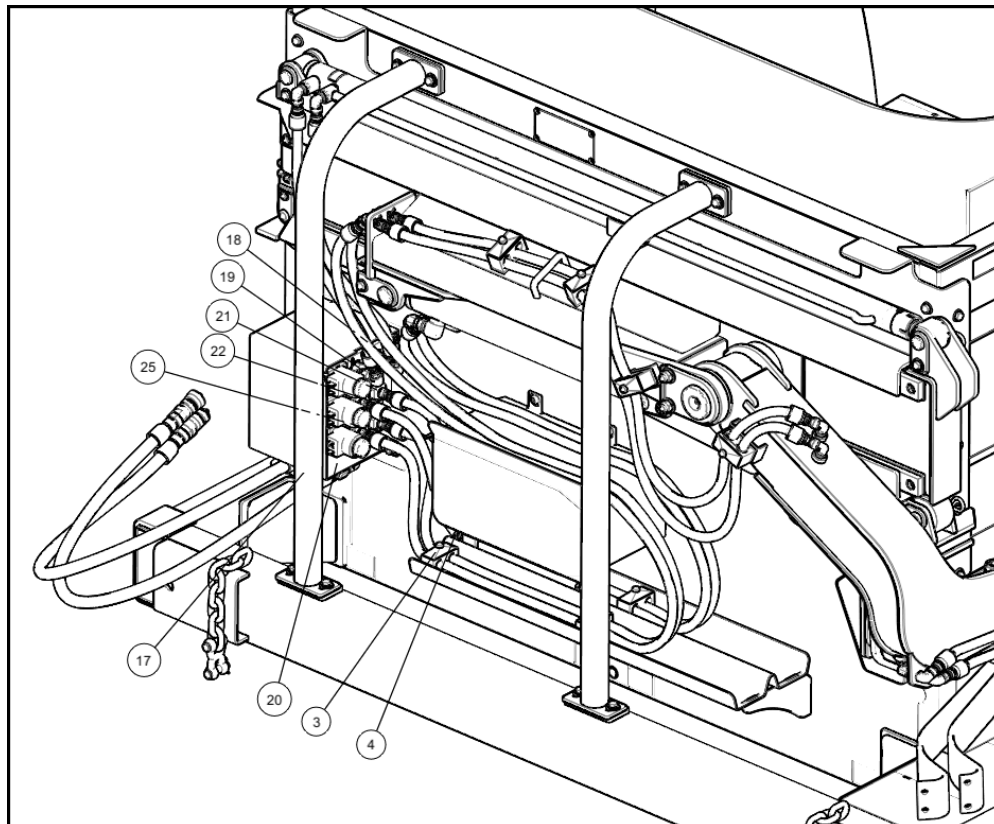
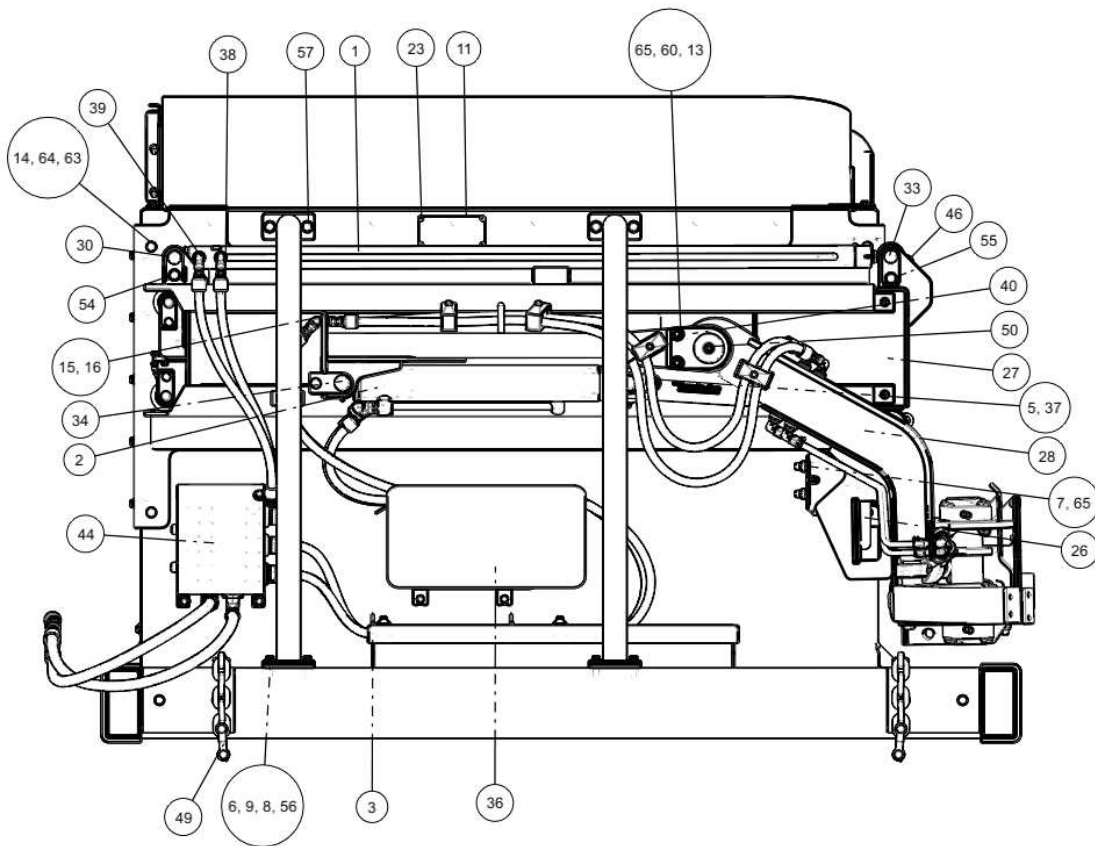
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DETACHABLE CUROTTO CAN ASSEMBLY WITH LIGHTS 856-5118 / WITHOUT LIGHTS 856-5119



Curotto-Can

DETACHABLE CUROTTO CAN ASSEMBLY WITH LIGHTS 856-5118 / WITHOUT LIGHTS 856-5119



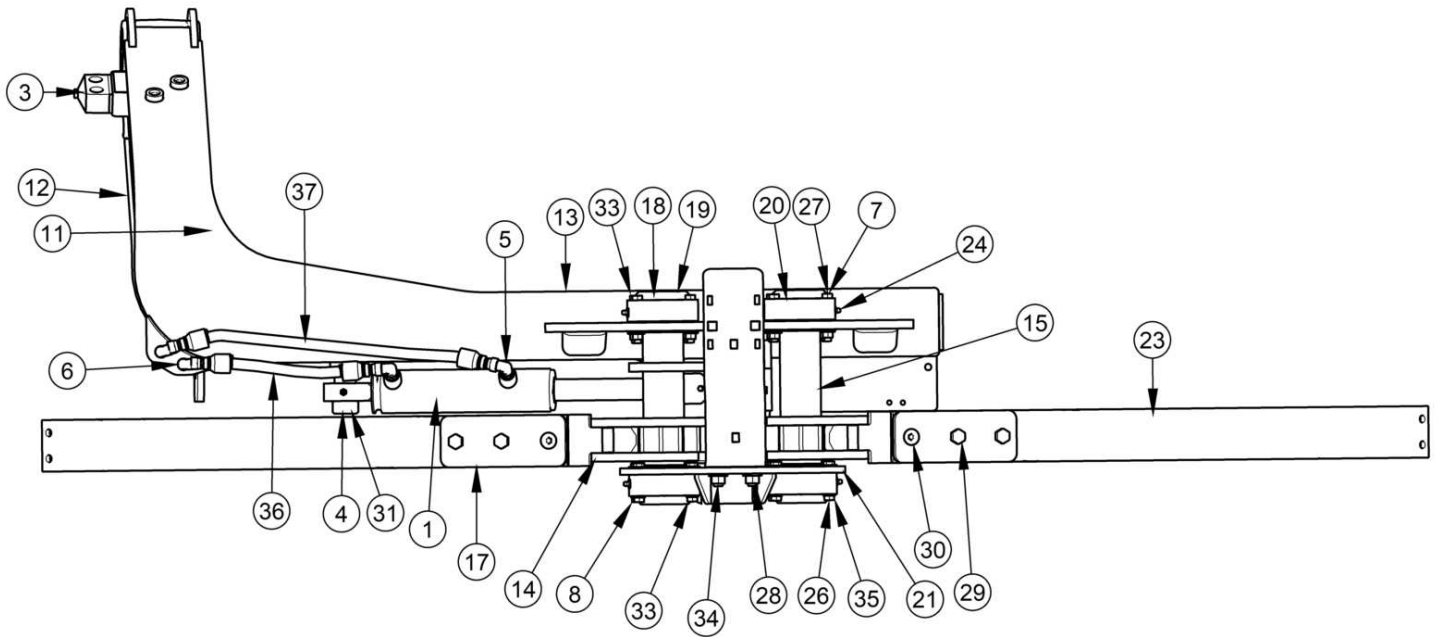
Curotto-Can

ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
-	856-5118	ASSEMBLY, WITH LIGHTS, DETACHABLE CUROTTO-CAN	REF	
-	856-5119	ASSEMBLY, WITHOUT LIGHTS, DETACHABLE CUROTTO-CAN	REF	
1	001-7151	SLIDE CYLINDER ASSY	1	
2	001-7163	PIVOT ARM CYLINDER	1	
3	036-1495-012	CLAMP, TWIN STAUFF	5	
4	036-1915_	FIR TREE PLASTIC TIE	2	
5	047-2380	HHCS, 3/8-16NC X 3/4 LG. ZINC PLAT'D	1	
6	047-2670	NUT, 3/8-16 NYLOCK, GR8	48	
7	047-2671	NUT, 1/2-13, NYLOCK, GR 8	2	
8	055-3113	FLAT WASHER 3/8 SAE HIGH STRENGTH	60	
9	055-3114	3/8 LOCK WASHER, STAINLESS STEEL	8	
10	115-1484	LIGHT, LED TRAPEZOID	2	Carry-Can with lights only
11	212-3294	SERIAL PLATE	1	
-12	263-1847	WORK LAMP HARNESS	1	
13	423-2957	STOVER LOCKNUT; 1/2-13, PLD, GR 8	2	
14	423-2961	STOVER LOCKNUT; 3/8-16, PLD, GR 8	9	
15	436-0003	CABLE TIE; 18 LB, 3/4" DIA, YELLOW	3	
16	436-0004	CABLE TIE; 18 LB, 3/4" DIA, GREEN	3	
17	436-0005	CABLE TIE, 18 LB, 3/4" DIA. BLUE	1	
18	436-0006	CABLE TIE; 18 LB, 3/4" DIA, ORANGE	1	
19	436-0007	CABLE TIE; 18 LB, 3/4" DIA, BROWN	1	
20	436-0009	CABLE TIE, 18 LB, 3/4" DIA. RED	1	
21	436-0013	CABLE TIE; 18 LB, 3/4" DIA, PURPLE	1	
22	436-0014	CABLE TIE; 18 LB, 3/4" DIA, GRAY	1	
23	440-0016	SST BLIND RIVET; DOME HD, 3/16", .126- .250 GRIP	4	
24	856-5097	SLIDE TRACK SUBASSEMBLY	1	
25	856-5105	MANIFOLD/VALVE ASSY	1	
26	856-5108	HINGE MAIN ASSY.	1	
27	856-5109	SLIDE ASSEMBLY	1	
28	856-5116	GRABBER BEAM SUBASSEMBLY	1	
29	856-5122	DECALS, DETACHABLE CUROTTO CAN	1	
30	857-0004	PIN WELDMENT, SLIDE CYL, CAP END	1	
31	857-0093-002	PROTECTION TUBE WELDMENT	2	
32	857-0651	UNIVERSAL WINDSCREEN ASSY.	1	
33	857-5005	PIN WELDMENT, SLIDE CYL ROD END	1	
34	857-5006	PIN WELDMENT-DUMP CYL CAP END	1	
35	857-5107	DETACHABLE CAN ASSY W/O LIGHTS	1	Carry-Can without lights only
35	857-5104	DETACHABLE CAN ASSY W/ LIGHTS	1	Carry-Can with lights only
36	857-5108	CONTROL COVER ASS'Y	1	
37	857-5122	PIN WELDMENT	1	
38	857-5154	HYDRAULIC HOSES REMOVABLE	1	
39	857-5154-001	HYDRAULIC HOSE FITTINGS KIT	1	
40	857-5164	PIN, MAIN PIVOT	1	
41	858-0164_	SPILL GUARD, TOP REAR	1	
42	858-0182	SPILL GUARD, CURB SIDE	1	
43	858-0951	WINDSCREEN, STREET SIDE	1	
44	858-5733	MAINFOLD/VALVE COVER	1	
-45	858-5901	CAP, 2X5	2	

Curotto-Can

ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
-	856-5118	ASSEMBLY, WITH LIGHTS, DETACHABLE CUROTTO-CAN	REF	
-	856-5119	ASSEMBLY, WITHOUT LIGHTS, DETACHABLE CUROTTO-CAN	REF	
46	859-0011	HAIRPIN COTTER PIN	1	
47	859-0039	HEX HEAD SELF-DRILLING SCREW	18	
48	859-0040	FENDER WASHER	18	
49	859-0041	DOUBLE CLEVIS LINK, 3/8 CHAIN	2	
50	FS190400	1/8 NPT GREASE FITTING, STR.	1	
-51	FSP080822	HHCS 5/16-18 UNC X 1-1/4" LG. GR8 PLATED	4	
52	FSP080915	HHCS 3/8-16 UNC X 3/4" LG. GR8 PLATED	12	
53	FSP080920	HHCS 3/8-16 UNC X 1" LG. GR8 PLATED	6	
-54	FSP080922	HHCS 3/8-16 UNC X 1-1/4" LG. GR8 PLATED	1	
55	FSP080924	HHCS 3/8-16 UNC X 1-1/2" LG. GR8 PLATED	11	
56	FSP080926	HHCS 3/8-16 UNC X 1-3/4" LG. GR8 PLATED	4	
57	FSP080950	HHCS 3/8-16 UNC X 4" LG. GR8 PLATED	16	
58	FSP140915	FHCS; 3/8-16, 3/4"L, PLD	8	
59	FSP140924	FHCS, 3/8-16 UNC X 1.5 LONG	1	
60	FSP141126	HSFHC;1/2-13X1 3/4"L,PLD,GR8	2	
-61	FSP410916	PLTD SCREW, SOCKET HD 3/8-16 NC X 3/4	2	
-62	FSP510800	WASHER, FLAT, 5/16" STD , PLATED	4	
63	FSP510900	WASHER, FLAT, 3/8" STD , PLATED	12	
64	FSP520900	WASHER, FLAT, 3/8" SAE , PLATED	23	
65	FSP521100	WASHER, FLAT, 1/2" SAE , PLATED	4	
-66	025-0473-007	HOLE PLUG, 3/4"	1	Carry-Can without lights only

Curotto-Can GRABBER BEAM SUBASSEMBLY 856-5116



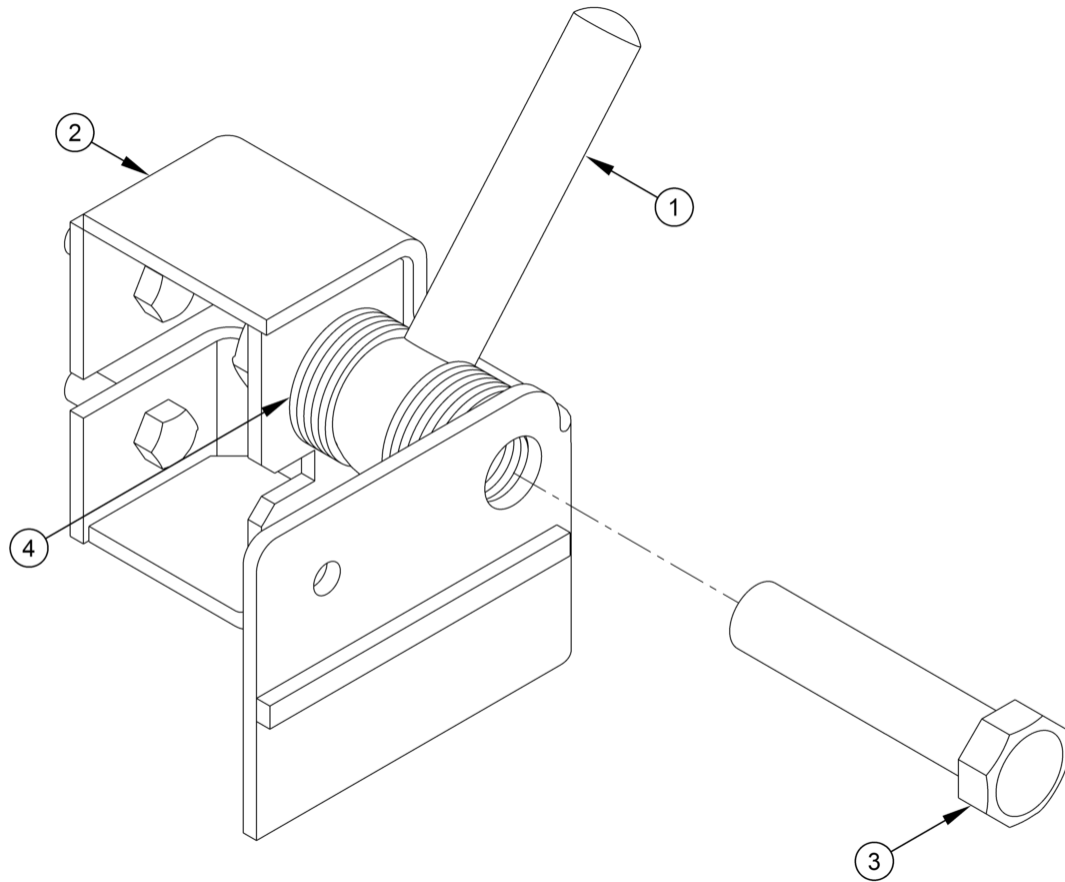
Curotto-Can

ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
-	856-5116	SUBASSEMBLY, GRABBER BEAM	REF	
1	001-7137	CYLINDER, GRIPPER ARM CUROTTO	1	
-2	003-5290	2.000 SINGLE ACTING	4	
3	036-1495-012	CLAMP, TWIN STAUFF	1	
4	047-2701	BOLT- CYLINDER BASE END	1	
5	054-3340-005	MALE ELBOW, TUBE TO O-RING 3/8	4	
6	054-3533-005	BULKHEAD UNION ELBOW 3/8"	2	
7	055-1391-003	WASHER,- HARDENED STEEL	8	
8	055-1391-005	WASHER, HARDENED STEEL	10	
9	055-3118	FELT WASHER, 3 1/2" DIA.	6	
-10	055-3119	BEARING RETAINER - CRANK ASSY	4	
11	354-5333	TUBE ASSEMBLY, LIFT EXTEND,	1	
12	354-5334	TUBE ASSEMBLY, LIFT RETRACT,	1	
13	856-5117	OFFSET ARM SUBASSEMBLY	1	
14	857-5157	PIVOT GEAR ASSEMBLY	1	
15	857-5158	PIVOT ASSY - DRIVEN	1	
-16	857-5160	WELDMENT, LOWER PIVOT	1	
17	858-5768	CLAMP PLATE - GRABBER	2	
18	858-5787	FELT WASHER RETAINER	2	
19	858-5788	SHIM-BEARING CAP	12	
20	858-5789	FELT WASHER RETAINER	2	
21	858-5799	BEARING CAP - PIVOT	4	
-22	858-5820	PIN, GRIP CYL ROD END	1	
23	858-5881	SPRING GRABBER LEAF SPRING	2	
24	FS190400	1/8 NPT GREASE FITTING, STR.	4	
-25	FSP101524	HHCS 3/4-16 UNF X 1-1/2" LG. GR5 PLATED	4	
26	FSP110930	HHCS 3/8-24 UNF X 2" LG. GR8 PLATED	9	
27	FSP110934	HHCS 3/8-24 UNF X 2-1/2" LG. GR8 PLATED	8	
28	FSP111123	HHCS 1/2-20 UNF X 1-3/8" LG. GR8 PLATED	4	
29	FSP111130	HHCS 1/2-20 UNF X 2" LG. GR8 PLATED	4	
30	FSP141130	HSFHC;1/2-13X1 3/4"L,PLD,GR8	2	
31	FSP242000	NUT, 1" UNF GR5, PLATED	1	
32	FSP300900	NUT, HEX JAM 3/8-24 UNF	8	
33	FSP350900	NUT, 3/8" UNF GR8, PLATED	9	
34	FSP351100	NUT, 1/2" UNF GR8, PLATED	10	
35	FSP540900_	3/8" LOCK WASHER - PLAIN	8	
36	MF2-FEFE-011-YW	HOSE, 06, 06FJX, 06FJX, 11	1	
37	MF2-FEFE-019-GN	HOSE, 06, 06FJX, 06FJX, 19	1	

Curotto-Can

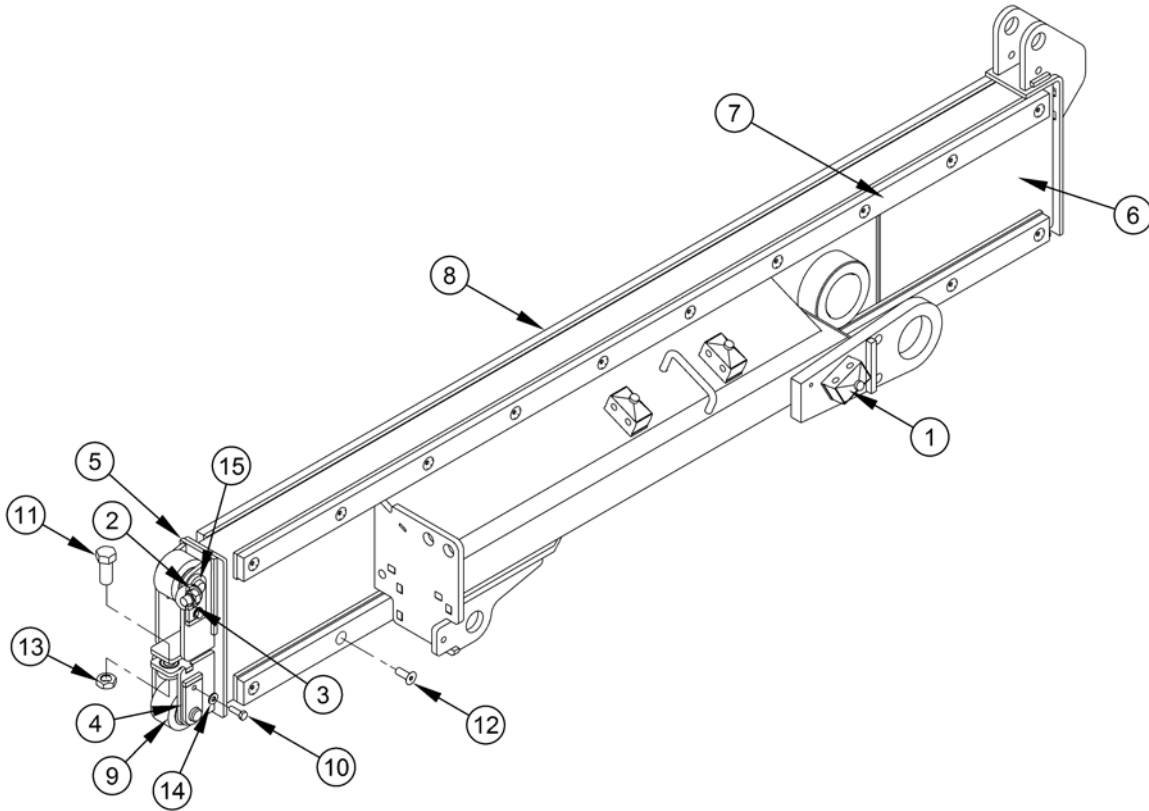
HINGE MAIN ASSEMBLY

856-5108



ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
-	856-5108	ASSEMBLY, MAIN, HINGE	REF	
1	047-2702	BOLT, EYE	1	
2	857-5126	ASSEMBLY, WELDMENT, HINGE	1	
3	FS072054	HHSC, 14"-20 X 4-1/2", GR.5	1	
4	FSP522000	WASHER, FLAT, 1" SAE, PLAIN, PLATED	14	

Curotto-Can SLIDE ASSEMBLY 856-5109

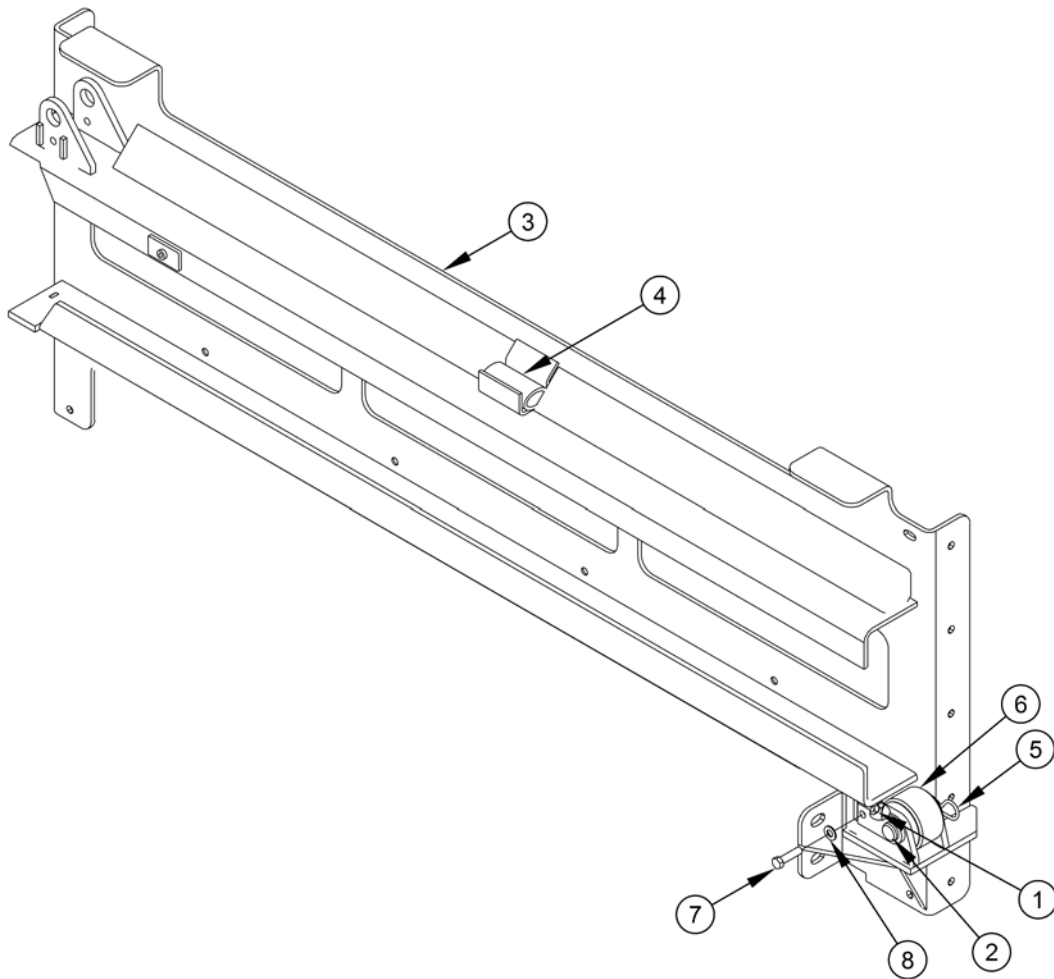


ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
-	856-5109	ASSEMBLY, SLIDE	REF	
1	036-1495-012	CLAMP, TWIN STAUFF	3	
2	047-2673	NUT, NYLOCK, GR 8., 1/2"-20	2	
3	423-2960	NUT, LOCK, STOVER, GR 8., 1/4"-20	2	
4	857-5022	WELDMENT, SLIDE ROLLER, REAR	2	
5	857-5060	WELDMENT, BRACKET, ROLLERS, UPPER, ADJ	1	
6	857-5130	WELDMENT, ARM, SLIDE	1	
7	858-0042	BAR, STRIP, WEAR, NARROW, SLIDE	3	
8	858-0061	BAR, STRIP, WEAR, WIDE, SLIDE	1	
9	859-0021	ROLLER, REAR, SEALED, SLIDE	2	
10	FSP080717	HHSC, 1/4"-20 X 7/8", GR 8., PLATED	2	
11	FSP101324	HHSC, 5/8"-18 X 1-1/2", GR 5., PLATED	1	
12	FSP140920	CAPSCREW, FLAT HEAD, 3/8"-16 X 1", PLATED	40	
13	FSP301300	NUT, JAM, 5/8"-18, PLATED	1	
14	FSP520700	WASHER, FLAT, 1/4"-20 SAE, PLAIN, PLATED	2	
15	FSP521100	WASHER, FLAT, 1/2", SAE, PLATED	2	

Curotto-Can

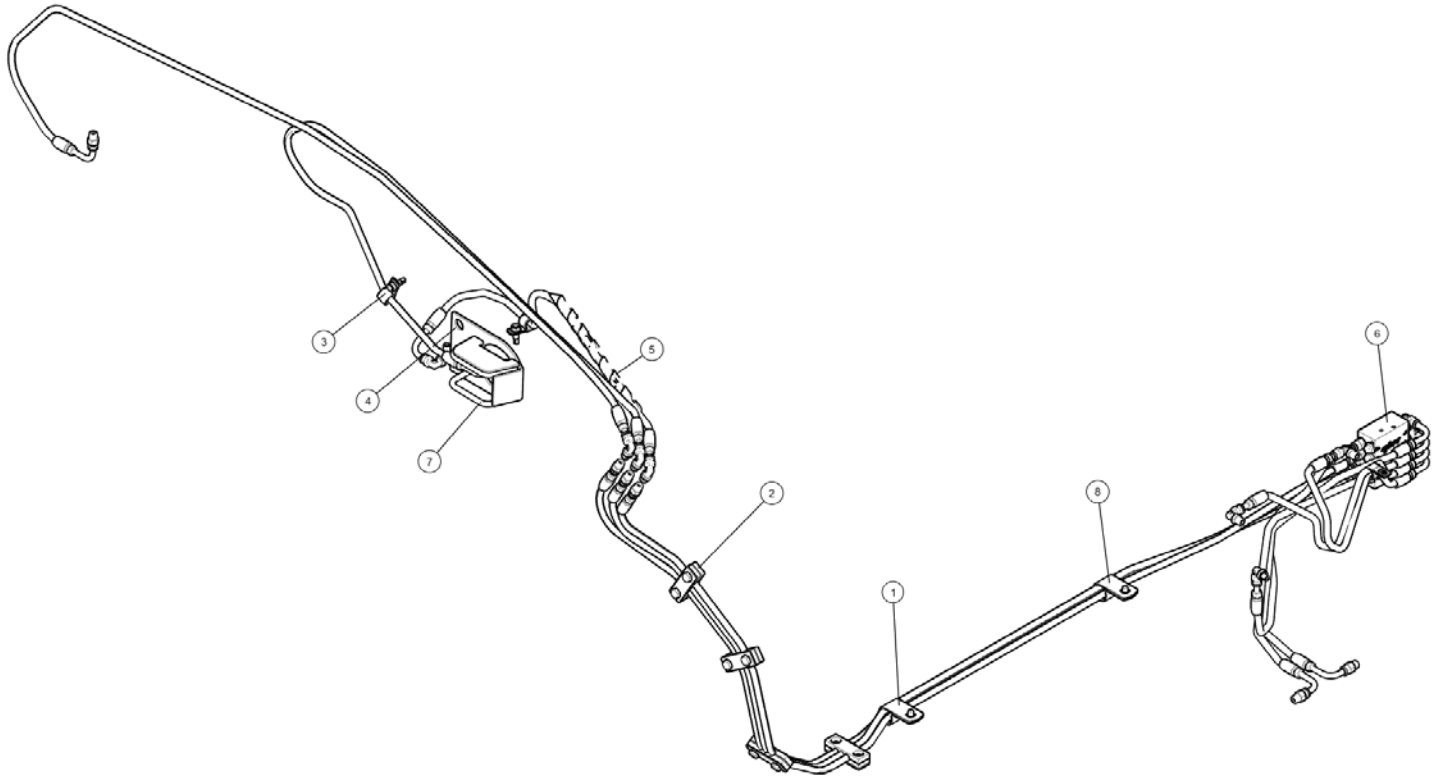
SLIDE TRACK SUBASSEMBLY

856-5097



ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
-	856-5097	SUBASSEMBLY, SLIDE TRACK	REF	
1	047-2670	NUT, NYLOCK, GR 8, 3/8"-16	1	
2	857-0021	WELDMENT, SUB, PIN, FRONT ROLLER	1	
3	857-5152	WELDMENT, SLIDE TRACK	1	
4	858-5074	SUPPORT, CYLINDER, EXTENDED, SPRING	1	
5	859-0011	PIN, COTTER	1	
6	859-0022	TRACK, SLIDE, FRONT ROLLER	1	
7	FSP080924	HHCS, 3/8"-16 x 1-1/2", GR. 8, PLATED	1	
8	FSP520900	WASHER, FLAT, 3/8", SAE, PLAIN	1	

Curotto-Can LUBE GREASE KIT 857-5139

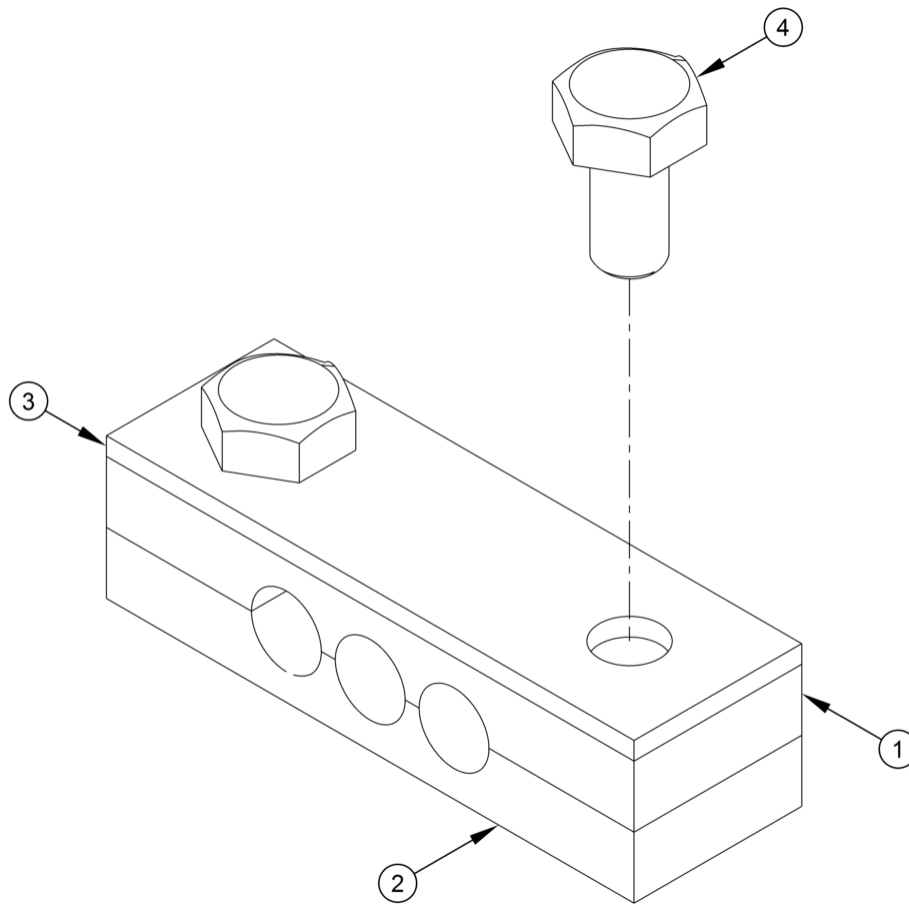


ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
-	857-5139	KIT, GREASE, LUBE	REF	
1	036-1295-001	CLAMPS, TUBE/WIRE, 3/4"	2	
2	036-1967	ASSEMBLY, CLAMP, LUBE HOSE	4	
3	036-1969	CLAMP, P, VINYL COATED, 1/2"	3	
4	047-2151-011	SCREW, TEK, 1/4"-14 X 1"	2	
5	057-3169	SPIRAL HOSE/GREASE LINE GUARD	1	
6	857-5139-001	KIT, GREASE, LUBE	1	
7	857-5147	GREASE LINE GUARD	1	
8	FSP070709	HHCS, 1/4"-20 X 3/8", GR. 5, PLATED	2	

Curotto-Can

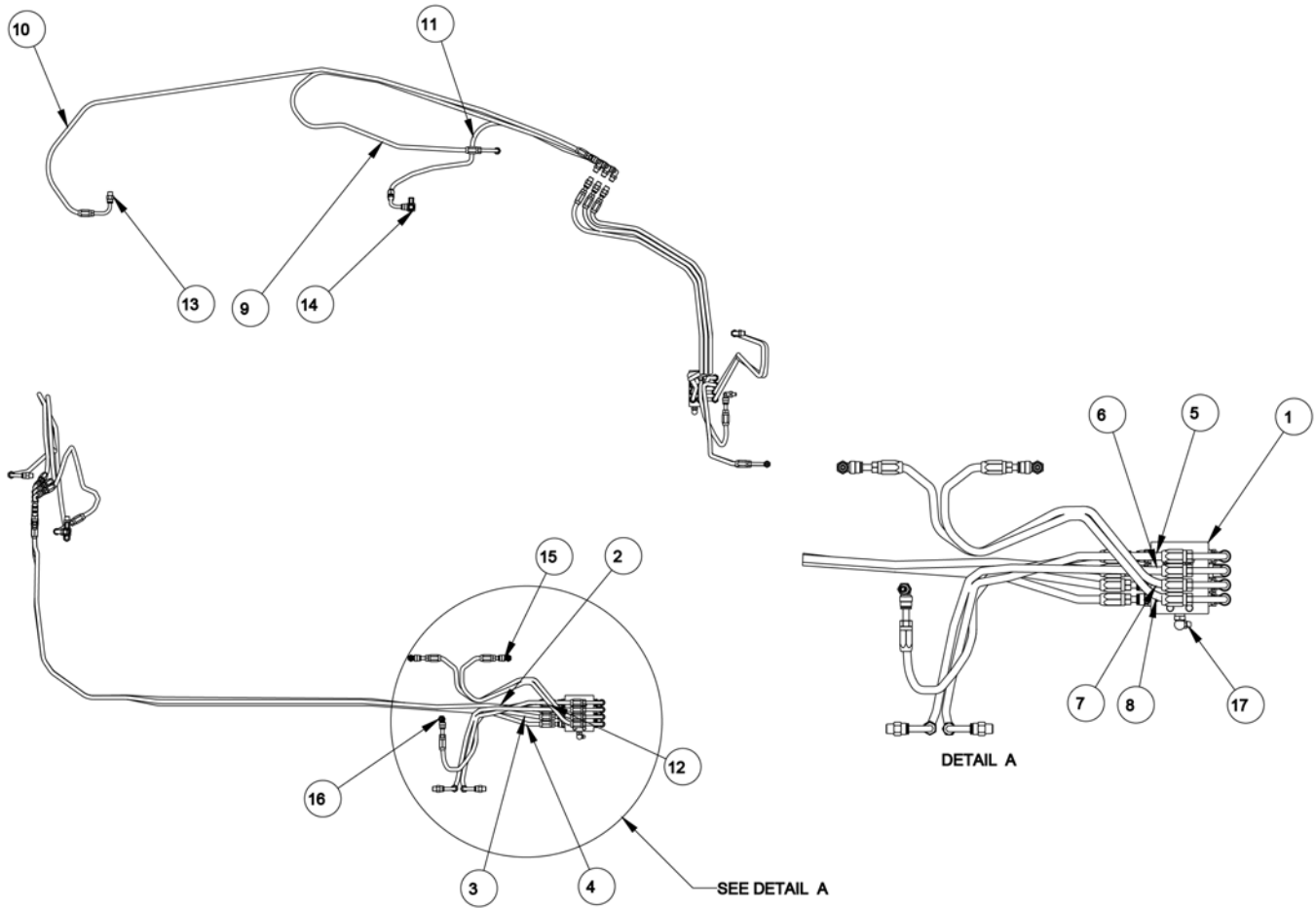
LUBE HOSE CLAMP ASSEMBLY

036-1967



ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
-	036-1967	ASSEMBLY, CLAMP, LUBE HOSE	REF	
1	036-1967-001	CLAMP, LUBE HOSE, TOP	1	
2	036-1967-002	CLAMP, LUBE HOSE, BOTTOM	1	
3	036-1967-003	PLATE, BOLTING, LUBE HOSE CLAMP	1	
4	FSP070711	HHCS, 1/4"-20 x 1/2", GR. 5, PLATED	2	

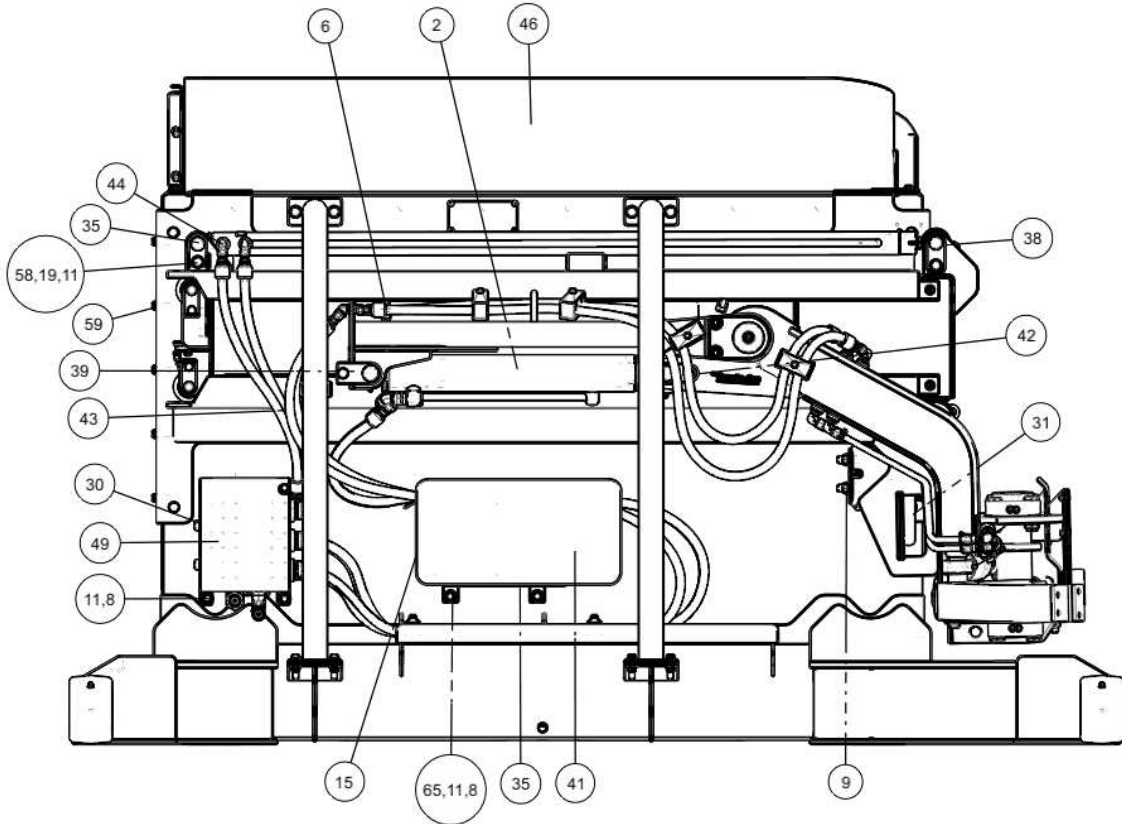
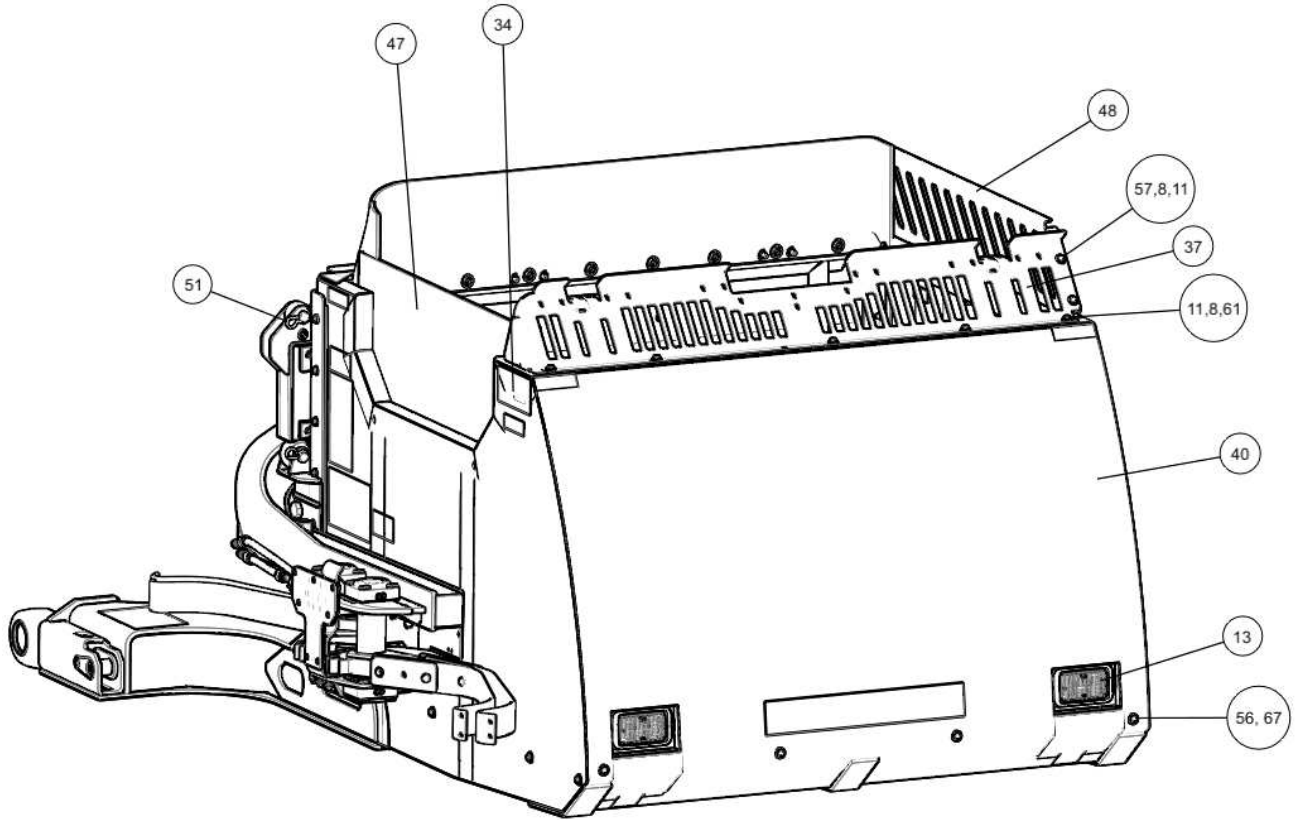
Curotto-Can GREASE LUBE KIT 857-5139-001



ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
-	857-5139-001	KIT, GREASE LUBE	REF	
1	031-6615	8 PORT GREASE VALVE	1	
2	057-3155	LUBE HOSE, 5/16", STR, STR, 63	1	
3	057-3156	LUBE HOSE, 5/16", STR, STR, 63	1	
4	057-3157	LUBE HOSE, 5/16", STR, STR, 64	1	
5	057-3158	LUBE HOSE, 5/16", 90 DEG, STR, 22	1	
6	057-3159	LUBE HOSE, 5/16", 90 DEG, STR, 21	1	
7	057-3160	LUBE HOSE, 5/16", 90 DEG, STR, 21	1	
8	057-3161	LUBE HOSE, 5/16", 90 DEG, STR, 21	1	
9	057-3163	LUBE HOSE, 5/16", 90 DEG, STR, 47	1	
10	057-3164	LUBE HOSE, 5/16", 90 DEG, STR, 66	1	
11	057-3165	LUBE HOSE, 5/16", 90 DEG, STR, 26	1	
12	057-3167	LUBE HOSE, 5/16", STR, STR, 18	1	
13	354-5337	STRAIGHT PUSH TO CONNECT 1/4 NPT (M) X 1/4 TUBE,	11	
14	354-5346	1/8 NPT(M) X 1/8 NPT(F) 90 DEG ADAPTER	1	
15	354-5349	90 DEG SWIVEL PUSH TO CONNECT	10	
16	354-5416	90 DEG. SWIVEL PUSH TO CONNECT 1/4"-28	1	
17	FS190490	1/8 NPT GREASE FITTING, 90	1	

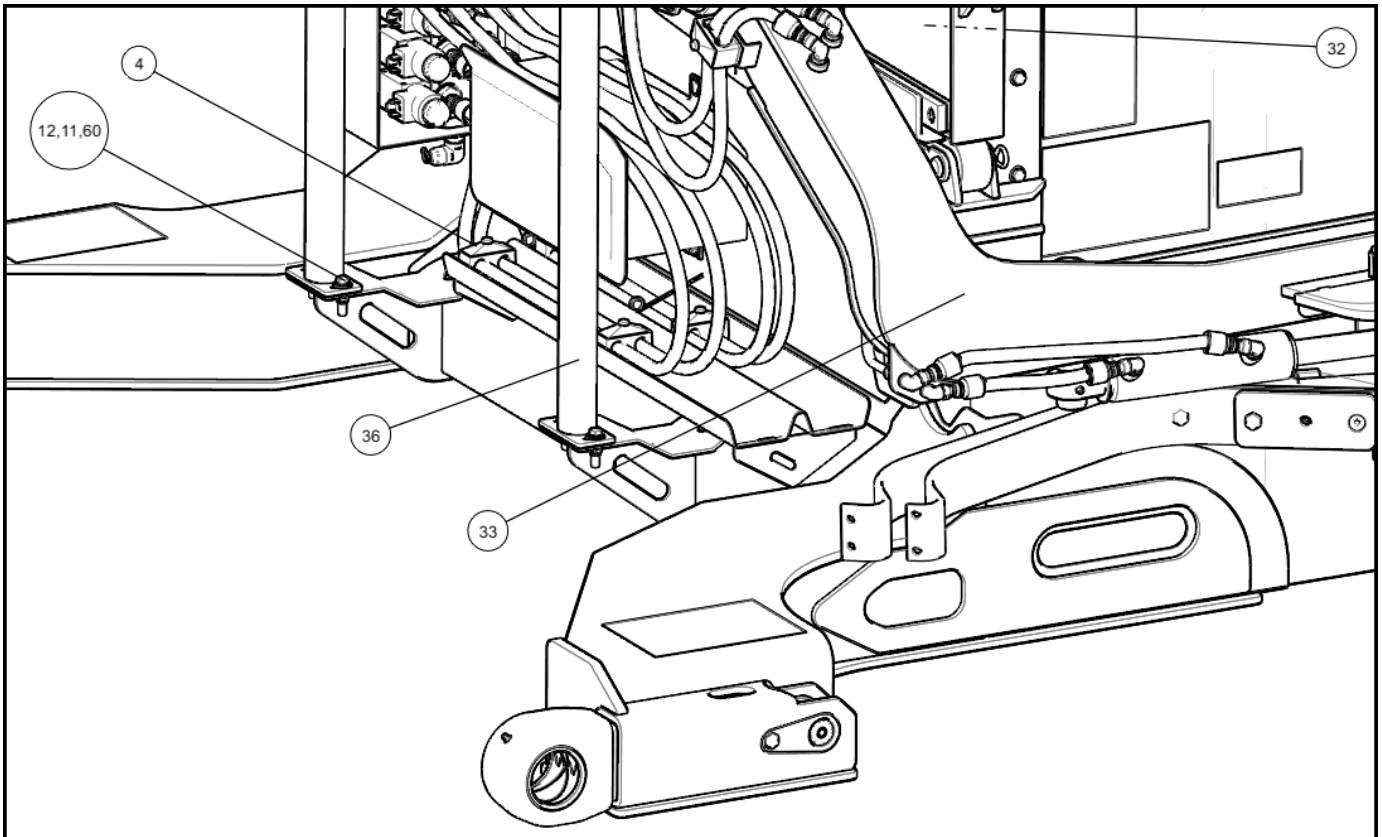
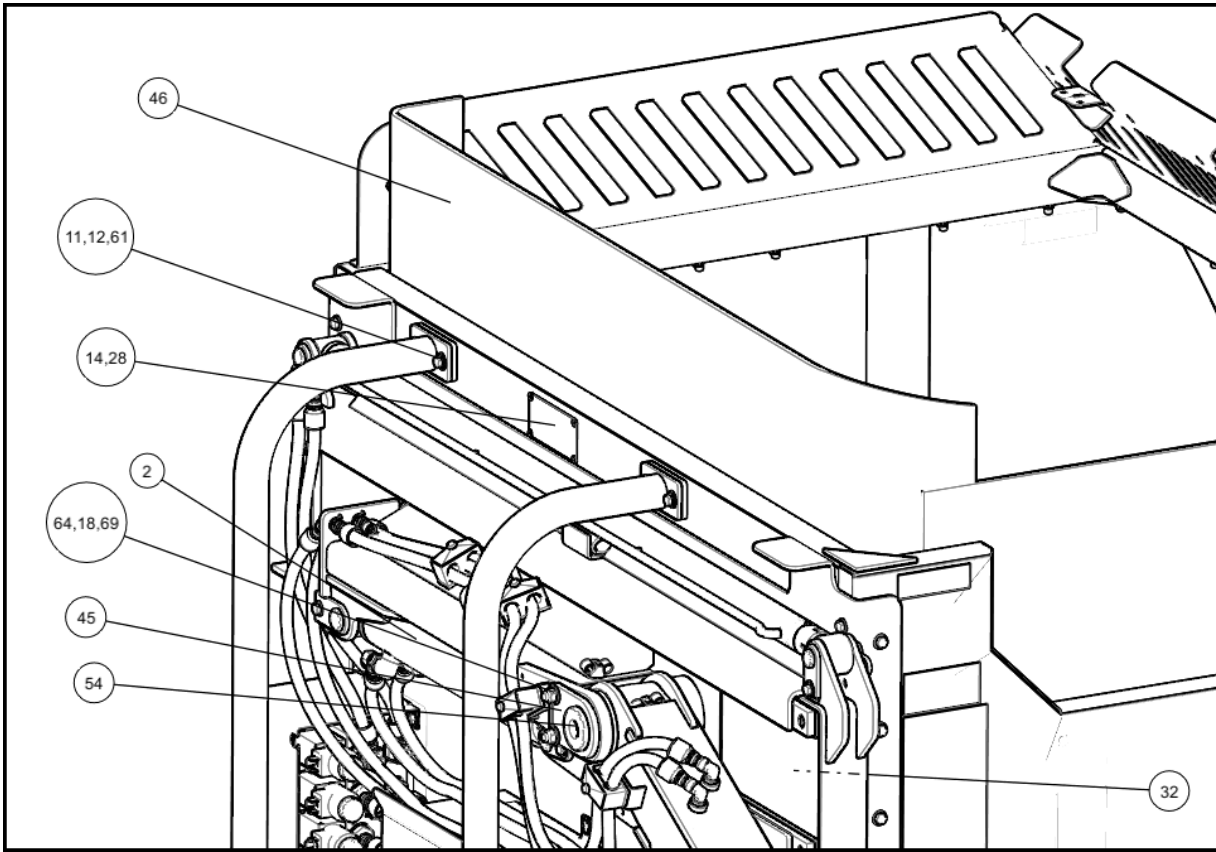
Curotto-Can

DEDICATED CUROTTO CAN ASSEMBLY WITH LIGHTS 856-5120 / WITHOUT LIGHTS 856-5121



Curotto-Can

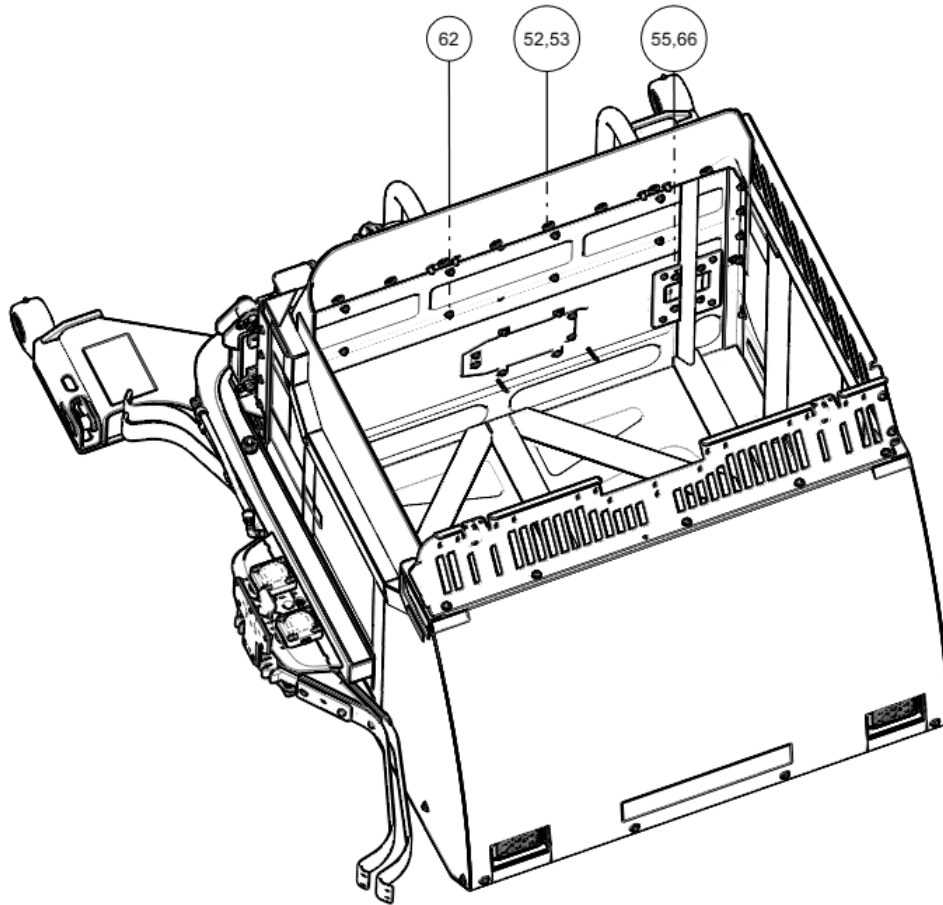
DEDICATED CUROTTO CAN ASSEMBLY WITH LIGHTS 856-5120 / WITHOUT LIGHTS 856-5121



Curotto-Can

DEDICATED CUROTTO CAN ASSEMBLY

WITH LIGHTS 856-5120 / WITHOUT LIGHTS 856-5121



Curotto-Can

ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
-	856-5120	ASSEMBLY, WITH LIGHTS, DEDICATED CUROTTO-CAN	REF	
-	856-5121	ASSEMBLY, WITHOUT LIGHTS, DEDICATED CUROTTO-CAN	REF	
1	001-7151	SLIDE CYLINDER ASSY	1	
2	001-7163	PIVOT ARM CYLINDER	1	
-3	025-0473-007	HOLE PLUG, 3/4"	1	Carry-Can without lights only
-3	031-6550	PNEUMATIC SOLENOID VALVE	1	
4	036-1495-012	CLAMP, TWIN STAUFF	5	
5	036-1915	FIR TREE PLASTIC TIE	2	
6	036-1970	CABLE/HOSE ZIP TIE W/ STANDOFF	1	Carry-Can with lights only
-7	047-2380	HHCS, 3/8-16NC X 3/4 LG. ZINC PLAT'D	1	
8	047-2670	NUT, 3/8-16 NYLOCK, GR8	48	
9	047-2671	NUT, 1/2-13, NYLOCK, GR 8	2	
-10	054-2988-005	3/8" 90 DEG MALE TO FEMALE JIC SWIVEL	2	Carry-Can with lights only
11	055-3113	FLAT WASHER 3/8 SAE HIGH STRENGTH	60	
12	055-3114	3/8 LOCK WASHER, STAINLESS STEEL	8	
13	115-1484	LIGHT, LED TRAPEZOID	2	Carry-Can with lights only
14	212-3294	SERIAL PLATE	1	
15	254-4912	CONTROLLER, CORTEX REMOTE MODULE	1	
-16	263-1815-010	HARNESS, DEDICATED CURTTOCAN, GEN III	1	
-17	263-1847	WORK LAMP HARNESS	1	Carry-Can with lights only
18	423-2957	STOVER LOCKNUT; 1/2-13, PLD, GR 8	2	
19	423-2961	STOVER LOCKNUT; 3/8-16, PLD, GR 8	9	
-20	436-0003	CABLE TIE; 18 LB, 3/4" DIA, YELLOW	3	
-21	436-0004	CABLE TIE; 18 LB, 3/4" DIA, GREEN	3	
-22	436-0005	CABLE TIE, 18 LB, 3/4" DIA. BLUE	1	
-23	436-0006	CABLE TIE; 18 LB, 3/4" DIA, ORANGE	1	
-24	436-0007	CABLE TIE; 18 LB, 3/4" DIA, BROWN	1	
-25	436-0009	CABLE TIE, 18 LB, 3/4" DIA. RED	1	
-26	436-0013	CABLE TIE; 18 LB, 3/4" DIA, PURPLE	1	
-27	436-0014	CABLE TIE; 18 LB, 3/4" DIA, GRAY	1	
28	440-0016	SST BLIND RIVET; DOME HD, 3/16", .126-.250 GRIP	4	
29	856-5097	SLIDE TRACK SUBASSEMBLY	1	
30	856-5105	MANIFOLD/VALVE ASSY	1	
31	856-5108	HINGE MAIN ASSY.	1	
32	856-5109	SLIDE ASSEMBLY	1	
33	856-5116	GRABBER BEAM SUBASSEMBLY	1	
34	856-5123	DECALS, INTEGRATED CUROTTO CAN	1	
35	857-0004	PIN WELDMENT, SLIDE CYL, CAP END	1	
36	857-0093-002	PROTECTION TUBE WELDMENT	2	
37	857-0651	UNIVERSAL WINDSCREEN ASSY.	1	
38	857-5005	PIN WELDMENT, SLIDE CYL ROD END	1	
39	857-5006	PIN WELDMENT-DUMP CYL CAP END	1	
40	857-5103	INTEGRATED CAN ASSY W/ LIGHTS	1	
41	857-5108	CONTROL COVER ASS'Y	1	
42	857-5122	PIN WELDMENT	1	
43	857-5151	HYDRAULIC HOSES DEDICATED	1	
44	857-5154-001	HYDRAULIC HOSE FITTINGS KIT	1	
45	857-5164	PIN, MAIN PIVOT	1	

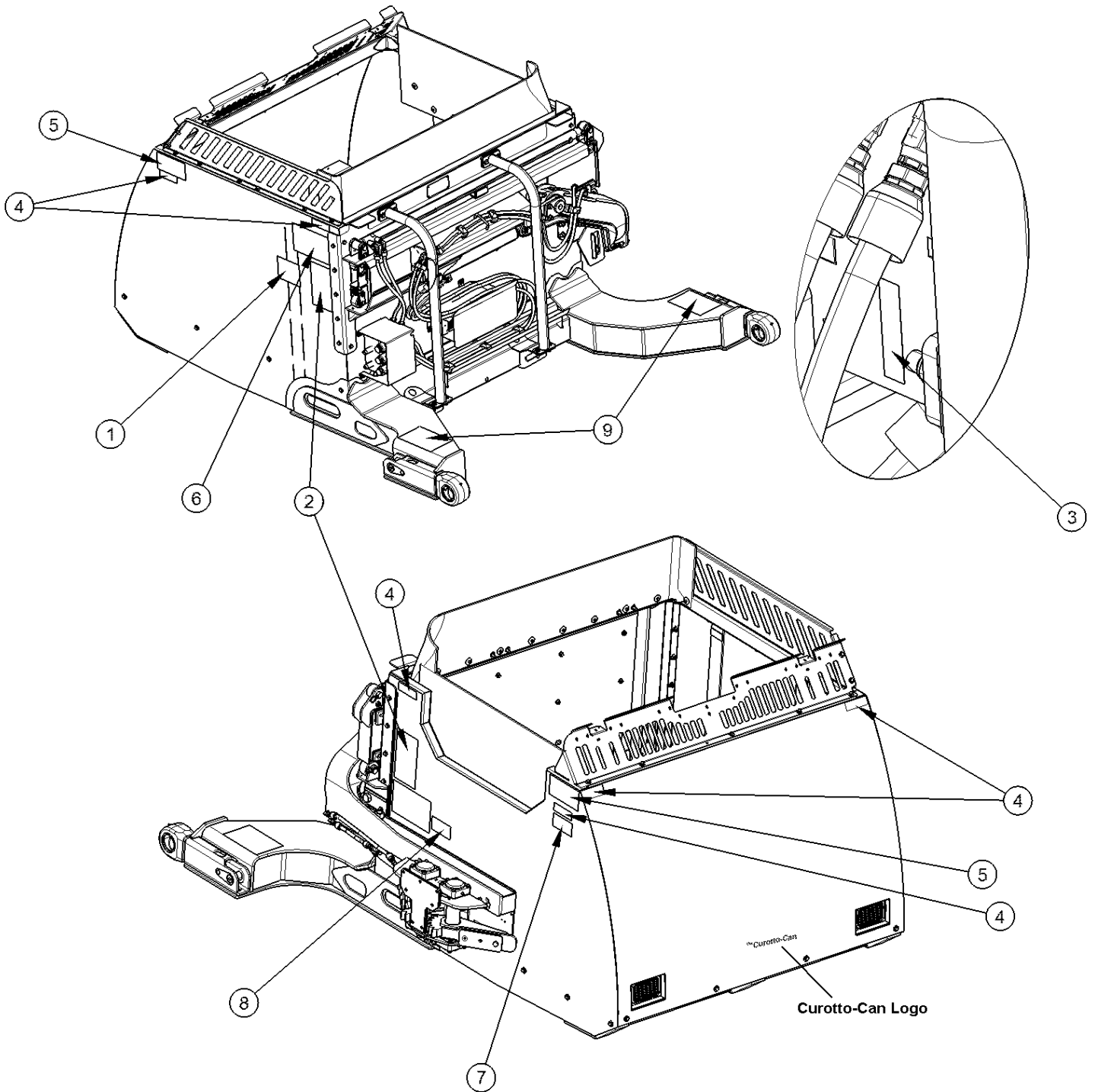
Curotto-Can

ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
-	856-5120	ASSEMBLY, WITH LIGHTS, DEDICATED CUROTTO-CAN	REF	
-	856-5121	ASSEMBLY, WITHOUT LIGHTS, DEDICATED CUROTTO-CAN	REF	
46	858-0164_	SPILL GUARD, TOP REAR	1	
47	858-0182	SPILL GUARD, CURB SIDE	1	
48	858-0951	WINDSCREEN, STREET SIDE	1	
49	858-5733	MAINFOLD/VALVE COVER	1	
50	858-5748	CONTROL BASE MOUNT	1	
51	859-0011	HAIRPIN COTTER PIN	1	
52	859-0039	HEX HEAD SELF-DRILLING SCREW	18	
53	859-0040	FENDER WASHER	18	
54	FS190400	1/8 NPT GREASE FITTING, STR.	1	
55	FSP080822	HHCS 5/16-18 UNC X 1-1/4" LG. GR8 PLATED	4	
56	FSP080915	HHCS 3/8-16 UNC X 3/4" LG. GR8 PLATED	12	
57	FSP080920	HHCS 3/8-16 UNC X 1" LG. GR8 PLATED	6	
58	FSP080922	HHCS 3/8-16 UNC X 1-1/4" LG. GR8 PLATED	1	
59	FSP080924	HHCS 3/8-16 UNC X 1-1/2" LG. GR8 PLATED	11	
60	FSP080926	HHCS 3/8-16 UNC X 1-3/4" LG. GR8 PLATED	4	
61	FSP080950	HHCS 3/8-16 UNC X 4" LG. GR8 PLATED	16	
62	FSP140915	FHCS; 3/8-16, 3/4"L, PLD	8	
-63	FSP140924	FHCS, 3/8-16 UNC X 1.5 LONG	1	
64	FSP141126	HSFHC; 1/2-13X1 3/4"L, PLD, GR8	2	
65	FSP410916	PLTD SCREW, SOCKET HD 3/8-16 NC X 3/4	2	
66	FSP510800	WASHER, FLAT, 5/16" STD , PLATED	4	
67	FSP510900	WASHER, FLAT, 3/8" STD , PLATED	12	
68	FSP520900	WASHER, FLAT, 3/8" SAE , PLATED	27	
69	FSP521100	WASHER, FLAT, 1/2" SAE , PLATED	4	

Curotto-Can

CUROOTTO-CAN DECAL KITS

DETACHABLE CAN 856-5122 / DEDICATED CAN 856-5123



Curotto-Can

CUROTTO-CAN DECAL KITS

DETACHABLE CAN 856-5122 / DEDICATED CAN 856-5123

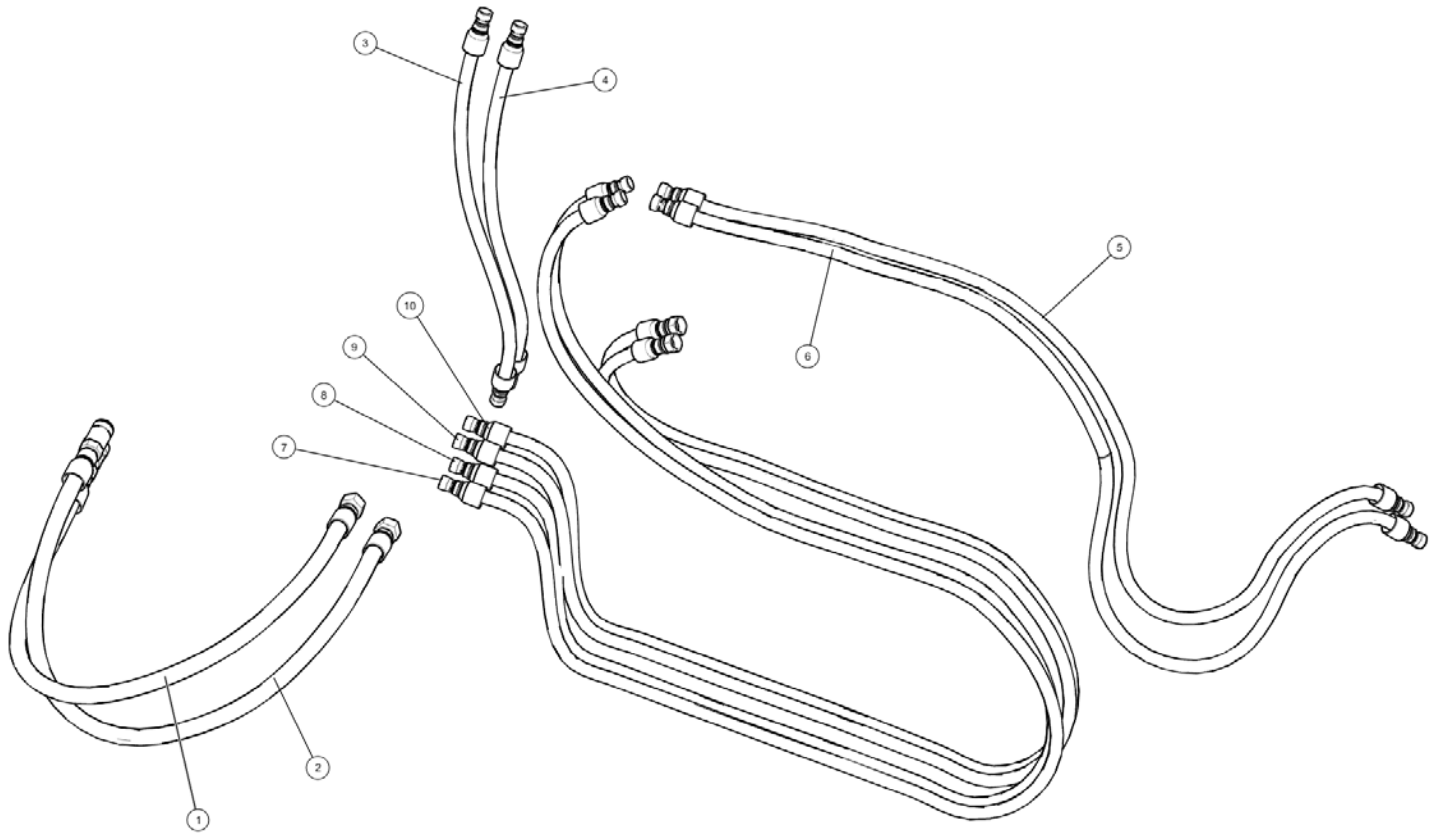
ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
-	856-5122	KIT, DECAL, DETACHABLE CUROTTO-CAN	REF	
-	856-5123	KIT, DECAL, DEDICATED CUROTTO-CAN	REF	
-	212-3273	DECAL, LOGO, CUROTTO-CAN	REF	Sold separately
1	212-3404	DECAL, ADJUSTABLE ROLLER	1	
2	212-3408	DECAL, STAND CLEAR OF LIFT	2	
3	212-3409	DECAL, LUBRICATION POINT	1	
4	212-3410	DECAL, CAUTION PINCH POINTS	6	
5	212-3411	DECAL, WARNING, FOOT CRUSH	2	
6	212-3412	DECAL, LUBRICATION GUIDE	1	
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	Dedicated Can only

SECTION 3 HYDRAULIC AND PNEUMATIC CIRCUITS

Curotto-Can

DETACHABLE CAN HYDRAULIC HOSES KIT

857-5154

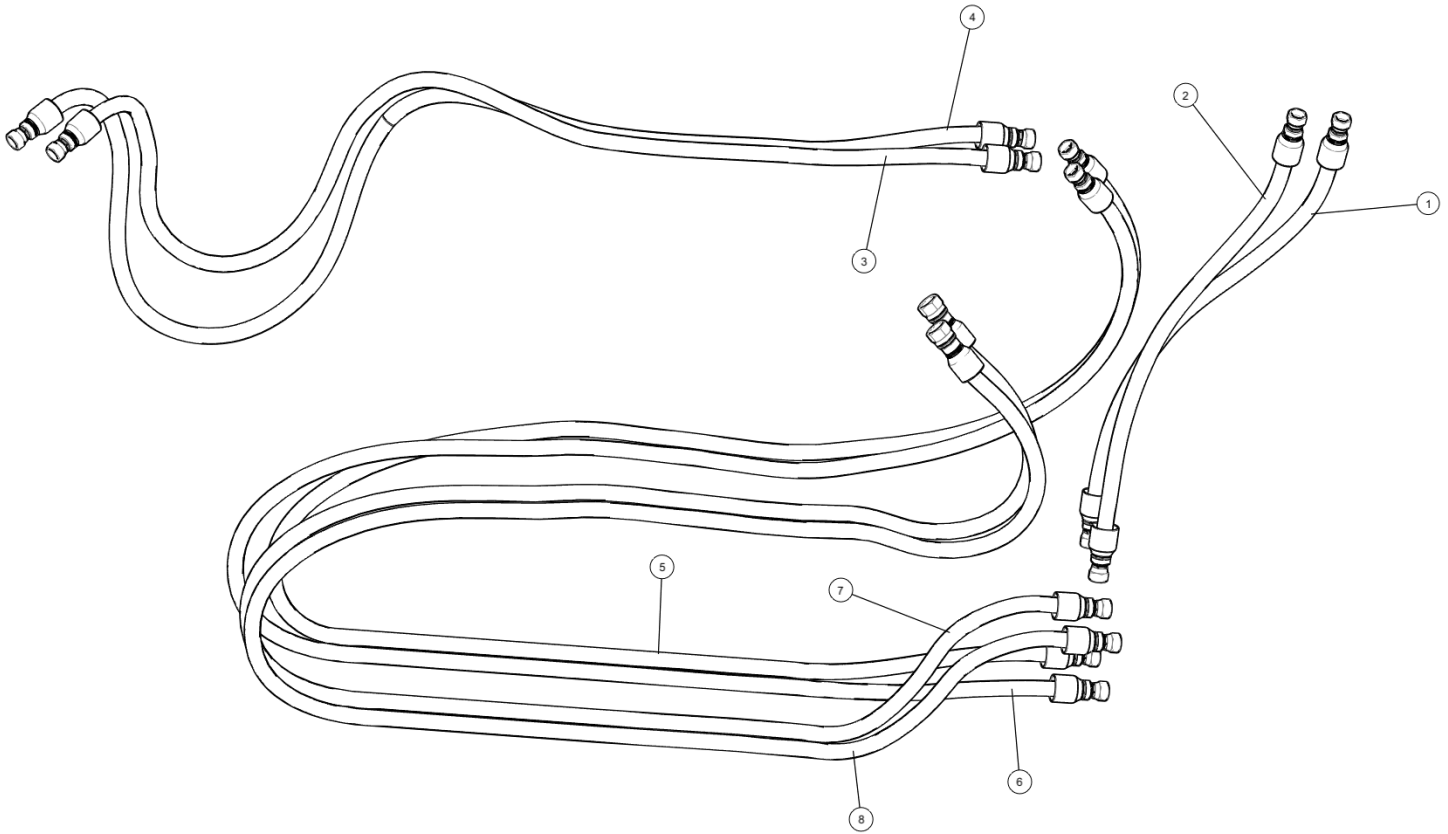


ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
-	857-5154	KIT, HYDRAULIC HOSES, DETACHABLE CAN	REF	
1	057-3222	HOSE ASSY, MAIN LINE, RETURN, BLUE	1	
2	057-3223	HOSE ASSY, MAIN VALVE, SUPPLY RED	1	
3	MF2-FEFE-024-BR	HOSE, 06, 06FJX, 06FJX, 24	1	
4	MF2-FEFE-024-OR	HOSE, 06, 06FJX, 06FJX, 24	1	
5	MF2-FEFE-057-Y	HOSE, 06, 06FJX, 06FJX, 57	1	
6	MF2-FEFE-061-G	HOSE, 06, 06FJX, 06FJX, 61	1	
7	MF2-FEFE-084-G	HOSE, 06, 06FJX, 06FJX, 84	1	
8	MF2-FEFE-084-Y	HOSE, 06, 06FJX, 06FJX, 84	1	
9	MF2-FEFF-078-BU	HOSE, 06, 06FJX, 08FJX, 78	1	
10	MF2-FEFF-078-M	HOSE, 06, 06FJX, 08FJX, 78	1	

Curotto-Can

DEDICATED CAN HYDRAULIC HOSES KIT

857-5151



ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
-	857-5151	KIT, HYDRAULIC HOSES, DEDICATED CAN	REF	
1	MF2-FEFE-024-BR	HOSE, 06, 06FJX, 06FJX, 24	1	
2	MF2-FEFE-024-OR	HOSE, 06, 06FJX, 06FJX, 24	1	
3	MF2-FEFE-057-Y	HOSE, 06, 06FJX, 06FJX, 57	1	
4	MF2-FEFE-061-G	HOSE, 06, 06FJX, 06FJX, 61	1	
5	MF2-FEFE-089-G	HOSE, 06, 06FJX, 06FJX, 89	1	
6	MF2-FEFE-089-Y	HOSE, 06, 06FJX, 06FJX, 89	1	
7	MF2-FEFF-085-BU	HOSE, 06, 08FJX, 08FJX, 85	1	
8	MF2-FEFF-085-M	HOSE, 06, 08FJX, 08FJX, 85	1	

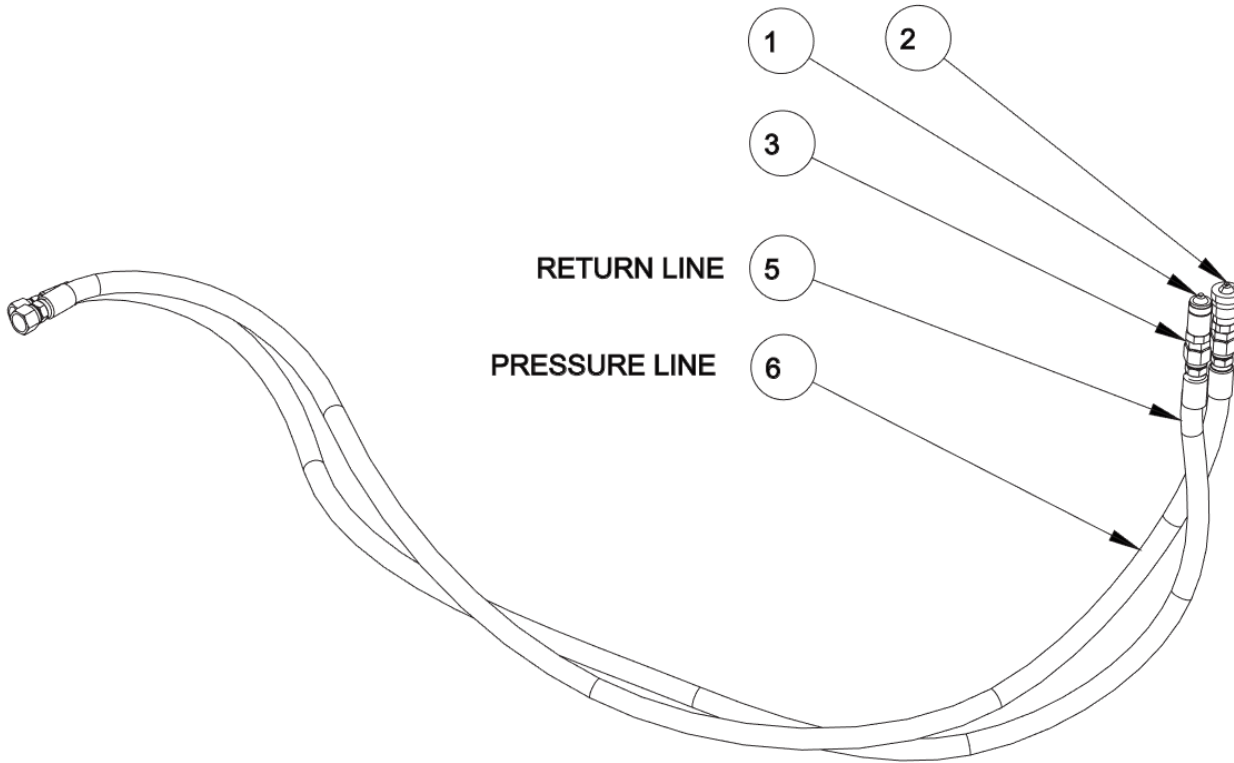
Curotto-Can
HYDRAULIC HOSE FITTINGS KIT
857-5154-001

NO ILLUSTRATION

ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
-	857-5154-001	HYDRAULIC HOSE FITTINGS KIT	REF	
1	054-3340-005	MALE ELBOW, TUBE TO O-RING 3/8	4	
2	054-3341-006	1/2" SAE-JIC STRAIGHT ADAPTER	2	
3	054-3629-006	45DEG ELBOW - 37DEG FLARE	2	
4	054-7026-003	3/8" JIC 45 DEG BULKHEAD	2	

Curotto-Can

2018 HALF/PACK TRUCK WITH PRE 2018 CUROTTO-CAN VARIANT KIT 548-0010-001



ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
-	548-0010-001	KIT, HYD HOSE-HP2018 TRUCK WITH PRE 2018 CUROTTO CAN-VARIANT	REF	
1	045-1391-001	QUICK CONNECT, SAFEWAY	1	
2	045-1391-002	QUICK CONNECT, SAFEWAY	1	
3	054-3526-016	1/2" MNPT X 5/8" MJIC	2	
4	263-1815-012	HARNESS, PRE-2018 CUROTTO RETROFIT	1	
5	MF3-FGFG-083	5/8" HOSE ASSEMBLY	1	
6	MF3-FGFG-083_	5/8" HOSE ASSEMBLY	1	

Curotto-Can FLOW METER



Description: Curotto Can service and inspection flow meter, comes with pressure gauge, flow meter (GPM and LPM) as well as male and female quick couplers set up for a Curotto hydraulic system.

To use meter, disconnect Curotto Can from host truck and install flow meter in Container's place. Activate Curotto joystick to engage Curotto oil flow to obtain reading.

Reading should be 12-14 gpm at idle.

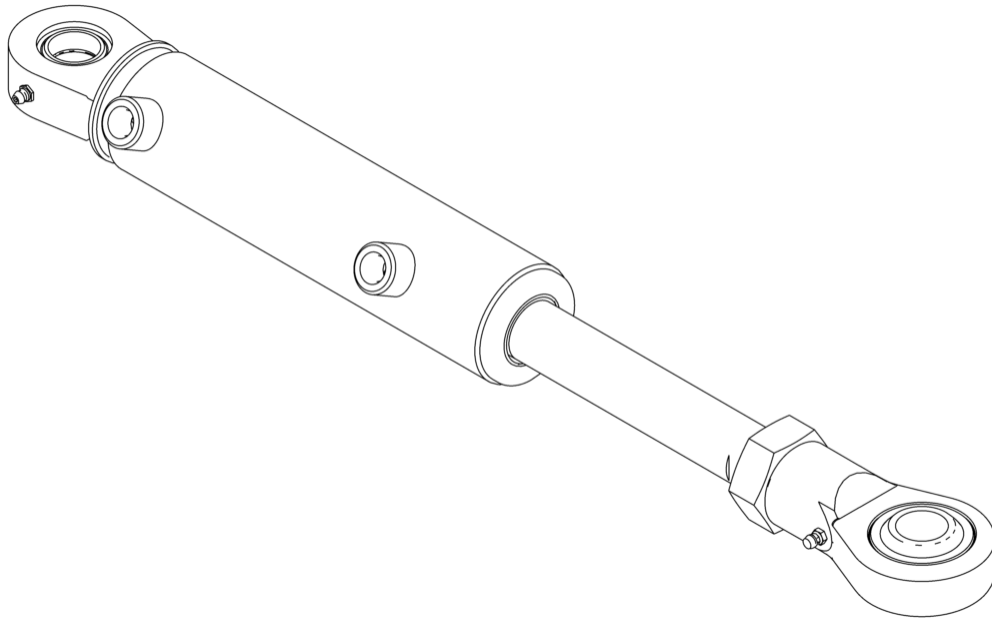
ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	SE-FLOW-METER	Flow meter, complete as shown	1	

SECTION 4 HYDRAULIC AND PNEUMATIC COMPONENTS

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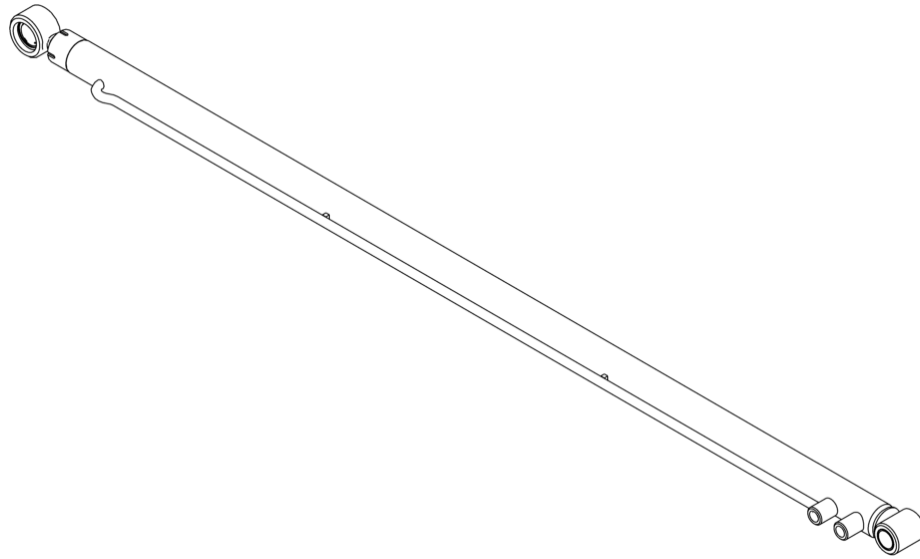
CYLINDERS

Curotto-Can
GRIPPER ARM CUROTTO CYLINDER
001-7137



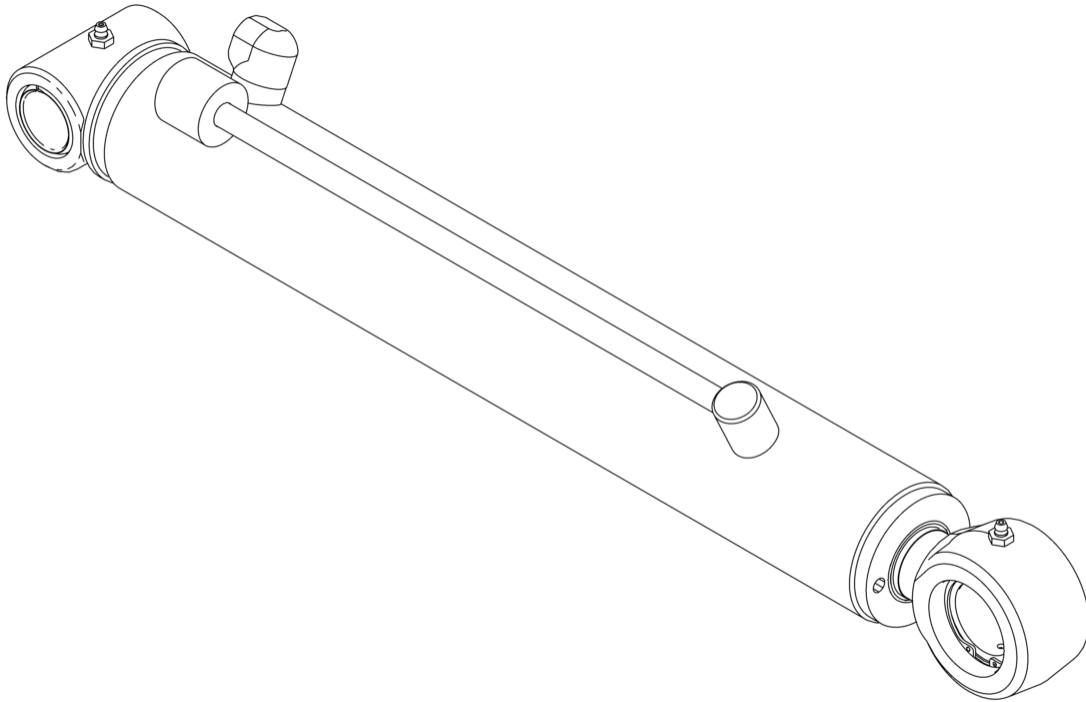
ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
-	001-7137	CYLINDER, GRIPPER ARM CUROTTO	REF	
-	001-7137-101	KIT, SEAL	REF	

Curotto-Can
CUROTTO CAN SLIDE CYLINDER
001-7151



ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
-	001-7151	CYLINDER, SLIDE, CUROTTO CAN	REF	
-		SEAL KIT	REF	SEAL KIT SOLD SEPARATELY

Curotto-Can
CUROTTO CAN PIVOT ARM CYLINDER
001-7163

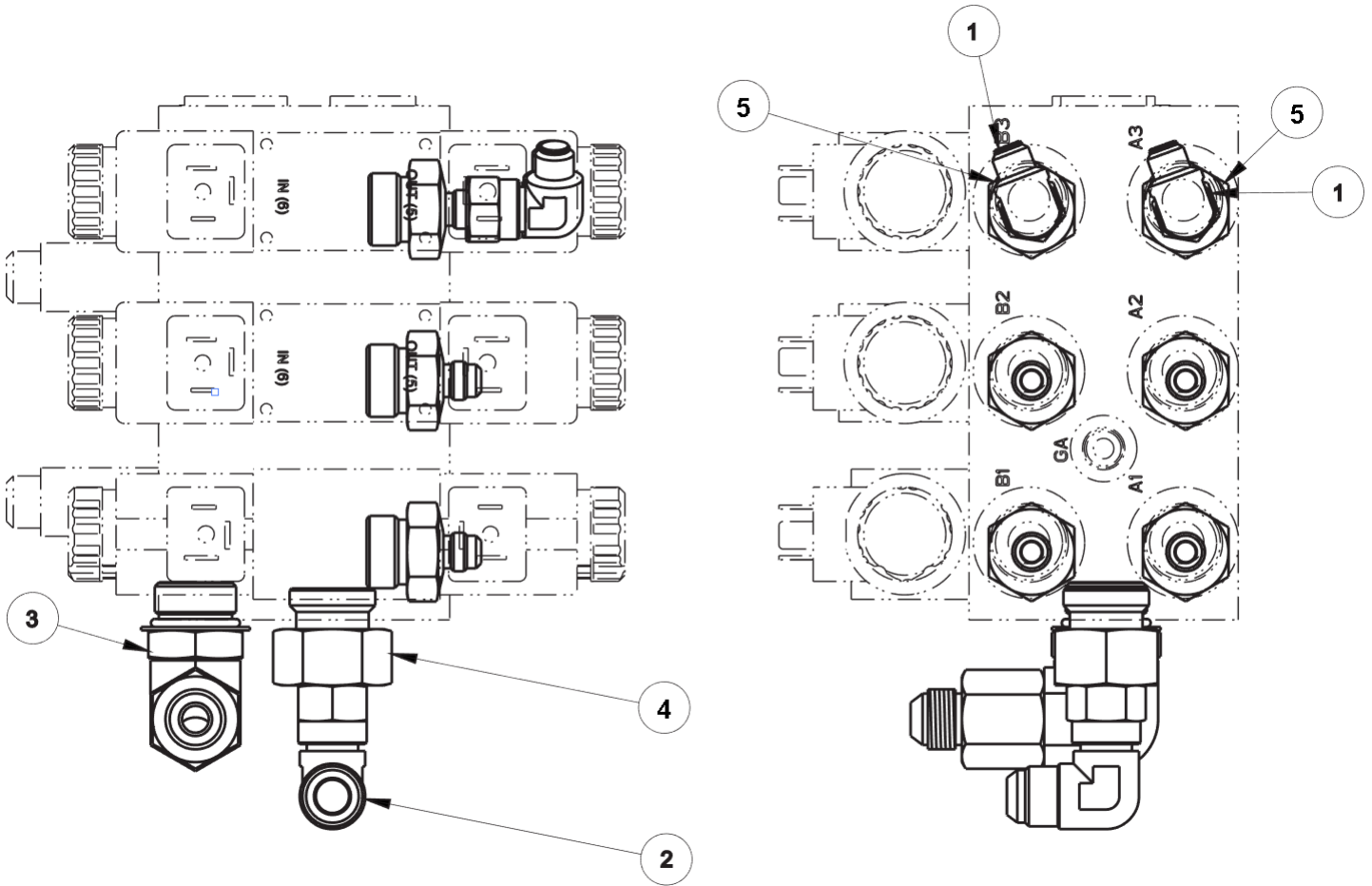


ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
-	001-7163	CYLINDER, PIVOT ARM, CUROTTO CAN	REF	
-	001-7163-101	SEAL KIT	REF	SEAL KIT SOLD SEPARATELY

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VALVES

Curotto-Can MANIFOLD/VALVE ASSEMBLY 856-5105-001



ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
-	856-5105-001	KIT, HYDRAULIC FITTING, MANIFOLD/VALVE	REF	
1	054-2988-005	SWIVEL, JIC, MALE TO FEMALE, 90 DEGREE, 3/8"	2	
2	054-2988-007	ELBOW, SWIVEL, JIC, 5/8"	1	
3	054-3237-024	ELBOW, 1" THREAD TO 5/8", 90 DEGREE	1	
5	058-3205-012	ADAPTER, STRAIGHT, #10 MJIC - #12 MSAE	1	
6	058-3205-032	FITTING, HYDRAULIC, #6 MJIC - #12 MSAE	6	

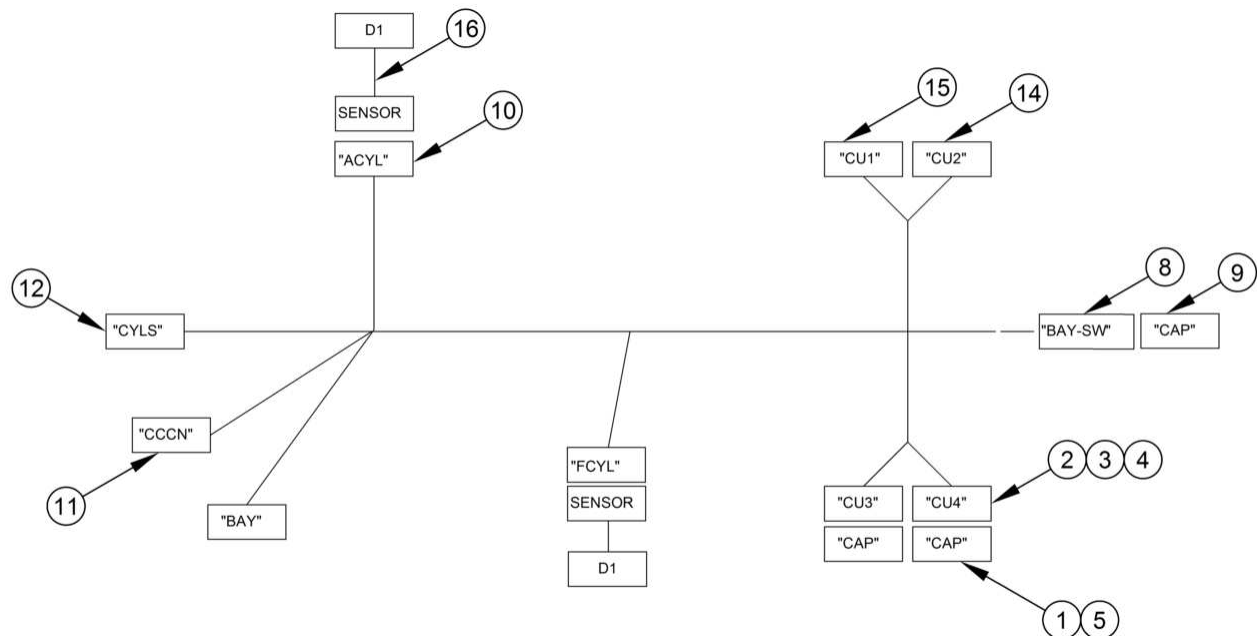
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SECTION 5 ELECTRICAL

Curotto-Can

CUROTTO ARM HARNESS

263-1740-011



ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
-	263-1740-011	HARNESS, CUROTTO ARM (SEE SM 9)	REF	
1	108-4827-001	CONNECTOR, MALE, 1-WAY, PACKARD	1	
2	108-4827-002	CONNECTOR, MALE, 3 WAY, PACKARD	1	
3	108-4827-120	TERMINAL, FEMALE, 18-20 AWG	1	
4	108-4827-131	SEAL, CABLE, 18 AWG	1	
5	108-4827-134	PLUG, CAVITY	1	
-6	108-5717-002	CONNECTOR, BUTT, NON INSULATED, 16-14 GA.	8	
-7	108-6404	HEAT SHRINK	12	
8	108-6461-053	CONNECTOR, PLUG, REDUCED DIA., 3 POSITION	2	
9	108-6461-054	CONNECTOR, RECEPT, REDUCED DIA., 3 POSITION	3	
10	108-6461-055	CONNECTOR, RECEPT, REDUCED DIA., 4 POSITION	2	
11	108-6461-057	CONNECTOR, PLUG, REDUCED DIA., 12 POSITION	1	
12	108-6461-058	CONNECTOR, RECEPT, REDUCED DIA., 12 POSITION	1	
-13	108-8450	CAP, HEAT SHRINK, ADHESIVE LINED	2	
14	108-8601-001	CONNECTOR, FEMALE, 3 POS	1	
15	108-8601-003	CONNECTOR, FEMALE, 4 POS	1	
16	263-1763	HARNESS, MTS SENSOR PIGTAIL	2	

Curotto-Can CUROTTO CAN HARNESS AC8-NS02-WP

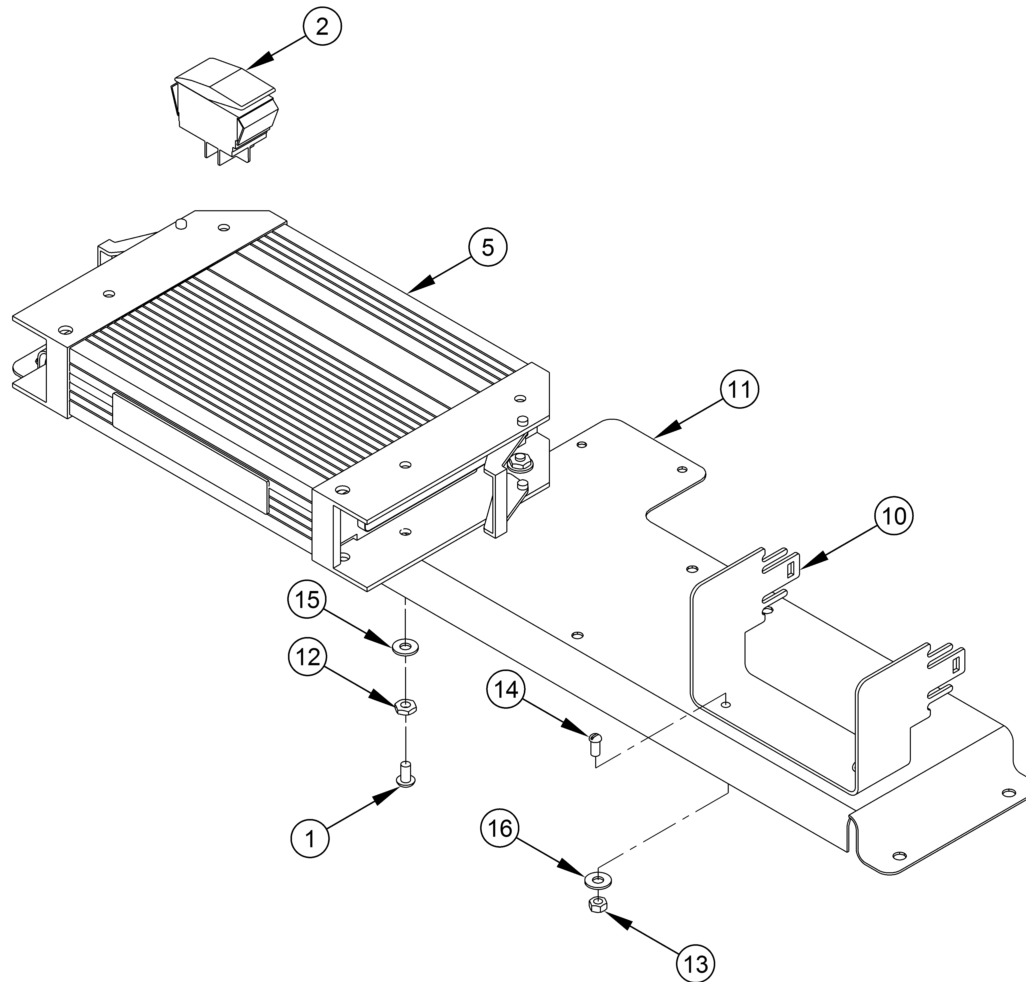


ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
-	AC8-NS02-WP	CUROTTO CAN HARNESS	REF	
1	108-8601-002	WEATHER PACK, MALE, 3-WAY	1	
2	108-8601-004	WEATHER PACK, MALE, 4-WAY	1	

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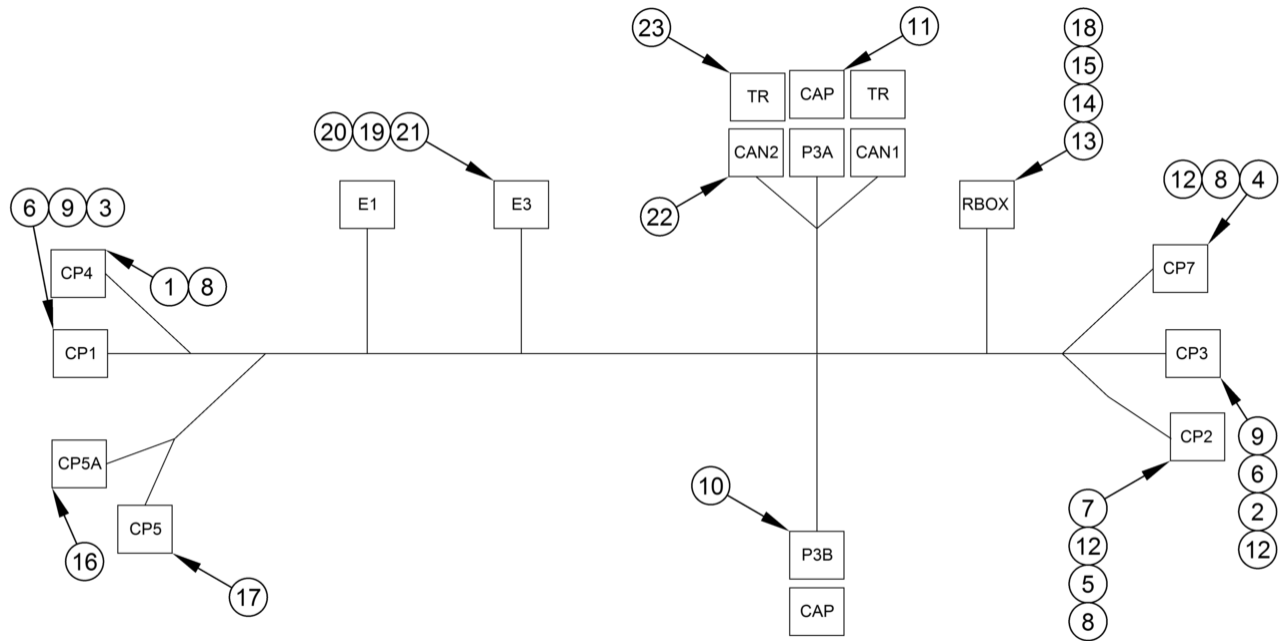
CUROTTO CARRY CAN ELECTRICAL KIT

546-0002-001



ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
-	546-0002-001	KIT, ELECTRICAL, CARRY CAN, CUROTTO	REF	
1	047-2621-375	SCREW, BUTTON, HEAD CAP	4	
2	108-7691	SWITCH, ROCKER, MAINTAINED	1	
-3	109-0293	PROGRAM, RESIDENTIAL, AFL GEN II	1	
-4	212-3116-001	DECAL, CONTROL LOCATION	1	
5	254-4796	CONTROLLER, CORTEX, 80 I/O	1	
-6	263-1738-004	HARNESS, SPLITTER, JOYSTICK	1	
-7	263-1740-007	HARNESS, CONTROLLER, RESIDENTIAL	1	
-8	263-1740-011	HARNESS, CUROTTO ARM	1	
-9	272-7464-PHA	KIT, AIR SUPPLY	1	
10	311-5666	BRACKET, MOUNTING, FUSE BLOCK	1	
11	311-5837-008	PANEL, CONTROLLER	1	
12	FSP230400	NUT, LOCK, #10-24, GR. 5, PLATED	4	
13	FSP320700	NUT, LOCK, 1/4", GR. 8, PLATED	2	
14	FSP420711	SCREW, MACH., PLATED, 1/4"-20 X 1/2", RD. HD	2	
15	FSP510400	WASHER, FLAT, #10, STD., PLAIN	4	
16	FSP510700	WASHER-FLAT-STD. PLAIN, PLATED, 1/4"	2	

Curotto-Can RESIDENTIAL CONTROLLER HARNESS 263-1740-007

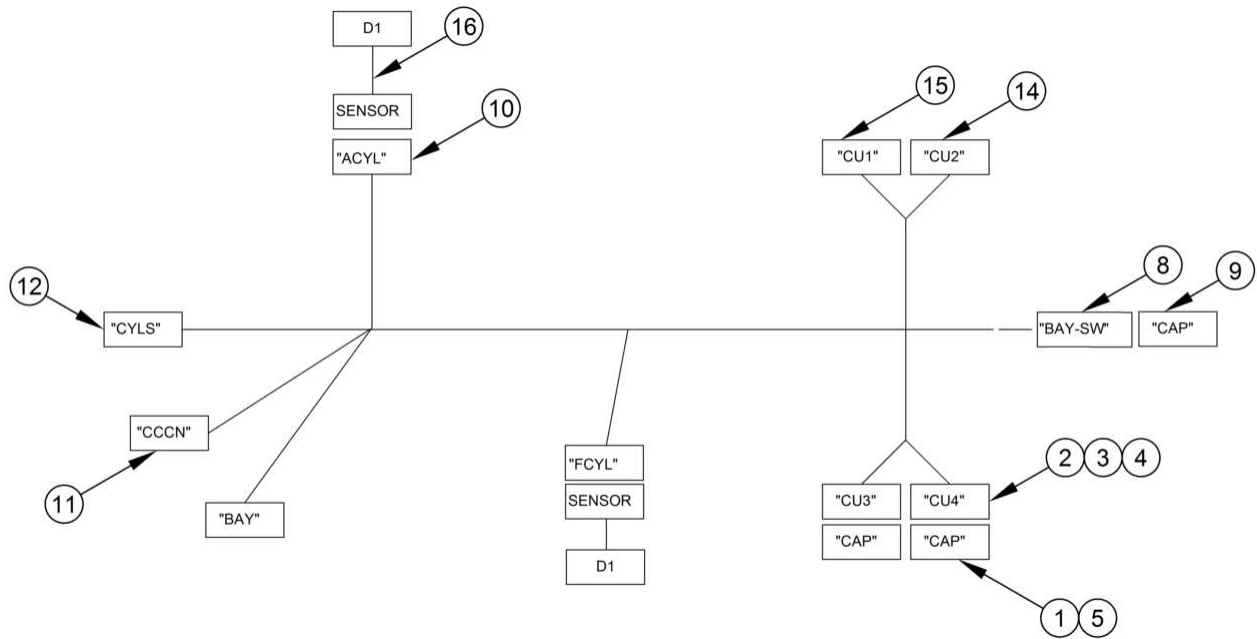


ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
-	263-1740-007	HARNESS, CONTROLLER, RESIDENTIAL (SEE 701-9104-006 IN SM 9)	REF	
1	108-4815-018	RECEPTACLE, SOCKET, 18"	1	
2	108-4815-019	PLUG, PIN, 18"	1	
3	108-4815-024	RECEPTACLE, PIN, 24-PIN	1	
4	108-4815-025	CONNECTOR, PLUG, 24 SHELL, HDP 20 AND HD 30, DEUTSCH	1	
5	108-4815-031	PLUG, SOCKET, 24-PIN	1	
6	108-4815-122	PIN (16-18 GA)	10	
7	108-4815-123	SOCKET, CONNECTOR, GOLD, 16-18 AWG	5	
8	108-4815-303	SOCKET, #16, NICKEL, PLATED SOCKET, #16, NICKEL, PLATED	56	
9	108-4815-403	PIN, #16, NICKEL, PLATED	24	
10	108-6461-001	PLUG, STR., 3 WAY, DEUTSCH DT SERIES	2	
11	108-6461-002	RECEPTACLE, STR., 3 WAY, DEUTSCH DT SERIES	2	
12	108-6461-100	PLUG, SEALING	2	
13	108-7113-215	CIRCUIT BREAKER, MINI, 15 AMP., SILVER	5	
14	108-8390	DIODE, MINI, 280 TYPE	2	
15	108-8391	RELAY, FOOT PRINT, ISO 280	3	
16	108-8411-002	PLUG, 2 WAY, DEUTSCH DTP SERIES	1	
17	108-8411-004	PLUG, 4 WAY	1	
18	108-8502	BLOCK, FUSE AND RELAY, 60 WAY	1	
19	108-8572-001	CONNECTOR, CORTEX CONTROLLER™, POLE, AMP-55	2	
20	108-8572-002	SEAL, WIRE, POLE, CONNECTOR, AMP-55	72	
21	108-8572-003	PLUG, CAVITY, POLE, CONNECTOR, AMP-55	37	

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ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
-	263-1740-007	HARNESS, CONTROLLER, RESIDENTIAL (SEE 701-9104-006 IN SM 9)	REF	
22	108-8588-002	KIT, CONNECTOR, RECEPTACLE, 2 WAY	2	
23	108-8588-200	RESISTOR, DTM, 120 OHM, 2 PIN	2	

Curotto-Can CUROTTO ARM HARNESS 263-1740-011

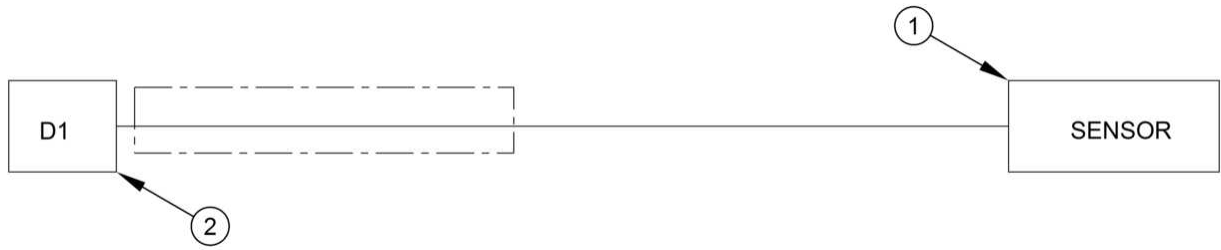


ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
-	263-1740-011	HARNESS, CUROTTO ARM (SEE SM 9)	REF	
1	108-4827-001	CONNECTOR, MALE, 1-WAY, PACKARD	1	
2	108-4827-002	CONNECTOR, MALE, 3 WAY, PACKARD	1	
3	108-4827-120	TERMINAL, FEMALE, 18-20 AWG	1	
4	108-4827-131	SEAL, CABLE, 18 AWG	1	
5	108-4827-134	PLUG, CAVITY	1	
-6	108-5717-002	CONNECTOR, BUTT, NON INSULATED, 16-14 GA.	8	
-7	108-6404	HEAT SHRINK	12	
8	108-6461-053	CONNECTOR, PLUG, REDUCED DIA., 3 POSITION	2	
9	108-6461-054	CONNECTOR, RECEPT, REDUCED DIA., 3 POSITION	3	
10	108-6461-055	CONNECTOR, RECEPT, REDUCED DIA., 4 POSITION	2	
11	108-6461-057	CONNECTOR, PLUG, REDUCED DIA., 12 POSITION	1	
12	108-6461-058	CONNECTOR, RECEPT, REDUCED DIA., 12 POSITION	1	
-13	108-8450	CAP, HEAT SHRINK, ADHESIVE LINED	2	
14	108-8601-001	CONNECTOR, FEMALE, 3 POS	1	
15	108-8601-003	CONNECTOR, FEMALE, 4 POS	1	
16	263-1763	HARNESS, MTS SENSOR PIGTAIL	2	

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PIGTAIL MTS SENSOR HARNESS

263-1763

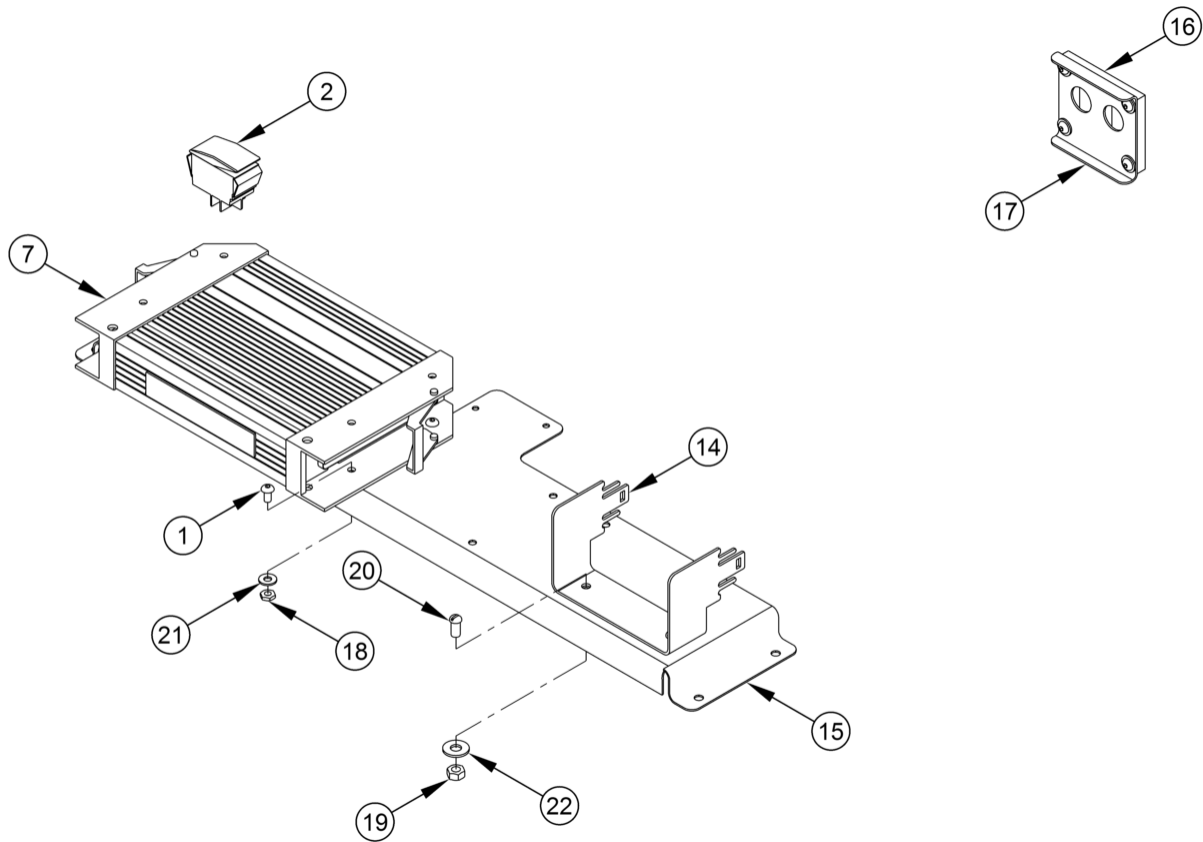


ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
-	263-1763	HARNESS, SENSOR, MTS, PIGTAIL (SEE SM 9)	REF	
1	108-6461-056	RECEPTACLE, DEUTSCH DT SERIES, 4 WAY	1	
2	108-8621	CORD SET, VARIOUS, 90 DEG, 5-WIRE	1	

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CARRY CAN ELECTRICAL KIT

546-0002-002



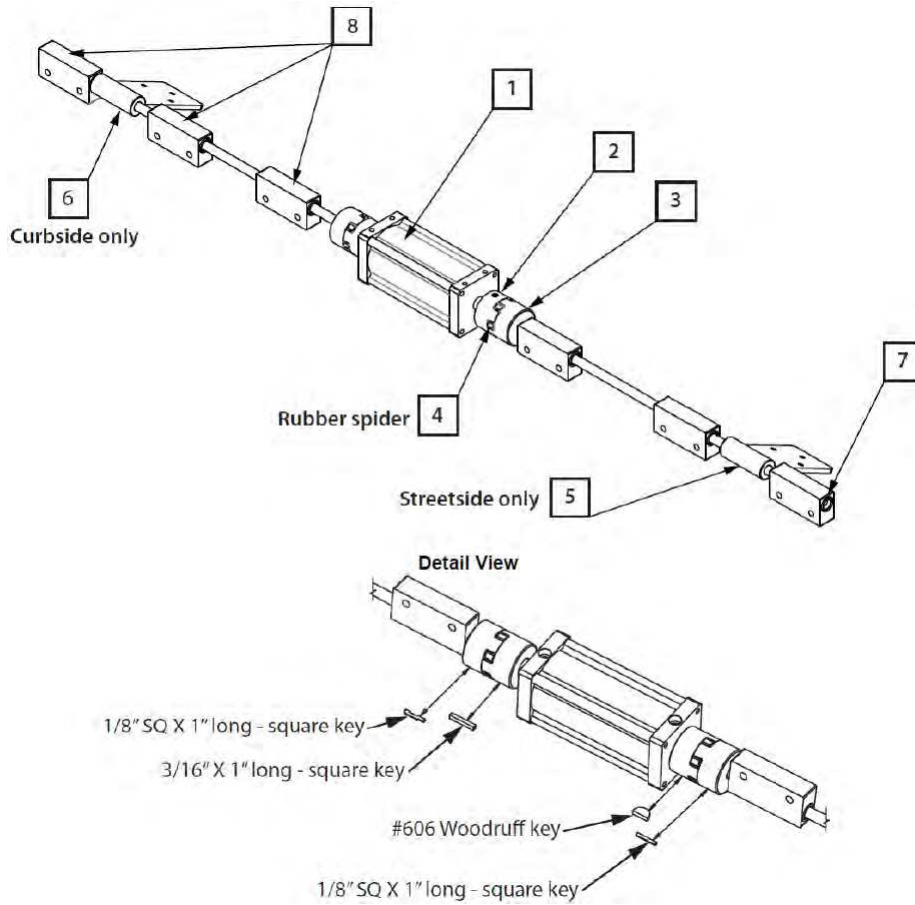
ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
-	546-0002-002	KIT, ELECTRICAL, CARRY CAN	REF	ITEMS 3-6, 8- 13 ARE NOT AVAILABLE
1	047-2621-375	SCREW, BUTTON, HEAD CAP	8	
2	108-7691	SWITCH, ROCKER, MAINTAINED	1	
-3	108-8613	CLAMPS, TUBE/WIRE, 3/4" OD X 11/16" ID	1	
-4	109-0293	PROGRAM, RESIDENTIAL, AFL GEN II	1	
-5	212-2964	ELBOW, FEMALE, 90°, TUBE TO SWIVEL, 1/4", 37° FLARE,	1	
-6	212-3116-001	DECAL, CONTROL LOCATION	1	
7	254-4796	CONTROLLER, CORTEX, 80 I/O	1	
-8	263-1738-004	HARNESS, SPLITTER, JOYSTICK	1	
-9	263-1740-007	HARNESS, CONTROLLER, RESIDENTIAL	1	
-10	263-1740-011	HARNESS, CUROTTO ARM	1	
-11	263-1740-013	HARNESS, BAYNE VALVE, CUROTTO HYDRAULIC	1	
-12	263-1740-014	HARNESS, BAYNE SWITCH, CUROTTO HYDRAULIC	1	
-13	272-7464-PHA	KIT, AIR SUPPLY	1	
14	311-5666	BRACKET, MOUNTING, FUSE BLOCK	1	
15	311-5837-008	PANEL, CONTROLLER	1	
16	311-6047-001	BRACKET, SWITCH CONTROL, BAYNE	1	
17	311-6047-002	BRACKET, SWITCH, BAYNE	1	
18	FSP230400	NUT, LOCK, #10-24, GR. 5, PLATED	4	

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ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
-	546-0002-002	KIT, ELECTRICAL, CARRY CAN	REF	ITEMS 3-6, 8- 13 ARE NOT AVAILABLE
19	FSP320700	NUT, LOCK, 1/4", GR. 8, PLATED	2	
20	FSP420711	SCREW, MACH., 1/4"-20 X 1/2", RD. HD., PLATED	2	
21	FSP510400	WASHER, FLAT, #10, STD., PLAIN	8	
22	FSP510700	WASHER-FLAT-STD. PLAIN, PLATED, 1/4"	2	

SECTION 6 OPTIONS

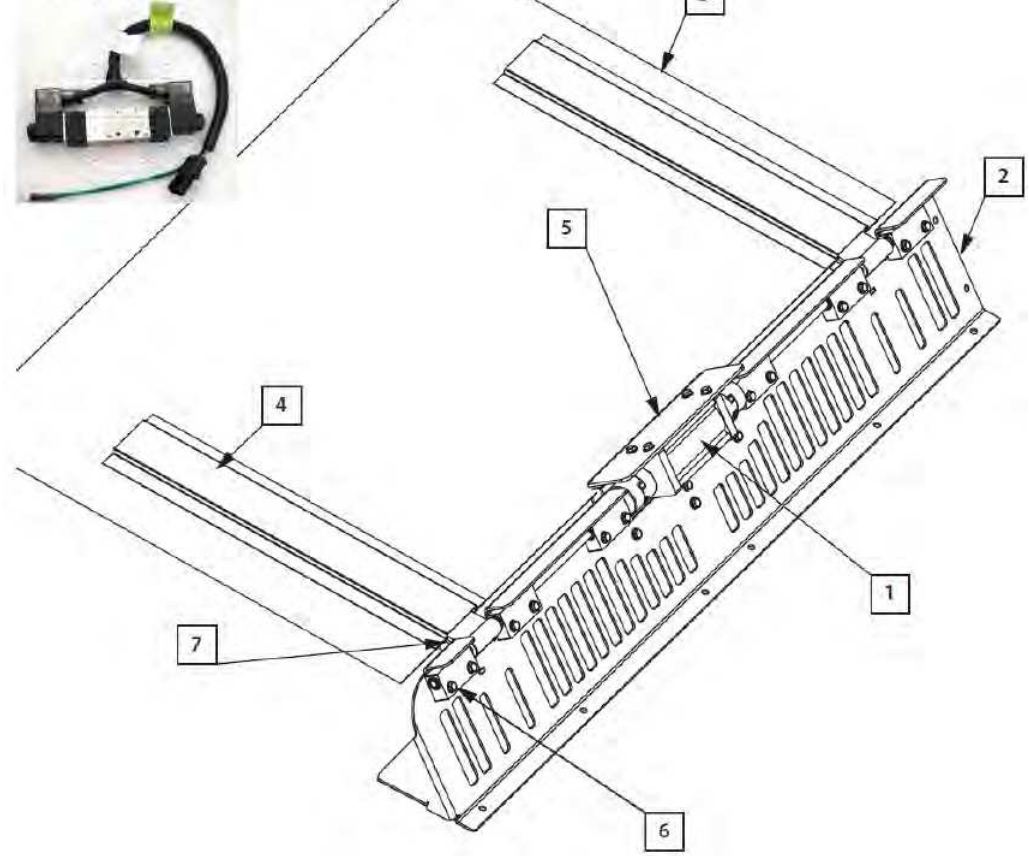
Curotto-Can RAC, CYLINDER & SHAFT ASSEMBLY SE-RAC-CS-KT-INSTL



ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
1	SE-RAC-CS-1	AIR CYLINDER, ROTARY ACTUATING	1	
2	SE-RAC-CS-2	COUPLER, LO95, 3/4"	2	
3	SE-RAC-CS-3	COUPLER, LO95, 1/2"	2	
4	SE-RAC-CS-4	RUBBER SPIDER	2	
5	SE-RAC-CS-5	FLAPPER, STREETSIDE	1	Welded shaft and tab assy.
6	SE-RAC-CS-6	FLAPPER, CURBSIDE	1	Welded shaft and tab assy.
7	SE-AC-CS-1	BUSHING, HINGE	12	
8	SE-RAC-CS-10	PILLOW BLOCK.	6	

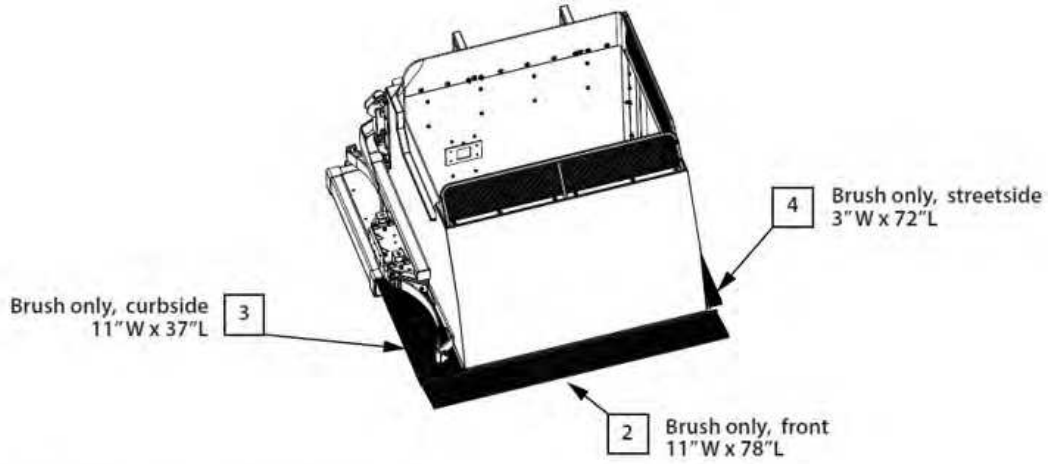
Curotto-Can AUTOCOVER WINDSCREEN

**TRUCK SIDE MAC VALVE
SE-AC-TS-10-E**



ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
2	AC02-A09-F	WINDSCREEN, FRONT	1	
3	SE-RAC-CS-13	FABRIC COVER	1	
4	SE-AC-CS-14	RUBBER STRIP, THREE HOLES	2	Cut to length
5	SE-RAC-CS-9	MOUNT, CYLINDER	1	
6	SE-RAC-CS-HW	HARDWARE KIT	1	Contains all nuts, cap screws, washers & key way .
7	SE-RAC-CS-14	STOP PAD, RUBBER	2	
8	SE-RAC-CS-KT-INSTL	ROTARY AUTOCOVER KIT, ADD-ON OPTION	1	Option for only new containers
-10	SE-AC-TS-KT	ROTARY AUTOCOVER KIT, RETROFIT	1	Includes everything needed for the truck side to operate the Auto Cover
-11	SE-AC-TS-10-E	TRUCK SIDE MAC VALVE	1	Required for Autocover installation

Curotto-Can HOPPER SEAL BRUSH KIT, CAN ONLY



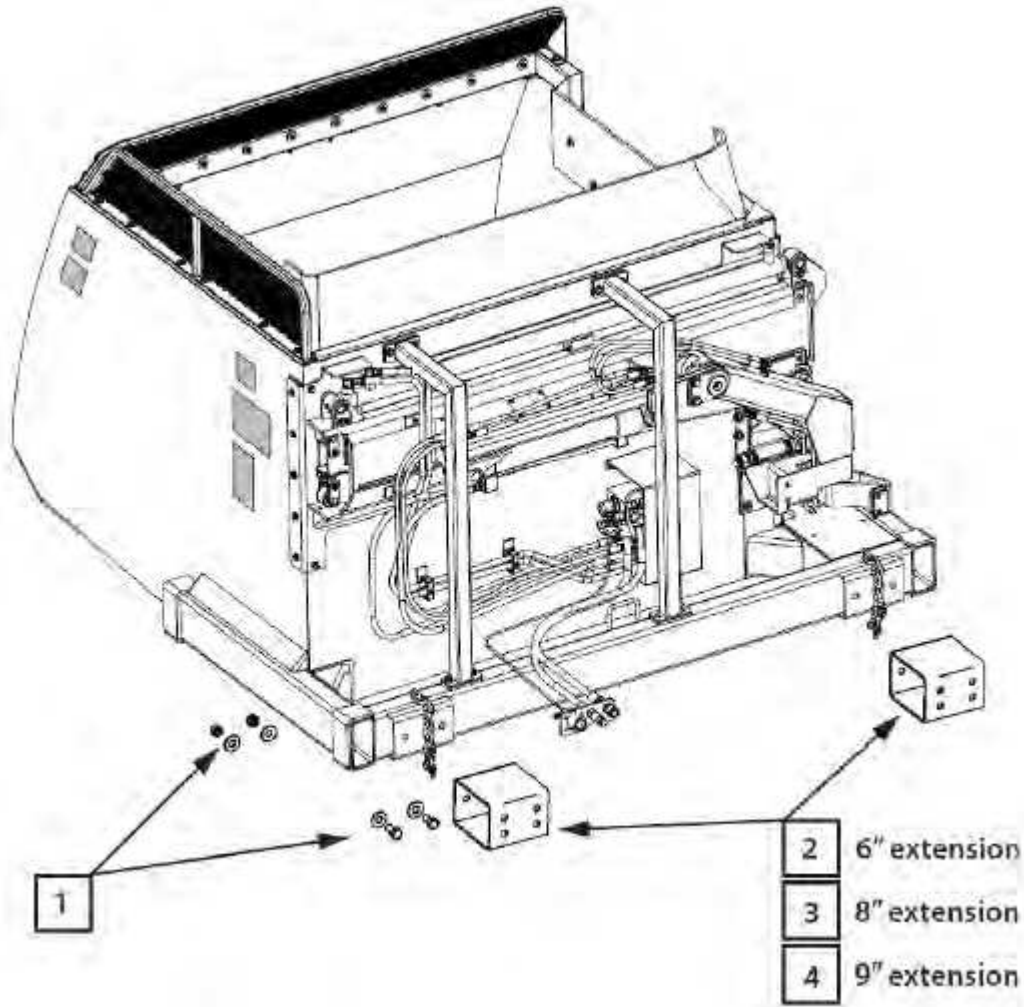
- 1** Brush kit SE-BK for the Can includes:
- 1 - Channel, front
 - 1 - Channel, streetside
 - 1 - Channel, curbside
 - 1 - Brush, front
 - 1 - Brush, curbside
 - 1 - Brush, streetside
 - 12 - Capscrews
 - 24 - Washers
 - 12 - Nuts

5 not shown

6 not shown

ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
1	SE-BK-CS	BRUSH KIT, INSTALL ON CAN	1	-H, -M, -W, -EZ
2	SE-BK-B8	BRUSH ONLY, FRONT, 11" W X 78" L	1	Front brush
3	SE-BK-B2	BRUSH ONLY, FRONT, 11" W X 78" L	1	
4	SE-BK-B3	BRUSH ONLY, STREETSIDE, 3" W X 72" L	1	
-5	SE-BK-C1	CHANNEL ONLY, STREETSIDE & FRONT	2	
-6	SE-BK-C2	CHANNEL ONLY, CURBSIDE	1	

Curotto-Can CAN BODY EXTENSIONS



ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
1	EXT-HW-KT-CS	HARDWARE KIT, CAN SIDE, STANDARD	1	Includes all capscrews, washers and nuts
2	EXT-6-SET	6" STANDARD EXTENSION	1	Includes hardware
3	EXT-8-SET	8" STANDARD EXTENSION	1	Includes hardware
4	EXT-9-SET	9" STANDARD EXTENSION	1	Heil body
5	EXT-HW-KT-TS	HARDWARE KIT, TRUCK SIDE	1	

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CONTACT PHONE NUMBER: _____

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.

Revised 1/2013

The *Curotto-Can*
The Future of Automated Collection

www.thecurottocan.com

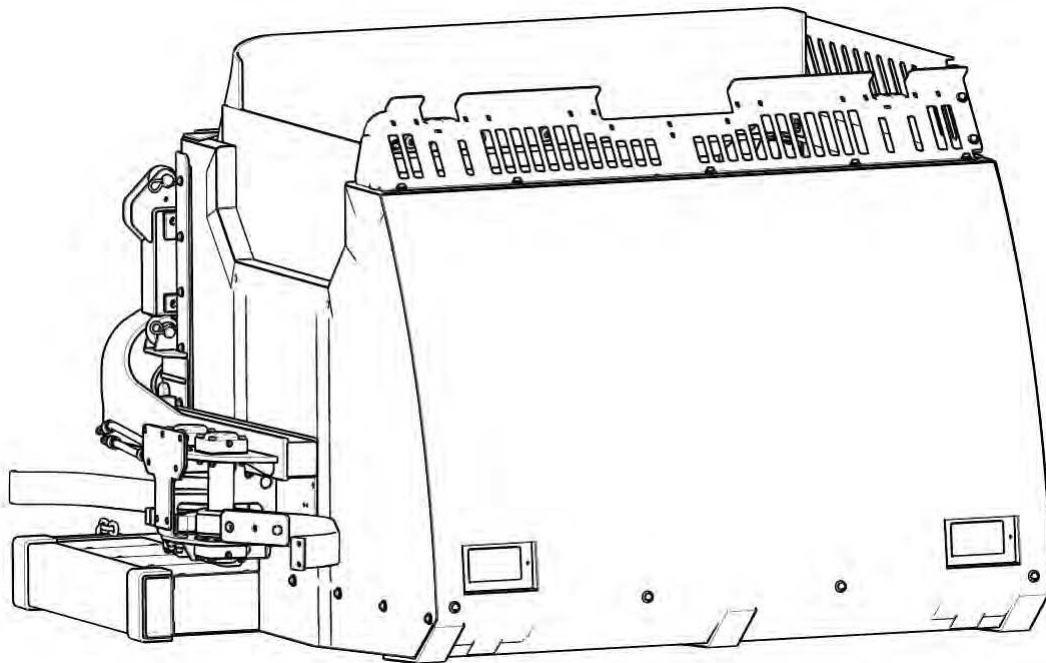
Phone:
866-696-4345

Parts Direct E-mail:
parts@thecurottocan.com

Sales Direct E-mail:
sales@thecurottocan.com

The Curotto-Can, LLC
2030 Hamilton Place Blvd, Suite 200
Chattanooga, TN 37421

TP1HP-OSM-0418



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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.”

Curotto-Can

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Curotto-Can
THE FUTURE OF AUTOMATED COLLECTION
OPERATION AND SERVICE MANUAL
ISSUED APRIL 2018
TP1HP-SM-0418

Curotto-Can

NOTES

SECTION 1

INTRODUCTION AND

DESCRIPTION

Curotto-Can

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.

Curotto-Can

Introduction

NOMENCLATURE

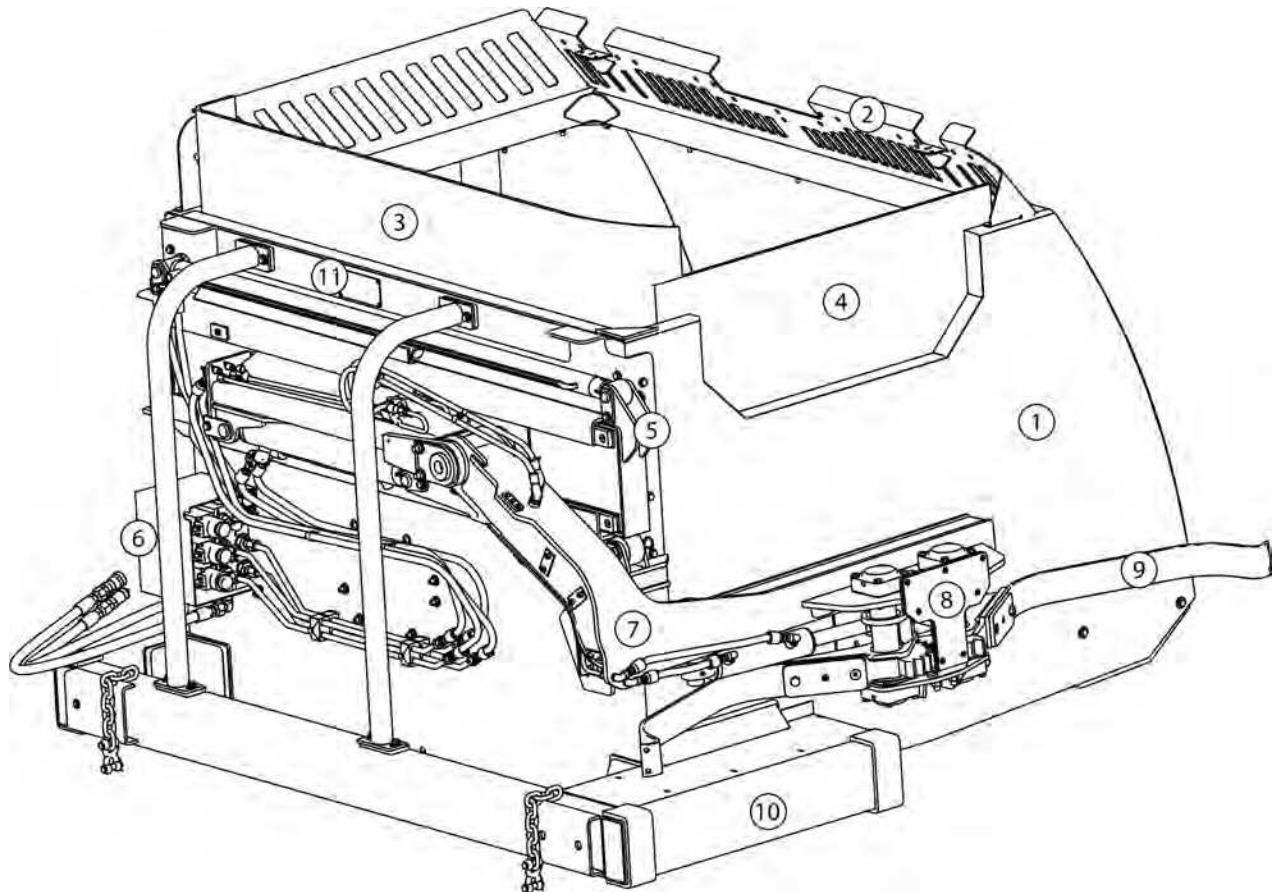


Fig. 1-2 Curotto-Can Nomenclature

Item	Description
1	Curotto-Can Container
2	Windscreen
3	Spill Guard, rubber, forward
4	Fall Away Flap, rubber, curb side
5	Slide Assembly
6	Associated Hydraulic Valves, Plumbing and Cylinders
7	Dump Arm
8	Gripper Head and Spindle Assembly
9	Gripper Arms x 2
10	Fork Pocket Assembly x 2
11	Serial Number Plate Location

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** ¹⁰¹ for more information.

Curotto-Can

Introduction

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** [\[72\]](#).

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** [\[51\]](#), **Lubrication Chart** [\[51\]](#) and **Weekly Lubrication** [\[51\]](#).

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.

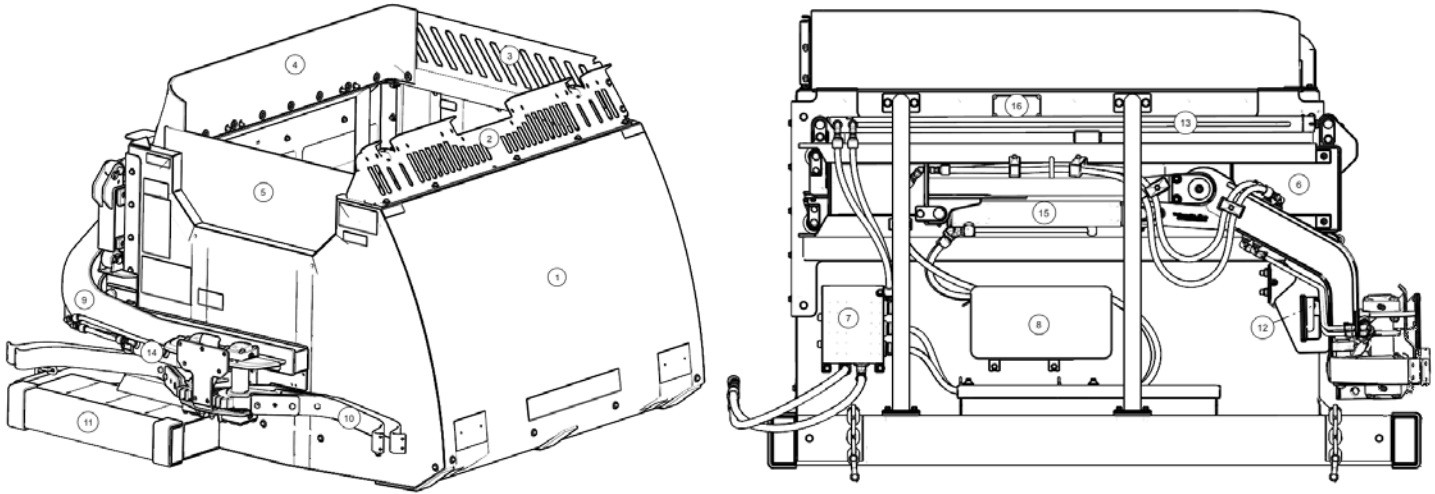
TOOLS AND EQUIPMENT

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.

Curotto-Can

Introduction

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 Parts Book and contact Heil Parts Central at 800-528-5308.

Curotto-Can

Introduction

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 Gripper. 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

Curotto-Can

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** [18](#); safety decal locations
 - c. **Shutdown and Lockout procedures** [25](#) for operations and maintenance
 - d. **Exclusion Zones** [27](#)
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** [70](#).

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** [72](#) 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.

Curotto-Can Safety

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** ^[72].

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** ^[72].
2. Ensure that planned maintenance is performed per guidelines found at **Curotto-Can Master Checklists** ^[72].
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 Heil Technical Service if you have any questions about Lock-Out/Tag-Out procedures.

DANGER

Failure to follow and apply Lockout Tagout rules may result in serious injury or death.

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

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

Curotto-Can

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:

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

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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.

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.

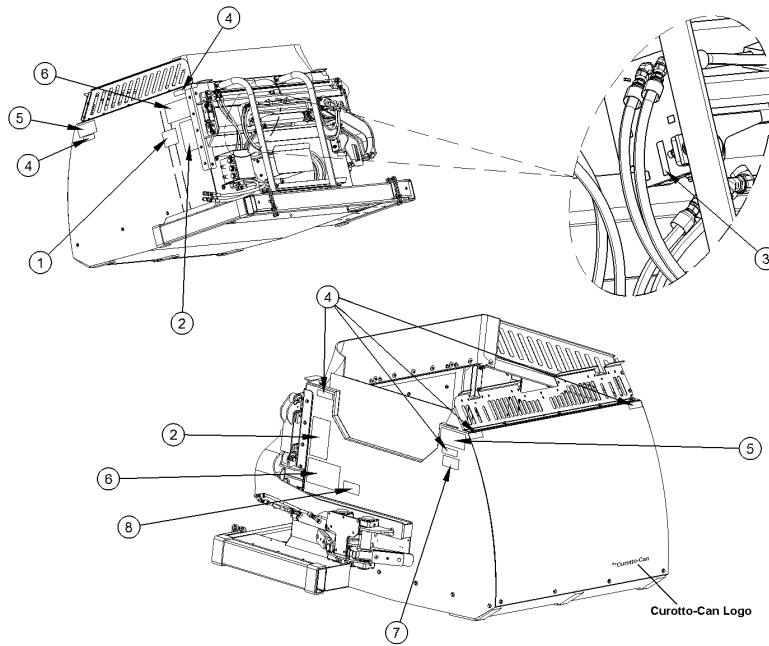
SYMBOLS AND SAFETY DECALS

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.

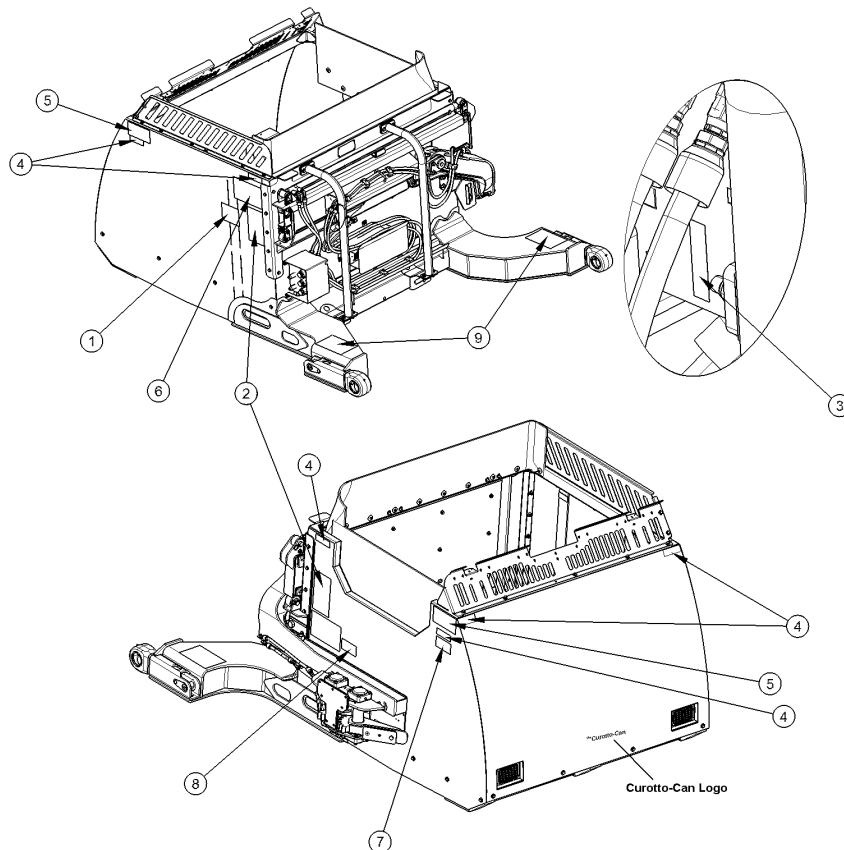
DECAL PLACEMENT

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

A. Detachable Can



B. Integrated Can



Curotto-Can

Safety

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 (Intergrated Can ONLY)	2

DECAL IMAGES

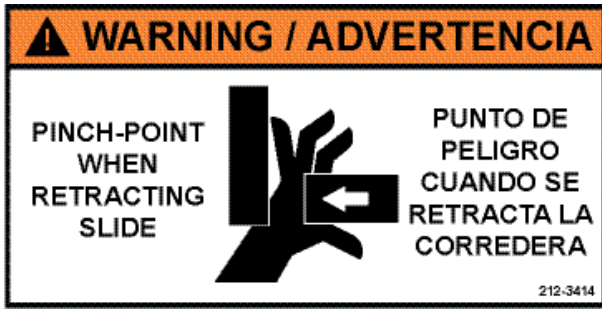


Figure: Pinch Point, 212-3414

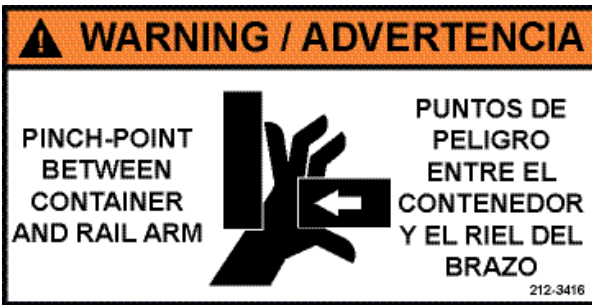


Figure: Pinch Point, 212-3416



Figure: Warning Foot Crush Hazard, 212-3411



Figure: Caution Pinch Points Decal, 212-3410

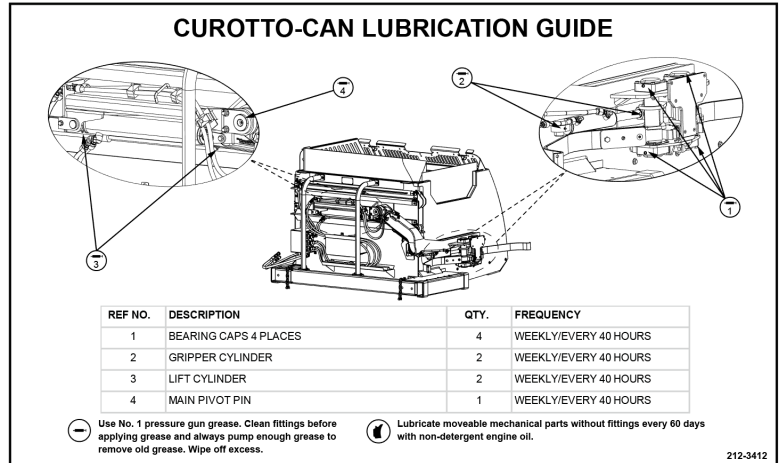


Figure: Lubrication Guide, 212-3412

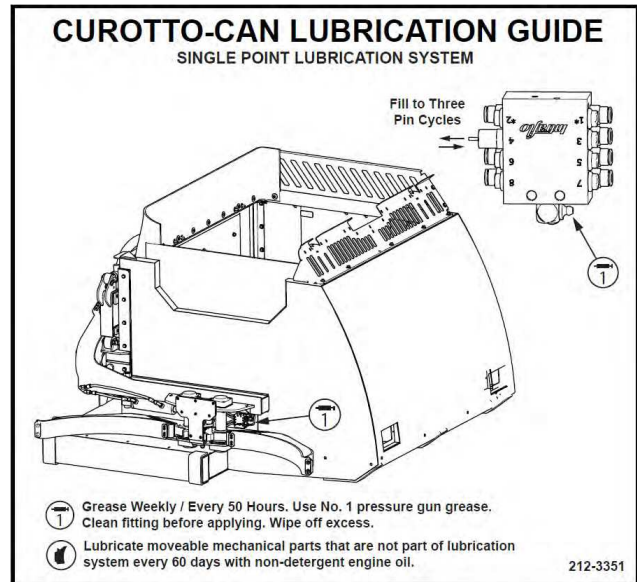


Figure: Curotto-Can Optional Single Point Lubrication Guide, 212-3351

Curotto-Can Safety

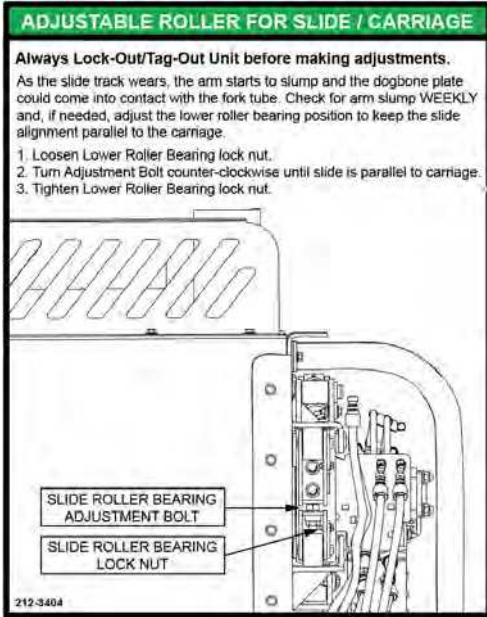


Figure: Adjustable Roller for Slide / Carriage, 212-3404



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”.

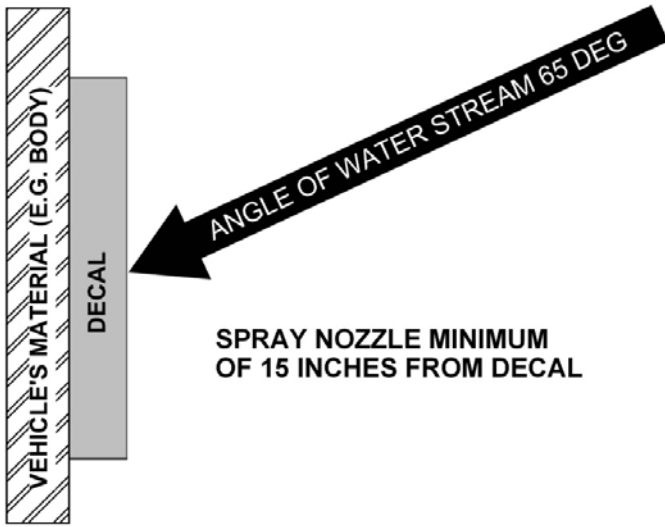
C. Remove Difficult Debris

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

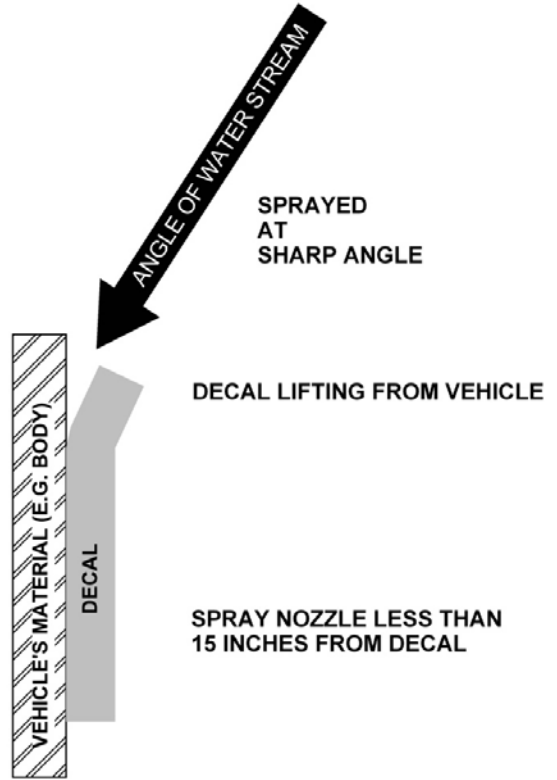
- Spot clean the decal with Isopropyl Alcohol and a micro-fiber cloth (rag)
- If these methods do not work on a problem area, call a Heil Dealer or Heil Customer Support.

Curotto-Can Safety

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** 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** information
 - b. Chassis manufacturer **Lock-Out/Tag-Out** information
 - c. Occupational Safety and Health Act (OSHA) **Lock-Out/Tag-Out** 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** rules may result in serious injury or death.

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

- a. Operational Shutdown – short term
- b. Operational Shutdown – long term
- c. Maintenance **Lock-Out/Tag-Out**
- 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.

Curotto-Can Safety

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.

Curotto-Can Safety

EXCLUSION ZONES (CONTINUED)

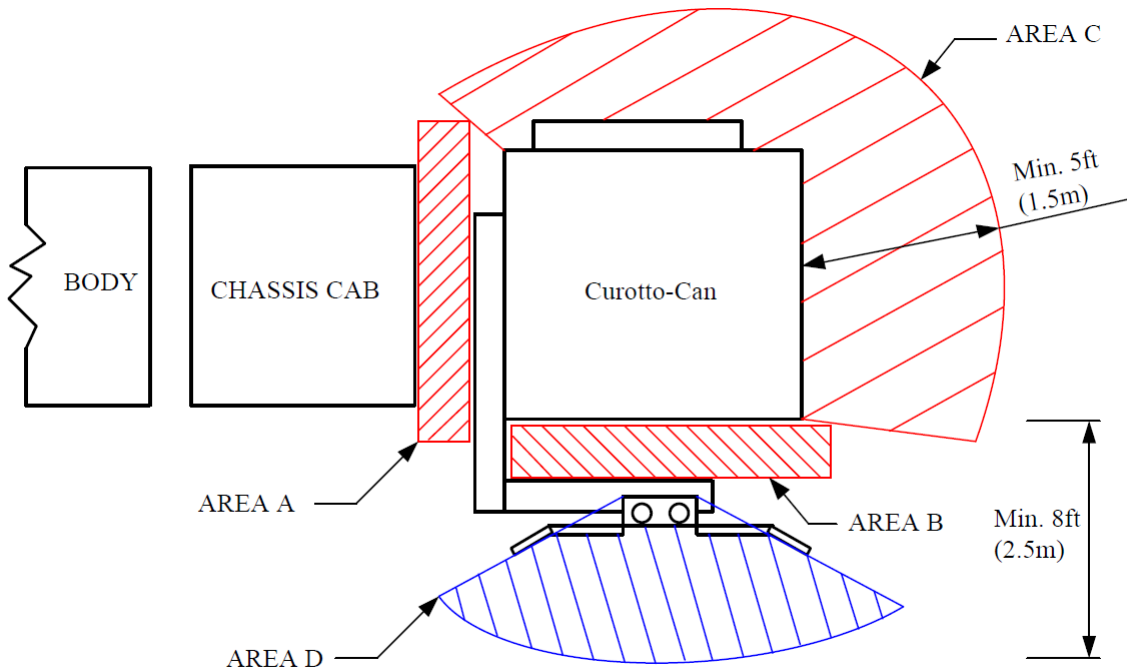


Fig. 2-4 Exclusion Zones (not to scale)

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

Curotto-Can

Operation

DISCONNECTING AND CONNECTING THE DETACHABLE CUROTTO-CAN

The Curotto-Can is designed to be removed and installed in a matter of seconds, and without the use of any tools. This is particularly useful when removing the Curotto-Can on-route to service a commercial container.

1. The following procedure should be followed when disconnecting the Curotto-Can:
 - a. Find a suitable area that is flat and level and lower the Curotto-Can to within 4" of the ground.
 - b. Place chock blocks underneath the arm side of the Curotto-Can so the Curotto-Can is approx. 4" off the ground. This will make it easier to remove the Curotto-Can from the forks and to replace the Curotto-Can on the forks. If a block is not available, lower the arms and carefully lower the forks, resting the nose of the container on the ground.
 - c. Switch OFF the truck engine and reset the key to IGNITION only
 - d. TOGGLE the Curotto-Can joystick back and forth through each of the Curotto-Can functions (this will relieve any hydraulic pressure in the lines)
 - e. Activate the pressure release on the in-cab display.
 - f. Switch OFF the Curotto-Can activate switch.
 - g. Place keys in pocket and switch off the truck battery disconnect.
 - h. Twist the hydraulic quick 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
 - i. Raise the locking cap and disconnect the electrical plug
 - j. Remove the safety chains
 - k. Restart the truck engine and carefully reverse the vehicle to remove the forks from the Curotto-Can pockets.
2. Connecting the Curotto-Can is the reverse of the disconnection procedure.
3. The Curotto-Can activate switch is to remain in the OFF position while the Curotto-Can is removed from the host. This will ensure that the **auto-retract system** ⁽⁴⁰⁾ will remain inoperable and therefore not interrupt normal commercial bin collection.
4. The Curotto-Can activate switch shall be set to ON when the Curotto-Can is re-installed.
5. The Curotto-Can activate switch 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.

CAUTION

Operating the collection vehicle with the Curotto-Can activate switch in the OFF position and with the Curotto-Can loaded on the forks will disable the auto-retract system.

OPERATION

1. Operation of the Curotto-Can is the simplest of any automated collection device. Easy to use controls and forward facing view of operations also makes it one of the safest.
2. Part 3, Operations assumes 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.
3. Part 3 Operations contains the following information:
 - a. **Operational Safety Warnings** ^[32]
 - b. **Operational Positions** ^[32]
 - c. **Theory of Operation** ^[48]
 - d. **Operation** ^[40]
 - e. **Inspections** ^[51]: daily, weekly, monthly operator inspections and checks

KEY FEATURES AND BENEFITS

1. The system design incorporates the following:
 - a. Fast dump cycle of approximately 5 seconds capable of dumping in excess of 200 carts per hour
 - b. Cab forward pick up so the operator has a view of the contents being dumped while maintaining a comfortable, ergonomically friendly position
 - c. Take-all capability can load bulky items; carts from 20 to 96 gallons; carts placed backwards; carts placed in tight spaces; easily hand loaded
 - d. Off-set arm loading and parallel hydraulic circuit maximizes container volume by loading trash evenly
 - e. 60" arm reach along with the Curotto-Can being mounted ahead of the steer axle enable the operator to pivot around obstacles
 - f. High capacity front loader minimizes the number of landfill trips
 - g. Quick disconnect of the Curotto-Can and the same unit is available to service commercial customers.

Curotto-Can 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.

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** ⁽²⁷⁾).

DANGER

NEVER operate this equipment with persons present anywhere near the Curotto-Can. Hydraulic activity may occur without warning (refer to **Exclusion Zones** ⁽²⁷⁾).

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.

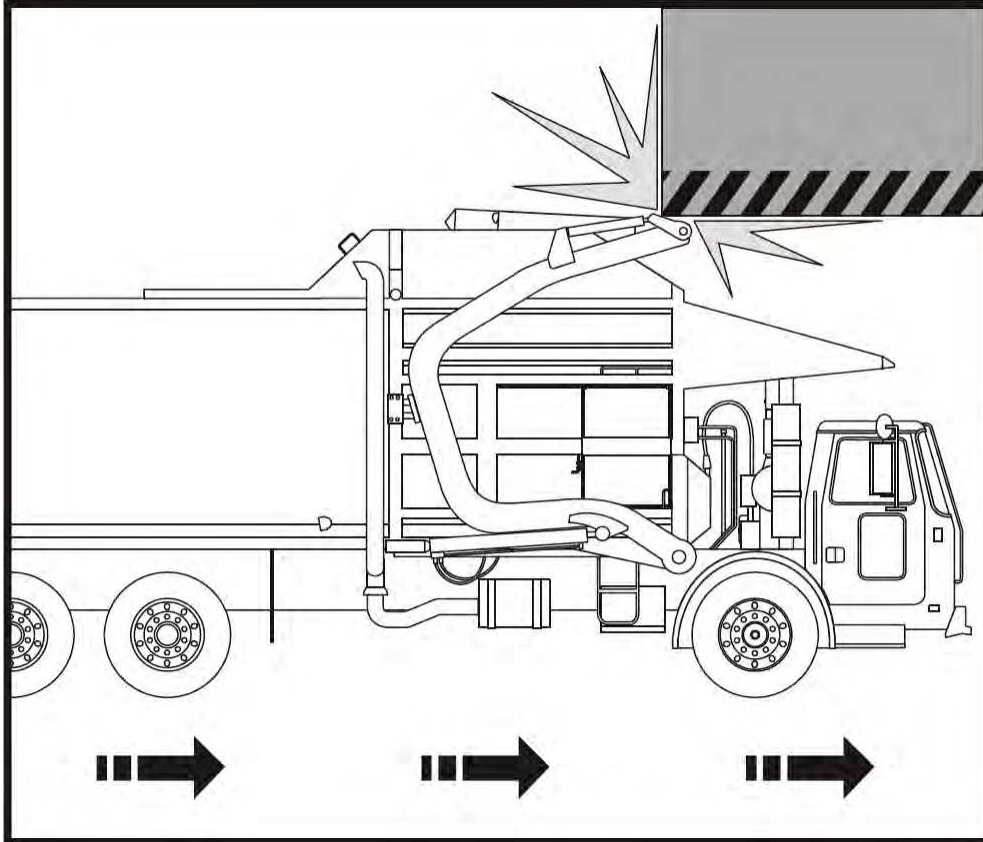


Fig. 3-1 Positioning the Curotto-Can for long distance travel

Curotto-Can

Operation

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.

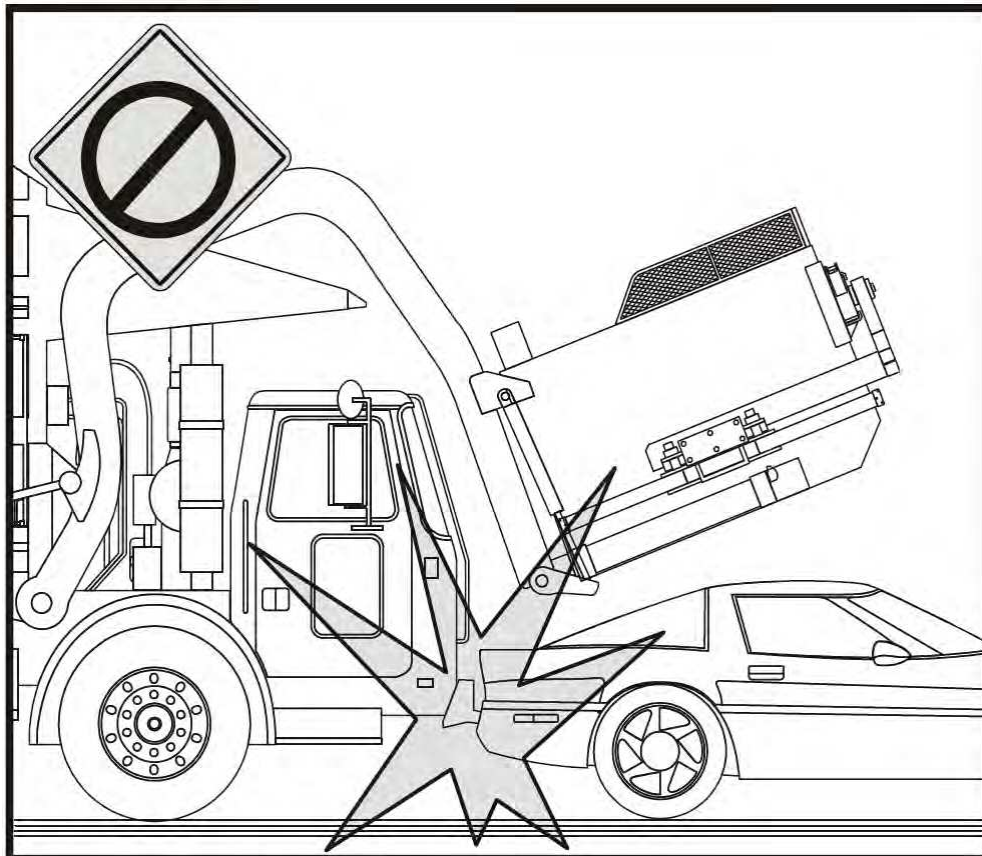


Fig. 3-2 Positioning the Curotto-Can for short distance travel

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**

Curotto-Can Operation

POSITIONING THE CUROTTO-CAN FOR COLLECTION (CONTINUED)

6. Some support cradle assemblies may be adjustable. Refer to **Curotto-Can working height** ³²¹.

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.

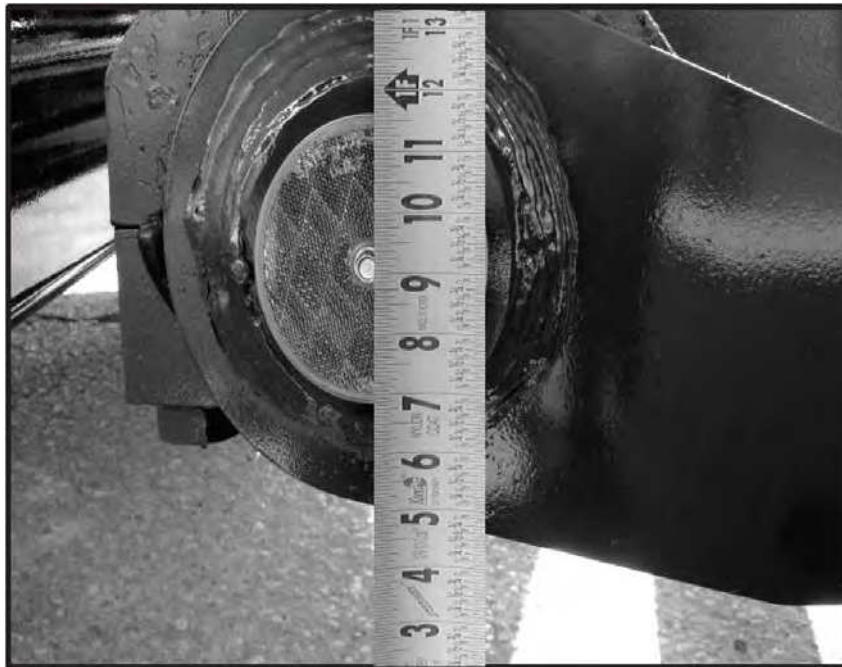


Fig. 3-5 Curotto-Can Working Height Measurement

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.

Curotto-Can Operation

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.

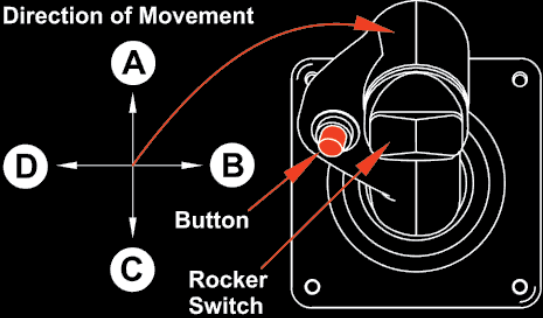
- Thumb Switch Button = NOT Depressed
- Rocker Switch RIGHT = GRAB
- Rocker Switch LEFT = RELEASE
- Joystick FORWARD = Curotto-Can Arm LOWER
- Joystick BACKWARD = Curotto-Can Arm RAISE
- Joystick RIGHT = Curotto-Can Arm EXTEND
- Joystick LEFT = Curotto-Can Arm RETRACT

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)



Manual Mode >
AutoLift Switch Off
 Rocker Switch = Off
 Button = Inactive

Carry Can Mode >
AutoLift Switch On
 Rocker Switch =
 Release  Grab
 Button = Not Depressed

AutoLift Mode >
AutoLift Switch On
 Rocker Switch = Inactive
 Button = Depressed

A = Arms Down
B = Forks Down
C = Arms Up
D = Forks Up

A = Curotto Lower
B = Curotto Extend
C = Curotto Raise
D = Curotto Retract

A = AutoLift Down
B = Forks Down
C = AutoLift Up
D = Forks Up

212-3278

Heil Multi-Function Joystick Decal

Curotto-Can

Operation

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

Operation

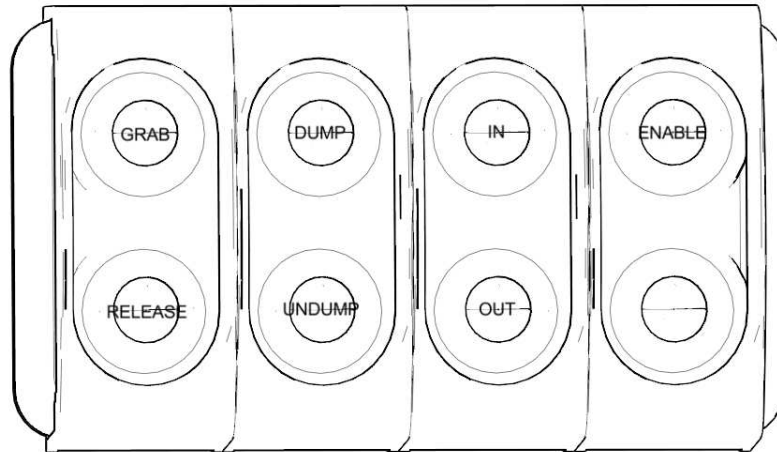
CUROTTO-CAN CURB ACCESSIBLE (OUTSIDE) CONTROL OPERATION (OPTIONAL)

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 its 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** )
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**  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.

Curotto-Can Operation

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** ³²¹ 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 Operation

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:

DANGER

- a. 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.
- b. 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** [72](#).

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** [72](#).

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.

Curotto-Can

Operation

THEORY OF 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. Theory of operation
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

Curotto-Can Operation

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

INSPECTIONS

1. This section details the inspections that shall be carried out in order to ensure the Curotto-Can remains in working condition.
2. The responsibility for most of the inspections and checks falls to the operator. It is an essential part of the operator's job to identify and report issues found during the daily and weekly inspections and checks.
3. Inspections and checks are broken out into four easy to use charts detailed on the following pages. The operator is responsible to ensure the equipment is in a safe and operational condition before making collections.

CAUTION

Inspection and checks must be completed as per the checklists in this section. Failure to identify and correct malfunctions with the equipment may lead to equipment damage.


Do not use damaged or defective equipment.

4. Issues found during these inspections must be reported to the maintenance department for correction. It is common for operators to report deficiencies using pre and post-trip vehicle condition reports per company guidelines.
5. This section contains the following information:
 - a. Daily inspections and checks
 - b. Weekly inspections and checks
 - c. Weekly lubrication
 - d. Monthly checks
 - e. 6 month check.
6. The inspections section shows each of the check sheets and alongside detailed information on how to perform each of the checks and what to look for to ensure the equipment is functioning as intended.

TOOLS

1. A tire tread depth indicator is useful to check the wear of the nylon slide rails and a flashlight and shop rags will be helpful during the inspections. No other tools are required to complete the operator inspections.
2. Shop hand tools and test instruments such as a 0-3000 psi oil filled hydraulic pressure gauge, 0-20 gpm hydraulic flow gauge and electrical volt/multi meter are required for checks involving maintenance personnel.

CHECKLISTS

Master checklists  can be found in Troubleshooting. It is intended that these checklists are copied from the original and completed as part of daily and weekly checks. Original checklists are to remain with this manual and may also be downloaded from the Curotto-Can website.

Curotto-Can Operation

SAFETY

Many of the inspections and checks to the Curotto-Can will require the front loader to be in an operational condition – the engine running, pump switch ON, Curotto-Can activate switch ON. Extreme caution is required when working around the Curotto-Can in this condition.

DANGER

NEVER stand beneath a raised, unsupported Curotto-Can. 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** ⁽²⁷⁾). Be aware of pinch points and foot crush hazard.

DANGER

NEVER operate this equipment with persons present at the front of the Curotto-Can. Hydraulic activity may occur without warning (refer to **Exclusion Zones** ⁽²⁷⁾).

CUROTTTO-CAN		DAILY PREVENTIVE MAINTENANCE CHART				
OPERATORS NAME:		WEEK OF:				
UNIT #:		Boxes marked with a check indicate satisfactory condition.				
DAILY INSPECTIONS AND CHECKS		MON	TUE	WED	THUR	FRI
1	Pre-Trip Visual Inspection					
1.1	Overall structural integrity, no damage to container, arm, or slide.					
1.2	No oil leaks from hydraulic components.					
1.3	Gripper belts are without tears and no extensive wear.					
1.4	Safety pins are in place, without damage and working properly.					
1.5	Safety chains are in place, without damage and working properly.					
2	Pre-Trip Auto-Retract Check					
2.1	Extend slide, dump and gripper cylinders a minimum of 2" - raise unit arms maximum 24" and all three cylinders fully retract.					
2.2	Again, extend slide, arm and gripper cylinders a minimum of 2" - lower unit forks so the Can contacts the ground and all three cylinders fully retract.					
3	Pre-Trip Cylinder Cushion Check					
3.1	Retract slide and close grippers. Fully cycle dump cylinder and check cushion at top and bottom of stroke. Correct cushion is 1" to 2" with the cylinder coming to rest slowly at the end of the stroke.					
4	Pre-Trip Gravity Hook Check					
4.1	Retract all three cylinders, Complete Operation Shutdown - Long Term. Physically check that the gravity hook is present and free to rotate so it will engage the anchor pin when Can is inverted.					
5	Pre-Trip Packer Blade Lockout Check					
5.1	Retract all three cylinders. Using front loader arm control, raise the Can to a point directly above the cab. Do Not put the Can in the hopper. Press the front loader pack and auto-pack controls. The packer blade function should be locked out.					

DAILY INSPECTIONS

1. Daily inspections are to be completed by the operator and shall be incorporated into the pre-trip inspection as detailed by your company. The inspection process will take less than 10 minutes.
2. The nose of the Curotto Can should be gently lowered to the ground in front of the cab.
3. All of the checks that require the unit to be running assume that the pump is engaged with the air pressure above 90 psi.
4. Pre-Trip Visual Inspection

Refer to the Daily Preventive Maintenance Chart . The inspection is looking for overall structural integrity with no damage to the container arm or slide. Observe for oil leaks and excessive wear to gripper belts. Check the container is securely mounted to the forks.

5. Pre-Trip Auto Retract Check
 - a. Extend slide, dump and gripper cylinders a minimum of 2" – raise unit arms maximum 24" and all three cylinders should fully retract
 - b. Extend slide, dump and gripper cylinders a minimum of 2" – lower unit forks and all three cylinders should fully retract.

For further information on this system refer to **auto-retract system** .

The auto-retract test using the forks lower function should be carried out with the Curotto-Can resting on the ground. This will provide the system with a resistance and prove that the Curotto-Can cylinders retract correctly.


CAUTION

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

6. Pre-Trip Cylinder Cushion Check
 - a. Fully retract the slide and close the grippers
 - b. Fully cycle the dump cylinder and check the cushion at the top and bottom of the stroke
 - c. Correct cushion is 1"-2" with the cylinder coming to rest slowly at the end of the stroke.
7. This internal cylinder cushion will ensure that the dumping mechanism does not slam at the end of each stroke.

CAUTION

Component damage may occur if the cylinder cushions do not function as intended.

8. Pre-Trip Gravity Hinge Check
 - a. Fully retract all three cylinders
 - b. Complete an Operational Shutdown – Long Term (refer to **Operational Shutdown – long term** )
 - c. Reach to the backside of the lower dump arm and physically check that the gravity hook is present and free to swing into the pocket
 - d. Check that the gap between the hinge and the pocket is no more than 0.5" ($\frac{1}{2}$ ")
 - e. The gravity hinge should engage the pocket when the Curotto-Can reaches a 12 degree angle.
9. If the gravity hinge does not engage the pocket freely, the hinge assembly may require adjustment and/or lubricant. Consult maintenance personnel.

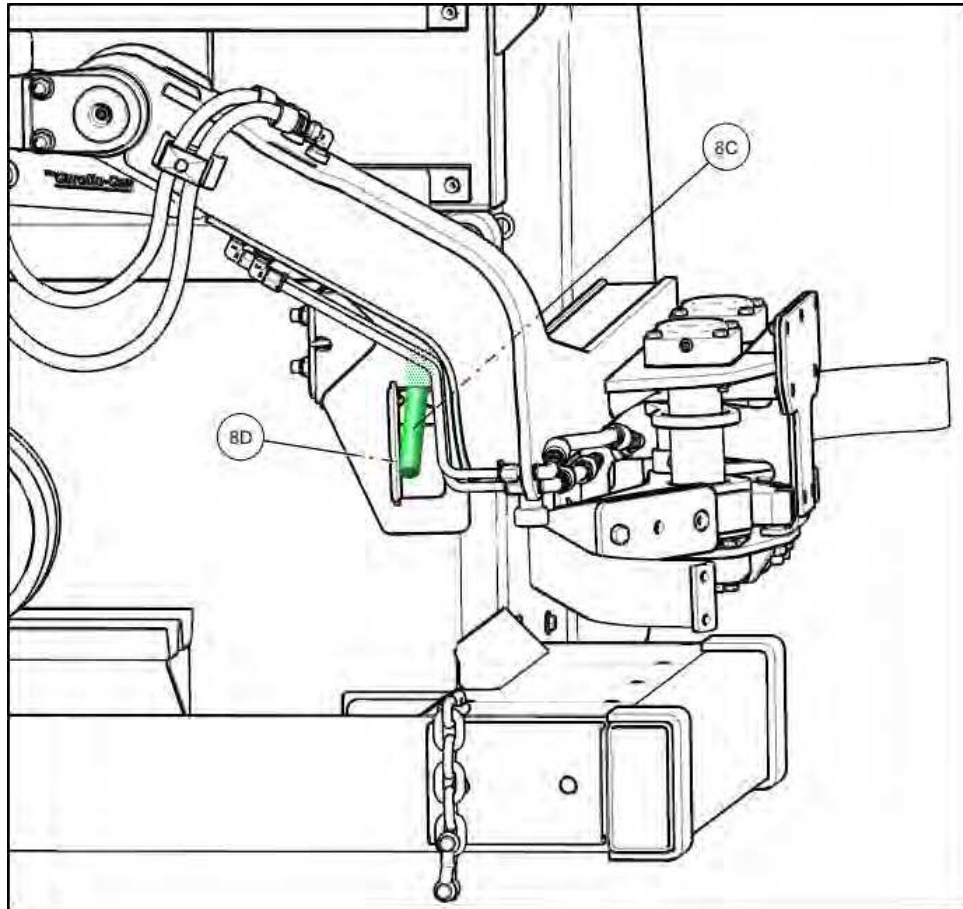
NOTICE

In cold climates, snow and road mist can collect on the hinge causing the hinge to freeze. Use a penetrating fluid to prevent freezing.

Curotto-Can

Operation

DAILY INSPECTIONS (CONTINUED)



CAUTION

Severe component damage may occur if the gravity hinge does not function as intended.

10. Pre-Trip Packer Blade Lockout Check

- a. Fully retract all three cylinders
- b. Using the front loader arm control, raise the Curotto-Can to a point directly above the cab

CAUTION

DO NOT PUT THE CONTAINER INTO THE HOPPER

- c. Press the front loader pack control button and then attempt to cycle the autopack using the autopack control (if equipped; refer to body manufacturer's technical information)
- d. The packer blade function should be completely locked out. Consult maintenance personnel.

DAILY INSPECTIONS (CONTINUED)

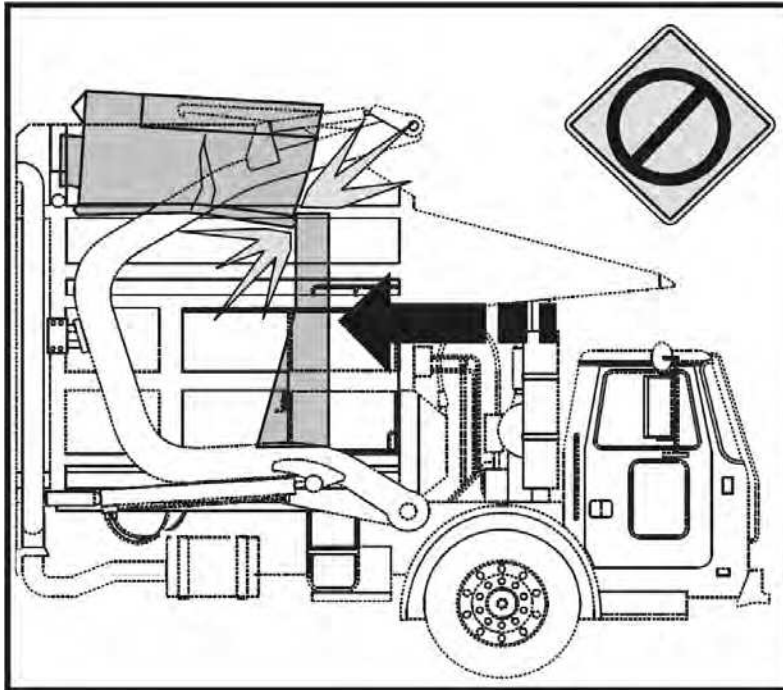


Fig. 3-29 Pre-Trip Packer Blade Lockout Check – incorrect condition

⚠ CAUTION

Do not put the Curotto-Can into the hopper to complete this test.
Do not operate the unit until this lockout is operational.
Serious component damage may occur.

⚠ CAUTION

Some Front Loader manufacturers have a packer blade override switch available to the operator. Using this switch will allow the packer blade to operate with the arm up and the forks stowed making it possible to pack the Curotto-Can. If present, this switch must be disabled before operating the Curotto-Can.

Curotto-Can Operation

CUROTTO-CAN		WEEKLY PREVENTIVE MAINTENANCE CHART			
OPERATORS NAME:		WEEK OF:			
UNIT #:		Boxes marked with a check indicate satisfactory condition.			
WEEKLY INSPECTIONS		WEEK 1	WEEK 2	WEEK 3	WEEK 4
6	Pre-Trip Visual Inspection				
6.1	Inspect arm cylinder mounting brackets for cracks and damage.				
6.2	Inspect upper and lower fork cylinder brackets for cracks and damage.				
7	Structural on Curotto-Can				
7.1	Inspect carriage assembly, slide and brackets for cracks and damage.				
7.2	Inspect dump arm for cracks and damage.				
7.3	Inspect gripper assembly cracks and damage. Hub caps present on spindles.				
7.4	Inspect Can pockets and corners for cracks and damage.				
7.5	Inspect all cylinder mounting brackets for cracks and damage.				
WEEKLY CHECKS					
8	Mechanical on Unit Body				
8.1	Arm Hydraulic hoses are secure no damage or wear.				
8.2	Electrical and hydraulic lines are secure and properly routed around the fork pivot area.				
9	Mechanical on Curotto-Can-Electrical				
9.1	Electrical wiring harness plug is secure no damage.				
9.2	Wiring harness from coupler to Can hydraulic valve is secure no damage.				
9.3	Electrical solenoids on main valve are secure no damage.				
10	Mechanical on Curotto-Can-Hydraulic				
10.1	Quick disconnects are secure no leaks or damage.				
10.2	Hydraulic hoses are secure and free from obstruction when the Can is dumped.				
10.3	Main Can hydraulic valve is secure no leaks or damage				
10.4	Hydraulic hoses on Can to the cylinders are secure no leaks or damage.				
10.5	All cylinders are secure no leaks or damage.				

WEEKLY INSPECTIONS

1. Weekly inspections are to be completed by the operator and shall be incorporated into unit inspections as detailed by your company. The inspection process will take less than 10 minutes.
2. The Curotto-Can shall be lowered to the ground in front of the cab.
3. All of the checks that require the unit to be running assume that the pump is engaged with the air pressure above 90 psi.
4. Structural on Unit Body
Refer to the Weekly Preventive Maintenance Chart. The inspection is looking for overall structural integrity with no damage to the front loader arms, forks and cylinder mountings. Observe for any cracks or damage.
5. Structural on Curotto-Can
 - a. Inspect carriage assembly, slide and brackets for cracks and damage
 - b. Inspect complete dump arm for cracks and damage
 - c. Inspect Gripper assembly for cracks and damage. Hub caps present on spindles, bearing buddies and covers.
 - d. Inspect Curotto-Can pockets and corners for cracks and damage
 - e. Inspect all cylinder mounting brackets for cracks, damage and overall integrity.



Fig. 3-31 Structural on Curotto-Can slide

Curotto-Can Operation

WEEKLY INSPECTIONS (CONTINUED)

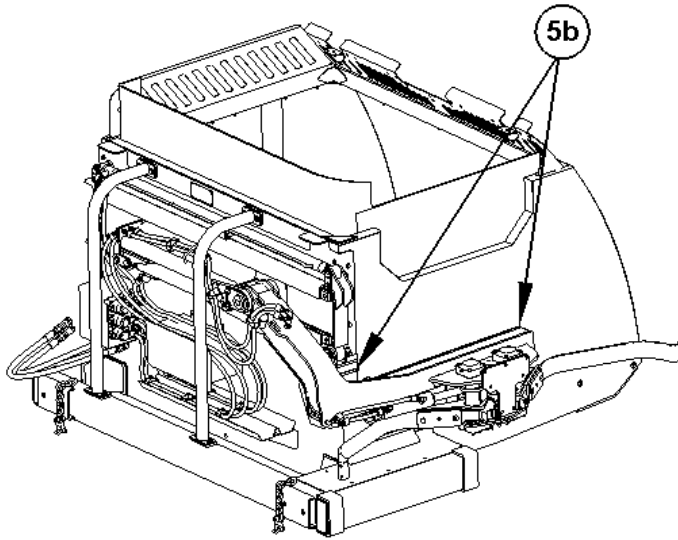


Fig. 3-32 Structural on Curotto-Can Dump Arm

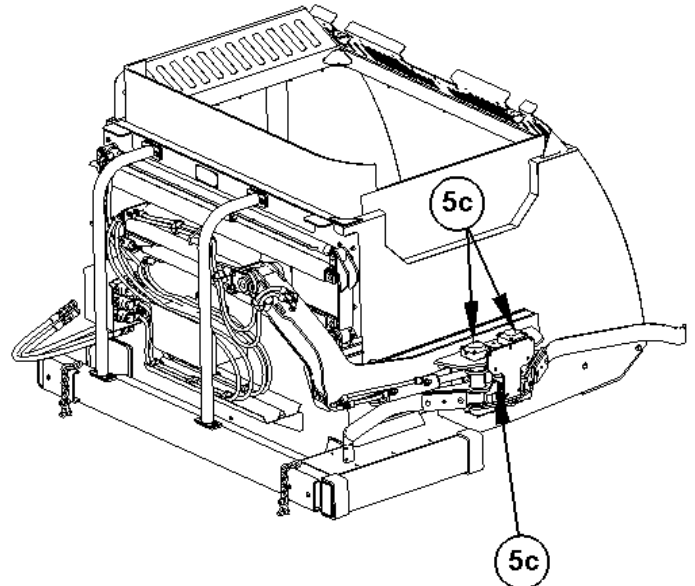


Fig. 3-33 Structural on Curotto-Can Gripper Assembly

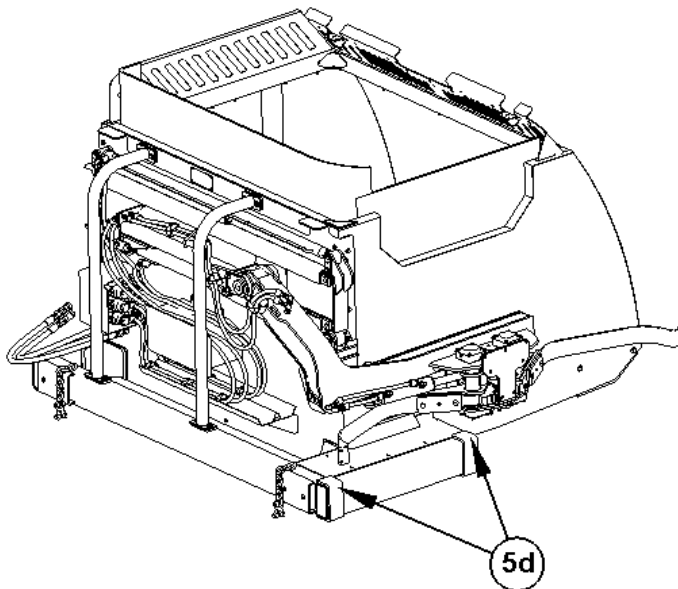


Fig. 3-34 Structural on Curotto-Can Fork Pockets

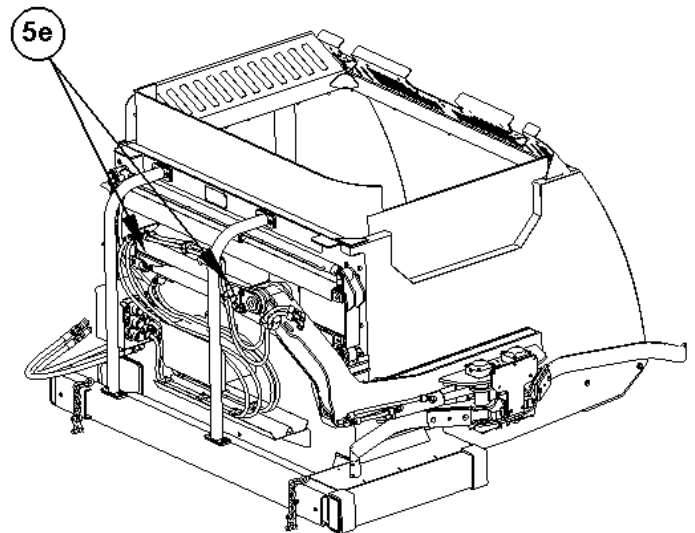


Fig. 3-35 Structural on Curotto-Can Cylinder Mounting

WEEKLY CHECKS

1. Weekly checks are to be completed by the operator and shall be incorporated into unit checks as detailed by your company. This check will take less than 10 minutes.
2. The Curotto-Can shall be lowered to the ground in front of the cab.
3. All of the checks that require the unit to be running assume that the pump is engaged with the air pressure above 90 psi.
4. Mechanical on Unit Body

Refer to the Weekly Preventive Maintenance Chart.

- a. Check arm hydraulic hoses and electrical lines are secure, no damage, no wear
- b. Electrical and hydraulic lines are secure and correctly routed around the pivot areas.

5. Mechanical on Curotto-Can - Electrical

Refer to the Weekly Preventive Maintenance Chart.

- a. Check electrical wiring plug is secure, no damage
- b. Wiring harness from coupler to Curotto-Can hydraulic valve is secure, no damage
- c. Ensure the truck side plug harness has adequate slack. The harness should not tug when the forks are fully lowered.
- d. Electrical solenoids on the Curotto-Can main valve are secure, no damage

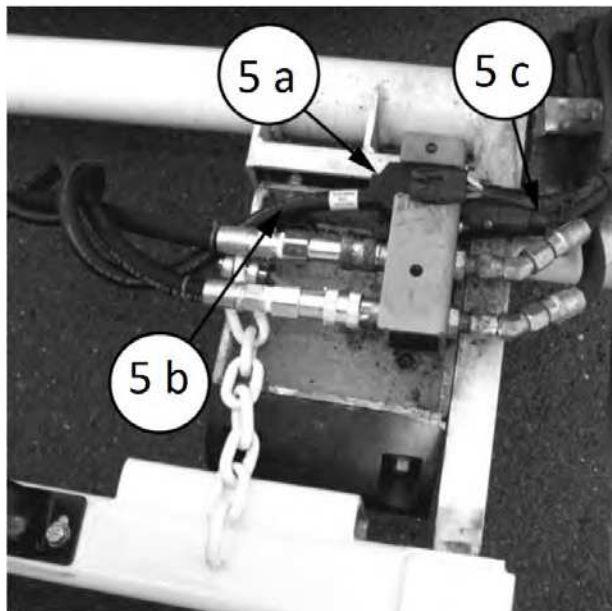


Fig. 3-37 Mechanical on Curotto-Can Electrical Weekly Check

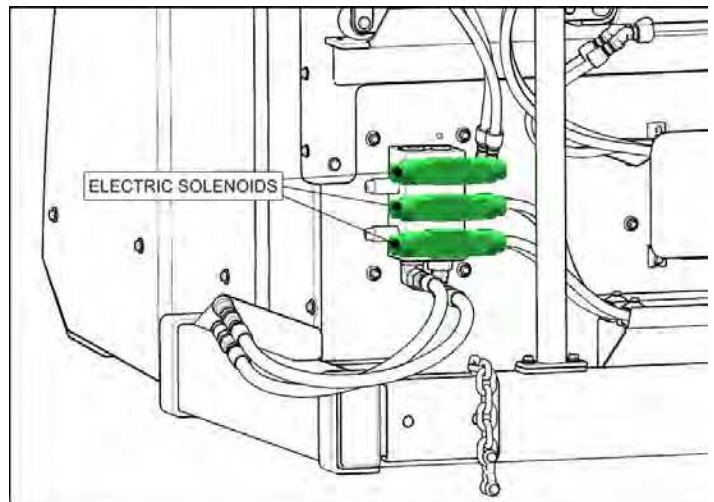


Fig. 3-38 Mechanical on Curotto-Can Electrical Solenoids Weekly Check

Curotto-Can

Operation

WEEKLY CHECKS (CONTINUED)

6. Mechanical on Curotto-Can - Hydraulic

Refer to the Weekly Preventive Maintenance Chart

- a. Quick disconnects are secure, no leaks, no damage
- b. Hydraulic hoses secure and free from obstruction when the Curotto-Can is dumped
- c. Main Curotto-Can hydraulic valve is secure, no leaks, no damage
- d. Hydraulic hoses on Curotto-Can to the cylinders are secure, no leaks, no damage
- e. All cylinders are secure, no leaks, no damage.

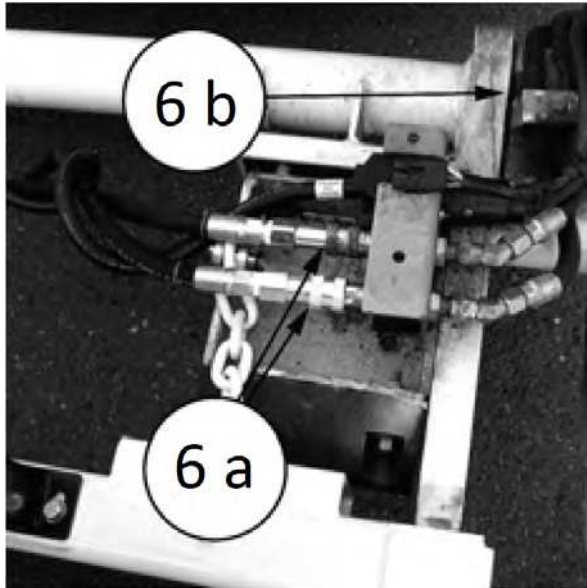


Fig. 3-39 Mechanical on Curotto-Can Hydraulic Weekly Check

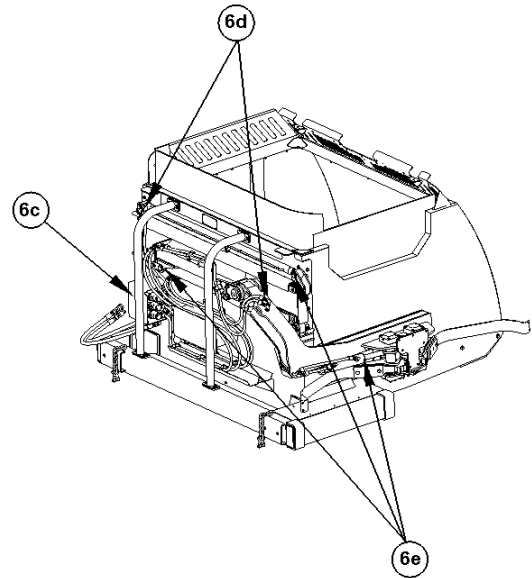
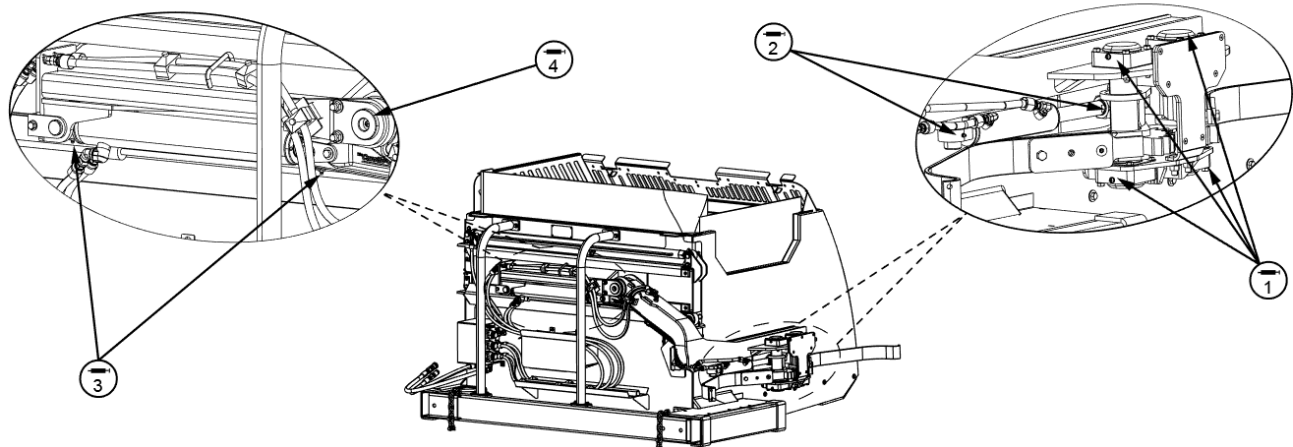


Fig. 3-40 Mechanical on Curotto-Can Hydraulic Weekly Check

Curotto-Can Operation

CUROTTO-CAN		WEEKLY PREVENTIVE MAINTENANCE CHART			
OPERATORS NAME:		WEEK OF:			
UNIT #:		Boxes marked with a check indicate satisfactory condition.			
WEEKLY CHECKS		WEEK 1	WEEK 2	WEEK 3	WEEK 4
11	Mechanical on Curotto-Can-Assemblies				
11.1	Slide rollers top and bottom for excessive wear.				
11.2	Gripper bottom plate assembly bolts are secure.				
11.3	Gripper assembly shows no sign of rubbing on container pocket or hopper wall.				
11.4	Dump arm pivot pin: Lift up on gripper assembly to check the vertical movement does not exceed 1"				
11.5	Slide assembly: Fully extend the carriage. Complete operational shut down - Long Term Check 4 nylon strips for wear or damage				
WEEKLY LUBRICATION					

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 Operation

WEEKLY CHECKS (CONTINUED)

7. Mechanical on Curotto-Can – Assemblies

Refer to the Weekly Preventive Maintenance Chart.

- Slide rollers top and bottom for excessive wear (x3)
- Gripper bottom plate assembly bolts are secure
- Gripper assembly shows no sign of rubbing on the container pocket or the hopper wall
- Dump arm pivot pin: lift up on the gripper assembly to check the vertical movement does not exceed 1".

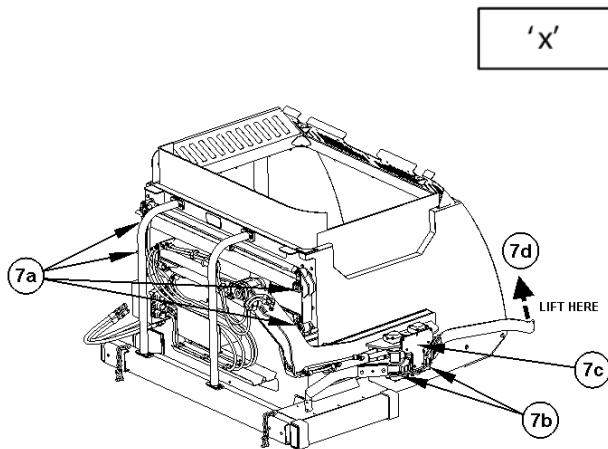


Fig. 3-42 Mechanical on Curotto-Can Assemblies Weekly Check

$$\text{'x'} = < 2.25" / > 1"$$

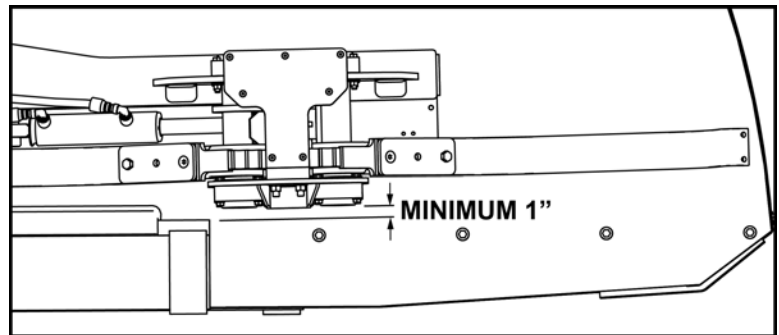


Fig. 3-43 Mechanical on Curotto-Can Assemblies Weekly Check Fork Clearance

NOTICE

The gap between the base of the 'dog bone assembly' and the top of the fork pocket is critical. When new, this gap is approx. 2.25" (5cm).

If the gap drops below 1" (2.5cm) do not use the equipment and consult your maintenance personnel. Adjustment of the lower roller bearing position to keep the slide alignment parallel to the carriage might be necessary. Also, the dump arm pivot pin and bushing, and/or slide wear strips might need to be replaced.

CAUTION

Serious component damage may result if this gap is not maintained.

- Slide assembly: fully extend the carriage. Check all (4) nylon strips – both sides of slide – for wear, damage

NOTICE

The slide assembly guides on four replaceable UHMW wear strips. The strips are designed to be used without lubrication. Adding lubrication will severely reduce wear strip life.

WEEKLY CHECKS (CONTINUED)



**Fig. 3-44 Mechanical on Curotto-Can
Assemblies Weekly Check Slide Assembly
Nylon Wear Strips**

- f. Use your tire tread depth gauge to determine if the wear strip needs to be replaced. Measure from the cap screw head (not the recess) as shown in Fig. 3-45. There should be at least 1/16" nylon wear material present at each hole. Replace the entire strip if any hole is < 1/16". Consult maintenance personnel.

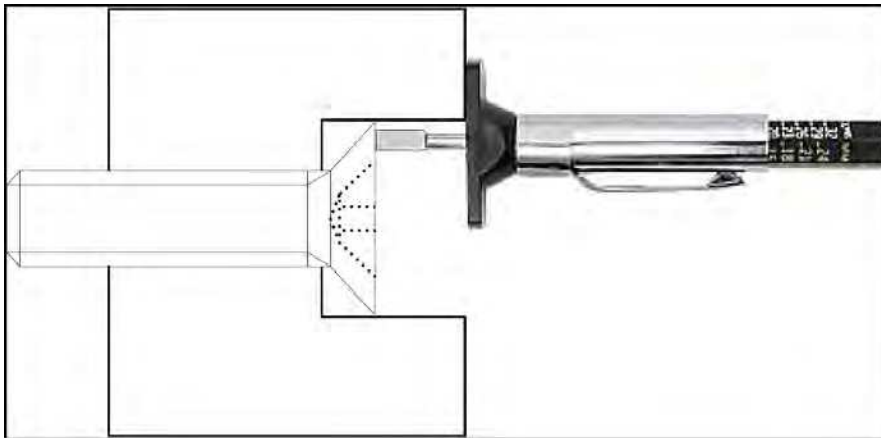


Fig. 3-45 Tire Tread Depth Gauge Used to Measure Wear Strip Depth

Curotto-Can Operation

WEEKLY CHECKS (CONTINUED)

- g. Slide assembly: fully extend the carriage. Check slide carriage steel wear strip for wear, damage. When new, this strip is 1/4" thick.

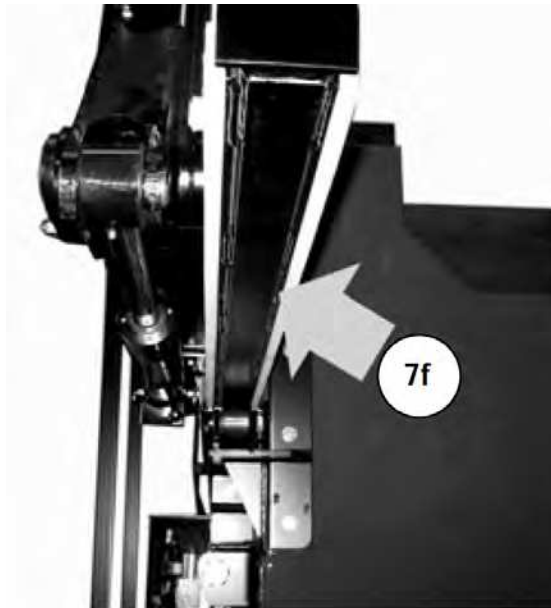


Fig. 3-46 Mechanical on Curotto-Can Assemblies Weekly Check Slide Assembly Steel Wear Strip

WEEKLY LUBRICATION

1. Sufficient lubrication is vital to the success of operations and longevity of the equipment. Weekly lubrication is recommended by the Curotto-Can since the high automated collection frequency cannot rely upon greasing schedules assigned to the unit body.
2. Many haulers equip the operators with portable grease guns and train in their daily use. Experienced operators can lubricate the Curotto-Can in less than 10 minutes.
3. There are 9 grease points shown on the **Lubrication Guide** ⁸⁰.

Curotto-Can Operation

MONTHLY CHECKS

CUROTTO-CAN		MONTHLY PREVENTIVE MAINTENANCE CHART
OPERATORS NAME:		MONTH OF:
UNIT #:		Boxes marked with a check indicate satisfactory condition.
MONTHLY INSPECTIONS AND CHECKS		
MONTHLY INSPECTIONS ARE IN ADDITION TO WEEKLY CHECKS		
12	Hydraulic and Cycle Time Checks	
12.1	Check function of upper and lower deceleration valves on the main arms function.	
12.2	Check Curotto-Can Cycle times:	
a	Full slide extend not faster than 2.5 seconds	
b	Full slide retract not faster than 1.5 seconds	
c	Arm up (Dump) cycle not faster than 2 seconds	
d	Arm down (return) cycle not faster than 1.2 seconds	
e	Grip close not faster than 1.0 second	
f	Grip open no faster than 1.0 second	
SIX MONTH CHECK		
SIX MONTH INSPECTIONS ARE IN ADDITION TO WEEKLY AND MONTHLY CHECKS		
13	Hydraulic Flow and Pressure	
13.1	Check hydraulic oil flow to the Curotto-Can	
	Oil flow to the P port on the Curotto-Can valve body should not exceed 14gpm.	
13.2	Check hydraulic pressure at the Curotto-Can	
	Hydraulic pressure should not exceed 2000psi.	

Curotto-Can Operation

MONTHLY CHECKS (CONTINUED)

1. Monthly Checks are in addition to the weekly checks and inspections and these shall be completed by the maintenance department.
2. The Curotto-Can shall be lowered to the ground in front of the cab.
3. All of the checks that require the unit to be running assume that the pump is engaged with the air pressure above 90 psi.
4. Hydraulic and cycle time checks. Refer to the Monthly Preventive Maintenance Chart
5. Operate the front loader arms to the fully raised position and observe that the arm assembly slows down at the limit of the stroke using a hydraulic cushion.
6. Operate the front loader arms to the fully down position and observe that the arm assembly slows down at the limit of the stroke using a hydraulic cushion.
7. The hydraulic cushion may be an external deceleration valve(s) to meter oil exiting the arm cylinders, or it may be incorporated into the arm cylinders internally. Consult body manufacturer for further details and adjustments.
8. Check Curotto-Can cycle times: use a stopwatch to observe the speed of each function. Consult the chart for the specified cycle time and note any discrepancies.

6 MONTH CHECK

Refer to the Monthly Preventive Maintenance Chart

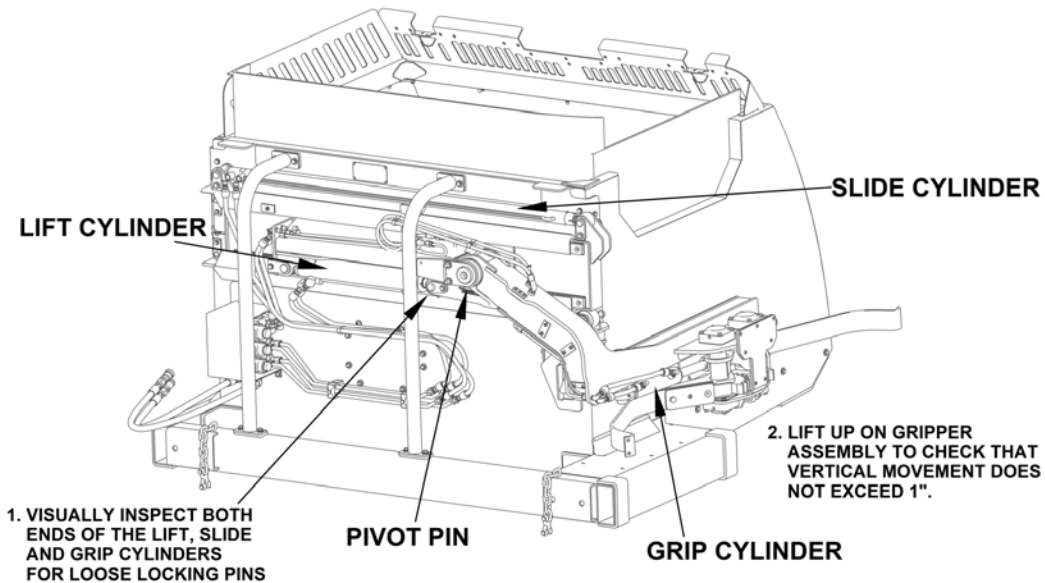
1. Check hydraulic oil flow to the Curotto-Can main directional control valve. Supply oil must be routed to the port identified with a "P" stamp on the valve body. This flow shall not exceed 14 gpm. Refer to **Flow measurement and adjustment** for details on checking flow using a flow meter . Flow may also be direct from vane pump.
2. Check hydraulic pressure at the Curotto-Can. The pressure shall not exceed 1800 - 2200 psi. Refer to **Pressure measurement and adjustment** for details on testing the hydraulic pressure.

CUROTTO-CAN TOP WEEKLY CHECKS

Always complete an Operational **Lock-Out/Tag-Out** ¹⁷⁾ before starting inspection. 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.

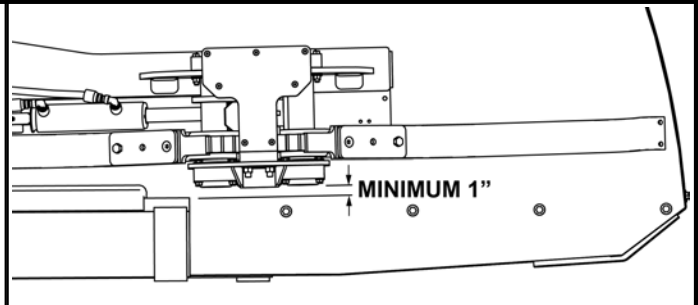
CYLINDER PIN CHECK / DUMP ARM PIVOT PEN CHECK

1. Visually inspect both ends of the Lift, Slide and Grip Cylinders for loose locking pins.
2. Lift up on Gripper Assembly to check that vertical movement does not exceed 1".



DOGBONE CLEARANCE CHECK

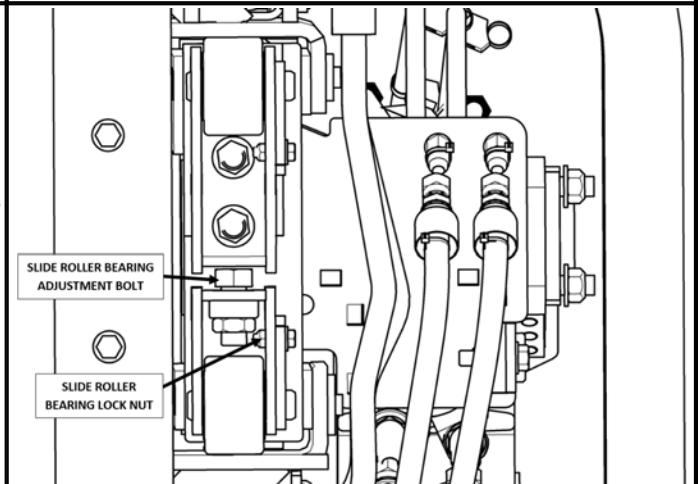
1. Check that the dogbone assembly is NOT sagging too close to the fork pocket. There must be a minimum of 1" between the dogbone and fork pocket.
2. If sagging, inspect pivot pin (see #1 for location) and the wear strips (see item #4).
3. If sagging, also adjust the lower roller bearing adjustment bolt (see Adjustable Roller for Slide/Carriage below).



ADJUSTABLE ROLLER FOR SLIDE/CARRIAGE CHECK

As the slide track wears, the arm starts to slump and the dogbone plate could come into contact with the fork tube. Check for arm slump weekly and, if needed, adjust the lower roller bearing position to keep the slide alignment parallel to the carriage.

1. Loosen lower roller bearing lock nut.
2. Turn adjustment bolt counter-clockwise until slide is parallel to the carriage.
3. Tighten lower roller bearing lock nut.



Curotto-Can Operation

CUROTTO-CAN TOP WEEKLY CHECKS

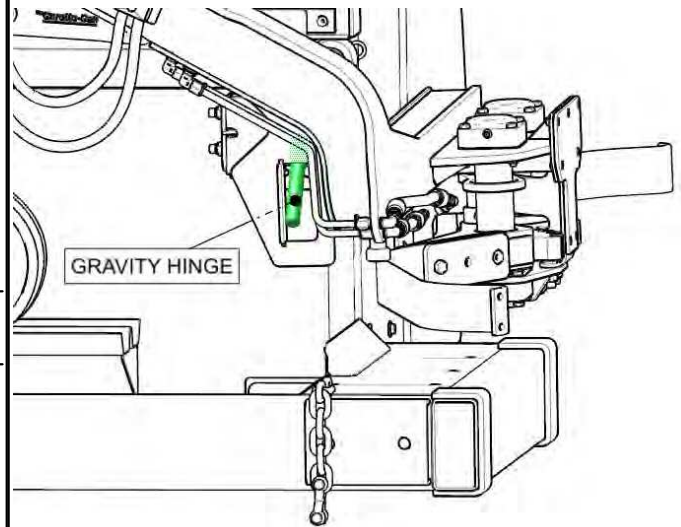
Always complete an Operational **Lock-Out/Tag-Out** ⁽¹⁷⁾ before starting inspection. If any check does not complete successfully the Curotto-Can must be repaired before use otherwise the Warranty is void and equipment damage or operator injury could result.

GRAVITY HINGE CLEARANCE CHECK

1. Retract arm and slide fully.
2. Complete Operational **Lock-Out/Tag-Out** ⁽¹⁷⁾ procedure.
3. Make sure that the tab swings freely into the pocket with a 3/8" to 1/2" gap.

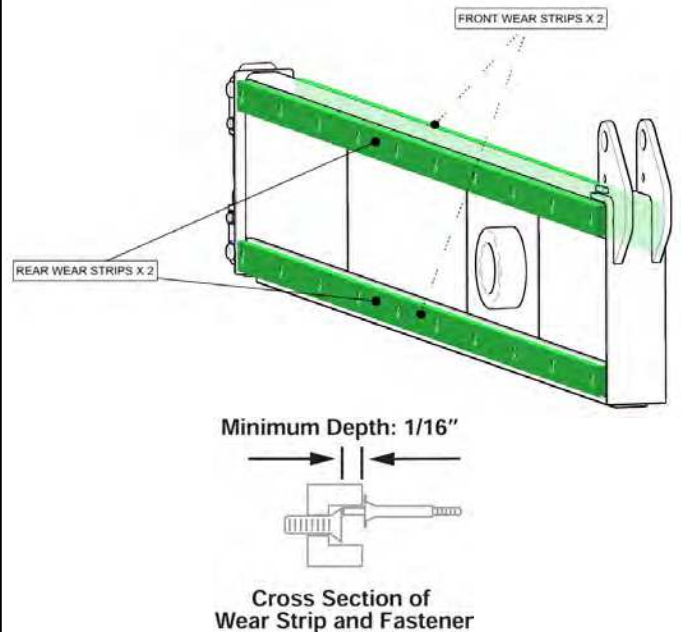
NOTICE

The specified gap prevents the face of the gripper head from traveling outboard of the fork pocket.



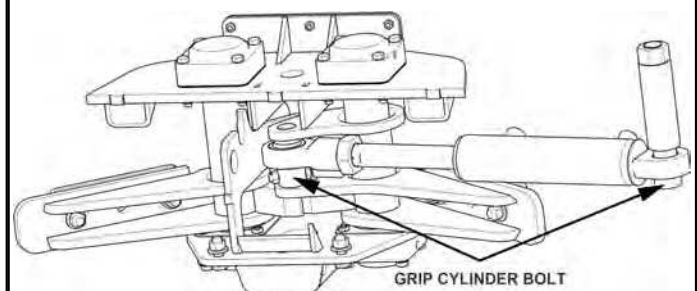
WEAR STRIP DEPTH CHECK

1. Fully extend slide out.
2. Complete Operational Lockout.
3. Check the four (4) wear strips. If depth in any one hole is less than 1/16" replace entire wear strip.
4. Also check each bolt for tightness.
5. When replacing wear strips use Loctite on all fasteners.



GRIP CYLINDER BOLT CHECK

1. Slightly open the grippers so that they are 2" from the stop pads.
2. Lift up and down on the front end of the gripper arms.
3. Arms and pivots should feel tight.
4. If loose tighten the grip cylinder bolt.
5. Use Loctite on grip cylinder bolt.



CUROTTO-CAN TOP WEEKLY CHECKS

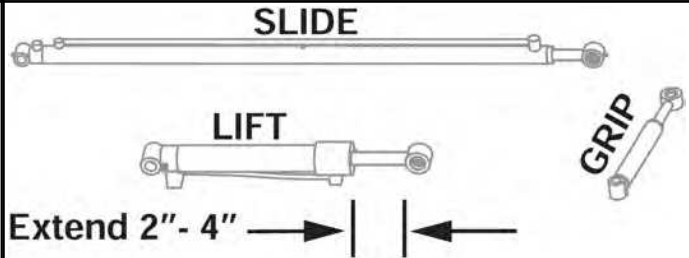
Always complete an Operational **Lock-Out/Tag-Out** ⁽¹⁷⁾ before starting inspection. If any check does not complete successfully the Curotto-Can must be repaired before use otherwise the Warranty is void and equipment damage or operator injury could result.

GRIPPER BELT TENSION CHECK

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.

AUTO-RETRACT FUNCTION CHECK

1. Extend all cylinders 2" - 4".
2. Engage ARMS UP function - all cylinders should auto retract.
3. Extend all cylinders again 2" - 4".
4. Engage FORKS EXTEND function - all cylinders should auto retract.
5. If Auto-retract does not work - repair before using.



PACKER BLADE LOCKOUT CHECK

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.
3. Engage AUTOPACK - packer blade should NOT move.
4. Do not run unit if packer blade moves - unit must be repaired before using.



CYLINDER CUSHION CHECK

1. Extend the slide cylinder halfway then fully retract.
2. Check for cushion on the retract function, there should be approximately 1" of cushion.
3. Close the grippers then fully extend and retract the dump cylinder.
4. Check for cushion at the top of the stroke of the dump cylinder.
5. There should be a smooth cushion of approximately 1" on the dump function.
6. The piston should not slam into the barrel in the slide retract or dump cycle.
7. No cushion ? – unit must be repaired prior to use.

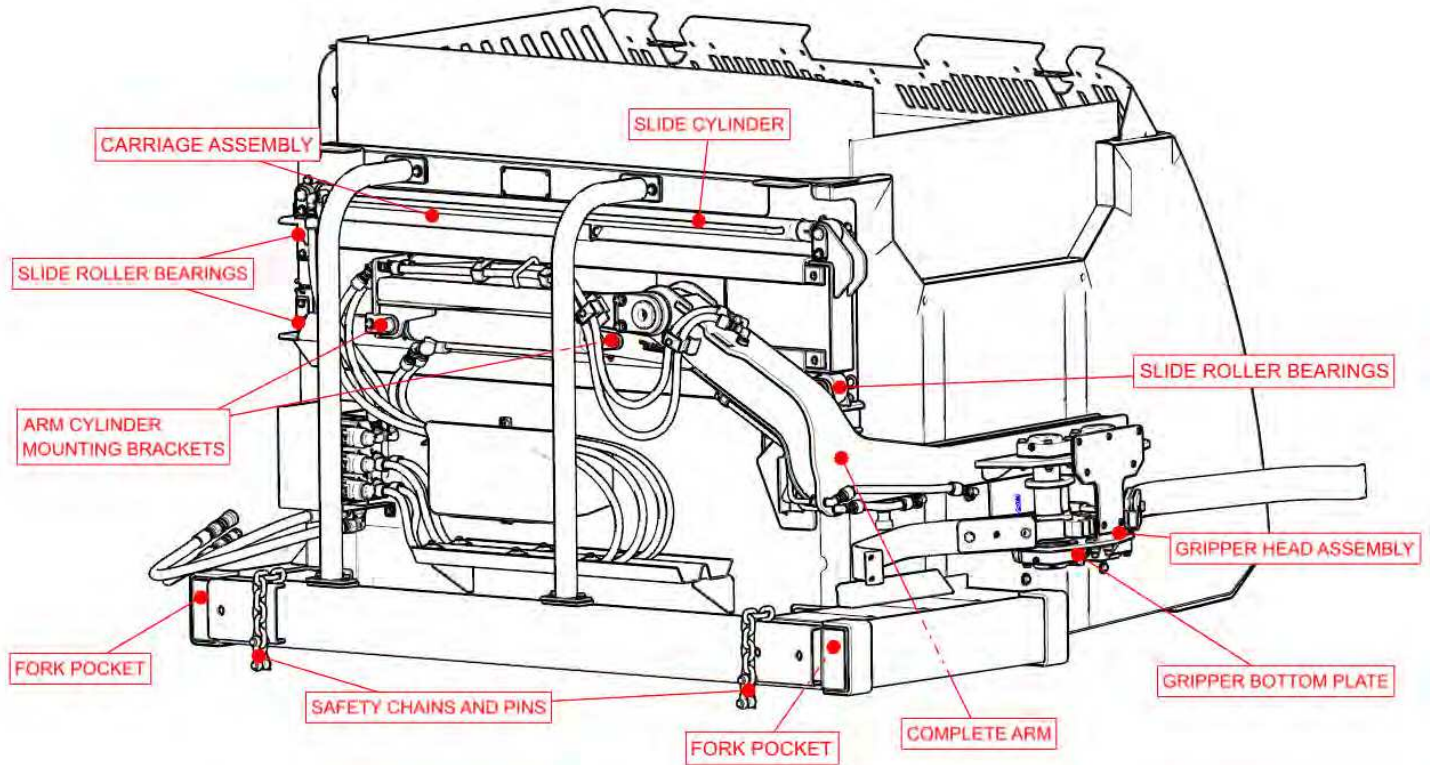
Curotto-Can

Operation

WEEKLY INSPECTIONS

WARNING

Always complete an Operational **Lock-Out/Tag-Out** ⁽¹⁷⁾ before starting inspection.



Gripper Head Assembly Inspections		Weekly
1	Gripper head assembly for cracks and damage	<input checked="" type="checkbox"/>
2	That gripper head bolts are secure and properly torqued (50 ft/lbs top nuts & 100 ft/lbs for bottom).	<input checked="" type="checkbox"/>
3	Arm cylinder mounting bracket for cracks	<input checked="" type="checkbox"/>
Slide Track and Lift Arm Inspections		
4	Wear strips are not worn beyond specification or damaged	<input checked="" type="checkbox"/>
5	Complete carriage assembly, slide and slide cylinder mounts for cracks	<input checked="" type="checkbox"/>
6	Arm slumping requiring bottom slider roller bearing adjustment ⁽⁸²⁾	<input checked="" type="checkbox"/>
6	Top and bottom slide roller bearings for excessive wear or damage	<input checked="" type="checkbox"/>
-	Lift arm pivot collar - see illustration below	<input checked="" type="checkbox"/>
Can Body Inspections		
7	Container fork pockets and corners for cracks and damage	<input checked="" type="checkbox"/>
8	Container safety chains and pins are secured and functional	<input checked="" type="checkbox"/>
Truck Inspections		
-	Truck arm cylinder mounts and forks for cracks and damage	<input checked="" type="checkbox"/>

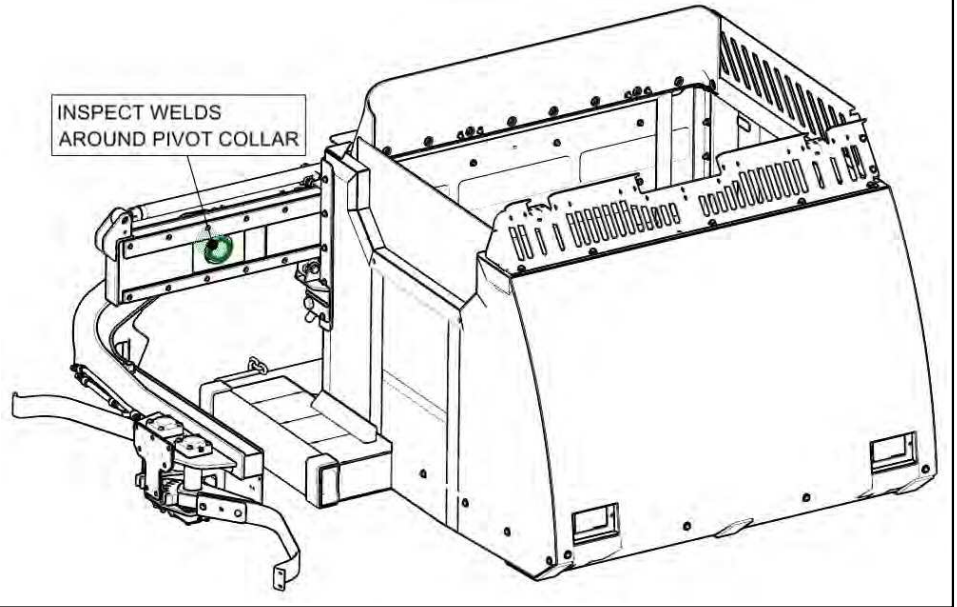
Curotto-Can

Operation

Lift Arm Pivot Collar

Inspection Procedure

1. Extend arm out fully
2. Shut off truck and complete Lock-Out/Tag-Out
3. Inspect weld around collar
4. Repair any cracks before returning to service



Curotto-Can Operation

MASTER CHECKLISTS

The Master Check Lists on the following pages are designed to be used for all inspections. The Master Check Lists are to be copied from the original and completed as part of Inspections. Refer to **Inspections** ⁽⁵⁾.

1. Daily Checklist
2. Weekly Checklists
3. Weekly Lubrication
4. Monthly and 6 Month Checks

CUROTTO-CAN		DAILY PREVENTIVE MAINTENANCE CHART				
OPERATORS NAME:		WEEK OF:				
UNIT #:		Boxes marked with a check indicate satisfactory condition.				
DAILY INSPECTIONS AND CHECKS		MON	TUE	WED	THUR	FRI
1	Pre-Trip Visual Inspection					
1.1	Overall structural integrity, no damage to container, arm, or slide.					
1.2	No oil leaks from hydraulic components.					
1.3	Gripper belts are without tears and no extensive wear.					
1.4	Safety pins are in place, without damage and working properly.					
1.5	Safety chains are in place, without damage and working properly.					
2	Pre-Trip Auto-Retract Check					
2.1	Extend slide, dump and gripper cylinders a minimum of 2" - raise unit arms maximum 24" and all three cylinders fully retract.					
2.2	Again, extend slide, arm and gripper cylinders a minimum of 2" - lower unit forks so the Can contacts the ground and all three cylinders fully retract.					
3	Pre-Trip Cylinder Cushion Check					
3.1	Retract slide and close grippers. Fully cycle dump cylinder and check cushion at top and bottom of stroke. Correct cushion is 1" to 2" with the cylinder coming to rest slowly at the end of the stroke.					
4	Pre-Trip Gravity Hook Check					
4.1	Retract all three cylinders, Complete Operation Shutdown - Long Term. Physically check that the gravity hook is present and free to rotate so it will engage the anchor pin when Can is inverted.					
5	Pre-Trip Packer Blade Lockout Check					
5.1	Retract all three cylinders. Using front loader arm control, raise the Can to a point directly above the cab. Do Not put the Can in the hopper. Press the front loader pack and auto-pack controls. The packer blade function should be locked out.					

Comments _____

SUPERVISOR NAME _____ **SUPERVISOR SIGN** _____

Curotto-Can Operation

CUROTTO-CAN		WEEKLY PREVENTIVE MAINTENANCE CHART			
OPERATORS NAME:		WEEK OF:			
UNIT #:		Boxes marked with a check indicate satisfactory condition.			
WEEKLY INSPECTIONS		WEEK 1	WEEK 2	WEEK 3	WEEK 4
6	Pre-Trip Visual Inspection				
6.1	Inspect arm cylinder mounting brackets for cracks and damage.				
6.2	Inspect upper and lower fork cylinder brackets for cracks and damage.				
7	Structural on Curotto-Can				
7.1	Inspect carriage assembly, slide and brackets for cracks and damage.				
7.2	Inspect dump arm for cracks and damage.				
7.3	Inspect gripper assembly cracks and damage. Hub caps present on spindles.				
7.4	Inspect Can pockets and corners for cracks and damage.				
7.5	Inspect all cylinder mounting brackets for cracks and damage.				
WEEKLY CHECKS					
8	Mechanical on Unit Body				
8.1	Arm Hydraulic hoses are secure no damage or wear.				
8.2	Electrical and hydraulic lines are secure and properly routed around the fork pivot area.				
9	Mechanical on Curotto-Can Electrical				
9.1	Electrical wiring harness plug is secure no damage.				
9.2	Wiring harness from coupler to Can hydraulic valve is secure no damage.				
9.3	Electrical solenoids on main valve are secure no damage.				
10	Mechanical on Curotto-Can Hydraulic				
10.1	Quick disconnects are secure no leaks or damage.				
10.2	Hydraulic hoses are secure and free from obstruction when the Can is dumped.				
10.3	Main Can hydraulic valve is secure no leaks or damage				
10.4	Hydraulic hoses on Can to the cylinders are secure no leaks or damage.				
10.5	All cylinders are secure no leaks or damage.				

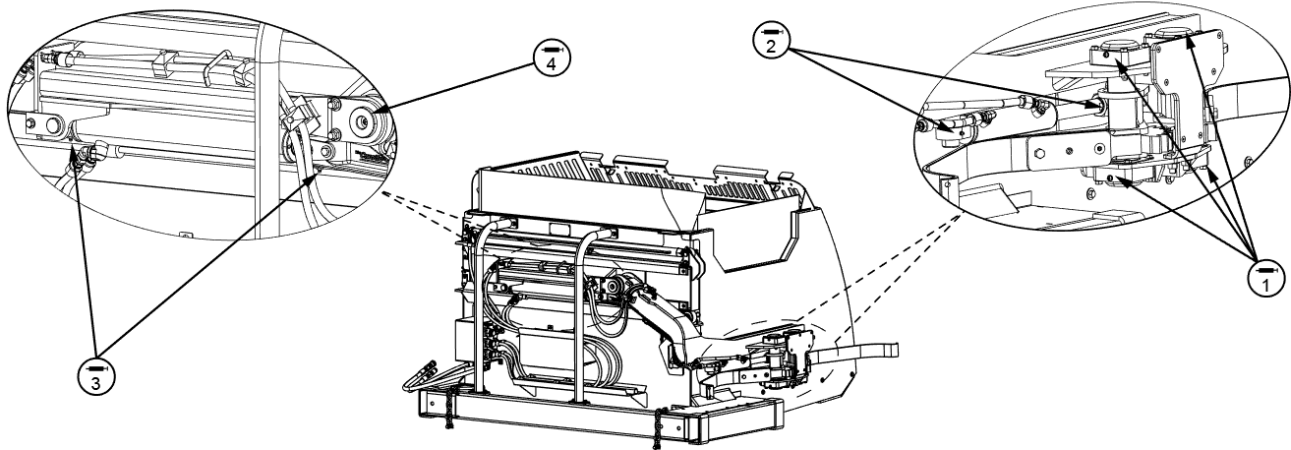
Comments _____

SUPERVISOR NAME _____ **SUPERVISOR SIGN** _____

Curotto-Can Operation

CUROTTO-CAN		WEEKLY PREVENTIVE MAINTENANCE CHART			
OPERATORS NAME:		WEEK OF:			
UNIT #:		Boxes marked with a check indicate satisfactory condition.			
WEEKLY CHECKS		WEEK 1	WEEK 2	WEEK 3	WEEK 4
11	Mechanical on Curotto-Can-Assemblies				
11.1	Slide rollers top and bottom for excessive wear.				
11.2	Gripper bottom plate assembly bolts are secure.				
11.3	Gripper assembly shows no sign of rubbing on container pocket or hopper wall.				
11.4	Dump arm pivot pin: Lift up on gripper assembly to check the vertical movement does not exceed 1"				
11.5	Slide assembly: Fully extend the carriage. Complete operational shut down - Long Term Check 4 nylon strips for wear or damage				
WEEKLY LUBRICATION					

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

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

② Lubricate moveable mechanical parts without fittings every 60 days with non-detergent engine oil.

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Comments _____

SUPERVISOR NAME _____ SUPERVISOR SIGN _____

Curotto-Can Operation

CUROTTO-CAN		MONTHLY PREVENTIVE MAINTENANCE CHART
OPERATORS NAME:		MONTH OF:
UNIT #:		Boxes marked with a check indicate satisfactory condition.
MONTHLY INSPECTIONS AND CHECKS		
MONTHLY INSPECTIONS ARE IN ADDITION TO WEEKLY CHECKS		
12	Hydraulic and Cycle Time Checks	
12.1	Check function of upper and lower deceleration valves on the main arms function.	
12.2	Check Curotto-Can Cycle times:	
a	Full slide extend not faster than 2.5 seconds	
b	Full slide retract not faster than 1.5 seconds	
c	Arm up (Dump) cycle not faster than 2 seconds	
d	Arm down (return) cycle not faster than 1.2 seconds	
e	Grip close not faster than 1.0 second	
f	Grip open no faster than 1.0 second	
SIX MONTH CHECK		
SIX MONTH INSPECTIONS ARE IN ADDITION TO WEEKLY AND MONTHLY CHECKS		
13	Hydraulic Flow and Pressure	
13.1	Check hydraulic oil flow to the Curotto-Can	
	Oil flow to the P port on the Curotto-Can valve body should not exceed 14gpm.	
13.2	Check hydraulic pressure at the Curotto-Can	
	Hydraulic pressure should not exceed 2000psi.	

Comments _____

SUPERVISOR NAME _____ **SUPERVISOR SIGN** _____

Curotto-Can

NOTES

SECTION 4


MAINTENANCE AND

ADJUSTMENT

Curotto-Can

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** 
 - 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** [13](#).

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** [17](#).

DANGER

Failure to observe Exclusion Zones may result in serious injury or death. (Refer to Part 2 Section 4 **Exclusion Zones** [27](#)).

Curotto-Can

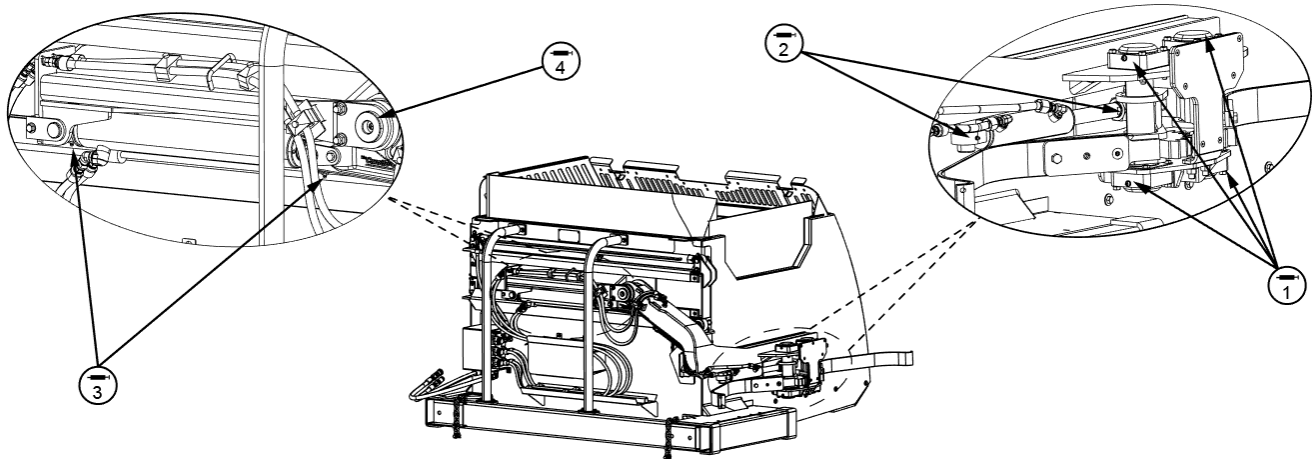
Maintenance and Adjustment

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.

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Curotto-Can

Maintenance and Adjustment

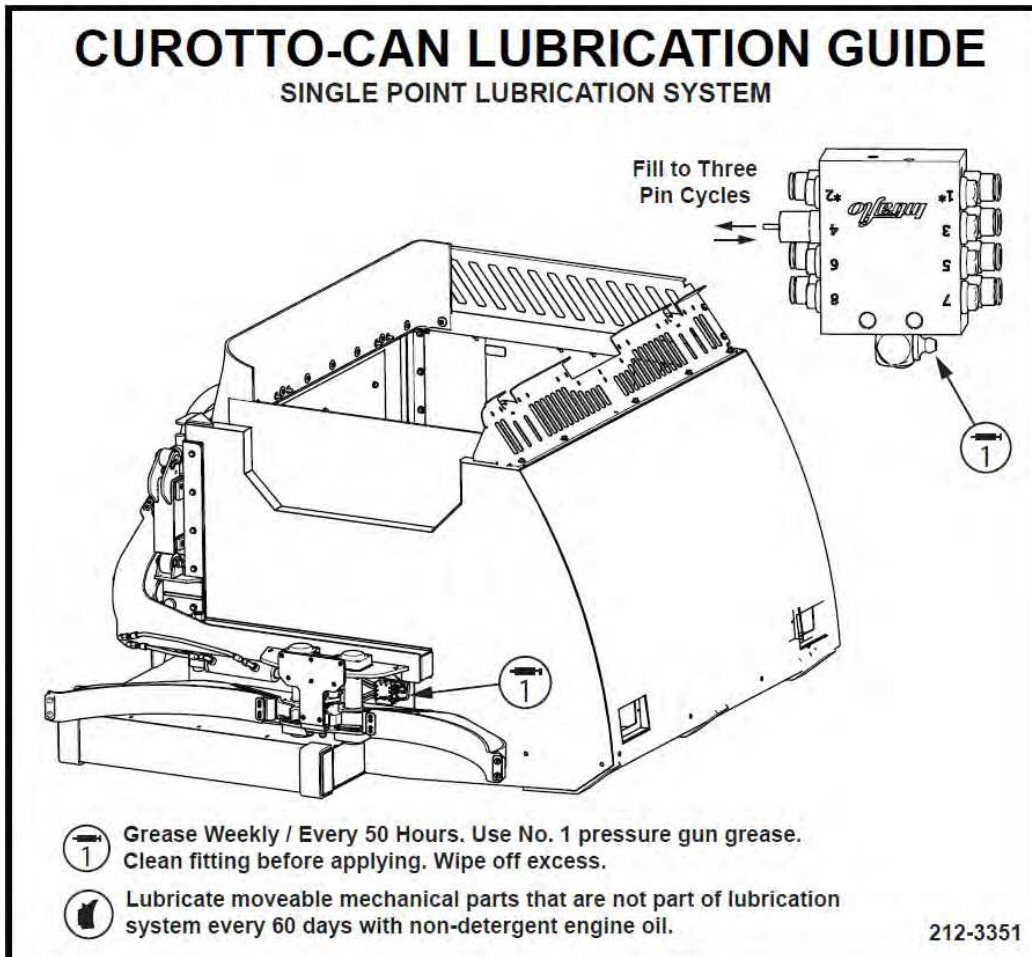
CUROTTO-CAN OPTIONAL SINGLE POINT LUBRICATION GUIDE

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 block flow of grease to the entire system. Repair any damaged lines or system components immediately.



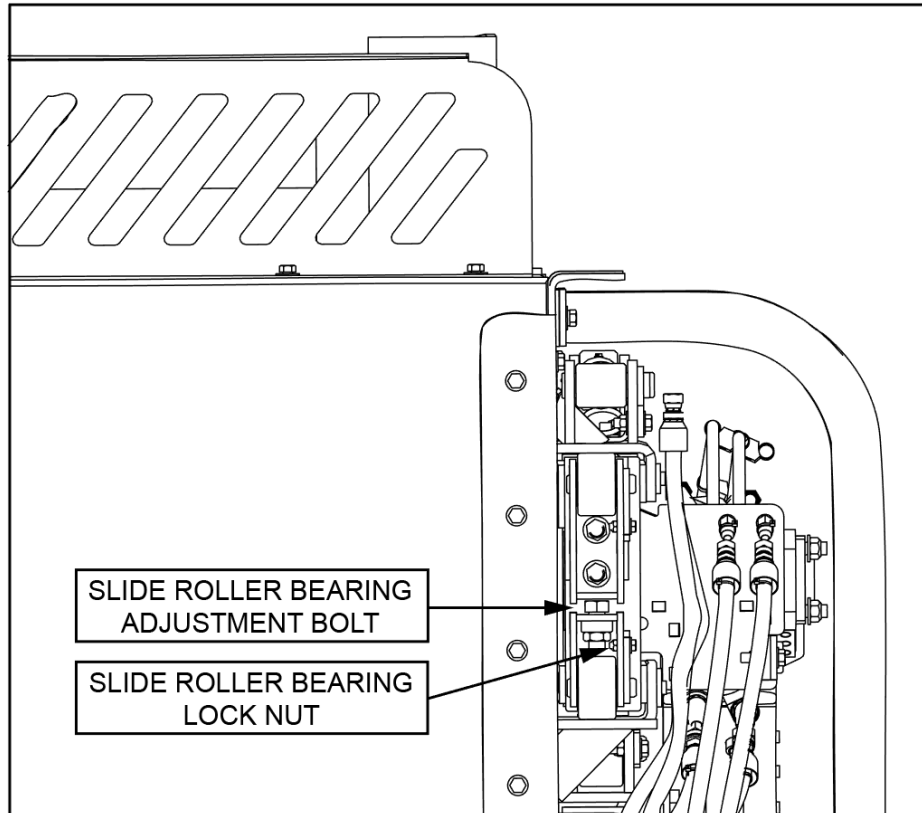
Curotto-Can

Maintenance and Adjustment

ADJUSTABLE ROLLER FOR SLIDE/CARRIAGE

As the slide track wears, the arm starts to slump and the dogbone plate could come into contact with the fork tube. Check for arm slump WEEKLY and, if needed, adjust the lower roller bearing position to keep the slide alignment parallel to the carriage. Refer to Adjustable Roller for Slide/Carriage decal (212-3404) on the can and the figure below.

1. Loosen Lower Roller Bearing lock nut.
2. Turn Adjustment Bolt counter-clockwise until slide is parallel to carriage.
3. Tighten Lower Roller Bearing lock nut.



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.

Curotto-Can

Maintenance and Adjustment

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** ⁸⁸.

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.

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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

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Maintenance and Adjustment

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.

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STANDARD PRESSURES AND CYCLE TIMES

STANDARD PRESSURES AND CYCLE TIMES - CUROTTO-CAN									
MODEL	MAIN RELIEF	GRIPPER PORT RELIEF	REQUIRED FLOW	ARM FULL EXTEND	ARM FULL RETRACT	LIFT ARM UP	LIFT ARM DOWN	GRABBER - CLOSE	GRABBER - OPEN
Curotto-Can	2200 PSI	1800 PSI	12-14 GPM @ 2000 PSI	1.5 - 2.0 SEC	1.5 - 2.0 SEC	1.0 - 1.5 SEC	1.25 - 1.75 SEC	0.75 - 1.0 SEC	<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

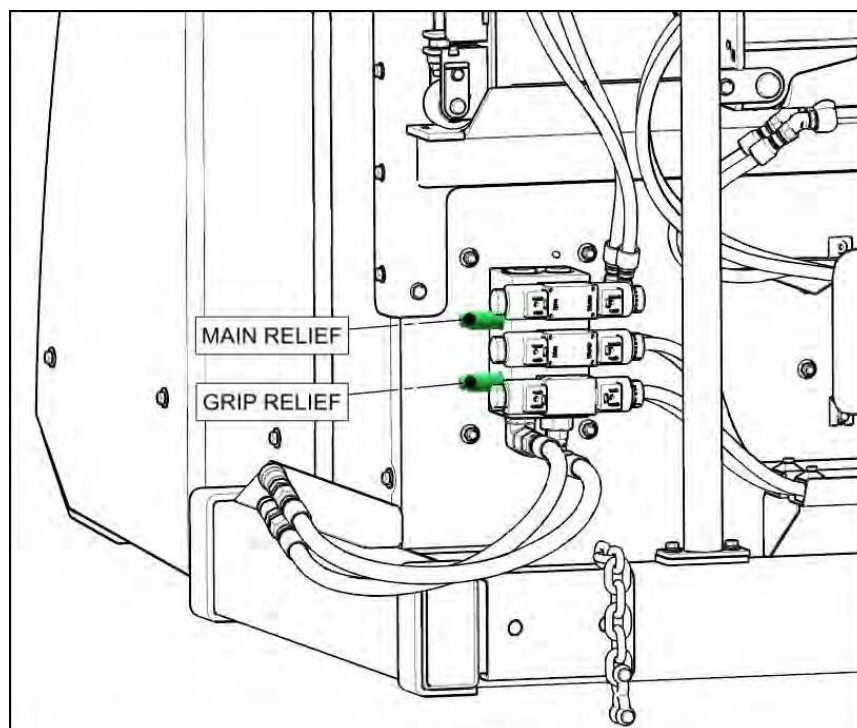


Fig. 4-6 Electric Solenoids Mounted to Directional Valve

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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

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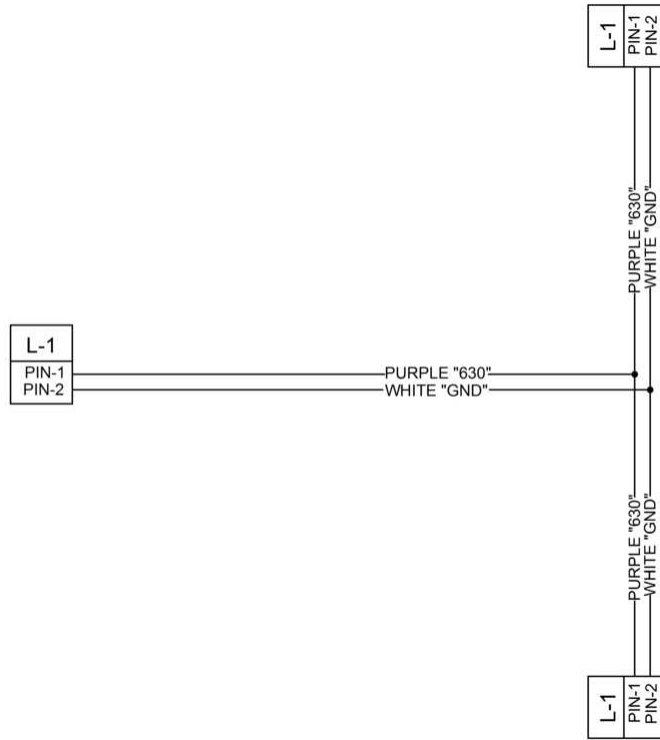
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SECTION 5

SCHEMATICS

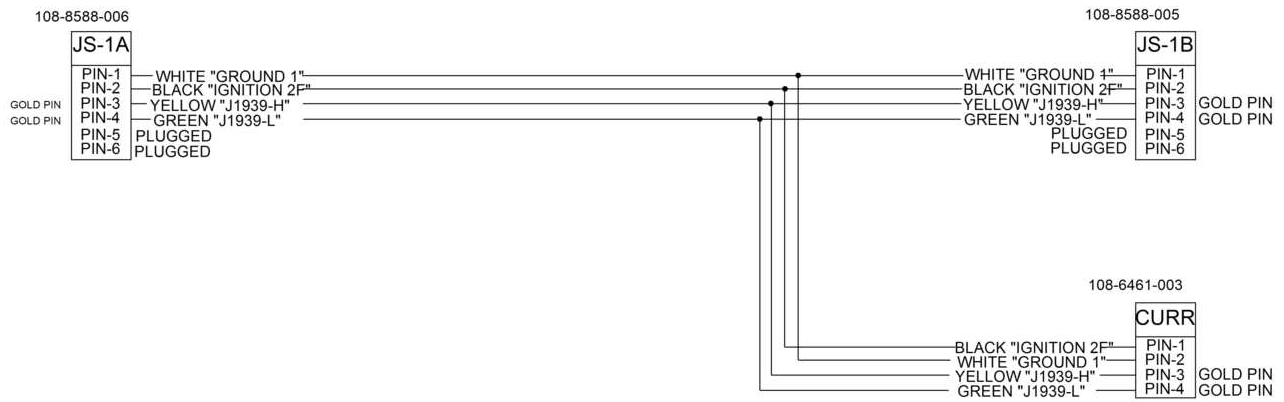
Curotto-Can Schematics

CAN FLOOD INTERFACE HARNESS – 263-1409-004



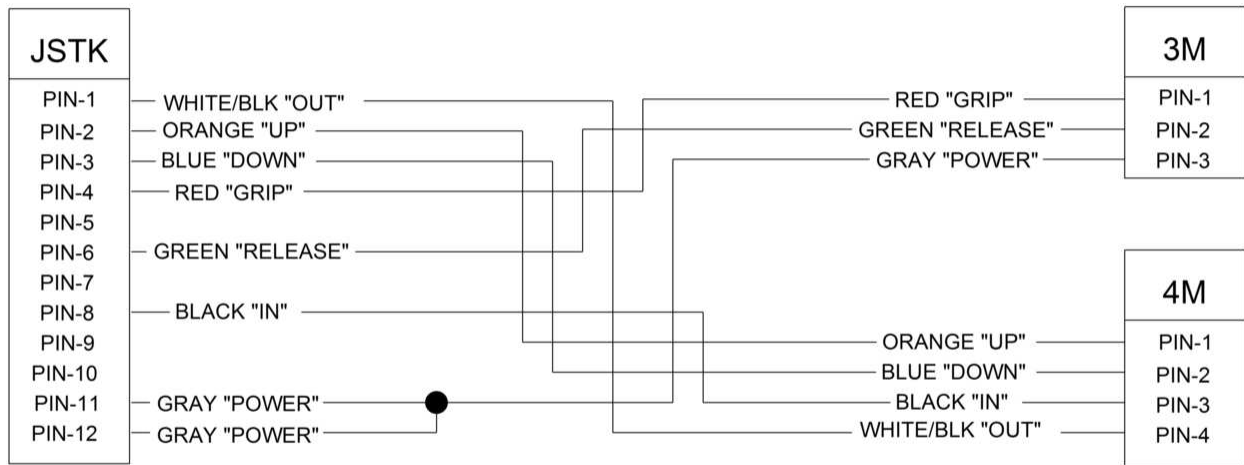
Curotto-Can Schematics

AUXILIARY CUROTTO CONTROLS HARNESS – 263-1738-020



Curotto-Can Schematics

CUROTTO JOYSTICK HARNESS, 263-1707



E-1	
PIN-1	BLACK "IGNITION 1F"
PIN-2	PLUGGED
PIN-3	PLUGGED
PIN-4	PURPLE "CARRY CAN LIGHTS"
PIN-5	PLUGGED
PIN-6	PURPLE "CARRY CAN COVER UP"
PIN-7	PURPLE "CARRY CAN COVER DOWN"
PIN-8	PLUGGED
PIN-9	PLUGGED
PIN-10	BLACK "IGNITION 1F"
PIN-11	GREEN "CARRY CAN RELEASE"
PIN-12	ORANGE "CARRY CAN UP"
PIN-13	DK BLUE "CARRY CAN DOWN"
PIN-14	BLACK "CARRY CAN IN"
PIN-15	WHITE/BLACK "CARRY CAN OUT"
PIN-16	RED "CARRY CAN GRAB"
PIN-17	PLUGGED
PIN-18	PLUGGED
PIN-19	BLACK "IGNITION 1F"
PIN-20	WHITE "GND 1"
PIN-21	PLUGGED
PIN-22	PLUGGED
PIN-23	PLUGGED
PIN-24	PLUGGED
PIN-25	PLUGGED
PIN-26	PLUGGED
PIN-27	PLUGGED
PIN-28	PLUGGED
PIN-29	GREEN "J1939 3 L, HELI NETWORK 2"
PIN-30	PLUGGED
PIN-31	PLUGGED
PIN-32	PLUGGED
PIN-33	ORANGE "BAYNE CAN UP"
PIN-34	PLUGGED
PIN-35	PLUGGED
PIN-36	PLUGGED
PIN-37	WHITE "GND 1"
PIN-38	BLACK "NODE ID"
PIN-39	PLUGGED
PIN-40	PLUGGED
PIN-41	PLUGGED
PIN-42	WHITE "GND 1"
PIN-43	PLUGGED
PIN-44	PLUGGED
PIN-45	PLUGGED
PIN-46	PLUGGED
PIN-47	YELLOW "J1939 3 H, HELI NETWORK 2"
PIN-48	PLUGGED
PIN-49	PLUGGED
PIN-50	PLUGGED
PIN-51	PLUGGED
PIN-52	ORANGE "BAYNE CAN DOWN"
PIN-53	PLUGGED
PIN-54	PLUGGED
PIN-55	PLUGGED

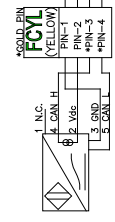
T.R.	
PIN-1	SSLD PIN
PIN-2	SSLD PIN

J1939-3	
PIN-1	SSLD PIN
PIN-2	SSLD PIN

CAP BAY-SW	
PIN-A	ORANGE "BAYNE CAN UP"
PIN-B	ORANGE "BAYNE CAN DOWN"
PIN-C	BLACK "IGNITION 1F"

PLUGGED	PLUGGED
PLUGGED	PLUGGED
PLUGGED	PLUGGED

SSLD PIN	
PIN-1	WHITE "GND 1" (14 AWG)
PIN-2	BLACK "IGNITION 1F" (14 AWG)
PIN-3	YELLOW "J1939 3 H, HELI NETWORK 2"
PIN-4	GREEN "J1939 3 L, HELI NETWORK 2"



FCYL (YELLOW)	
PIN-1	WHITE "GND 1"
PIN-2	BLACK "IGNITION 1F"
PIN-3	GREEN "J1939 3 L, HELI NETWORK 2"

CU1	
PIN-A	ORANGE "CARRY CAN UP"
PIN-B	BLACK "CARRY CAN IN"
PIN-C	BLACK "CARRY CAN OUT"
PIN-D	WHITE/BLACK "CARRY CAN OUT"

PLUGGED	PLUGGED
PLUGGED	PLUGGED
PLUGGED	PLUGGED

CU3 CAP	
PIN-A	PLUGGED
PIN-B	PLUGGED
PIN-C	PLUGGED

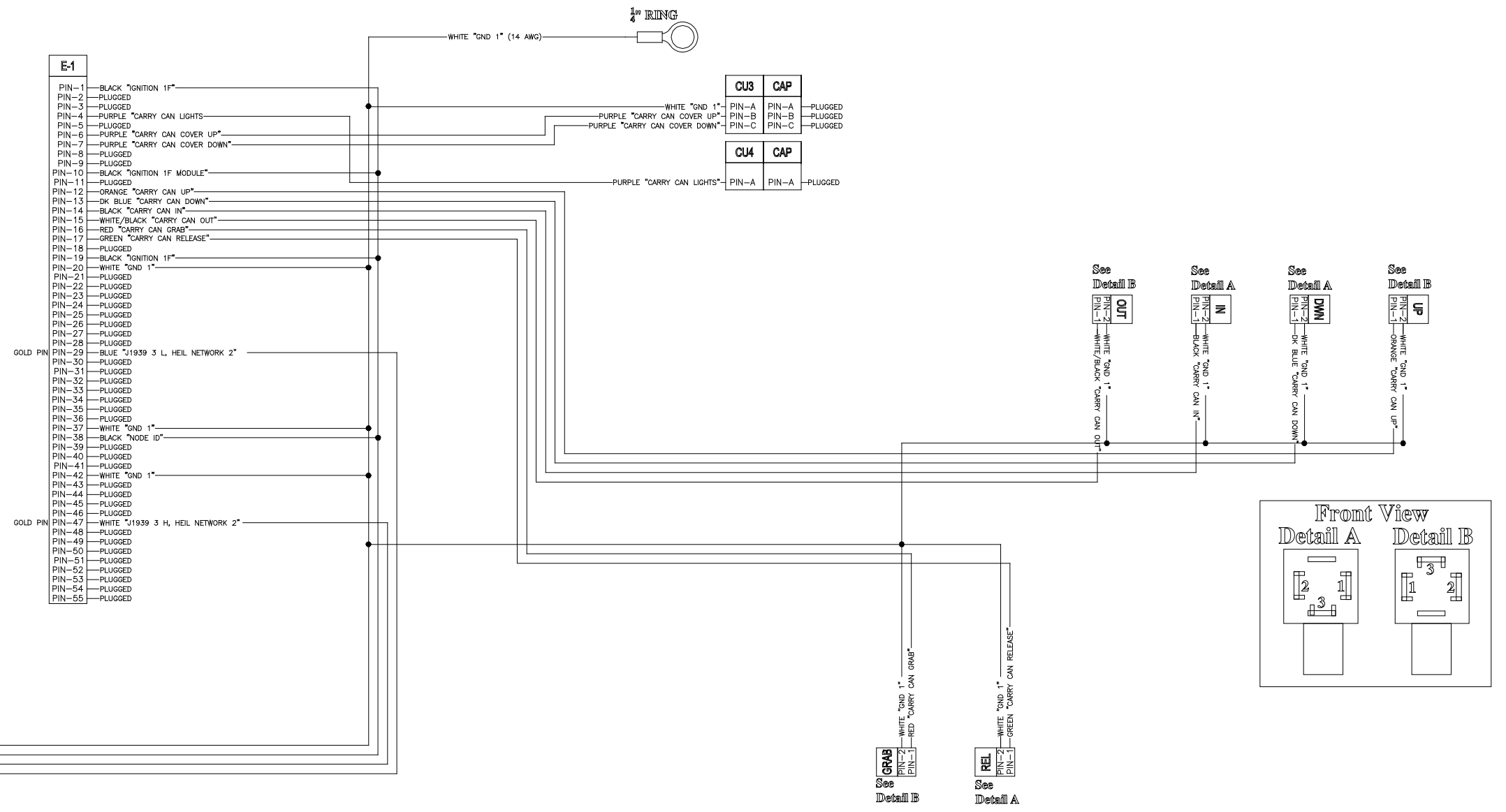
PLUGGED	PLUGGED
PLUGGED	PLUGGED
PLUGGED	PLUGGED

CU2	
PIN-A	WHITE "GND 1" (14 AWG)
PIN-B	RED "CARRY CAN GRAB"
PIN-C	GREEN "CARRY CAN RELEASE"

PLUGGED	PLUGGED
PLUGGED	PLUGGED
PLUGGED	PLUGGED

CU4 CAP	
PIN-A	PLUGGED
PIN-B	PLUGGED
PIN-C	PLUGGED

PLUGGED	PLUGGED
PLUGGED	PLUGGED
PLUGGED	PLUGGED



*GOLD PIN

RCN	B
PIN-1	BLACK "GND 1" (15 AWG)
PIN-2	RED "IGNITION 1F" (15 AWG)
*PIN-3	WHITE "J1939 3 H, HEIL NETWORK 2"
*PIN-4	BLUE "J1939 3 L, HEIL NETWORK 2"

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Curotto-Can

NOTES



HEIL ENVIRONMENTAL WARRANTY STATEMENT

The Heil Co. d/b/a Heil Environmental ("Heil") warrants its solid waste collection equipment to be free from defects in material and workmanship under normal use for a period of one (1) year or 2000 hours of operation (whichever comes first) from the date of equipment In-Service or during the period of coverage offered by an extended warranty program, when proper service and maintenance as described in Heil Service Bulletins and Parts & Service Manuals are performed. The standard or extended equipment warranty is not transferable except for sales demonstration units.

This warranty is expressly limited to the repair or replacement of any component or part thereof, of any such refuse or recycling collection body manufactured by Heil that is proven to Heil's satisfaction to have been defective in material or workmanship. Such components or parts shall be repaired or replaced at Heil's option without cost to the standard purchaser for parts and labor provided such unit is returned to an authorized Heil Distributor for replacement or repair. The repair or replacement must be made during the standard or extended warranty coverage period. Before any warranty can be allowed on new equipment, a validated warranty registration form must be on file with Heil's Customer Service Department within sixty (60) days of the equipment's In-Service date. Wear items are excluded from warranty coverage.

All OEM service parts sold by Heil have a six (6) month warranty from the date of purchase. Aftermarket parts purchased from Heil are supported by a 90-day warranty. The parts warranty covers parts only, providing that factory inspection reveals a defect in material or workmanship. Labor, troubleshooting, equipment downtime, etc. is not covered under the parts warranty policy.

HEIL MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, AND MAKES NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR ANY PARTICULAR PURPOSE. HEIL DOES NOT ASSUME ANY LIABILITY OR ACCEPT CLAIMS FOR LOSS OF PROFITS, PRODUCT DOWN TIME OR ANY OTHER DIRECT, INCIDENTAL OR INDIRECT CONSEQUENTIAL LOSSES, COSTS, DAMAGES OR DELAYS.

Any improper use, operation beyond rated equipment or component capacity, substitution of parts that are not Heil-approved, or any alteration or repair by others in such a manner as in Heil's sole judgment affect the product operation or integrity shall void the warranty.

Other than the extension of the standard warranty period purchased under a supplemental Heil Extended Warranty Program, no employee or representative is authorized to modify this warranty in any way nor shall any other warranties be granted. No dealer-supplied warranty program is endorsed or supported by Heil.

Heil retains the right to modify its factory warranty program prospectively at any time.

Revised 1/2013

WARRANTY

The **Curotto-Can**

The Future of Automated Collection

www.thecurottocan.com

Phone:

866-696-4345

Parts Direct E-mail:

parts@thecurottocan.com

Sales Direct E-mail:

sales@thecurottocan.com

The Curotto-Can, LLC
2030 Hamilton Place Blvd, Suite 200
Chattanooga, TN 37421