



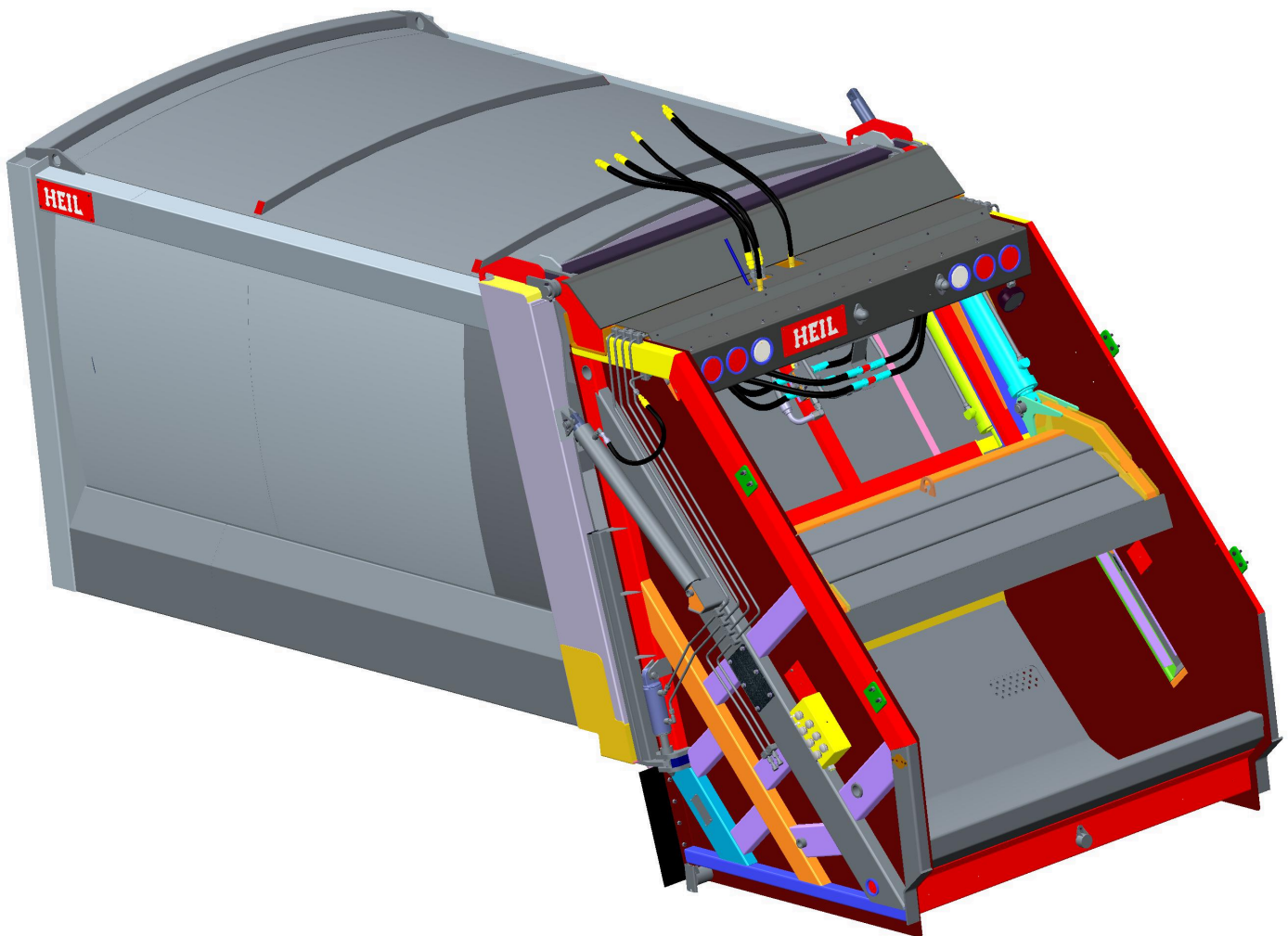
PT 1000A

HIGH-PERFORMANCE REAR LOADER

PARTS AND SERVICE MANUAL

ISSUED JANUARY 2017

TP1PT1A-PSM-0117



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



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PT 1000A
PARTS AND SERVICE MANUAL

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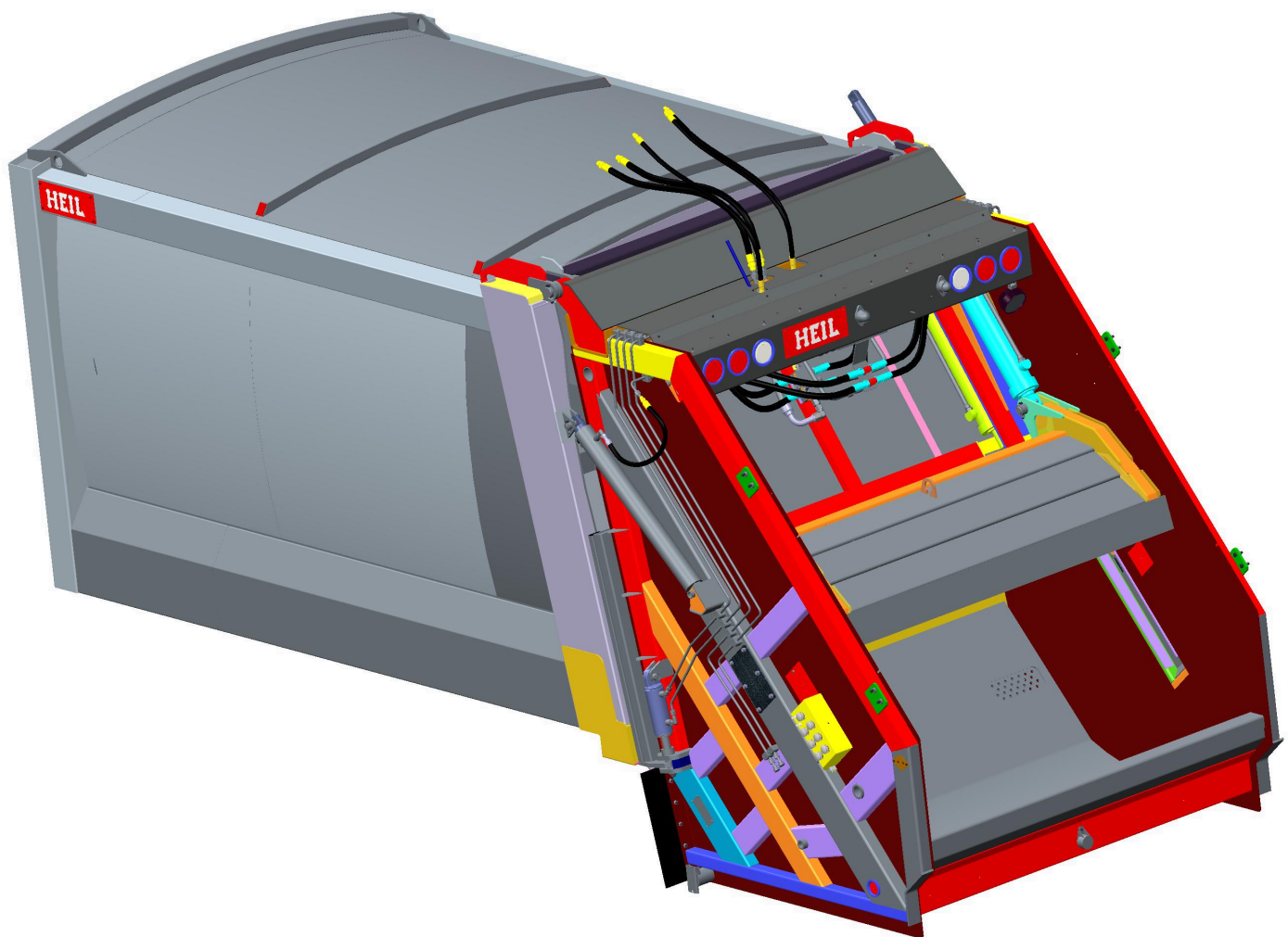
Parts Manual.....TP1PT1A-PM-0117

Service Manual.....TP1PT1A-SM-0117



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PARTS AND SERVICE MANUAL

ISSUED JANUARY 2017

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SECTION 1

GENERAL INFORMATION

UNDERSTANDING THE PARTS MANUAL

The Parts Manual is the first Manual of the Parts and Service 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 seven sections including Section 1 - General Information, for easy access and use. Sections 2-7 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.....	Divider
28 Yard Body Assembly.....	Assembly/Part
Arm Installation.....	
Composite Top Door.....	
Packer Panel.....	
Cab Protector Assembly.....	

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.
4. The Schematics are referenced to Service Manual Section 9 and included in Service Manual Section 9.
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.

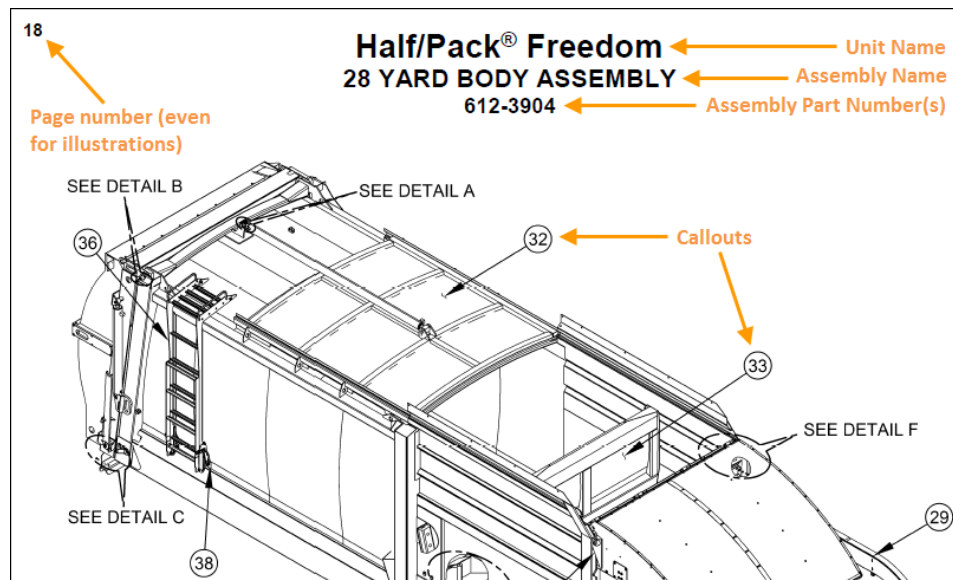


Figure 2. Titles and Part Numbers

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)

Page number (odd for parts lists) → 141

Half/Pack® Freedom
MACK FRONT DRIVE PUMP KIT INSTALLATIONS
 272-3460, 272-3460-001

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

Read as "Pump Shaft Guard"

These items are not illustrated

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 front, left side of the unit.
2. Information stamped in the four boxes on the serial plate shows:
 - Model number: 612-nnnn (“n” is any single-digit number)
 - Unit’s unique serial number
 - Body size (cu. yd.)
 - Date of manufacture (last number of the year followed by the number of the day of the year, e.g. F145 is year 2015 and the 145th day of 2015).

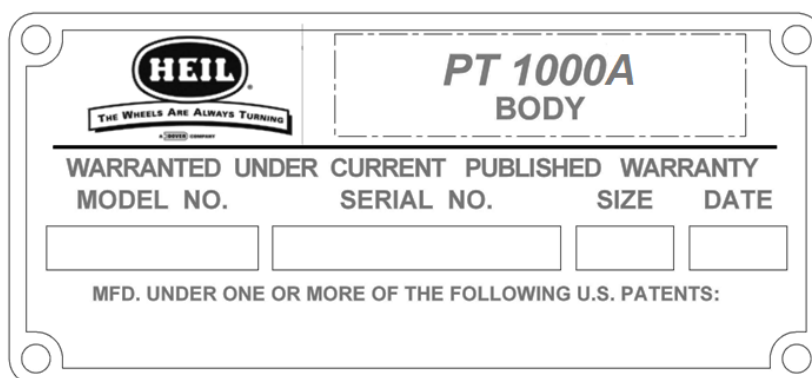


Figure 5. Sample Serial Plate

B. Year of Manufacture Information

The code for the year of manufacture is in accordance with FMVSS 115. See the following table.

Year of Manufacture			
Year Code	Year	Year Code	Year
A	2010	G	2016
B	2011	H	2017
C	2012	J	2018
D	2013	K	2019
E	2014	L	2020
F	2015	M	2021

HEIL CUSTOMER SUPPORT

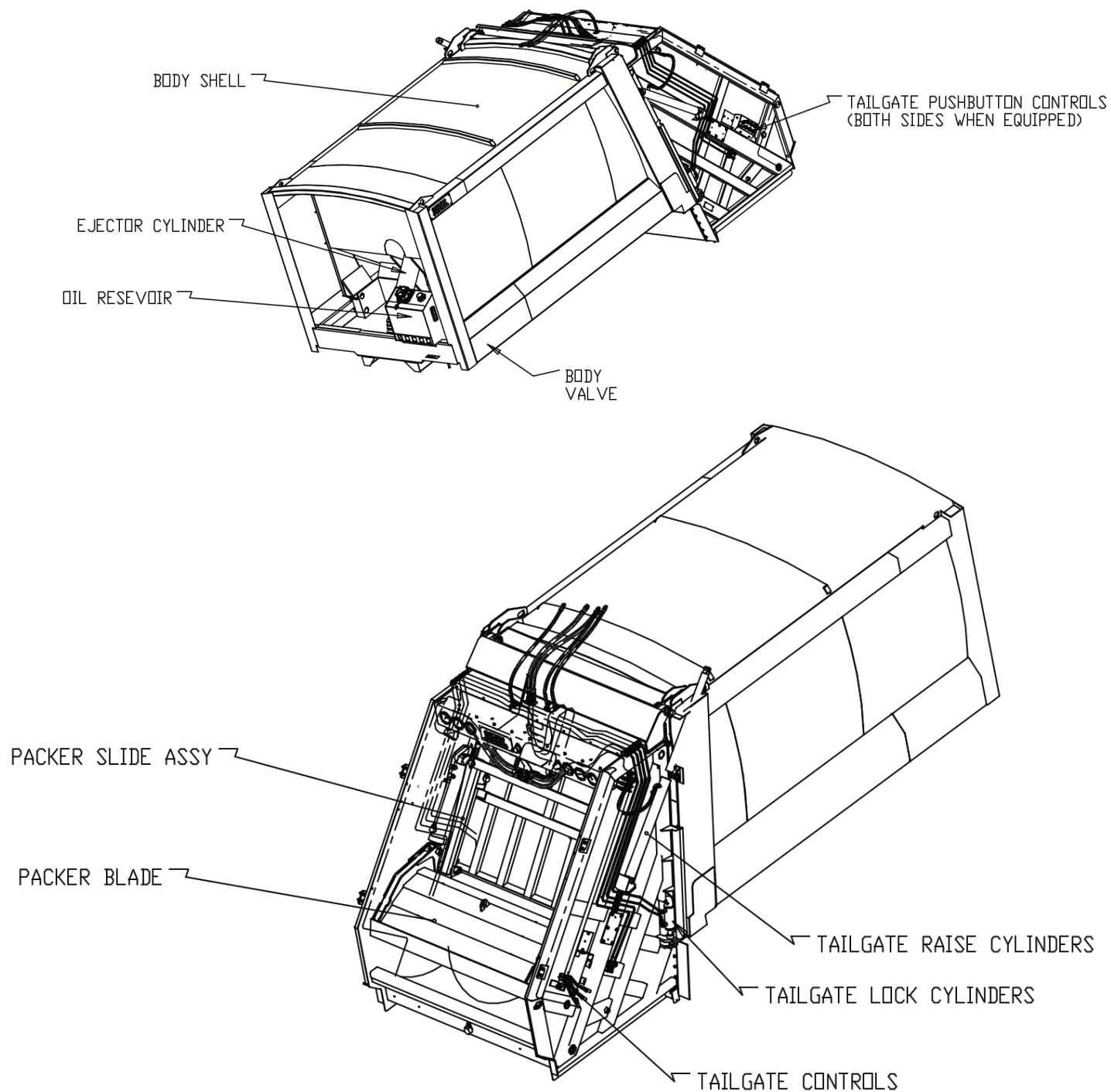
For inquiries about units, call Customer Care at 866-ASK-HEIL (866-275-4345).

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

For Technical Service, call 866-310-4345.

NOMENCLATURE

The following illustration shows the major components and their typical locations on the unit.



RECOMMENDED SPARE PARTS

The table below shows a list of recommended spare parts for your unit.

PART NUMBER	DESCRIPTION	QTY
Body Assembly		
022-3509	SEAL, Tailgate	1
003-4657	PLATE, Wear, Ejector	4
003-5102	WEAR BAR, Bearing, Inner Slide	4
021-4085	WEAR BAR, Plastic, Blade Shoe	2
028-0481	ASSEMBLY, Blade Shoe	2
Controls		
063-0116	SWITCH, Pressure, SPDT, Deutsch Connector	1
108-8464-001	SWITCH, Work Light, Toggle, SPST	1
108-8464	SWITCH, Toggle, SPST	1
108-8507-001	SWITCH, Sealed, Aluminum Head, E-Stop	1
108-8508	SWITCH, Push Button, Sealed	1
108-7544	SWITCH, Rocker, On-Off	1
Cylinders		
001-6863	CYLINDER, Tailgate Raise	1
001-6869	CYLINDER, Tailgate Lock	1
001-7077	CYLINDER, Blade	1
001-7076	CYLINDER, Slide	1
001-7098	CYLINDER, Ejector, Body, 16 Yard	1
001-7099	CYLINDER, Ejector, Body, 19 Yard	1
001-7100	CYLINDER, Telescopic, DA, 5 Stage	1
001-7102	CYLINDER, Ejector, 5 Stage	1
001-7075	CYLINDER, Comb Lift	1
Valves		
031-6468	VALVE, Regenerative	1
031-6558-003	VALVE, Control, Tailgate	1
031-6573	VALVE, Control, Mechanical, Tailgate	1
031-6565	VALVE, 3-Section, Pneumatic Actuators	1
031-6572	ASSEMBLY, Valve, Solenoid	
031-6566-004	VALVE, Tailgate, 4 Air Section, Optional	1
031-6588	VALVE, Tailgate, 3 Manual, 1 Air Section, Optional	1
Pump		
219-2393	PUMP, Gear, Hydraulic	1
Filters		
075-0953	FILTER, Return Line	4
060-0800	CAP, Filter, Breather, Plastic	1
Electrical		
063-0122	SWITCH, Proximity, Connector, 18 mm	3
063-0116	SWITCH, Pressure, SPDT, with Deutsch Connector	2
108-6752-024	ASSEMBLY, Relay, Weather Proof, 24 V	1

GLOSSARY

The Glossary is a collection of terms used in this manual and the explanation for each term. The terms are used in the descriptions of parts.

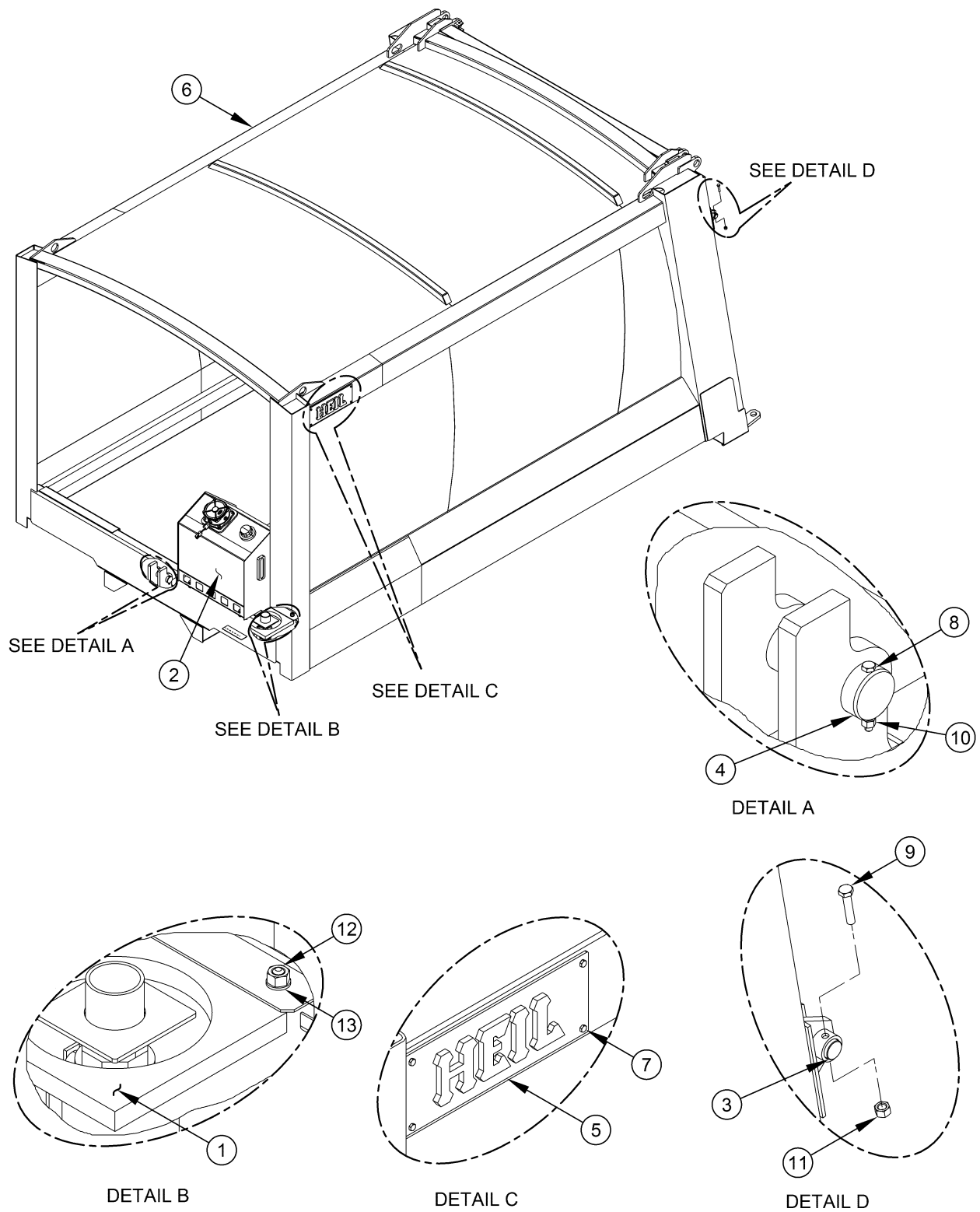
°	Degree	ORFS	O-Ring Face Seal
#	Number	Pg.	Page
'	Feet	PLC	Programmable Logic Controller
"	Inch	PSI	Pounds per Square Inch
AWG	American Wire Gauge	PTO	Power Take Off
Amp.	Ampere	RH	Right Hand
ANSI	American National Standard Institute	Rd.	Round
cm.	Centimeter	RPM	Revolutions Per Minute
CNG	Compressed Natural Gas	SAE	Society of Automotive Engineers
CS	Curb Side	SH	Service Hoist
DA	Double Acting	SHCS	Socket Head Cap screw
DC	Direct Current	SL	Service Lift
Dia.	Diameter	SS	Street Side
Ft.	Feet	SM	Service Manual
Ga.	Gauge	SPST	Single Pole Single Throw
Gal.	Gallon	ST	Stop/Turn
Gr.	Grade	S/S	Stainless Steel
GPM	Gallons Per Minute	Std.	Standard
Hd.	Head	Str.	Straight
HHCS	Hex Head Cap Screw	SPST	Single Pole Single Throw
HRS	High Resistant Steel	SPDT	Single Pole Double Throw
ID	Inside Diameter	STT	Stop Tail Turn
I/O	Input/Output	T/G	Tailgate
ISO	International Standards Organization	Thd.	Thread
JIC	Joint Industry Council	TPA	Terminal Position Assurance
KSI	Kilo pound Per Square Inch	V	Volts
Lbs.	Pounds	w/	With
Lg.	Length	w/o	Without
LED	Light Emitting Diode	Yd.	Yard
Mach.	Machined		
Min.	Minimum		
Misc.	Miscellaneous		
M	Millimeter		
mm.	Millimeter		
MNPT	Male National Pipe Thread		
Mtg.	Mounting		
MJIC	Male Joint Industry Council		
NC	Normally Close		
NO	Normally Open		
No.	Number		
NPT	National Pipe Thread		
OD	Outside Diameter		

SECTION 2 BODY AND ATTACHING PARTS

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

BODY ASSEMBLIES AND ATTACHING PARTS

PT 1000A
15/18 YARD BODY ASSEMBLY
612-4052-016

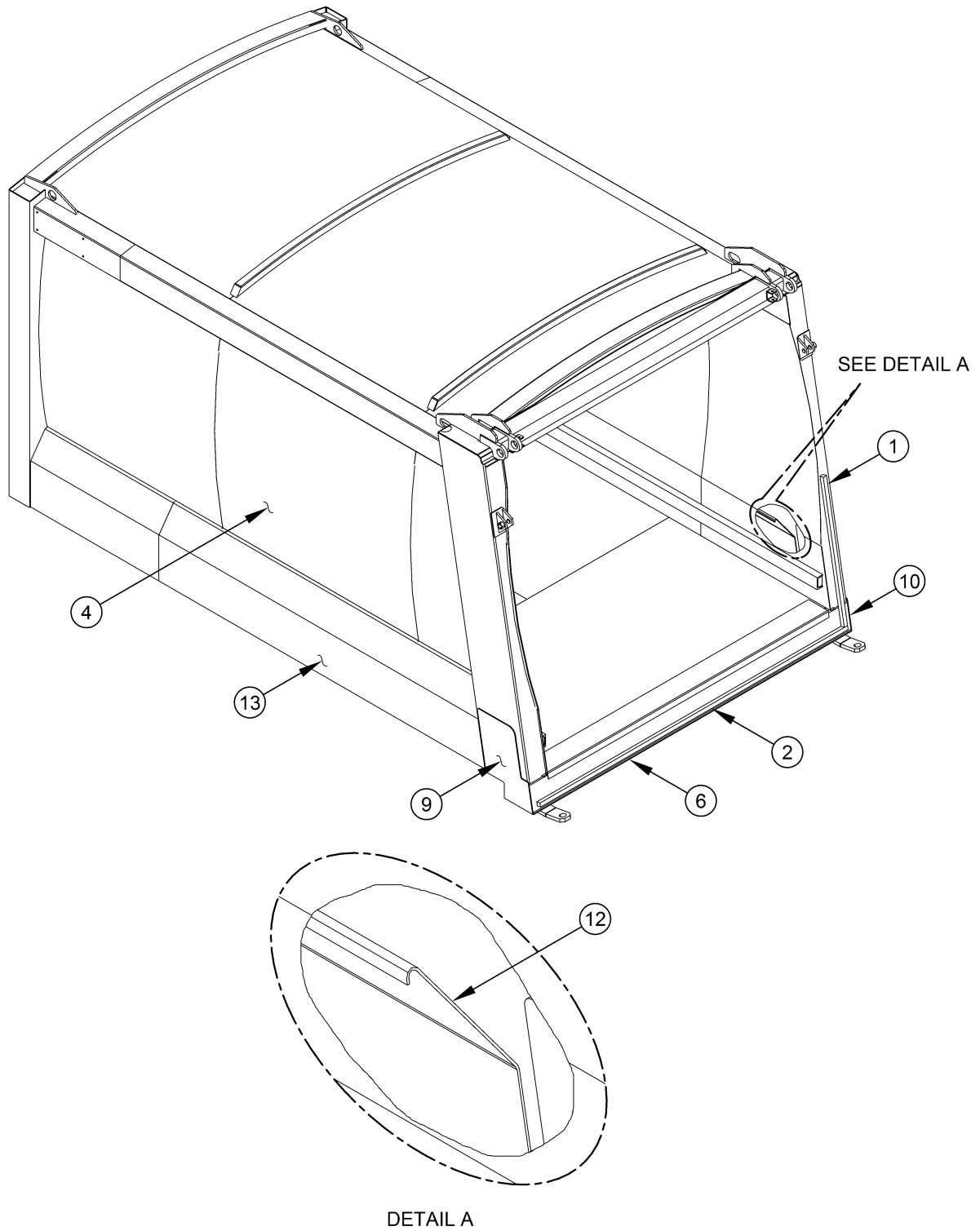


PT 1000A
15/18 YARD BODY ASSEMBLY
612-4052-016

17

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	612-4052-016	ASSEMBLY, Body, 15/18 Yd.	-	REF
1	020-2391-009	PAD, Floor, Oil Tank	-	1
2	020-2655	ASSEMBLY, Oil Tank 	-	1
3	048-5482	PIN, Tailgate Raise, 1" Dia.	-	2
4	048-5505	PIN, Rod End, Ejector Cylinder, 5-7/16"	-	1
5	212-1343	LOGO, Heil	-	1
6	612-4051-016	WELDMENT, Body, 15/18 Yd. 	-	1
7	MSP07-06-020	BOLT, M6 x 20	-	4
8	MSP07-06-060	BOLT, M6 x 60	-	2
9	MSP07-10-050	BOLT, M10 x 50	-	2
10	MSP23-06-000	NUT, Nyloc, M6	-	2
11	MSP23-10-000	NUT, Nyloc, M10	-	2
12	MSP23-12-000	NUT, Nyloc, M12	-	2
13	MSP52-12-000	WASHER, Flat, M12	-	2

PT 1000A
15/18 YARD BODY WELDMENT
612-4051-016



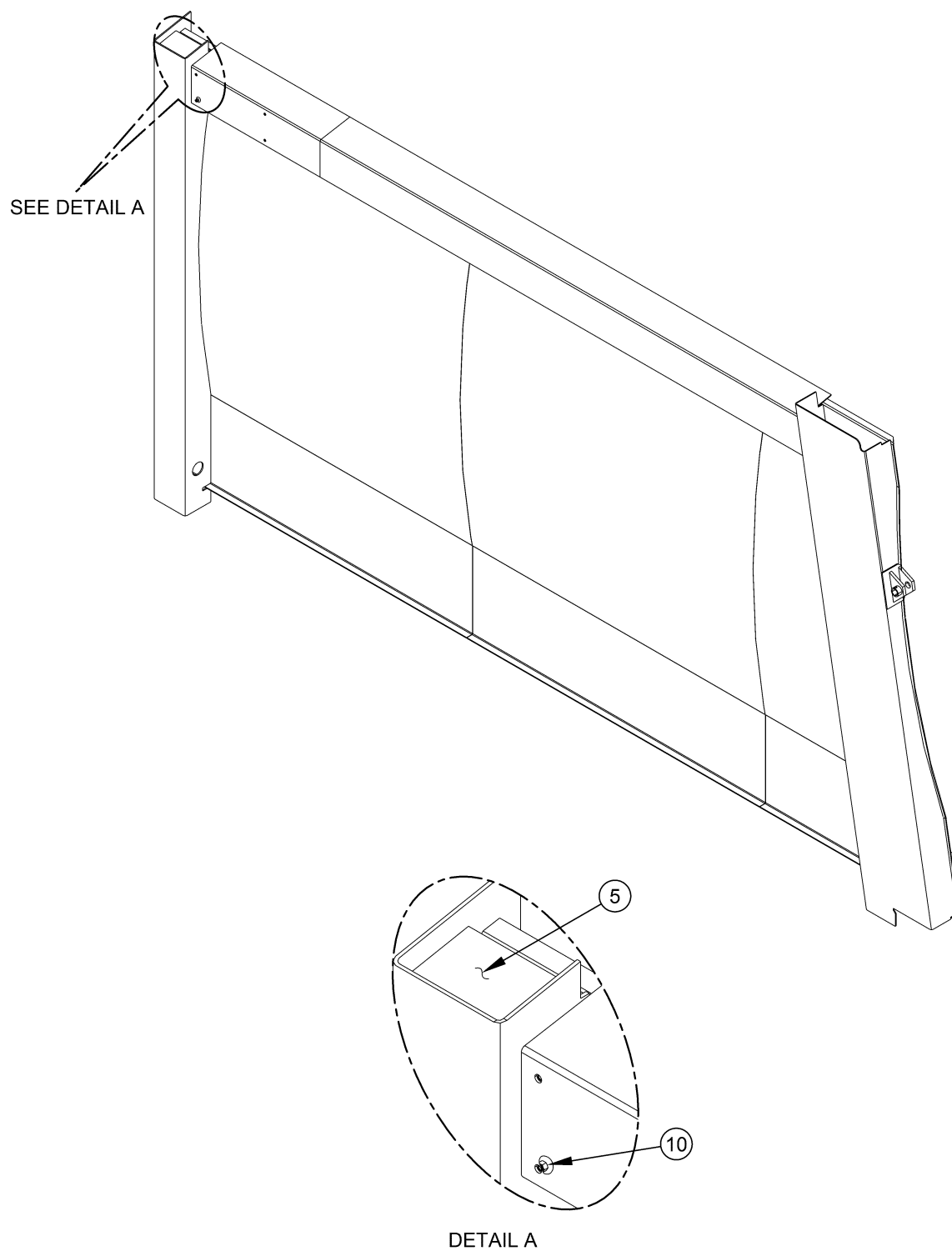
PT 1000A
15/18 YARD BODY WELDMENT
612-4051-016

19

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	612-4051-016	WELDMENT, Body, 15/18 Yd.	-	REF
1	021-4456-001	BAR, Seal, Tailgate	-	1
2	021-4456-002	BAR, Seal, Tailgate	-	1
4	113-7041-016	WELDMENT, SS, 15/18 Yd. [20]	-	1
6	237-9714-016	WELDMENT, Subframe [24]	-	1
9	612-4051-003	BRACE, Rear Post	-	1
10	612-4051-004	PLANK, Brace, Rear Post	-	1
12	612-4051-007	SKIRT, Lower	-	1
13	612-4051-008	SKIRT, Lower	-	1

Note: Items 3, 5, 7, 8, 11 and 14-16 are Welded.

PT 1000A
15/18 YARD SS WELDMENT
113-7041-016



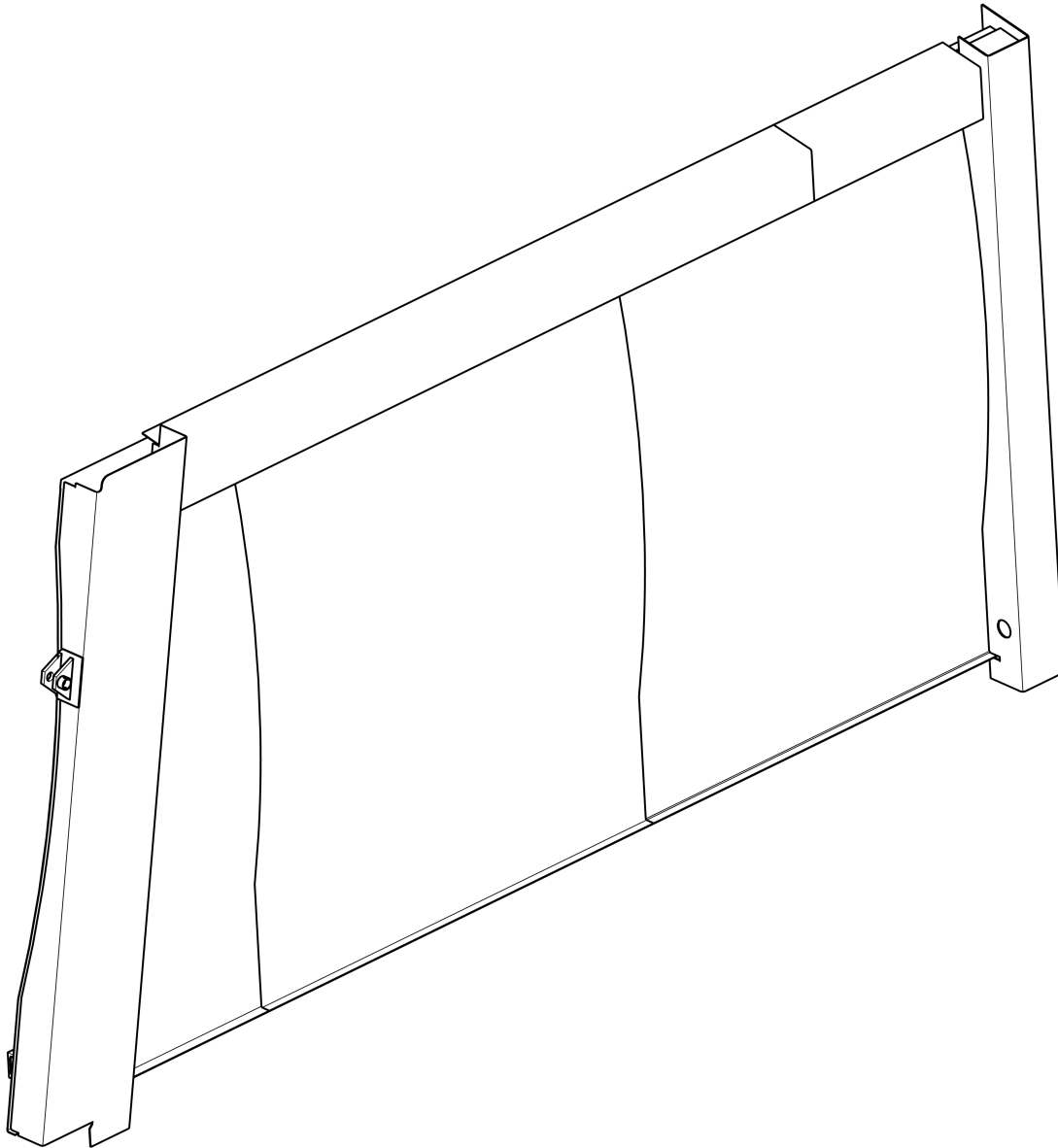
PT 1000A
15/18 YARD SS WELDMENT
113-7041-016

21

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	113-7041-016	WELDMENT, SS, 15/18 Yd.	-	REF
5	113-7041-006	PLATE, Closure, Body Side	-	1
10	MSP23-06-000	NUT, Nyloc, M6	-	4

Note: Items 1-4 and 6-9 are Welded.

PT 1000A
15/18 YARD CS WELDMENT
113-7042-016

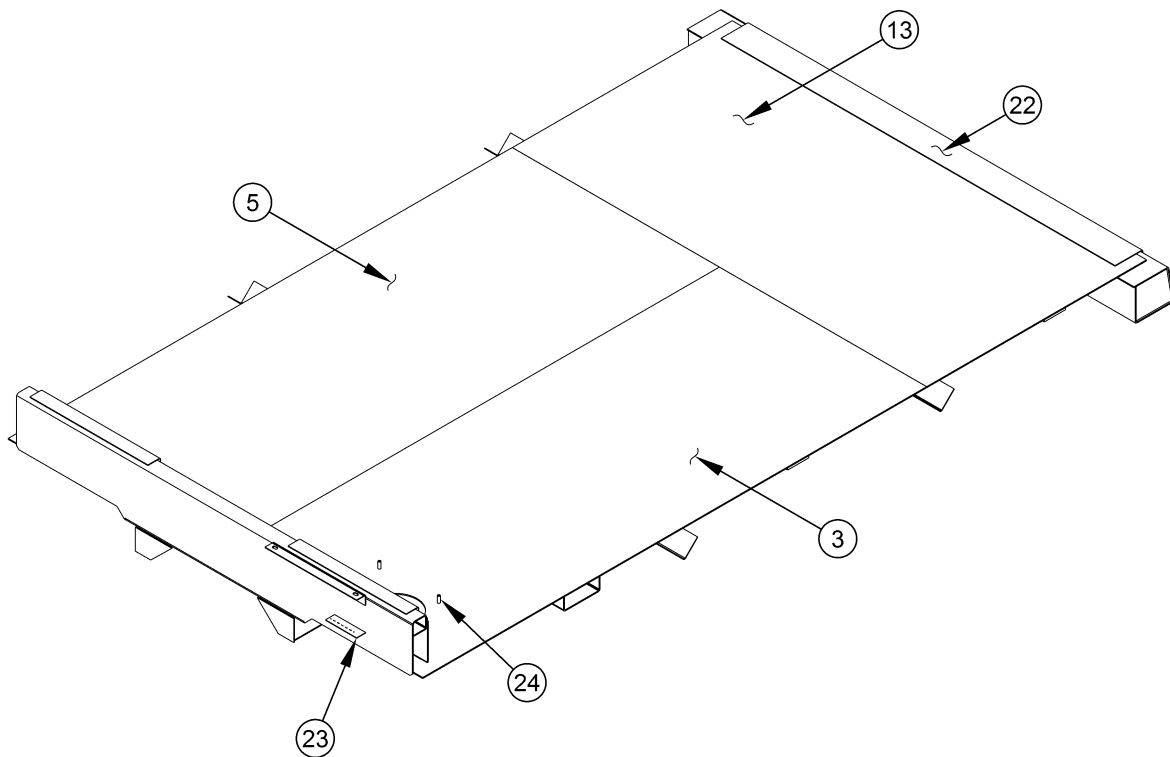


PT 1000A
15/18 YARD SS WELDMENT
113-7041-016

23

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	113-7042-016	WELDMENT, CS, 15/18 Yd.	-	REF

PT 1000A
SUBFRAME WELDMENT
237-9714-016



PT 1000A
SUBFRAME WELDMENT
237-9714-016

25

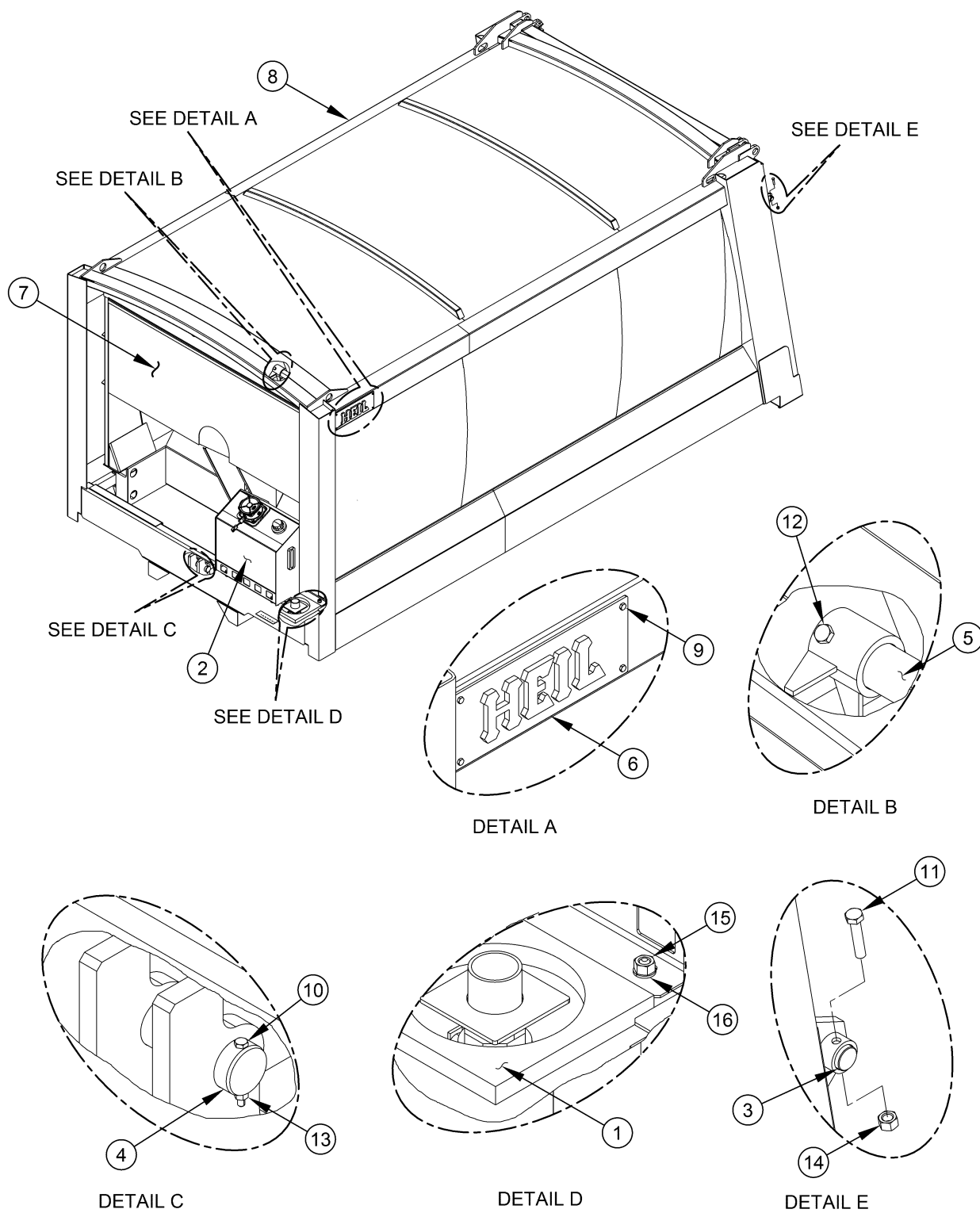
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	237-9714-016	WELDMENT, Subframe	-	REF
3	237-9714-006	SHEET, Floor, Front	-	1
5	237-9714-009	SHEET, Floor, Front	-	1
13	237-9714-027	SHEET, Floor, Rear	-	1
22	612-4051-002	PLATE, Floor, 2150 mm	-	1
23	612-4051-020	BRACKET, Mount, Air Solenoid	-	1
24	MSP07-12-040	BOLT, M12 x 40	-	2

Note: Items 1, 2, 4, 6-12 and 14-21 are Welded.

PT 1000A

18/23 YARD BODY ASSEMBLY

612-4052-019

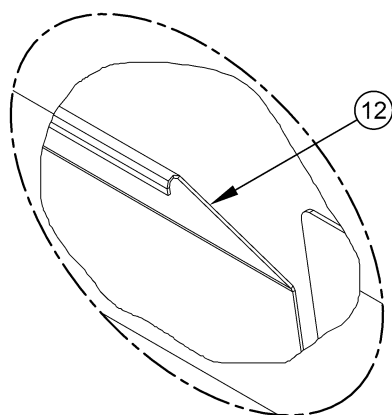
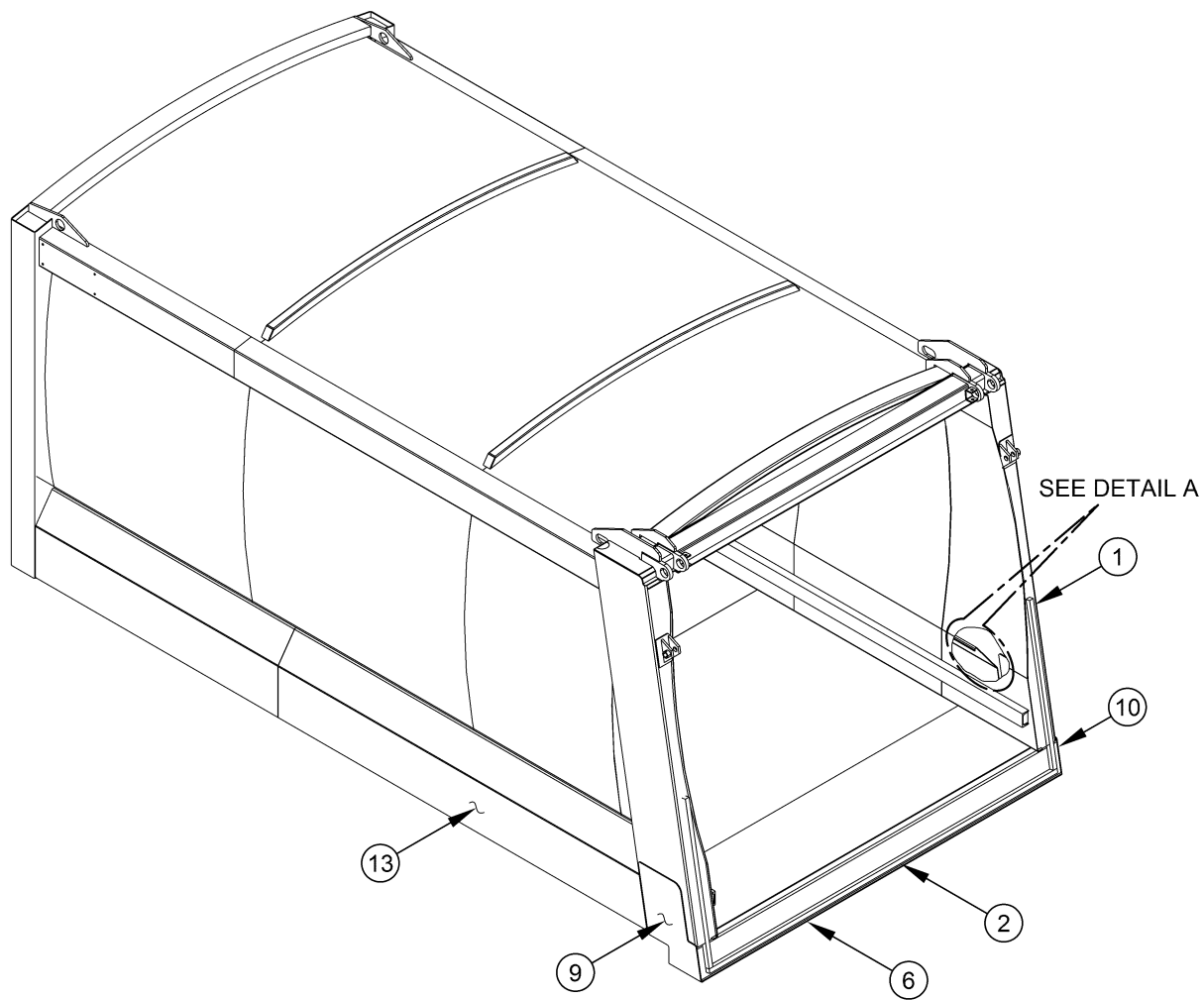


PT 1000A
18/23 YARD BODY ASSEMBLY
612-4052-019

27

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	612-4052-019	ASSEMBLY, Body, 18/23 Yd.	-	REF
1	020-2391-009	PAD, Floor, Oil Tank	-	1
2	020-2655	ASSEMBLY, Oil Tank ¹⁰⁰	-	1
3	048-5482	PIN, Tailgate Raise, 1" Dia.	-	2
4	048-5505	PIN, Rod End, Ejector Cylinder, 5-7/16"	-	1
5	048-7074	PIN, Base End, with Nose, Ejector Cylinder, 2" Dia.	-	1
6	212-1343	LOGO, Heil	-	1
7	237-9712	ASSEMBLY, Panel, Ejector ¹⁰⁶	-	1
8	612-4051-019	WELDMENT, Body, 18/23 Yd. ²⁸	-	1
9	MSP07-06-020	BOLT, M6 x 20	-	4
10	MSP07-06-060	BOLT, M6 x 60	-	2
11	MSP07-10-050	BOLT, M10 x 50	-	2
12	MSP07-12-090	BOLT, M12 x 90	-	1
13	MSP23-06-000	NUT, Nyloc, M6	-	2
14	MSP23-10-000	NUT, Nyloc, M10	-	2
15	MSP23-12-000	NUT, Nyloc, M12	-	3
16	MSP52-12-000	WASHER, Flat, M12	-	2

PT 1000A
18/23 YARD BODY WELDMENT
612-4051-019



DETAIL A

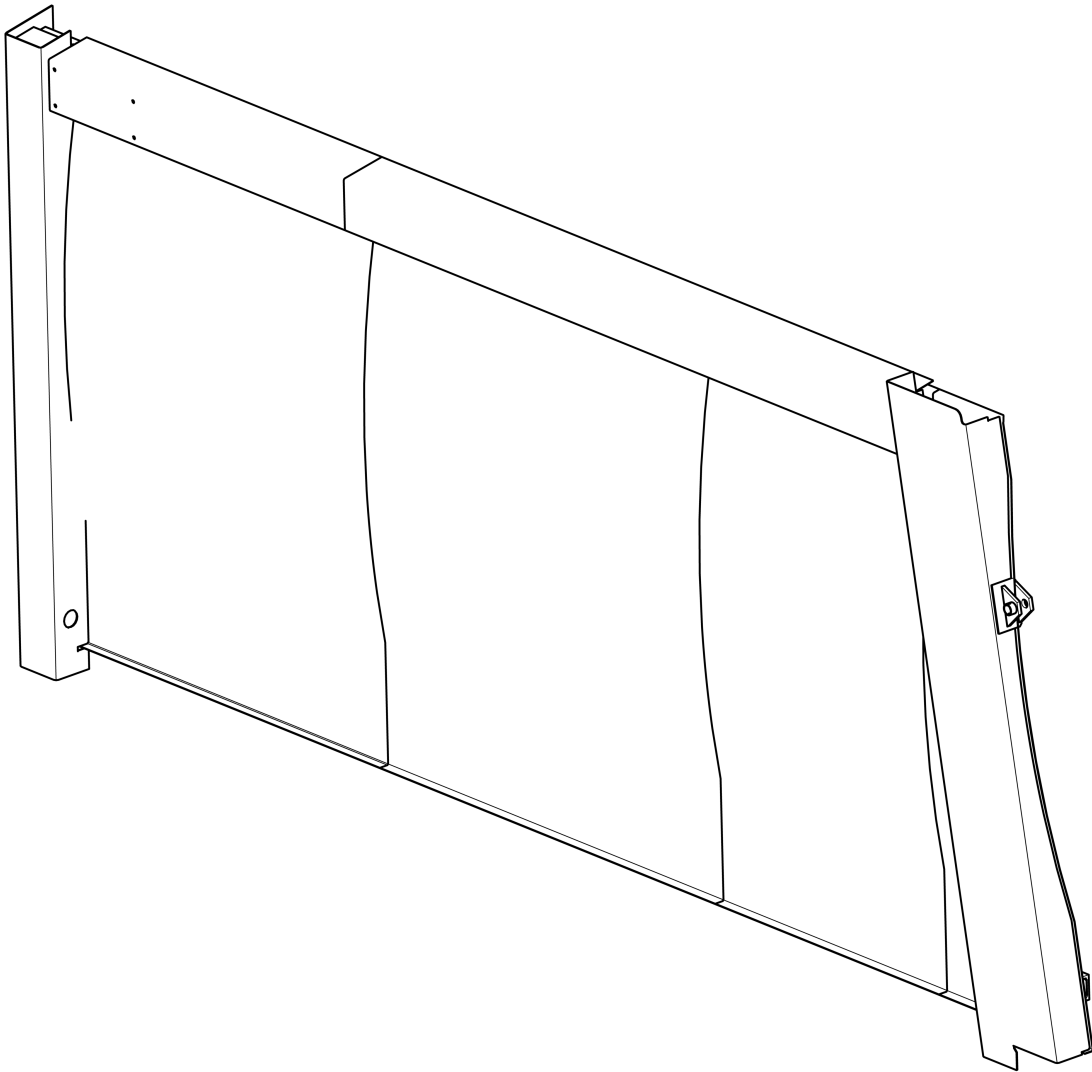
PT 1000A
18/23 YARD BODY WELDMENT
612-4051-019

29

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	612-4051-019	WELDMENT, Body, 18/23 Yd.	-	REF
1	021-4456-001	BAR, Seal, Tailgate	-	2
2	021-4456-002	BAR, Seal, Tailgate	-	1
6	237-9714-019	ASSEMBLY, Subframe ⁽³⁴⁾	-	1
9	612-4051-003	BRACE, Rear Post	-	1
10	612-4051-004	PLANK, Brace, Rear Post	-	1
12	612-4051-007	SKIRT, Lower	-	1
13	612-4051-008	SKIRT, Lower	-	1

Note: Items 3-5, 7, 8, 11, 14 and 15 are Welded.

PT 1000A
18/23 YARD SS WELDMENT
113-7041-019

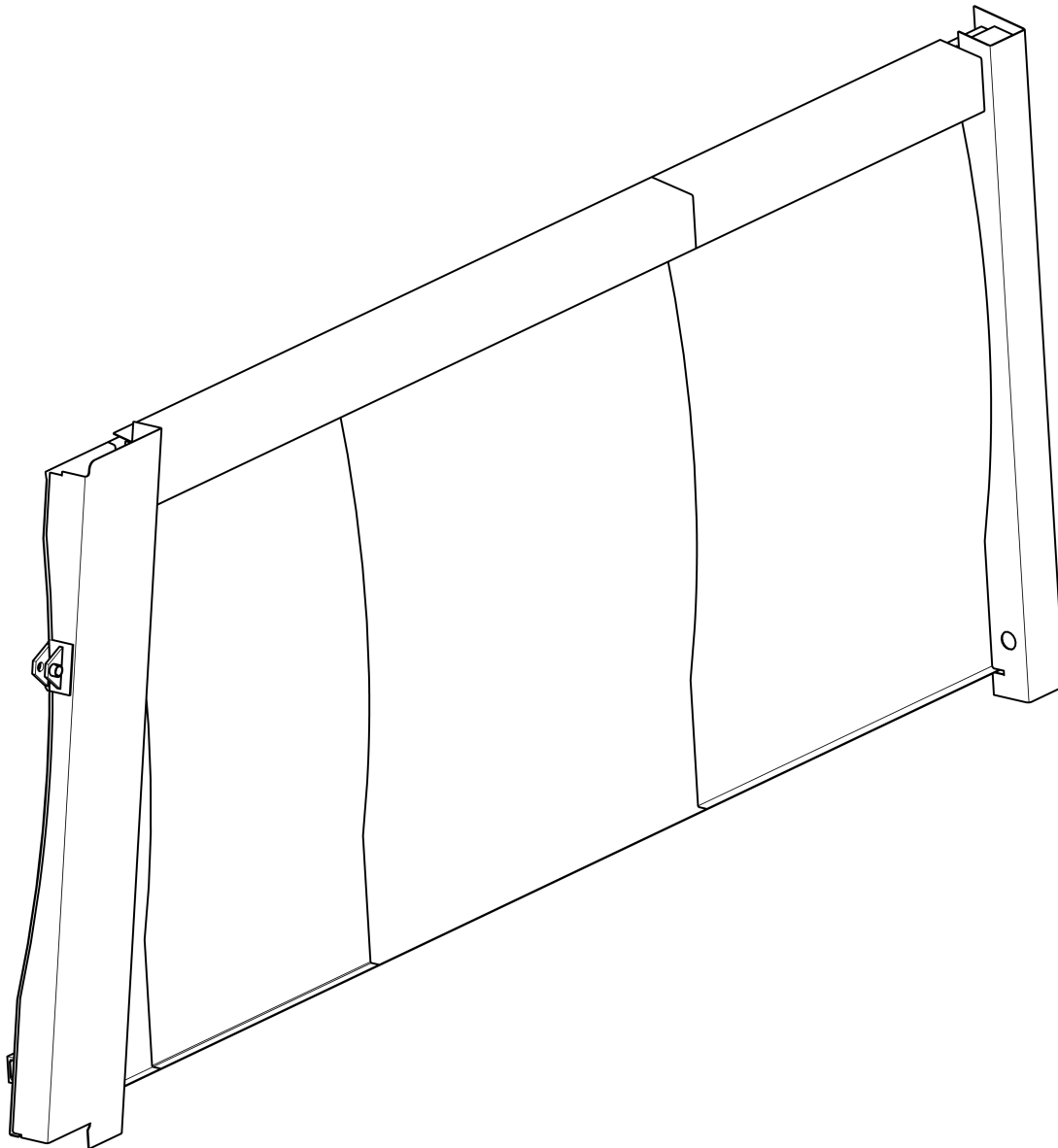


PT 1000A
18/23 YARD SS WELDMENT
113-7041-019

31

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	113-7041-019	WELDMENT, SS, 18/23 Yd.	-	REF

PT 1000A
18/23 YARD CS WELDMENT
113-7042-019



PT 1000A
18/23 YARD CS WELDMENT
113-7041-019

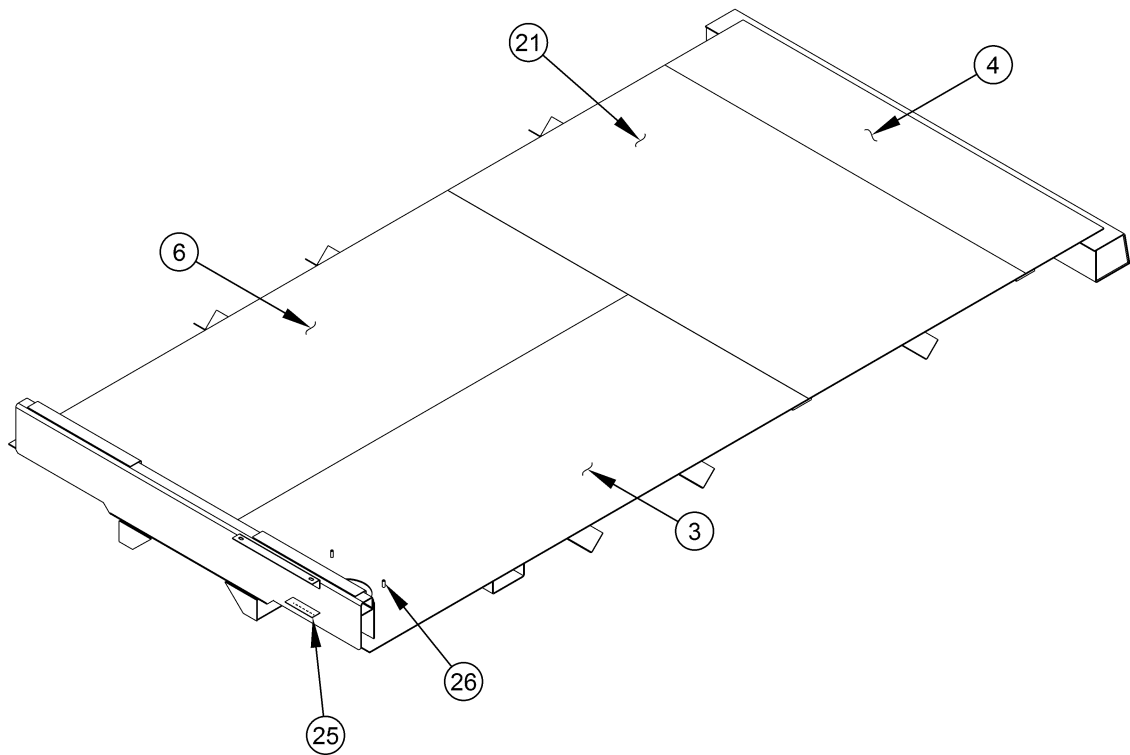
33

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	113-7042-019	WELDMENT, CS, 18/23 Yd.	-	REF

PT 1000A

SUBFRAME ASSEMBLY

237-9714-019



PT 1000A

SUBFRAME ASSEMBLY

237-9714-019

35

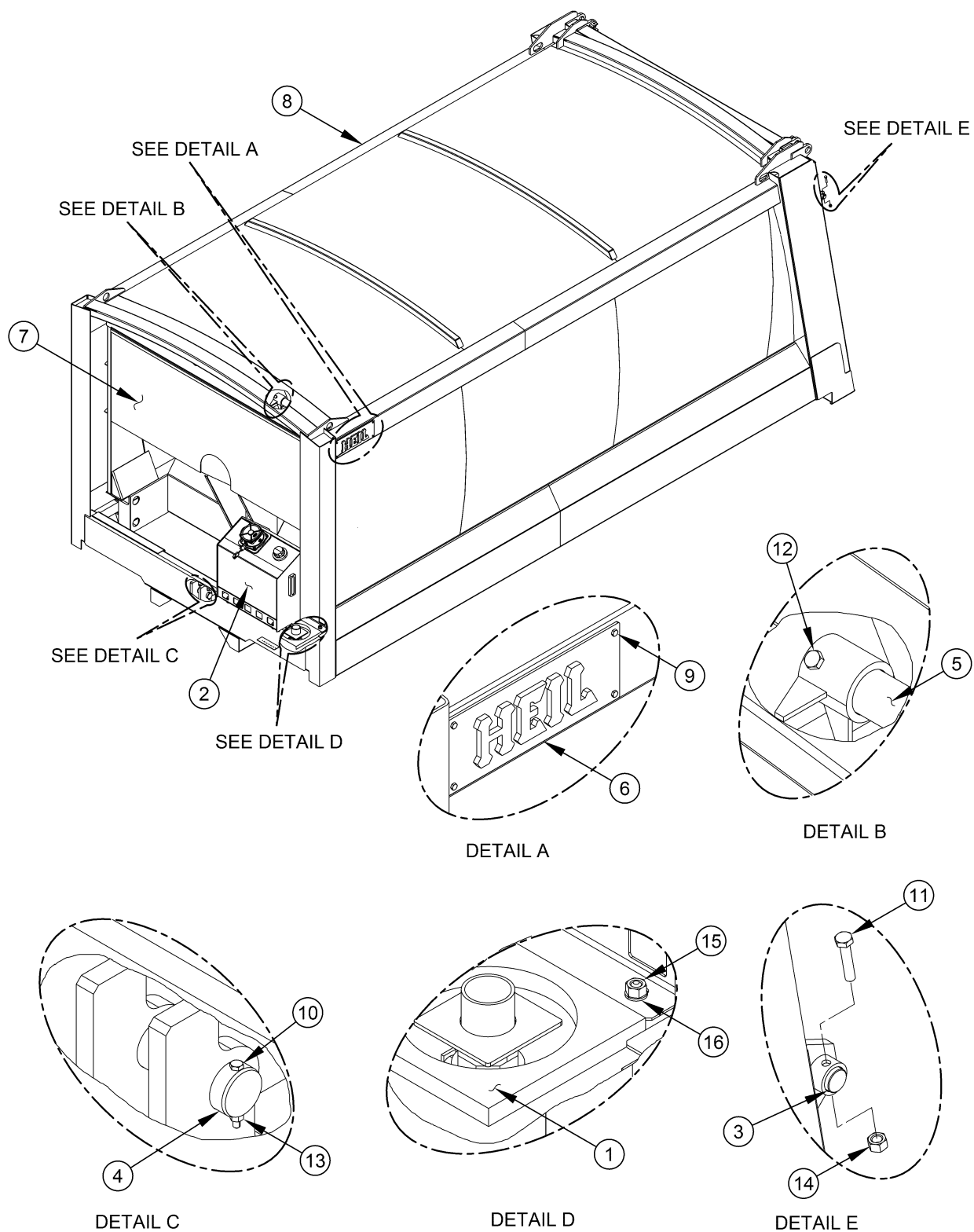
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	237-9714-019	ASSEMBLY, Subframe	-	REF
3	237-9714-006	SHEET, Floor, Front	-	1
4	237-9714-007	SHEET, Floor, Rear	-	1
6	237-9714-009	SHEET, Floor, Front	-	1
21	237-9714-040	SHEET, Floor	-	2
25	612-4051-020	BRACKET, Mount, Air Solenoid	-	1
26	MSP07-12-040	BOLT, M12 x 40	-	2

Note: Items 1, 2, 5, 7-20 and 22-24 are Welded.

PT 1000A

20/25 YARD BODY ASSEMBLY

612-4052-021

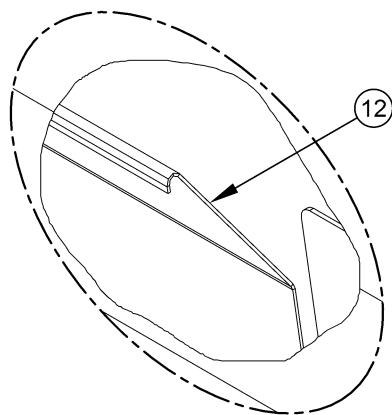
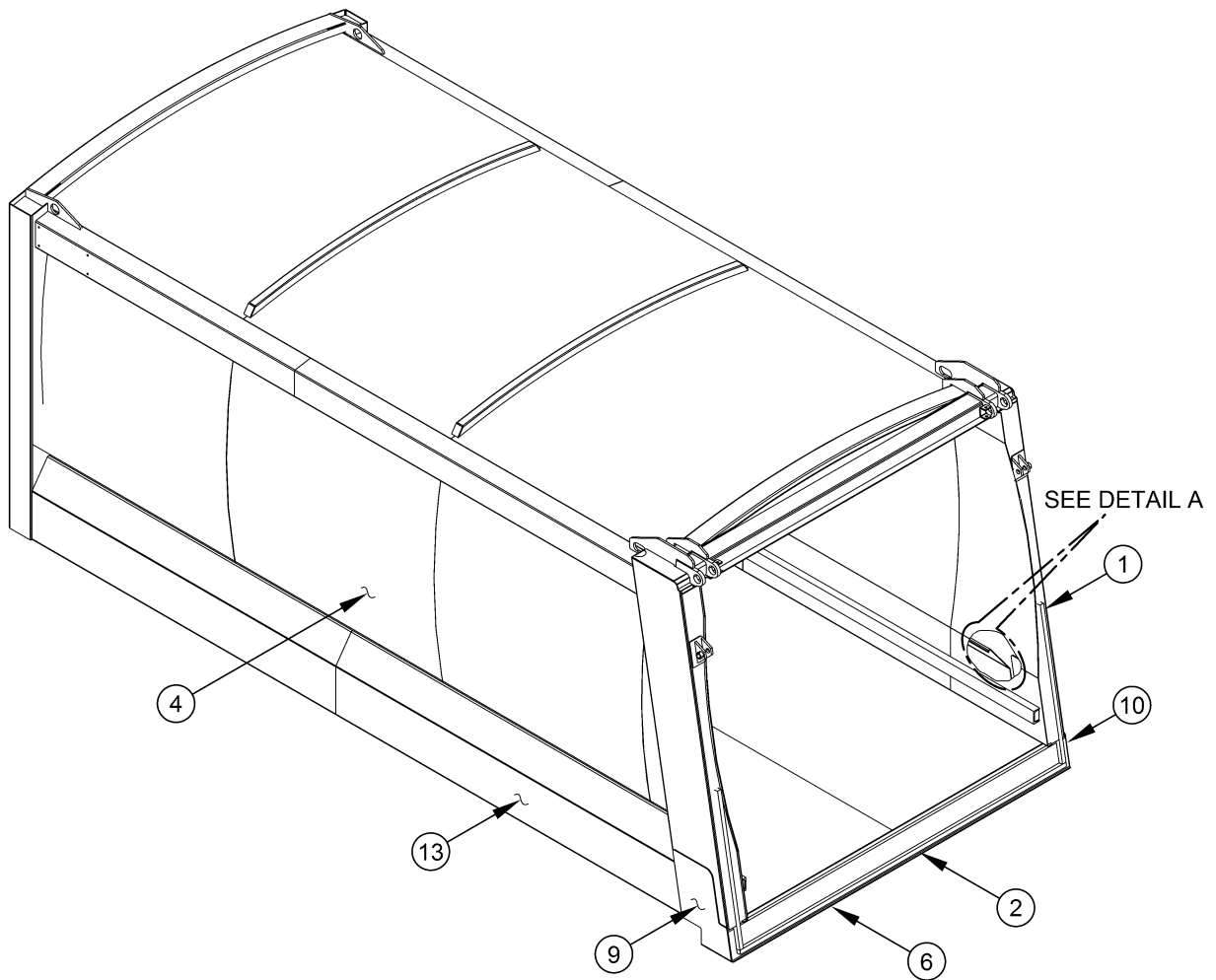


PT 1000A
20/25 YARD BODY ASSEMBLY
612-4052-021

37

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	612-4052-021	ASSEMBLY, Body, 20/25 Yd.	-	REF
1	020-2391-009	PAD, Floor, Oil Tank	-	1
2	020-2655	ASSEMBLY, Oil Tank ¹⁰⁰	-	1
3	048-5482	PIN, Tailgate Raise, 1" Dia.	-	2
4	048-5505	PIN, Rod End, Ejector Cylinder, 5-7/16"	-	1
5	048-7074	PIN, Base End, with Nose, Ejector Cylinder, 2" Dia.	-	1
6	212-1343	LOGO, Heil	-	1
7	237-9712	ASSEMBLY, Panel, Ejector ¹⁰⁶	-	1
8	612-4051-021	WELDMENT, Body, 20/25 Yd. ³⁸	-	1
9	MSP07-06-020	BOLT, M6 x 20	-	4
10	MSP07-06-060	BOLT, M6 x 60	-	2
11	MSP07-10-050	BOLT, M10 x 50	-	2
12	MSP07-12-090	BOLT, M12 x 90	-	1
13	MSP23-06-000	NUT, Nyloc, M6	-	2
14	MSP23-10-000	NUT, Nyloc, M10	-	2
15	MSP23-12-000	NUT, Nyloc, M12	-	3
16	MSP52-12-000	WASHER, Flat, M12	-	2

PT 1000A
20/25 YARD BODY WELDMENT
612-4051-021



DETAIL A

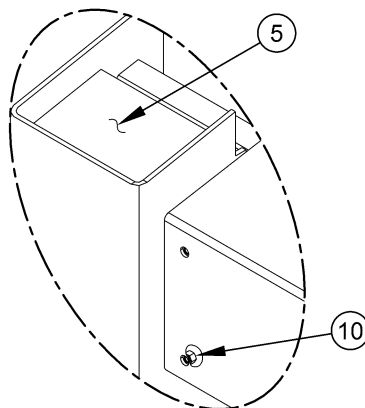
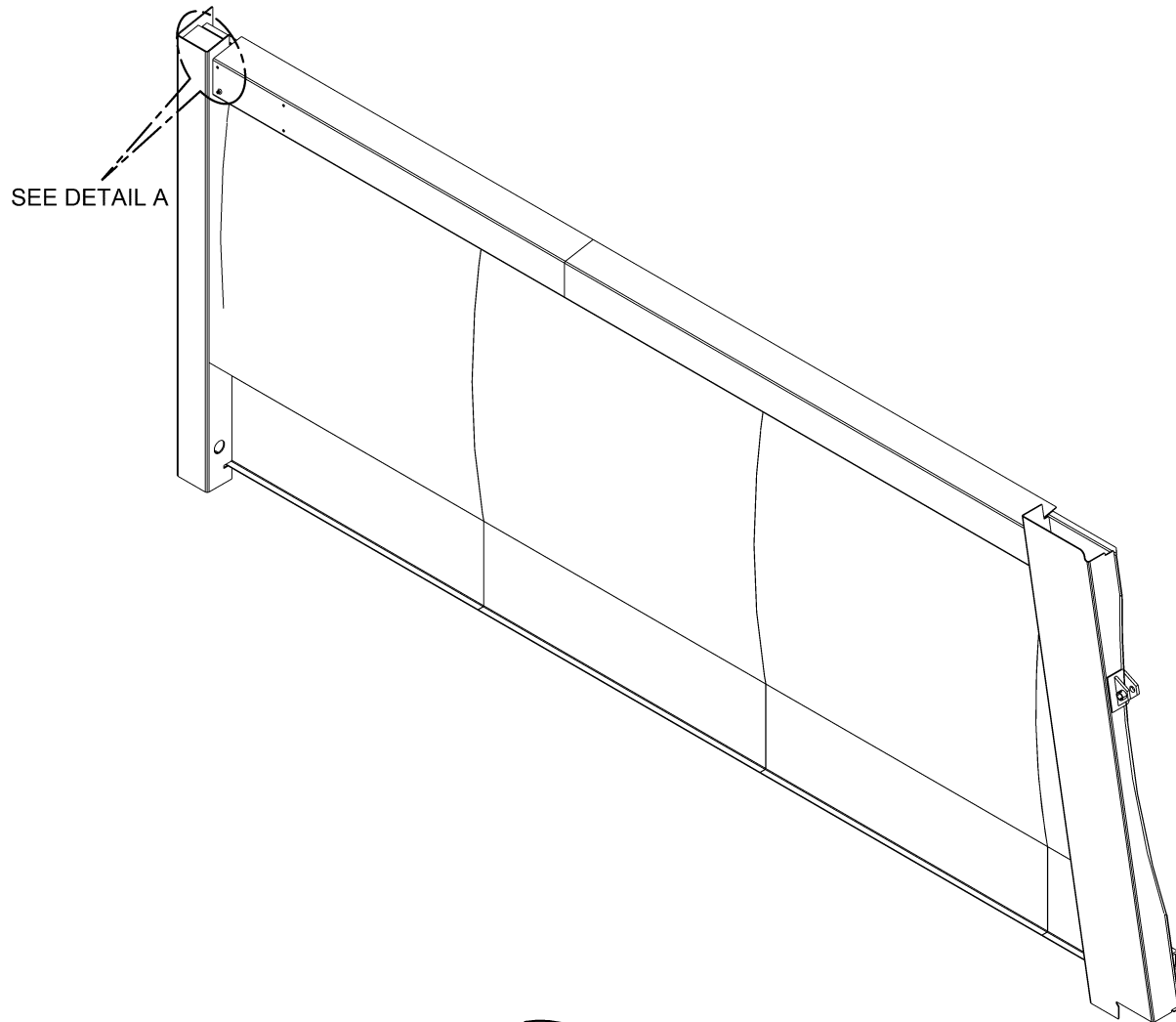
PT 1000A
20/25 YARD BODY WELDMENT
612-4051-021

39

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	612-4051-021	WELDMENT, Body, 20/25 Yd.	-	REF
1	021-4456-001	BAR, Seal, Tailgate	-	2
2	021-4456-002	BAR, Seal, Tailgate	-	1
4	113-7041-021	WELDMENT, SS, 18/23 Yd. ⁴⁰	-	1
6	237-9714-021	ASSEMBLY, Subframe ⁴⁴	-	1
9	612-4051-003	BRACE, Rear Post	-	1
10	612-4051-004	PLANK, Brace, Rear Post	-	1
12	612-4051-007	SKIRT, Lower	-	1
13	612-4051-008	SKIRT, Lower	-	1

Note: Items 3, 5, 7, 8, 11, 14 and 15 are Welded.

PT 1000A
20/25 YARD SS WELDMENT
113-7041-021



DETAIL A

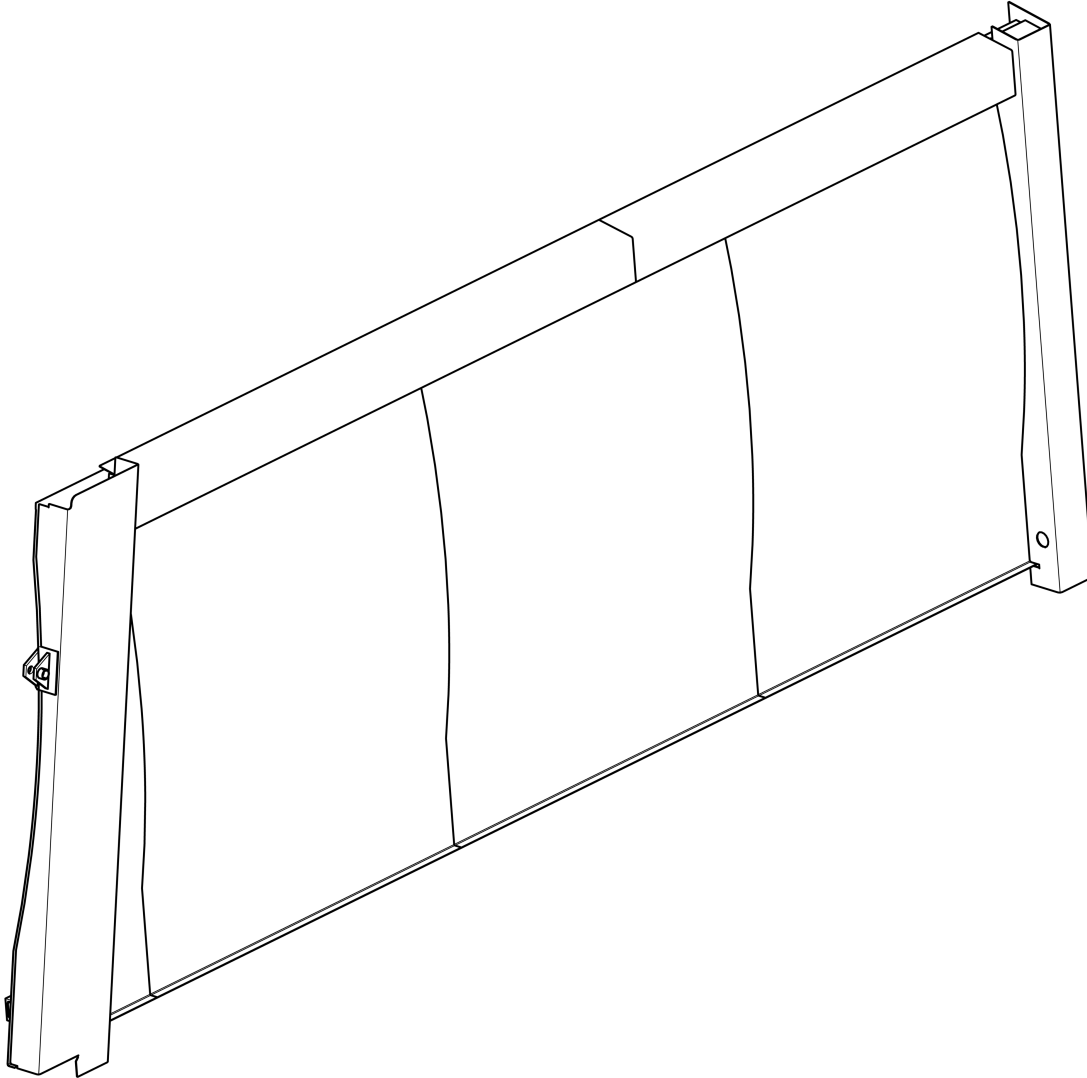
PT 1000A
20/25 YARD SS WELDMENT
113-7041-021

41

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	113-7041-021	WELDMENT, SS, 20/25 Yd.	-	REF
5	113-7041-006	PLATE, Closure, Body Side	-	1
10	MSP23-06-000	NUT, Nyloc, M6	-	4

Note: Items 1-4 and 6-9 are Welded.

PT 1000A
20/25 YARD CS WELDMENT
113-7042-021

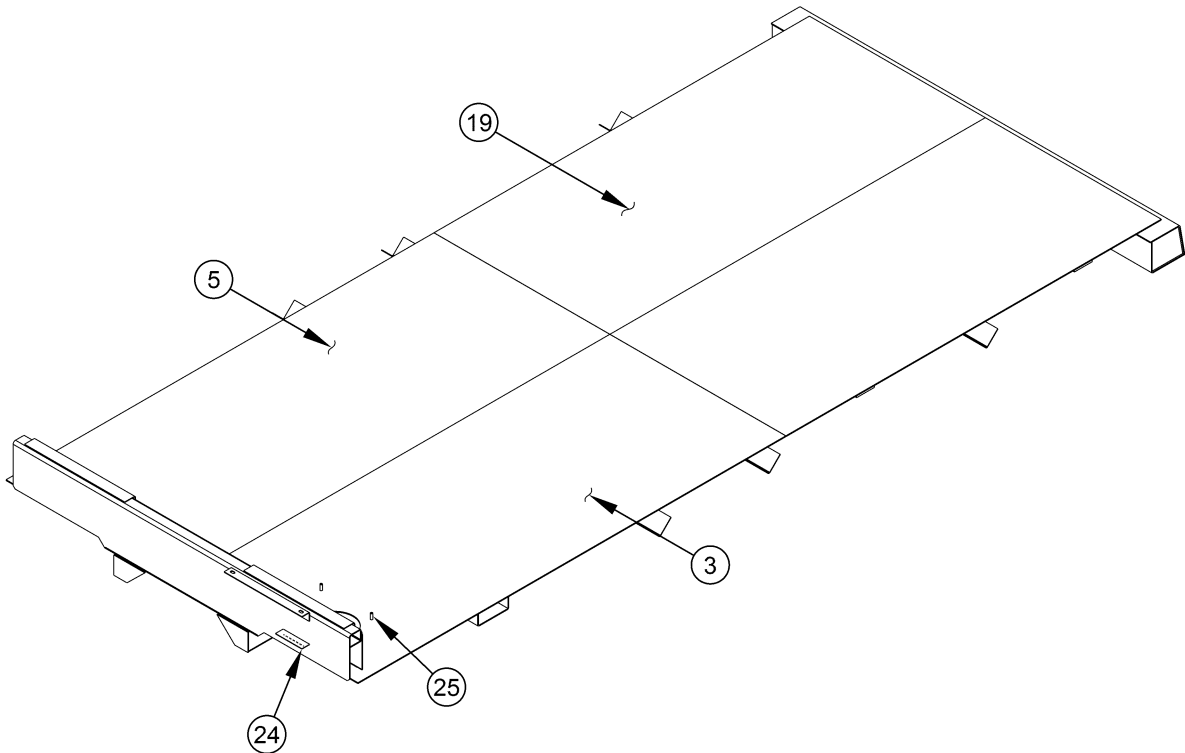


PT 1000A
20/25 YARD CS WELDMENT
113-7042-021

43

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	113-7042-021	WELDMENT, CS, 20/25 Yd.	-	REF

PT 1000A
SUBFRAME ASSEMBLY
237-9714-021



PT 1000A

SUBFRAME ASSEMBLY

237-9714-021

45

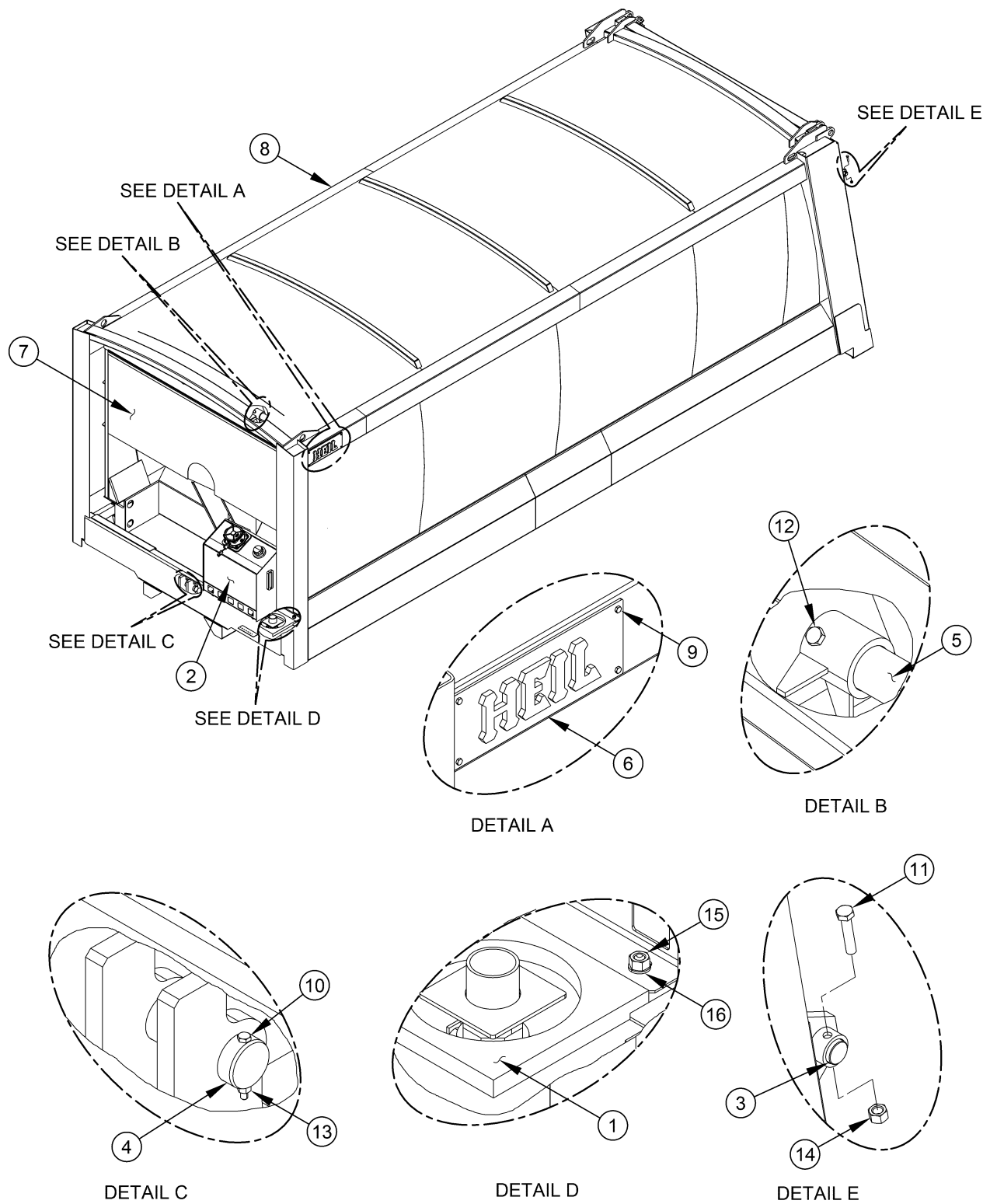
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	237-9714-021	ASSEMBLY, Subframe	-	REF
3	237-9714-006	SHEET, Floor, Front	-	1
5	237-9714-009	SHEET, Floor, Front	-	1
19	237-9714-036	SHEET, Floor	-	2
24	612-4051-020	BRACKET, Mount, Air Solenoid	-	1
25	MSP07-12-040	BOLT, M12 x 40	-	2

Note: Items 1, 2, 4, 6-18 and 20-23 are Welded.

PT 1000A

23/30 YARD BODY ASSEMBLY

612-4052-026

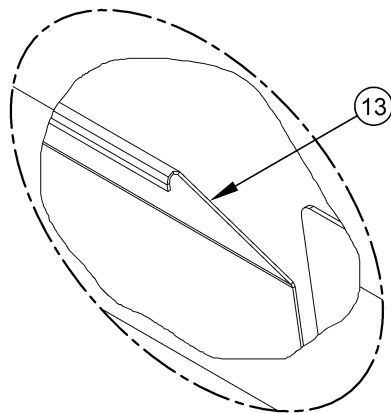
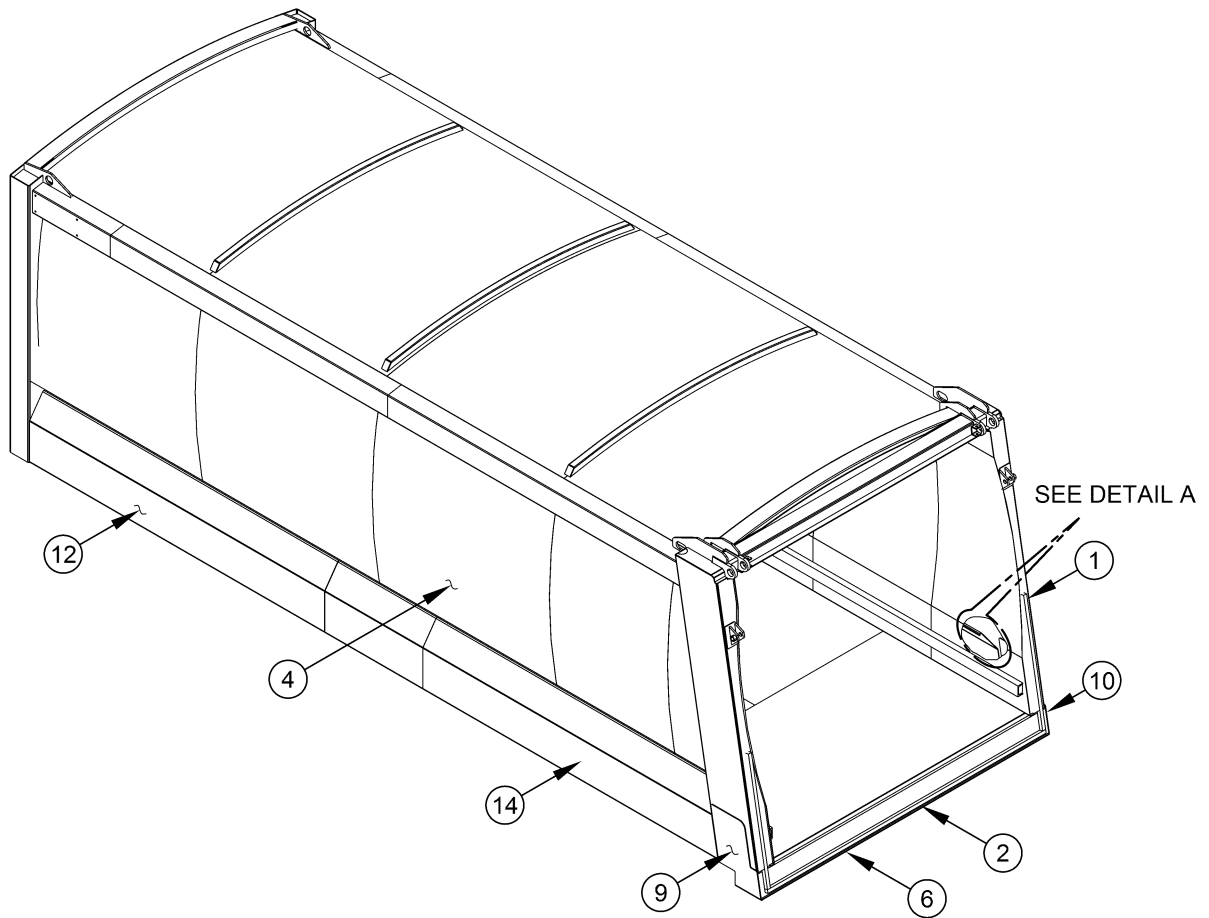


PT 1000A
23/30 YARD BODY ASSEMBLY
612-4052-026

47

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	612-4052-026	ASSEMBLY, Body, 23/30 Yd.	-	REF
1	020-2391-009	PAD, Floor, Oil Tank	-	1
2	020-2655	ASSEMBLY, Oil Tank ¹⁰⁰	-	1
3	048-5482	PIN, Tailgate Raise, 1" Dia.	-	2
4	048-5505	PIN, Rod End, Ejector Cylinder, 5-7/16"	-	1
5	048-7074	PIN, Base End, with Nose, Ejector Cylinder, 2" Dia.	-	1
6	212-1343	LOGO, Heil	-	1
7	237-9712	ASSEMBLY, Panel, Ejector ¹⁰⁶	-	1
8	612-4051-026	WELDMENT, Body, 23/30 Yd. ⁴⁸	-	1
9	MSP07-06-020	BOLT, M6 x 20	-	4
10	MSP07-06-060	BOLT, M6 x 60	-	2
11	MSP07-10-050	BOLT, M10 x 50	-	2
12	MSP07-12-090	BOLT, M12 x 90	-	1
13	MSP23-06-000	NUT, Nyloc, M6	-	2
14	MSP23-10-000	NUT, Nyloc, M10	-	2
15	MSP23-12-000	NUT, Nyloc, M12	-	3
16	MSP52-12-000	WASHER, Flat, M12	-	2

PT 1000A
23/30 YARD BODY WELDMENT
612-4051-026



DETAIL A

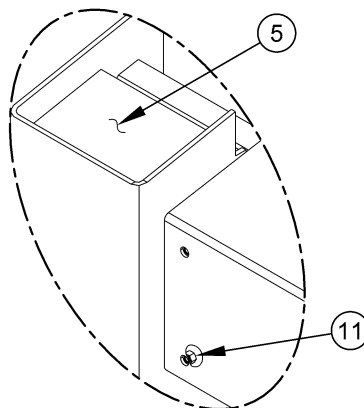
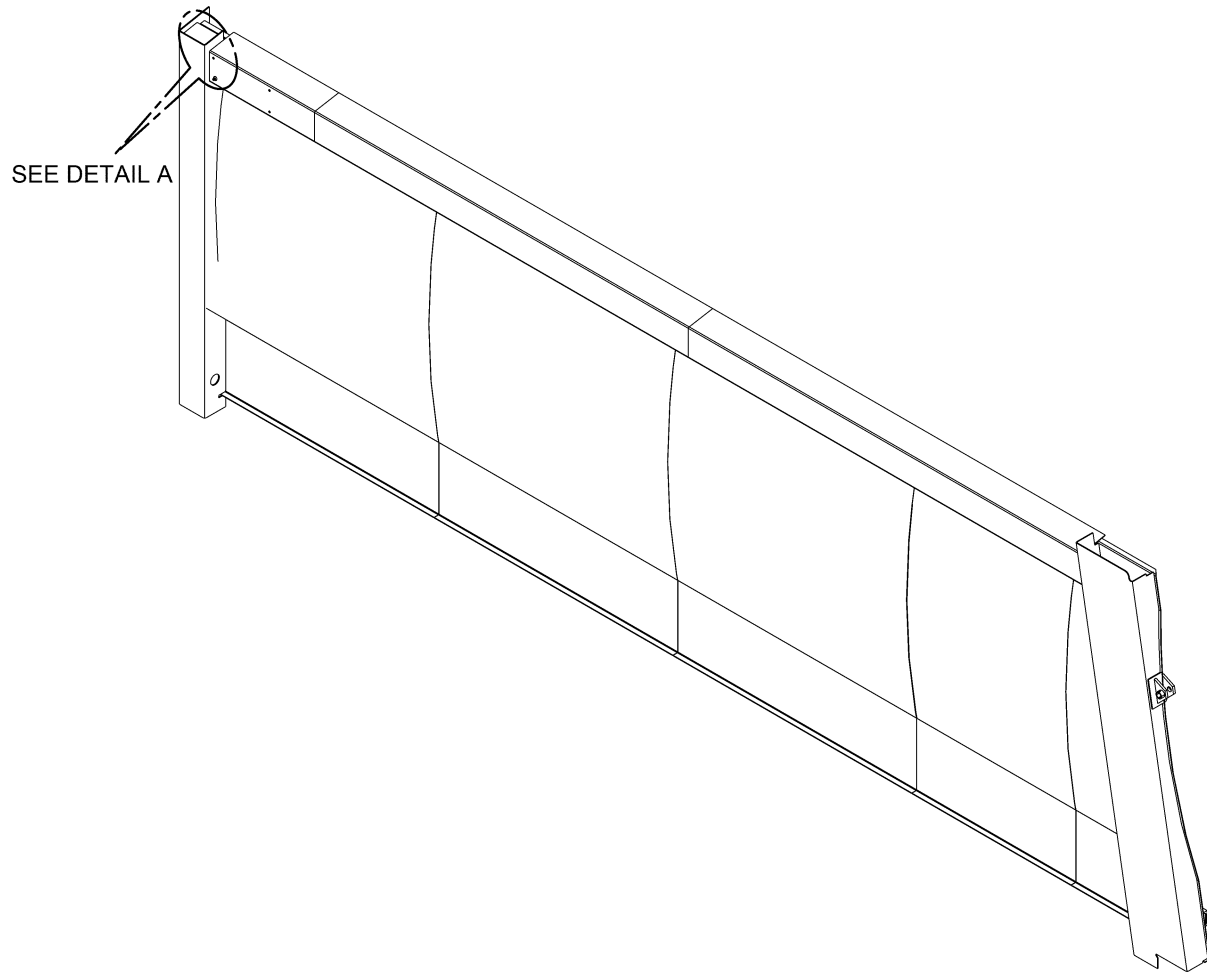
PT 1000A
23/30 YARD BODY WELDMENT
612-4051-026

49

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	612-4051-026	WELDMENT, Body, 23/30 Yd.	-	REF
1	021-4456-001	BAR, Seal, Tailgate	-	2
2	021-4456-002	BAR, Seal, Tailgate	-	1
4	113-7041-026	WELDMENT, SS, 23/30 Yd. ⁵⁰	-	1
6	237-9714-026	ASSEMBLY, Subframe ⁵⁴	-	1
9	612-4051-003	BRACE, Rear Post	-	1
10	612-4051-004	PLANK, Brace, Rear Post	-	1
12	612-4051-006	SKIRT, Lower	-	2
13	612-4051-007	SKIRT, Lower	-	1
14	612-4051-008	SKIRT, Lower	-	1

Note: Items 3, 5-8, 11, 15 and 16 are Welded.

PT 1000A
23/30 YARD SS WELDMENT
113-7041-026



DETAIL A

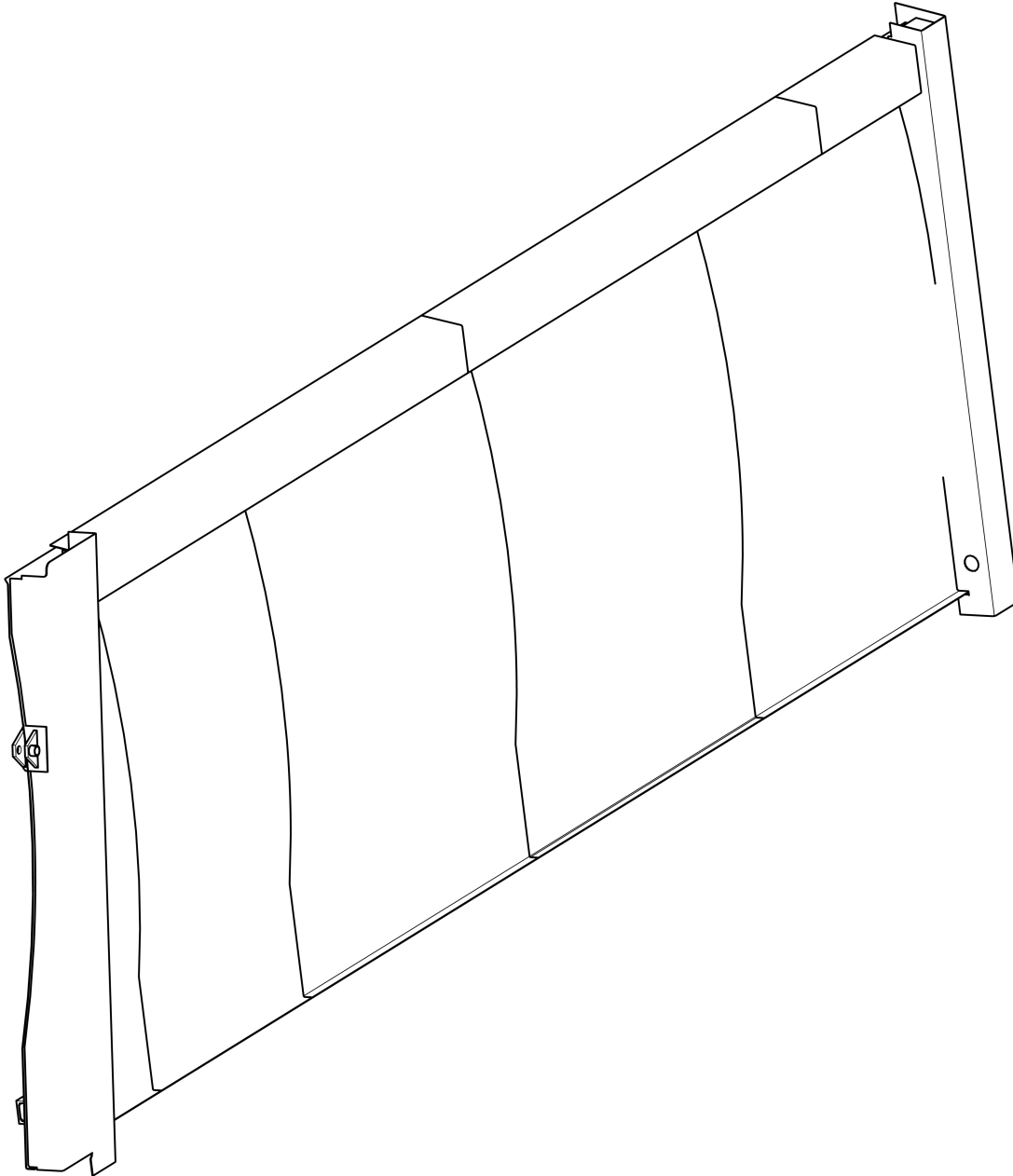
PT 1000A
23/30 YARD SS WELDMENT
113-7041-026

51

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	113-7041-026	WELDMENT, SS, 23/30 Yd.	-	REF
5	113-7041-006	PLATE, Closure, Body Side	-	1
11	MSP23-06-000	NUT, Nyloc, M6	-	4

Note: Items 1-4 and 6-10 are Welded.

PT 1000A
23/30 YARD CS WELDMENT
113-7042-026



PT 1000A
23/30 YARD CS WELDMENT
113-7042-026

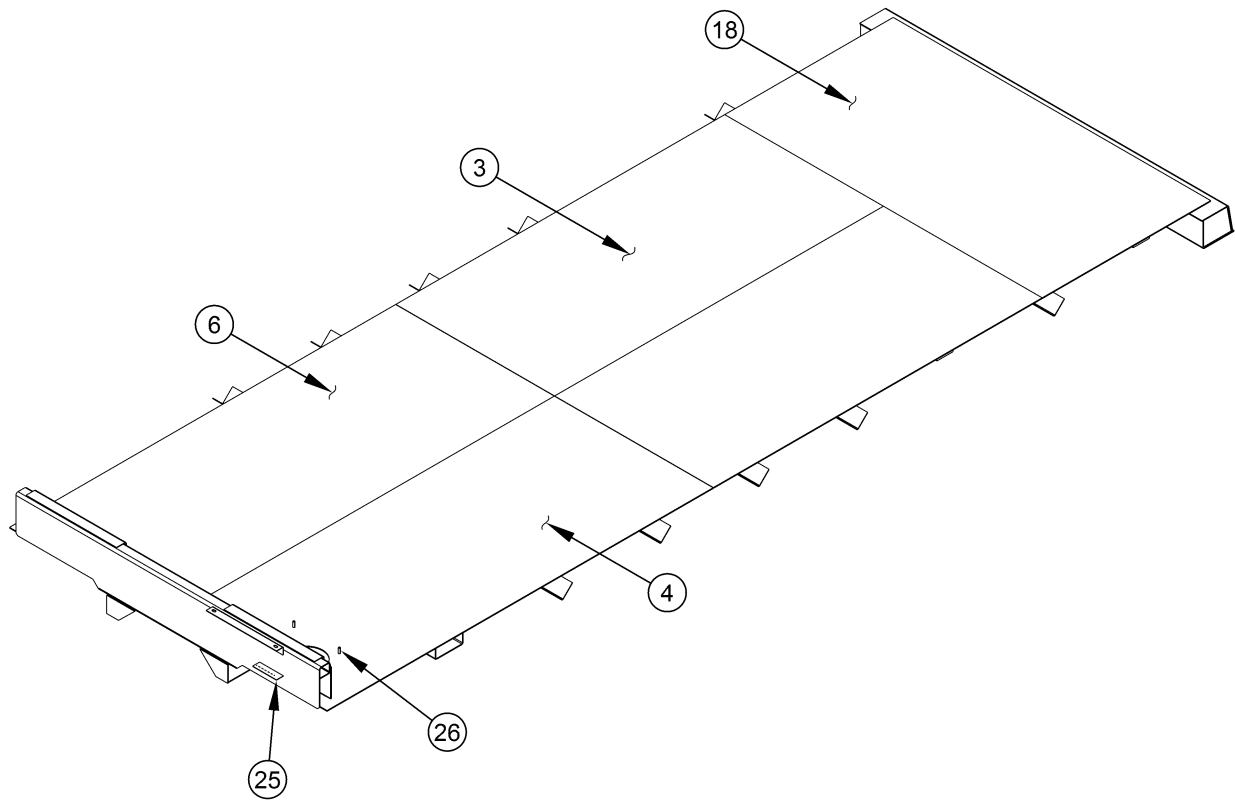
53

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	113-7042-026	WELDMENT, CS, 23/30 Yd.	-	REF

PT 1000A

SUBFRAME ASSEMBLY

237-9714-026



PT 1000A

SUBFRAME ASSEMBLY

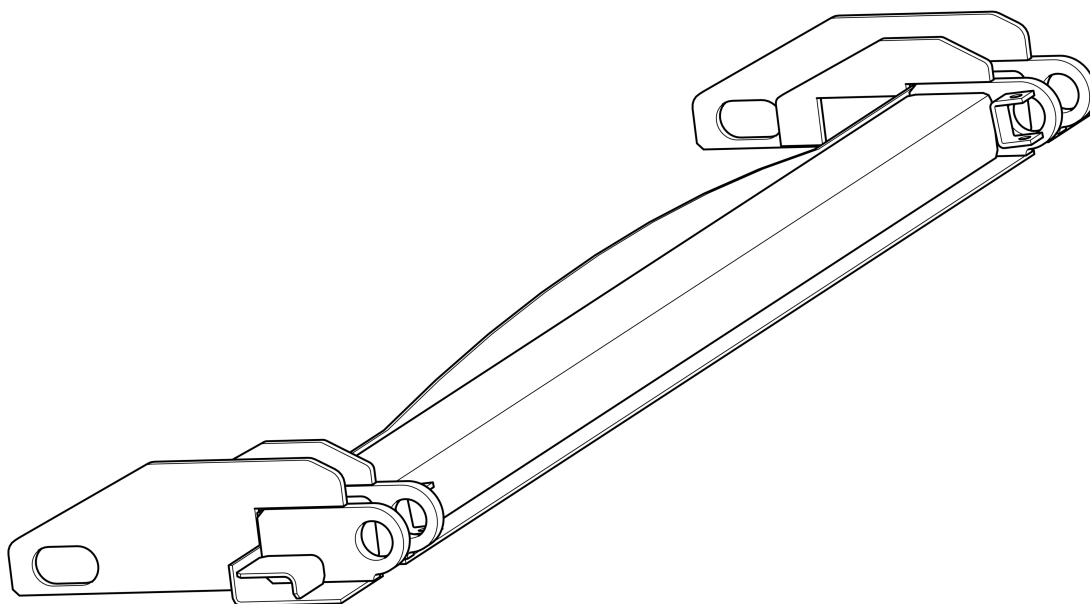
237-9714-026

55

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	237-9714-026	ASSEMBLY, Subframe	-	REF
3	237-9714-005	SHEET, Floor	-	2
4	237-9714-006	SHEET, Floor, Front	-	1
6	237-9714-009	SHEET, Floor, Front	-	1
18	237-9714-027	SHEET, Floor, Rear	-	1
25	612-4051-020	BRACKET, Mount, Air Solenoid	-	1
26	MSP07-12-040	BOLT, M12 x 40	-	2

Note: Items 1, 2, 5, 7-17 and 19-24 are Welded.

PT 1000A
BODY HINGE CROSSMEMBER WELDMENT
237-9715



PT 1000A
BODY HINGE CROSSMEMBER WELDMENT
237-9715

57

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	237-9715	WELDMENT, Body Hinge Crossmember Assy.	-	REF

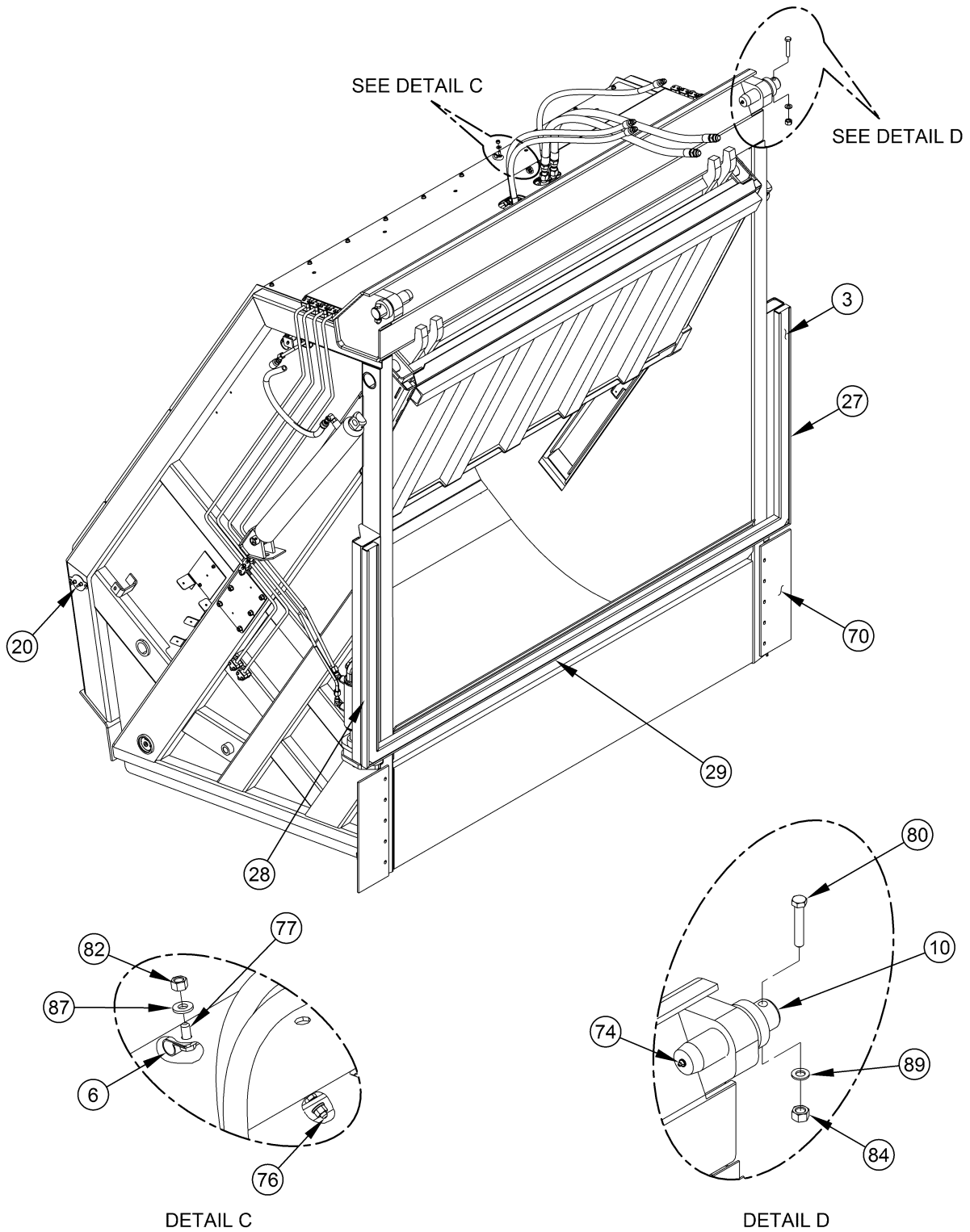
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TAILGATE ASSEMBLIES



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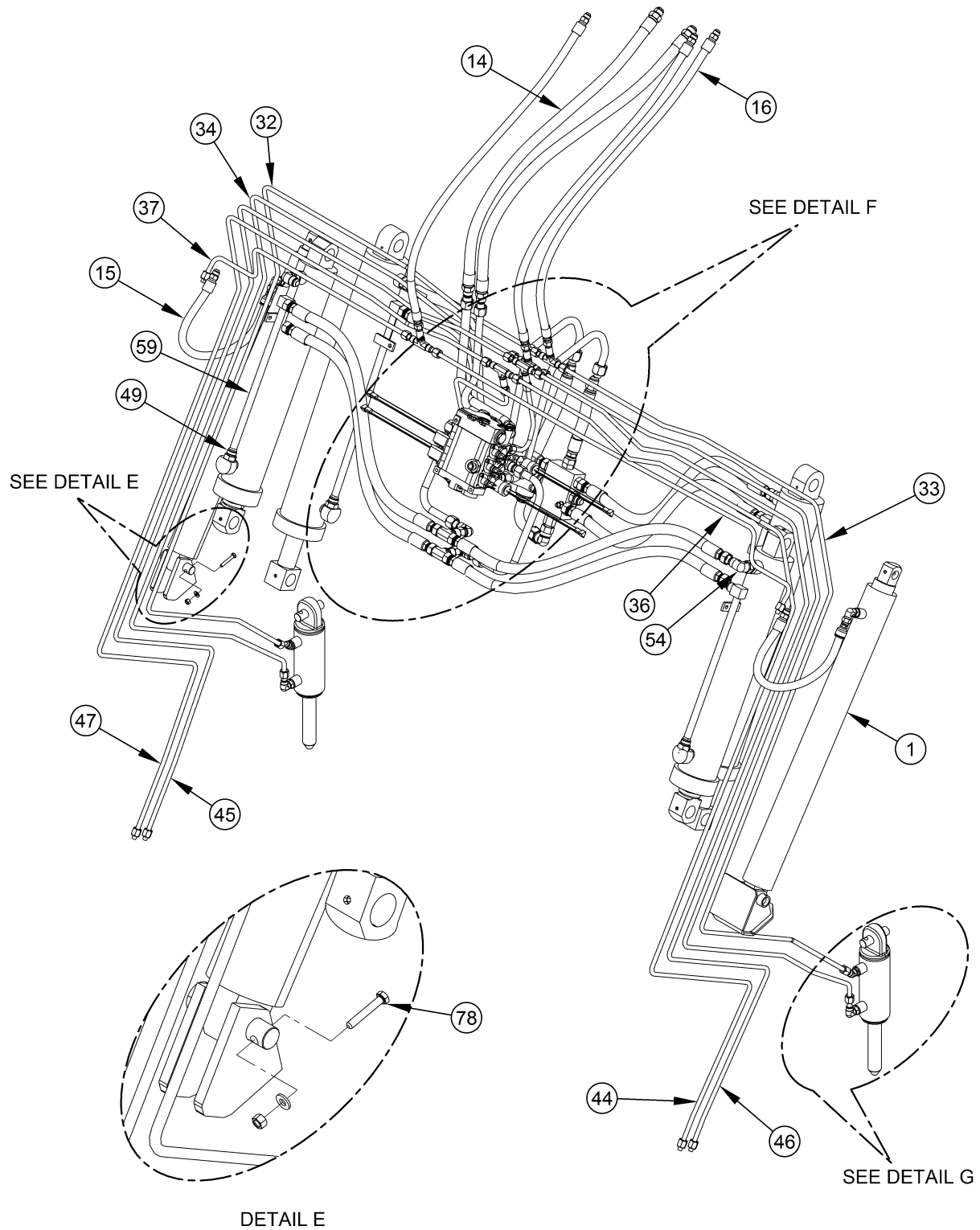
PT 1000A TAILGATE ASSEMBLY 615-6654



SHEET 2 OF 4

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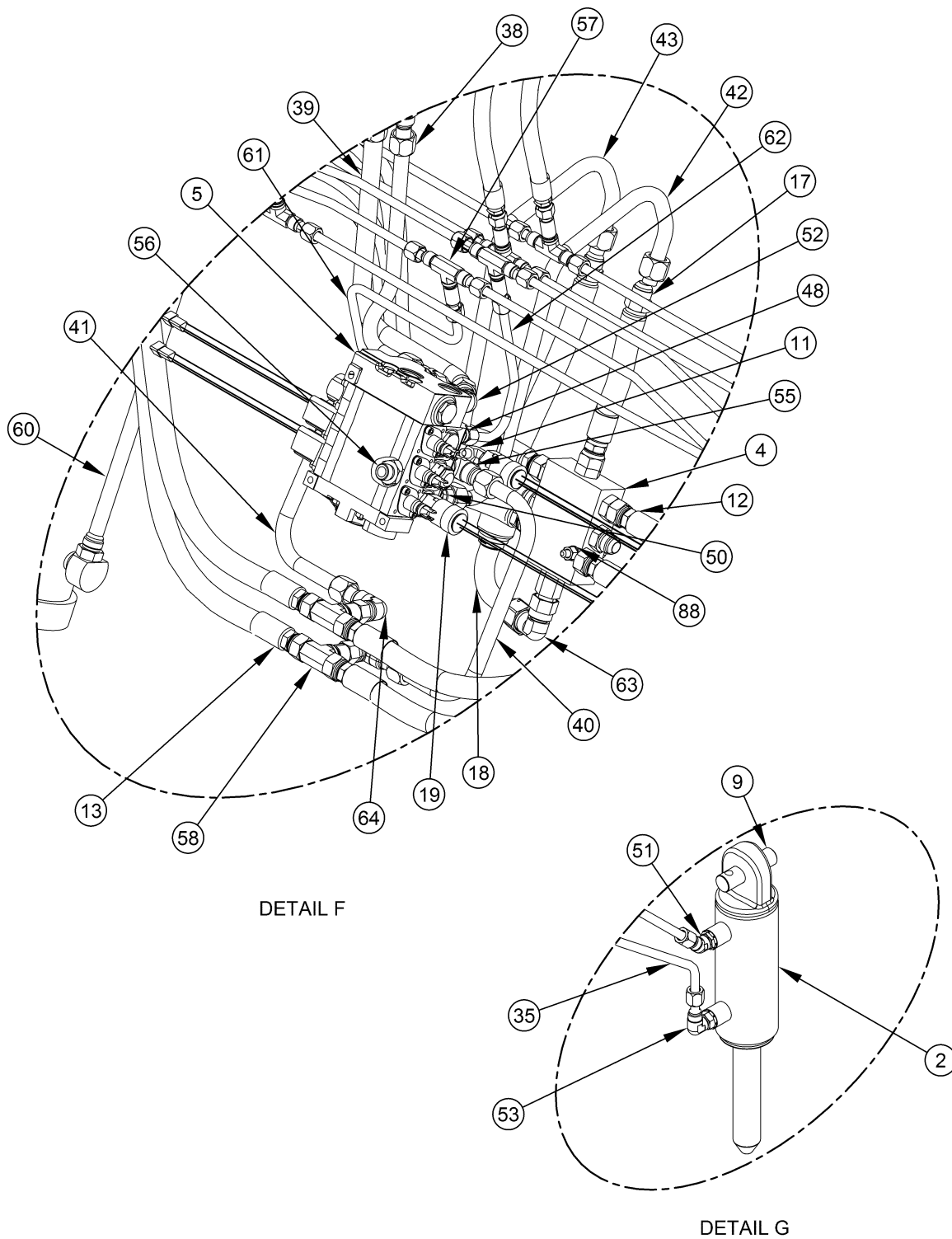
PT 1000A TAILGATE ASSEMBLY 615-6654



SHEET 3 OF 4

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PT 1000A TAILGATE ASSEMBLY 615-6654




SHEET 4 OF 4

PT 1000A

TAILGATE ASSEMBLY

615-6654


67

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	615-6654	ASSEMBLY, Tailgate	-	REF
1	001-6863	CYLINDER, Tailgate Raise (See Section 5)	-	2
2	001-6869	CYLINDER, Tailgate Lock (See Section 5)	-	2
3	022-3509-178	SEAL, Tailgate,	-	1
4	031-6468-001	VALVE, Regenerative	-	1
5	031-6558-003	VALVE, Control, Tailgate (See Section 5)	-	1
6	036-1122-008	CLAMP, Tube, 1/2"	-	10
7	036-1122-012	CLAMP, Wire, Tube, 3/4" x 13/32"	-	5
8	036-1122-016	CLAMP, Wire, Tube, 1" Dia.	-	1
9	048-5482	PIN, Tailgate Raise, 1" Dia.	-	4
10	048-7510	PIN, Hinge, Tailgate, 50 mm Dia.	-	2
11	054-9019-002	ELBOW, 90 Deg., 1/4" to 1/4" Pipe	-	1
12	057-3101-001	ASSEMBLY, Hose, Pressure, 20 mm	-	4
13	057-3101-002	ASSEMBLY, Hose, Pressure, 20 mm	-	4
14	057-3101-003	ASSEMBLY, Hose, Pressure	-	2
15	057-3101-005	ASSEMBLY, Hose, 20 mm	-	2
16	057-3101-008	HOSE, Hydraulic, 1/2", 1000 mm Lg.	-	3
17	057-3101-011	ASSEMBLY, Hose, 1/2", 245 mm Lg.	-	1
18	057-3101-019	ASSEMBLY, Hose, 20 mm	-	1
19	063-0116	SWITCH, Pressure, SPDT, Deutsch Connector	-	4
20	108-8464-001	SWITCH, Toggle, SPST	-	2
21	108-8518	ALARM, Backing, ECCO 210	-	1
22	115-1400	LIGHT, LED, Flood	-	2
23	115-1439	ASSEMBLY, Light, LED, Reverse, Single System, 4"	-	2
24	115-1440	LIGHT, Tag, LED, Surface Mount	-	2
25	115-1447	ASSEMBLY, Light, LED, Clearance, Red, PC Rated,	-	2
26	115-1450	ASSEMBLY, Light, STT, LED, Red, Amp. Superseal, Round, 4"	-	4
27	177-2923-008	CHANNEL, Tailgate, Vertical, 42" Lg.	-	1
28	177-2924-008	CHANNEL, Tailgate, Vertical, 42" Lg.	-	1
29	177-3307-001	CHANNEL, Seal, Tailgate, 94-1/2" Lg.	-	1
30	212-1343	NAME PLATE, Heil	-	1
31	237-9692	ASSEMBLY, Blade & Slide 	-	1
32	354-4797	TUBE, Steel, Tailgate Lock, 12 mm OD x 1-1/2 mm Wall, SS	-	1
33	354-4798	TUBE, Steel, Tailgate Lock, 12 mm OD x 1-1/2 mm Wall, CS	-	1
34	354-4799	TUBE, Steel, Tailgate Unlock, 12 mm OD x 1-1/2 mm Wall, SS	-	1
35	354-4800	TUBE, Steel, Tailgate Unlock, 12 mm OD x 1-1/2 mm Wall, CS	-	1
36	354-4801	TUBE, Steel, Tailgate Raise, 12 mm OD x 1-1/2 mm Wall, SS	-	1
37	354-4802	TUBE, Steel, Tailgate Raise, 12 mm OD x 1-1/2 mm Wall, SS	-	1
38	354-4803	TUBE, Steel, Pressure Line, 20 mm OD x 2 mm Wall	-	1
39	354-4804	TUBE, Steel, Return Line, 20 mm OD x 2 mm Wall	-	1
40	354-4805	TUBE, Steel, Packer Blade Extend, 20 mm OD x 2-1/2 mm Wall	-	1
41	354-4806	TUBE, Steel, Blade Down, 20 mm OD x 2-1/2 mm Wall	-	1
42	354-4807	TUBE, Steel, Slide Cylinder, 20 mm OD x 2 mm Wall	-	1
43	354-4808	TUBE, Steel, Slide Extend, 20 mm OD x 2 mm Wall	-	1
44	354-4809	TUBE, Steel, Comb Lift Raise, 12 mm OD x 1-1/2 mm Wall, SS	-	1
45	354-4810	TUBE, Steel, Comb Lift Raise, 12 mm OD x 1-1/2 mm Wall, CS	-	1
46	354-4811	TUBE, Steel, Comb Lift Lower, 12 mm OD x 1-1/2 mm Wall, SS	-	1
47	354-4812	TUBE, Steel, Comb Lift Lower, 12 mm OD x 1-1/2 mm Wall, CS	-	1
48	354-4813-012	ADAPTER, Straight, 1/2" SAE to 12 mm	-	2
49	354-4813-020	ADAPTER, Straight, 3/4" SAE to 20 mm	-	11
50	354-4813-022	ADAPTER, Straight, 5/8" SAE to 20 mm	-	2

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PT 1000A
TAILGATE ASSEMBLY
615-6654

69

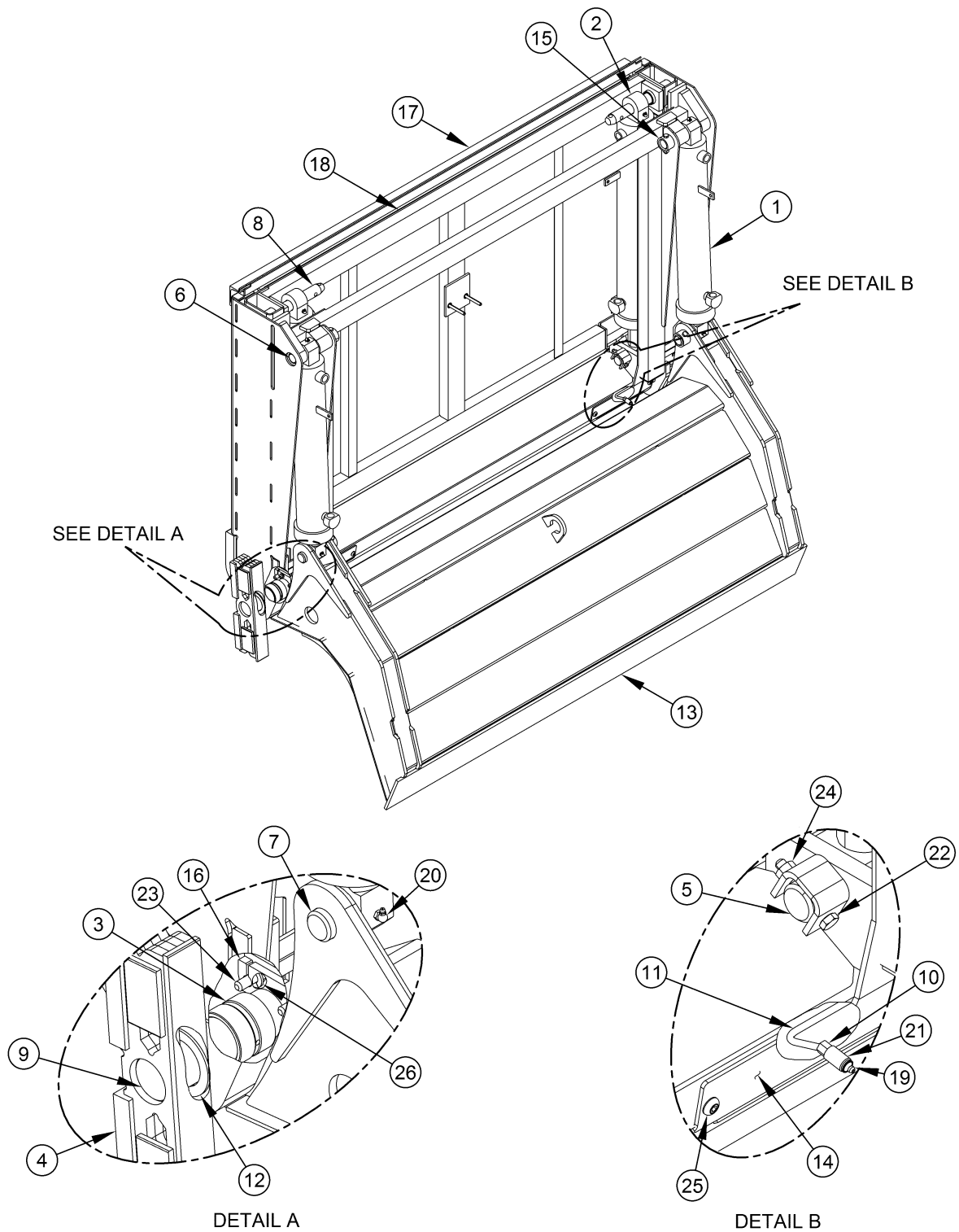
ITEM	PART NO.	DESCRIPTION	EFF	QTY
51	354-4814-012	ELBOW, Male, 45°	-	2
52	354-4814-020	ELBOW, 45°	-	1
53	354-4815-012	ELBOW, 37° Flare, 90 SAE to 12 mm	-	4
54	354-4815-020	ELBOW, #12 SAE to 20 mm	-	3
55	354-4815-021	ELBOW, #10 SAE to 20 mm	-	1
56	354-4815-022	ELBOW, #10 SAE to 20 mm	-	1
57	354-4816-012	TEE, Bulk Head, JIC, #12 mm	-	5
58	354-4816-020	TEE, Bulk Head, Flare, #20 mm	-	2
59	354-4819-450	ASSEMBLY, Tube, Steel, 20 mm OD x 2.1 mm Wall, 450 mm Lg.	-	2
60	354-4819-580	ASSEMBLY, Tube, Steel, 20 mm OD x 2.1 mm Wall, 580 mm Lg.	-	2
61	354-4824	TUBE, Steel, Comb Lift Raise, 12 mm OD x 1-1/2 mm Wall	-	1
62	354-4825	TUBE, Steel, Comb Lift Lower, 12 mm OD x 1-1/2 mm Wall	-	1
63	354-4832-020	ELBOW, 20 mm, Male to #12 SAE Female, 37° Flare	-	1
64	354-4833-020	ELBOW, Hydraulic Adapter, 20 mm, Metric Flared	-	2
65	354-5002-012	PLUG, 12 mm	-	5
66	615-6653	WELDMENT, Tailgate 	-	1
67	615-6654-001	BRACKET	-	1
68	615-6654-002	COVER	-	2
70	615-6654-015	MUDFLAP	-	2
74	FS190400	FITTING, Grease, Str., 1/8" NPT	-	2
75	MSP07-06-016	BOLT, M6 x 16	-	4
76	MSP07-06-020	BOLT, M6 x 20	-	11
77	MSP07-08-020	HHCS, M8-1-1/4 x 20, Gr. 8.8	-	14
78	MSP07-08-050	HHCS, M8-1-1/4 x 50, Gr. 8.8	-	1
79	MSP07-10-020	BOLT, M10 x 20	-	1
80	MSP07-14-080	BOLT, M14 x 80	-	2
81	MSP23-06-000	NUT, Nyloc, M6	-	15
82	MSP23-08-000	NUT, Nyloc, M8	-	16
83	MSP23-10-000	NUT, Nyloc, M10	-	2
84	MSP23-14-000	NUT, Nyloc, M14	-	2
85	MSP51-06-000	WASHER, Flat, M6, DIN 9021	-	4
86	MSP52-06-000	WASHER, Flat, M6	-	11
87	MSP52-08-000	WASHER, Flat, M8	-	11
88	MSP52-10-000	WASHER, Flat, M10	-	2
89	MSP52-14-000	WASHER, Flat, M4	-	2

Note: Items 69 and 71-73 are Welded.

PT 1000A

BLADE AND SLIDE ASSEMBLY

237-9692



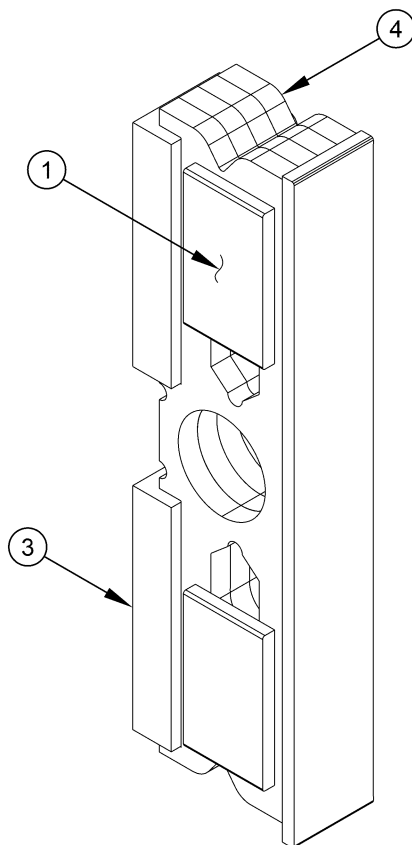
PT 1000A
BLADE AND SLIDE ASSEMBLY
237-9692

71

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	237-9692	ASSEMBLY, Blade & Slide	-	REF
1	001-7077	CYLINDER, Blade (See Section 5)	-	2
2	001-7076	CYLINDER, Slide (See Section 5)	-	2
3	003-3906	BEARING, Packing Blade	-	2
4	028-0481	ASSEMBLY, Blade Shoe ⁽⁷²⁾	-	2
5	048-3771	PIN, Slide Cylinder to Outer	-	2
6	048-5485	PIN, Cylinder, Blade, Base End	-	2
7	048-5549	PIN, Blade Cylinder to Blade	-	2
8	048-7201	PIN, Slide Pivot	-	2
9	048-7227	PIN, Blade to Slide	-	2
10	054-3513-003	CONNECTOR, Air Line, 1/8" NPT	-	4
11	054-5449	TUBING, Air Line, 1/4", Nylon	-	2
12	055-1119-005	WASHER, 3-1/2" OD, #10 Ga.	-	2
13	113-6976	ASSEMBLY, Blade Panel, Lower ⁽⁷⁴⁾	-	1
14	237-9692-001	COVER, Pin Access, Blade & Slide Assembly	-	2
15	237-9692-003	COLLAR, Blade & Slide Assembly, 40 mm ID x 51 mm OD	-	2
17	237-9693	ASSEMBLY, Outer Slide, Blade & Slide ⁽⁷⁶⁾	-	1
18	237-9694	ASSEMBLY, Inner Slide ⁽⁷⁸⁾	-	1
19	FS190400	FITTING, Grease, Str., 1/8" NPT	-	2
20	FS190490	FITTING, Grease, 90°, 1/8" NPT	-	8
21	FS640400	COUPLING, Black Pipe, Std., 1/8" NPT	-	2
22	MSP07-10-070	BOLT, M10 x 70	-	6
23	MSP07-12-030	BOLT, M12 x 30	-	4
24	MSP23-10-000	NUT, Nyloc, M10	-	6
25	MSP42-10-020	SCREW, Socket Head, M10 x 20	-	4
26	MSP54-12-000	WASHER, Spring, M12	-	4

Note: Item 16 is Welded.

PT 1000A
BLADE SHOE ASSEMBLY
028-0481



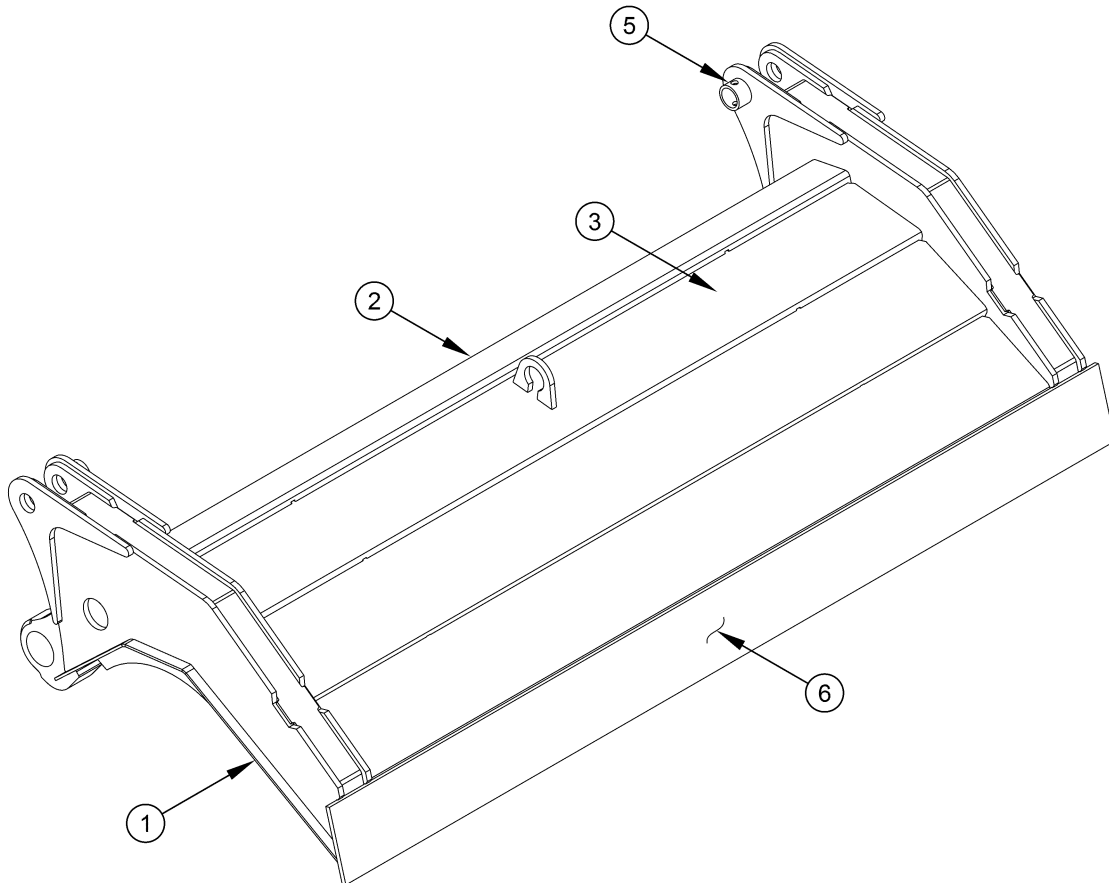
PT 1000A
BLADE SHOE ASSEMBLY
028-0481

73

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	028-0481	ASSEMBLY, Blade Shoe	-	REF
1	003-3902	PAD, Bearing, Shoe Side	-	2
3	021-4085	BAR, Wear, Plastic, Blade Shoe	-	2
4	234-2098	PLATE, Blade Shoe, 1/2"	-	4

Note: Items 2 and 5 are Welded.

PT 1000A
LOWER BLADE PANEL ASSEMBLY
113-6976



PT 1000A

LOWER BLADE PANEL ASSEMBLY

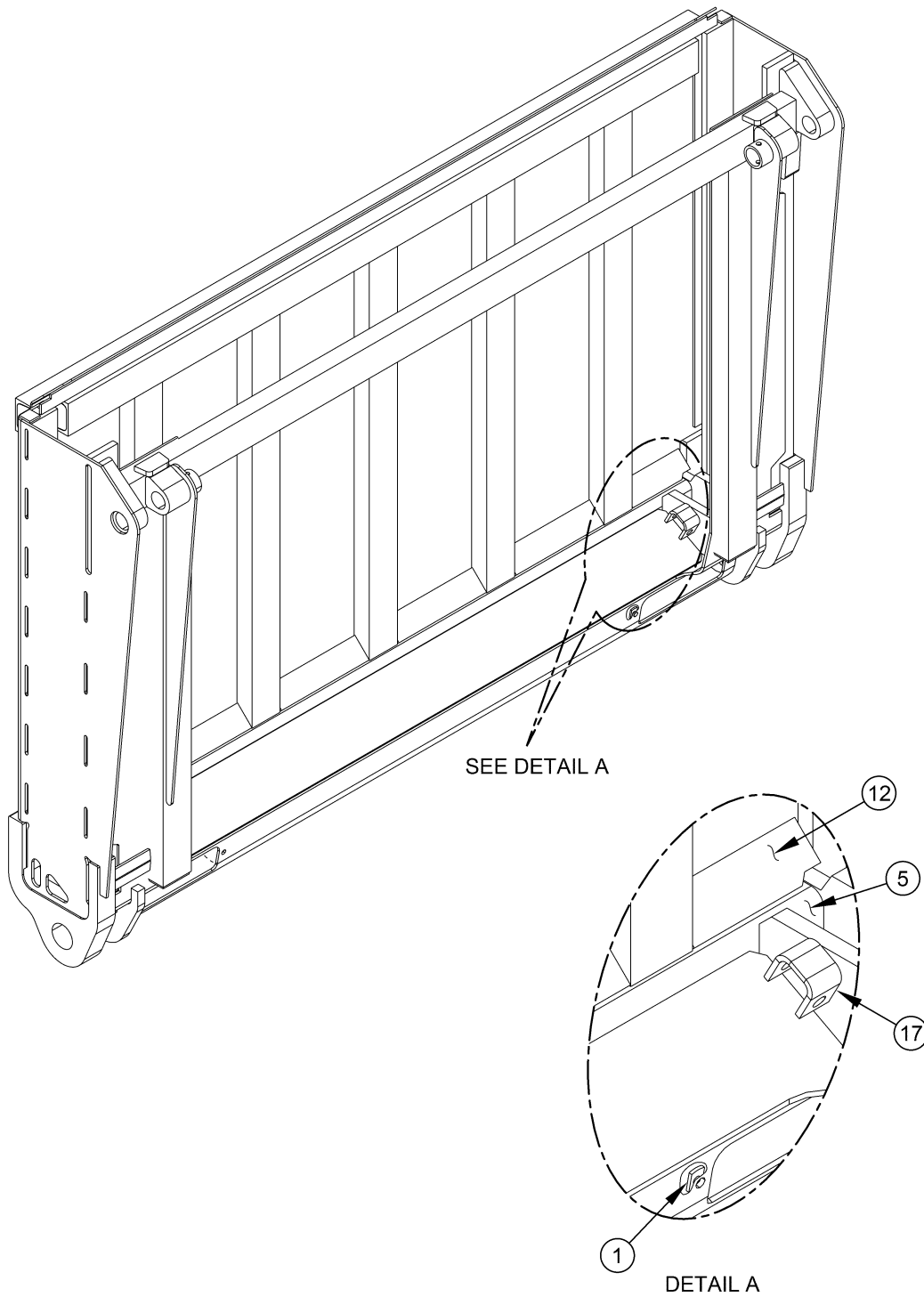
113-6976

75

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	113-6976	ASSEMBLY, Blade Panel, Lower	-	REF
1	113-6976-001	SHEET, Face, Lower Panel, 5 mm	-	1
2	113-6976-002	CROSS BRACE, Panel, Lower, 3 mm	-	1
3	113-6976-003	BRACE, Angle, Panel Lower, 3 mm	-	3
5	113-6976-005	COLLAR, Panel, Lower, 40 mm ID x 51 mm OD	-	2
6	113-6976-006	PLATE, Edge, Panel, Lower, 10 mm	-	1

Note: Items 4 and 7 are Welded.

PT 1000A
BLADE AND SLIDE OUTER SLIDE ASSEMBLY
237-9693



PT 1000A

BLADE AND SLIDE OUTER SLIDE ASSEMBLY

237-9693

77

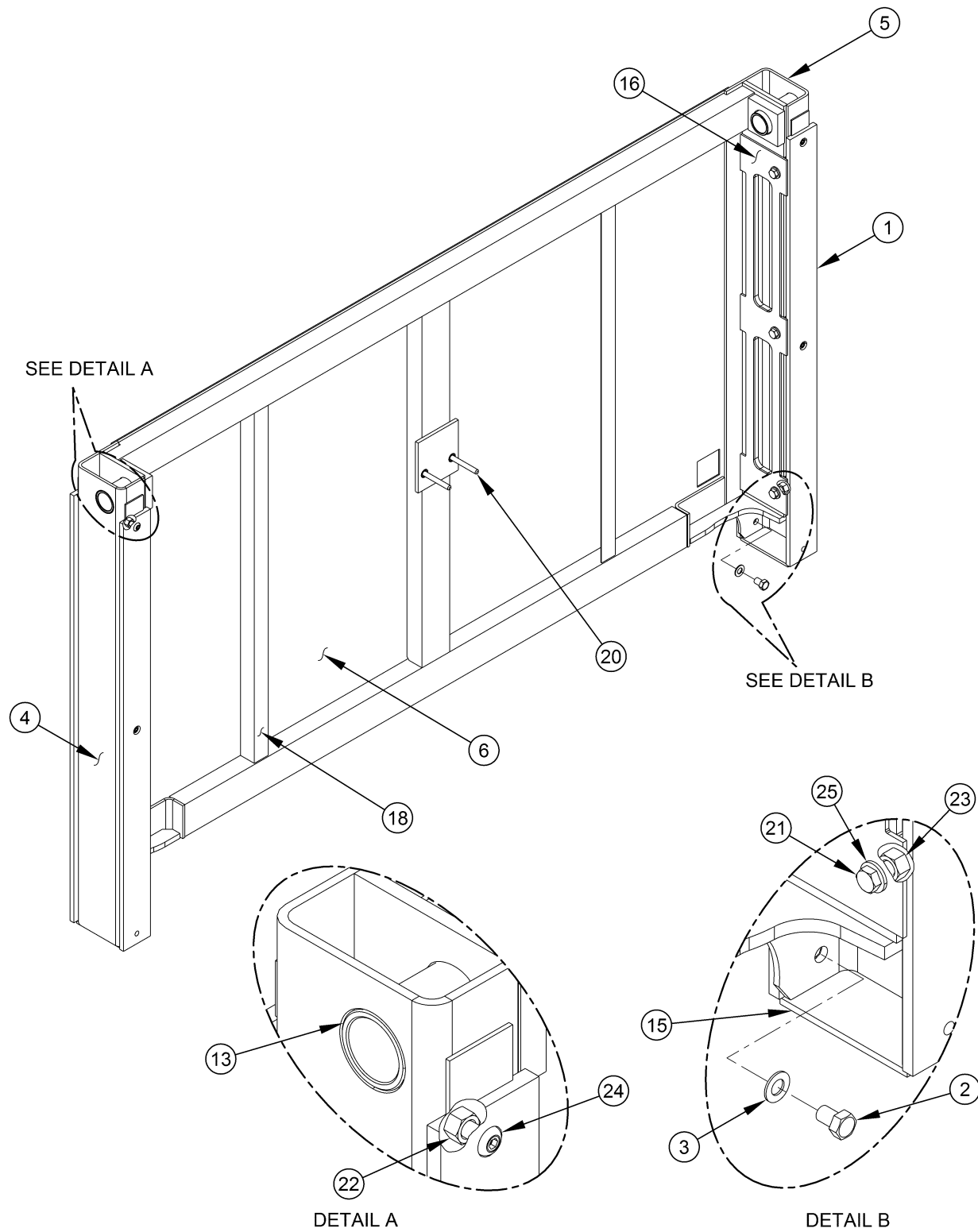
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	237-9693	ASSEMBLY, Outer Slide, Blade & Slide	-	REF
1	047-2684	NUT, Weld, 10 mm	-	4
5	237-9693-004	BRACE, Outer Slide, 6 mm	-	1
12	237-9693-011	STIFFENER, Outer Slide, 6 mm	-	2
17	237-9693-016	BAR, Lock, Outer Slide, 6 mm	-	2

Note: Items 2-4, 6-11, 13-16 and 18-30 are Welded.

PT 1000A

INNER SLIDE ASSEMBLY

237-9694



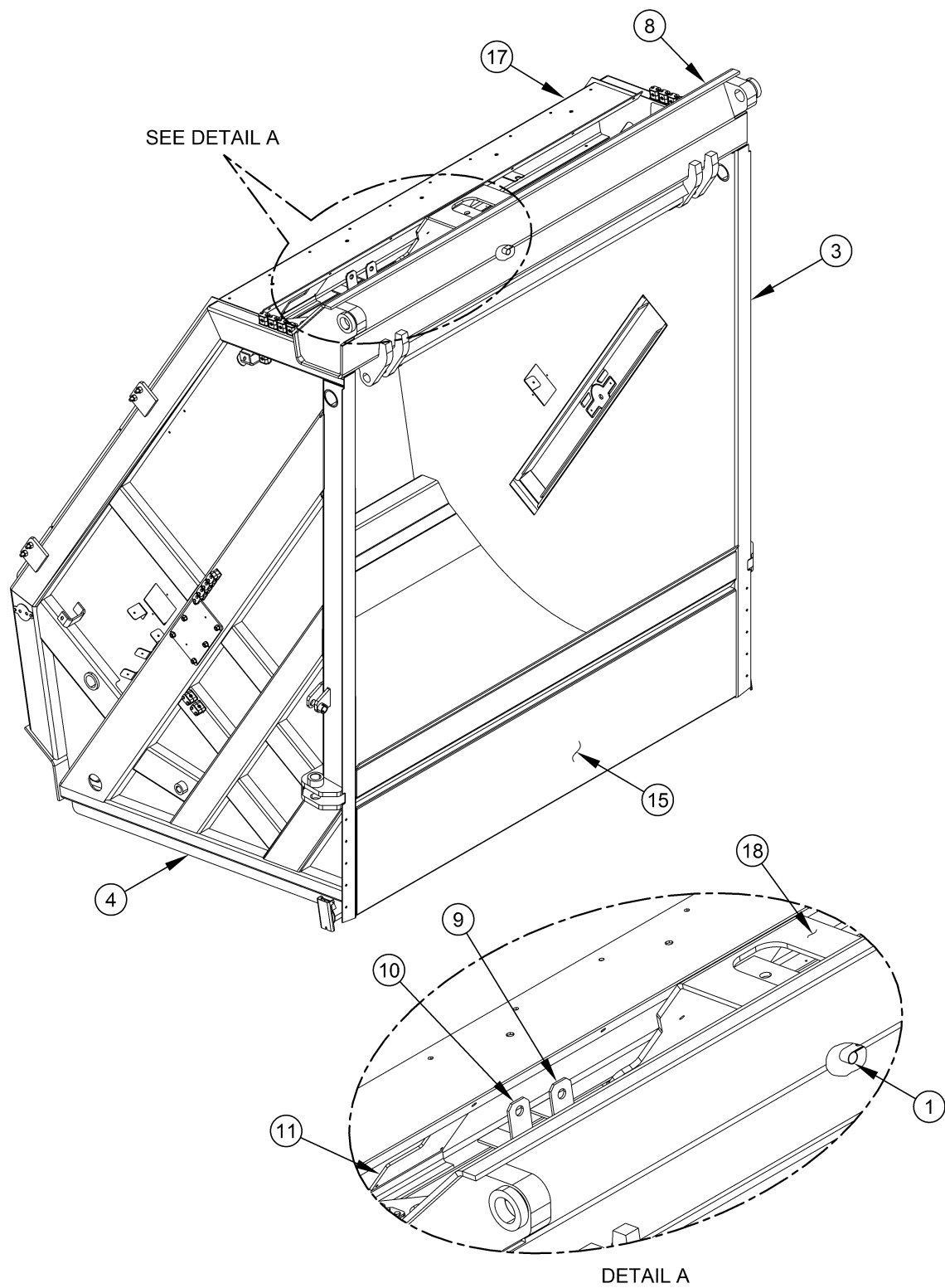
PT 1000A
INNER SLIDE ASSEMBLY
237-9694

79

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	237-9694	ASSEMBLY, Inner Slide	-	REF
1	003-5102	BAR, Bearing, Inner Slide	-	4
2	047-2533	HHCS, 1/2"-13 x 3/4", Brass	-	4
3	047-2534	WASHER, Flat, 1/2" SAE, Brass	-	4
4	237-9694-001	CHANNEL, Inner Slide, 6 mm, SS	-	1
5	237-9694-002	CHANNEL, Inner Slide, 6 mm, CS	-	1
6	237-9694-003	PANEL, Cover, Inner Slide, 3 mm	-	1
13	237-9694-010	BEARING, Inner Slide, 50 mm OD x 40 mm ID	-	2
15	237-9694-012	BAR, Stop, Slide Bearing, 6 mm	-	2
16	237-9694-013	PLATE, Stop, Wear Bar, 4 mm	-	2
18	237-9694-015	ANGLE, Supporting, Inner Slide, 40 mm x 40mm x 4 mm	-	2
20	MSP07-10-075	BOLT, M10 x 75	-	2
21	MSP07-12-030	BOLT, M12 x 30	-	6
22	MSP23-10-000	NUT, Nyloc, M10	-	8
23	MSP23-12-000	NUT, Nyloc, M12	-	6
24	MSP42-10-020	SCREW, Socket Head, M10 x 20	-	8
25	MSP52-12-000	WASHER, Flat, M12	-	6

Note: Items 7-12, 14, 17 and 19 are Welded.

PT 1000A TAILGATE WELDMENT 615-6653



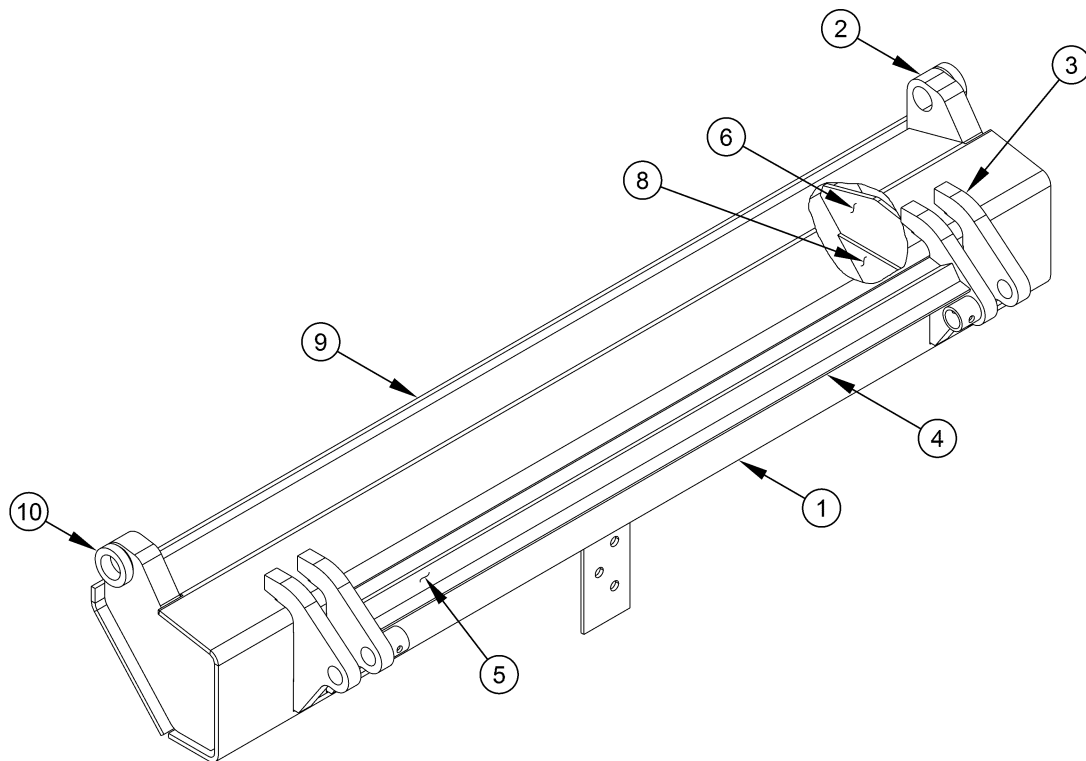
PT 1000A
TAILGATE WELDMENT
615-6653

81

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	615-6653	WELDMENT, Tailgate	-	REF
1	036-1122-012	CLAMP, Wire, Tube, 3/4" x 13/32"	-	2
3	113-6981	WELDMENT, Tailgate, SS ⁸⁴	-	1
4	113-6982	WELDMENT, Tailgate, CS ⁸⁸	-	1
-5	177-2923-008	CHANNEL, Vertical, Tailgate, 42"	-	1
-6	177-2924-008	CHANNEL, Vertical, Tailgate, 42"	-	1
-7	177-3307-001	CHANNEL, Seal, Tailgate	-	1
8	177-5842	CROSS MEMBER, Tailgate, 25 Yd. ⁸²	-	1
9	311-6079	BRACKET, Support, Proximity Switch	-	1
10	311-6080	BRACKET, Support, Proximity Switch	-	1
11	311-6091	BRACKET, Panel, Relay	-	1
15	615-6653-004	PLATE, Cover, Hopper, Sump, 3 mm	-	1
17	615-6653-006	CROSS MEMBER, Tail Light, 4 mm	-	1
18	615-6653-007	SUPPORT, Cross Member, Tail Light, 10 mm	-	1

Note: Items 2, 12-14, 16 and 19-23 are Welded.

PT 1000A
25 YARD TAILGATE CROSS MEMBER
177-5842



PT 1000A
25 YARD TAILGATE CROSS MEMBER
177-5842

83

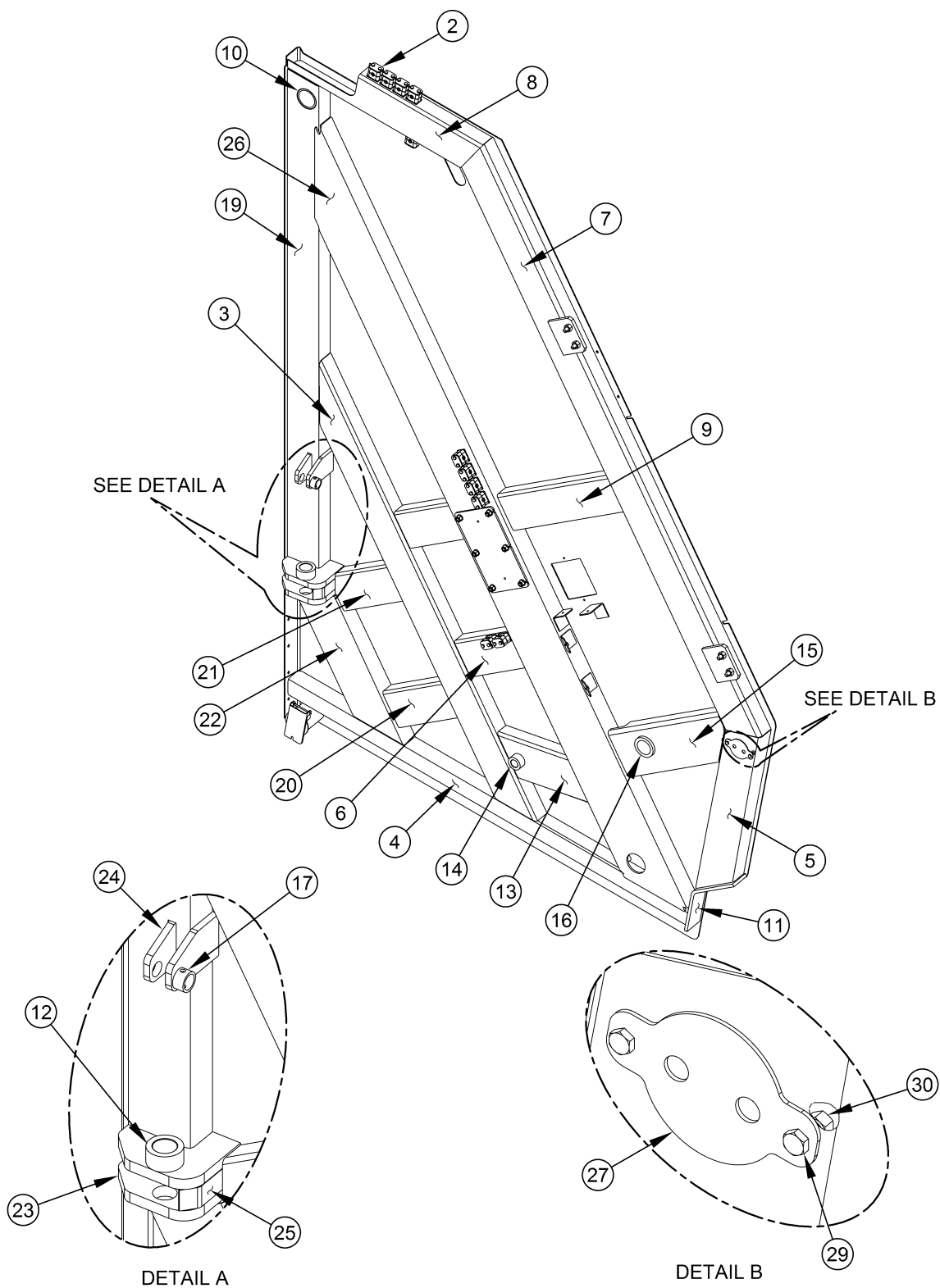
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	177-5842	CROSS MEMBER, Tailgate, 25 Yd.	-	REF
1	177-5842-001	CROSS MEMBER, 10 mm	-	1
2	177-5842-002	HINGE, Tailgate, 50 mm	-	2
3	177-5842-003	HINGE, Slide, 38 mm	-	2
4	177-5842-004	PLATE, Cross Member, Hinge, 6 mm	-	1
5	177-5842-005	BRACE, Angle, Cross Member, Hinge, 40 mm x 40 mm x 4 mm	-	1
6	177-5842-006	SUPPORT, 10 mm	-	4
8	177-5842-008	SUPPORT, Gusset, 10 mm	-	4
9	177-5842-009	CROSS MEMBER, 10 mm	-	1
10	177-5842-010	COLLAR, 25 mm Thick, 80 mm OD	-	2

Note: Items 7, 11 and 12 are Welded.

PT 1000A


SS TAILGATE WELDMENT

113-6981



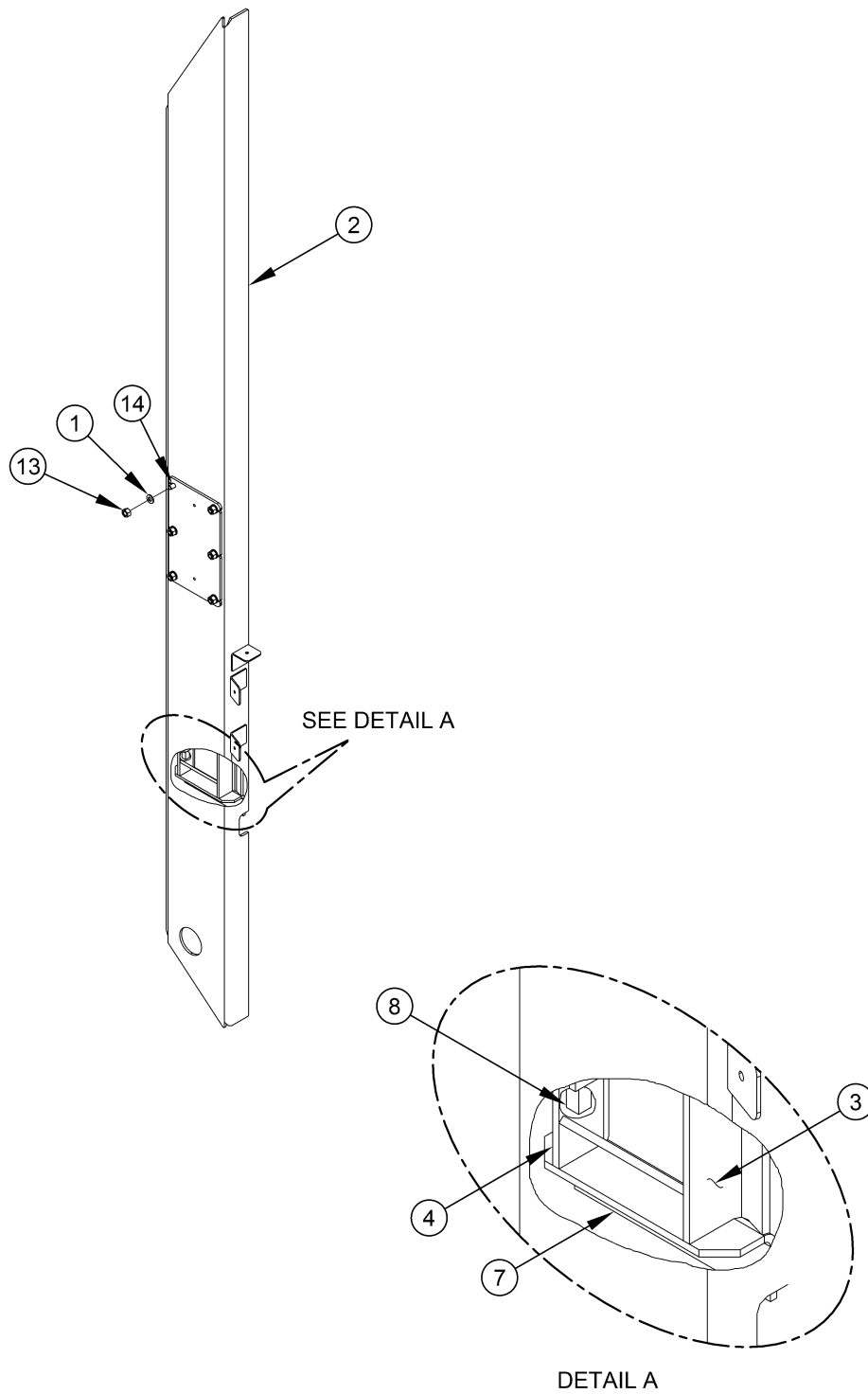
PT 1000A
SS TAILGATE WELDMENT
113-6981

85

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	113-6981	WELDMENT, Tailgate, SS	-	REF
2	036-1597-M12	CLAMP, Tube, 12 mm	-	11
3	113-6981-004	BRACE, 3 mm, SS	-	1
4	113-6981-006	BRACE, 4 mm, SS	-	1
5	113-6981-007	BRACE, 3 mm, SS	-	1
6	113-6981-008	BRACE, 3 mm	-	2
7	113-6981-010	CHANNEL, Side, Tailgate, 3 mm, SS	-	1
8	113-6981-011	CHANNEL, Side, Tailgate, 3 mm, SS	-	1
9	113-6981-012	BRACE, 3 mm	-	1
10	113-6981-013	SLEEVE, Black Pipe, 60 mm ID x 70 mm OD	-	1
11	113-6981-018	CLOSURE, Side, Tailgate	-	1
12	113-6981-019	BUSHING, Shur Lock, Tailgate	-	1
13	113-6981-021	BRACE, Side, Tailgate, 2.5 mm	-	1
14	113-6981-022	BUSHING, Rod, Shur Lock, Tailgate	-	1
15	113-6981-023	BRACE, 3 mm	-	1
16	113-6981-024	SLEEVE, 60 mm ID x 70 mm OD	-	1
17	113-6981-026	COLLAR, 27 mm ID x 35 mm OD	-	1
19	113-6981-040	BRACE, Side, 3 mm, Tailgate, SS	-	1
20	113-6981-043	BRACE, Side, 3 mm, Tailgate	-	1
21	113-6981-046	BRACE, Side, Tailgate	-	1
22	113-6981-050	BOLSTER, SS	-	1
23	113-6981-052	LUG, Lock, Cylinder	-	2
24	113-6981-053	MOUNT, Cylinder, 12 mm	-	2
25	113-6981-054	COVER, Rod, Cylinder	-	1
26	113-6981-100	WELDMENT, Track, Slide, SS 	-	1
27	113-7071	COVER, Harness	-	1
29	MSP07-06-016	BOLT, M6 x 16	-	2
30	MSP23-06-000	NUT, Nyloc, M6	-	2

Note: Items 1, 18 and 28 are Welded.

PT 1000A
SS SLIDE TRACK WELDMENT
113-6981-100



PT 1000A
SS SLIDE TRACK WELDMENT
113-6981-100

87

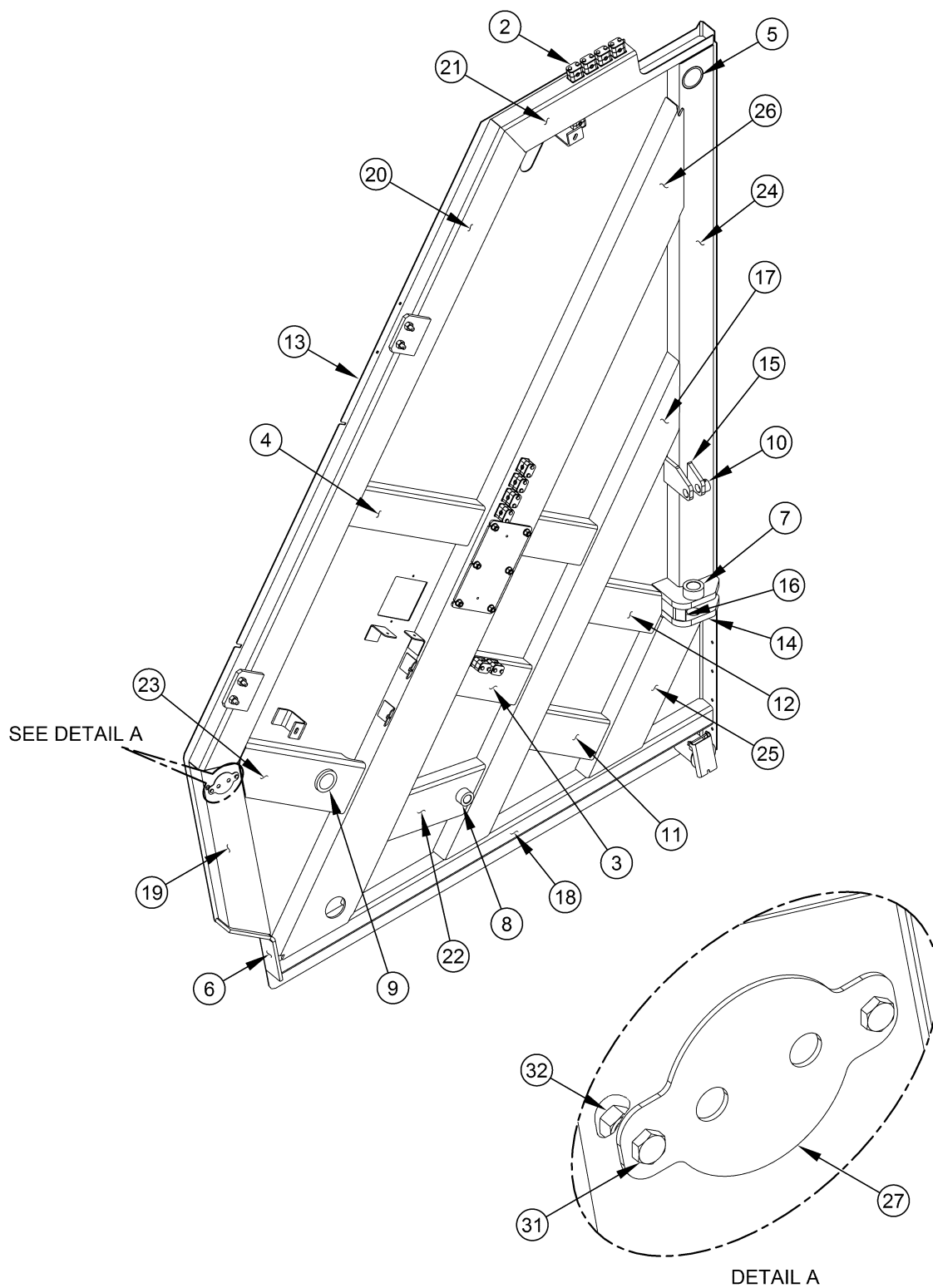
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	113-6981-100	WELDMENT, Track, Slide, SS	-	REF
1	055-1391-003	WASHER, Steel, Hardened, 3/8" x 0.8" Thickness, Zinc Plated	-	6
2	113-6981-101	BRACE, Slide Track, 6 mm	-	1
3	113-6981-102	BRACE, 6 mm	-	1
4	113-6981-103	BRACE, 6 mm	-	1
7	113-6981-106	BRACKET, 6 mm	-	2
8	113-6981-107	SUPPORT, Square Bar, 13 mm x 13 mm	-	1
13	MSP23-10-000	NUT, Nyloc, M10	-	6
14	MSP42-10-020	SCREW, Socket Head, M10 x 20	-	6

Note: Items 5, 6 and 9-12 are Welded.

PT 1000A


CS TAILGATE WELDMENT

113-6982



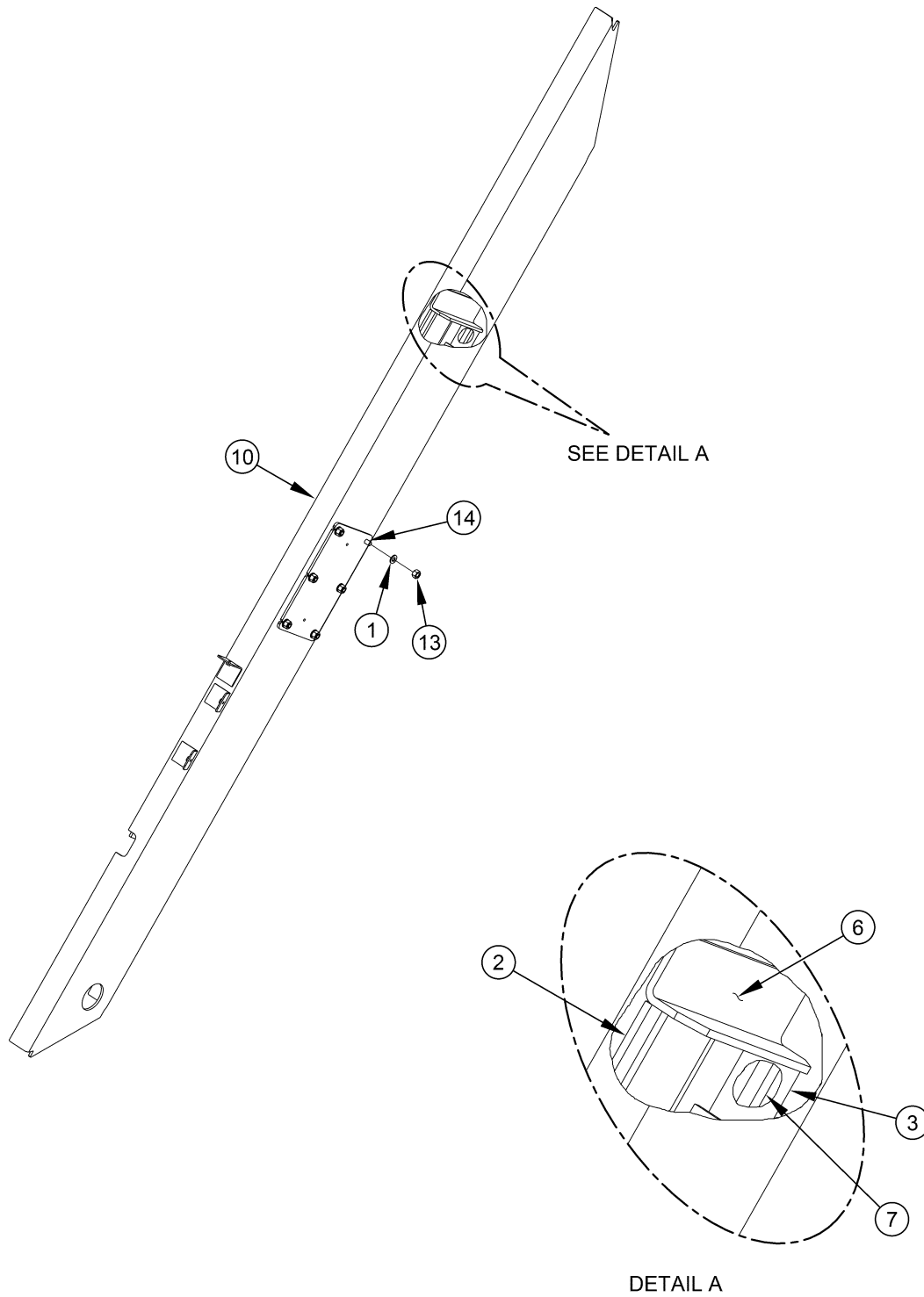
PT 1000A
CS TAILGATE WELDMENT
113-6982

89

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	113-6982	WELDMENT, Tailgate, CS	-	REF
2	036-1597-M12	CLAMP, Tube, 12 mm	-	11
3	113-6981-008	BRACE, 3 mm	-	2
4	113-6981-012	BRACE, 3 mm	-	1
5	113-6981-013	SLEEVE, Black Pipe, 60 mm ID x 70 mm OD	-	1
6	113-6981-018	CLOSURE, Side, Tailgate	-	1
7	113-6981-019	BUSHING, Shur Lock, Tailgate	-	1
8	113-6981-022	BUSHING, Rod, Shur Lock, Tailgate	-	1
9	113-6981-024	SLEEVE, 60 mm ID x 70 mm OD	-	1
10	113-6981-026	COLLAR, 27 mm ID x 35 mm OD	-	1
11	113-6981-043	BRACE, Side, 3 mm, Tailgate	-	1
12	113-6981-047	BRACE, Side, Tailgate	-	1
13	113-6981-051	PANEL, Side, CS, Tailgate	-	1
14	113-6981-052	LUG, Lock, Cylinder	-	2
15	113-6981-053	MOUNT, Cylinder, 12 mm	-	2
16	113-6981-054	COVER, Rod, Cylinder	-	1
17	113-6982-004	BRACE, 3 mm, CS	-	1
18	113-6982-005	BRACE, 4 mm, CS	-	1
19	113-6982-006	BRACE, 3 mm, CS	-	1
20	113-6982-008	CHANNEL, Side, Tailgate, 3 mm, CS	-	1
21	113-6982-009	CHANNEL, Side, Tailgate, 3 mm, CS	-	1
22	113-6982-021	BRACE, 2.5 mm	-	1
23	113-6982-023	BRACE, 3 mm	-	1
24	113-6982-040	BRACE, CS	-	1
25	113-6982-050	BOLSTER, SS	-	1
26	113-6982-100	WELDMENT, Track, Slide, SS 	-	1
27	113-7070	COVER, Harness	-	1
31	MSP07-06-016	BOLT, M6 x 16	-	2
32	MSP23-06-000	NUT, Nyloc, M6	-	2

Note: Items 1 and 28-30 are Welded.

PT 1000A
SS SLIDE TRACK WELDMENT
113-6982-100



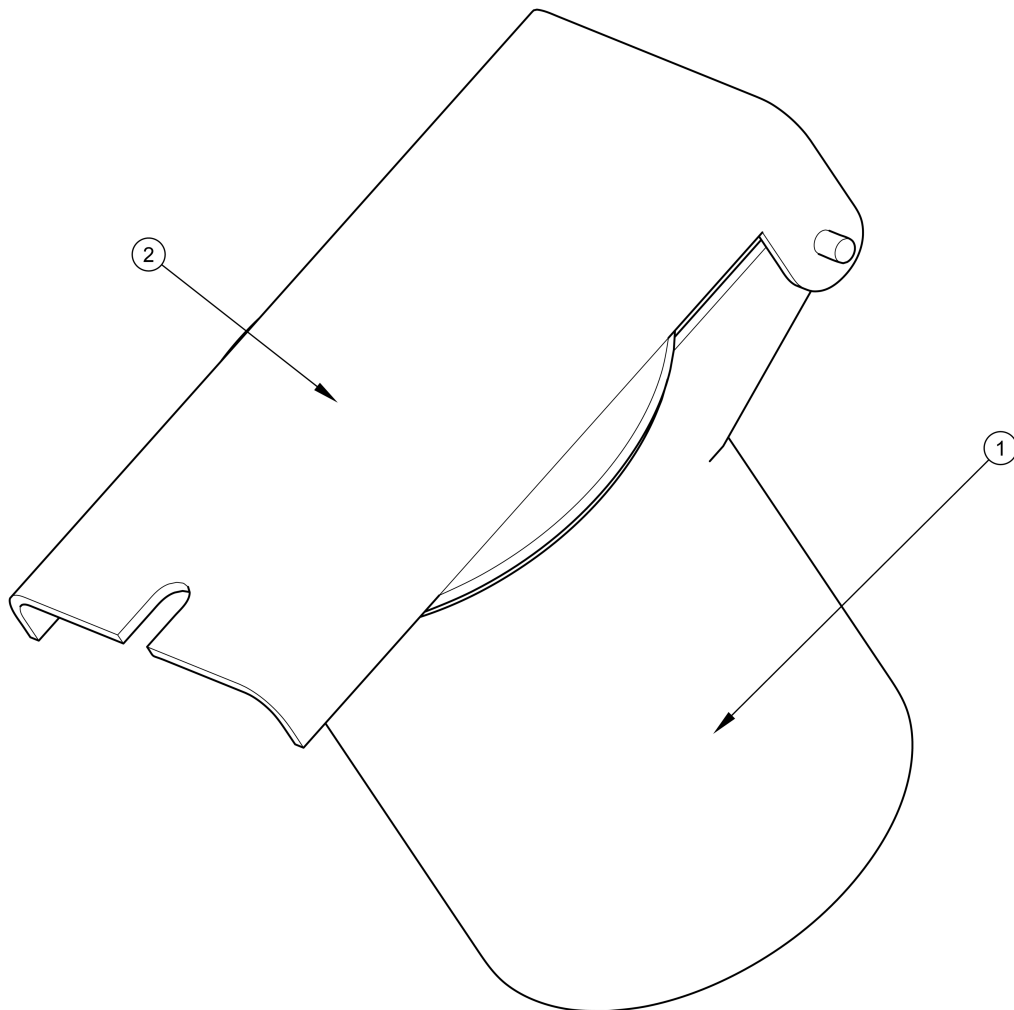
PT 1000A
SS SLIDE TRACK WELDMENT
113-6982-100

91

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	113-6982-100	WELDMENT, Track, Slide, SS	-	REF
1	055-1391-003	WASHER, Steel, Hardened, 3/8" x 0.8" Thickness, Zinc Plated	-	6
2	113-6981-102	BRACE, 6 mm	-	1
3	113-6981-103	BRACE, 6 mm	-	1
6	113-6981-106	BRACKET, 6 mm	-	2
7	113-6981-107	SUPPORT, Square Bar, 13 mm x 13 mm	-	1
10	113-6982-101	BRACE, Track, Slide, 6 mm, SS	-	1
13	MSP23-10-000	NUT, Nyloc, M10	-	6
14	MSP42-10-020	SCREW, Socket Head, M10 x 20	-	6

Note: Items 4, 5, 8, 9, 11 and 12 are Welded.

PT 1000A
DRAIN KIT
031-6571



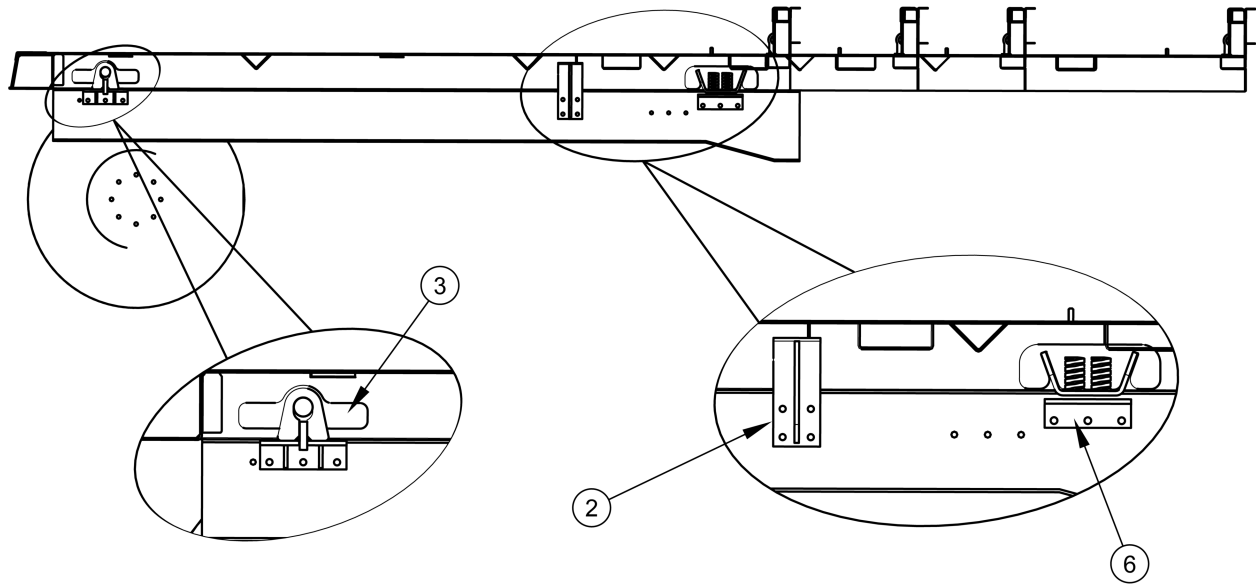
PT 1000A
DRAIN KIT
031-6571

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6571	KIT, Drain	-	REF
1	031-6571-001	TUBE, Drain	-	1
2	031-6571-002	COVER, Drain	-	1

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MOUNTING KITS

PT 1000A MOUNT KIT 372-7823



PT 1000A
MOUNT KIT
372-7823

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-7823	KIT, Mount	-	REF
-2	311-6016	BRACKET, Support, Mudflap	-	2
-3	019-1219	SPRING, Compression	-	4
-6	311-6014	BRACKET, Mount, Rear, 1-1/4"	-	2

Note: Items 1, 4, 5 and 7 are Welded.

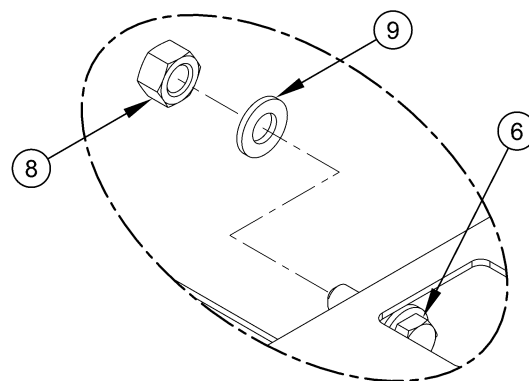
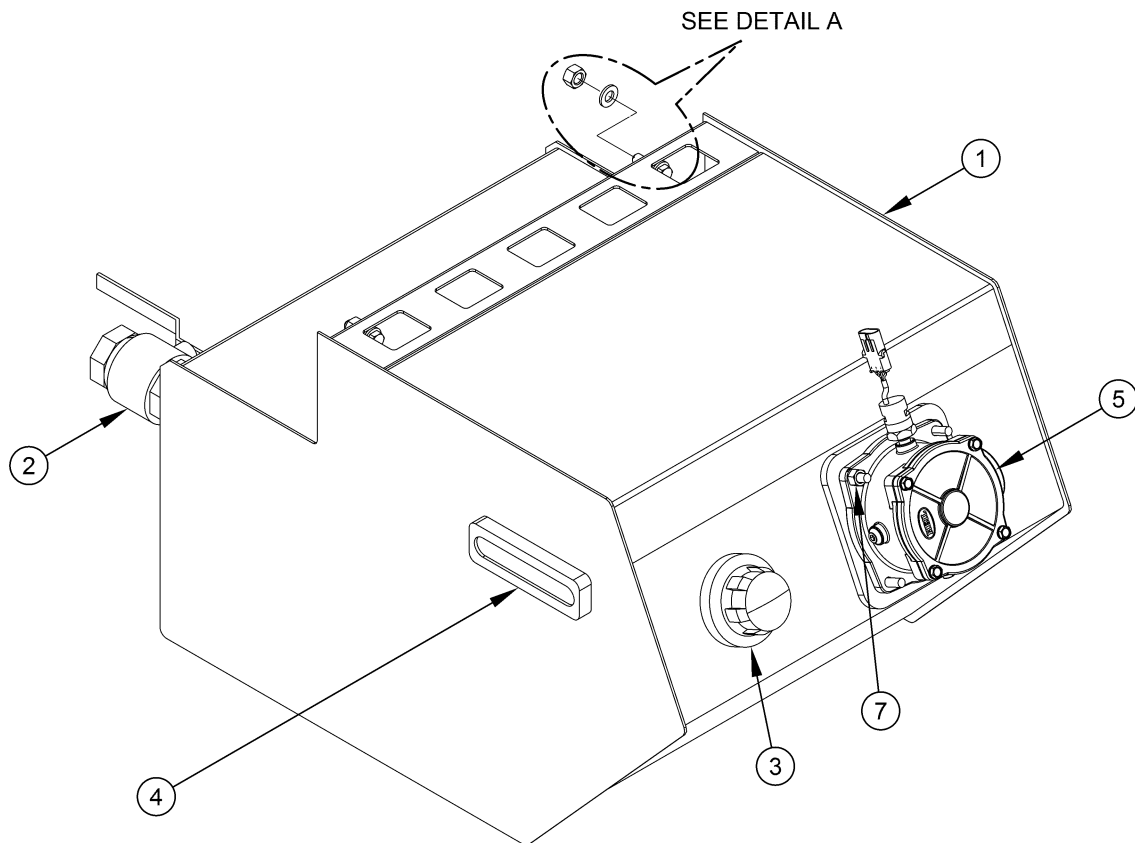
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OIL TANK KIT

PT 1000A

OIL TANK ASSEMBLY

020-2655



DETAIL A

PT 1000A

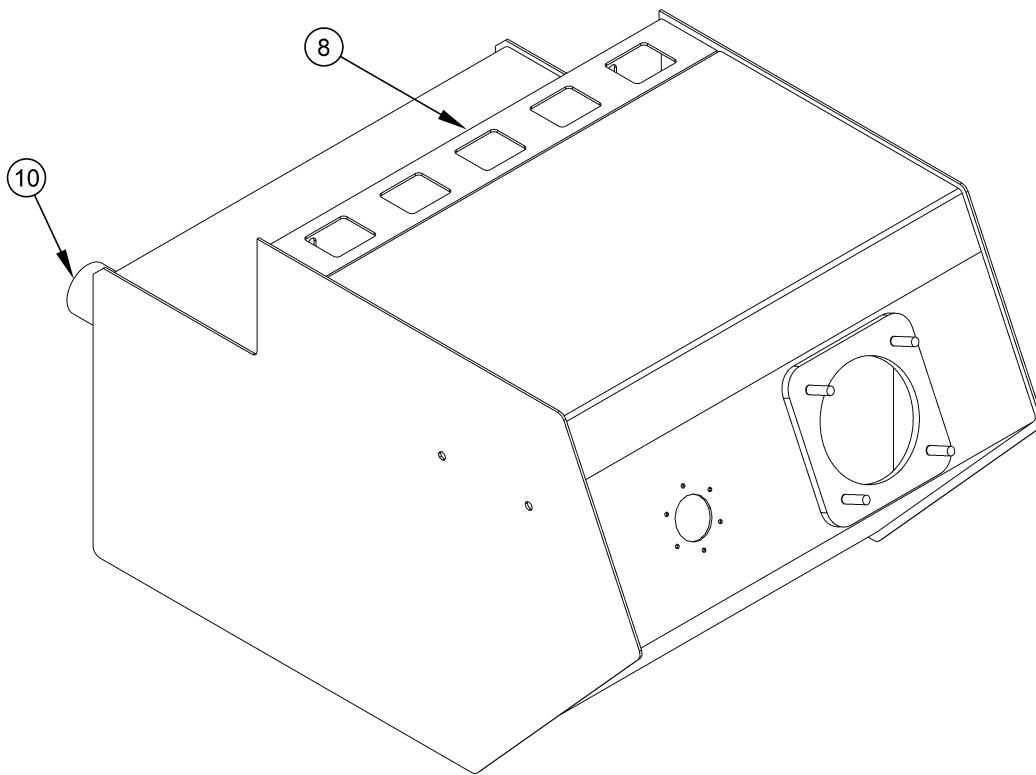
OIL TANK ASSEMBLY

020-2655

101

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	020-2655	ASSEMBLY, Oil Tank	-	REF
1	020-2656	WELDMENT, Oil Tank, Hydraulic ¹⁰²	-	1
2	031-2616	VALVE, Shut Off, Suction Line, 2"	-	1
3	060-0800	CAP, Filler, Breather, Plastic	-	1
4	067-0630	GAUGE, Sight, Thermometer	-	1
5	075-0953	FILTER, Line, Return (See Section 5)	-	1
6	MSP07-12-040	BOLT, M12 x 40	-	2
7	MSP23-10-000	NUT, Nyloc, M10	-	1
8	MSP23-12-000	NUT, Nyloc, M12	-	2
9	MSP52-12-000	WASHER, Flat, M12	-	4

PT 1000A
HYDRAULIC OIL TANK WELDMENT
020-2656



PT 1000A
HYDRAULIC OIL TANK WELDMENT
020-2656

103

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	020-2656	WELDMENT, Oil Tank, Hydraulic	-	REF
8	020-2656-008	PAD, Mount, Oil Tank	-	1
10	FS883040	NIPPLE, Pipe, Black, Std., 2" x 3"	-	1

Note: Items 1-7 and 9 are Welded.

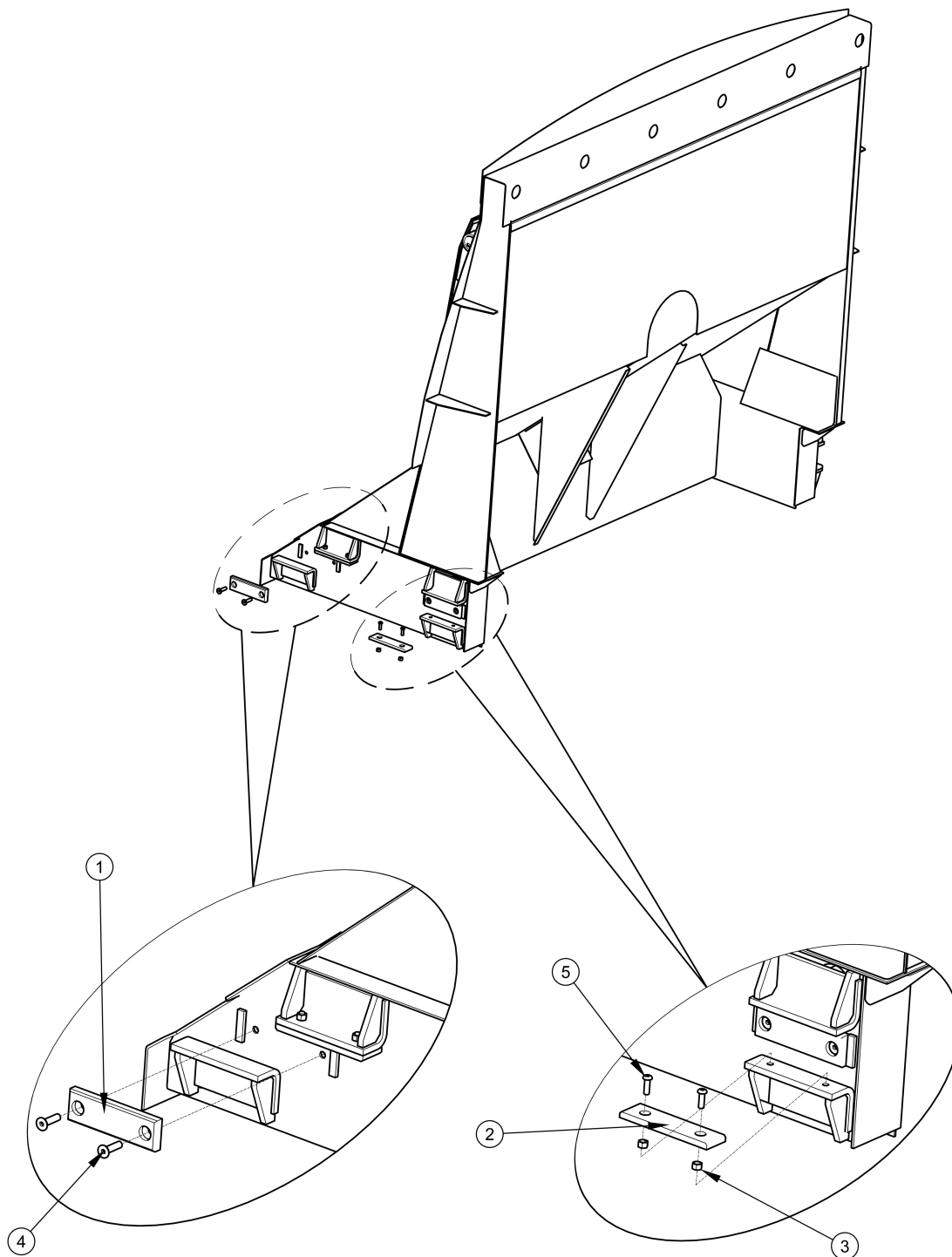
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EJECTOR PANEL

PT 1000A

EJECTOR PANEL ASSEMBLY

237-9712



PT 1000A

EJECTOR PANEL ASSEMBLY

237-9712

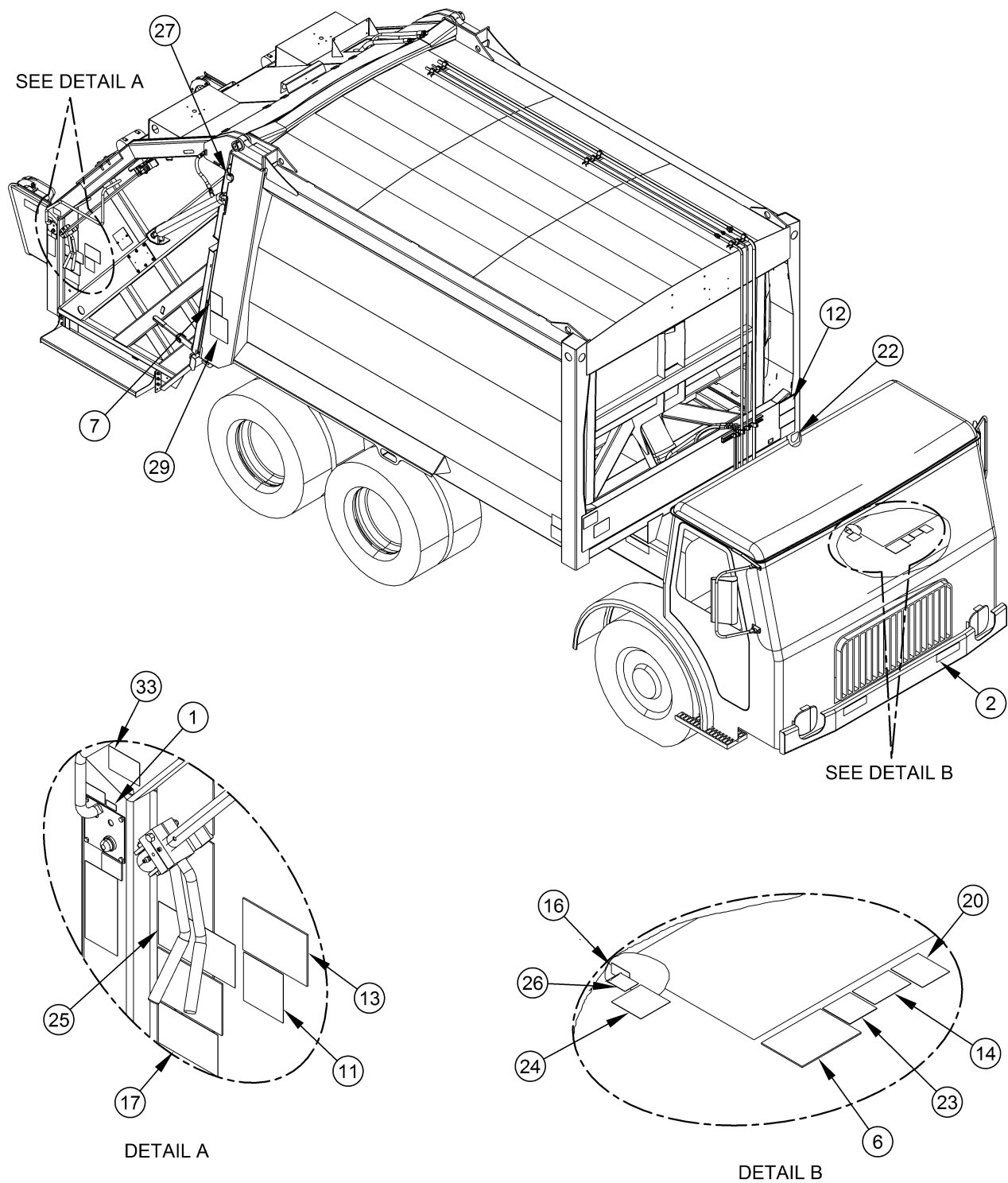
107

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	237-9712	ASSEMBLY, Panel, Ejector	-	REF
1	003-4657	PLATE, Wear	-	4
2	021-4452	PLATE, Wear	-	4
3	MSP23-08-000	NUT, Nyloc M8	-	8
4	047-2239-002	BOLT, Countersunk, M10x40	-	8
5	MSP59-08-025	BOLT, Countersunk,	-	8

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DECAL KIT

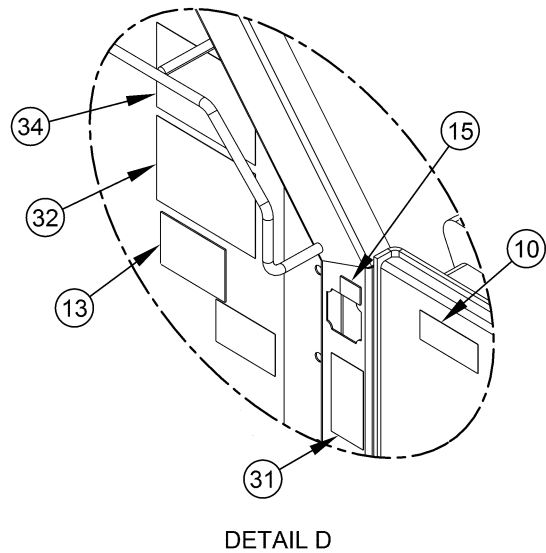
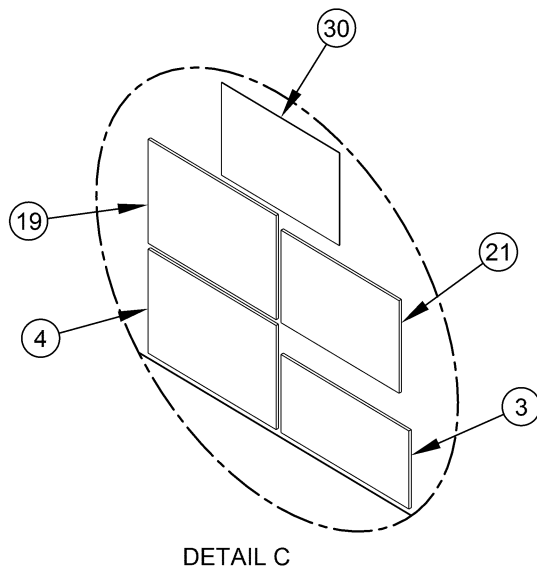
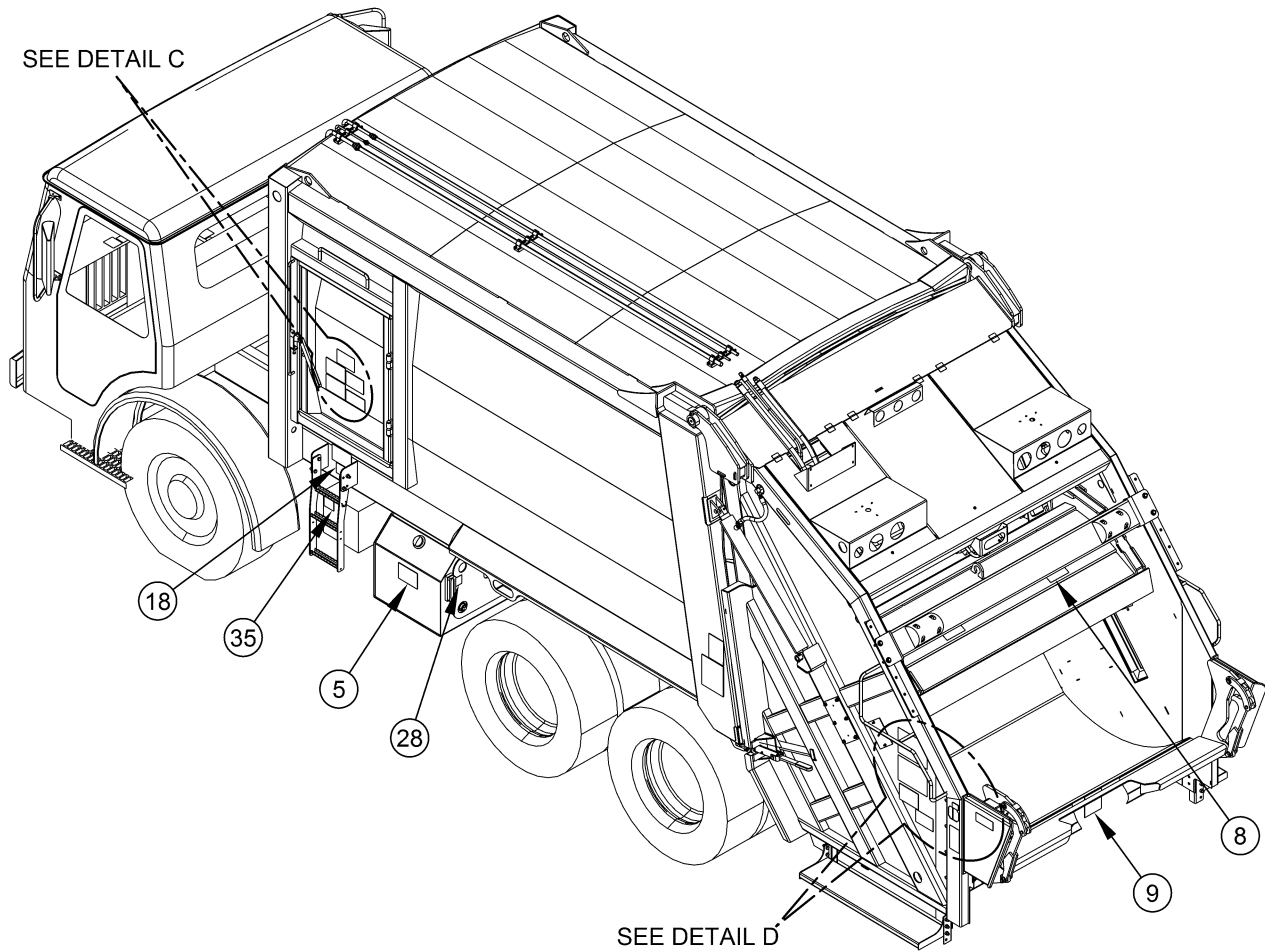
PT 1000A DECAL KIT 212-1779



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PT 1000A DECAL KIT 212-1779



SHEET 2 OF 2

PT 1000A

113

DECAL KIT

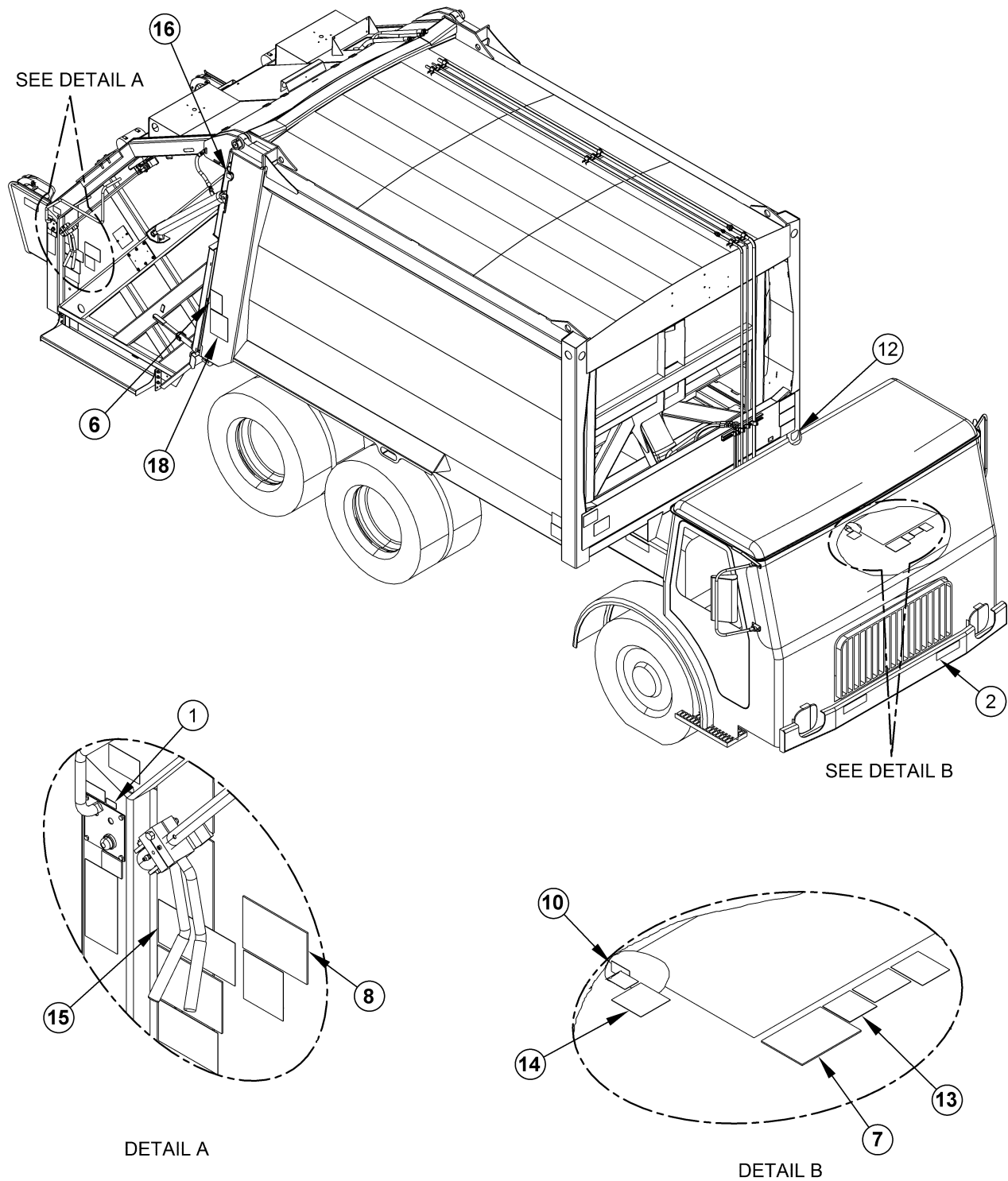
212-1779

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	212-1779	KIT, Decal	-	REF
1	212-1600	DECAL, Flood Light	-	1
2	212-1764	DECAL, Danger, Under Chassis, Stop Engine	-	4
3	212-1780	DECAL, Caution, Side Door	-	1
4	212-1781	DECAL, Caution, Enter Body, Stop Engine	-	4
5	212-1782	DECAL, Hydraulic Oil Only	-	1
6	212-1783	DECAL, Warning, Operator's Manual	-	3
7	212-1801	DECAL, Danger, Stand Clear When T/G Raise	-	2
8	212-1802	DECAL, Danger, Stand Clear When Packer Panel in Motion	-	2
9	212-1821	DECAL, Danger, Not Designed for Towing	-	1
10	212-1837	DECAL, Caution	-	2
11	212-1839	DECAL, Winch Mechanism	-	1
12	212-1841	DECAL, Safety Requirements, ANSI	-	1
13	212-1899	DECAL, Danger, Stay Clear When Container Off the Ground	-	2
14	212-1902	DECAL, Caution, Do Not Use Riding Step	-	1
15	212-1903	DECAL, Buzzer	-	2
16	212-1904	DECAL, Throttle Advance, Accelerator	-	2
17	212-1905	DECAL, Caution, Riding Step	-	2
18	212-1906	DECAL, Slide Blade, Tailgate Ejector	-	1
19	212-1907	DECAL, Danger, Access Door Closed	-	1
20	212-1909	DECAL, Warning, Overall Height	-	1
21	212-1911	DECAL, Caution, Stand Clear When Panel in Motion	-	4
22	212-1915	DECAL, Information-Heil Replacement Parts	-	1
23	212-1918	DECAL, Safety Instructions, Back-Up Alarm	-	1
24	212-1968	DECAL, Caution, Disengage PTO	-	1
25	212-1969	DECAL, Blade	-	1
26	212-1970	DECAL, Tailgate Raise Alarm	-	1
27	212-2205	DECAL, Fitting, Grease	-	1
28	212-2275	DECAL, Oil Level	-	1
29	212-2618	DECAL, Danger, Tailgate Prop Operation	-	2
30	212-2689	DECAL, Flag, Made in the USA	-	1
31	212-2691	DECAL, Warning, Cross or Stand Behind Vehicle	-	2
32	212-2736	DECAL, Lube	-	1
33	212-2740	DECAL, Caution, Winch Hook	-	1
34	212-2766	DECAL, Lube	-	1
35	212-2875	DECAL, Warning-Battery Disconnect Switch	-	1

PT 1000A

CHINESE DECAL KIT

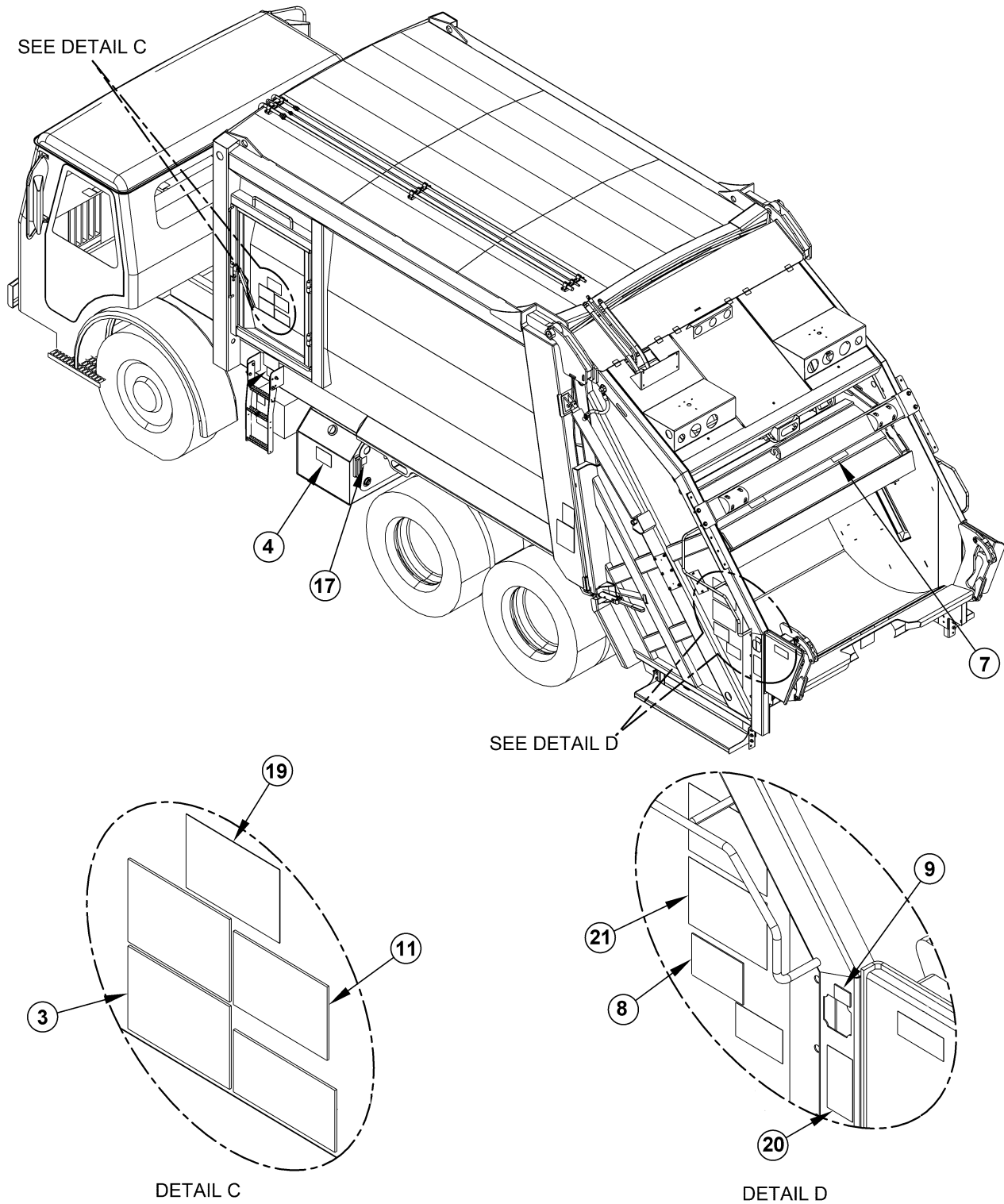
212-1779-CHN



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PT 1000A
CHINESE DECAL KIT
212-1779-CHN



SHEET 2 OF 2

PT 1000A
CHINESE DECAL KIT
212-1779-CHN

117

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	212-1779-CHN	KIT, Decal, Chinese	-	REF
-1	212-1600-SC	DECAL, Flood Light	-	1
-2	212-1764-SC	DECAL, Danger, Under Chassis, Stop Engine	-	4
-3	212-1781-SC	DECAL, Caution, Enter Body, Stop Engine	-	4
-4	212-1782-SC	DECAL, Hydraulic Oil Only	-	1
-5	212-1783-SC	DECAL, Warning, Operator's Manual	-	3
-6	212-1801-SC	DECAL, Danger, Stand Clear When T/G Raise	-	2
-7	212-1802-SC	DECAL, Danger, Stand Clear When Packer Panel in Motion	-	2
-8	212-1899-SC	DECAL, Danger, Stay Clear When Container Off the Ground	-	2
-9	212-1903-SC	DECAL, Buzzer	-	2
-10	212-1904-SC	DECAL, Throttle Advance, Accelerator	-	2
-11	212-1911-SC	DECAL, Caution, Stand Clear When Panel in Motion	-	4
-12	212-1915-SC	DECAL, Information-Heil Replacement Parts	-	1
-13	212-1918-SC	DECAL, Safety Instructions, Back-Up Alarm	-	1
-14	212-1968-SC	DECAL, Caution, Disengage PTO	-	1
-15	212-1969-SC	DECAL, Blade	-	1
-16	212-2205-SC	DECAL, Fitting, Grease	-	1
-17	212-2275-SC	DECAL, Oil Level	-	1
-18	212-2618-SC	DECAL, Danger, Tailgate Prop Operation	-	2
-19	212-3291-SC	DECAL, Engineered in USA	-	1
-20	212-2691-SC	DECAL, Warning, Cross or Stand Behind Vehicle	-	2
-21	212-3305-SC	DECAL, Tailgate Lube	-	1

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SECTION 3 CONTROLS

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TAILGATE CONTROL KIT

PT 1000A
ELECTRICAL CONTROL KIT
254-4863

NO ILLUSTRATION

PT 1000A

ELECTRICAL CONTROL KIT

254-4863

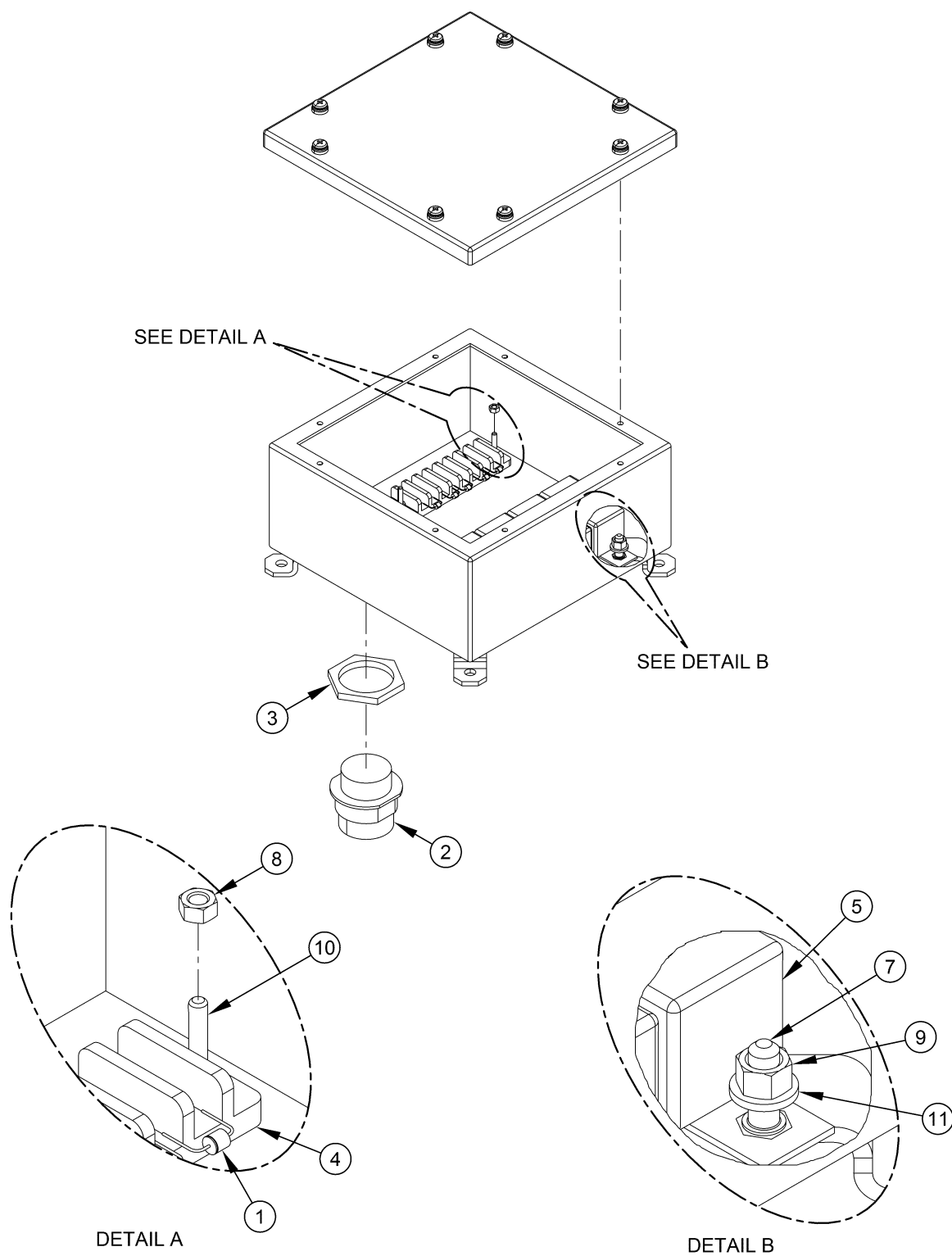
123

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	254-4863	KIT, Control, Electrical	-	REF
-1	151-4752- L/R	PANEL, Control, Rear	-	2
-2	108-8464-001	SWITCH, Work Light, SPST Togle	-	2
-3	031-6566-003	VALVE, Control, Pneumatic, Tailgate (See Section 5)	-	1
-4	108-8464	SWITCH, Toggle, SPST	-	2
-5	108-8507-001	SWITCH, Sealed, Aluminium Head, E- Stop	-	8
-6	108-8508	SWITCH, Push Button, Sealed	-	2
-7	254-4858	ASSEMBLY, Panel, Relay ¹²⁴	-	1
-8	263-1772	HARNESS, Tailgate (See SM 9)	-	1
-9	031-6572	ASSEMBLY, Valve, Solenoid (See Section 5)	-	1
-10	063-0116	SWITCH, Pressure, SPDT, with Deutsch Connector	-	4
-11	063-0122	SWITCH, Proximity, 18 mm	-	1
-12	113-7071	COVER, Harness	-	2

PT 1000A

RELAY PANEL ASSEMBLY

254-4858



PT 1000A

RELAY PANEL ASSEMBLY

254-4858

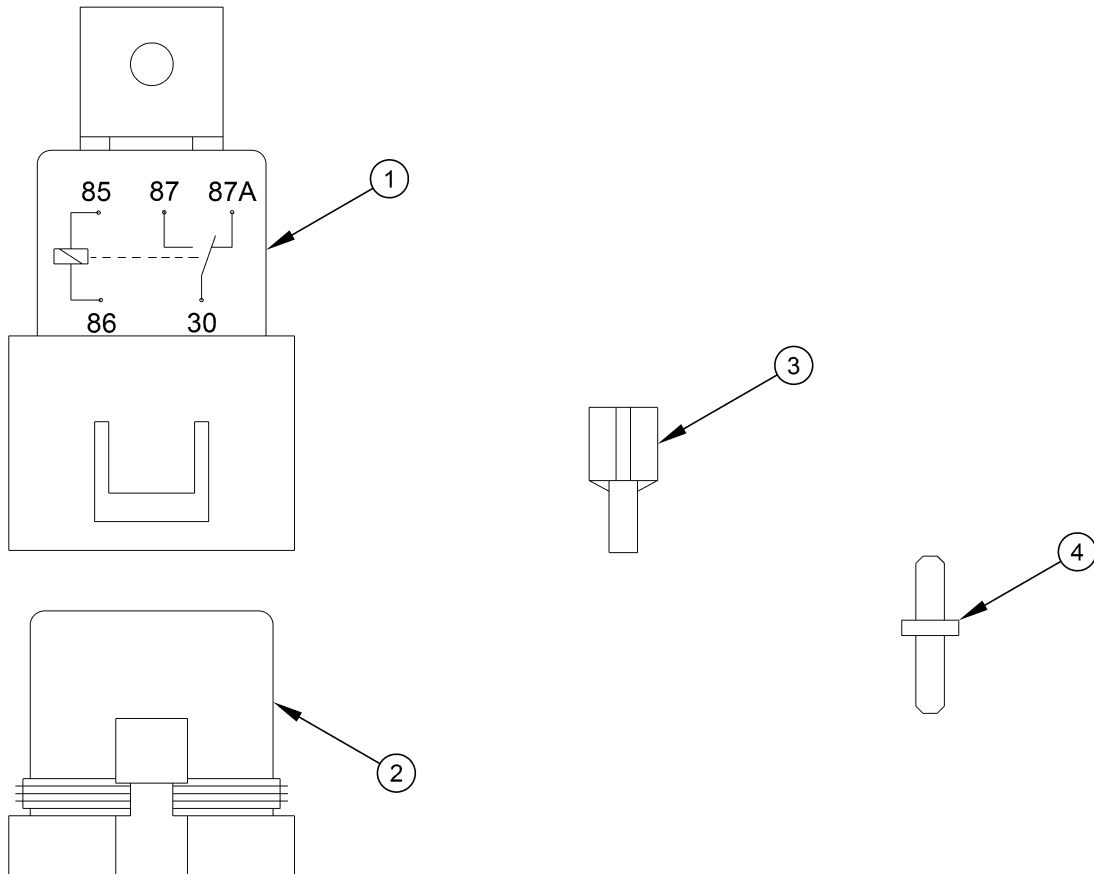
125

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	254-4858	ASSEMBLY, Panel, Relay	-	REF
1	108-2648	DIODE, Silicon Rectifier	-	5
2	108-4815-018	SOCKET, Receptacle, 18 Shell	-	1
3	108-4815-180	NUT, Panel, Connector, 18 Shell	-	1
4	108-5666	STRIP, Terminal, Magnum TB300 or Equal	-	1
5	108-6752-024	ASSEMBLY, Relay, Weather Proof, 24 V ⁽¹²⁶⁾	-	5
-6	151-4753	ENCLOSURE, 175" x 175" x 75"	-	1
7	MSP07-05-015	BOLT, M5 x 15	-	5
8	MSP23-03-000	NUT, Nyloc, M3	-	2
9	MSP23-05-000	NUT, Nyloc, M5	-	5
10	MSP42-03-015	SCREW, Machine, M3 x 15 mm.	-	2
11	MSP52-05-000	WASHER, Flat, M5	-	5

PT 1000A

24 VOLTS WEATHER PROOF RELAY ASSEMBLY

108-6752-024



PT 1000A

24 VOLTS WEATHER PROOF RELAY ASSEMBLY

108-6752-024

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	108-6752-024	ASSEMBLY, Relay, Weather Proof, 24 V	-	REF
1	108-6752-005	RELAY, 24 V	-	1
2	108-6752-002	CONNECTOR	-	1
3	108-6752-003	TERMINAL	-	4
4	108-6752-004	PLUG, Packard	-	1

PT 1000A
MECHANICAL CONTROL KIT
254-4864

NO ILLUSTRATION

PT 1000A

MECHANICAL CONTROL KIT

254-4864

129

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	254-4864	KIT, Control, Mechanical	-	REF
-1	031-6573	VALVE, Control, Mechanical, Tailgate (See Section 5)	-	1
-2	372-7697	INSTALLATION, Bumper Fill, SS, CNG	-	1
-3	108-8464-001	SWITCH, Work Light, SPST Togle	-	2
-4	108-8464	SWITCH, Toggle, SPST	-	2
-5	263-1788	HARNESS, Mechanical, Tailgate (See SM 9)	-	1
-6	063-0122	SWITCH, Proximity, 18 mm	-	3
-7	113-7070	COVER, Harness	-	2

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SECTION 4

HYDRAULIC AND PNEUMATIC

CIRCUITS

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BODY HYDRAULIC KITS

PT 1000A
ELECTRICAL & HYDRAULIC BODY CONTROL KIT
372-7824

NO ILLUSTRATION

PT 1000A

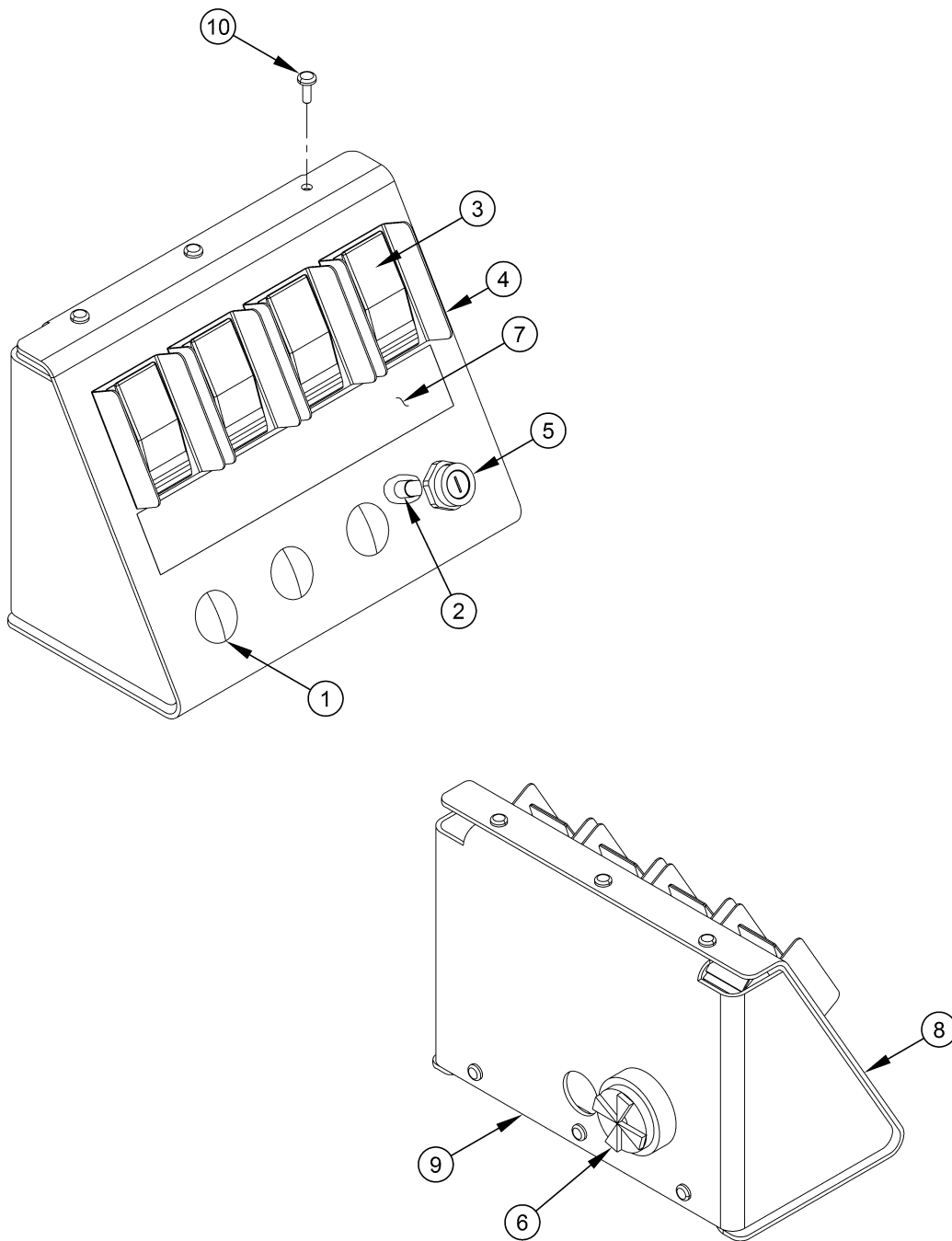
ELECTRICAL & HYDRAULIC BODY CONTROL KIT

372-7824

135

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-7824	KIT, Control, Body, Electrical & Hydraulic	-	REF
-1	031-6565	VALVE, Body, 3-Section, Pneumatic Actuators (See Section 5)	-	1
-2	031-6572	ASSEMBLY, Solenoid Valve (See Section 5)	-	1
-3	212-1343	NAME PLATE, Heil	-	1
-4	263-1773	HARNESS, Body (See SM 9)	-	1
-5	254-4859	KIT, Control Box, In Cab ⁽¹³⁶⁾	-	1
-6	048-7074	PIN, Base End, with Nose, Ejector Cylinder	-	1
-7	048-5505	PIN, Rod End, Ejector Cylinder	-	1
-8	020-2691-009	SEAL, Oil Tank to Body Floor	-	1

PT 1000A IN CAB CONTROL BOX KIT 254-4859



PT 1000A
IN CAB CONTROL BOX KIT
254-4859

137

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	254-4859	KIT, Control Box, In Cab	-	REF
1	025-0473-005	PLUG, Hole, 5/8"	-	3
2	108-2559-010	FUSE, 15 Amp., 1-1/4" Lg.	-	1
3	108-7544	SWITCH, Rocker, On-Off	-	4
4	108-7690	GUARD, Switch, Rocker	-	4
5	108-7769	HOLDER, Fuse, 5 x 20 mm	-	1
6	108-8616-001	ALARM, Audible	-	1
7	212-3285	LABEL, Adhesive, Vinyl	-	1
8	254-4859-001	FACE, Front, Control Panel, Cab	-	1
9	254-4859-002	PANEL, Control, Cab	-	1
10	MSP42-03-010	SCREW, Machine, M3 x 15 mm	-	6

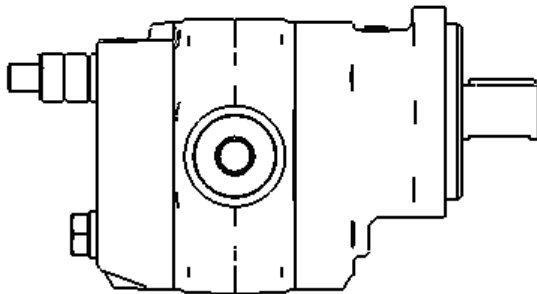
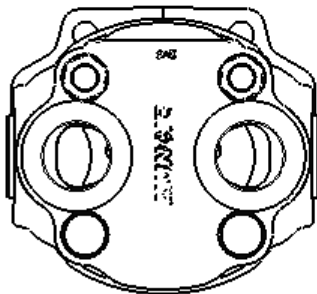
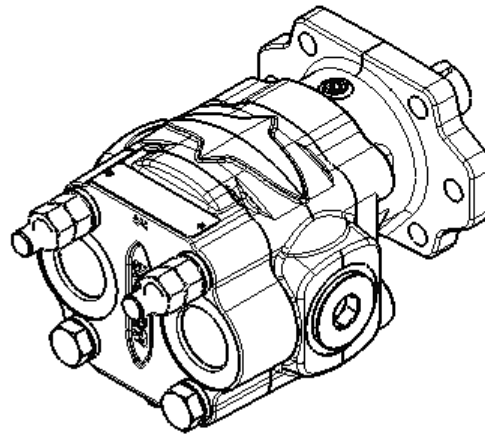
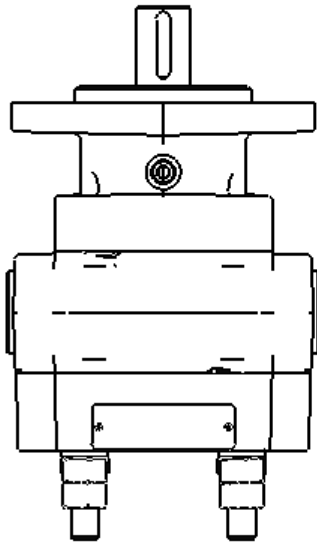
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SECTION 5 HYDRAULIC AND PNEUMATIC COMPONENTS

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PUMP ASSEMBLIES

PT 1000A
HYDRAULIC GEAR PUMP
219-2393



PT 1000A
HYDRAULIC GEAR PUMP
219-2393

143

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	219-2393	PUMP, Gear, Hydraulic	-	REF
-	219-2393-101	KIT, Seal, Gear, Hydraulic	-	-
-	219-2393-102	KIT, Rebuild, Gear, Hydraulic	-	-

Note: Seal kits and rebuild kits are sold separately.

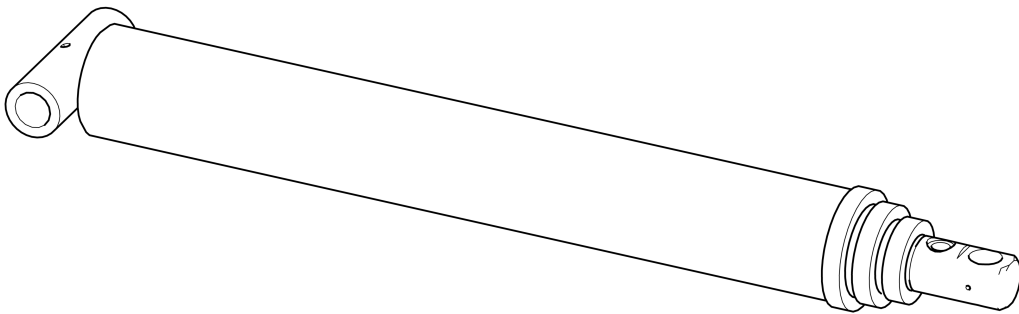
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CYLINDERS

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BODY EJECTOR CYLINDERS

PT 1000A
16 YARD BODY EJECTOR CYLINDER
001-7098

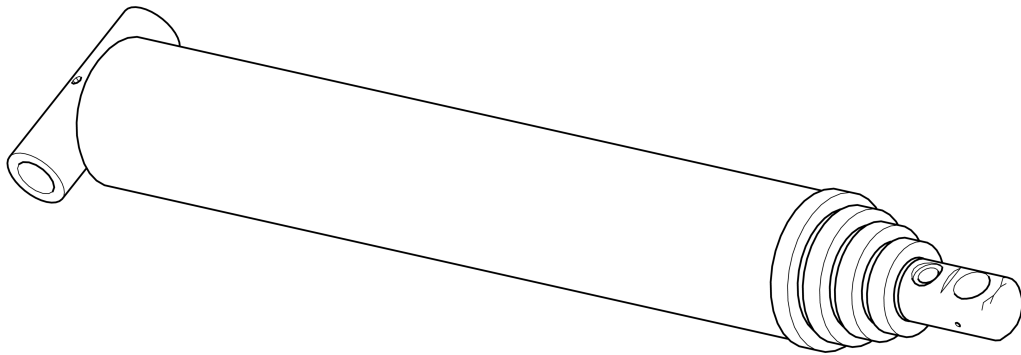


PT 1000A
16 YARD BODY EJECTOR CYLINDER
001-7098

149

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	001-7098	CYLINDER, Ejector, Body, 16 Yard	-	REF

PT 1000A
19 YARD BODY EJECTOR CYLINDER
001-7099

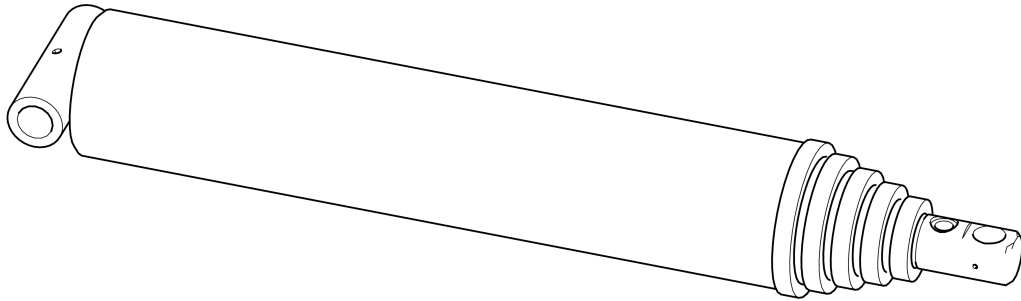


PT 1000A
19 YARD BODY EJECTOR CYLINDER
001-7099

151

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	001-7099	CYLINDER, Ejector, Body, 19 Yard	-	REF

PT 1000A
5 STAGE DOUBLE ACTING TELESCOPIC CYLINDER
001-7100



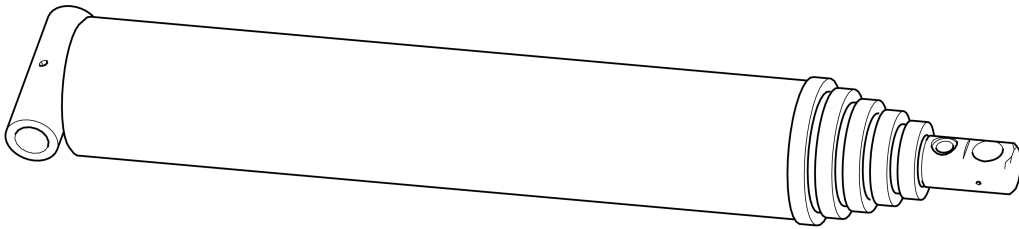
PT 1000A

5 STAGE DOUBLE ACTING TELESCOPIC CYLINDER

001-7100

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	001-7100	CYLINDER, Telescopic, DA, 5 Stage	-	REF

PT 1000A
5 STAGE EJECTOR CYLINDER
001-7102

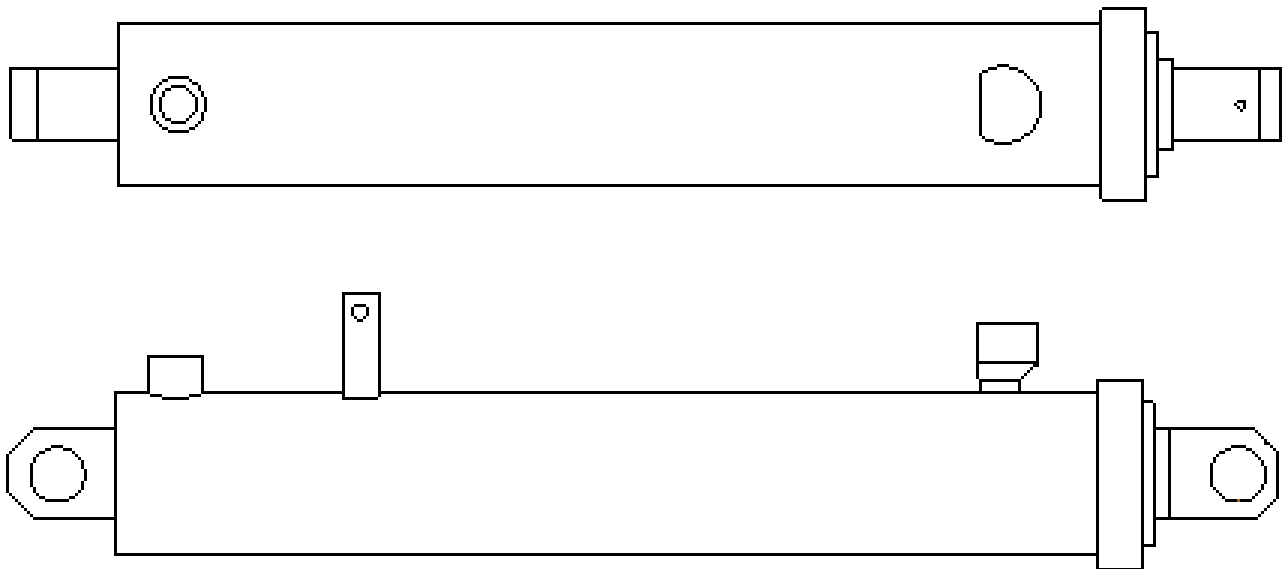


PT 1000A
5 STAGE EJECTOR CYLINDER
001-7102

155

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	001-7102	CYLINDER, Ejector, 5 Stage	-	REF

PT 1000A
BLADE CYLINDER
001-7077



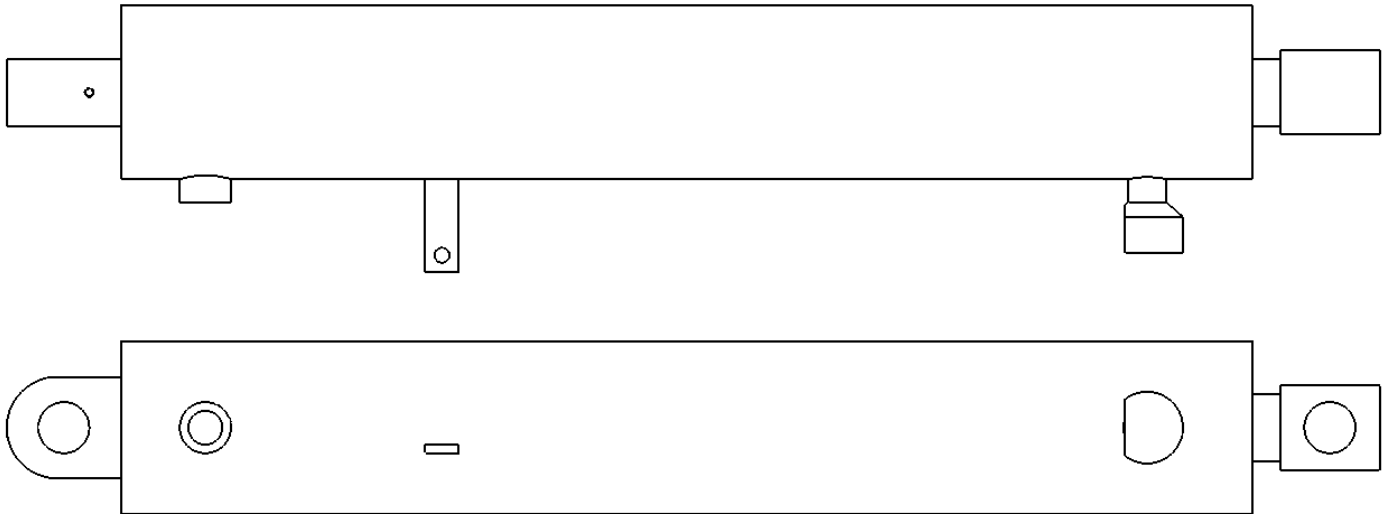
PT 1000A
BLADE CYLINDER
001-7077

157

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	001-7077	CYLINDER, Blade	-	REF
-	001-7077-101	KIT, Seal, Blade Cylinder	-	REF

Note: Seal kits are sold separately.

PT 1000A
SLIDE CYLINDER
001-7076



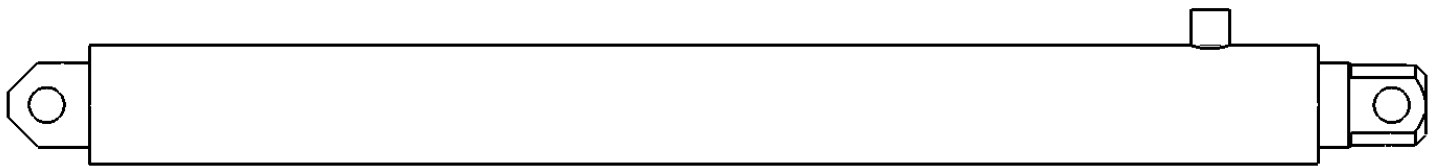
PT 1000A
SLIDE CYLINDER
001-7076

159

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	001-7076	CYLINDER, Slide	-	REF
-	001-7076-101	KIT, Seal, Slide Cylinder	-	REF

Note: Seal kits are sold separately.

PT 1000A
TAILGATE RAISE CYLINDER
001-6863



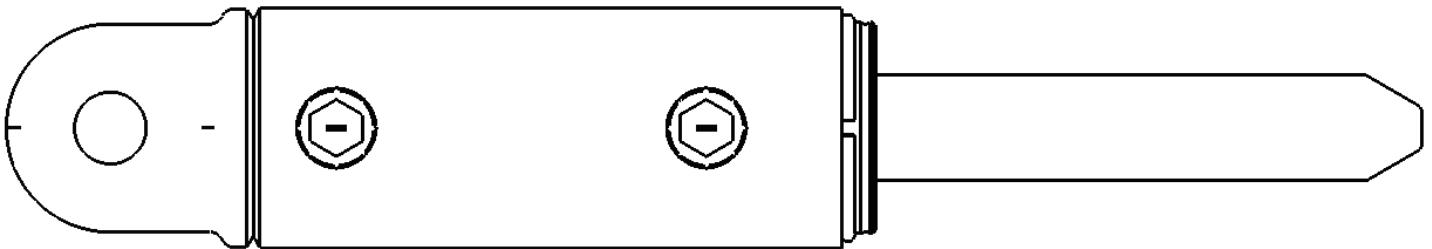
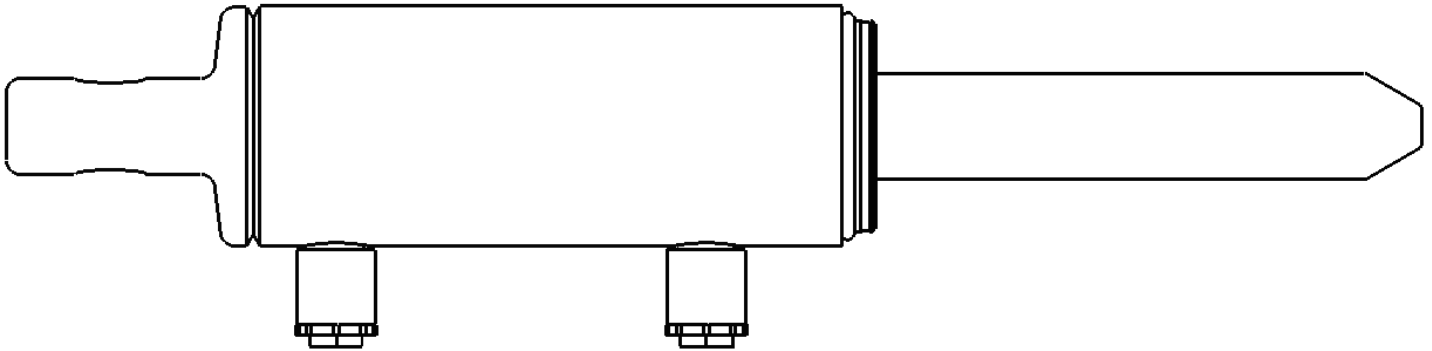
PT 1000A
TAILGATE RAISE CYLINDER
001-6863

161

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	001-6863	CYLINDER, Raise, Tailgate	-	REF
-	001-6863-9180	SEAL KIT	-	REF

Note: Seal kits are sold separately.

PT 1000A
TAILGATE LOCK CYLINDER
001-6869



PT 1000A
TAILGATE LOCK CYLINDER
001-6869

163

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	001-6869	CYLINDER, Tailgate Lock	-	REF
-	001-6869-101	SEAL KIT	-	REF

Note: Seal kits are sold separately.

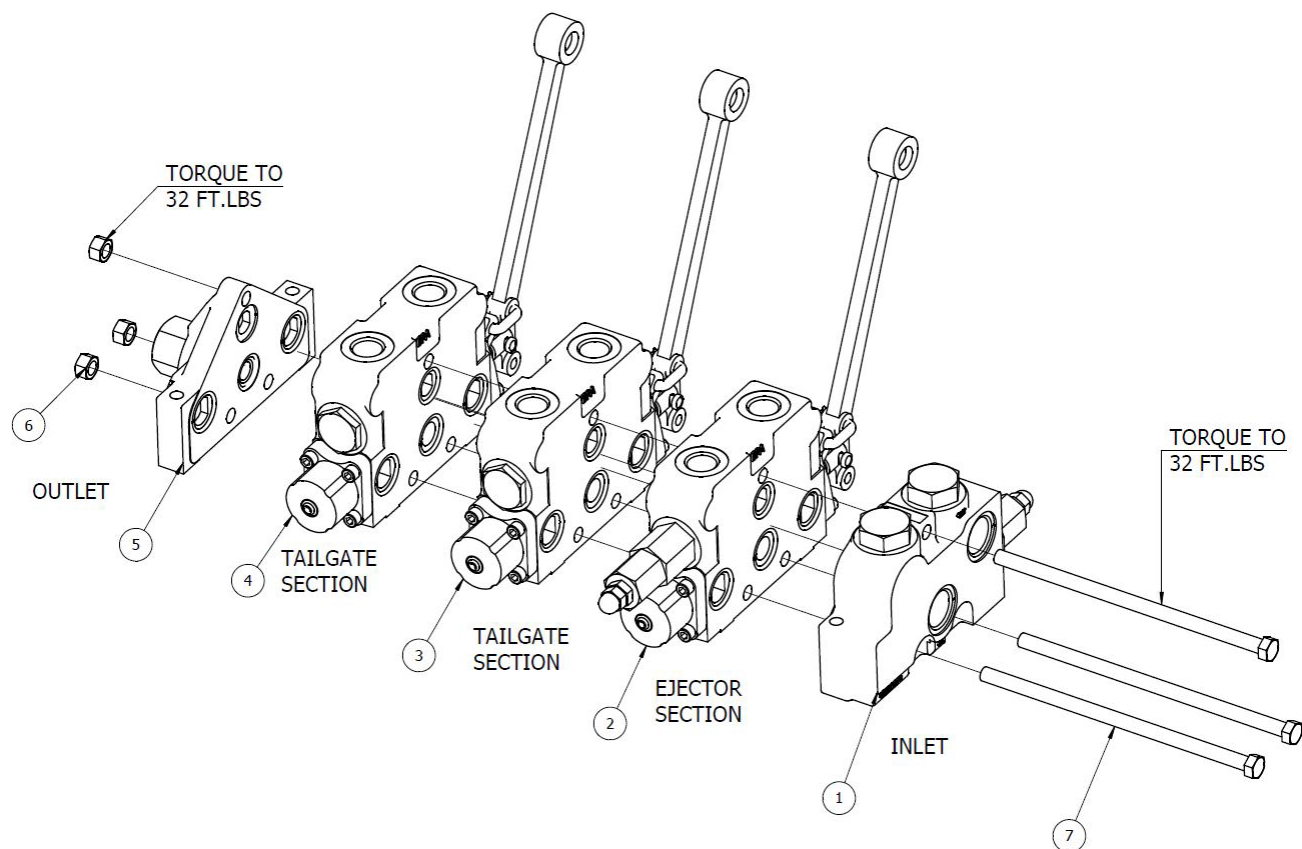
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VALVES

PT 1000A

EJECTOR AND TAILGATE CONTROL VALVE

031-6558

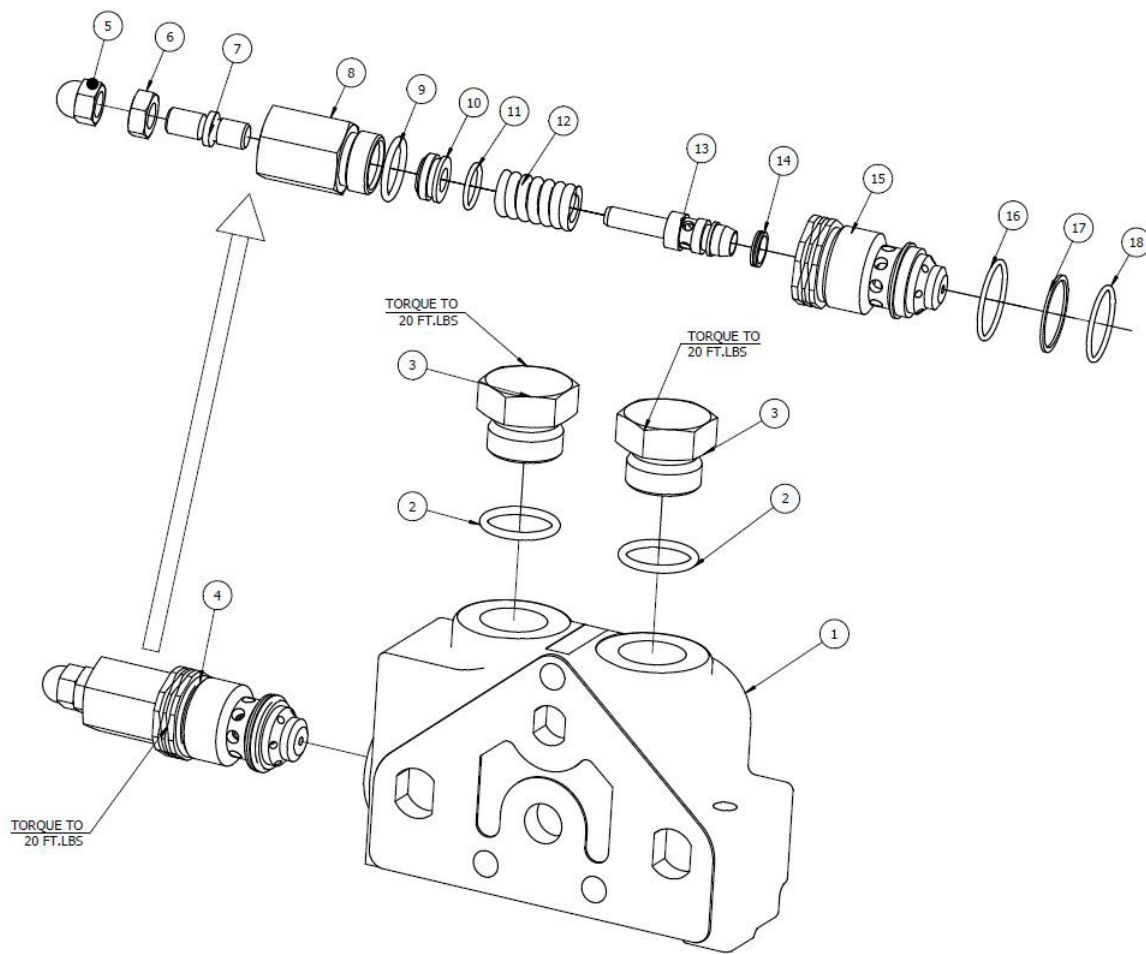


PT 1000A
EJECTOR AND TAILGATE CONTROL VALVE
031-6558

167

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6558	VALVE, Control, Tailgate	-	REF
1	031-6558-189	SECTION, Inlet	-	1
2	031-6558-182	SECTION, ejector	-	1
3	031-6558-183	SECTION, Tailgate	-	1
4	031-6558-184	SECTION, Tailgate	-	1
5	031-3285-003	SECTION, Outlet	-	1
6	031-6558-001	NUT, Hex 3/8 - 16	-	3
7	031-6558-002	SCREW, 3/8 - 16 x 8"	-	3

PT 1000A INLET SECTION 031-6558-189



PT 1000A
INLET SECTION
031-6558-189

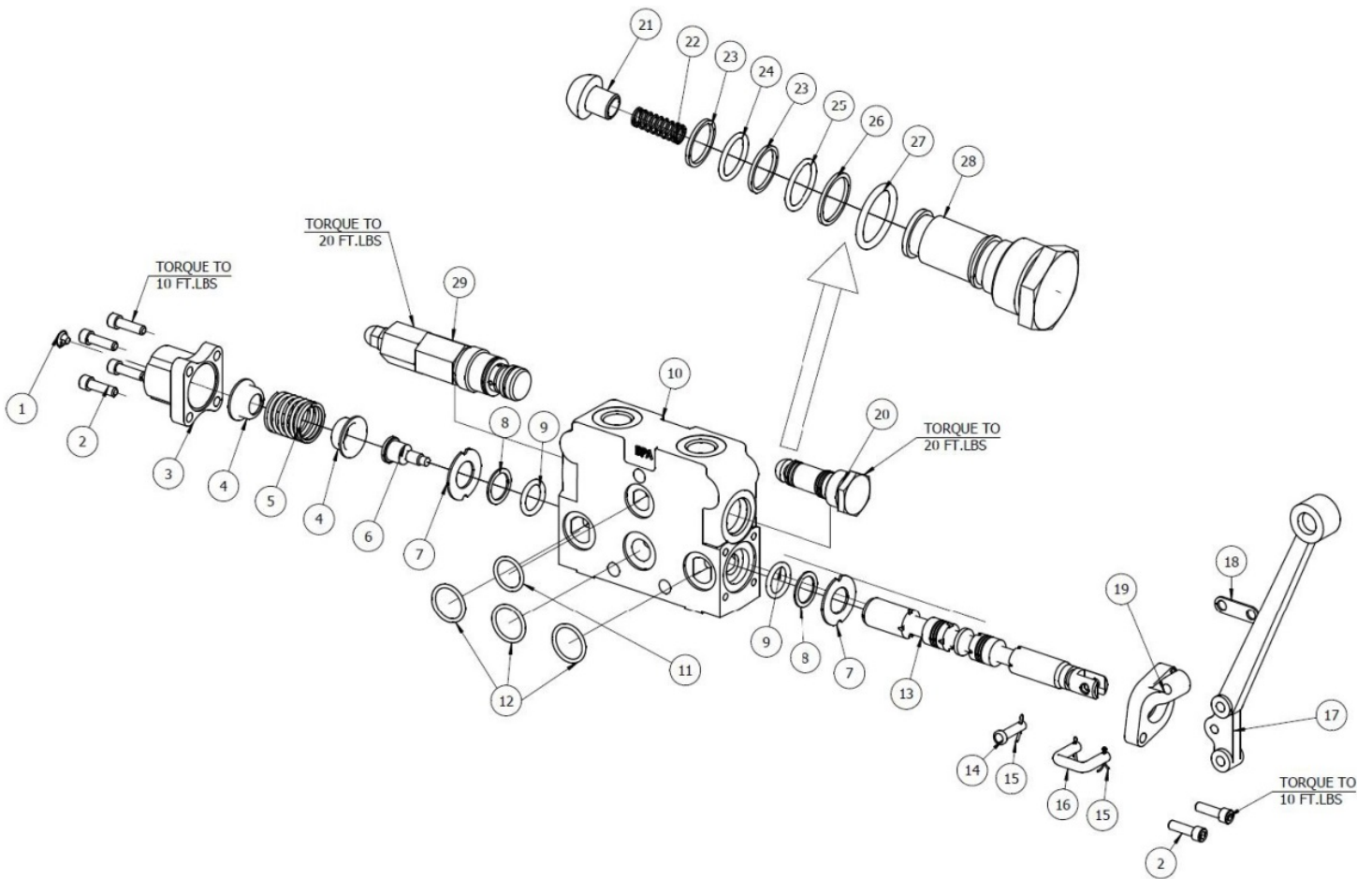
169

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6558-189	INLET SECTION-(consists of items 1 thru 18)	-	REF
1	031-3285-007	HOUSING	-	1
2	031-6558-101	SEAL O-RING -0.924 I.D.	-	1
3	031-6558-102	3/4" O.D. TUBE(SAE 12)	-	2
4	031-6558-103	RELIEF, 'WHA'(consists of items 5 thru 18)	-	2
5	031-6558-104	NUT, ACORN-0.375-24	-	1
6	031-6558-105	NUT, HEX JAM-0.375-24	-	1
7	031-6558-106	STEM, ADJUSTING	-	1
8	031-6558-107	CAP	-	1
9	031-6558-108	SEAL, O-RING-AS910, 70 DUR	-	1
10	031-6558-109	PISTON, RELIEF	-	1
11	031-6558-110	SEAL, O-RING-AS015, 90 DUR.	-	1
12	031-6558-111	SPRING-0.667 O.D. X 0.148 W.D	-	1
13	031-6558-112	POPPET, RELIEF	-	1
14	031-6558-113	SEAL, RELIEF POPPET-TFE	-	1
15	031-6558-114	BODY, RELIEF-WH.	-	1
16	031-6558-115	SEAL, O-RING-AS023, 90 DUR.	-	1
17	031-3285-007	RING, BACKUP-AS022	-	1
18	031-6558-116	SEAL, O-RING-AS022, 90 DUR	-	1

PT 1000A

EJECTOR WORKING VALVE SECTION

031-6558-0182



PT 1000A
EJECTOR WORKING VALVE SECTION
031-6558-0182

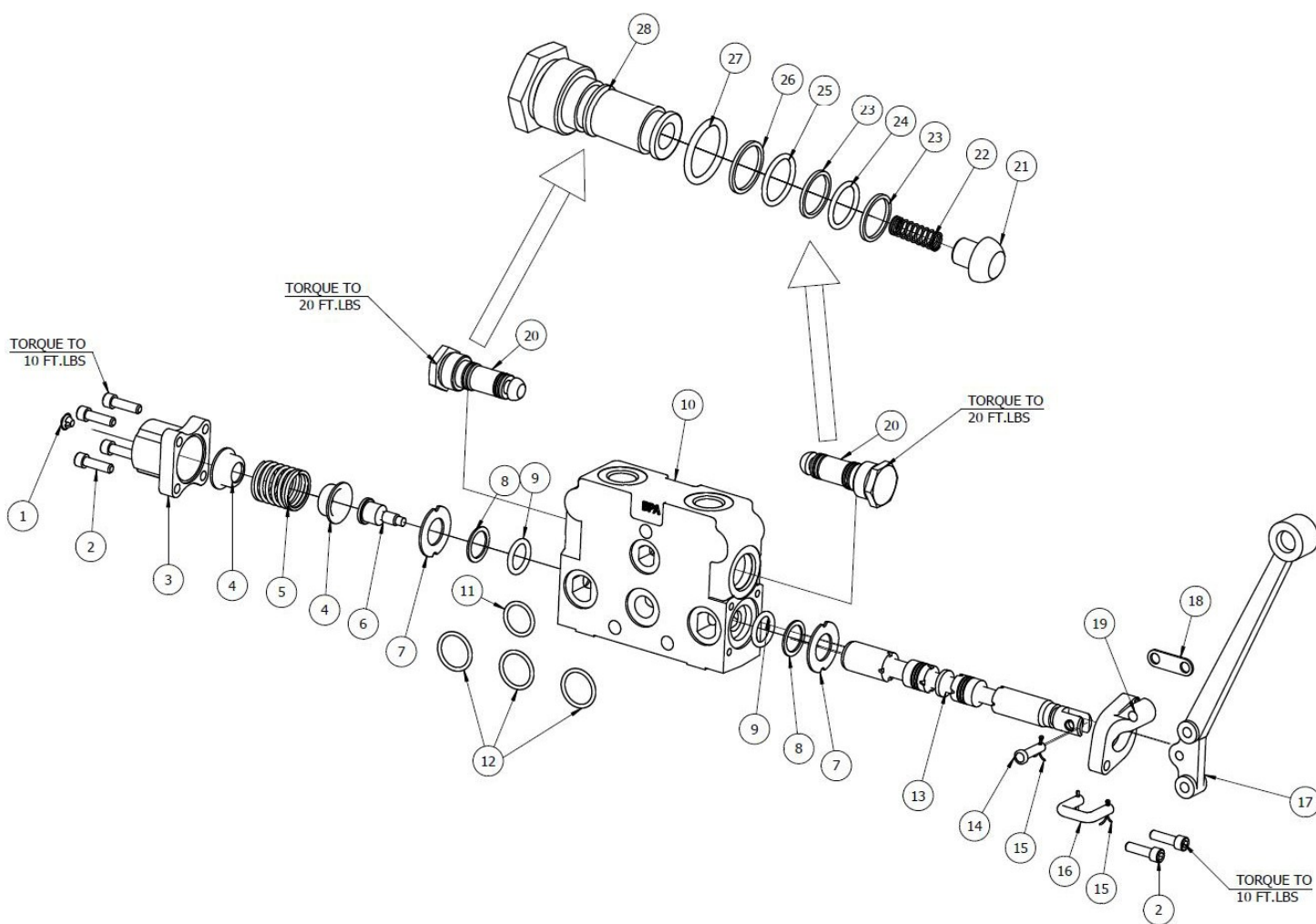
171

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6558-0182	VALVE SECTION-(consists of items 1 thru 29)	-	REF
1	031-6558-117	UMBRELLA CHECK VALVE	-	1
2	031-6558-118	SCREW HSHC1/4-20X.875	-	6
3	031-6558-119	BONNET	-	1
4	031-6558-120	COLLAR, V20, SPRING	-	2
5	031-6558-121	SPRING-1.135 O.D. X 0.095 W.D.	-	1
6	207-5535	COLLAR, V20, SPOOL	-	1
7	031-6558-122	PLATE, SEAL RETAINER	-	2
8	031-6558-123	WASHER V20 SPOOL SEAL BACK-UP	-	2
9	031-6558-124	SEAL, O-RING-AS210, 75 DUR.	-	2
10	031-6495-301	HOUSING	-	1
11	031-6558-125	SEAL, O-RING-AS117, 90 DUR BUNA-N	-	1
12	031-5698-006	SEAL, O-RING-AS119, 75 DUR BUNA-N	-	3
13	031-3285-012	SPOOL, 4-WAY, 0.75 DIA.	-	1
14	031-6558-126	PIN, HANDLE CLEVIS.	-	1
15	031-6558-127	PIN, COTTER S.S.0.06 DIA×0.50L	-	3
16	031-6558-128	LINK, PIN	-	1
17	031-6558-129	HANDLE, VERTICAL BLACK	-	1
18	031-6558-130	PLATE, PIN LINK	-	1
19	031-6558-131	BRACKET, HANDLE	-	1
20	031-3285-014	PLUG, LOAD CHECK(consists of items 21 thru 28)	-	1
21	031-6558-132	POPPET	-	1
22	031-6558-133	SPRING-0.27 O.D. X 0.028 W.D.	-	1
23	031-6558-134	RING, BACK-UP CUT	-	2
24	031-6558-135	SEAL, O-RING-AS015, 90 DUR.	-	1
25	031-6558-136	SEAL, O-RING-AS016, 90 DUR.	-	1
26	031-6558-137	RING, BACKUP-AS016	-	1
27	031-6558-138	SEAL, O-RING-AS910, 70 DUR.	-	1
28	031-6558-139	PLUG	-	1
29	031-6558-140	CARTRIDGE RELIEF ASSEMBLY	-	1

PT 1000A

TAILGATE WORKING VALVE SECTION

031-6558-0183



PT 1000A
TAILGATE WORKING VALVE SECTION
031-6558-0183

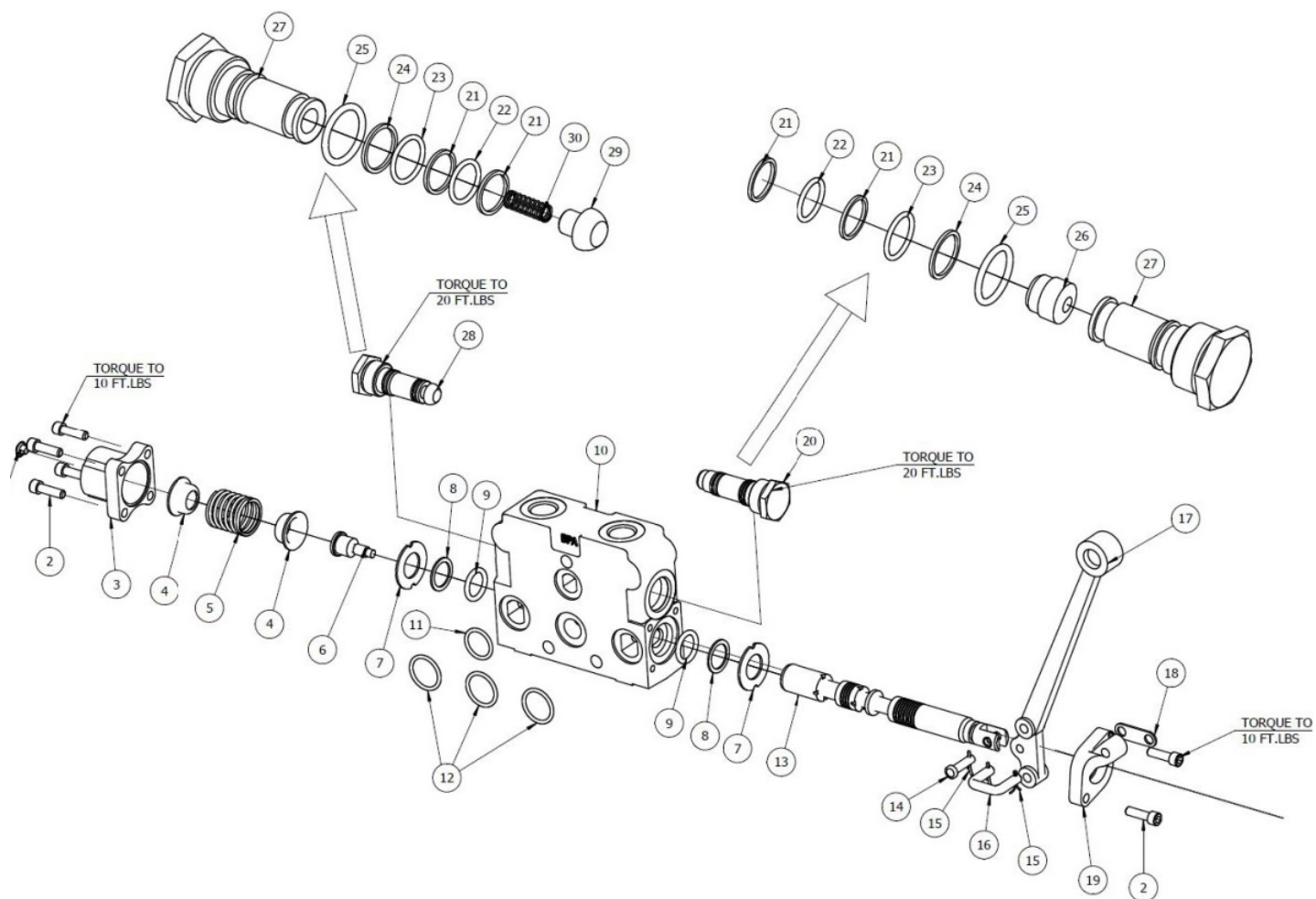
173

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6558-0183	VALVE SECTION-(consists of items 1 thru 29)	-	REF
1	031-6558-117	UMBRELLA CHECK VALVE	-	1
2	031-6558-118	SCREW HSHC1/4-20X.875	-	6
3	031-6558-119	BONNET	-	1
4	031-6558-120	COLLAR, V20, SPRING	-	2
5	031-6558-121	SPRING-1.135 O.D. X 0.095 W.D.	-	1
6	207-5535	COLLAR, V20, SPOOL	-	1
7	031-6558-122	PLATE, SEAL RETAINER	-	2
8	031-6558-123	WASHER V20 SPOOL SEAL BACK-UP	-	2
9	031-6558-124	SEAL, O-RING-AS210, 75 DUR.	-	2
10	031-3285-011	HOUSING	-	1
11	031-3285-104	SEAL, O-RING-AS117, 90 DUR BUNA-N	-	1
12	031-5698-006	SEAL, O-RING-AS119, 75 DUR BUNA-N	-	3
13	031-3285-012	SPOOL, 4-WAY, 0.75 DIA.	-	1
14	031-6558-126	PIN, HANDLE CLEVIS.	-	1
15	031-6558-127	PIN, COTTER S.S.0.06 DIA×0.50L	-	3
16	031-6558-128	LINK, PIN	-	1
17	031-6558-129	HANDLE, VERTICAL BLACK	-	1
18	031-6558-130	PLATE, PIN LINK	-	1
19	031-6558-131	BRACKET, HANDLE	-	1
20	031-3285-014	PLUG, LOAD CHECK(consists of items 21 thru 28)	-	1
21	031-6558-132	POPPET	-	1
22	031-6558-133	SPRING-0.27 O.D. X 0.028 W.D.	-	1
23	031-6558-134	RING, BACK-UP CUT	-	2
24	031-6558-110	SEAL, O-RING-AS015, 90 DUR.	-	1
25	031-6558-136	SEAL, O-RING-AS016, 90 DUR.	-	1
26	031-6558-137	RING, BACKUP-AS016	-	1
27	031-6558-108	SEAL, O-RING-AS910, 70 DUR.	-	1
28	031-6558-139	PLUG	-	1
29	031-6558-140	CARTRIDGE RELIEF ASSEMBLY	-	1

PT 1000A

TAILGATE WORKING VALVE SECTION

031-6558-0184

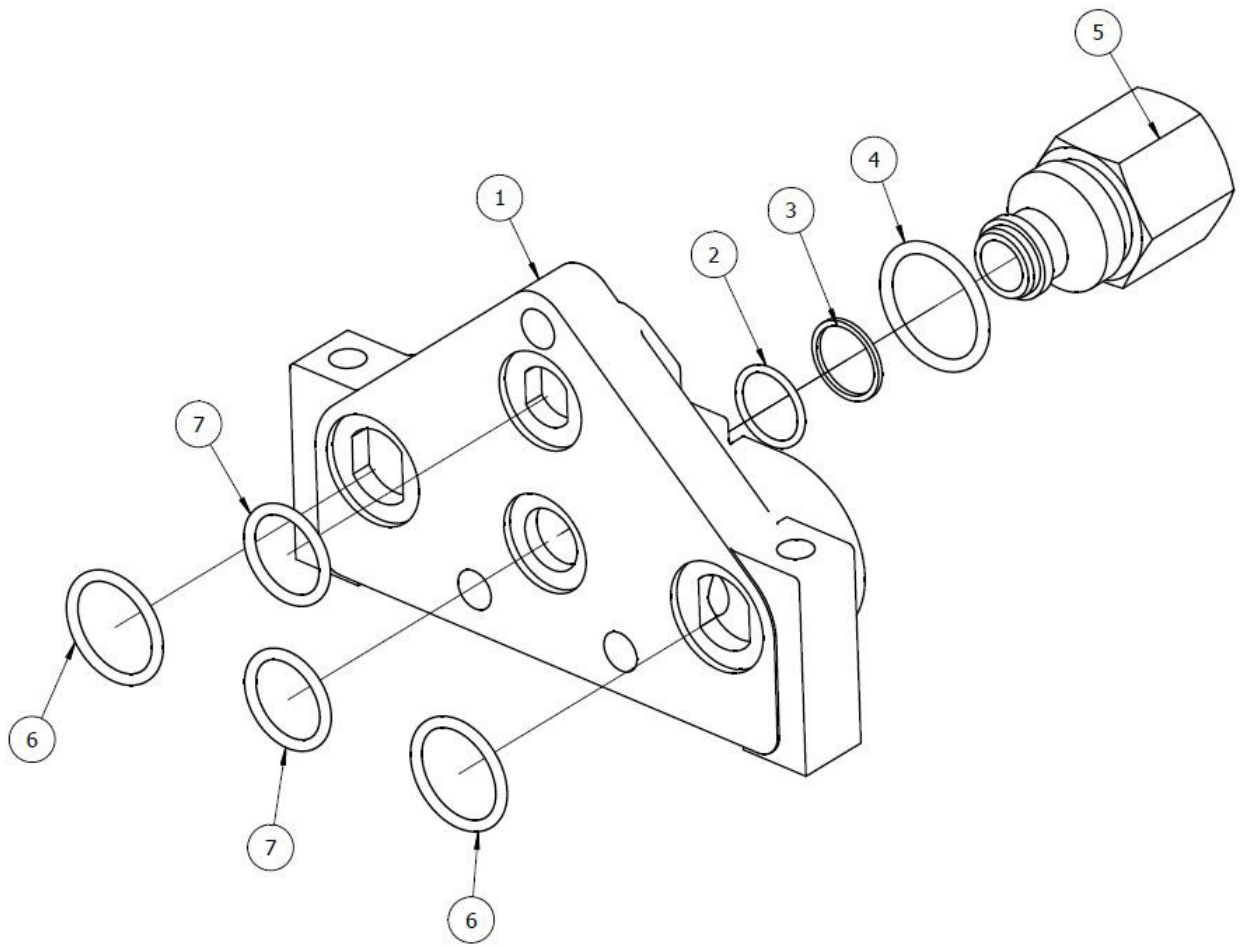


PT 1000A
TAILGATE WORKING VALVE SECTION
031-6558-0184

175

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6558-0184	VALVE SECTION-(consists of items 1 thru 29)	-	REF
1	031-6558-117	UMBRELLA CHECK VALVE	-	1
2	031-6558-118	SCREW HSHC1/4-20X.875	-	6
3	031-6558-119	BONNET	-	1
4	031-6558-120	COLLAR, V20, SPRING	-	2
5	031-6558-121	SPRING-1.135 O.D. X 0.095 W.D.	-	1
6	207-5535	COLLAR, V20, SPOOL	-	1
7	031-6558-122	PLATE, SEAL RETAINER	-	2
8	031-6558-123	WASHER V20 SPOOL SEAL BACK-UP	-	2
9	031-6558-124	SEAL, O-RING-AS210, 75	-	2
10	031-3285-011	HOUSING	-	1
11	031-3285-104	SEAL, O-RING-AS117, 90	-	1
12	031-5698-006	SEAL, O-RING-AS119, 75	-	3
13	031-3285-012	SPOOL, 4-WAY, 0.75 DIAMETER	-	1
14	031-6558-126	PIN, HANDLE CLEVIS.	-	1
15	031-6558-127	PIN, COTTER S.S.0.06 DIA×0.50L	-	3
16	031-6558-128	LINK, PIN	-	1
17	031-6558-129	HANDLE, VERTICAL BLACK	-	1
18	031-6558-130	PLATE, PIN LINK	-	1
19	031-6558-131	BRACKET, HANDLE	-	1
20	031-3285-045	PLUG, LOAD CHECK(consists of items 21 thru 28)	-	1
21	031-6558-134	RING, BACK-UP CUT.	-	1
22	031-6558-110	SEAL, O-RING-AS015, 90.	-	1
23	031-6558-136	SEAL, O-RING-AS016, 90	-	2
24	031-6558-137	RING, BACKUP-AS016	-	1
25	031-6558-108	SEAL, O-RING-AS016, 70	-	1
26	031-6558-141	PLUG,CP 3-WAY CONVERSION	-	1
27	031-6558-139	PLUG	-	1
28	031-3285-014	PLUG, LOAD CHECK (consists of 21-25, 27, 29, 30)	-	1
29	031-6558-132	POPPET	-	1
30	031-6558-133	SPRING, .027 OD x .028 WD	-	1

PT 1000A
UNDER BODY CONTROL VALVE OUTLET SECTION
031-3285-003



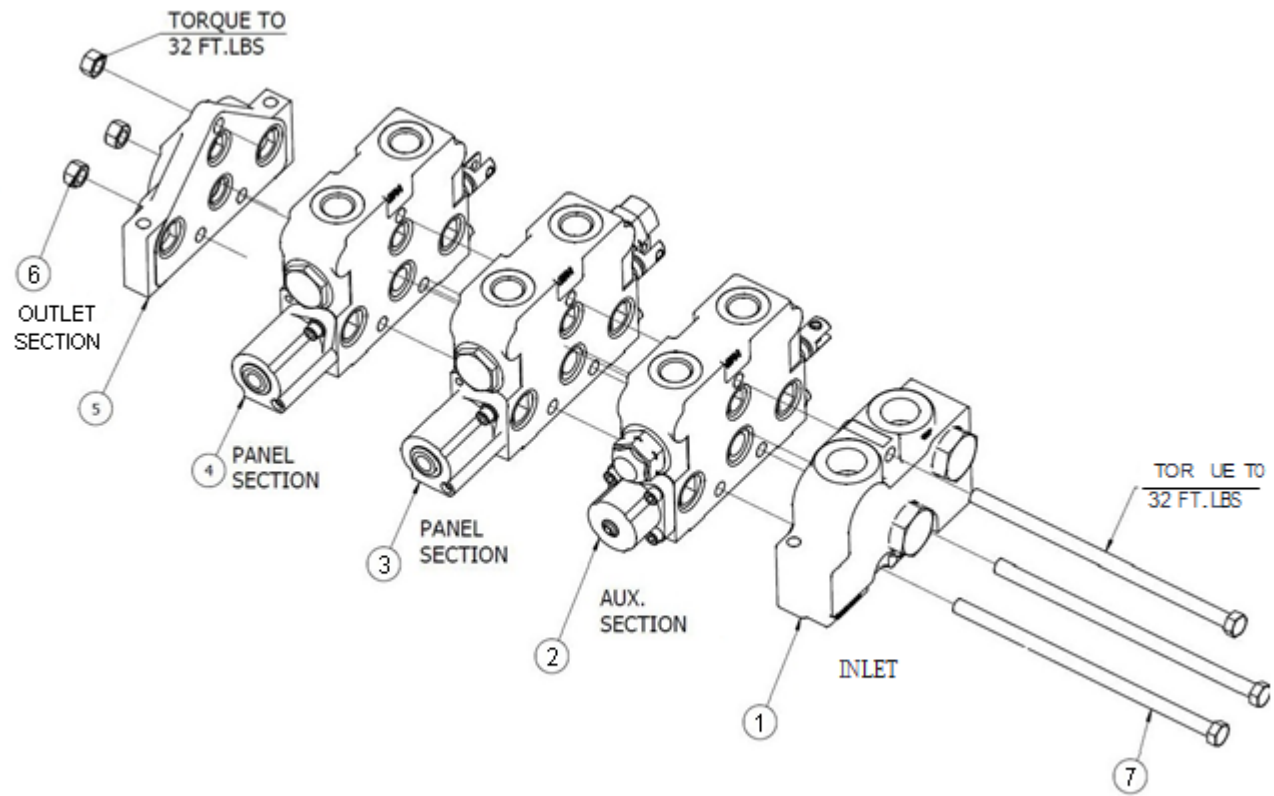
UNDER BODY CONTROL VALVE OUTLET SECTION 031-3285-003

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-3285-003	OUTLET SECTION-(consists of items 1 thru 7)	-	REF
1	031-3285-101	COVER CP	-	1
2	031-3285-060	SEAL, O-RING-AS017, 90	-	1
3	031-3285-102	RING, BACKUP	-	1
4	031-3286-049	SEAL, O-RING-AS914, 90	-	1
5	031-3285-103	SLEEVE, PB	-	1
6	031-5698-006	SEAL, O-RING-AS119, 75	-	2
7	031-3285-104	SEAL, O-RING-AS117, 90	-	2

PT 1000A

TAILGATE MECHANICAL CONTROL VALVE

031-6573



PT 1000A
TAILGATE MECHANICAL CONTROL VALVE
031-6573

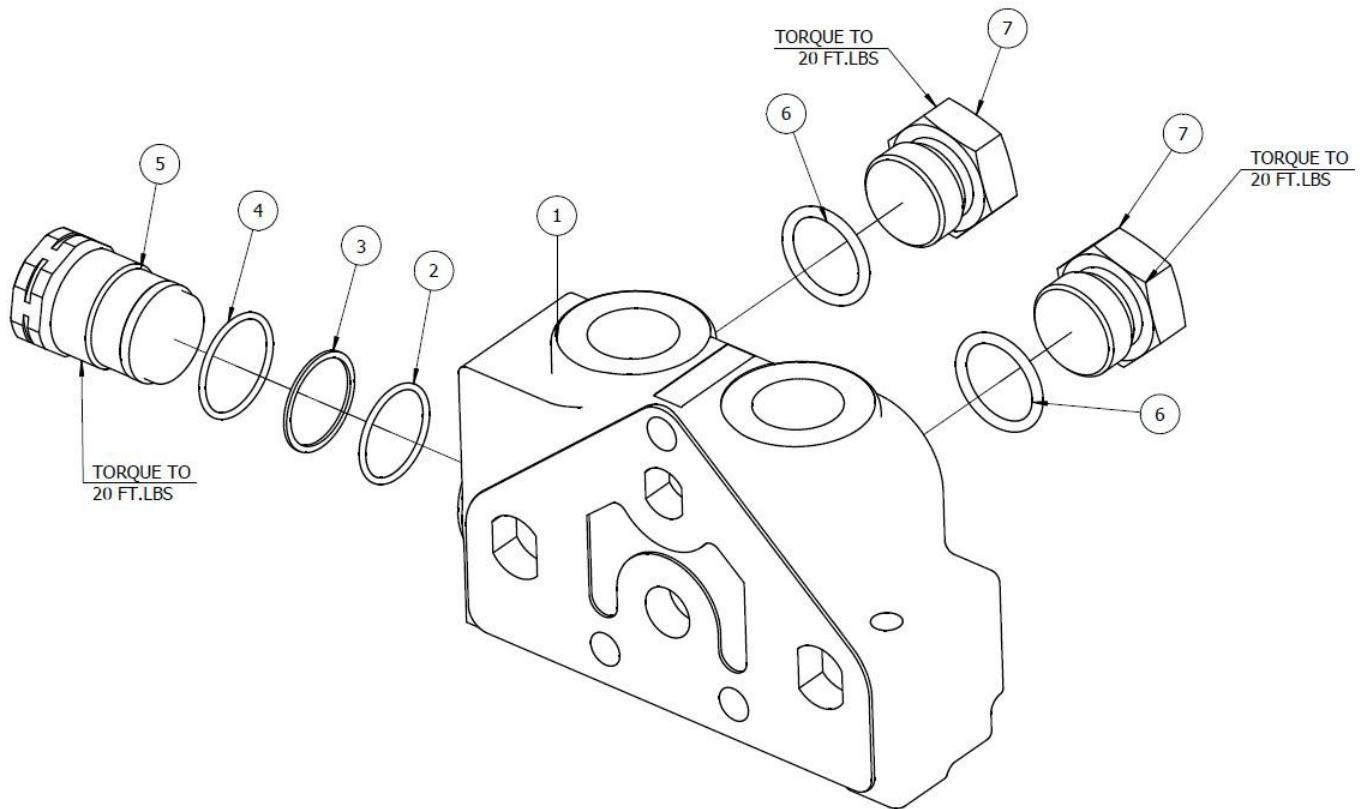
179

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6573	VALVE, Control, Mechanical, Tailgate	-	REF
1	031-6573-188	INLET SECTION	-	1
2	031-6573-185	AUX. SECTION	-	1
3	031-6573-186	SECTION panel	-	1
4	031-6573-187	SECTION panel	-	1
5	031-6573-178	OUTLET SECTION	-	1
6	031-6558-001	NUT, HEX-3/8"-16	-	3
7	031-6558-002	SCREW-3/8"-16x8"	-	3

PT 1000A

INLET SECTION

031-6573-188



PT 1000A
INLET SECTION
031-6573-188

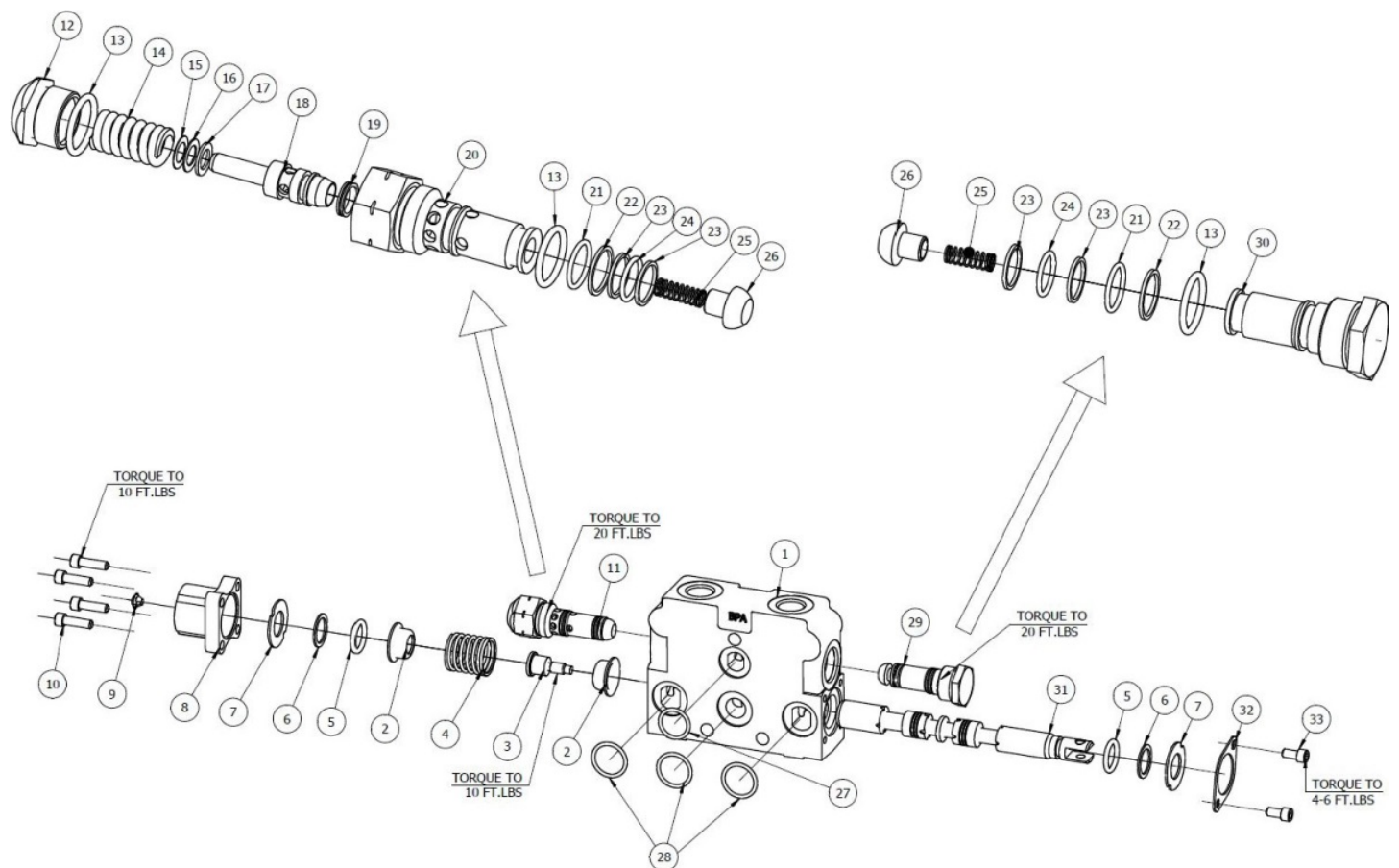
181

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6573-188	VALVE SECTION-(consists of items 1 thru 7)	-	REF
1	031-3285-007	HOUSING	-	1
2	031-6558-116	SEAL, O-RING-AS022, 90	-	1
3	031-3285-057	RING, BACKUP-AS022	-	1
4	031-6558-115	SEAL, O-RING-AS023, 90	-	1
5	031-6573-101	PLUG,V20	-	1
6	031-6558-101	SEAL O-RING -0.924 I.D	-	2
7	031-6558-102	3/4" O.D. TUBE(SAE 12)	-	2

PT 1000A

AUXILIARY WORKING VALVE SECTION

031-6573-185



PT 1000A
AUXILIARY WORKING VALVE SECTION
031-6573-185

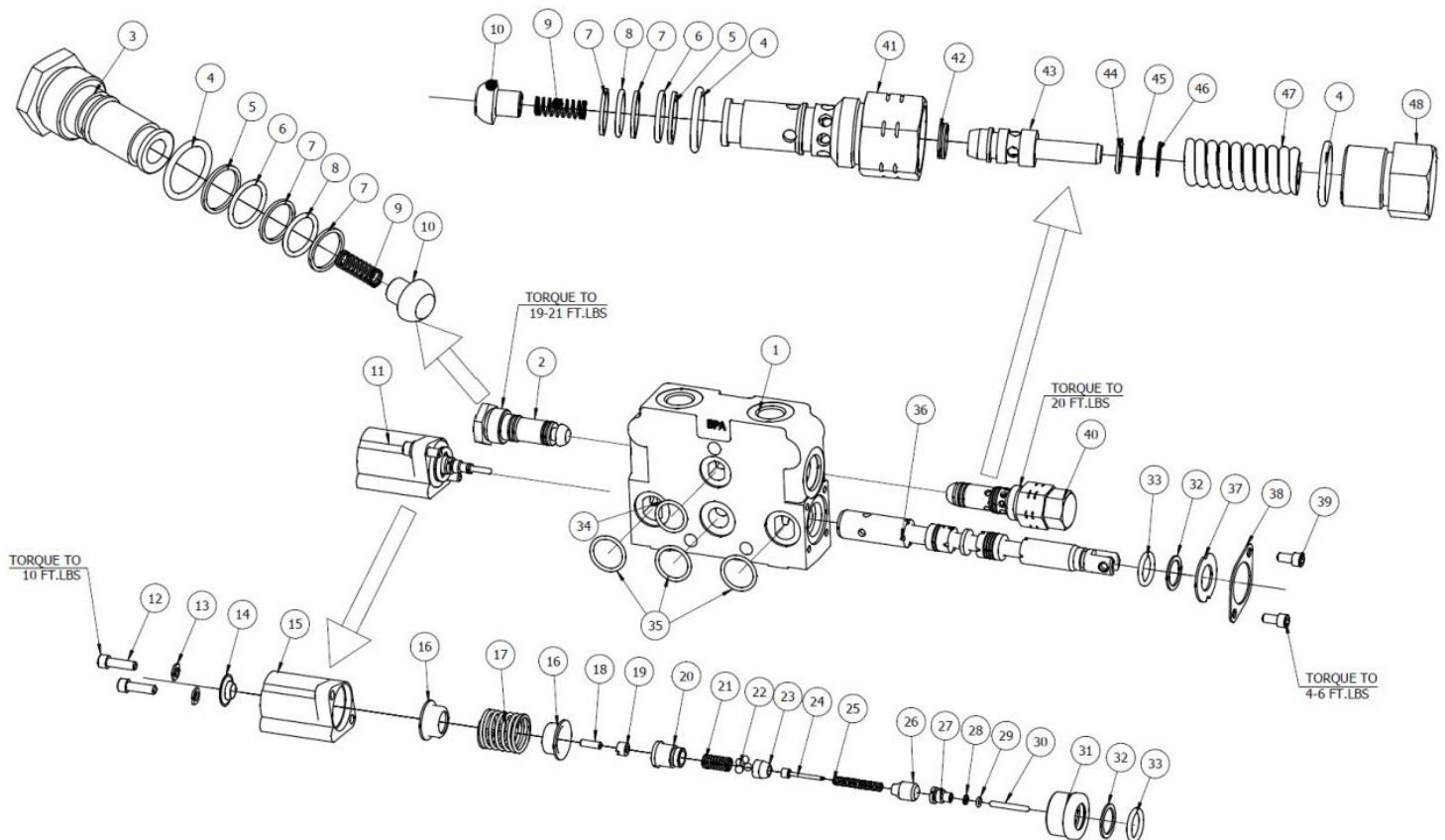
183

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6573-185	VALVE SECTION, Auxiliary-(consists of items 1 thru 33)	-	REF
1	031-6573-105	HOUSING	-	1
2	031-6558-120	COLLAR, V20, SPRING	-	2
3	207-5535	COLLAR, V20, SP00L	-	1
4	031-6558-121	SPRING-1.135 O.D. X 0.095 W.D	-	1
5	031-6558-124	SEAL, O-RING-AS210, 75	-	2
6	031-6558-123	WASHER V20 SPOOL SEAL BACK-UP	-	2
7	031-6558-122	PLATE, SEAL RETAINER	-	2
8	031-6558-119	BONNET	-	1
9	031-6558-117	UMBRELLA CHECK VALVE	-	1
10	031-6558-118	SCREW HSHC1/4-20X.875	-	4
11	031-6573-106	RELIEF RC(consists of items 12 thru 26)	-	1
12	031-6573-107	CAP, RELIEF	-	1
13	031-6558-108	SEAL, O-RING-AS910, 70	-	3
14	031-6573-108	SPRING, RELIEF 0.667 O.D. X 0.125 W.D.	-	1
15	031-6573-109	WASHER, 0.50×0.31×0.01	-	1
16	031-6573-110	WASHER, 0.50×0.31×0.02	-	1
17	031-6573-111	WASHER, 0.50×0.31×0.04	-	1
18	031-6558-112	POPPET, RELIEF	-	1
19	031-6558-113	SEAL, RELIEF POPPET-TFE	-	1
20	031-6573-112	BODY, V20 RC RELIEF	-	1
21	031-6558-136	SEAL, O-RING-AS016, 90	-	2
22	031-6558-137	RING, BACKUP-AS016	-	2
23	031-6558-134	RING, BACK-UP CUT	-	4
24	031-6558-110	SEAL, O-RING-AS015, 90	-	2
25	031-6558-133	SPRING-0.27 O.D. X 0.028 W.D.	-	2
26	031-6558-132	POPPET	-	2
27	031-6573-113	SEAL, O-RING-AS117, 90	-	1
28	031-5698-006	SEAL, O-RING-AS119, 75	-	3
29	031-3285-014	PLUG, LOAD CHECK(consists of items 21 thru 26,13,30)	-	1
30	031-6558-139	PLUG	-	1
31	031-3285-012	SPOOL, 4-WAY, 0.75 DIAMETER	-	1
32	031-6573-114	PLATE V20 SPOOL SEAL RETAINER	-	1
33	031-6573-115	SCREW HSHC1/4-20X.50	-	2

PT 1000A

PANEL WORKING VALVE SECTION

031-6573-186



PT 1000A
PANEL WORKING VALVE SECTION
031-6573-186

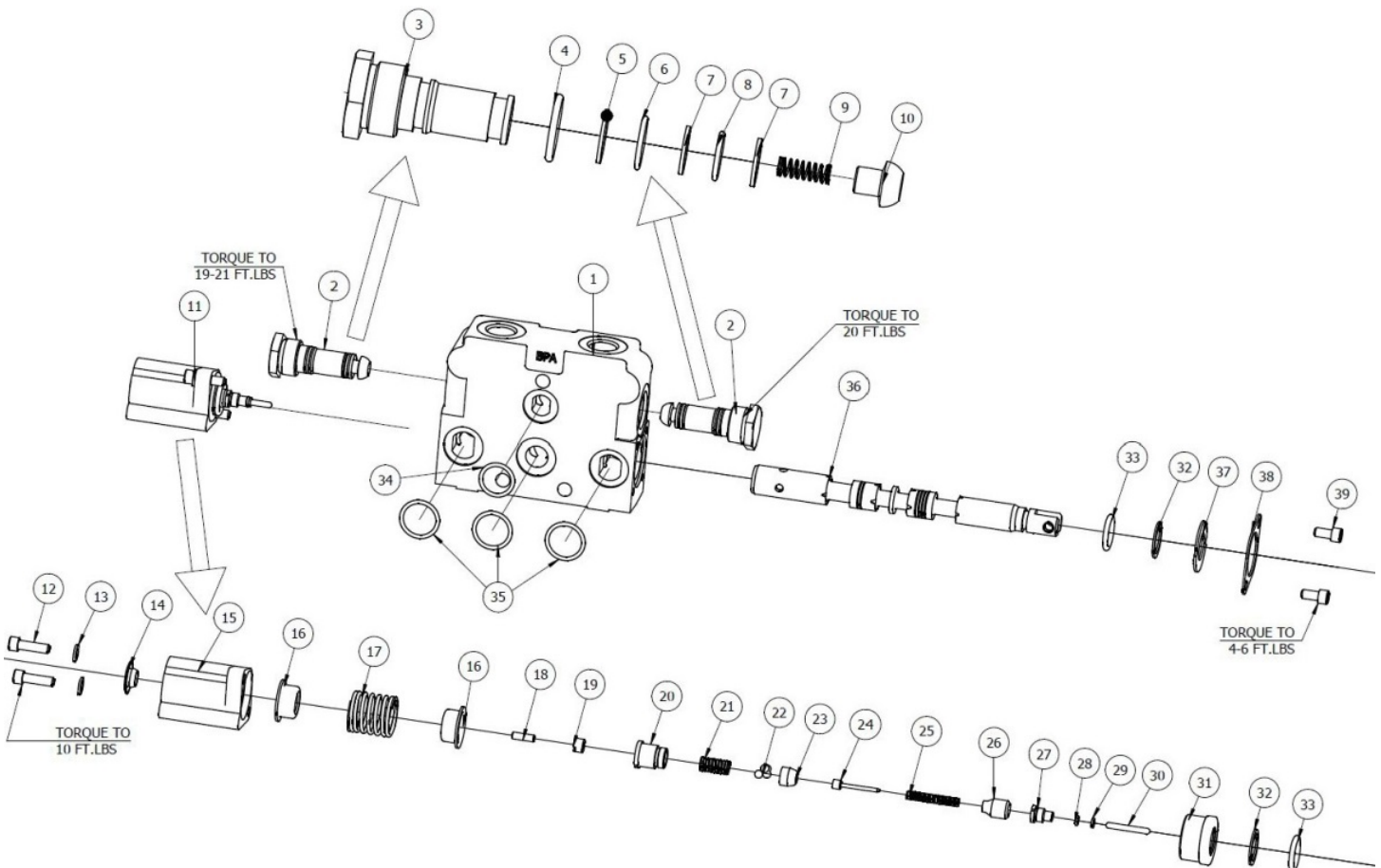
185

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6573-186	VALVE SECTION-(consists of items 1 thru 48)	-	REF
1	031-6573-116	HOUSING	-	1
2	031-3285-014	PLUG, LOAD CHECK(consists of items 3 thru 10)	-	1
3	031-6558-139	PLUG	-	2
4	031-6558-108	SEAL, O-RING-AS910, 70	-	2
5	031-6558-137	RING, BACKUP-AS016	-	2
6	031-6558-136	SEAL, O-RING-AS016, 90	-	2
7	031-6558-134	RING, BACK-UP CUT	-	4
8	031-6558-110	SEAL, O-RING-AS015, 90	-	2
9	031-6558-133	SPRING-0.27 O.D. X 0.028 W.D.	-	2
10	031-6558-132	POPPET	-	2
11	031-6573-117	POS. V20,4-WAY(consists of items 12 thru 33)	-	1
12	031-6558-118	SCREW HSHC1/4-20X.875	-	2
13	031-6573-118	PLATE, BEARING	-	2
14	031-6573-119	BUTTON PLUG	-	1
15	031-6573-120	BONNET, V20 KO.	-	1
16	031-6573-121	COLLAR, V20 SPRING	-	2
17	031-6558-121	SPRING-1.135 O.D. X 0.095 W.D.	-	1
18	031-6573-122	SCREW,SET	-	1
19	031-6573-123	NUT, V20 LOCK	-	1
20	031-6573-124	COLLAR, SPOOL 0.56 UNEF-FIFO	-	1
21	031-6573-125	SPRING-0.385 O.D. X 0.054 W.D.	-	1
22	031-6573-126	BALL, STEEL 0.219 DIA	-	4
23	031-6573-127	FOLLOWER, V20 BALL	-	1
24	031-6573-128	GUIDE, V20 SPRING	-	1
25	031-6573-129	SPRING-0.233 O.D. X 0.054 W.D.	-	1
26	031-6573-130	PLUNGER,V20 KNOCKOUT	-	1
27	031-6573-131	GUIDE, V20 KO PISTON	-	1
28	031-6573-132	WASHER BACKUP	-	1
29	031-6573-133	O-RING, AS007, 70 DUR BUNA-N	-	1
30	031-6573-134	ROLLER, NEEDLE	-	1
31	031-6573-135	SLEEVE, V20 KO DETENT	-	1
32	031-6558-123	WASHER, V20 SPOOL BACK-UP	-	2
33	031-6558-124	SEAL, O-RING-AS210, 75	-	2
34	031-3285-104	SEAL, O-RING-AS117, 90	-	1
35	031-5698-006	SEAL, O-RING-AS119, 75	-	3
36	031-6558-125	SPOOL, 4-WAY, KO	-	1
37	031-6558-122	PLATE, SEAL RETAINER	-	1
38	031-6573-114	PLATE V20 SPOOL SEAL RETAINER	-	1
39	031-6573-115	SCREW HSHC1/4-20X.50	-	2
40	031-6573-136	RELIEF, RC ASSY(consists of items 4 thru 10, 41 thru 48)	-	1
41	031-6573-137	BODY, V20 RC RELIEF	-	1
42	031-6558-113	SEAL, RELIEF POPPET-TFE	-	1
43	031-6558-112	POPPET, RELIEF	-	1
44	031-6573-111	WASHER, 0.50×0.31×0.04	-	1
45	031-6573-110	WASHER, 0.50×0.31×0.02	-	1
46	031-6573-138	WASHER, 0.50×0.31×0.01	-	1
47	031-6573-139	SPRING-0.68 O.D. X 0.15 W.D.	-	1
48	031-6573-140	CAP RELIEF	-	1

PT 1000A

PANEL WORKING VALVE SECTION

031-6573-187

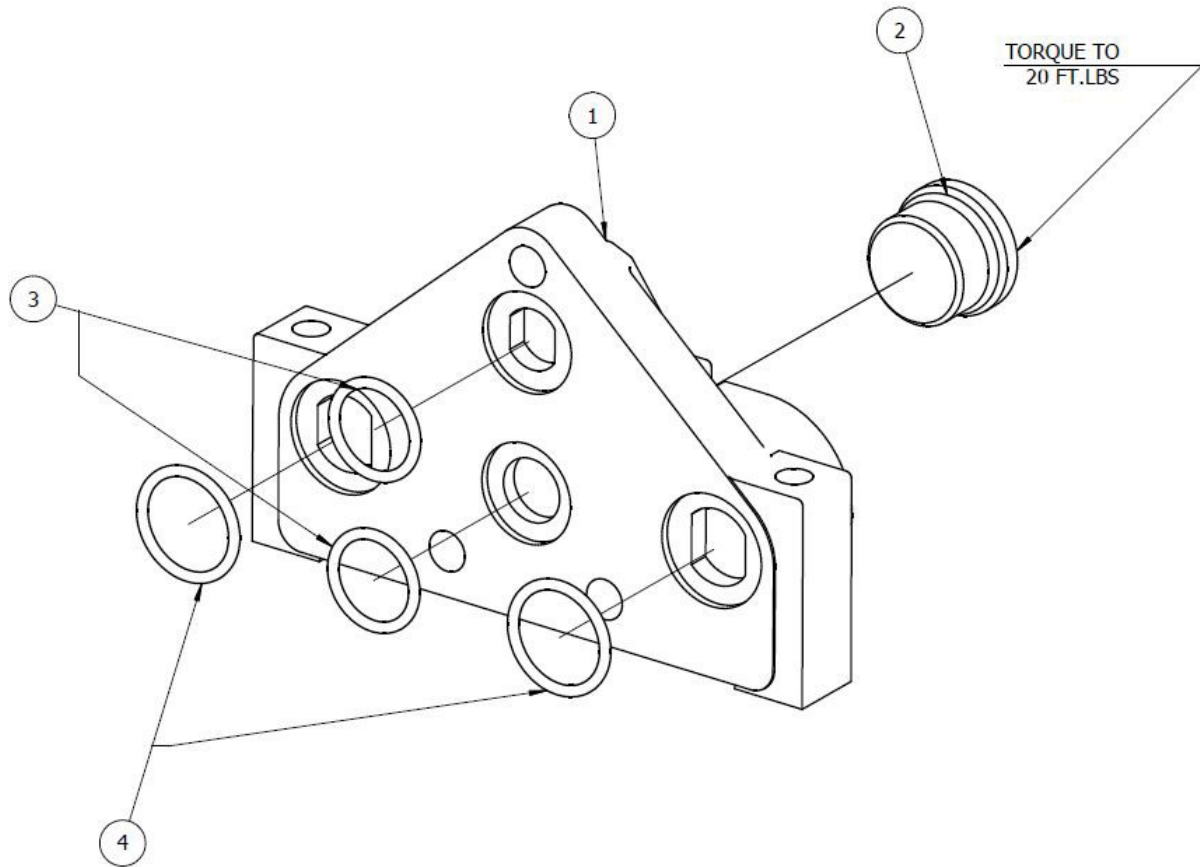


PT 1000A
PANEL WORKING VALVE SECTION
031-6573-187

187

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6573-187	VALVE SECTION-(consists of items 1 thru 48)	-	REF
1	031-6573-141	HOUSING	-	1
2	031-3285-014	PLUG, LOAD CHECK(consists of items 3 thru 10)	-	1
3	031-6558-139	PLUG	-	2
4	031-6558-108	SEAL, O-RING-AS910, 70	-	2
5	031-6558-137	RING, BACKUP-AS016	-	2
6	031-6558-136	SEAL, O-RING-AS016, 90	-	2
7	031-6558-134	RING, BACK-UP CUT	-	4
8	031-6558-110	SEAL, O-RING-AS015, 90	-	2
9	031-6558-133	SPRING-0.27 O.D. X 0.028 W.D.	-	2
10	031-6558-132	POPPET	-	2
11	031-6573-117	POS. V20,4-WAY(consists of items 12 thru 33)	-	1
12	031-6558-118	SCREW HSHC1/4-20X.875	-	2
13	031-6573-118	PLATE, BEARING	-	2
14	031-6573-119	BUTTON PLUG	-	1
15	031-6573-120	BONNET, V20 KO.	-	1
16	031-6573-121	COLLAR, V20 SPRING	-	2
17	031-6558-121	SPRING-1.135 O.D. X 0.095 W.D.	-	1
18	031-6573-122	SCREW,SET	-	1
19	031-6573-142	NUT, V20 LOCK	-	1
20	031-6573-124	COLLAR, SPOOL 0.56 UNEF-FIFO	-	1
21	031-6573-125	SPRING-0.385 O.D. X 0.054 W.D.	-	1
22	031-6573-126	BALL, STEEL 0.219 DIA	-	4
23	031-6573-127	FOLLOWER, V20 BALL	-	1
24	031-6573-128	GUIDE, V20 SPRING	-	1
25	031-6573-129	SPRING-0.233 O.D. X 0.054 W.D.	-	1
26	031-6573-130	PLUNGER,V20 KNOCKOUT	-	1
27	031-6573-131	GUIDE, V20 KO PISTON	-	1
28	031-6573-132	WASHER BACKUP	-	1
29	031-6573-133	O-RING, AS007, 70 DUR BUNA-N	-	1
30	031-6573-134	ROLLER, NEEDLE	-	1
31	031-6573-135	SLEEVE, V20 KO DETENT	-	1
32	031-6558-123	WASHER, V20 SPOOL BACK-UP	-	2
33	031-6558-124	SEAL, O-RING-AS210, 75	-	2
34	031-3285-104	SEAL, O-RING-AS117, 90	-	1
35	031-5698-006	SEAL, O-RING-AS119, 75	-	3
36	031-6573-143	SPOOL, 4-WAY, KO	-	1
37	031-6558-122	PLATE, SEAL RETAINER	-	1
38	031-6573-114	PLATE V20 SPOOL SEAL RETAINER	-	1
39	031-6573-144	SCREW HSHC1/4-20X.50	-	2

PT 1000A
OUTLET SECTION
031-6573-178



PT 1000A

OUTLET SECTION

031-6573-178

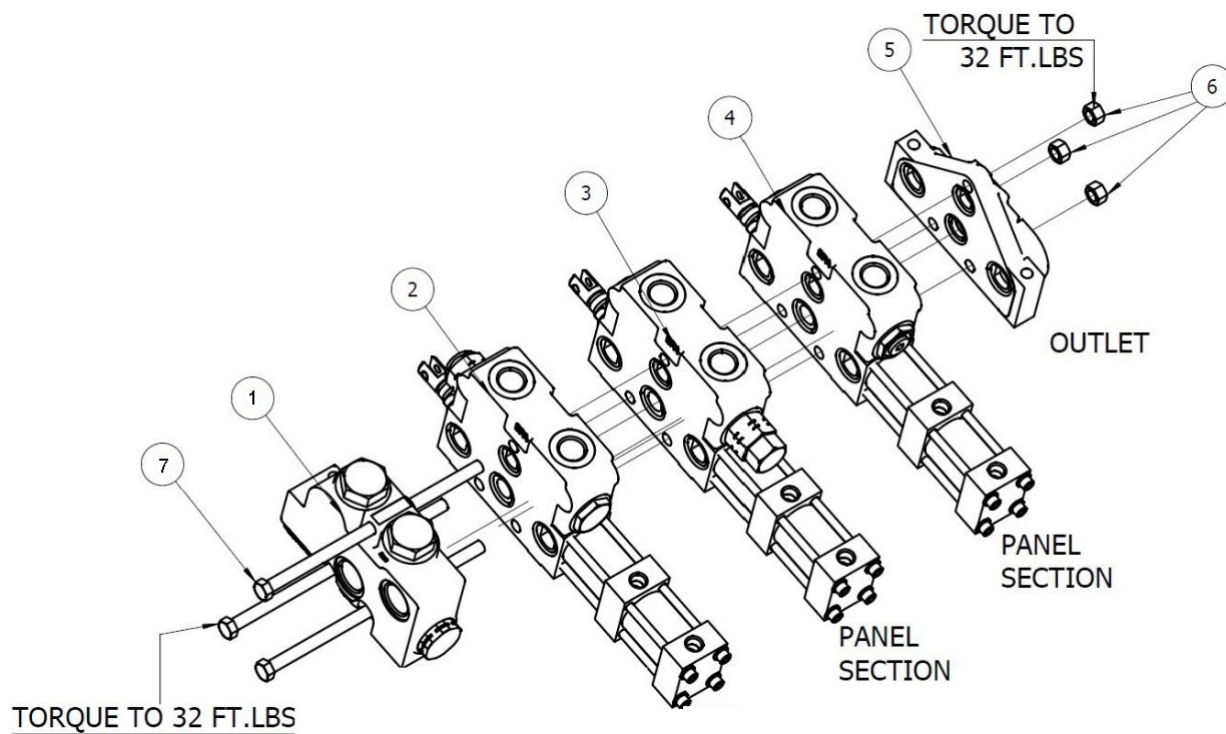
189

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6573-178	OUTLET SECTION-(consists of items 1 thru 4)	-	REF
1	031-6573-102	COVER CP	-	1
2	031-6573-103	PLUG	-	1
3	031-3285-104	SEAL, O-RING-AS117, 90	-	2
4	031-5698-006	SEAL, O-RING-AS119, 75	-	2

PT 1000A

TAILGATE PNEUMATIC CONTROL VALVE

031-6566-003



PT 1000A
TAILGATE PNEUMATIC CONTROL VALVE
031-6566-003

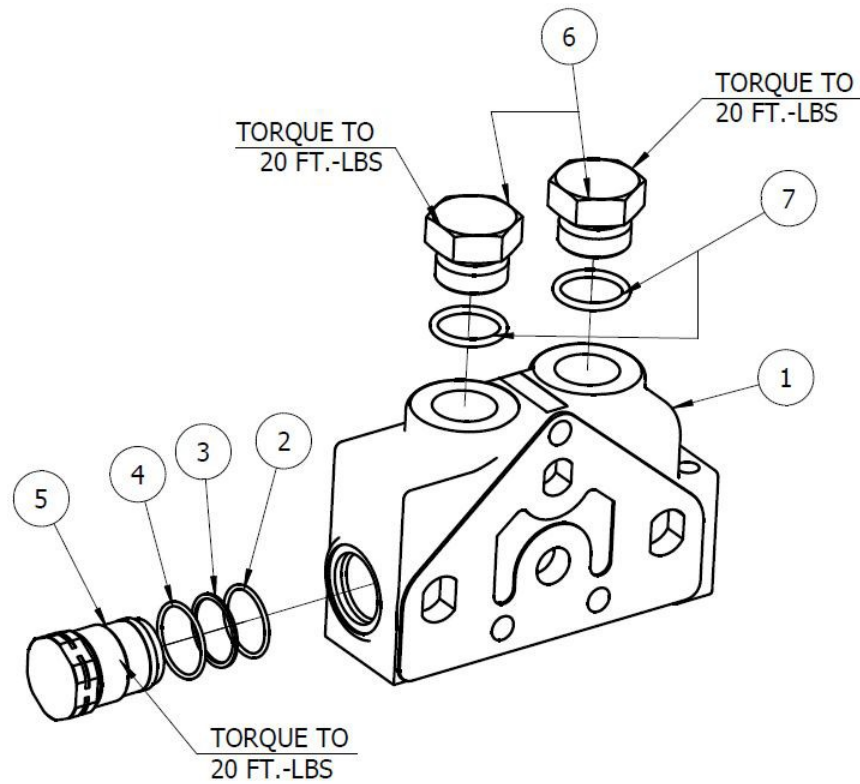
191

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6566-003	VALVE, Control, Pneumatic, Tailgate	-	REF
1	031-6566-167	SECTION, Inlet	-	1
2	031-6566-174	SECTION, ejector	-	1
3	031-6566-175	SECTION, Tailgate	-	1
4	031-6566-176	SECTION, Tailgate	-	1
5	031-6573-178	SECTION, Outlet	-	1
6	031-6558-001	NUT, Hex 3/8 - 16	-	3
7	031-6558-002	SCREW, 3/8 - 16 x 8"	-	3

PT 1000A

INLET SECTION

031-6566-167



PT 1000A
INLET SECTION
031-6566-167

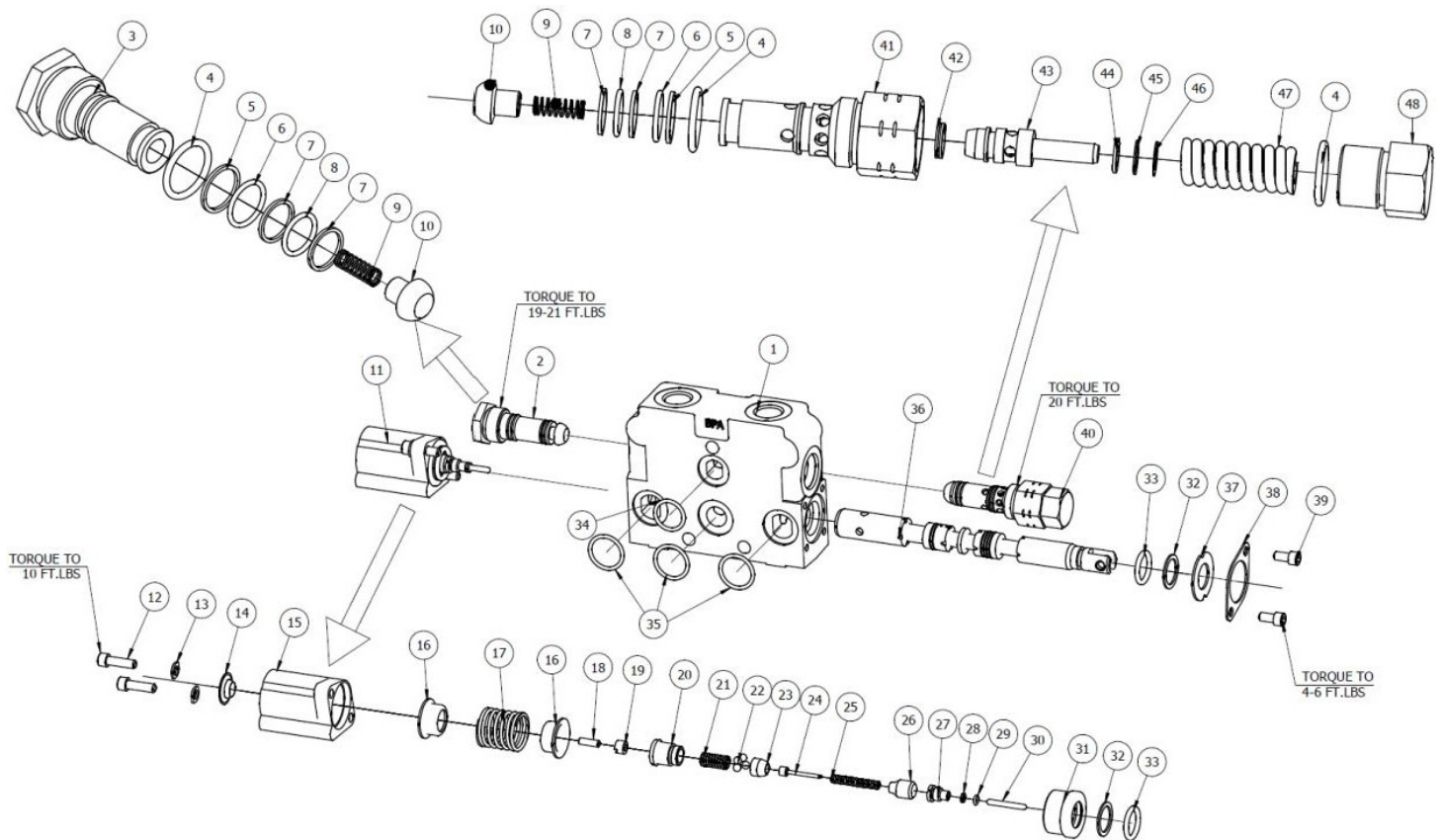
193

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6566-167	VALVE SECTION-(consists of items 1 thru 7)	-	REF
1	031-3285-007	HOUSING	-	1
2	031-6558-116	SEAL, O-RING-AS022, 90	-	1
3	031-3285-057	RING, BACKUP-AS022	-	1
4	031-6558-115	SEAL, O-RING-AS023, 90	-	1
5	031-6573-101	PLUG,V20	-	1
6	031-6558-101	SEAL O-RING -0.924 I.D	-	2
7	031-6558-102	3/4" O.D. TUBE(SAE 12)	-	2

PT 1000A

AUXILIARY WORKING VALVE SECTION

031-6566-174



PT 1000A
AUXILIARY WORKING VALVE SECTION
031-6566-174

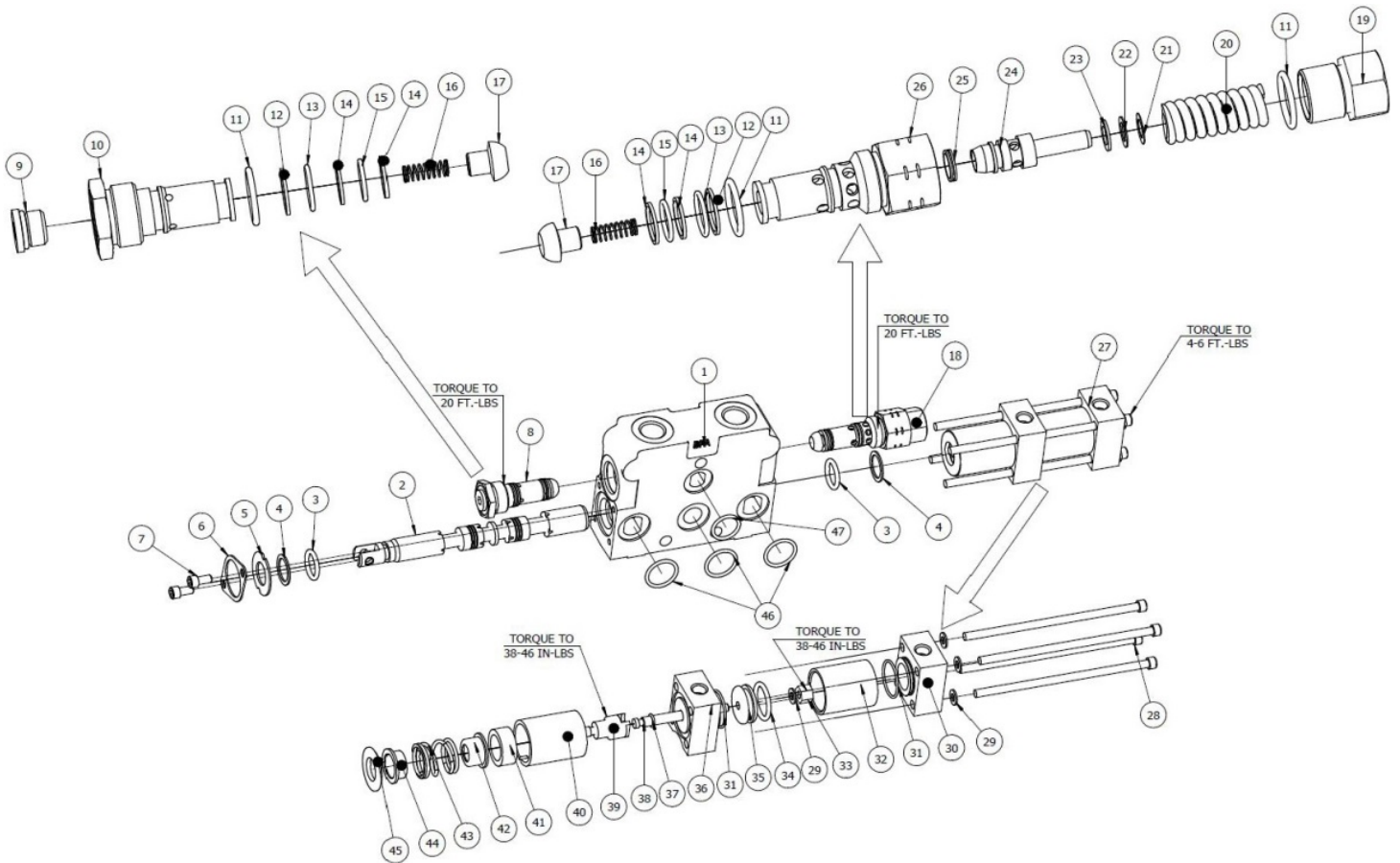
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ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6566-174	VALVE SECTION-(consists of items 1 thru 46)	-	REF
1	031-6573-105	HOUSING	-	1
2	031-3285-012	SPOOL, 4-WAY, 0.75 DIA.	-	1
3	031-6566-101	SEAL, O-RING-AS210, 75	-	2
4	031-6558-123	WASHER V20 SPOOL SEAL BACK-UP	-	2
5	031-6558-122	PLATE, SEAL RETAINER	-	1
6	031-6573-114	PLATE V20 SPOOL SEAL RETAINER	-	1
7	031-6573-115	SCREW HSHC1/4-20X.50	-	2
8	031-6573-106	RELIEF RC(consists of items 9 thru 23)	-	1
9	031-6573-107	CAP, RELIEF	-	1
10	031-6558-108	SEAL, O-RING-AS910, 70	-	3
11	031-6566-102	SPRING, RELIEF 0.667 O.D. X 0.125 W.D.	-	1
12	031-6573-138	WASHER, 0.50×0.31×0.01	-	1
13	031-6573-110	WASHER, 0.50×0.31×0.02	-	1
14	031-6573-111	WASHER, 0.50×0.31×0.04	-	1
15	031-6558-112	POPPET, RELIEF	-	1
16	031-6558-113	SEAL, RELIEF POPPET-TFE	-	1
17	031-6573-112	BODY, V20 RC RELIEF	-	1
18	031-6558-136	SEAL, O-RING-AS016	-	2
19	031-6558-137	RING, BACKUP-AS016	-	2
20	031-6558-134	RING, BACK-UP CUT	-	4
21	031-6558-110	SEAL, O-RING-AS015	-	2
22	031-6558-133	SPRING-0.27 O.D. X 0.028 W.D.	-	2
23	031-6558-132	POPPET	-	2
24	031-3285-014	PLUG, LOAD CHECK(consists of items 18 thru 23,10,25)	-	1
25	031-6558-139	PLUG	-	1
26	031-5658-025	V20 AIR ACTUATOR(consists of items 27 thru 44)	-	1
27	031-6566-103	SCREW, HSHC	-	4
28	031-6566-104	WASHER, FLAT	-	5
29	031-6566-105	END CAP	-	1
30	031-5658-036	SEAL, O-RING	-	2
31	031-6566-106	SLEEVE	-	1
32	031-6566-107	NUT, LOCK	-	1
33	031-5658-031	SEAL, O-RING	-	1
34	031-6566-108	PISTON, V20 AIR-ACT	-	1
35	031-6566-109	END CAP	-	1
36	031-6566-110	SEAL, O-RING	-	1
37	031-6566-111	ROD, PISTON	-	1
38	031-6566-112	COLLAR, SPOOL	-	1
39	031-6566-113	TUBE, SPRING	-	1
40	031-6566-114	SPACER	-	1
41	031-6566-115	COLLAR, SPRING LONG	-	1
42	031-3285-017	SPRING	-	1
43	031-5658-028	COLLAR, SPRING SHORT	-	1
44	031-6566-116	RETAINER, SEAL	-	1
45	031-5698-006	SEAL, O-RING-AS119, 75	-	3
46	031-3285-104	SEAL, O-RING-AS117, 90	-	1

PT 1000A

PANEL WORKING VALVE SECTION

031-6566-175



PT 1000A
PANEL WORKING VALVE SECTION
031-6566-175

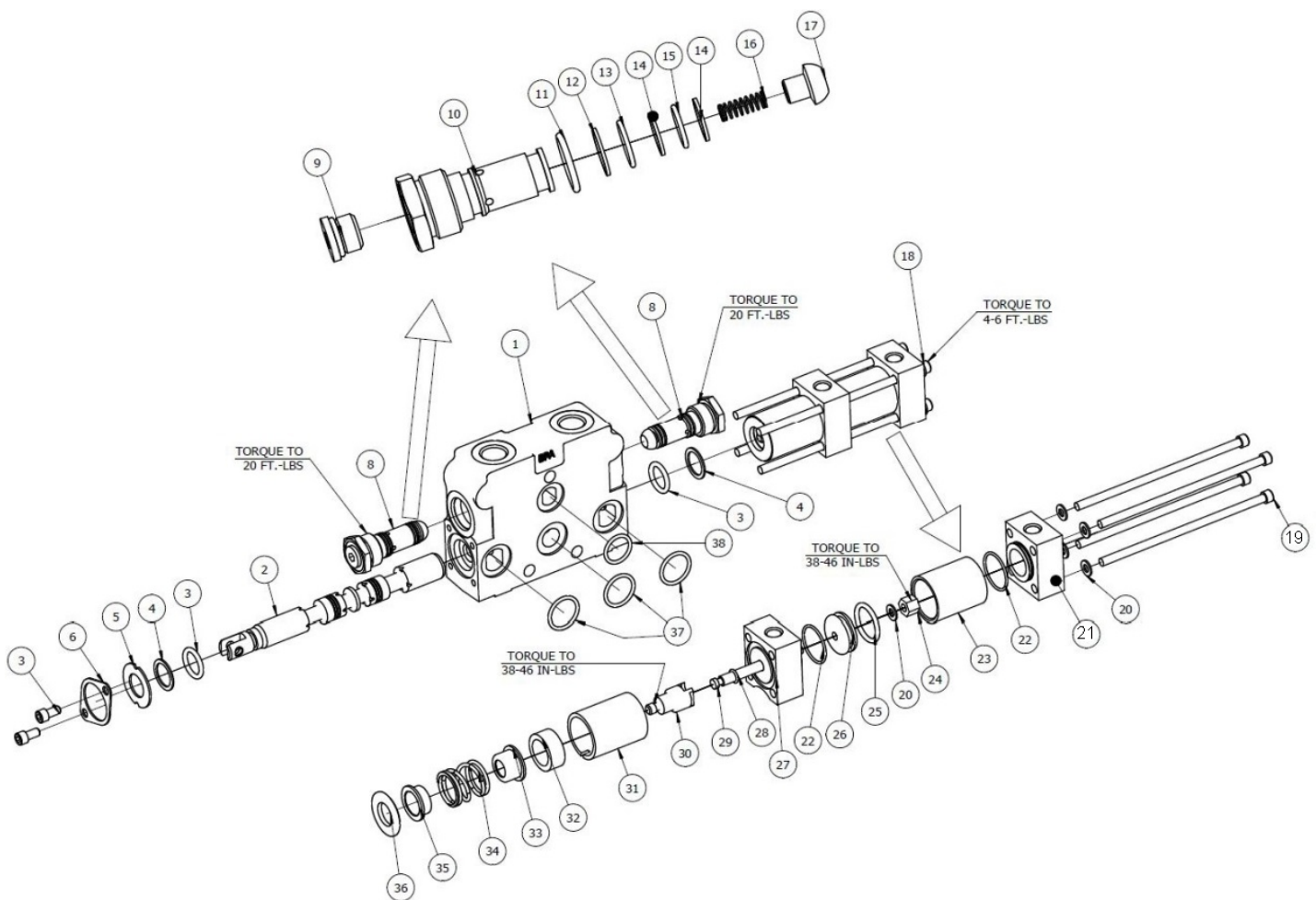
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ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6566-175	VALVE SECTION-(consists of items 1 thru 47)	-	REF
1	031-6573-105	HOUSING	-	1
2	031-3285-012	SPOOL, 4-WAY, 0.75 DIAMETER.	-	1
3	031-6558-124	SEAL, O-RING-AS210, 75	-	2
4	031-6558-123	WASHER V20 SPOOL SEAL BACK-UP	-	2
5	031-6558-122	PLATE, SEAL RETAINER	-	1
6	031-6573-114	PLATE V20 SPOOL SEAL RETAINER	-	1
7	031-6573-115	SCREW HSHC1/4-20X.50	-	2
8	031-6566-168	PLUG, ASSEMBLY (consists of items 9 thru 17)	-	1
9	031-6566-118	PLUG	-	1
10	031-6566-236	BODY, V20 PLUG	-	1
11	031-6558-108	SEAL, O-RING-AS910, 70	-	3
12	031-6558-137	RING, BACKUP-AS016	-	2
13	031-6558-136	SEAL, O-RING-AS016, 90	-	2
14	031-6558-134	RING, BACK-UP CUT	-	4
15	031-6558-110	SEAL, O-RING-AS015, 90	-	2
16	031-6558-133	SPRING-0.27 O.D. X 0.028 W.D.	-	2
17	031-6558-132	POPPET	-	2
18	031-6573-136	RELIEF, RC ASSEMBLY(consists of items 11 thru 17, 19 thru 26)	-	1
19	031-6573-140	CAP RELIEF	-	1
20	031-6573-139	SPRING-0.68 O.D. X 0.15 W.D.	-	1
21	031-6573-138	WASHER, 0.50×0.31×0.01	-	1
22	031-6573-110	WASHER, 0.50×0.31×0.02	-	1
23	031-6573-111	WASHER, 0.50×0.31×0.04	-	1
24	031-6558-112	POPPET, RELIEF	-	1
25	031-6558-113	SEAL, RELIEF POPPET-TFE	-	1
26	031-6573-137	BODY, V20 RC RELIEF	-	1
27	031-5658-025	V20 AIR ACTUATOR(consists of items 28 thru 45)	-	1
28	031-6566-103	SCREW, HSHC	-	4
29	031-6566-104	WASHER, FLAT	-	5
30	031-6566-105	END CAP	-	1
31	031-3286-041	SEAL, O-RING	-	2
32	031-6566-106	SLEEVE	-	1
33	031-6566-107	NUT, LOCK	-	1
34	031-5658-031	SEAL, O-RING	-	1
35	031-6566-108	PISTON, V20 AIR-ACT	-	1
36	031-6566-117	END CAP	-	1
37	031-6566-110	SEAL, O-RING	-	1
38	031-6566-111	ROD, PISTON	-	1
39	031-6566-112	COLLAR, SPOOL	-	1
40	031-6566-113	TUBE, SPRING	-	1
41	031-6566-114	SPACER	-	1
42	031-6566-115	COLLAR, SPRING LONG	-	1
43	031-3285-017	SPRING	-	1
44	031-5658-028	COLLAR, SPRING SHORT	-	1
45	031-6566-116	RETAINER, SEAL	-	1
46	031-5698-006	SEAL, O-RING-AS119, 75	-	3
47	031-3285-104	SEAL, O-RING-AS117	-	1

PT 1000A

PANEL WORKING VALVE SECTION

031-6566-176

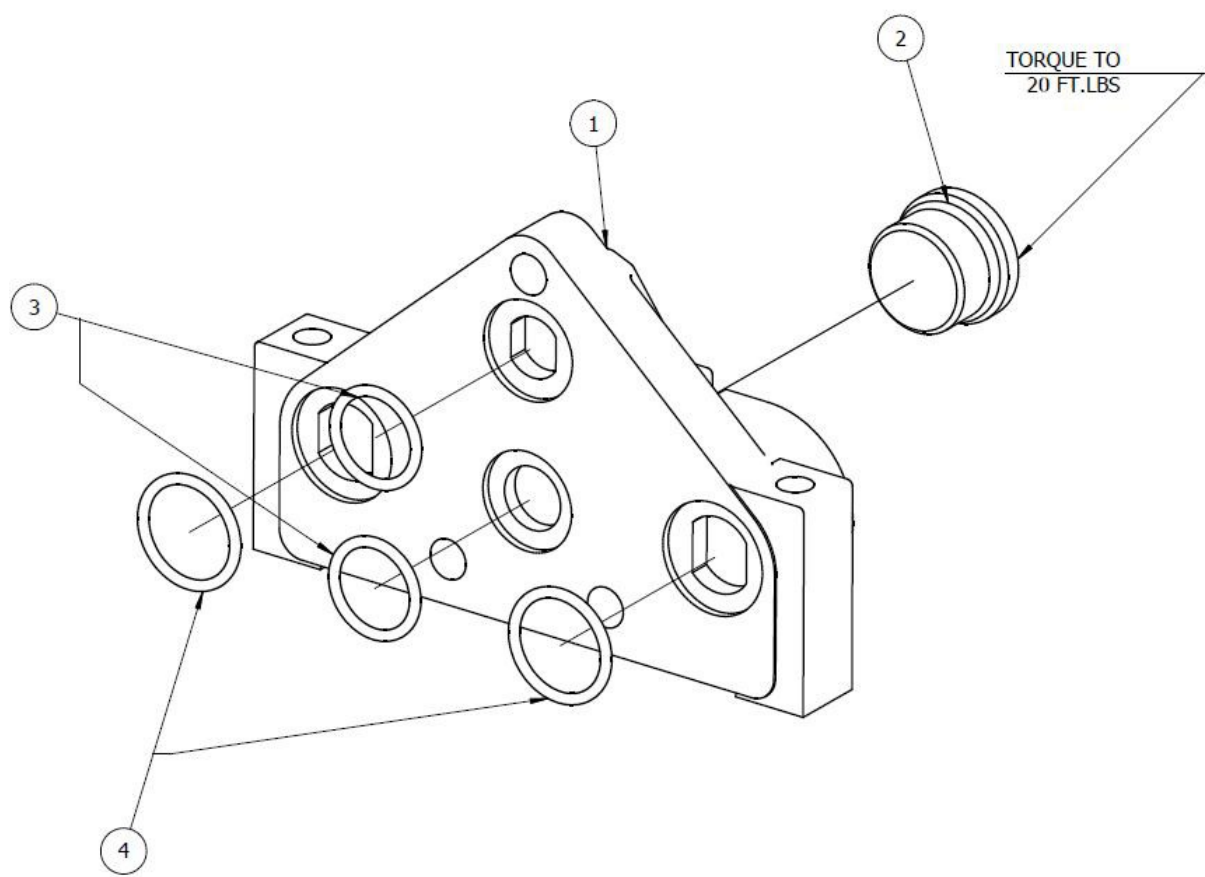


PT 1000A
PANEL WORKING VALVE SECTION
031-6566-176

199

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6566-176	VALVE SECTION-(consists of items 1 thru 38)	-	REF
1	031-6573-105	HOUSING	-	1
2	031-3285-012	SPOOL, 4-WAY, 0.75 DIA.	-	1
3	031-6558-124	SEAL, O-RING-AS210, 75	-	2
4	031-6558-123	WASHER V20 SPOOL SEAL BACK-UP	-	2
5	031-6558-122	PLATE, SEAL RETAINER	-	1
6	031-6573-114	PLATE V20 SPOOL SEAL RETAINER	-	1
7	031-6573-115	SCREW HSHC1/4-20X.50	-	2
8	NSS	PLUG, ASSY(consists of items 9 thru 17)	-	1
9	031-6566-118	PLUG	-	1
10	NSS	BODY, V20 PLUG	-	1
11	031-6558-108	SEAL, O-RING-AS910, 70	-	3
12	031-6558-137	RING, BACKUP-AS016	-	2
13	031-6558-136	SEAL, O-RING-AS016, 90	-	2
14	031-6558-134	RING, BACK-UP CUT	-	4
15	031-6558-110	SEAL, O-RING-AS015, 90	-	2
16	031-6558-133	SPRING-0.27 O.D. X 0.028 W.D.	-	2
17	031-6558-132	POPPET	-	2
18	031-6558-025	V20 AIR ACTUATOR(consists of items 19 thru 36)	-	1
19	031-6566-103	SCREW, HSHC	-	4
20	031-6566-104	WASHER, FLAT	-	5
21	031-6566-105	END CAP	-	1
22	031-3286-041	SEAL, O-RING	-	2
23	031-6566-106	SLEEVE	-	1
24	031-6566-107	NUT, LOCK	-	1
25	031-6558-031	SEAL, O-RING	-	1
26	031-6566-108	PISTON, V20 AIR-ACT	-	1
27	031-6566-117	END CAP	-	1
28	031-6566-110	SEAL, O-RING	-	1
29	031-6566-111	ROD, PISTON	-	1
30	031-6566-112	COLLAR, SPOOL	-	1
31	031-6566-113	TUBE, SPRING	-	1
32	031-6566-114	SPACER	-	1
33	031-6566-115	COLLAR, SPRING LONG	-	1
34	031-3285-017	SPRING	-	1
35	031-6558-028	COLLAR, SPRING SHORT	-	1
36	031-6566-116	RETAINER, SEAL	-	1
37	031-6598-006	SEAL, O-RING-AS119, 75	-	3
38	031-3285-104	SEAL, O-RING-AS117, 90	-	1

PT 1000A
OUTLET SECTION
031-6573-178



PT 1000A
OUTLET SECTION
031-6573-178

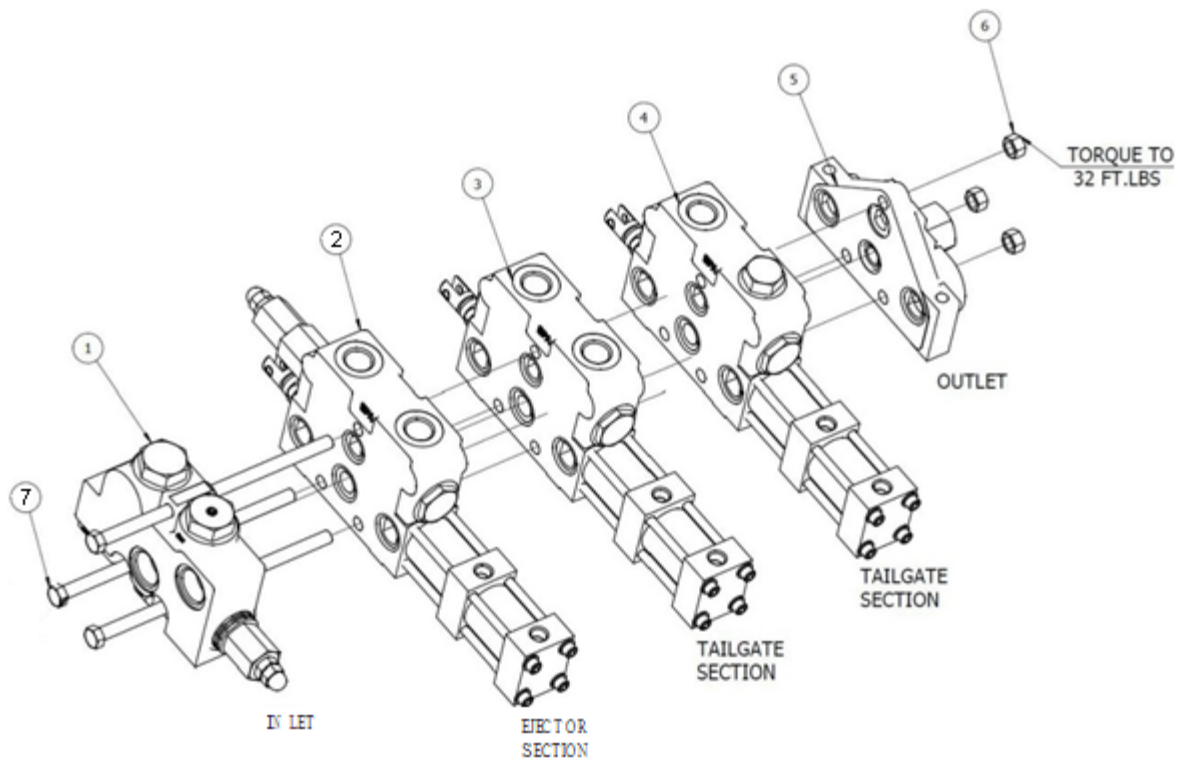
201

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6573-178	OUTLET SECTION-(consists of items 1 thru 4)	-	REF
1	031-6573-102	COVER CP	-	1
2	031-6573-103	PLUG	-	1
3	031-3285-104	SEAL, O-RING-AS117, 90	-	2
4	031-5698-006	SEAL, O-RING-AS119, 75	-	2

PT 1000A

3-SECTION PNEUMATIC ACTUATORS BODY VALVE

031-6565



PT 1000A

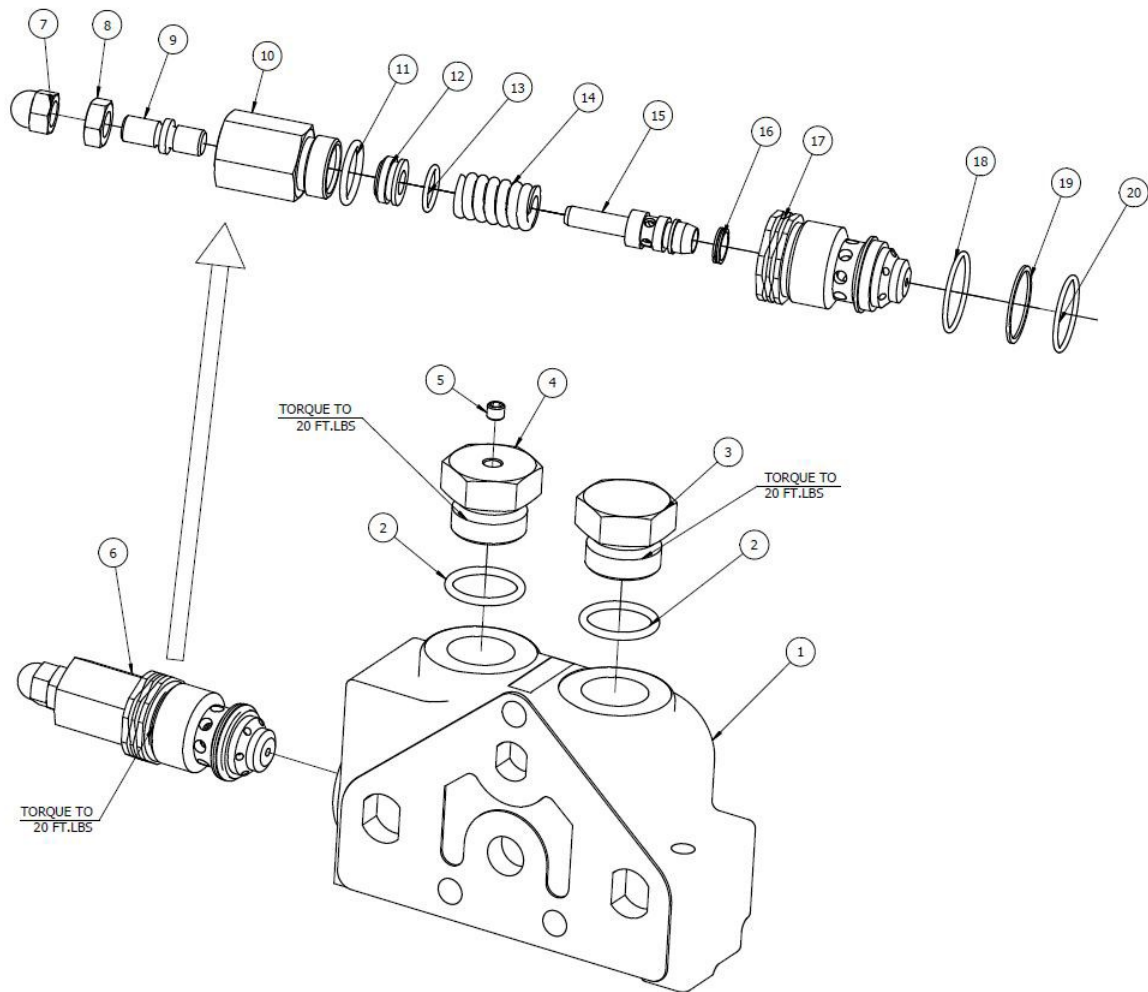
203

3-SECTION PNEUMATIC ACTUATORS BODY VALVE 031-6565

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6565	VALVE, Body, 3-Section, Pneumatic Actuators	-	REF
1	031-6565-177	SECTION, Inlet	-	1
2	031-6565-171	SECTION, ejector	-	1
3	031-6565-173	SECTION, Tailgate	-	1
4	031-6565-172	SECTION, Tailgate	-	1
5	031-3285-003	SECTION, Outlet	-	1
6	031-6558-001	NUT, Hex 3/8 - 16	-	3
7	031-6558-002	SCREW, 3/8 - 16 x 8"	-	3

Note: Seal Kits sold separately.

PT 1000A INLET SECTION 031-6565-177



PT 1000A
INLET SECTION
031-6565-177

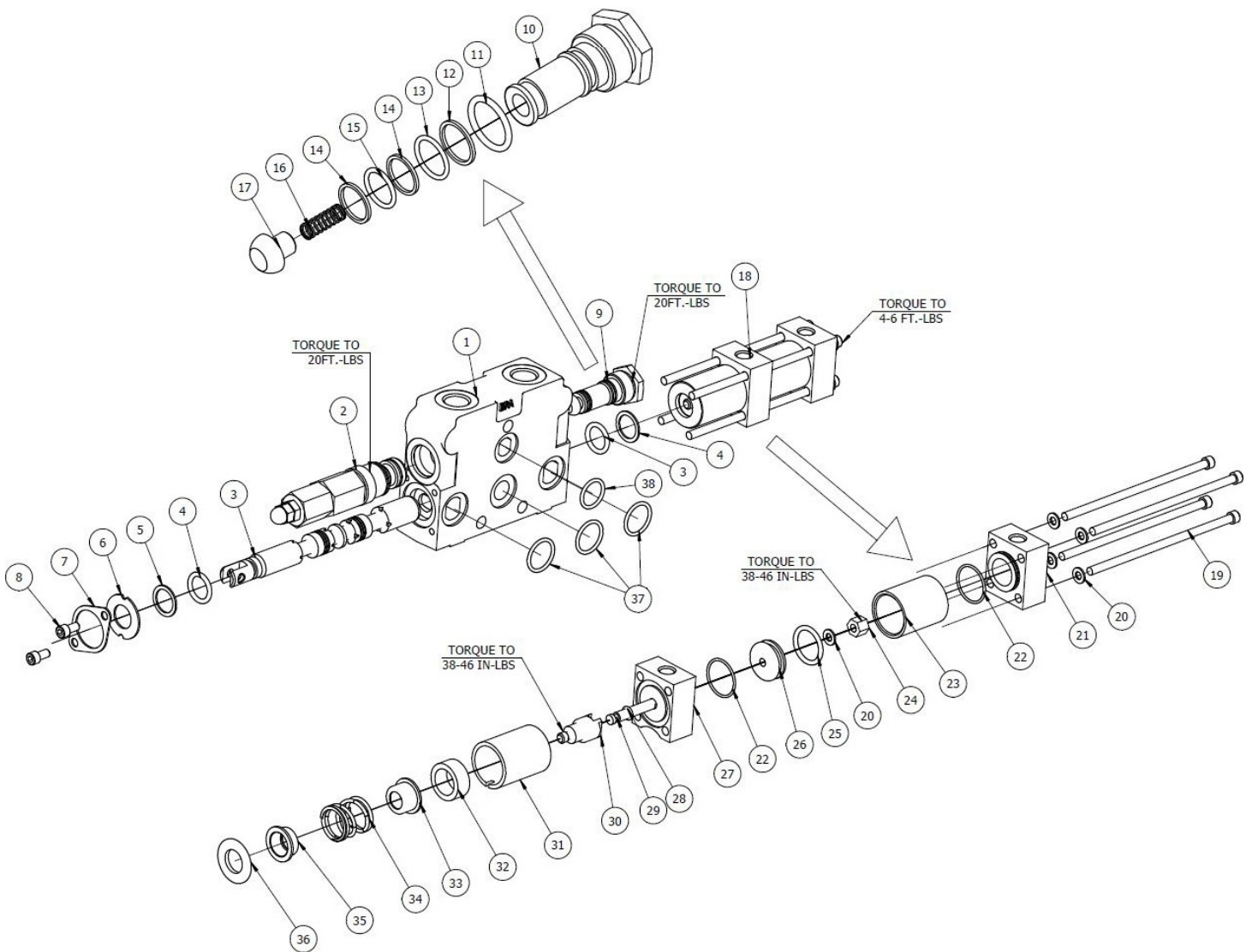
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ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6565-177	INLET SECTION-(consists of items 1 thru 20)	-	REF
1	031-3285-007	HOUSING	-	1
2	031-6558-101	SEAL O-RING -0.924 I.D.	-	2
3	031-6558-102	3/4" O.D. TUBE(SAE 12)	-	1
4	031-6565-101	PLUG, SAE#12 W/GAGE PORT	-	1
5	031-6565-102	PLUG 1/4"NPTF	-	1
6	031-6558-103	RELIEF, 'WHA'(consists of items 7 thru 20)	-	1
7	031-6558-104	NUT, ACORN-0.375-24	-	1
8	031-6558-105	NUT, HEX JAM-0.375-24	-	1
9	031-6558-106	STEM, ADJUSTING	-	1
10	031-6558-107	CAP	-	1
11	031-6558-108	SEAL, O-RING-AS910, 70	-	1
12	031-6558-109	PISTON, RELIEF	-	1
13	031-6558-110	SEAL, O-RING-AS015, 90	-	1
14	031-6558-111	SPRING-0.667 O.D. X 0.148 W.D.	-	1
15	031-6558-112	POPPET, RELIEF	-	1
16	031-6558-113	SEAL, RELIEF POPPET-TFE	-	1
17	031-6558-114	BODY, RELIEF-WH	-	1
18	031-6558-115	SEAL, O-RING-AS023, 90	-	1
19	031-5845-003	RING, BACKUP-AS022	-	1
20	031-6558-116	SEAL, O-RING-AS022, 90	-	1

PT 1000A

EJECTOR WORKING VALVE SECTION

031-6565-171



PT 1000A
EJECTOR WORKING VALVE SECTION
031-6565-171

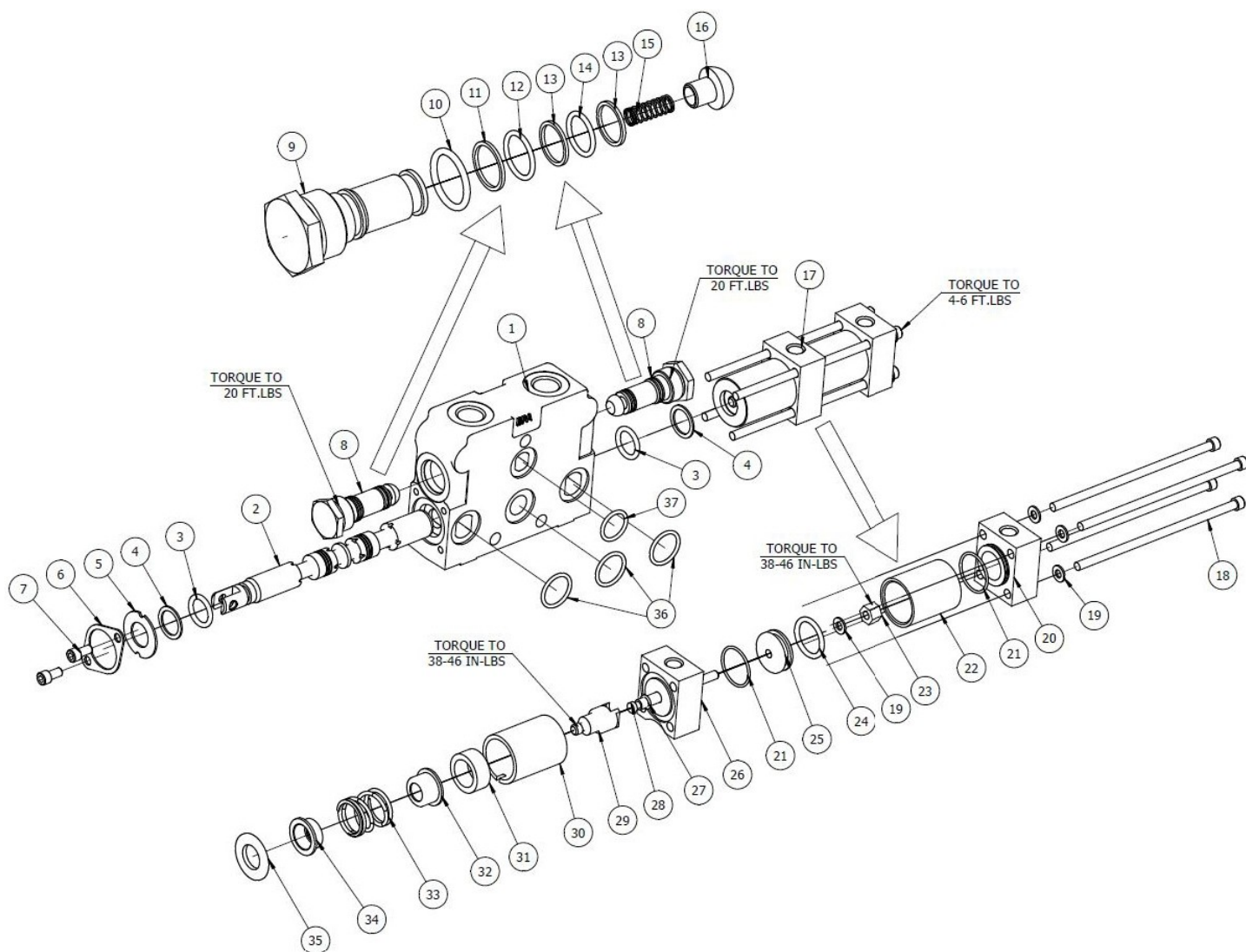
207

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6565-171	VALVE SECTION-(consists of items 1 thru 37)	-	REF
1	031-6495-301	HOUSING	-	1
2	031-6558-140	CARTRIDGE RELIEF ASSEMBLY	-	1
3	031-3285-012	SPOOL, 4-WAY, 0.75 DIAMETER	-	1
4	031-6558-124	SEAL, O-RING-AS210, 75	-	1
5	031-6558-123	WASHER V20 SPOOL SEAL BACK-UP	-	2
6	031-6558-122	PLATE, SEAL RETAINER	-	2
7	031-6573-114	PLATE V20 SPOOL SEAL RETAINER	-	1
8	031-6573-115	SCREW HSHC1/4-20X.50	-	1
9	031-3285-014	PLUG, LOAD CHECK(consists of items 10 thru 17)	-	2
10	031-6558-139	PLUG	-	1
11	031-6558-108	SEAL, O-RING-AS910, 70	-	2
12	031-6558-137	RING, BACKUP-AS016	-	2
13	031-6558-136	SEAL, O-RING-AS016, 90	-	2
14	031-6558-134	RING, BACK-UP CUT	-	2
15	031-6558-110	SEAL, O-RING-AS015, 90	-	4
16	031-6558-133	SPRING-0.27 O.D. X 0.028 W.D.	-	2
17	031-6558-132	POPPET	-	2
18	031-5658-025	V20 AIR ACTUATOR(consists of items 19 thru 36)	-	2
19	031-6566-103	SCREW, HSHC	-	1
20	031-6566-104	WASHER, FLAT	-	4
21	031-6566-105	END CAP	-	5
22	031-5658-036	SEAL, O-RING	-	1
23	031-6566-106	SLEEVE	-	2
24	031-6566-107	NUT, LOCK	-	1
25	031-5658-031	SEAL, O-RING	-	1
26	031-6566-108	PISTON, V20 AIR-ACT	-	1
27	031-6566-117	END CAP	-	1
28	031-6566-110	SEAL, O-RING	-	1
29	031-6566-111	ROD, PISTON	-	1
30	031-6566-112	COLLAR, SPOOL	-	1
31	031-6566-113	TUBE, SPRING	-	1
32	031-6566-114	SPACER	-	1
33	031-6566-115	COLLAR, SPRING LONG	-	1
34	031-3285-017	SPRING	-	1
35	031-5658-028	COLLAR, SPRING SHORT	-	1
36	031-6566-116	RETAINER, SEAL	-	1
37	031-5698-006	SEAL, O-RING-AS119, 75	-	3
38	031-3285-104	SEAL, O-RING-AS117, 90	-	1

PT 1000A

TAILGATE WORKING VALVE SECTION

031-6565-173



PT 1000A
TAILGATE WORKING VALVE SECTION
031-6565-173

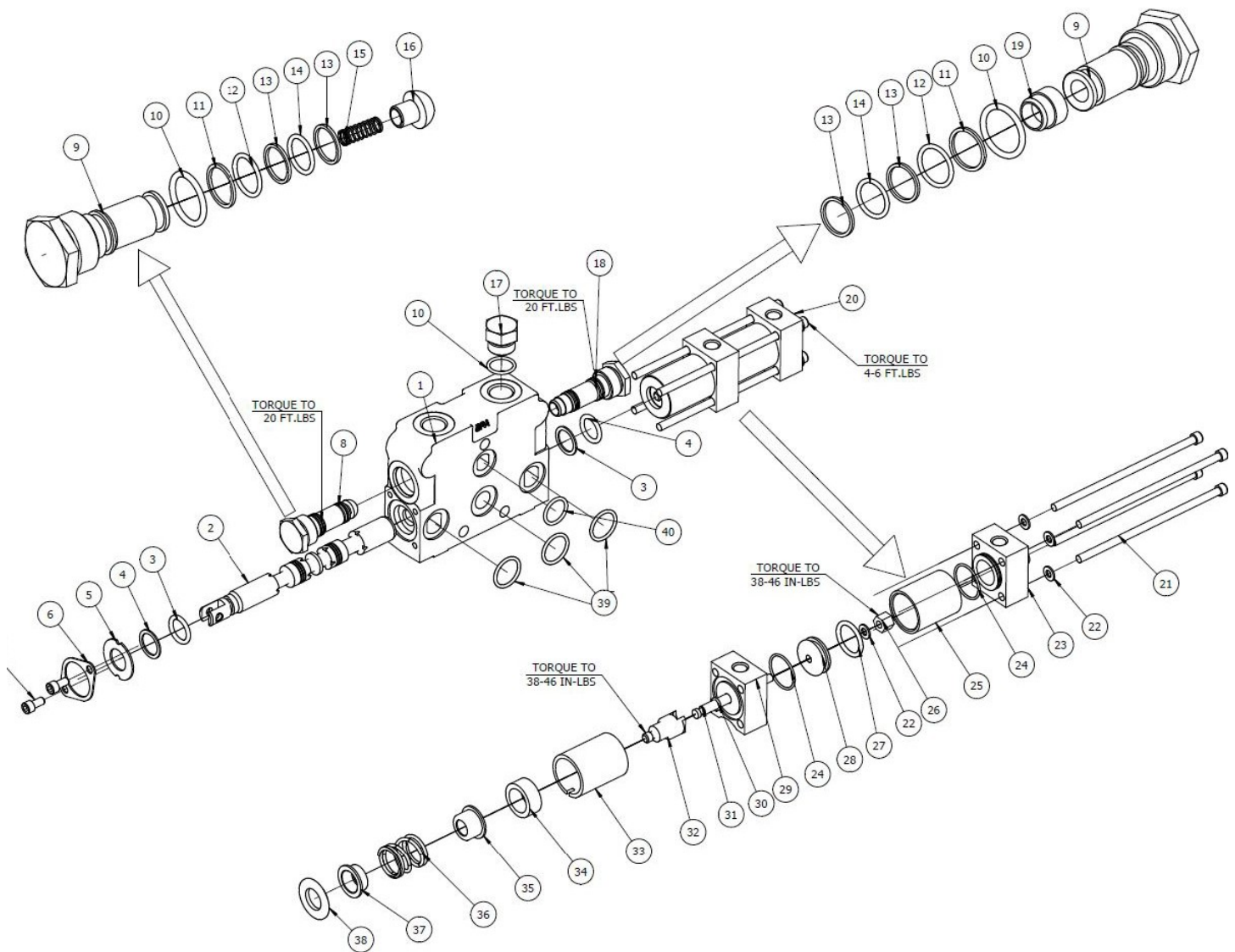
209

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6565-173	VALVE SECTION-(consists of items 1 thru 37)	-	REF
1	031-3285-011	HOUSING	-	1
2	031-3285-012	SPOOL, 4-WAY, 0.75 DIAMETER	-	1
3	031-6558-124	SEAL, O-RING-AS210, 75	-	2
4	031-6558-123	WASHER V20 SPOOL SEAL BACK-UP	-	2
5	031-6558-122	PLATE, SEAL RETAINER	-	1
6	031-6573-114	PLATE V20 SPOOL SEAL RETAINER	-	1
7	031-6573-115	SCREW HSHC1/4-20X.50	-	2
8	031-3285-014	PLUG, LOAD CHECK(consists of items 9 thru 16)	-	1
9	031-6558-139	PLUG	-	2
10	031-6558-108	SEAL, O-RING-AS910, 70	-	2
11	031-6558-137	RING, BACKUP-AS016	-	2
12	031-6558-136	SEAL, O-RING-AS016, 90	-	2
13	031-6558-134	RING, BACK-UP CUT	-	4
14	031-6558-110	SEAL, O-RING-AS015, 90	-	2
15	031-6558-133	SPRING-0.27 O.D. X 0.028 W.D.	-	2
16	031-6558-132	POPPET	-	2
17	031-5658-025	V20 AIR ACTUATOR(consists of items 18 thru 35)	-	1
18	031-6566-103	SCREW, HSHC	-	4
19	031-6566-104	WASHER, FLAT	-	5
20	031-6566-105	END CAP	-	1
21	031-3286-041	SEAL, O-RING	-	2
22	031-6566-106	SLEEVE	-	1
23	031-6566-107	NUT, LOCK	-	1
24	031-5658-031	SEAL, O-RING	-	1
25	031-6566-108	PISTON, V20 AIR-ACT	-	1
26	031-6566-117	END CAP	-	1
27	031-6566-110	SEAL, O-RING	-	1
28	031-6566-111	ROD, PISTON	-	1
29	031-6566-112	COLLAR, SPOOL	-	1
30	031-6566-113	TUBE, SPRING	-	1
31	031-6566-114	SPACER	-	1
32	031-6566-115	COLLAR, SPRING LONG	-	1
33	031-3285-017	SPRING	-	1
34	031-5658-028	COLLAR, SPRING SHORT	-	1
35	031-6566-116	RETAINER, SEAL	-	1
36	031-5698-006	SEAL, O-RING-AS119, 75	-	3
37	031-3285-104	SEAL, O-RING-AS117, 90	-	1

PT 1000A

TAILGATE WORKING VALVE SECTION

031-6565-172

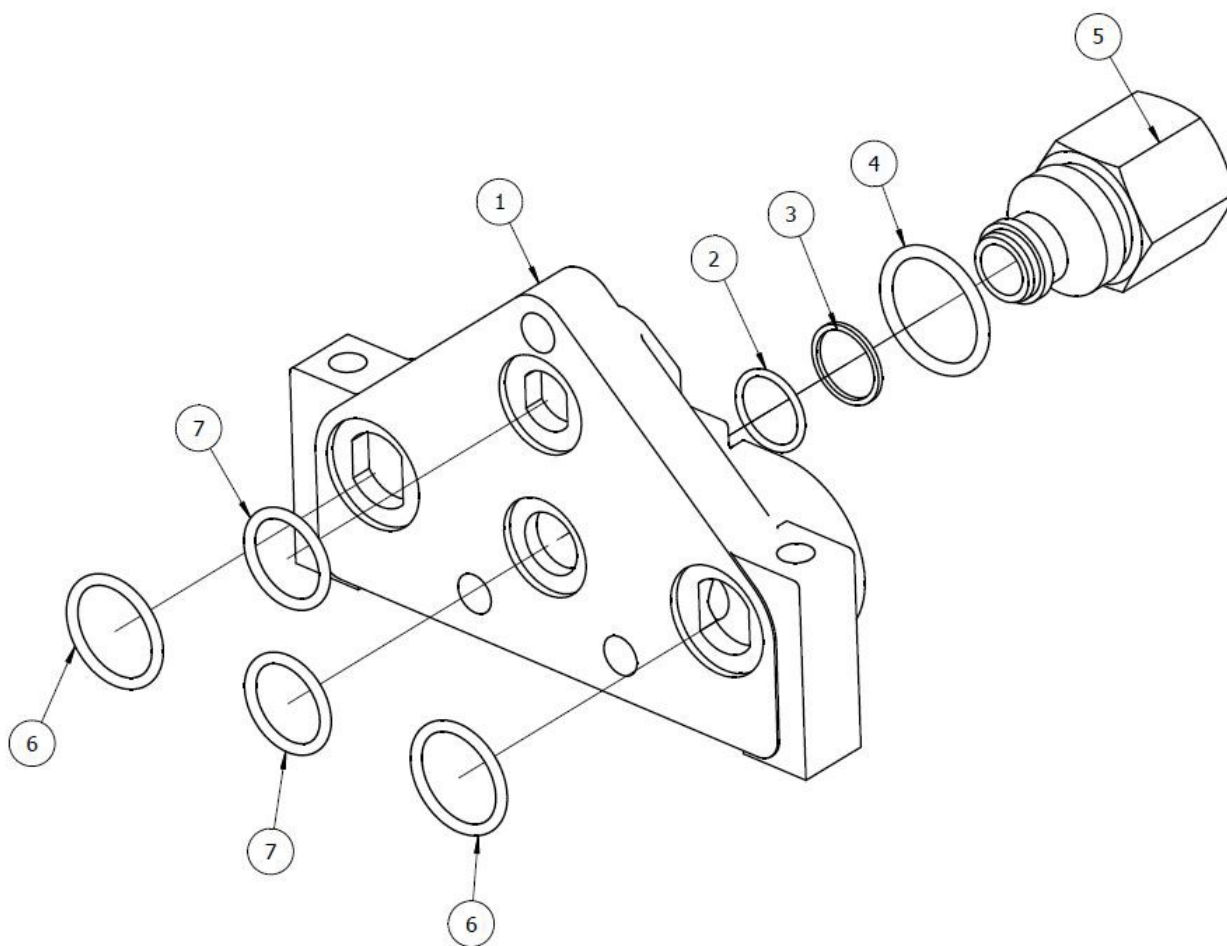


PT 1000A
TAILGATE WORKING VALVE SECTION
031-6565-172

211

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6565-172	VALVE SECTION-(consists of items 1 thru 40)	-	REF
1	031-3285-011	HOUSING	-	1
2	031-6565-103	SPOOL, 4-WAY, 0.75 DIA	-	1
3	031-6558-124	SEAL, O-RING-AS210, 75	-	2
4	031-6558-123	WASHER V20 SPOOL SEAL BACK-UP	-	2
5	031-6558-122	PLATE, SEAL RETAINER	-	1
6	031-6573-114	PLATE V20 SPOOL SEAL RETAINER	-	1
7	031-6573-115	SCREW HSHC1/4-20X.50	-	2
8	031-3285-014	PLUG, LOAD CHECK(consists of items 9 thru 16)	-	1
9	031-6558-139	PLUG	-	2
10	031-6558-108	SEAL, O-RING-AS910, 70	-	3
11	031-6558-137	RING, BACKUP-AS016	-	2
12	031-6558-136	SEAL, O-RING-AS016, 90	-	2
13	031-6558-134	RING, BACK-UP CUT	-	4
14	031-6558-110	SEAL, O-RING-AS015, 90	-	2
15	031-6558-133	SPRING-0.27 O.D. X 0.028 W.D.	-	2
16	031-6558-132	POPPET	-	2
17	031-6565-104	PLUG, SAE-10	-	1
18	031-3285-045	PLUG,3-WAY CONVERSION(consists of items 9 thru 13,19)	-	1
19	031-6558-141	PLUG, CP 3-WAY CONVERSION	-	1
20	031-5658-025	V20 AIR ACTUATOR(consists of items 21 thru 38)	-	1
21	031-6566-103	SCREW, HSHC	-	4
22	031-6566-104	WASHER, FLAT	-	5
23	031-6566-105	END CAP	-	1
24	031-5658-036	SEAL, O-RING	-	2
25	031-6566-106	SLEEVE	-	1
26	031-6566-107	NUT, LOCK	-	1
27	031-5658-031	SEAL, O-RING	-	1
28	031-6566-108	PISTON, V20 AIR-ACT	-	1
29	031-6566-117	END CAP	-	1
30	031-6566-110	SEAL, O-RING	-	1
31	031-6566-111	ROD, PISTON	-	1
32	031-6566-112	COLLAR, SPOOL	-	1
33	031-6566-113	TUBE, SPRING	-	1
34	031-6566-114	SPACER	-	1
35	031-6566-115	COLLAR, SPRING LONG	-	1
36	031-3285-017	SPRING	-	1
37	031-5658-028	COLLAR, SPRING SHORT	-	1
38	031-6566-116	RETAINER, SEAL	-	1
39	031-5698-006	SEAL, O-RING-AS119, 75	-	3
40	031-3285-104	SEAL, O-RING-AS117, 90	-	1

PT 1000A
UNDER BODY CONTROL VALVE OUTLET SECTION
031-3285-003

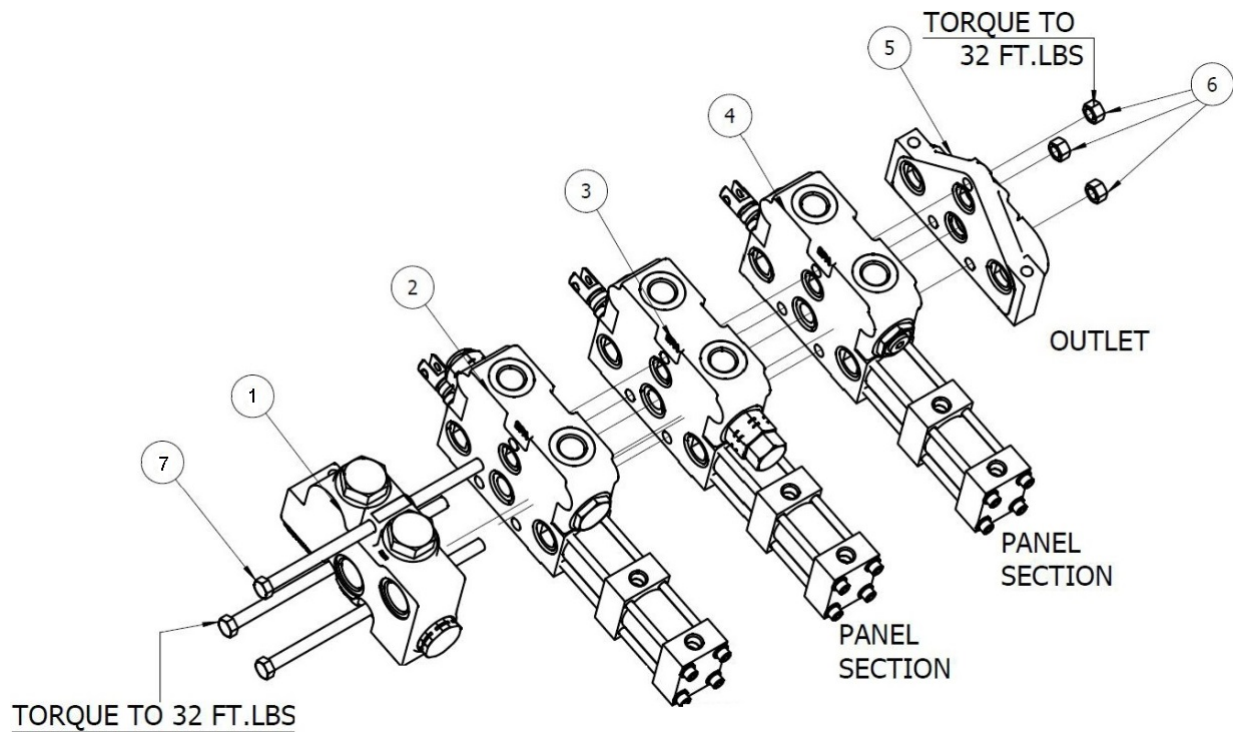


PT 1000A
UNDER BODY CONTROL VALVE OUTLET SECTION
031-3285-003

213

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-3285-003	OUTLET SECTION-(consists of items 1 thru 7)	-	REF
1	031-3285-101	COVER CP	-	1
2	031-3285-060	SEAL, O-RING-AS017, 90	-	1
3	031-3285-102	RING, BACKUP	-	1
4	031-3286-049	SEAL, O-RING-AS914, 90	-	1
5	031-3285-103	SLEEVE, PB	-	1
6	031-5698-006	SEAL, O-RING-AS119, 75	-	2
7	031-3285-104	SEAL, O-RING-AS117, 90	-	2

PT 1000A
OPTIONAL 4-SECTION TAILGATE VALVE
031-6566-004



PT 1000A
OPTIONAL 4-SECTION TAILGATE VALVE
031-6566-004

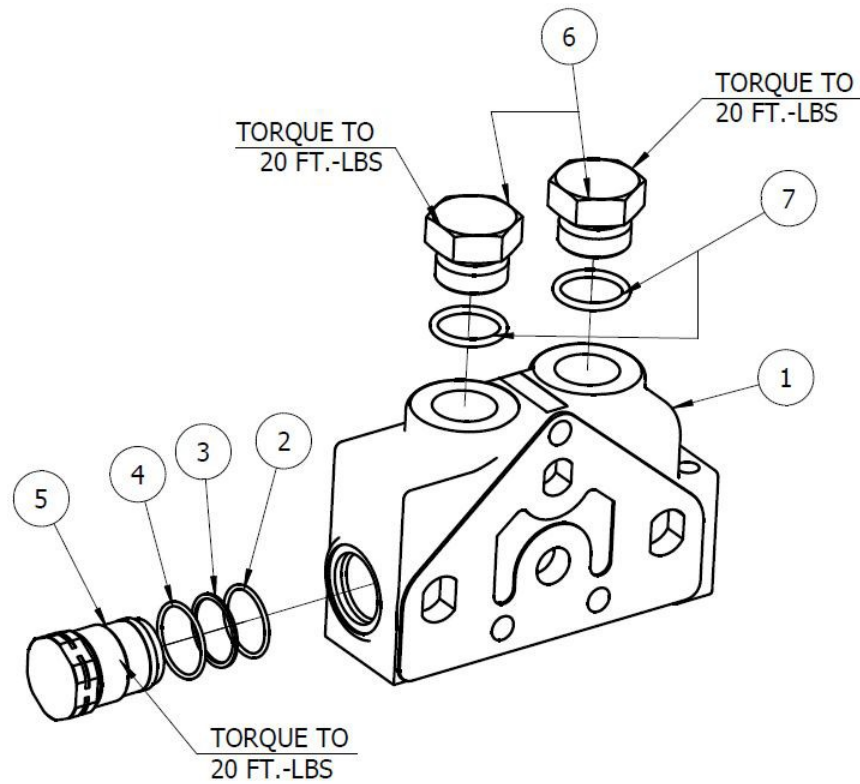
215

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6566-004	VALVE, Optional 4-Section Tailgate	-	REF
1	031-6566-167	SECTION, Inlet	-	1
2	031-6566-213	SECTION, Auxiliary	-	1
3	031-6566-174	SECTION, Auxiliary	-	1
4	031-6566-175	SECTION, Panel	-	1
5	031-6566-176	SECTION, Panel	-	1
6	031-6573-178	SECTION, Outlet	-	1
7	031-6558-001	NUT, Hex 3/8 - 16	-	3
8	031-6558-003	SCREW, 3/8 - 16 x 8"	-	3

PT 1000A

INLET SECTION

031-6566-167



PT 1000A
INLET SECTION
031-6566-167

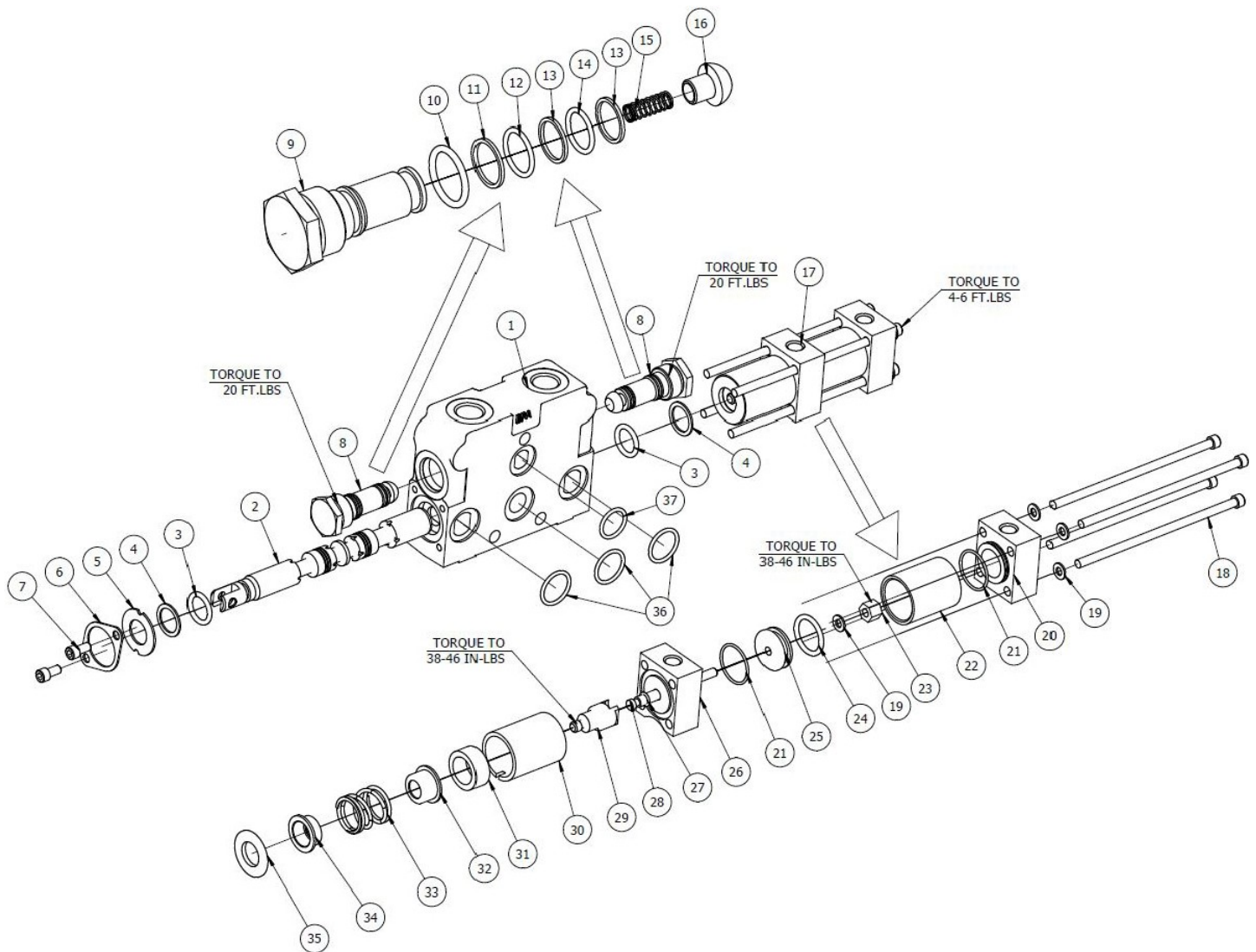
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ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6566-167	VALVE SECTION-(consists of items 1 thru 7)	-	REF
1	031-3285-007	HOUSING	-	1
2	031-6558-116	SEAL, O-RING-AS022, 90	-	1
3	031-3285-057	RING, BACKUP-AS022	-	1
4	031-6558-115	SEAL, O-RING-AS023, 90	-	1
5	031-6573-101	PLUG,V20	-	1
6	031-6558-101	SEAL O-RING -0.924 I.D	-	2
7	031-6558-102	3/4" O.D. TUBE(SAE 12)	-	2

PT 1000A

AUXILIARY WORKING VALVE SECTION

031-6566-213



PT 1000A
AUXILIARY WORKING VALVE SECTION
031-6566-213

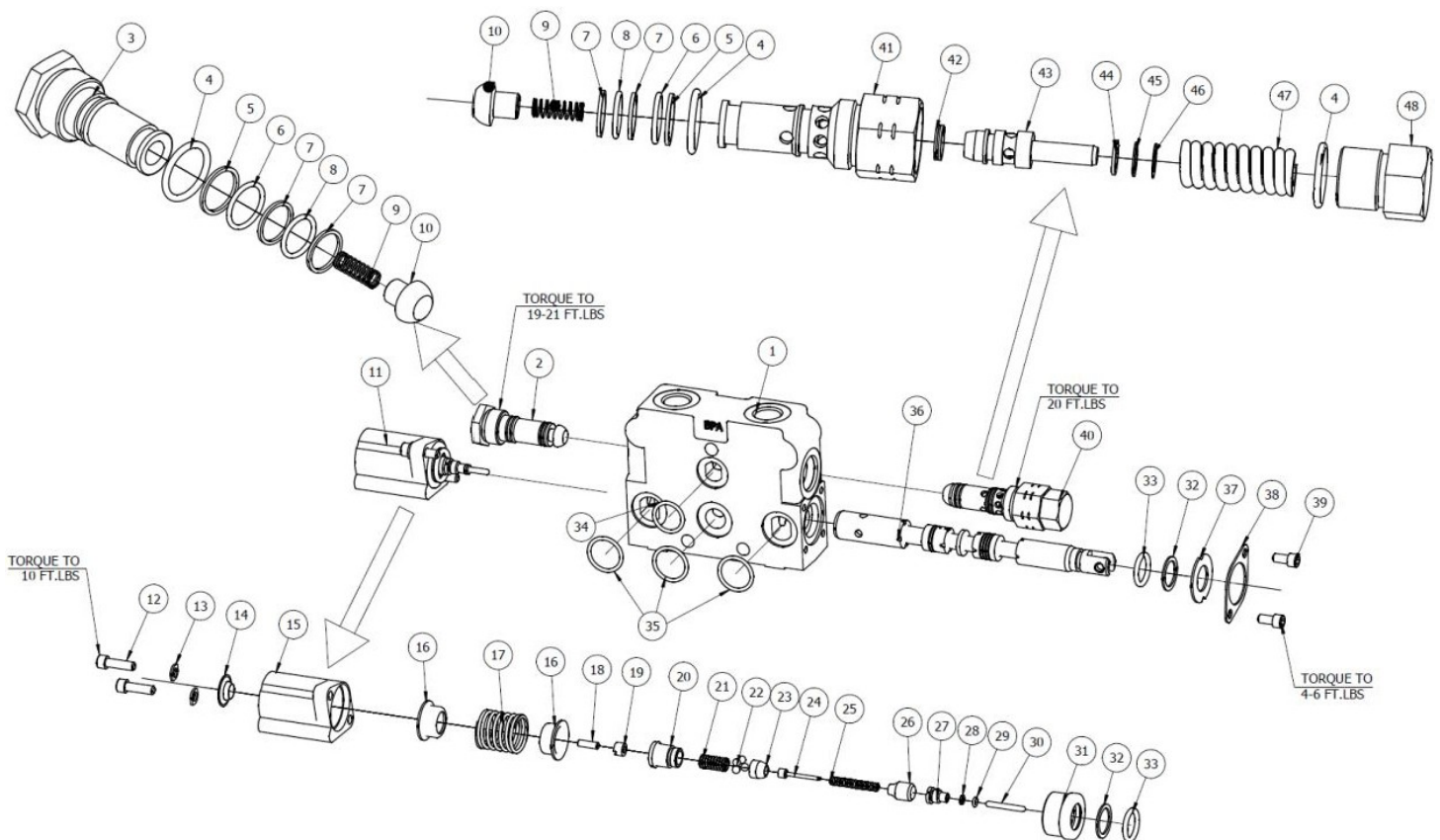
219

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6565-213	VALVE SECTION-(consists of items 1 thru 37)	-	REF
1	031-6573-116	HOUSING	-	1
2	031-3285-012	SPOOL, 4-WAY, 0.75 DIA	-	1
3	031-6558-124	SEAL, O-RING-AS210, 75	-	2
4	031-6558-123	WASHER V20 SPOOL SEAL BACK-UP	-	2
5	031-6558-122	PLATE, SEAL RETAINER	-	1
6	031-6573-114	PLATE V20 SPOOL SEAL RETAINER	-	1
7	031-6573-115	SCREW HSHC1/4-20X.50	-	2
8	031-3285-014	PLUG, LOAD CHECK(consists of items 9 thru 16)	-	1
9	031-6558-139	PLUG	-	2
10	031-6558-108	SEAL, O-RING-AS910, 70	-	2
11	031-6558-137	RING, BACKUP-AS016	-	2
12	031-6558-136	SEAL, O-RING-AS016, 90	-	2
13	031-6558-134	RING, BACK-UP CUT	-	4
14	031-6558-110	SEAL, O-RING-AS015, 90	-	2
15	031-6558-133	SPRING-0.27 O.D. X 0.028 W.D	-	2
16	031-6558-132	POPPET	-	2
17	031-5658-025	V20 AIR ACTUATOR(consists of items 18 thru 35)	-	1
18	031-6566-103	SCREW, HSHC	-	4
19	031-6566-104	WASHER, FLAT	-	5
20	031-6566-105	END CAP	-	1
21	031-5658-036	SEAL, O-RING	-	2
22	031-6566-106	SLEEVE	-	1
23	031-6566-107	NUT, LOCK	-	1
24	031-5658-031	SEAL, O-RING	-	1
25	031-6566-108	PISTON, V20 AIR-ACT	-	1
26	031-6566-117	END CAP	-	1
27	031-6566-110	SEAL, O-RING	-	1
28	031-6566-111	ROD, PISTON	-	1
29	031-6566-112	COLLAR, SPOOL	-	1
30	031-6566-113	TUBE, SPRING	-	1
31	031-6566-114	SPACER	-	1
32	031-6566-115	COLLAR, SPRING LONG	-	1
33	031-3285-017	SPRING	-	1
34	031-5658-028	COLLAR, SPRING SHORT	-	1
35	031-6566-116	RETAINER, SEAL	-	1
36	031-5698-006	SEAL, O-RING-AS119, 75	-	3
37	031-3285-104	SEAL, O-RING-AS117, 90	-	1

PT 1000A

AUXILIARY WORKING VALVE SECTION

031-6566-174



PT 1000A
AUXILIARY WORKING VALVE SECTION
031-6566-174

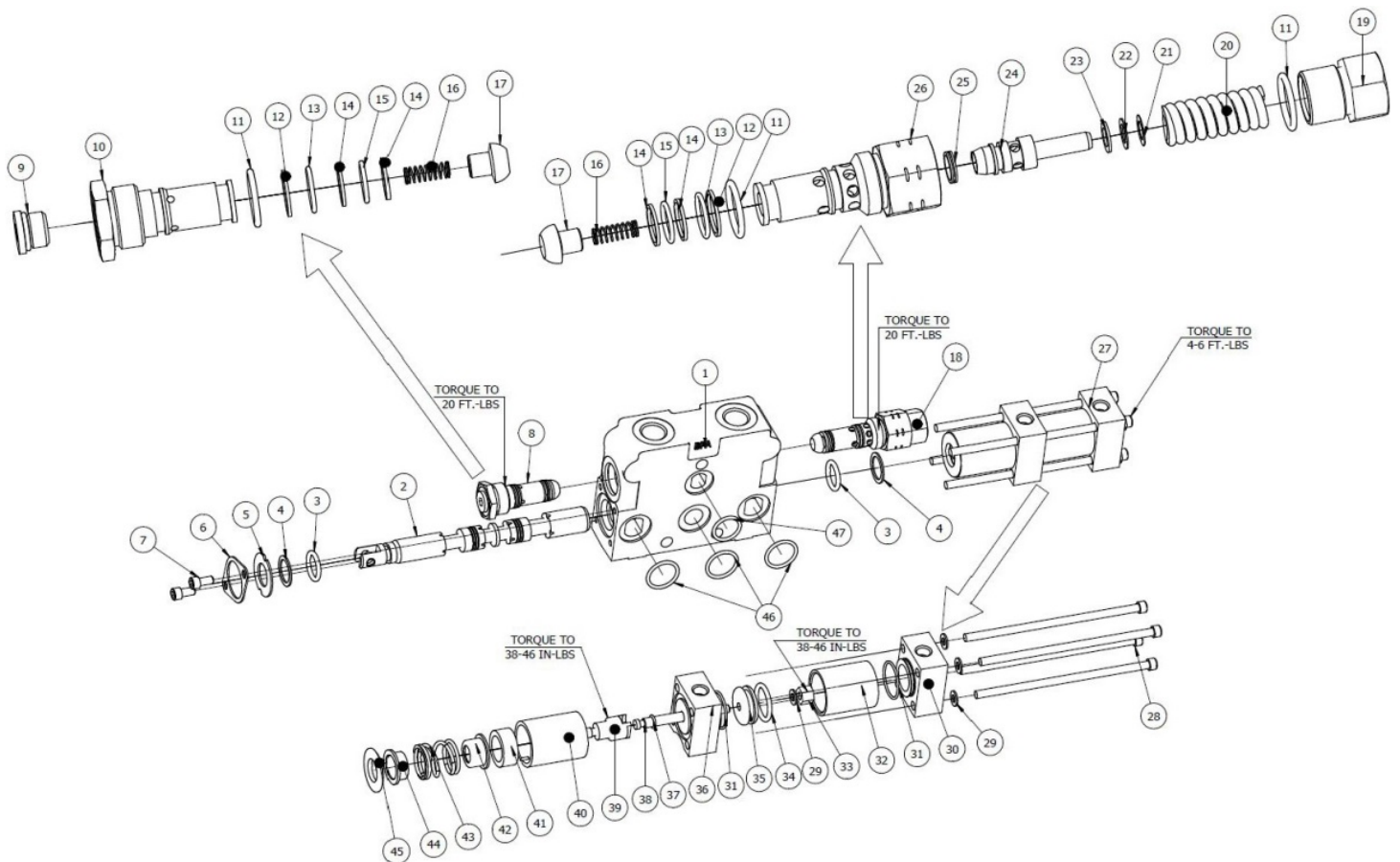
221

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6566-174	VALVE SECTION-(consists of items 1 thru 46)	-	REF
1	031-6573-105	HOUSING	-	1
2	031-3285-012	SPOOL, 4-WAY, 0.75 DIA.	-	1
3	031-6566-101	SEAL, O-RING-AS210, 75	-	2
4	031-6558-123	WASHER V20 SPOOL SEAL BACK-UP	-	2
5	031-6558-122	PLATE, SEAL RETAINER	-	1
6	031-6573-114	PLATE V20 SPOOL SEAL RETAINER	-	1
7	031-6573-115	SCREW HSHC1/4-20X.50	-	2
8	031-6573-106	RELIEF RC(consists of items 9 thru 23)	-	1
9	031-6573-107	CAP, RELIEF	-	1
10	031-6558-108	SEAL, O-RING-AS910, 70	-	3
11	031-6566-102	SPRING, RELIEF 0.667 O.D. X 0.125 W.D.	-	1
12	031-6573-138	WASHER, 0.50×0.31×0.01	-	1
13	031-6573-110	WASHER, 0.50×0.31×0.02	-	1
14	031-6573-111	WASHER, 0.50×0.31×0.04	-	1
15	031-6558-112	POPPET, RELIEF	-	1
16	031-6558-113	SEAL, RELIEF POPPET-TFE	-	1
17	031-6573-112	BODY, V20 RC RELIEF	-	1
18	031-6558-136	SEAL, O-RING-AS016	-	2
19	031-6558-137	RING, BACKUP-AS016	-	2
20	031-6558-134	RING, BACK-UP CUT	-	4
21	031-6558-110	SEAL, O-RING-AS015	-	2
22	031-6558-133	SPRING-0.27 O.D. X 0.028 W.D.	-	2
23	031-6558-132	POPPET	-	2
24	031-3285-014	PLUG, LOAD CHECK(consists of items 18 thru 23,10,25)	-	1
25	031-6558-139	PLUG	-	1
26	031-5658-025	V20 AIR ACTUATOR(consists of items 27 thru 44)	-	1
27	031-6566-103	SCREW, HSHC	-	4
28	031-6566-104	WASHER, FLAT	-	5
29	031-6566-105	END CAP	-	1
30	031-5658-036	SEAL, O-RING	-	2
31	031-6566-106	SLEEVE	-	1
32	031-6566-107	NUT, LOCK	-	1
33	031-5658-031	SEAL, O-RING	-	1
34	031-6566-108	PISTON, V20 AIR-ACT	-	1
35	031-6566-109	END CAP	-	1
36	031-6566-110	SEAL, O-RING	-	1
37	031-6566-111	ROD, PISTON	-	1
38	031-6566-112	COLLAR, SPOOL	-	1
39	031-6566-113	TUBE, SPRING	-	1
40	031-6566-114	SPACER	-	1
41	031-6566-115	COLLAR, SPRING LONG	-	1
42	031-3285-017	SPRING	-	1
43	031-5658-028	COLLAR, SPRING SHORT	-	1
44	031-6566-116	RETAINER, SEAL	-	1
45	031-5698-006	SEAL, O-RING-AS119, 75	-	3
46	031-3285-104	SEAL, O-RING-AS117, 90	-	1

PT 1000A

PANEL WORKING VALVE SECTION

031-6566-175



PT 1000A
PANEL WORKING VALVE SECTION
031-6566-175

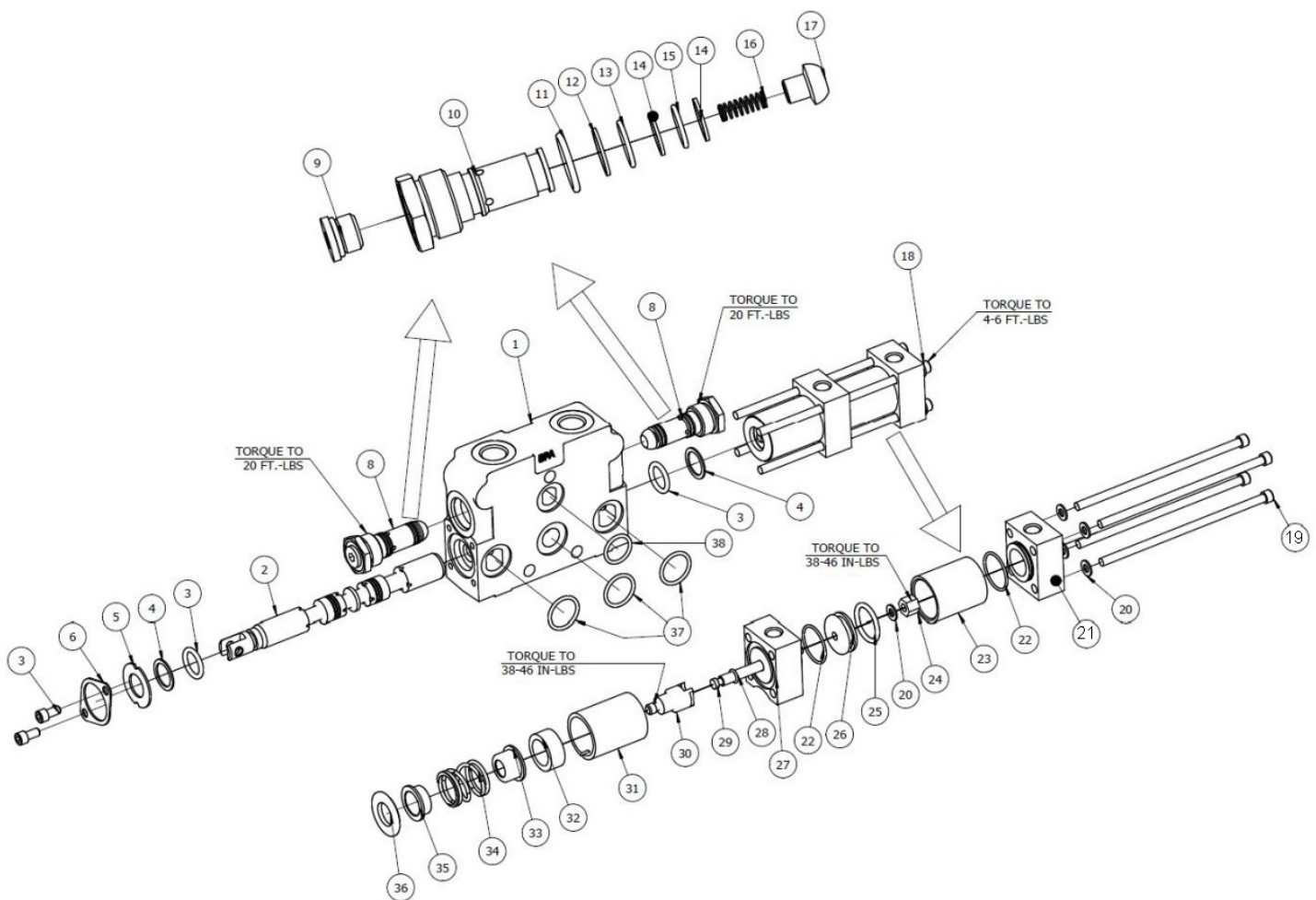
223

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6566-175	VALVE SECTION-(consists of items 1 thru 47)	-	REF
1	031-6573-105	HOUSING	-	1
2	031-3285-012	SPOOL, 4-WAY, 0.75 DIAMETER.	-	1
3	031-6558-124	SEAL, O-RING-AS210, 75	-	2
4	031-6558-123	WASHER V20 SPOOL SEAL BACK-UP	-	2
5	031-6558-122	PLATE, SEAL RETAINER	-	1
6	031-6573-114	PLATE V20 SPOOL SEAL RETAINER	-	1
7	031-6573-115	SCREW HSHC1/4-20X.50	-	2
8	031-6566-168	PLUG, ASSEMBLY (consists of items 9 thru 17)	-	1
9	031-6566-118	PLUG	-	1
10	031-6566-236	BODY, V20 PLUG	-	1
11	031-6558-108	SEAL, O-RING-AS910, 70	-	3
12	031-6558-137	RING, BACKUP-AS016	-	2
13	031-6558-136	SEAL, O-RING-AS016, 90	-	2
14	031-6558-134	RING, BACK-UP CUT	-	4
15	031-6558-110	SEAL, O-RING-AS015, 90	-	2
16	031-6558-133	SPRING-0.27 O.D. X 0.028 W.D.	-	2
17	031-6558-132	POPPET	-	2
18	031-6573-136	RELIEF, RC ASSEMBLY(consists of items 11 thru 17, 19 thru 26)	-	1
19	031-6573-140	CAP RELIEF	-	1
20	031-6573-139	SPRING-0.68 O.D. X 0.15 W.D.	-	1
21	031-6573-138	WASHER, 0.50×0.31×0.01	-	1
22	031-6573-110	WASHER, 0.50×0.31×0.02	-	1
23	031-6573-111	WASHER, 0.50×0.31×0.04	-	1
24	031-6558-112	POPPET, RELIEF	-	1
25	031-6558-113	SEAL, RELIEF POPPET-TFE	-	1
26	031-6573-137	BODY, V20 RC RELIEF	-	1
27	031-5658-025	V20 AIR ACTUATOR(consists of items 28 thru 45)	-	1
28	031-6566-103	SCREW, HSHC	-	4
29	031-6566-104	WASHER, FLAT	-	5
30	031-6566-105	END CAP	-	1
31	031-3286-041	SEAL, O-RING	-	2
32	031-6566-106	SLEEVE	-	1
33	031-6566-107	NUT, LOCK	-	1
34	031-5658-031	SEAL, O-RING	-	1
35	031-6566-108	PISTON, V20 AIR-ACT	-	1
36	031-6566-117	END CAP	-	1
37	031-6566-110	SEAL, O-RING	-	1
38	031-6566-111	ROD, PISTON	-	1
39	031-6566-112	COLLAR, SPOOL	-	1
40	031-6566-113	TUBE, SPRING	-	1
41	031-6566-114	SPACER	-	1
42	031-6566-115	COLLAR, SPRING LONG	-	1
43	031-3285-017	SPRING	-	1
44	031-5658-028	COLLAR, SPRING SHORT	-	1
45	031-6566-116	RETAINER, SEAL	-	1
46	031-5698-006	SEAL, O-RING-AS119, 75	-	3
47	031-3285-104	SEAL, O-RING-AS117	-	1

PT 1000A

PANEL WORKING VALVE SECTION

031-6566-176

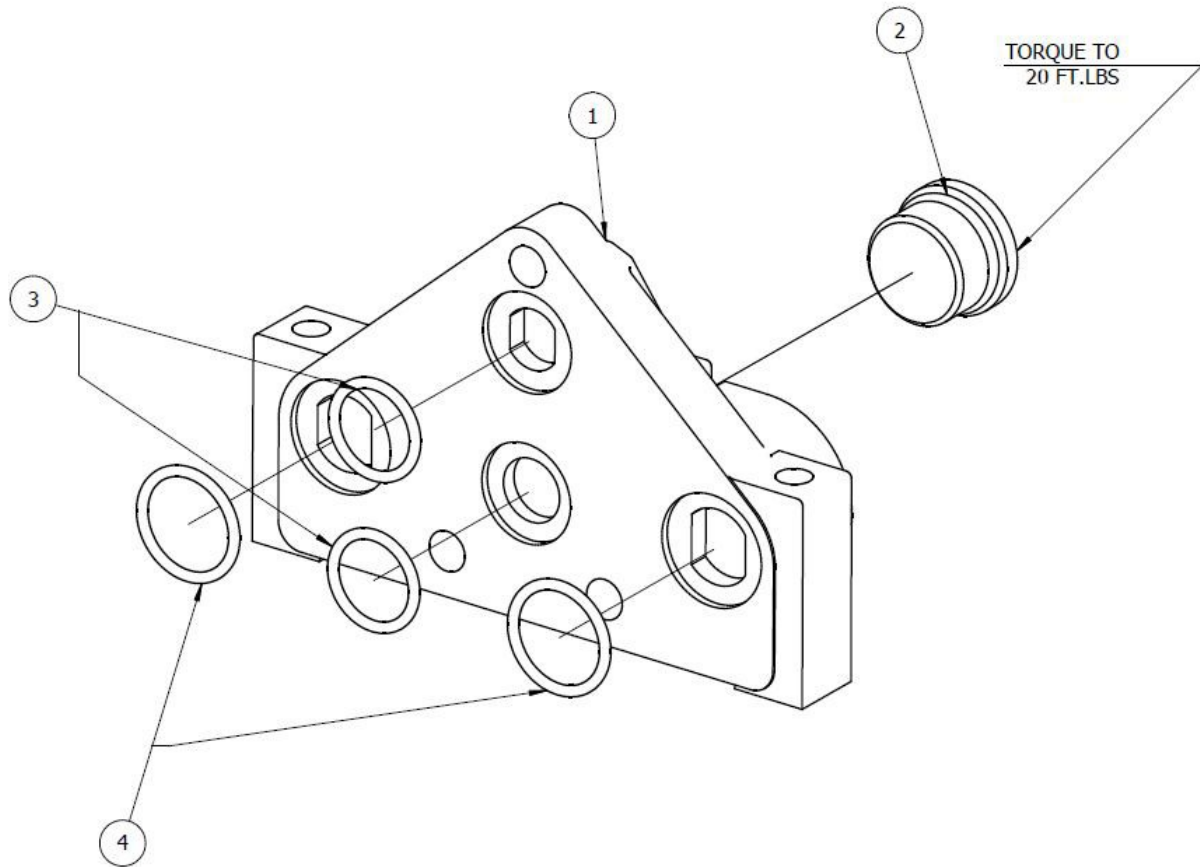


PT 1000A
PANEL WORKING VALVE SECTION
031-6566-176

225

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6566-176	VALVE SECTION-(consists of items 1 thru 38)	-	REF
1	031-6573-105	HOUSING	-	1
2	031-3285-012	SPOOL, 4-WAY, 0.75 DIA.	-	1
3	031-6558-124	SEAL, O-RING-AS210, 75	-	2
4	031-6558-123	WASHER V20 SPOOL SEAL BACK-UP	-	2
5	031-6558-122	PLATE, SEAL RETAINER	-	1
6	031-6573-114	PLATE V20 SPOOL SEAL RETAINER	-	1
7	031-6573-115	SCREW HSHC1/4-20X.50	-	2
8	NSS	PLUG, ASSY(consists of items 9 thru 17)	-	1
9	031-6566-118	PLUG	-	1
10	NSS	BODY, V20 PLUG	-	1
11	031-6558-108	SEAL, O-RING-AS910, 70	-	3
12	031-6558-137	RING, BACKUP-AS016	-	2
13	031-6558-136	SEAL, O-RING-AS016, 90	-	2
14	031-6558-134	RING, BACK-UP CUT	-	4
15	031-6558-110	SEAL, O-RING-AS015, 90	-	2
16	031-6558-133	SPRING-0.27 O.D. X 0.028 W.D.	-	2
17	031-6558-132	POPPET	-	2
18	031-6558-025	V20 AIR ACTUATOR(consists of items 19 thru 36)	-	1
19	031-6566-103	SCREW, HSHC	-	4
20	031-6566-104	WASHER, FLAT	-	5
21	031-6566-105	END CAP	-	1
22	031-3286-041	SEAL, O-RING	-	2
23	031-6566-106	SLEEVE	-	1
24	031-6566-107	NUT, LOCK	-	1
25	031-6558-031	SEAL, O-RING	-	1
26	031-6566-108	PISTON, V20 AIR-ACT	-	1
27	031-6566-117	END CAP	-	1
28	031-6566-110	SEAL, O-RING	-	1
29	031-6566-111	ROD, PISTON	-	1
30	031-6566-112	COLLAR, SPOOL	-	1
31	031-6566-113	TUBE, SPRING	-	1
32	031-6566-114	SPACER	-	1
33	031-6566-115	COLLAR, SPRING LONG	-	1
34	031-3285-017	SPRING	-	1
35	031-6558-028	COLLAR, SPRING SHORT	-	1
36	031-6566-116	RETAINER, SEAL	-	1
37	031-6598-006	SEAL, O-RING-AS119, 75	-	3
38	031-3285-104	SEAL, O-RING-AS117, 90	-	1

PT 1000A
OUTLET SECTION
031-6573-178



PT 1000A
OUTLET SECTION
031-6573-178

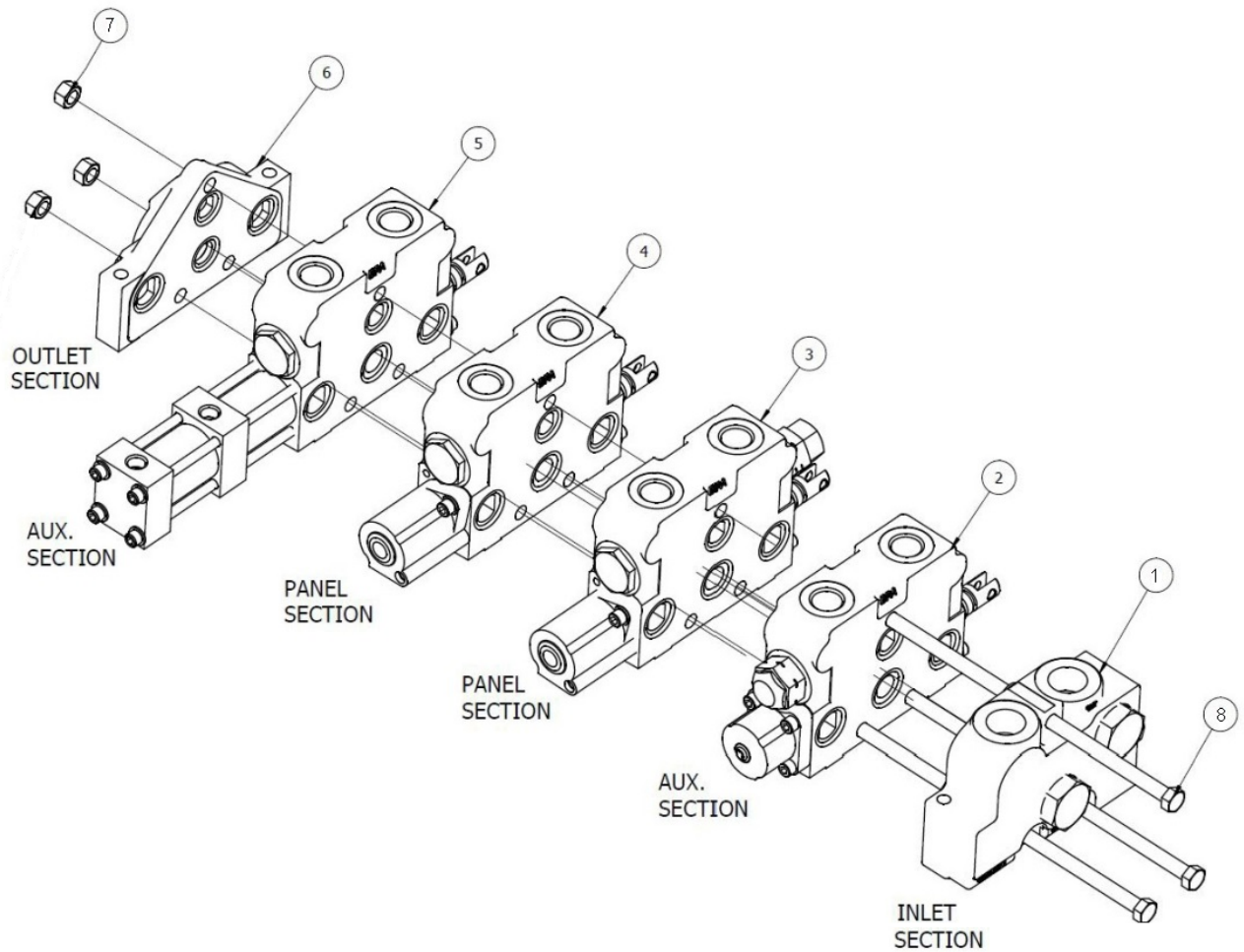
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ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6573-178	OUTLET SECTION-(consists of items 1 thru 4)	-	REF
1	031-6573-102	COVER CP	-	1
2	031-6573-103	PLUG	-	1
3	031-3285-104	SEAL, O-RING-AS117, 90	-	2
4	031-5698-006	SEAL, O-RING-AS119, 75	-	2

PT 1000A

AUXILIARY CONTROL VALVE

031-6588



PT 1000A
AUXILIARY CONTROL VALVE
031-6588

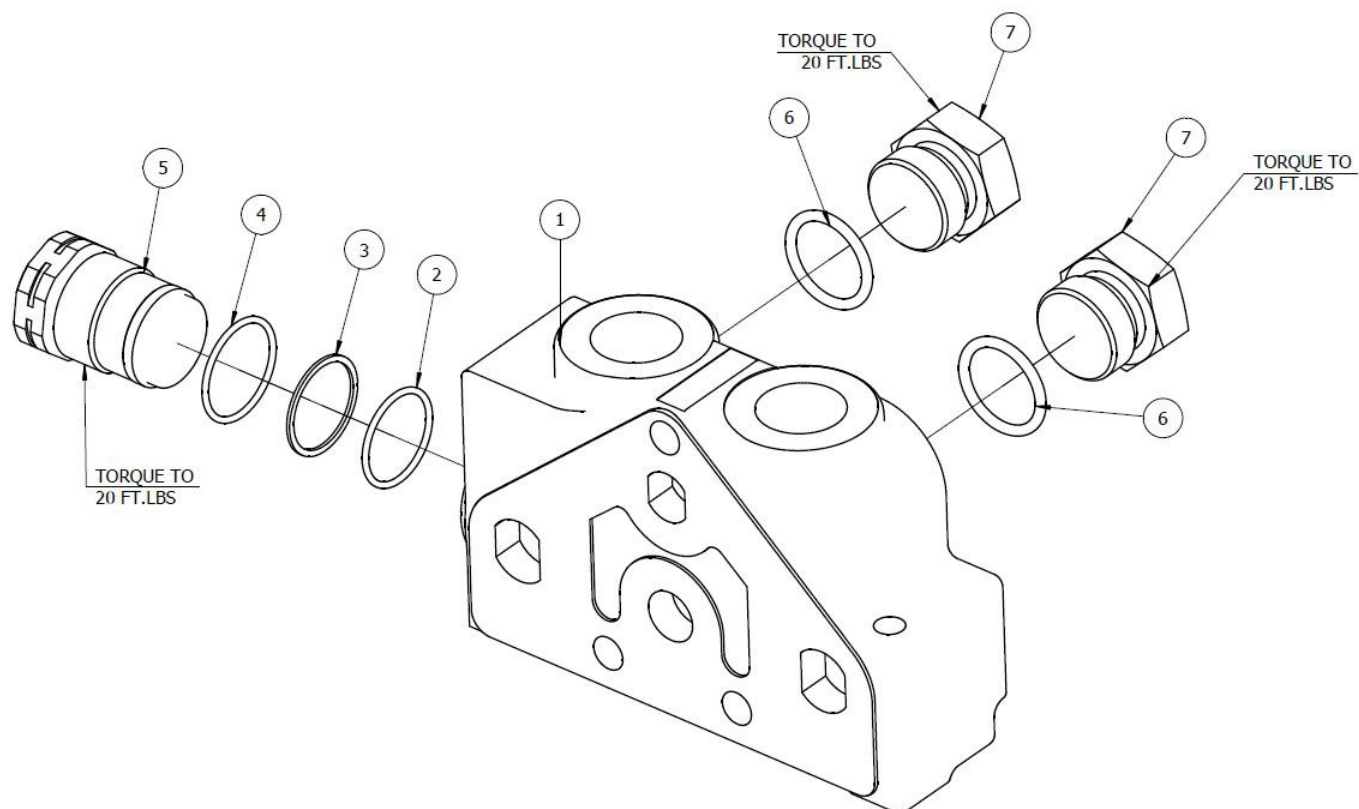
229

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6588	VALVE, Control, Auxiliary	-	REF
1	031-6588-188	SECTION, Inlet	-	1
2	031-6588-185	SECTION, Auxiliary	-	1
3	031-6588-186	SECTION, Panel	-	1
4	031-6588-187	SECTION, Panel	-	1
5	031-6588-265	SECTION, Auxiliary	-	1
6	031-6573-178	SECTION, Outlet	-	1
7	031-6558-001	NUT, Hex 3/8 - 16	-	3
8	031-6588-003	SCREW, 3/8 - 16 x 8"	-	3

PT 1000A

INLET SECTION

031-6588-188



PT 1000A
INLET SECTION
031-6588-188

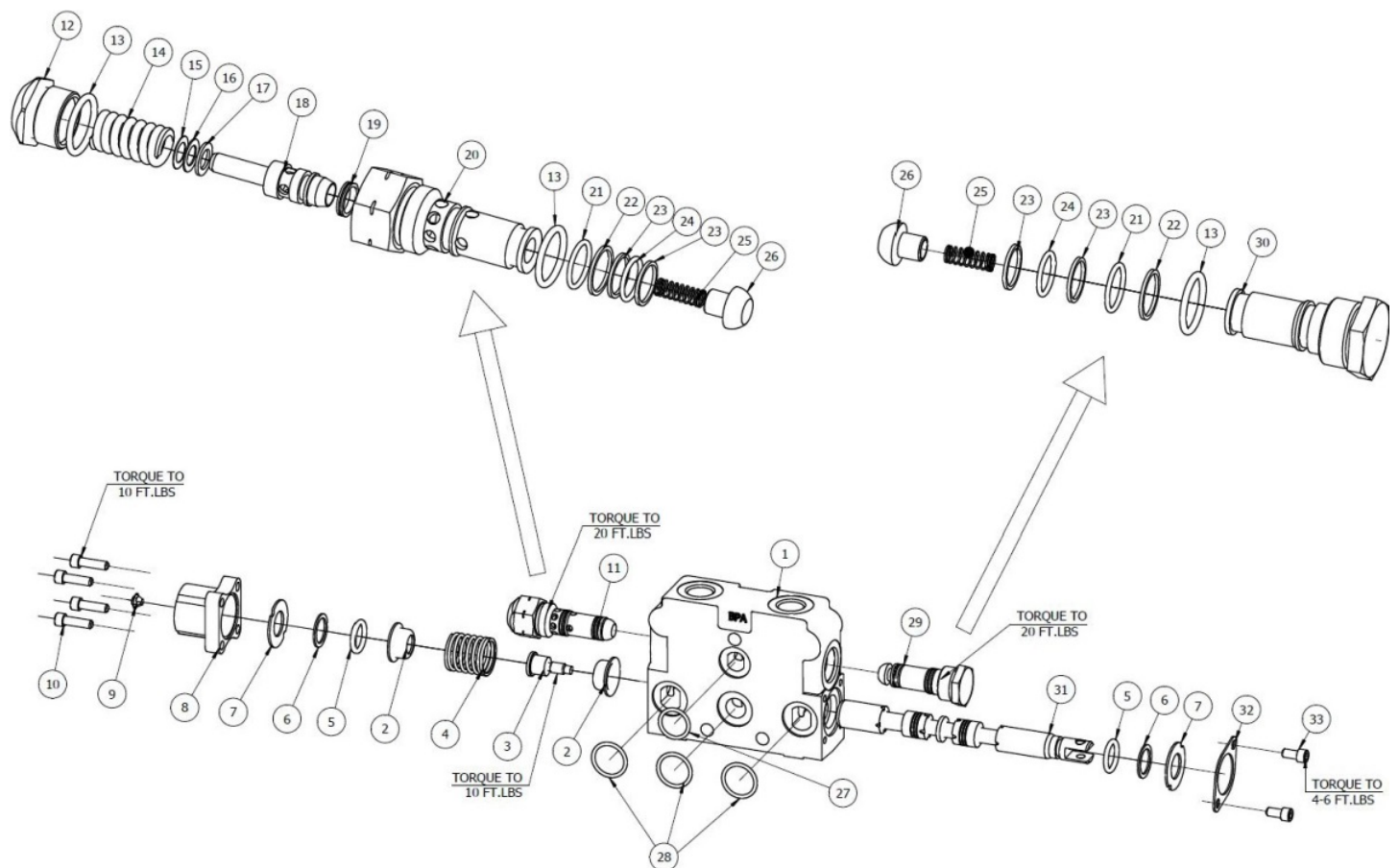
231

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6588-188	VALVE SECTION-(consists of items 1 thru 7)	-	REF
1	031-3285-007	HOUSING	-	1
2	031-6558-116	SEAL, O-RING-AS022, 90	-	1
3	031-3285-057	RING, BACKUP-AS022	-	1
4	031-6558-115	SEAL, O-RING-AS023, 90	-	1
5	031-6573-101	PLUG,V20	-	1
6	031-6558-101	SEAL O-RING -0.924 I.D	-	2
7	031-6558-102	3/4" O.D. TUBE(SAE 12)	-	2

PT 1000A

AUXILIARY WORKING VALVE SECTION

031-6588-185



PT 1000A
AUXILIARY WORKING VALVE SECTION
031-6588-185

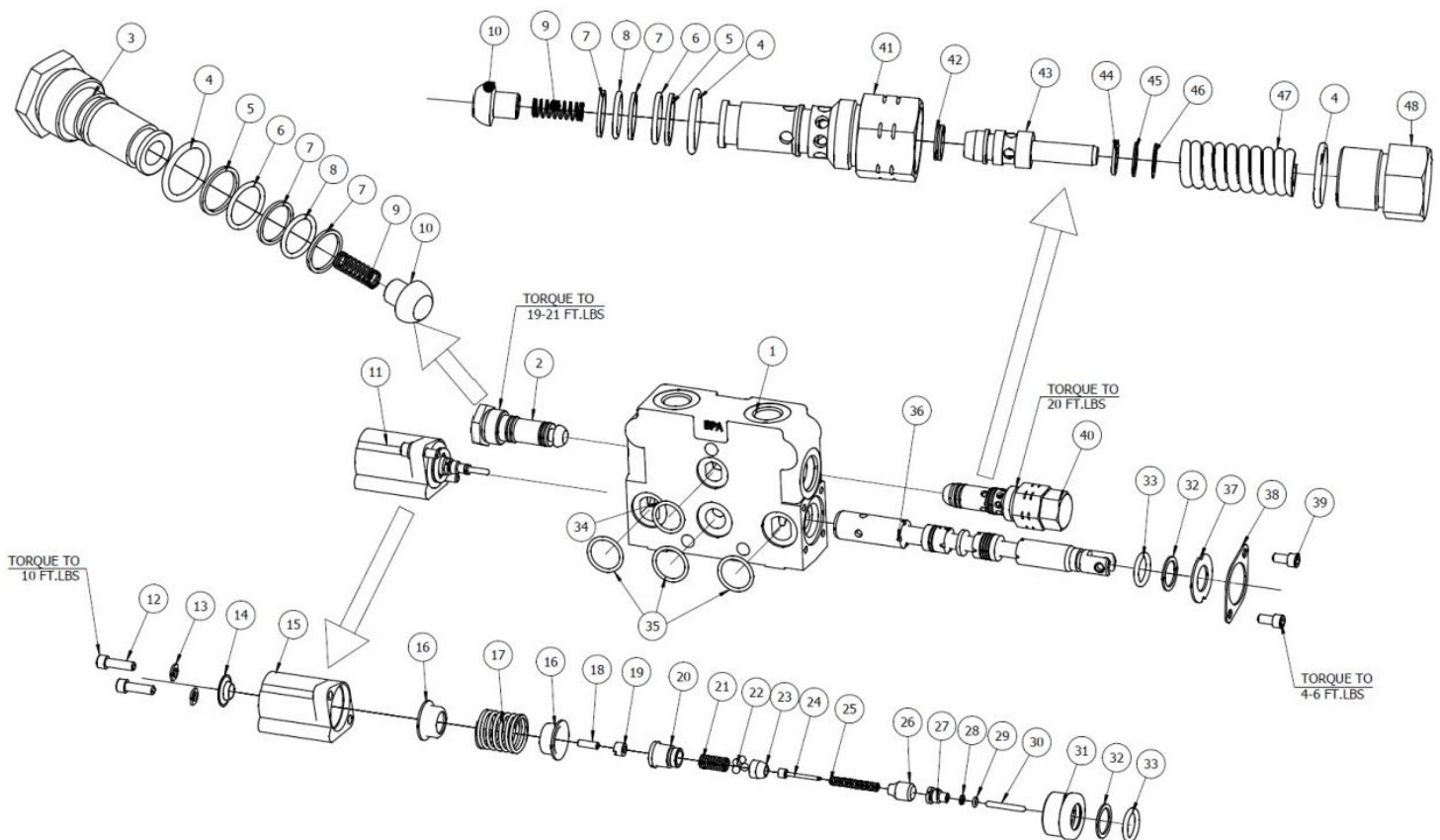
233

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6588-185	VALVE SECTION, Auxiliary-(consists of items 1 thru 33)	-	RE88
1	031-6573-105	HOUSING	-	1
2	031-6558-120	COLLAR, V20, SPRING	-	2
3	207-5535	COLLAR, V20, SP00L	-	1
4	031-6558-121	SPRING-1.135 O.D. X 0.095 W.D	-	1
5	031-6558-124	SEAL, O-RING-AS210, 75	-	2
6	031-6558-123	WASHER V20 SPOOL SEAL BACK-UP	-	2
7	031-6558-122	PLATE, SEAL RETAINER	-	2
8	031-6558-119	BONNET	-	1
9	031-6558-117	UMBRELLA CHECK VALVE	-	1
10	031-6558-118	SCREW HSHC1/4-20X.875	-	4
11	031-6573-106	RELIEF RC(consists of items 12 thru 26)	-	1
12	031-6573-107	CAP, RELIEF	-	1
13	031-6558-108	SEAL, O-RING-AS910, 70	-	3
14	031-6573-108	SPRING, RELIEF 0.667 O.D. X 0.125 W.D.	-	1
15	031-6573-109	WASHER, 0.50×0.31×0.01	-	1
16	031-6573-110	WASHER, 0.50×0.31×0.02	-	1
17	031-6573-111	WASHER, 0.50×0.31×0.04	-	1
18	031-6558-112	POPPET, RELIEF	-	1
19	031-6558-113	SEAL, RELIEF POPPET-TFE	-	1
20	031-6573-112	BODY, V20 RC RELIEF	-	1
21	031-6558-136	SEAL, O-RING-AS016, 90	-	2
22	031-6558-137	RING, BACKUP-AS016	-	2
23	031-6558-134	RING, BACK-UP CUT	-	4
24	031-6558-110	SEAL, O-RING-AS015, 90	-	2
25	031-6558-133	SPRING-0.27 O.D. X 0.028 W.D.	-	2
26	031-6558-132	POPPET	-	2
27	031-6573-113	SEAL, O-RING-AS117, 90	-	1
28	031-5698-006	SEAL, O-RING-AS119, 75	-	3
29	031-3285-014	PLUG, LOAD CHECK(consists of items 21 thru 26,13,30)	-	1
30	031-6558-139	PLUG	-	1
31	031-3285-012	SPOOL, 4-WAY, 0.75 DIAMETER	-	1
32	031-6573-114	PLATE V20 SPOOL SEAL RETAINER	-	1
33	031-6573-115	SCREW HSHC1/4-20X.50	-	2

PT 1000A

PANEL WORKING VALVE SECTION

031-6588-186



PT 1000A
PANEL WORKING VALVE SECTION
031-6588-186

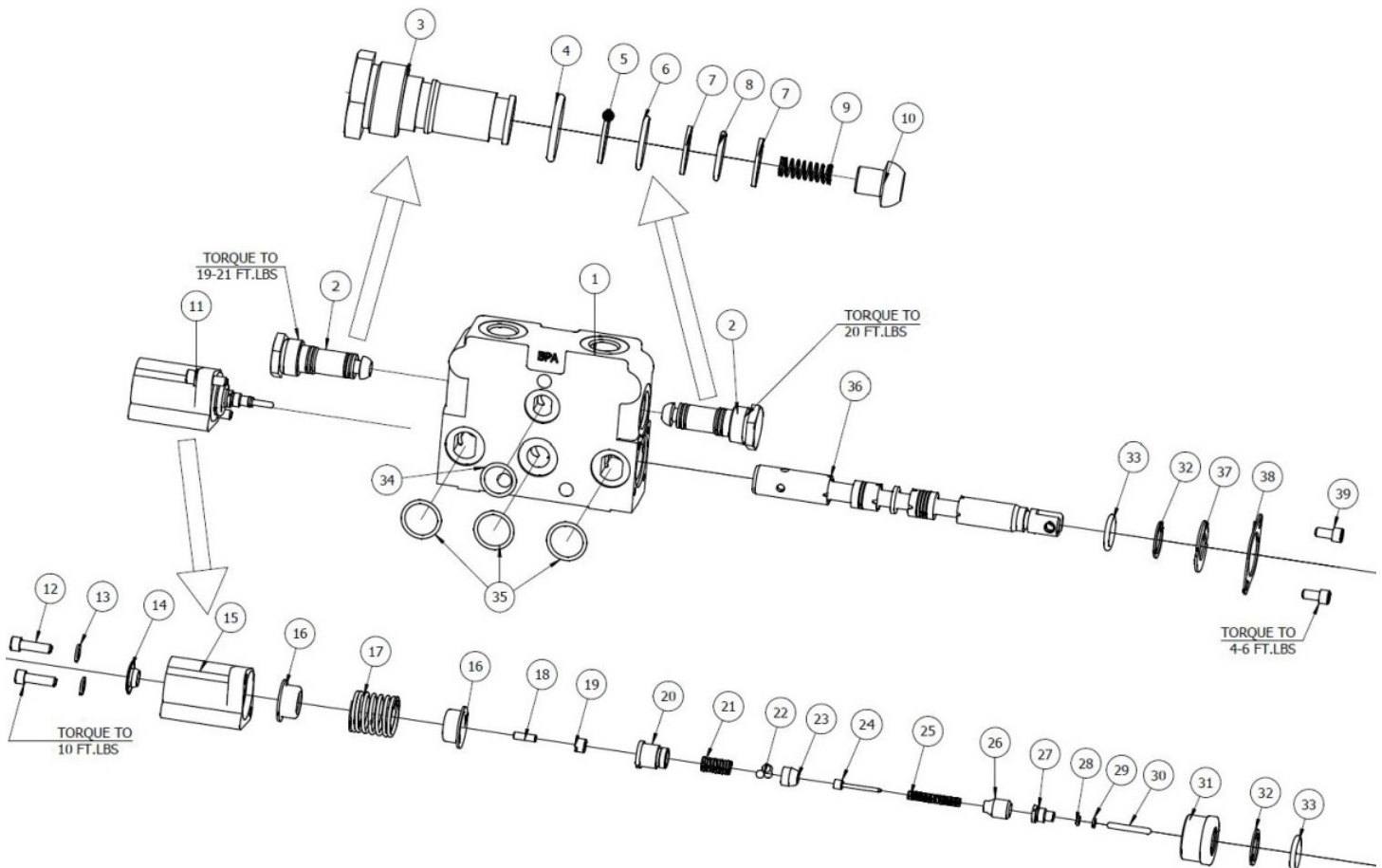
235

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6588-186	VALVE SECTION-(consists of items 1 thru 48)	-	REF
1	031-6573-116	HOUSING	-	1
2	031-3285-014	PLUG, LOAD CHECK(consists of items 3 thru 10)	-	1
3	031-6558-139	PLUG	-	2
4	031-6558-108	SEAL, O-RING-AS910, 70	-	2
5	031-6558-137	RING, BACKUP-AS016	-	2
6	031-6558-136	SEAL, O-RING-AS016, 90	-	2
7	031-6558-134	RING, BACK-UP CUT	-	4
8	031-6558-110	SEAL, O-RING-AS015, 90	-	2
9	031-6558-133	SPRING-0.27 O.D. X 0.028 W.D.	-	2
10	031-6558-132	POPPET	-	2
11	031-6573-117	POS. V20,4-WAY(consists of items 12 thru 33)	-	1
12	031-6558-118	SCREW HSHC1/4-20X.875	-	2
13	031-6573-118	PLATE, BEARING	-	2
14	031-6573-119	BUTTON PLUG	-	1
15	031-6573-120	BONNET, V20 KO.	-	1
16	031-6573-121	COLLAR, V20 SPRING	-	2
17	031-6558-121	SPRING-1.135 O.D. X 0.095 W.D.	-	1
18	031-6573-122	SCREW,SET	-	1
19	031-6573-123	NUT, V20 LOCK	-	1
20	031-6573-124	COLLAR, SPOOL 0.56 UNEF-FIFO	-	1
21	031-6573-125	SPRING-0.385 O.D. X 0.054 W.D.	-	1
22	031-6573-126	BALL, STEEL 0.219 DIA	-	4
23	031-6573-127	FOLLOWER, V20 BALL	-	1
24	031-6573-128	GUIDE, V20 SPRING	-	1
25	031-6573-129	SPRING-0.233 O.D. X 0.054 W.D.	-	1
26	031-6573-130	PLUNGER,V20 KNOCKOUT	-	1
27	031-6573-131	GUIDE, V20 KO PISTON	-	1
28	031-6573-132	WASHER BACKUP	-	1
29	031-6573-133	O-RING, AS007, 70 DUR BUNA-N	-	1
30	031-6573-134	ROLLER, NEEDLE	-	1
31	031-6573-135	SLEEVE, V20 KO DETENT	-	1
32	031-6558-123	WASHER, V20 SPOOL BACK-UP	-	2
33	031-6558-124	SEAL, O-RING-AS210, 75	-	2
34	031-3285-104	SEAL, O-RING-AS117, 90	-	1
35	031-5698-006	SEAL, O-RING-AS119, 75	-	3
36	031-6558-125	SPOOL, 4-WAY, KO	-	1
37	031-6558-122	PLATE, SEAL RETAINER	-	1
38	031-6573-114	PLATE V20 SPOOL SEAL RETAINER	-	1
39	031-6573-115	SCREW HSHC1/4-20X.50	-	2
40	031-6573-136	RELIEF, RC ASSY(consists of items 4 thru 10, 41 thru 48)	-	1
41	031-6573-137	BODY, V20 RC RELIEF	-	1
42	031-6558-113	SEAL, RELIEF POPPET-TFE	-	1
43	031-6558-112	POPPET, RELIEF	-	1
44	031-6573-111	WASHER, 0.50×0.31×0.04	-	1
45	031-6573-110	WASHER, 0.50×0.31×0.02	-	1
46	031-6573-138	WASHER, 0.50×0.31×0.01	-	1
47	031-6573-139	SPRING-0.68 O.D. X 0.15 W.D.	-	1
48	031-6573-140	CAP RELIEF	-	1

PT 1000A

PANEL WORKING VALVE SECTION

031-6588-187



PT 1000A
PANEL WORKING VALVE SECTION
031-6588-187

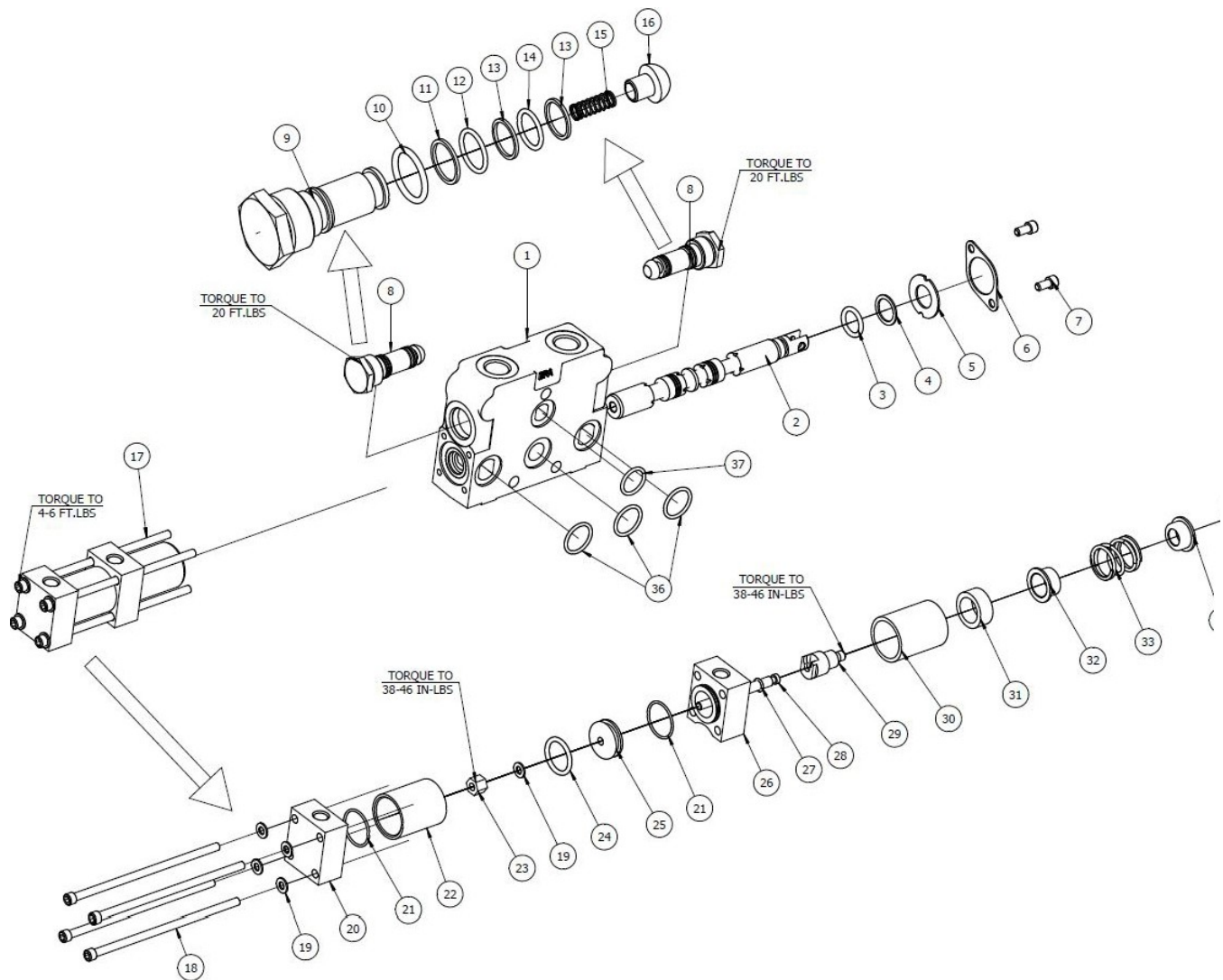
237

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6588-187	VALVE SECTION-(consists of items 1 thru 48)	-	REF
1	031-6573-141	HOUSING	-	1
2	031-3285-014	PLUG, LOAD CHECK(consists of items 3 thru 10)	-	1
3	031-6558-139	PLUG	-	2
4	031-6558-108	SEAL, O-RING-AS910, 70	-	2
5	031-6558-137	RING, BACKUP-AS016	-	2
6	031-6558-136	SEAL, O-RING-AS016, 90	-	2
7	031-6558-134	RING, BACK-UP CUT	-	4
8	031-6558-110	SEAL, O-RING-AS015, 90	-	2
9	031-6558-133	SPRING-0.27 O.D. X 0.028 W.D.	-	2
10	031-6558-132	POPPET	-	2
11	031-6573-117	POS. V20,4-WAY(consists of items 12 thru 33)	-	1
12	031-6558-118	SCREW HSHC1/4-20X.875	-	2
13	031-6573-118	PLATE, BEARING	-	2
14	031-6573-119	BUTTON PLUG	-	1
15	031-6573-120	BONNET, V20 KO.	-	1
16	031-6573-121	COLLAR, V20 SPRING	-	2
17	031-6558-121	SPRING-1.135 O.D. X 0.095 W.D.	-	1
18	031-6573-122	SCREW,SET	-	1
19	031-6573-142	NUT, V20 LOCK	-	1
20	031-6573-124	COLLAR, SPOOL 0.56 UNEF-FIFO	-	1
21	031-6573-125	SPRING-0.385 O.D. X 0.054 W.D.	-	1
22	031-6573-126	BALL, STEEL 0.219 DIA	-	4
23	031-6573-127	FOLLOWER, V20 BALL	-	1
24	031-6573-128	GUIDE, V20 SPRING	-	1
25	031-6573-129	SPRING-0.233 O.D. X 0.054 W.D.	-	1
26	031-6573-130	PLUNGER,V20 KNOCKOUT	-	1
27	031-6573-131	GUIDE, V20 KO PISTON	-	1
28	031-6573-132	WASHER BACKUP	-	1
29	031-6573-133	O-RING, AS007, 70 DUR BUNA-N	-	1
30	031-6573-134	ROLLER, NEEDLE	-	1
31	031-6573-135	SLEEVE, V20 KO DETENT	-	1
32	031-6558-123	WASHER, V20 SPOOL BACK-UP	-	2
33	031-6558-124	SEAL, O-RING-AS210, 75	-	2
34	031-3285-104	SEAL, O-RING-AS117, 90	-	1
35	031-5698-006	SEAL, O-RING-AS119, 75	-	3
36	031-6573-143	SPOOL, 4-WAY, KO	-	1
37	031-6558-122	PLATE, SEAL RETAINER	-	1
38	031-6573-114	PLATE V20 SPOOL SEAL RETAINER	-	1
39	031-6573-144	SCREW HSHC1/4-20X.50	-	2

PT 1000A

AUXILIARY WORKING VALVE SECTION

031-6588-265

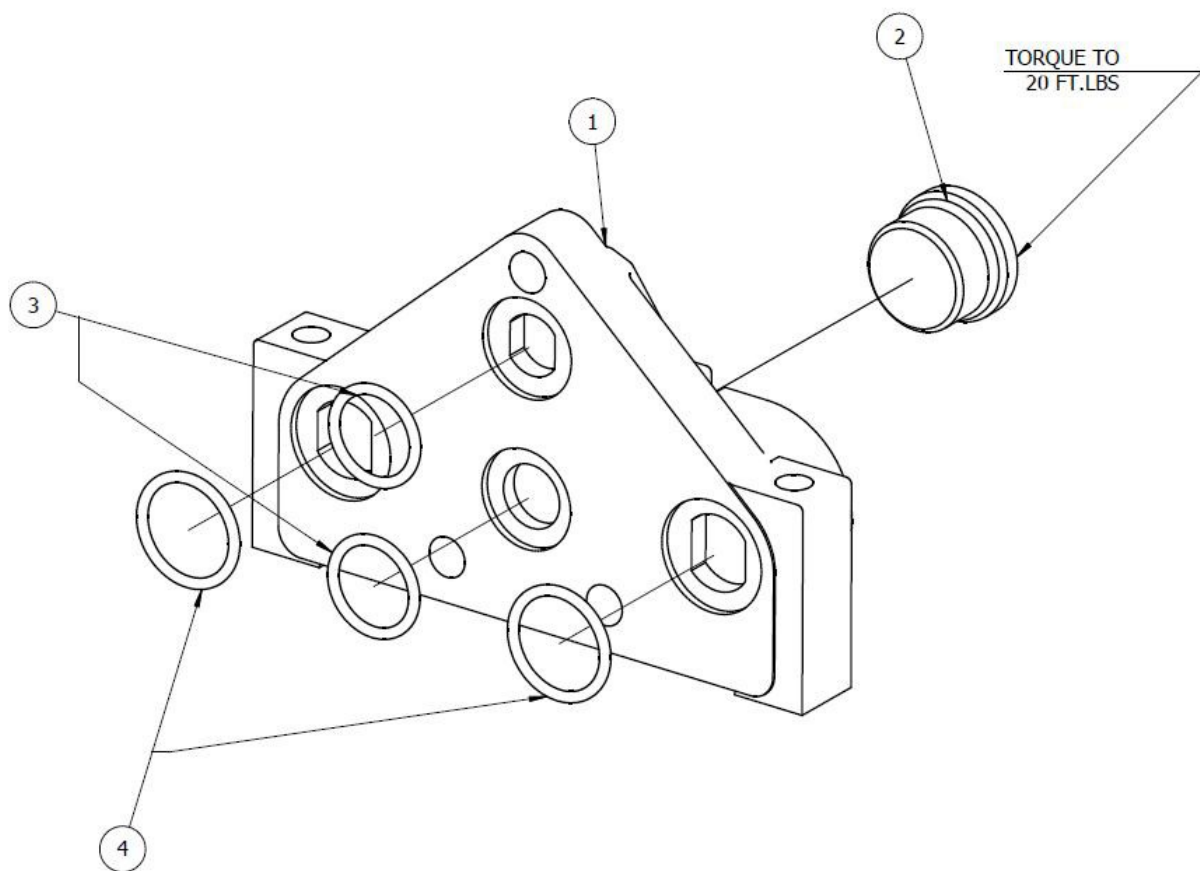


PT 1000A
AUXILIARY WORKING VALVE SECTION
031-6588-265

239

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6588-265	VALVE SECTION-(consists of items 1 thru 37)	-	REF
1	031-3285-011	HOUSING	-	1
2	031-3285-012	SPOOL, 4-WAY, 0.75 DIA	-	1
3	031-6588-124	SEAL, O-RING-AS210, 75	-	2
4	031-6558-123	WASHER V20 SPOOL SEAL BACK-UP	-	2
5	031-6558-122	PLATE, SEAL RETAINER	-	1
6	031-6573-114	PLATE V20 SPOOL SEAL RETAINER	-	1
7	031-6573-115	SCREW HSHC1/4-20X.50	-	2
8	031-3285-014	PLUG, LOAD CHECK(consists of items 9 thru 16)	-	1
9	031-6558-139	PLUG	-	2
10	031-6558-108	SEAL, O-RING-AS910, 70	-	2
11	031-6558-137	RING, BACKUP-AS016	-	2
12	031-6558-136	SEAL, O-RING-AS016, 90	-	2
13	031-6558-134	RING, BACK-UP CUT	-	4
14	031-6558-110	SEAL, O-RING-AS015, 90	-	2
15	031-6558-133	SPRING-0.27 O.D. X 0.028 W.D	-	2
16	031-6558-132	POPPET	-	2
17	031-5658-025	V20 AIR ACTUATOR(consists of items 18 thru 35)	-	1
18	031-6566-103	SCREW, HSHC	-	4
19	031-6566-104	WASHER, FLAT	-	5
20	031-6566-105	END CAP	-	1
21	031-3285-041	SEAL, O-RING	-	2
22	031-6566-106	SLEEVE	-	1
23	031-6566-107	NUT, LOCK	-	1
24	031-5658-031	SEAL, O-RING	-	1
25	031-6566-108	PISTON, V20 AIR-ACT	-	1
26	031-6566-117	END CAP	-	1
27	031-6566-110	SEAL, O-RING	-	1
28	031-6566-111	ROD, PISTON	-	1
29	031-6566-112	COLLAR, SPOOL	-	1
30	031-6566-113	TUBE, SPRING	-	1
31	031-6566-114	SPACER	-	1
32	031-6566-115	COLLAR, SPRING LONG	-	1
33	031-3285-017	SPRING	-	1
34	031-5658-028	COLLAR, SPRING SHORT	-	1
35	031-6566-116	RETAINER, SEAL	-	1
36	031-5698-006	SEAL, O-RING-AS119, 75	-	3
37	031-3285-104	SEAL, O-RING-AS117, 90	-	1

PT 1000A
OUTLET SECTION
031-6573-178

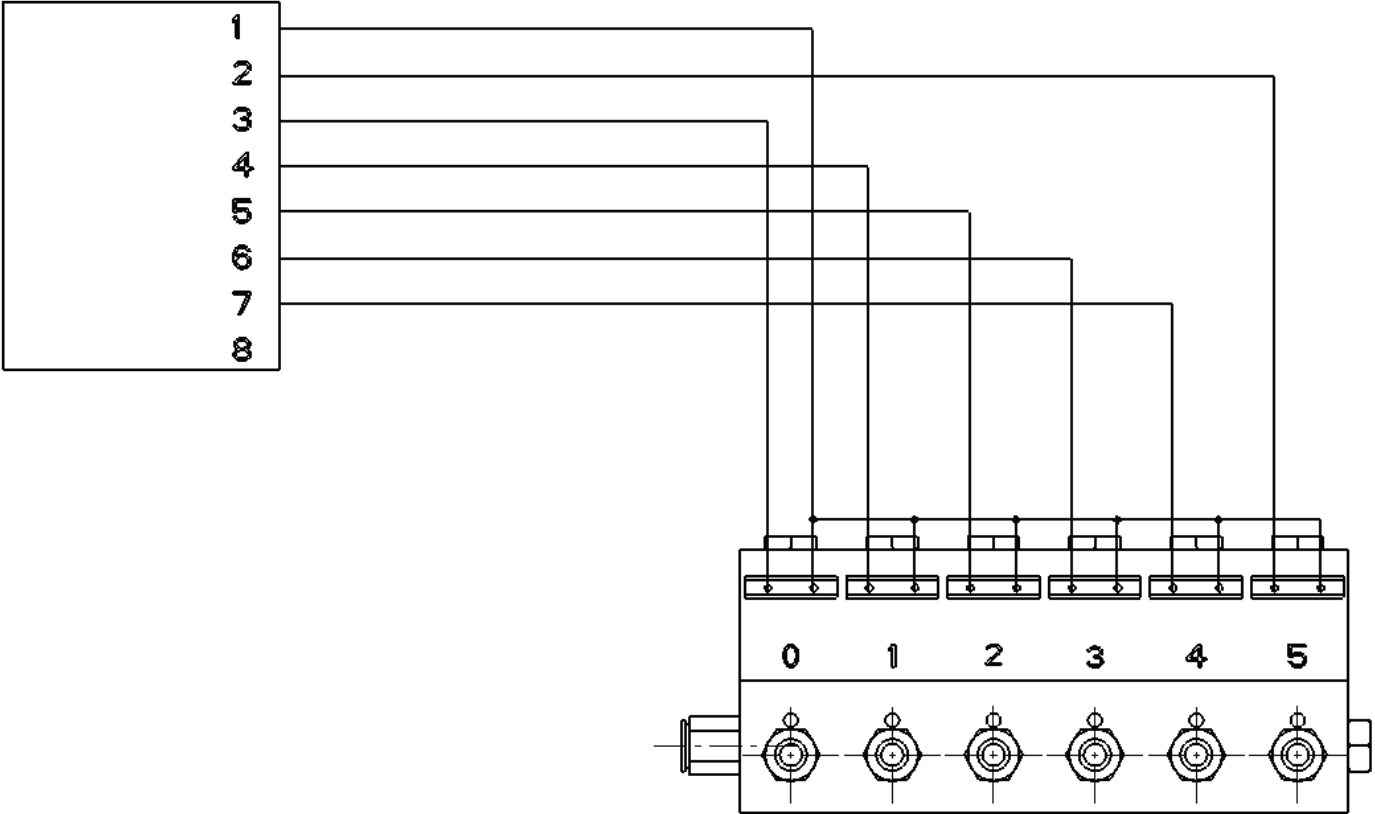


PT 1000A
OUTLET SECTION
031-6573-178

241

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6573-178	OUTLET SECTION-(consists of items 1 thru 4)	-	REF
1	031-6573-102	COVER CP	-	1
2	031-6573-103	PLUG	-	1
3	031-3285-104	SEAL, O-RING-AS117, 90	-	2
4	031-5698-006	SEAL, O-RING-AS119, 75	-	2

PT 1000A
SOLENOID VALVE ASSEMBLY
031-6572



PT 1000A
SOLENOID VALVE ASSEMBLY
031-6572

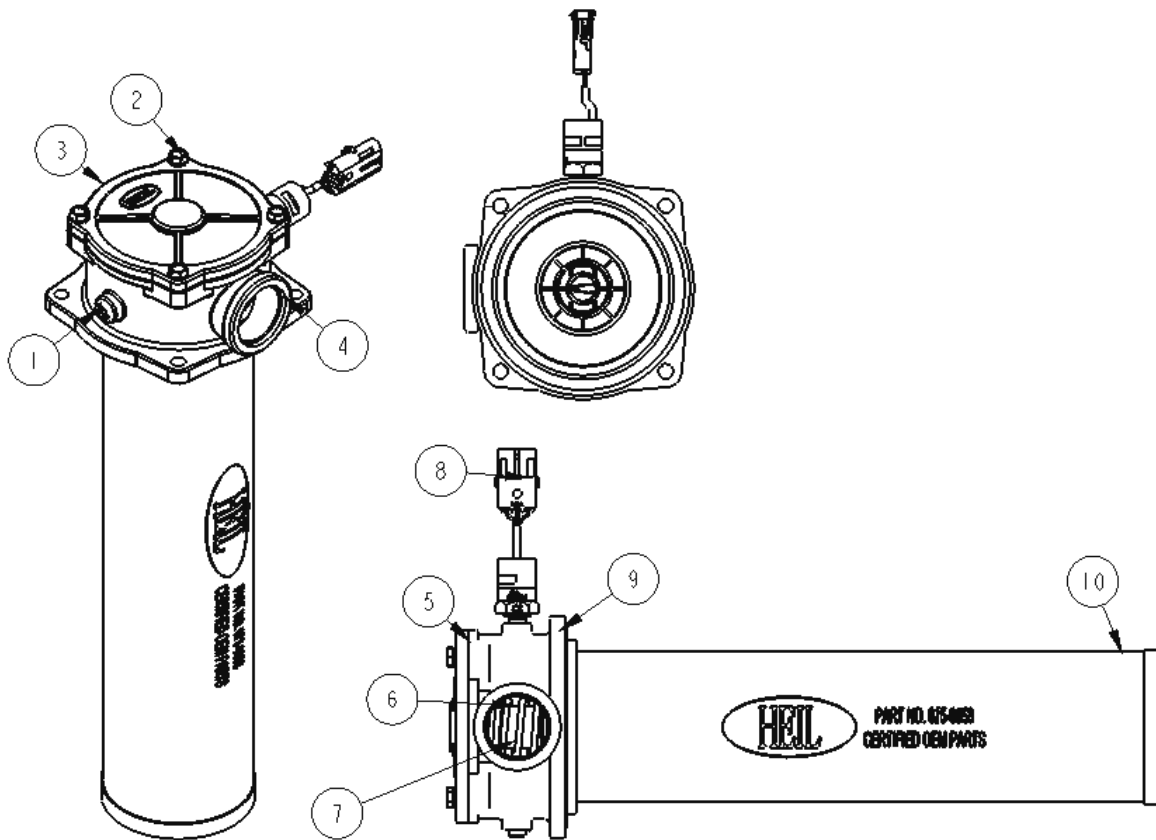
243

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6572	ASSEMBLY, Valve, Solenoid	-	REF

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FILTER ASSEMBLIES

PT 1000A RETURN LINE FILTER 075-0953



PT 1000A
RETURN LINE FILTER
075-0953

247

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	075-0953	FILTER, Return Line	-	REF
-	075-0953-001	ASSEMBLY, Element	-	1
-	075-0953-002	ASSEMBLY, Cover	-	1
3	075-0953-202	COVER, TTF2 HEIL	-	1
5	075-0953-203	O-RING Buna	-	1
6	075-0953-204	MAGNET COLUMN	-	1
7	075-0953-205	SPRING, CONICAL Heil	-	1
-	075-0953-003	ASSEMBLY, Head	-	1
1	075-0953-207	PLUG, Steel Pipe 1/4-18 NPT	-	2
4	075-0953-201	KLT HEAD SAE 24 PORT MACHINED	-	1
9	075-0953-208	GASKET, TF-2 Buna	-	1
-	075-0953-004	HARDWARE	-	1
2	075-0953-206	WASHER, 5/16 - 18 x 1 HHCS	-	4
-	075-0953-012	SWITCH, Electrical	-	1

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SECTION 6 OPTIONS

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CONTAINER LIFTING MECHANISM KITS

PT 1000A
COMB LIFT ASSEMBLY WITH ELECTRIC CONTROLS
088-0356-ELC

NO ILLUSTRATION

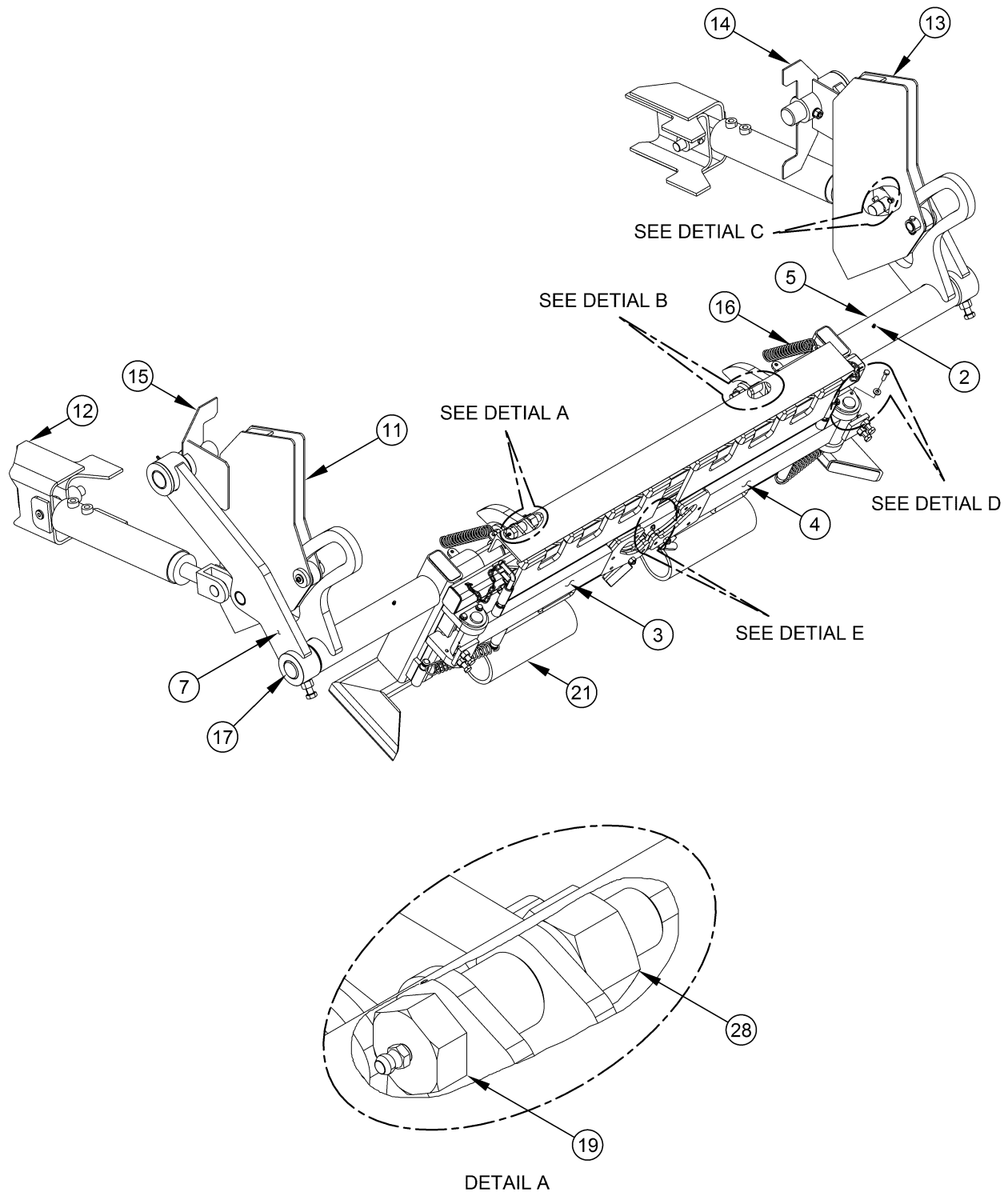
COMB LIFT ASSEMBLY WITH ELECTRIC CONTROLS **088-0356-ELC**

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	088-0356-ELC	ASSEMBLY, Comb Lift, with Electric Controls	-	REF
-1	088-0356	ASSEMBLY, Lifter, Trunion, Double Wide ²⁵⁴	-	1
-2	057-3101-006	ASSEMBLY, Hose, Pressure, 1/2", 12 MM	-	4
-3	354-4813-012	FITTING, Adapter	-	4
-4	001-7075	CYLINDER, Comb Lift ³⁰²	-	2
-5	108-8507-001	SWITCH, Sealed, Aluminium Head, E- Stop	-	4

PT 1000A

DOUBLE WIDE TRUNION LIFTER ASSEMBLY

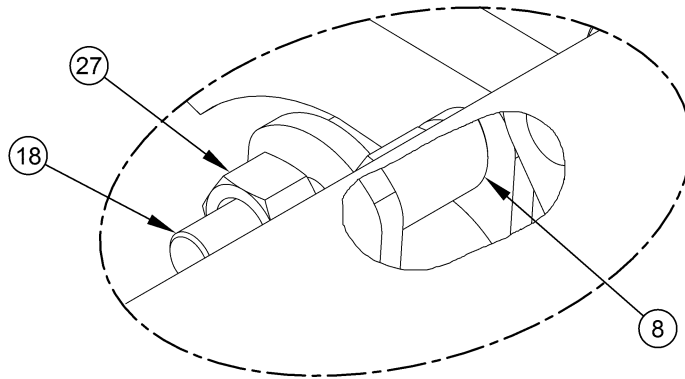
088-0356



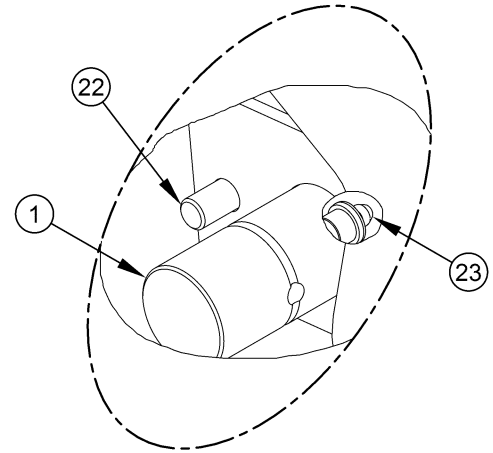
SHEET 1 OF 2

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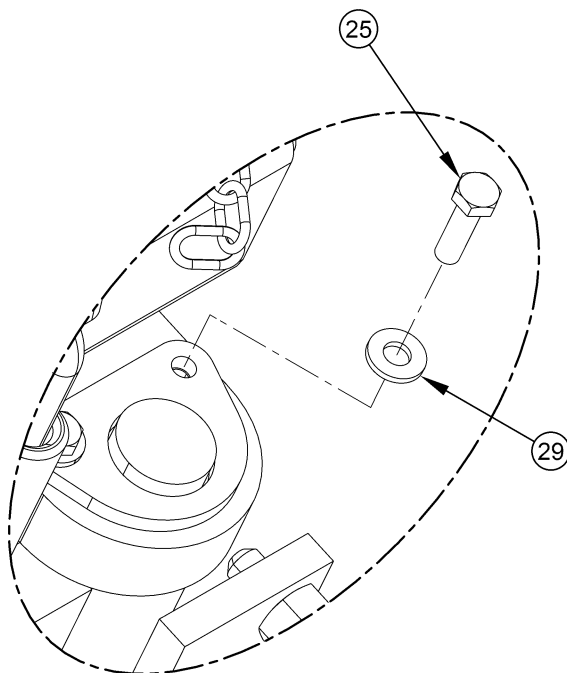
PT 1000A
DOUBLE WIDE TRUNION LIFTER ASSEMBLY
088-0356



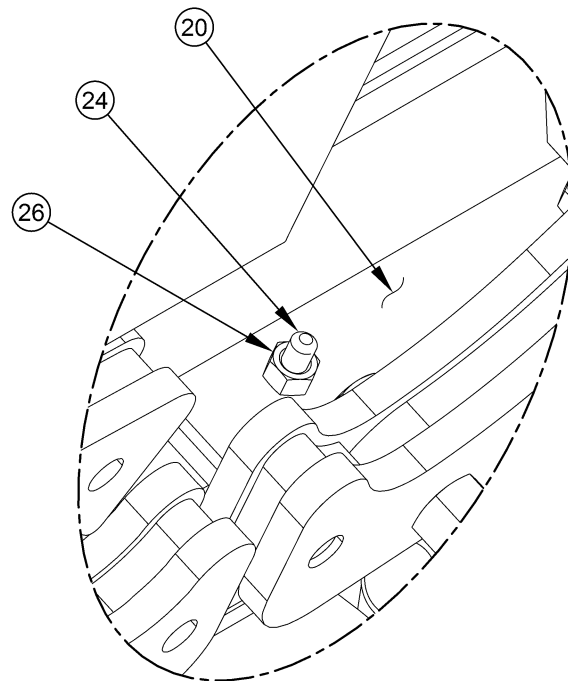
DETAIL B



DETAIL C



DETAIL D



DETAIL E

SHEET 2 OF 2

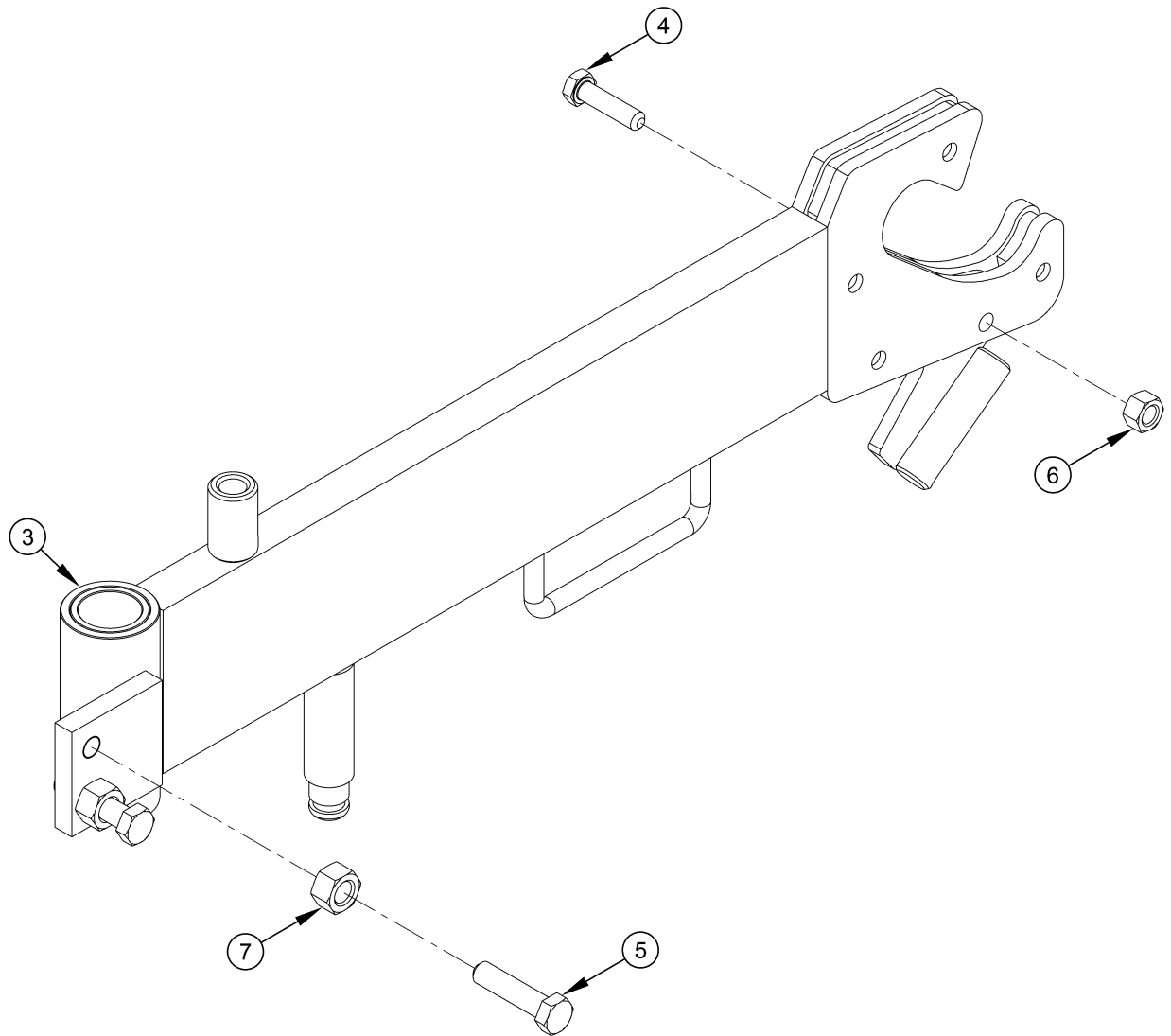
257

PT 1000A
DOUBLE WIDE TRUNION LIFTER ASSEMBLY
088-0356

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	088-0356	ASSEMBLY, Lifter, Trunion, Double Wide	-	REF
1	048-7487	WELDMENT, Pin	-	2
2	059-0319	FITTING, Grease, Str., M6	-	6
3	088-0356-001	ASSEMBLY, Arm, Trunion, SS ^[258]	-	1
4	088-0356-004	ASSEMBLY, Arm, Trunion, CS ^[260]	-	1
5	088-0356-007	WELDMENT, Frame, Dump ^[262]	-	1
7	088-0356-014	ASSEMBLY, Drive Arm ^[264]	-	2
8	088-0356-016	ASSEMBLY, Roller, Clamp Bar ^[266]	-	2
11	088-0356-030	ASSEMBLY, Bracket, Mounting, Comb Lift ^[268]	-	1
12	088-0356-040	ASSEMBLY, Bracket, Cylinder Base ^[272]	-	2
13	088-0356-050	ASSEMBLY, Bracket, Mounting, Comb Lift ^[274]	-	1
14	088-0356-080	BRACKET, Arm Pivot ^[276]	-	1
15	088-0356-090	BRACKET, Arm Pivot ^[278]	-	1
16	088-0356-201	SPRING, Trunion Arm/Clamp Bar	-	4
17	088-0356-252	SHAFT, Pivot, Main Drive	-	1
18	088-0356-260	BOLT, Roller, Clamp Bar	-	2
19	088-0356-261	BOLT, Rotate, Clamp Bar	-	2
20	088-0356-262	STRAP, Bumper, 310 mm x 25 mm x 4 mm	-	4
21	088-0356-263	BUMPER, Rubber	-	2
22	FSP070915	HHCS, 3/8"-16 x 3/4", Gr. 5, Plated	-	2
23	FSP190400	FITTING, Grease, Str., 1/8" NPT, Plated	-	2
24	MSP07-06-100	BOLT, M6 x 100	-	8
25	MSP07-08-030	HHCS, M8-1-1/4" x 30, Gr. 8.8	-	4
26	MSP23-06-000	NUT, Nyloc, M6	-	8
27	MSP23-16-000	NUT, Nyloc, M16	-	2
28	MSP23-20-000	NUT, Nyloc, M20	-	2
29	MSP52-08-000	WASHER, Flat, M8	-	4

Note: Items 6, 9 and 10 are Welded.

PT 1000A
SS TRUNION ARM ASSEMBLY
088-0356-001



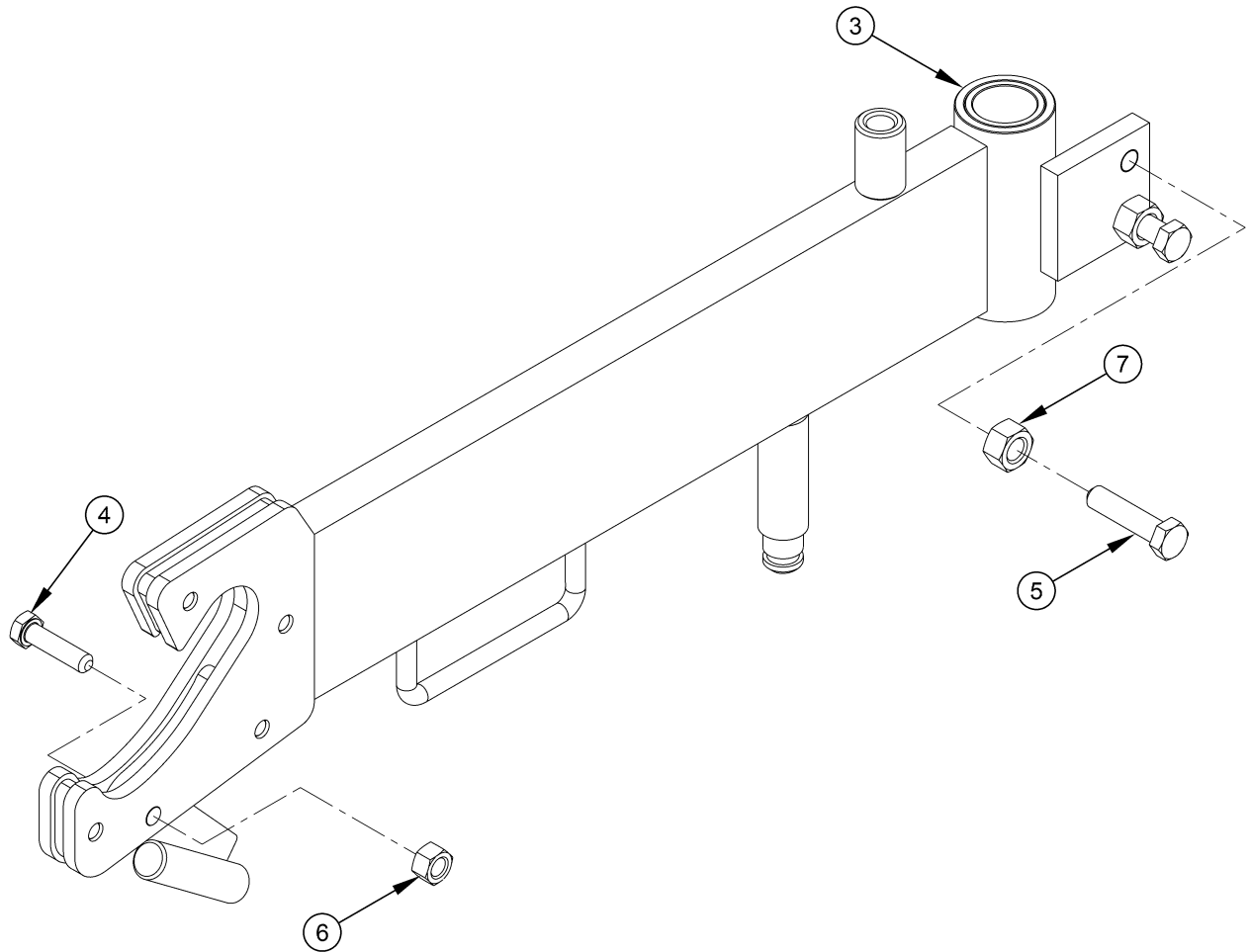
PT 1000A
SS TRUNION ARM ASSEMBLY
088-0356-001

259

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	088-0356-001	ASSEMBLY, Arm, Trunion, SS	-	REF
3	088-0356-212	BUSHING, Arm, Trunion	-	2
4	MSP07-10-040	BOLT, M10 x 40	-	1
5	MSP07-12-050	BOLT, M12 x 50	-	2
6	MSP23-10-000	NUT, Nyloc, M10	-	1
7	MSP23-12-000	NUT, Nyloc, M12	-	2

Note: Items 1 and 2 are Welded.

PT 1000A
CS TRUNION ARM ASSEMBLY
088-0356-004



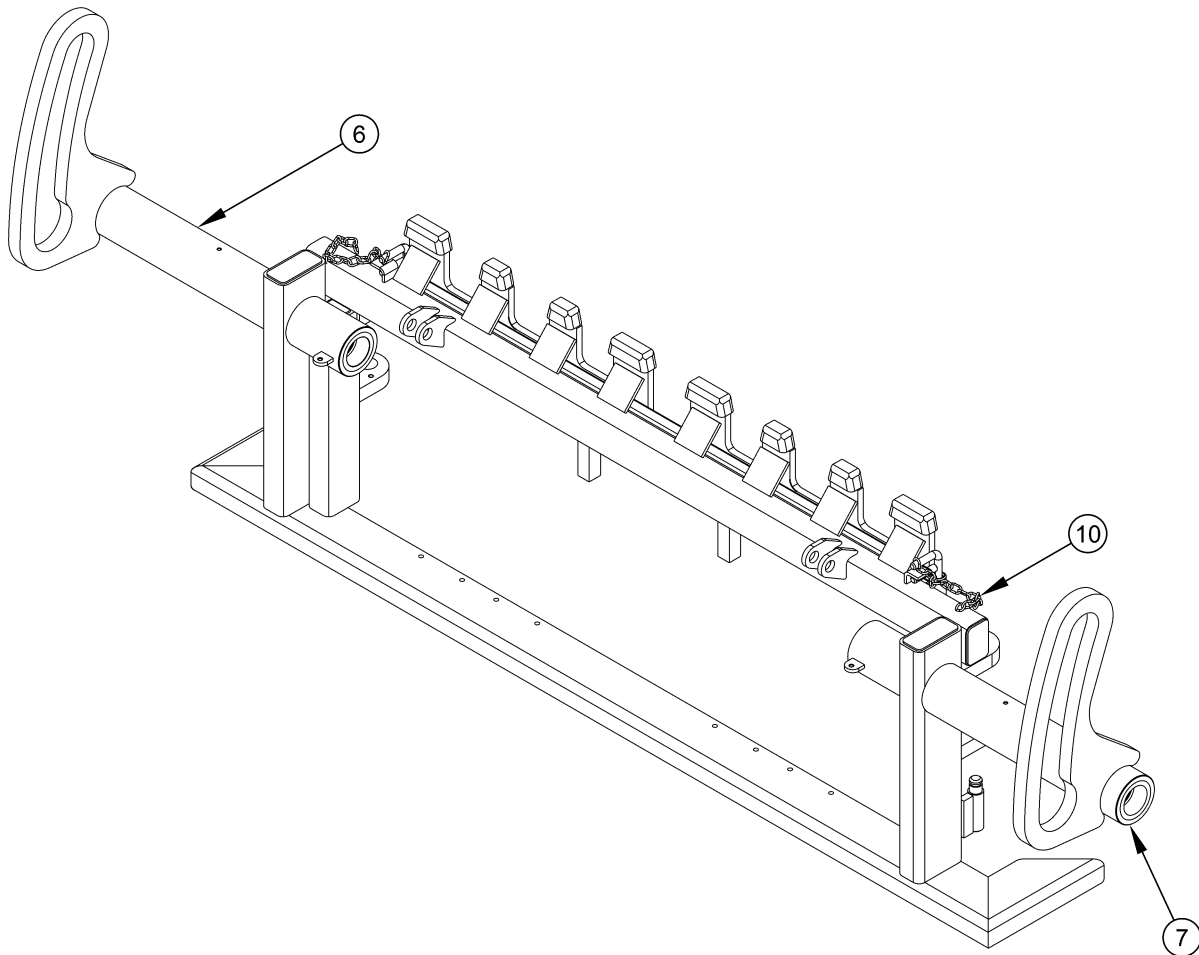
PT 1000A
CS TRUNION ARM ASSEMBLY
088-0356-004

261

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	088-0356-004	ASSEMBLY, Arm, Trunion, CS	-	REF
3	088-0356-212	BUSHING, Arm, Trunion	-	2
4	MSP07-10-040	BOLT, M10 x 40	-	1
5	MSP07-12-050	BOLT, M12 x 50	-	2
6	MSP23-10-000	NUT, Nyloc, M10	-	1
7	MSP23-12-000	NUT, Nyloc, M12	-	2

Note: Items 1 and 2 are Welded.

PT 1000A
DUMP FRAME WELDMENT
088-0356-007



PT 1000A
DUMP FRAME WELDMENT
088-0356-007

263

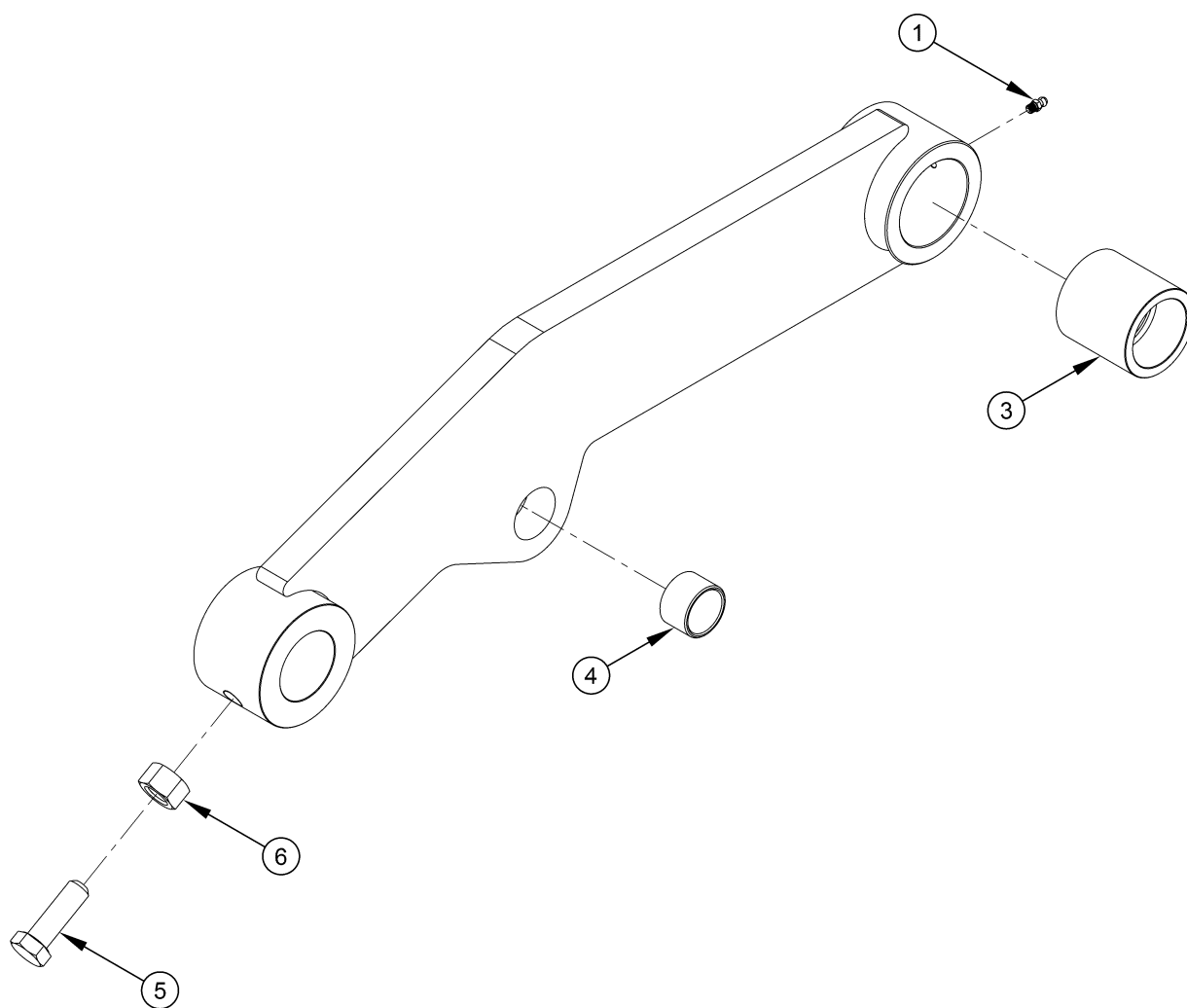
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	088-0356-007	WELDMENT, Frame, Dump	-	REF
6	088-0356-215	TUBE, Pivot, 90 mm OD, 610 mm Lg.	-	2
7	088-0356-216	BUSHING, Tube, Pivot	-	4
10	088-0356-221	CHAIN, Pin, Arm Lock, 3 mm Dia., 250 mm Lg.	-	2

Note: Items 1-5, 8, 9, 11 and 12 are Welded.

PT 1000A

DRIVE ARM ASSEMBLY

088-0356-014



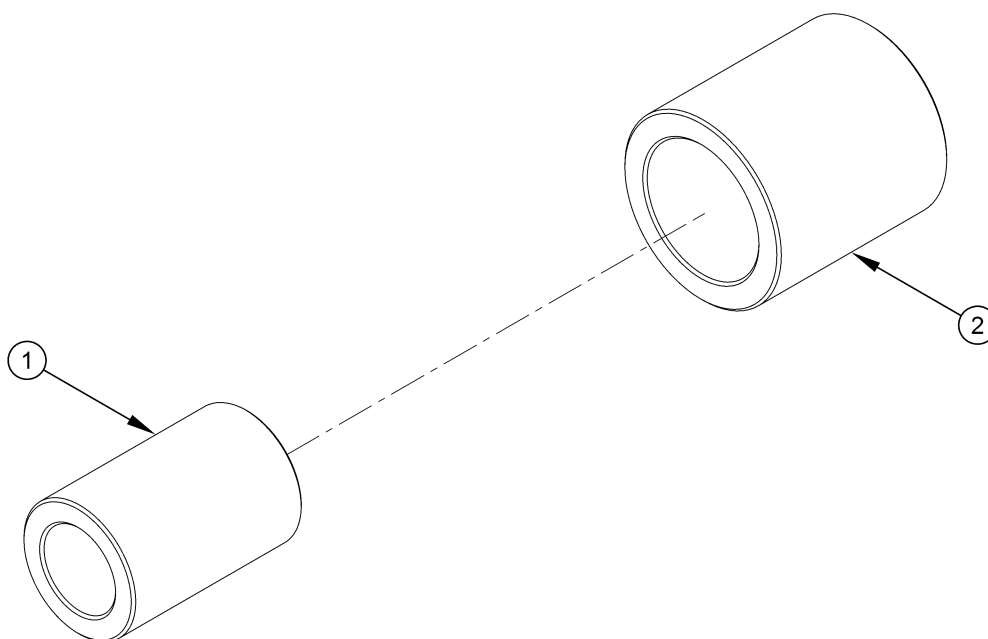
PT 1000A
DRIVE ARM ASSEMBLY
088-0356-014

265

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	088-0356-014	ASSEMBLY, Drive Arm	-	REF
1	059-0319	FITTING, Grease, Straight, M6	-	1
3	088-0356-216	BUSHING, Tube, Pivot	-	1
4	088-0356-244	BUSHING, Drive Arm, Cylinder	-	1
5	MSP07-16-050	BOLT, M16 x 50	-	1
6	MSP23-16-000	NUT, Nyloc, M16	-	1

Note: Item 2 is Welded.

PT 1000A
CLAMP BAR ROLLER ASSEMBLY
088-0356-016



PT 1000A
CLAMP BAR ROLLER ASSEMBLY
088-0356-016

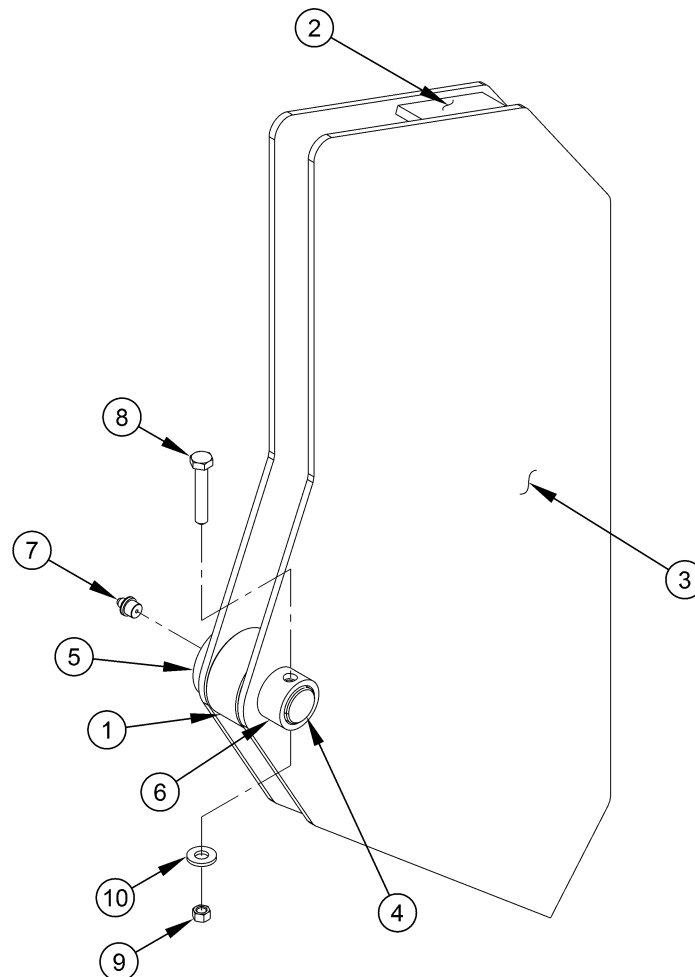
267

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	088-0356-016	ASSEMBLY, Roller, Clamp Bar	-	REF
1	088-0356-248	BUSHING, Roller, Clamp Bar, 25 mm Dia., 38 mm Lg.	-	1
2	088-0356-249	TUBE, Roller, Clamp Bar, 35 mm Dia., 38 mm Lg.	-	1

PT 1000A

COMB LIFT MOUNTING BRACKET ASSEMBLY

088-0356-030

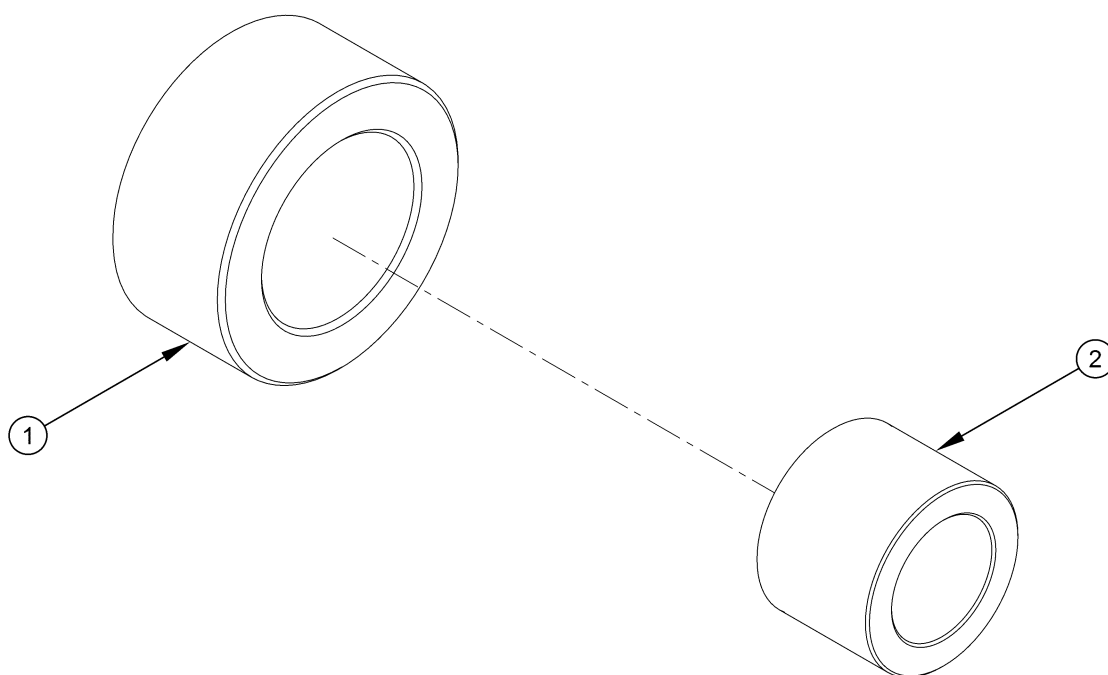


PT 1000A
COMB LIFT MOUNTING BRACKET ASSEMBLY
088-0356-030

269

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	088-0356-030	ASSEMBLY, Bracket, Mounting, Comb Lift	-	REF
1	088-0356-017	ASSEMBLY, Roller, Frame Rotate ²⁷⁰	-	1
2	088-0356-031	BRACE, BRACKET, Mounting, 6 mm	-	1
3	088-0356-032	BRACKET, Mounting, 5 mm	-	2
4	088-0356-033	PIN, Roller, Comb Lift	-	1
5	088-0356-034	SUPPORT, Pin, 50 mm	-	1
6	113-6981-026	COLLAR, 27 mm ID x 35 mm OD	-	1
7	FS190400	FITTING, Grease, Str., 1/8" NPT	-	1
8	MSP07-08-045	HHCS, M8-1-1/4 x 45, Gr. 8.8	-	1
9	MSP23-06-000	NUT, Nyloc, M6	-	1
10	MSP52-08-000	WASHER, Flat, M8	-	1

PT 1000A
FRAME ROTATE ROLLER ASSEMBLY
088-0356-017



PT 1000A
FRAME ROTATE ROLLER ASSEMBLY
088-0356-017

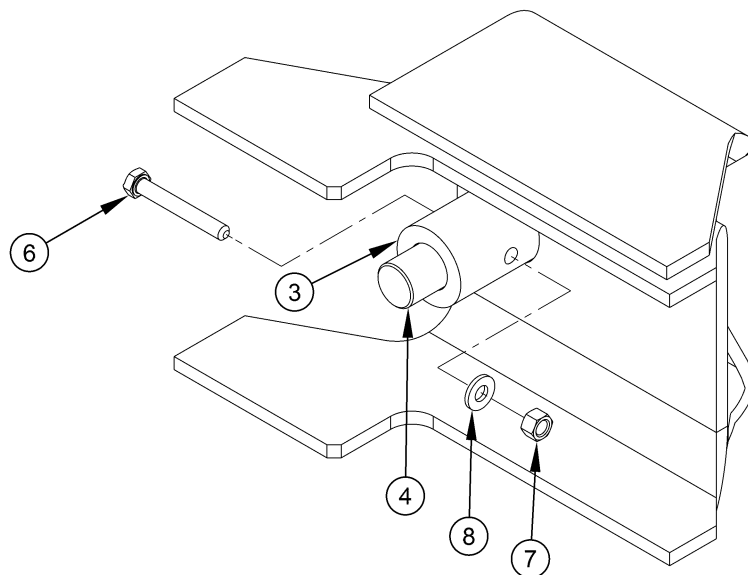
271

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	088-0356-017	ASSEMBLY, Roller, Frame Rotate	-	REF
1	088-0356-250	ROLLER, Frame Rotate, 60 mm x 28 mm	-	1
2	088-0356-251	BUSHING, Roller, Frame Rotate	-	1

PT 1000A

CYLINDER BASE BRACKET ASSEMBLY

088-0356-040



PT 1000A
CYLINDER BASE BRACKET ASSEMBLY
088-0356-040

273

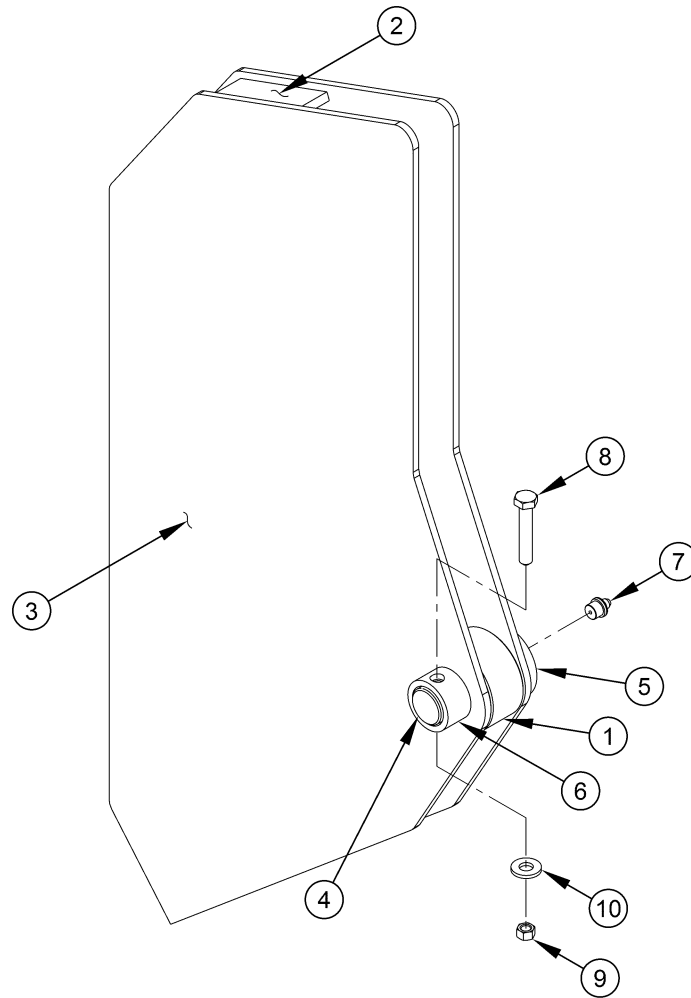
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	088-0356-040	ASSEMBLY, Bracket, Cylinder Base	-	REF
3	088-0356-043	BUSHING, Rod, Shur Lock, Tailgate, 45 mm Dia.	-	1
4	088-0356-044	PIN, Roller, Comb Lift, 25 mm Dia., 155 mm Lg.	-	1
6	MSP07-08-060	HHCS, M8-1-1/4 x 60, Gr. 8.8	-	1
7	MSP23-08-000	NUT, Nyloc, M8	-	1
8	MSP52-08-000	WASHER, Flat, M8	-	1

Note: Items 1, 2 and 5 are Welded.

PT 1000A

COMB LIFT MOUNTING BRACKET ASSEMBLY

088-0356-050

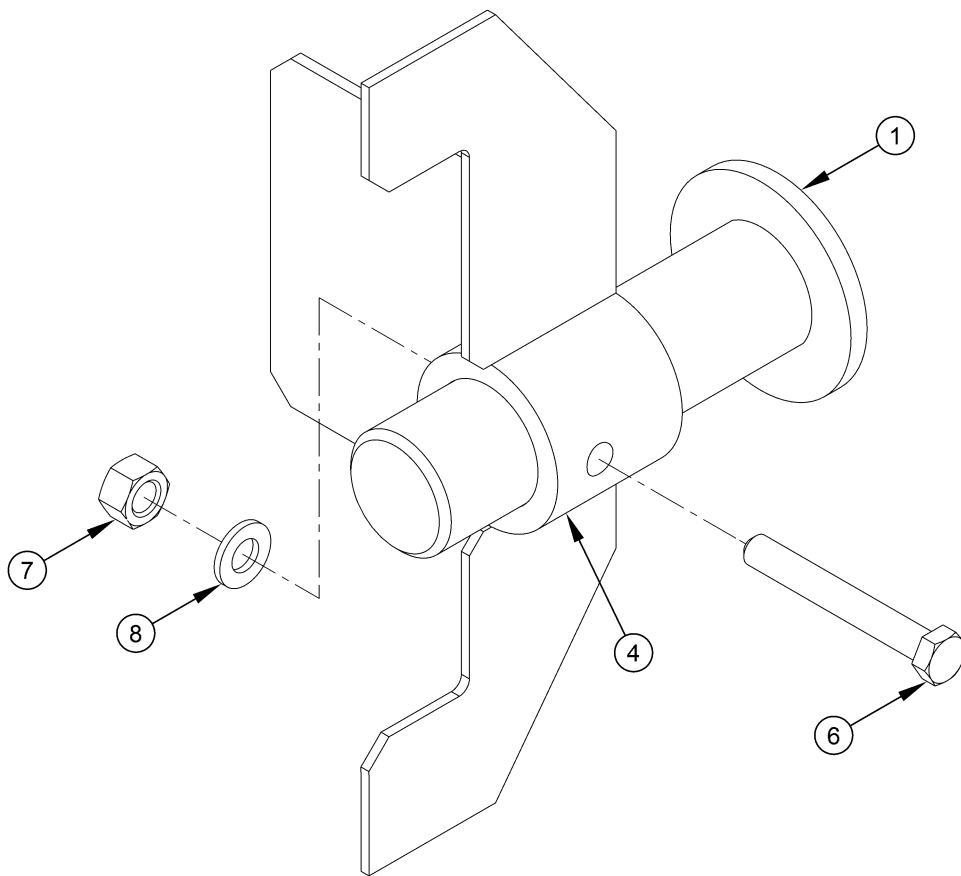


PT 1000A
COMB LIFT MOUNTING BRACKET ASSEMBLY
088-0356-050

275

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	088-0356-050	ASSEMBLY, Bracket, Mounting, Comb Lift	-	-
1	088-0356-017	ASSEMBLY, Roller, Frame Rotate ²⁷⁰	-	1
2	088-0356-031	BRACE, BRACKET, Mounting, 6 mm	-	1
3	088-0356-032	BRACKET, Mounting, 5 mm	-	2
4	088-0356-033	PIN, Roller, Comb Lift	-	1
5	088-0356-034	SUPPORT, Pin, 50 mm	-	1
6	113-6981-026	COLLAR, 27 mm ID x 35 mm OD	-	1
7	FS190400	FITTING, Grease, Str., 1/8" NPT	-	1
8	MSP07-08-045	HHCS, M8-1-1/4 x 45, Gr. 8.8	-	1
9	MSP23-06-000	NUT, Nyloc, M6	-	1
10	MSP52-08-000	WASHER, Flat, M8	-	1

PT 1000A
PIVOT ARM BRACKET
088-0356-080



PT 1000A

PIVOT ARM BRACKET

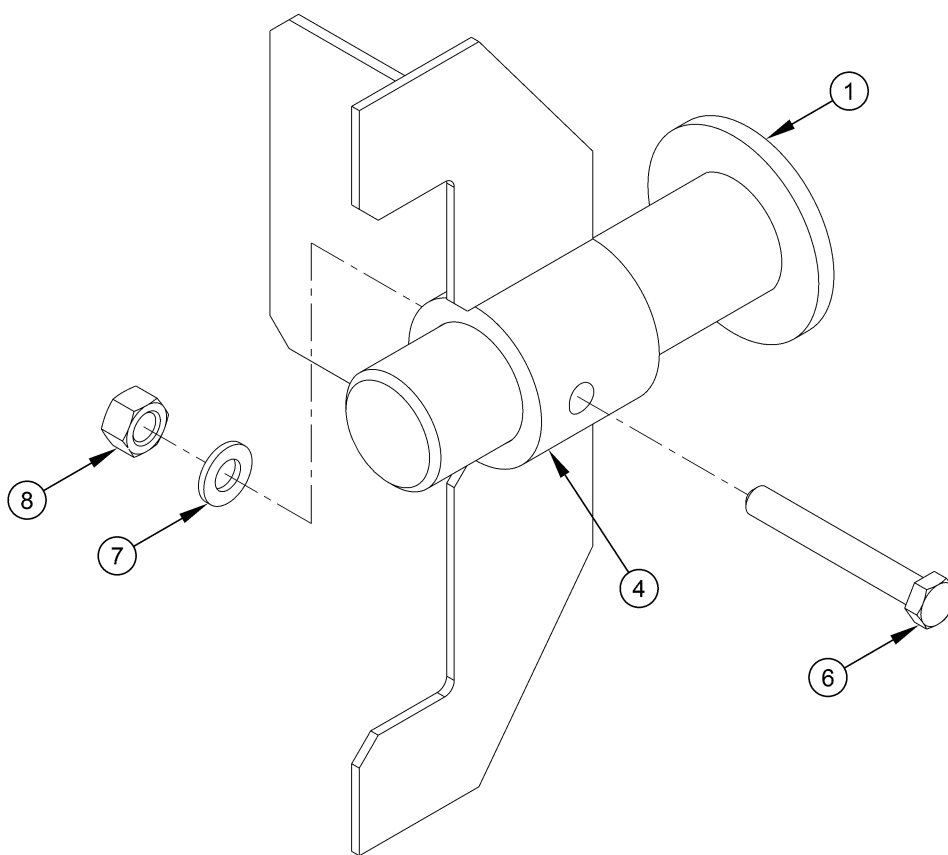
088-0356-080

277

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	088-0356-080	BRACKET, Arm Pivot	-	REF
1	088-0356-070	WELDMENT, Pin, Pivot Arm, Comb Lift	-	1
4	088-0356-083	COLLAR, Pin, 70 mm Dia.	-	1
6	MSP07-12-090	BOLT, M12 x 90	-	1
7	MSP23-12-000	NUT, Nyloc, M12	-	1
8	MSP23-12-000	WASHER, Flat, M12	-	1

Note: Items 2, 3 and 5 are Welded.

PT 1000A
PIVOT ARM BRACKET
088-0356-090



PT 1000A

PIVOT ARM BRACKET

088-0356-090

279

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	088-0356-090	BRACKET, Arm Pivot	-	REF
1	088-0356-070	WELDMENT, Pin, Pivot Arm, Comb Lift	-	1
4	088-0356-083	COLLAR, Pin, 70 mm Dia.	-	1
6	MSP07-12-090	BOLT, M12 x 90	-	1
7	MSP23-12-000	NUT, Nyloc, M12	-	1
8	MSP23-12-000	WASHER, Flat, M12	-	1

Note: Items 2, 3 and 5 are Welded.

PT 1000A
COMB LIFT ASSEMBLY WITH MECHANICAL CONTROLS
088-0356-MEC

NO ILLUSTRATION

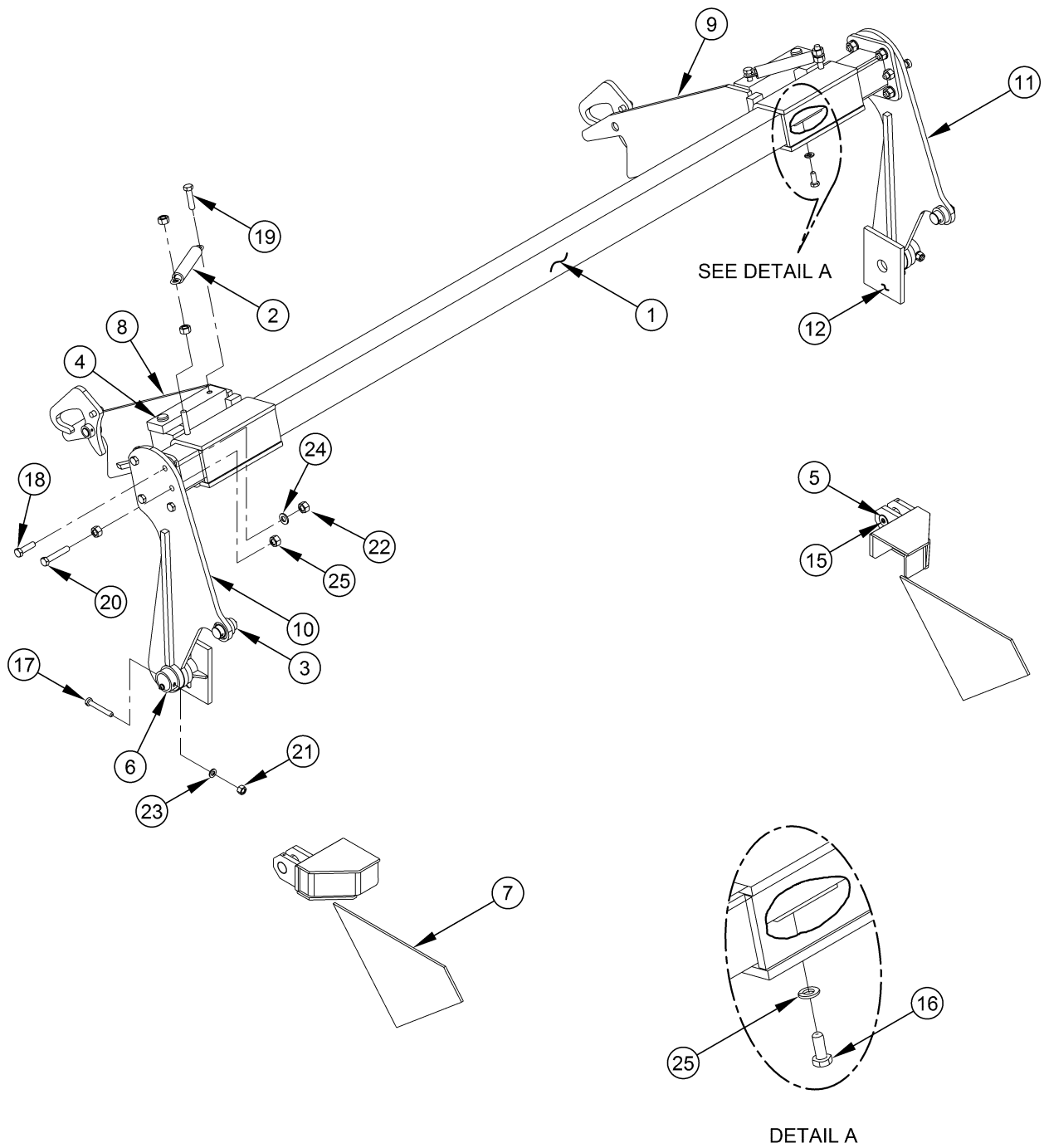
COMB LIFT ASSEMBLY WITH MECHANICAL CONTROLS **088-0356-MEC**

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	088-0356-MEC	ASSEMBLY, Comb Lift, with Mechanical Controls	-	REF
-1	088-0356	ASSEMBLY, Lifter, Trunion, Double Wide ²⁵⁴	-	1
-2	057-3101-006	ASSEMBLY, Hose, Pressure, 1/2", 12 MM	-	4
-3	354-4813-012	FITTING, Adapter	-	4
-4	001-7075	CYLINDER, Comb Lift ³⁰²	-	2

PT 1000A

ARM MECHANISM KIT

088-0358



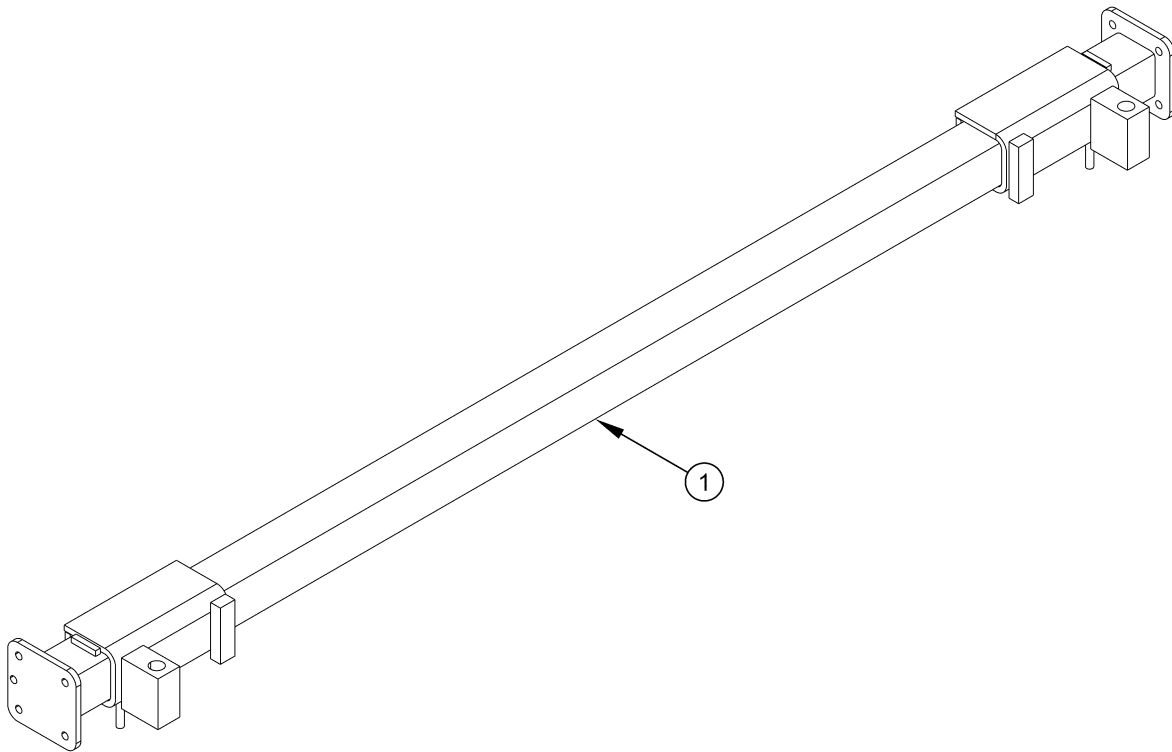
PT 1000A
ARM MECHANISM KIT
088-0358

283

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	088-0358	KIT, Mechanism, Arm	-	REF
1	008-9502	CROSS TUBE, Mechanism, Container ²⁸⁴	-	1
2	019-1041	SPRING, Container Pick Up Arm Positioning, 6/16" ± 3/32	-	2
3	048-7520	PIN, Arm Mechanism, 28 mm Dia.	-	4
4	048-7521	PIN, Hinge, Arm Mechanism	-	2
5	048-7523-056	PIN, Roll, 5 mm Dia., 60 mm Lg.	-	2
6	088-0358-001	COLLAR, Retaining, 40 mm ID x 50 mm OD	-	2
7	088-0358-004	PLATE, Gusset, Arm Mechanism, 6 mm	-	2
8	093-3395	ASSEMBLY, Arm, Container ²⁸⁶	-	1
9	093-3396	ASSEMBLY, Arm, Pick-Up ²⁸⁸	-	1
10	093-3397	WELDMENT, Arm, Container ²⁹⁰	-	1
11	093-3398	WELDMENT, Arm, Container ²⁹²	-	1
12	311-6132	BRACKET, Pivot ²⁹⁴	-	2
15	FS190400	FITTING, Grease, Str., 1/8" NPT	-	6
16	MSP07-10-025	BOLT, M10 x 25	-	2
17	MSP07-10-070	BOLT, M10 x 70	-	2
18	MSP07-12-045	BOLT, M12 x 45	-	8
19	MSP07-12-050	BOLT, M12 x 50	-	2
20	MSP07-12-070	BOLT, M12 x 70	-	2
21	MSP23-10-000	NUT, Nyloc, M10	-	2
22	MSP23-12-000	NUT, Nyloc, M12	-	16
23	MSP52-10-000	WASHER, Flat, M10	-	2
24	MSP52-12-000	WASHER, Flat, M12	-	8
25	MSP55-10-000	WASHER, Spring, M10	-	2

Note: Items 13 and 14 are Welded.

PT 1000A
CONTAINER MECHANISM CROSS TUBE
008-9502



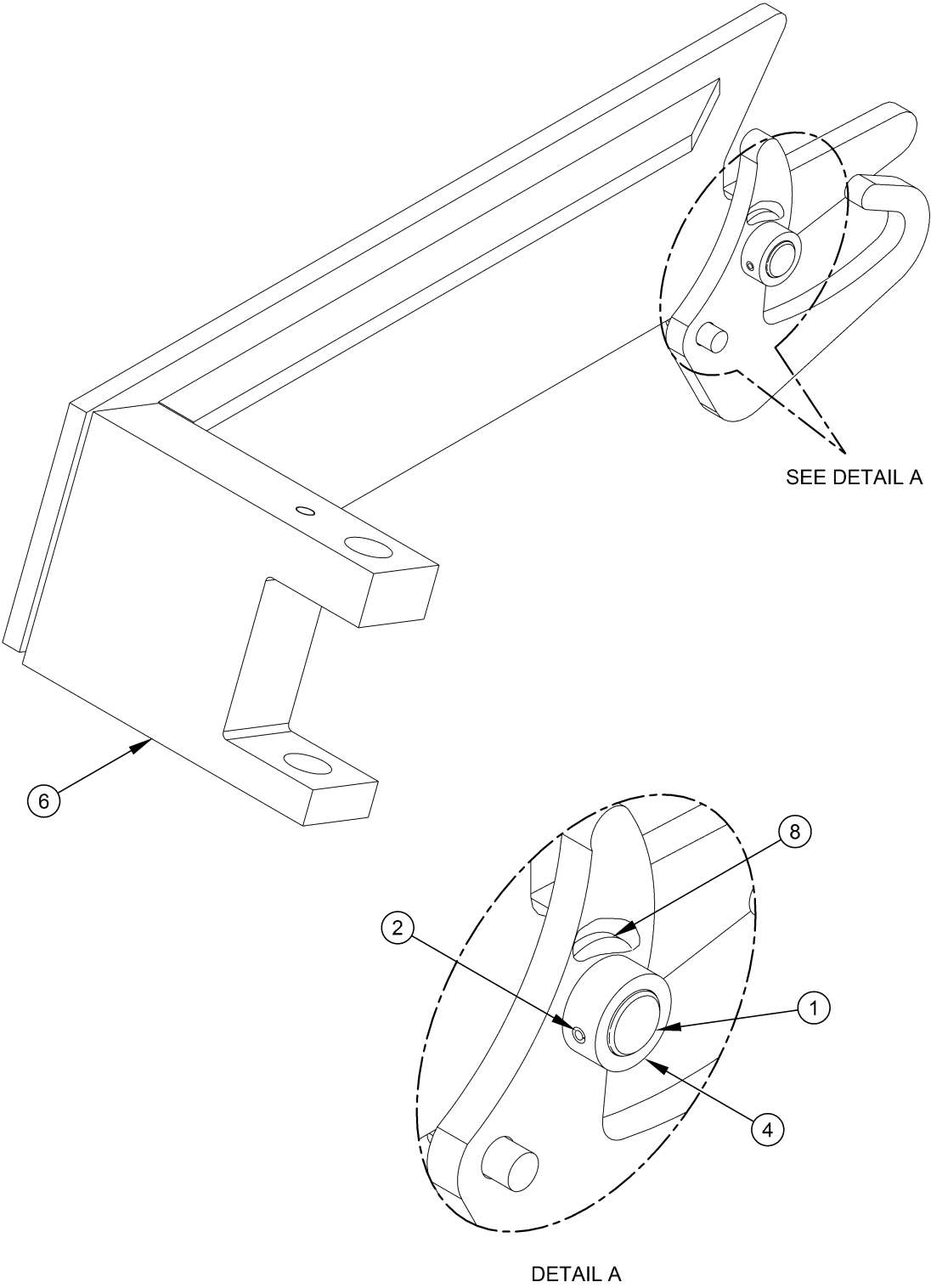
PT 1000A
CONTAINER MECHANISM CROSS TUBE
008-9502

285

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	008-9502	CROSS TUBE, Mechanism, Container	-	REF
1	008-9502-001	CROSS TUBE, Arm Mechanism, 80 mm	-	1

Note: Items 2-5 are Welded.

PT 1000A
CONTAINER ARM ASSEMBLY
093-3395



PT 1000A

CONTAINER ARM ASSEMBLY

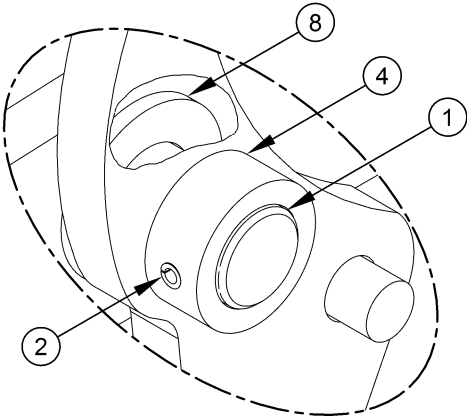
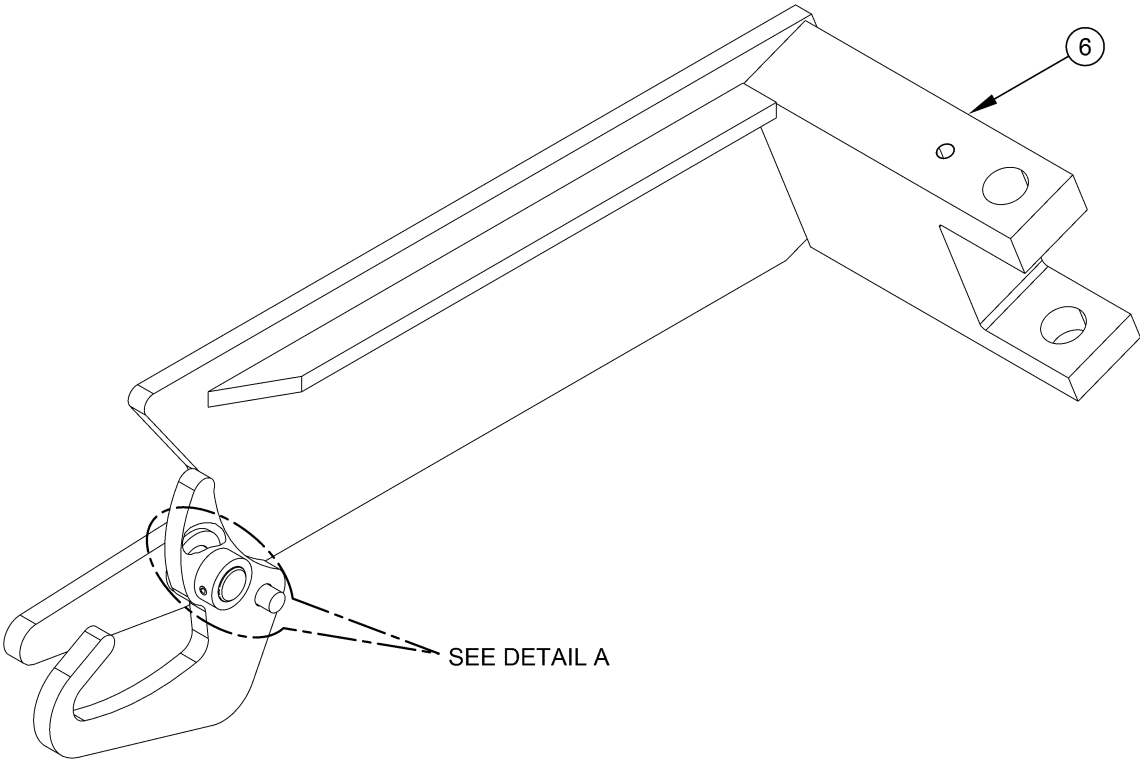
093-3395

287

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	093-3395	ASSEMBLY, Arm, Container	-	REF
1	048-7519	PIN, Pivot, Latch, 20 mm Dia.	-	1
2	048-7523-053	PIN, Roll, 5 mm Dia., 30 mm Lg.	-	1
4	088-0358-002	COLLAR, Retaining, Latch, 40 mm ID	-	1
6	093-3395-002	BLOCK, Pivot, Arm Mechanism	-	1
8	FS521500	WASHER, Flat, 3/4" SAE, Plain	-	1

Note: Items 3, 5 and 7 are Welded.

PT 1000A
PICK-UP ARM ASSEMBLY
093-3396



DETAIL A

PT 1000A

PICK-UP ARM ASSEMBLY

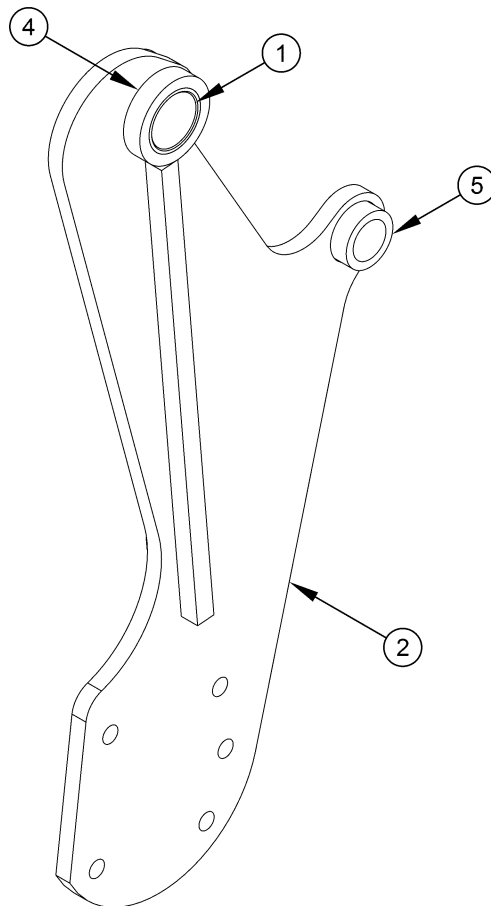
093-3396

289

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	093-3396	ASSEMBLY, Arm, Pick-Up	-	REF
1	048-7519	PIN, Pivot, Latch, 20 mm Dia.	-	1
2	048-7523-053	PIN, Roll, 5 mm Dia., 30 mm Lg.	-	1
4	088-0358-002	COLLAR, Retaining, Latch, 40 mm ID	-	1
6	093-3395-002	BLOCK, Pivot, Arm Mechanism	-	1
8	FS521500	WASHER, Flat, 3/4" SAE, Plain	-	1

Note: Items 3, 5 and 7 are Welded.

PT 1000A
CONTAINER ARM WELDMENT
093-3397



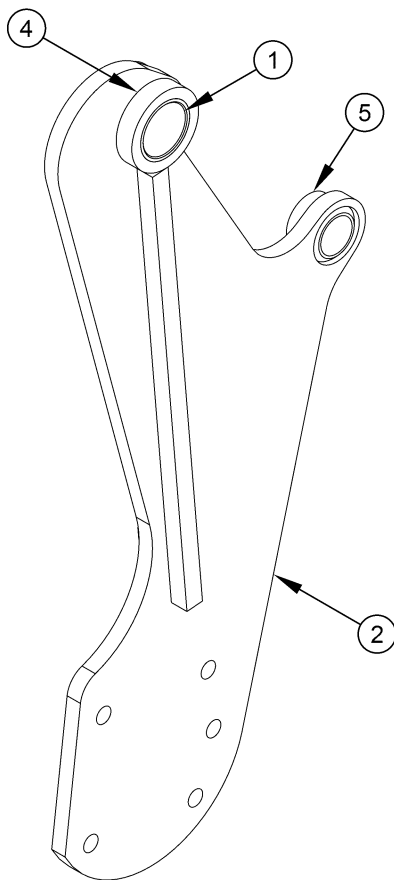
PT 1000A
CONTAINER ARM WELDMENT
093-3397

291

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	093-3397	WELDMENT, Arm, Container	-	REF
1	003-5287	BUSHING, Arm Mechanism	-	1
2	093-3397-001	ARM, Container	-	1
4	093-3397-003	COLLAR, Blank, Arm Mechanism, 44 mm ID x 60 mm OD	-	2
5	093-3397-004	COLLAR, Blank, 40 mm OD	-	1

Note: Item 3 is Welded.

PT 1000A
CONTAINER ARM WELDMENT
093-3398



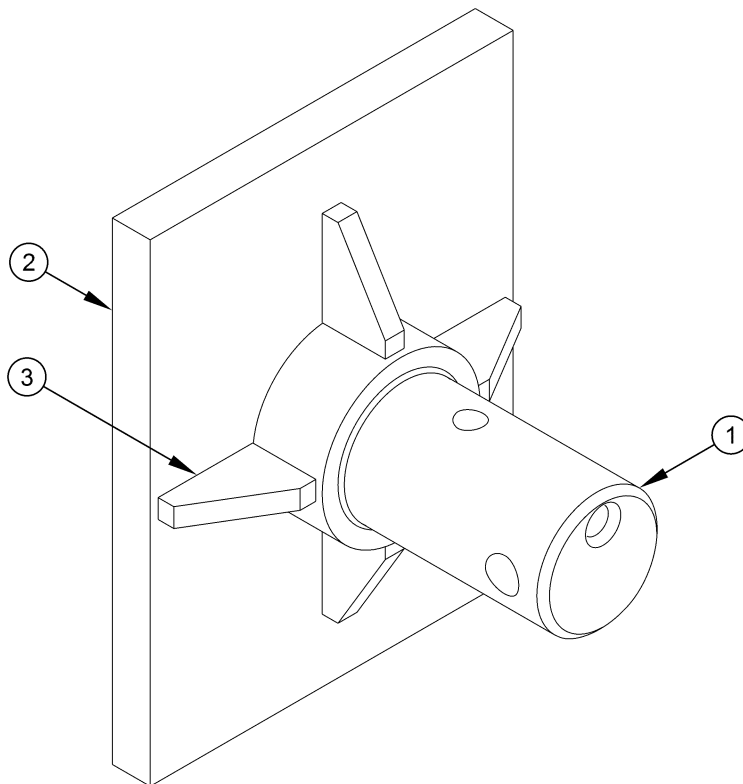
PT 1000A
CONTAINER ARM WELDMENT
093-3398

293

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	093-3398	WELDMENT, Arm, Container	-	REF
1	003-5287	BUSHING, Arm Mechanism	-	1
2	093-3397-001	ARM, Container	-	1
4	093-3397-003	COLLAR, Blank, Arm Mechanism, 44 mm ID x 60 mm OD	-	2
5	093-3397-004	COLLAR, Blank, 40 mm OD	-	1

Note: Item 3 is Welded.

PT 1000A
PIVOT BRACKET
311-6132



PT 1000A

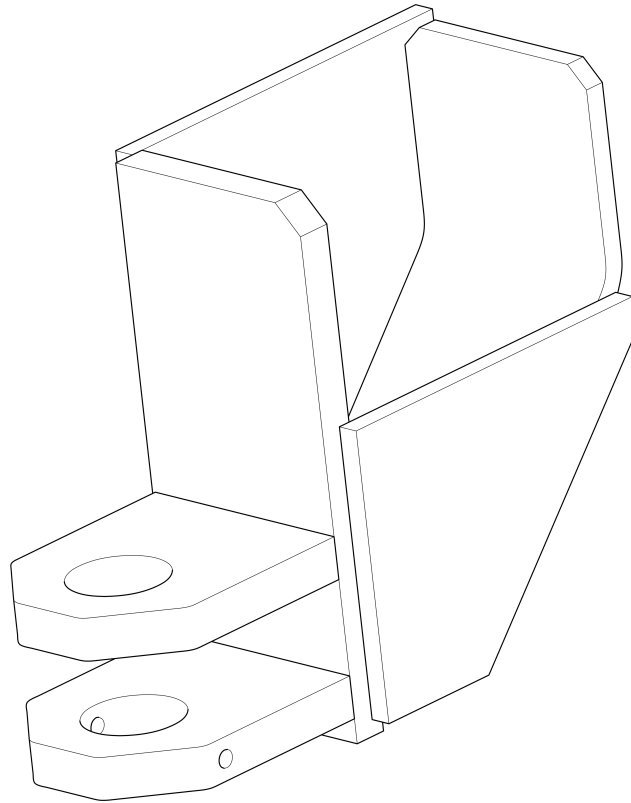
PIVOT BRACKET

311-6132

295

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	311-6132	BRACKET, Pivot	-	REF
1	048-7522	PIN, Pivot, Arm Mechanism	-	1
2	311-6132-001	PLATE, Pivot, Arm Mechanism, 12 mm	-	1
3	311-6132-002	GUSSET, Pivot, Arm Mechanism, 6 mm	-	4

PT 1000A
CYLINDER BRACKET RH
311-6133

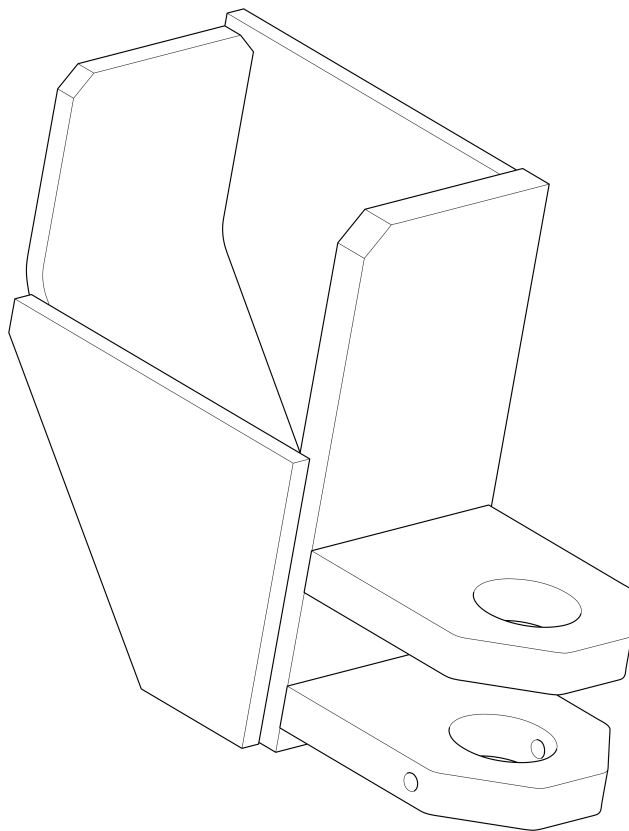


PT 1000A
CYLINDER BRACKET RH
311-6133

297

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	311-6132	BRACKET, Cylinder RH	-	REF

PT 1000A
CYLINDER BRACKET LH
311-6134



PT 1000A
CYLINDER BRACKET LH
311-6134

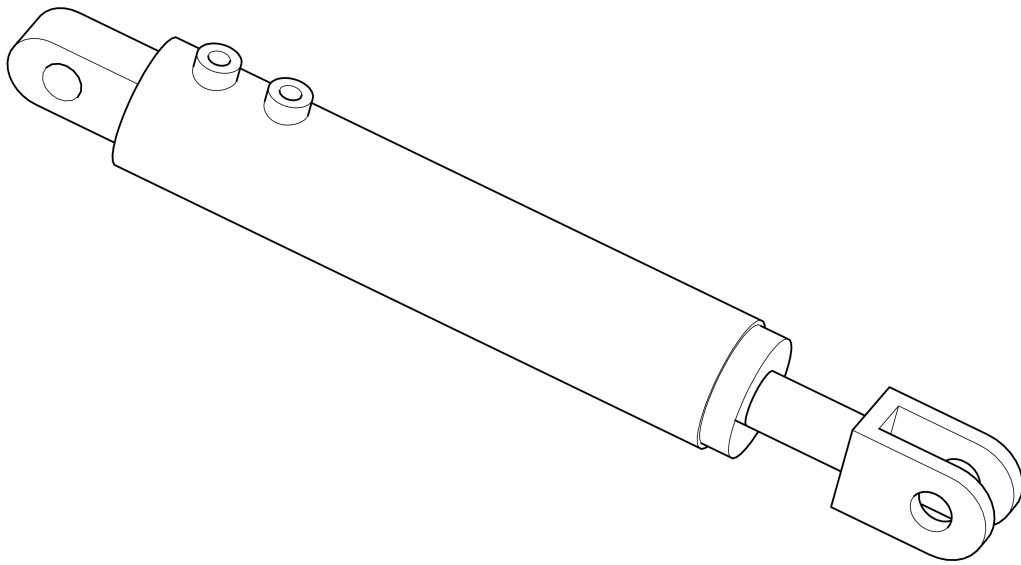
299

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	311-6134	BRACKET, Cylinder LH	-	REF

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COMB LIFT CYLINDERS

PT 1000A
COMB LIFT CYLINDER
001-7075

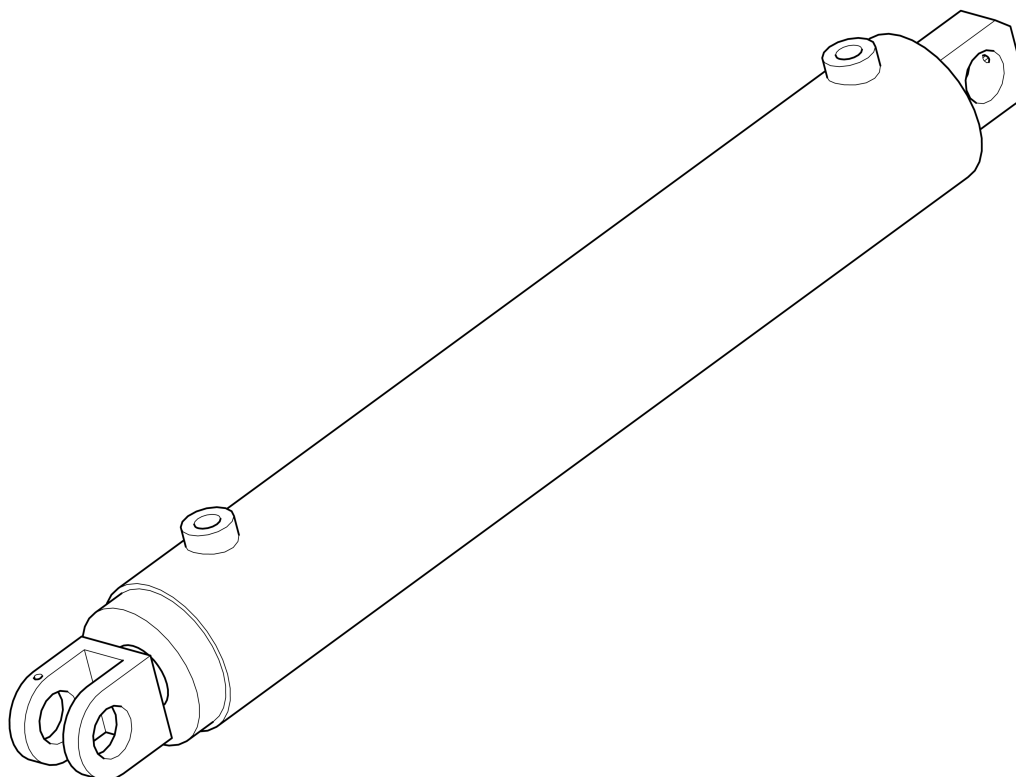


PT 1000A
COMB LIFT CYLINDER
001-7075

303

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	001-7075	CYLINDER, Comb Lift	-	REF

PT 1000A
CONTAINER MECHANISM CYLINDER
001-6988



PT 1000A
CONTAINER MECHANISM CYLINDER
001-6988

305

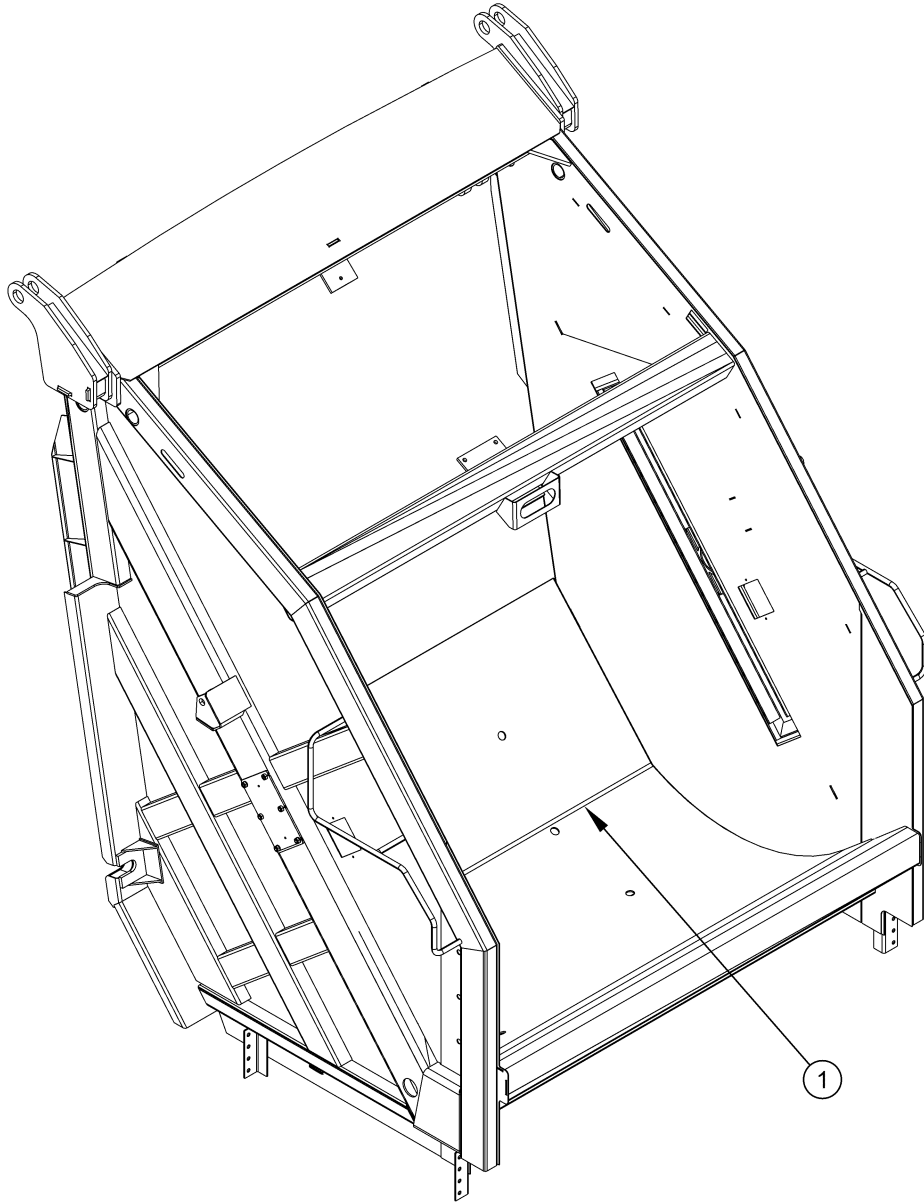
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	001-6988	CYLINDER, Container Mech.	-	REF
-	001-6988-9180	KIT, Seal, Container Mech Cylinder	-	REF

Note: Seal kits are sold separately.

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TAILGATE LINER KITS

PT 1000A
HOPPER LINER KIT
372-3637

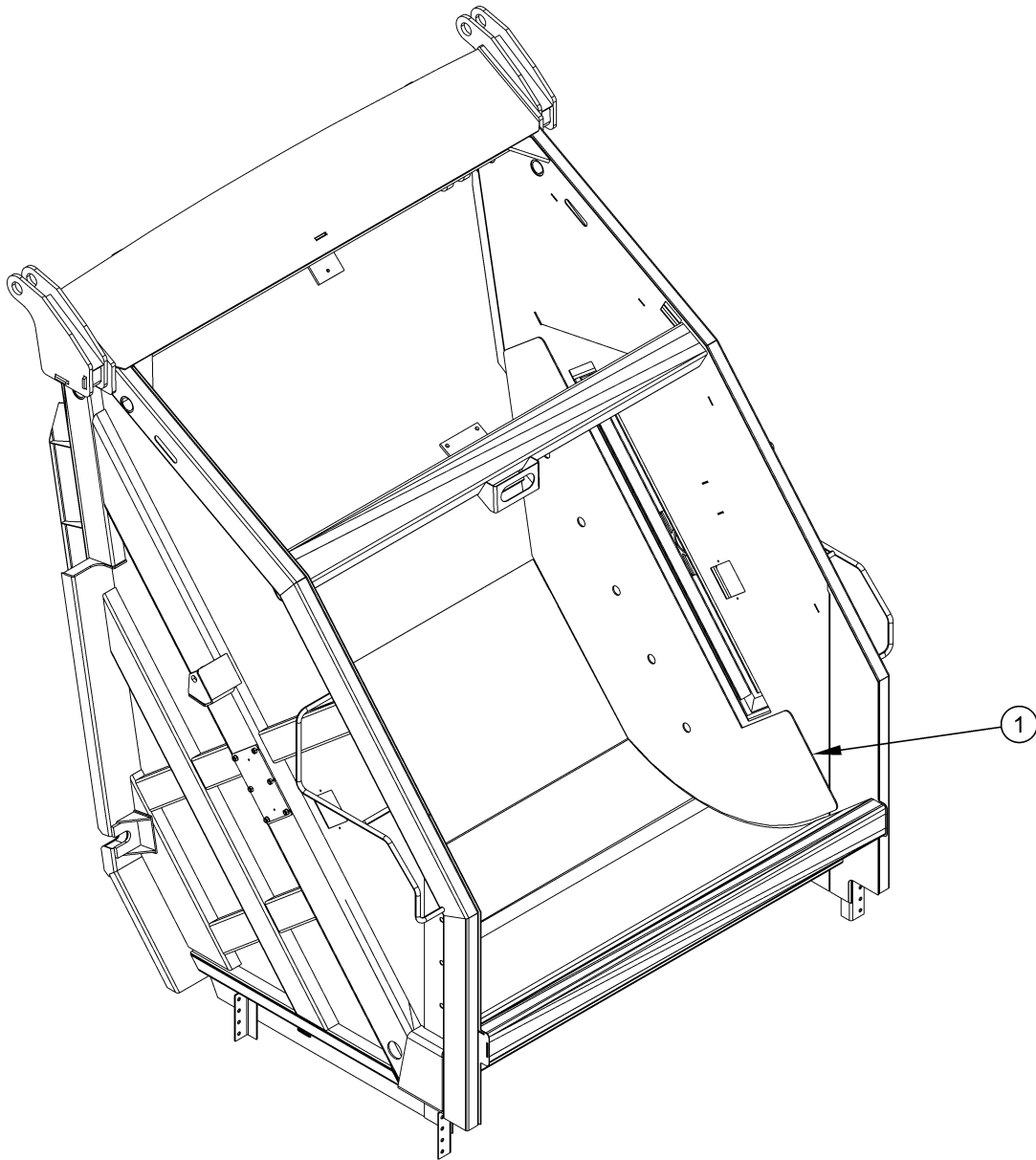


PT 1000A
HOPPER LINER KIT
372-3637

309

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-3637	KIT, Liner, Hopper	-	REF
1	094-2659	LINER, Hopper, Bottom	-	1

PT 1000A
TAILGATE SIDE LINER KIT
372-3639

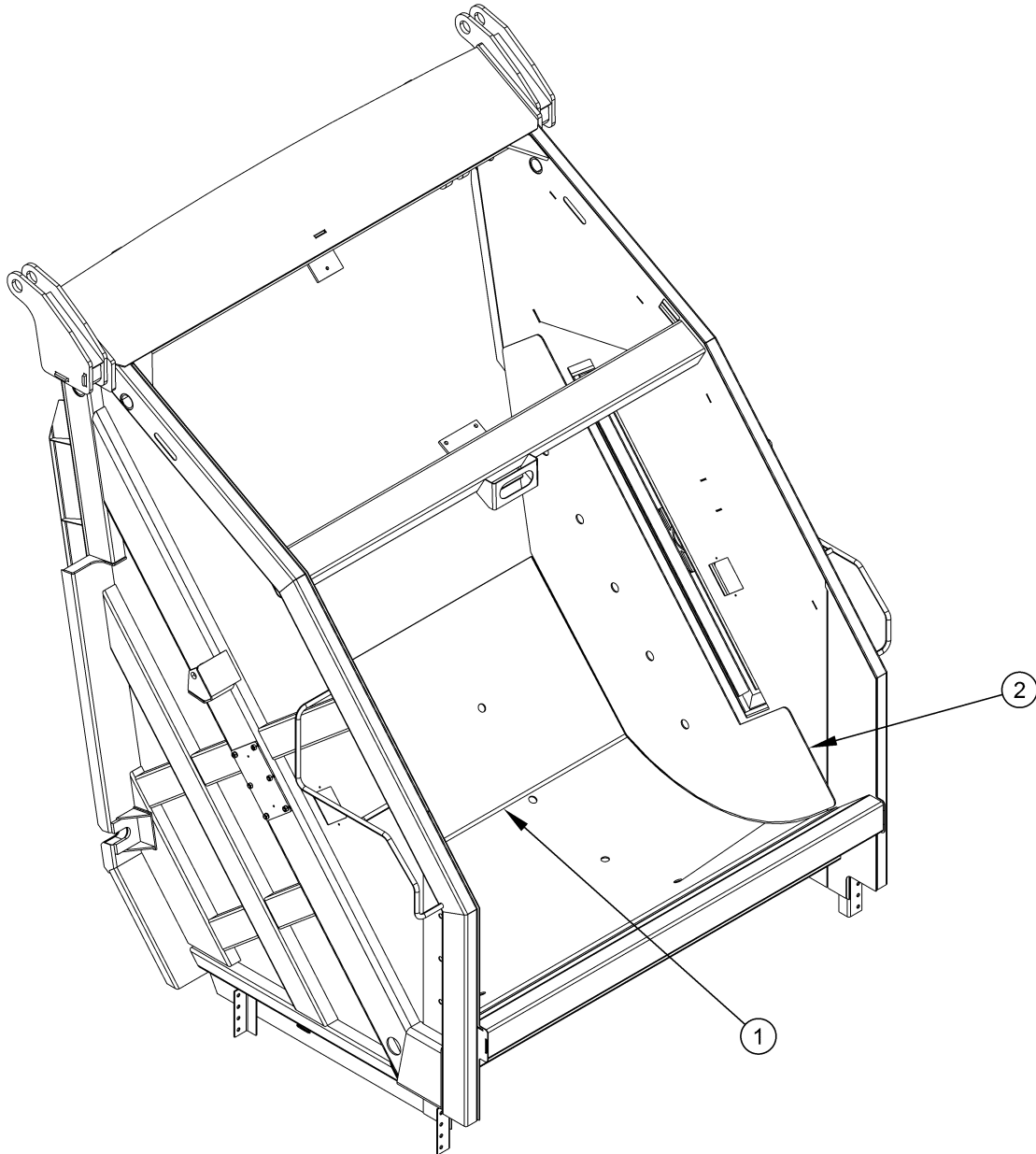


PT 1000A
TAILGATE SIDE LINER KIT
372-3639

311

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-3639	KIT, Side Liner, Tailgate	-	REF
1	094-2661	LINER, Side, Hopper	-	2

PT 1000A
HOPPER HEAD AND SIDE PANEL KIT
372-1263



PT 1000A
HOPPER HEAD AND SIDE PANEL KIT
372-1263

313

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-1263	KIT, Panel, Side and Hopper Head	-	REF
1	094-2659	LINER, Bottom, Hopper	-	1
2	094-2661	LINER, Side, Hopper	-	2

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PT 1000A

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HEIL ENVIRONMENTAL INTERNATIONAL WARRANTY STATEMENT

Heil Environmental Industries ("Heil") warrants its solid waste collection equipment to be free from defects in material and workmanship under normal use for a period of six (6) months (1000 hours of operation) 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 its Service Bulletins and Operation Manuals are performed. Heil warranty is not transferable.

This warranty is expressly limited to the repair or replacement of any component or part thereof, of any such unit 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 original equipment owner 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 warranty registration form must be on file with Heil's warranty department. 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. The parts warranty covers parts only, providing that factory inspection reveals a defect in material or workmanship. Labor, inbound/Outbound Freight, troubleshooting, 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 FOR LOSS OF PROFITS, PRODUCT, TIME OR ANY OTHER DIRECT, INCIDENTAL, OR INDIRECT CONSEQUENTIAL LOSSES, DAMAGES OR DELAYS. ANY IMPROPER USE, OPERATION BEYOND RATED EQUIPMENT/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 AFFECTS 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 or specific contract terms & conditions, no employee or representative is authorized to modify this warranty in any way nor shall any other warranties be granted. However, Heil retains the right to modify its warranty program prospectively at any time.

The above warranty supersedes and is in lieu of all other warranties expressed or implied.



WE NEVER STOP WORKING FOR YOU

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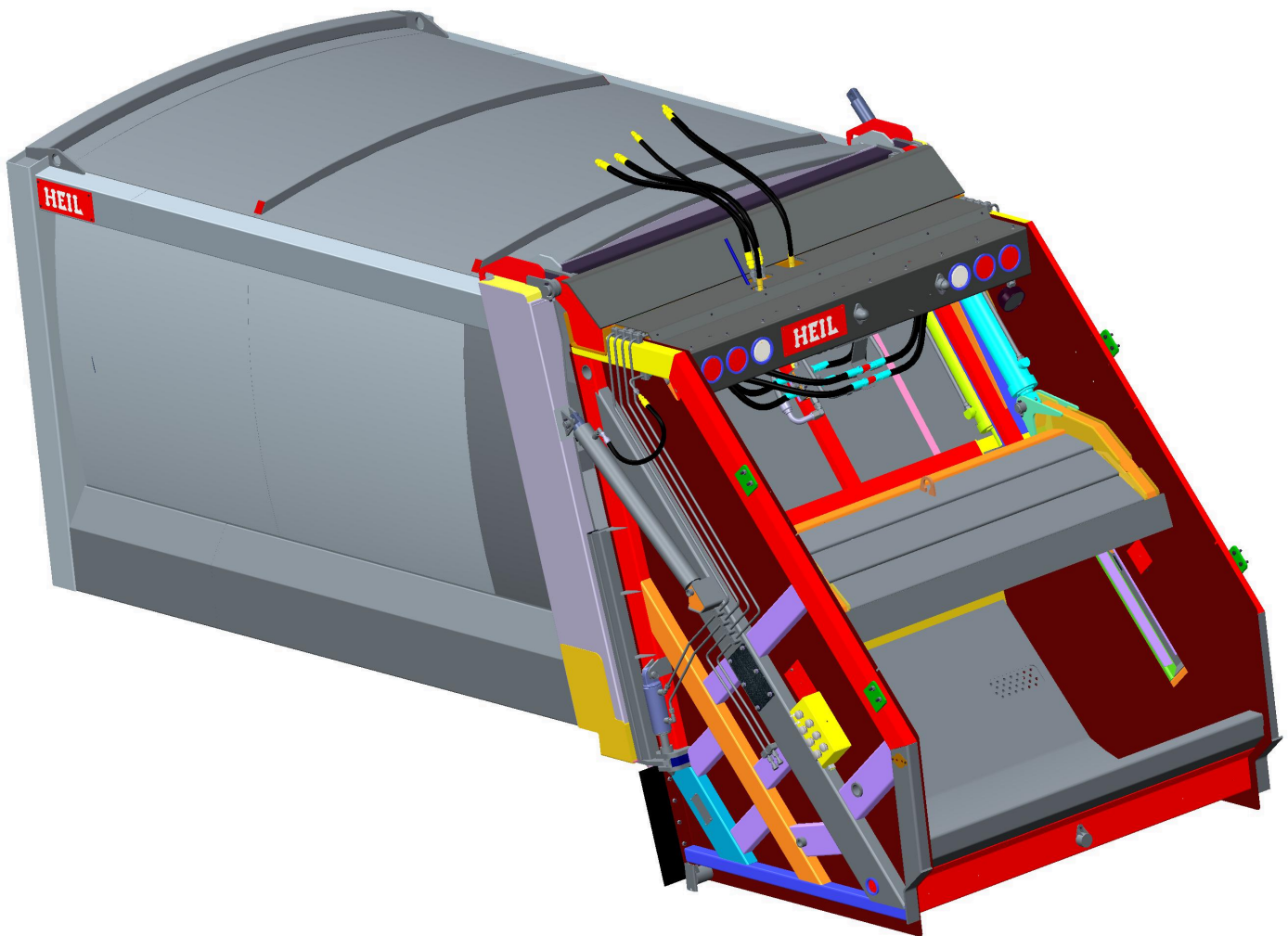


PT 1000A

HIGH-PERFORMANCE REAR LOADER

SERVICE MANUAL
ISSUED JANUARY 2017

TP1PT1A-SM-0117



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



WARNING

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

IMPORTANT SAFETY NOTICE

Proper service and repair are important to the safe, reliable operation of the Heil Co.'s products. Service procedures recommended by Heil 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. Heil 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, Heil has not undertaken any such broad evaluations. Accordingly, anyone who uses service procedures or tools which are not recommended by Heil must first satisfy himself thoroughly that neither his safety nor the product safety will be jeopardized by the method he selects.

“Heil Environmental, 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. Heil Environmental 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 Heil product, and for the particular application of the user relative to the Heil product.”

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NOTES

SECTION 1

GENERAL INFORMATION

PT 1000A

General Information

INTRODUCTION

The following sections are a guide for maintenance and service of the Heil unit. The sections cover preventive maintenance, adjustment, and troubleshooting hints. Before performing maintenance, check the work area carefully to find all the hazards present and make sure all necessary safeguards or safety devices are used to protect all persons and equipment involved. In order to diagnose a problem quickly and effectively, a service person must be thoroughly familiar with the machine.

This section explains the system and its major components. Diagrams and schematics of the electrical and hydraulic systems are in the Service Manual Schematics section.



IMPORTANT!

- Before starting any maintenance, study this section of the manual.
- Read all hazard warnings and decals on the unit.
- Clear the area of other persons before performing any maintenance.
- Know and understand safe use of all controls.
- It is your responsibility to understand and follow manufacturer's instructions on equipment and care.

SERVICE/PARTS ASSISTANCE

Assistance in troubleshooting repair and service is available by contacting the authorized Heil Dealer in your area. Parts are available at your Heil Dealer or through Heil. Heil personnel are trained to give prompt, professional assistance.

ALWAYS give the unit serial number in all correspondence relating to the equipment.

See the back cover of this manual for Heil contact information.

PRECAUTIONARY STATEMENTS

Listed below are the definitions for the various levels of hazards. It is important that the operators of this equipment and people who service units read and understand all warnings as they relate to this equipment operation.

- **DANGER** – indicates a hazardous situation, which if not avoided WILL result in DEATH or SERIOUS INJURY if you do not follow proper instructions.
- **WARNING** – indicates a hazardous situation, which if not avoided COULD result in DEATH OR SERIOUS INJURY if you do not follow proper instructions.
- **CAUTION** – indicates a hazardous situation, which if not avoided COULD result in MINOR to MODERATE INJURY if you do not follow proper instructions.
- **NOTICE** – addresses practices not related to personal injury, such as property damage or damage to the equipment.

The following warnings are generally in the Operator's Manual for each specific unit or are generic safety messages if an Operator's Manual does not have these safety messages. Other safety alert messages may be in other sections of the Parts and Service Manual or in an Operator's Manual. You must read and obey all safety alert messages in any manual produced by Heil to support your unit.

WARNING

Failure to follow all instructions and safety precautions in this manual, in the Service Manual, in other manufacturer's manuals and on the safety decals attached to the product could result in serious injury or death to operators or bystanders and/or damage to property. Do not operate this vehicle before you read and understand the Operation Manual, the Parts Service Manual for this unit, other applicable manufacturer's manuals and the safety decals on the product. Each operator of this unit must read and understand all directions in this manual before they first operate this vehicle. Keep this manual in the cab for new operators and to remind all operators about safe use.

WARNING

Never weld on a compressed natural gas vehicle unless the compressed natural gas fuel system has been purged with inert gas.

DANGER

Do not operate the unit or perform repair or maintenance procedures on the unit until you read and understand all of the instructions in this manual. Failure to do so can result in death or serious injury to operators or bystanders.

DANGER

Make sure the unit is on firm, stable ground before you raise the body and clear the area of all unnecessary people. Do not prop a body unless it is on firm, stable ground. A unit not on firm, stable ground can roll when raising or propping the body. This can cause death or serious injury to you or bystanders.

DANGER

Always prop the tailgate when you leave it raised for maintenance, service or cleaning procedures. Any part of your body between the unit's body and the tailgate while you prop the tailgate or when the tailgate is propped is dangerous. Death or serious injury can occur if any part of your body is between the tailgate and the body if the tailgate suddenly closes.

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DANGER

A tailgate in motion is dangerous. Serious injury or death can occur if a person is struck by a moving tailgate or becomes trapped between the tailgate and the body. Clear the area near the tailgate of all unnecessary people before you lower the tailgate.

DANGER

The packer and crusher panels are dangerous. They can cause death or serious injury if a person is inside the hopper. Make sure no one is inside the hopper before you begin a packer or crusher function. Put the unit in the Lock-Out/Tag-Out mode if it is necessary to enter the hopper area.

DANGER

Keep all parts of your body out from underneath the unit's body and away from the cylinders when raising or lowering the body. Serious injury or death will occur if the unit's body suddenly lowers and traps a part of your body.

DANGER

Do not raise a body that has refuse while you do maintenance or service procedures. Refuse in the body can make the unit unstable. Always unload refuse from the body before you raise it for maintenance or service procedures. Always use the body props when you raise the body for maintenance or service procedures.

DANGER

A full or partially full load of refuse is dangerous while you lower the body with inoperative controls. Refuse in the body can make the unit unstable and cause it to overturn. Serious injury or death can occur if the unit overturns due to instability caused by the loaded refuse. REMOVE the refuse before you block the body.

DANGER

Lifting equipment that does not have sufficient lifting capability is dangerous. Equipment can fail and cause death or serious injury to the operator or bystanders. Make sure the lifting equipment has sufficient lifting capability and clear ALL persons not involved with the procedure away from the area.

DANGER

The lifting equipment can fail. Serious injury or death can occur if the lifting equipment breaks and the body falls or the unit rolls over. Do not place your body or limbs between the unit's body and chassis while you remove the body-supporting timbers. Be attentive and prepared to move quickly away from the unit in the event there is an equipment failure.

DANGER

Contact of the unit with overhead electric lines is dangerous. Death or serious injury can occur. Make sure there is adequate overhead clearance before you raise the container. If the unit does make contact with overhead electric lines do not touch any metal in the cab. Stay in the unit until help arrives..

WARNING

Make sure the unit is in the Lock-Out/Tag-Out mode when you do maintenance or service procedures, or when you go in the hopper, climb in or on the body or on equipment. Equipment can be operated when the unit is not in the Lock-Out/Tag-Out mode. When the unit is not in the Lock-Out/Tag-Out mode, equipment operated while you do maintenance or service procedures, go in the hopper or climb in or on the body or on equipment can cause death or serious injury.

WARNING

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

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General Information

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WARNING

Raising the body with the tailgate closed can damage the underride bumper. The under ride bumper can hit the ground when the tailgate is not fully raised before you raise the body. Death or serious injury can occur and also cause damage to the unit.

WARNING

Clear all people of the area before you lift a refuse container. Make sure the refuse is secure in the refuse container before you lift the container. Loose refuse can fall and cause death or serious injury.

WARNING

The hydraulic fluid can be under pressure and can spray while you open the connection. Hydraulic fluid can cause damage to your eyes, hands or skin. Wear protective eye glasses, gloves and other clothing as necessary to protect you from the hydraulic fluid.

WARNING

A unit that needs service or repair can malfunction and create a dangerous condition. A part failure during operation can cause death or serious injury to a person or damage to the unit. Repair or replace any failed or defective part immediately.

WARNING

Improper dumping of the refuse can cause the unit to tip or rollover. Death or serious injury can occur if the unit rolls or tips over. Empty as much refuse as you can with the packer panel before you raise the body.

WARNING

Do not move the unit forward or backwards excessively fast (lurch) to dump the refuse load. Excessively fast movements with the body raised can make the body unstable and tip or roll the unit over. This can result in death or serious injury to the operator and damage the unit. Use only sufficient movement to loosen the load so that it will leave the body.

WARNING

Isopropyl alcohol is flammable and is harmful to eyes and skin. Keep isopropyl alcohol away from heat or open sources of ignition. Flush eyes and skin with water for 15 minutes after contact. Seek immediate medical help.

WARNING

A container that is not locked to the container lift mechanism is dangerous. The container can fall off the container lift mechanism and cause death or serious injury. Make sure you engage and lock the container latch bars before you lift the container.

WARNING

Grabbing a refuse container with too much pressure can damage the container. Pieces of the container can “fly” off the container and cause moderate or minor injury to a bystander. Use enough pressure with the grabber to raise the container with the lift arm and not damage the container.

NOTICE

Do not move the unit forward or backwards excessively fast (lurch) to dump the refuse load. Excessively fast movements with the body raised puts a very high load on the body raise cylinders and could damage one or both cylinders and make the body unstable unable to lower. Inspect the cylinders after you dump each load and replace if necessary.

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General Information

NOTICE

Do not operate the unit or perform repair or maintenance procedures on the unit until you read and understand the instructions in this manual. Failure to do so can result in damage to the unit or other property. If you do not understand a procedure or instruction, tell the owner or the designated person immediately. Do not operate the unit if you do not understand all procedures and instructions in this manual. The owner or designated person can contact your Heil dealer or Heil for additional help. See the Operator's Manual or Service Manual for contact information.

NOTICE

Grabbing a refuse container with too much pressure can damage the container. The container can become unusable. Use enough pressure with the grabber to raise the container with the lift arm and not damage the container.

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 ESG Technical Service if you have any questions about Lock-Out/Tag-Out procedures.

NOTICE

You can order Lock-Out/Tag-Out Tags through your Heil Dealer or through Heil.

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.

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

- BEFORE you enter the unit's body
- BEFORE you do maintenance, repair or cleaning procedures on the unit.



Figure 1. Lock-Out/Tag-Out (Do Not Operate) Tag

Follow These Steps:

1. APPLY the brakes. MAKE SURE the brakes do not let the unit move and they work properly.
2. Chock all wheels.
3. SET the tailgate props when you raise the tailgate for service, maintenance or cleaning.
4. SET the body props when you raise the body for service, maintenance or cleaning.
5. When there are in-cab controls, turn the ignition switch to ON then:
 - a. Move the switches of the hydraulic controls. This relieves the pressure in the cylinders.
 - b. Turn the ignition switch to OFF.
6. When there are no in-cab controls, move the outside control levers to relieve the pressure in the cylinders.
7. Put a LOCK-OUT/TAG-OUT Tag onto the steering wheel.
8. Remove the ignition key from the cab, lock the vehicle, and put the key in a secure location.
9. You can order Lock-Out/Tag-Out Tags (Part Number 212-1586) through your Heil Dealer or through Heil.

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General Information

COMPRESSED NATURAL GAS (CNG) FUEL SYSTEM

This section is for units equipped with a CNG fuel system.

NOTICE

For CNG units, this Service Manual should be used in conjunction with any associated CNG System Manufacturer's Operation and Maintenance Manuals. Always read and understand all associated manuals alongside the Heil Parts and Service Manual and Heil Operation Manual before operating or servicing the unit. CNG training is required for any person inspecting, operating, or performing maintenance of a CNG unit.

A. Safety

This section deals with general safety precautions that are necessary when operating compressed natural gas fuel systems and equipment and defueling a compressed natural gas fuel system. For supplemental information, refer to the following codes:

United States: NFPA 52, State and Local Regulations

Canada: CAN/CGA B109, CAN/CSA B108, FMVSS 304

WARNING

Do not start the engine if a natural gas leak is detected.

WARNING

Do not transfer compressed natural gas fuel from one vehicle to another vehicle. Transferring compressed natural gas can cause a buildup of static electricity which could create a spark and ignite the fuel.

WARNING

Never weld or perform any type of "hot work" on any part of a compressed natural gas vehicle unless the compressed natural gas fuel system has been purged with inert gas.

WARNING

Never open system components while the system is under pressure. Treat all cylinders as full until defueling has been completed.

WARNING

Avoid open flames and sparks near a compressed natural gas vehicle.

WARNING

Do not smoke cigarettes, cigars, or use any other lit or sparking items within 30 feet of a compressed natural gas vehicle or a dispensing/filling station.

WARNING

Do not use a cell phone or other electronic device within 30 feet of a compressed natural gas vehicle or a dispensing/filling station.

CAUTION

Keep the compressed natural gas equipment area well ventilated.

COMPRESSED NATURAL GAS (CNG) FUEL SYSTEM (CONTINUED)

CAUTION

A portable fire extinguisher must be installed on the vehicle in an accessible location.

B. Fill Panel

The fill panel control interface is accessible by opening the fill panel access door (usually on the street side of the unit). See Figure 2. Notice the red Manual Fuel Shutoff Valve in the center of the fill panel. Also shown are the High Pressure Gauge (left) and Low Pressure Gauge (right), the Fuel Fill Receptacles and Dust Caps (bottom right) and the Defueling Receptacle and Dust Cap (bottom left).

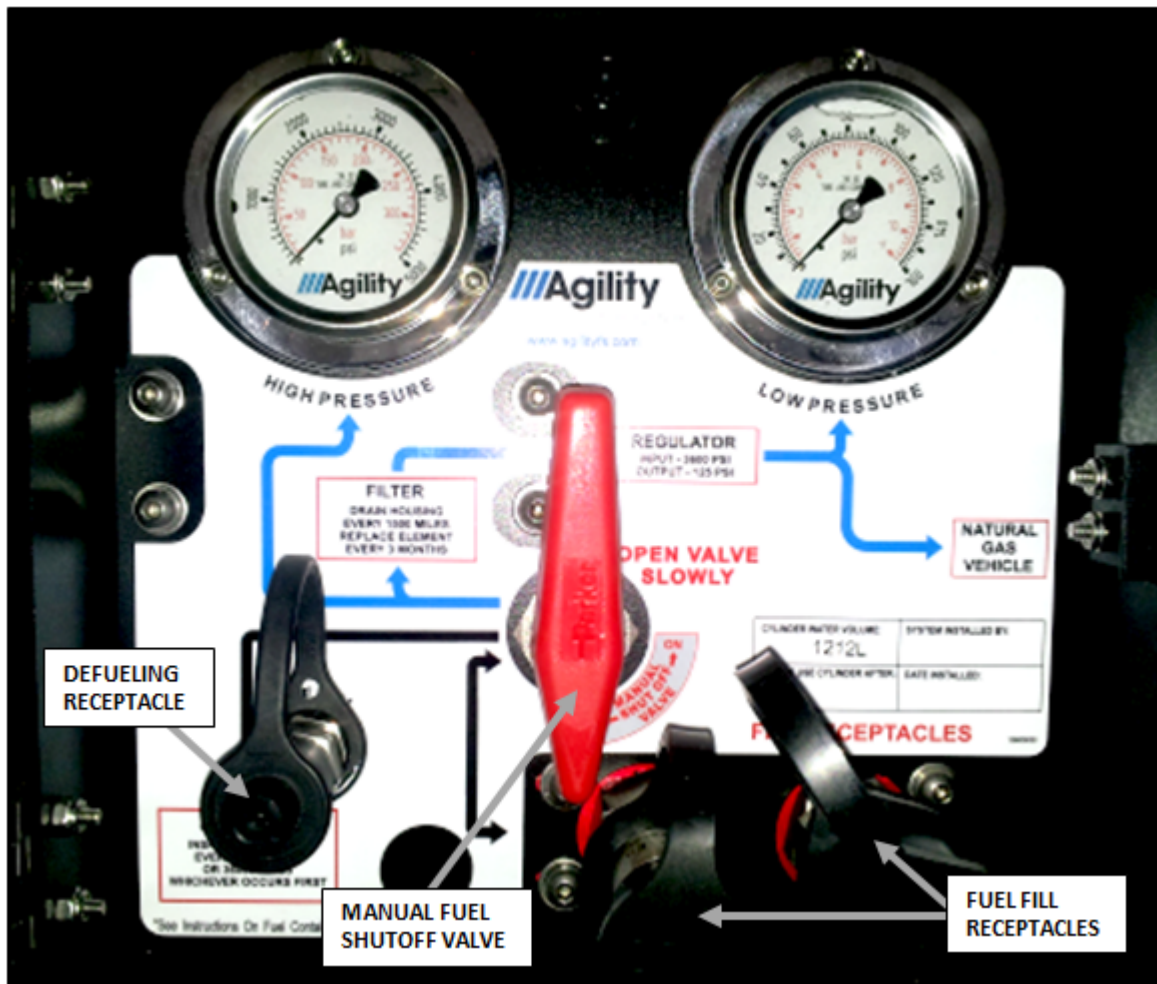


Figure 2. CNG Fill Panel (Photo Used with Permission from Agility Fuel Systems)

C. Starting Vehicle

NOTICE

Starting a natural gas vehicle requires a delay between the battery power being turned on and the starter motor being activated.

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General Information

COMPRESSED NATURAL GAS (CNG) FUEL SYSTEM (CONTINUED)

C. Starting Vehicle (Continued)

1. Make sure that the system has been properly leak tested and that no leaks exist.
2. Make sure that plastic caps are installed on all exposed vent lines. For roof mounted CNG, vent lines route to both ends of the cylinders. For tailgate mounted CNG, vent lines route to the top of the tailgate. If the plastic caps are missing, contact Heil Parts Central for replacement caps (Part Number 042-2078 for 3/8" and 042-2079 for 1/2") at 800-528-5308.
3. Make sure that the cylinder shut-off valves (one on each cylinder) are "OPEN" and the manual shut-off valve is "ON".
4. Without starting the engine, turn the key to the "RUN" position and wait 20-30 seconds. This will allow the fuel to properly fill the system and provide adequate back-pressure for the high-pressure solenoid valve to function properly.
5. Start the engine.
6. If this is the first start of the day, let the vehicle idle for five minutes. This will allow coolant to warm the fuel and ensure that the low-pressure lines down-stream of the primary pressure regulator do not freeze up. On extremely cold days, the vehicle may have to idle for a longer period until the fuel warms adequately.

D. Maintenance

Routine maintenance of the compressed natural gas system in accordance with Section E (below) will ensure that the system and components are functioning properly.

WARNING

System components must not be under pressure during servicing. Doing so may cause serious injury.

WARNING

Never weld on any part of a compressed natural gas vehicle unless the compressed natural gas fuel system has been purged with inert gas.

WARNING

Make sure the unit is in the Lock-Out/Tag-Out mode when you do maintenance or service procedures, or when you go in the hopper, climb in or on the body or on equipment. The unit can be operated intentionally or accidentally when the unit is not in the Lock-Out/Tag-Out mode which can cause serious injury or death to anyone in the hopper, in or on the body or on equipment.

CAUTION

Maintenance of a compressed natural gas system is to be performed ONLY by authorized service personnel. Unauthorized maintenance can result in personal injury and/or extensive damage to the unit.

E. Inspection/Preventive Care Schedule

ITEM	FREQUENCY
Storage System:	
Leak Test with Methane Detector*	Every month
Component Inspection*	Every month
Drain Filter	Every 1500 miles
Replace Filter Element	Every 3000 miles
Drain Vent Lines	Every month (or immediately if blue vent cap is missing)
Cylinders*	Inspect compressed gas cylinders as outlined by cylinder manufacturer
* To be completed by a qualified and trained person.	

COMPRESSED NATURAL GAS (CNG) FUEL SYSTEM (CONTINUED)

F. Defueling with a Defueling Receptacle

Defueling is generally the process of removing any residual fuel from the fuel tanks and on-board fuel delivery system prior to performing any welding or a major repair. Capturing the CNG in a system that can send it back to a CNG fueling station storage facility for reuse is the most environmentally responsible method. Atmospheric venting of CNG might be illegal and against local environmental regulations for your area. Check local laws and regulations before venting CNG to the atmosphere.

Before attempting to defuel a CNG vehicle, read and understand **National Fire Protection Association (NFPA) 52 sections 6.14.1 - 6.14.4.4** as they provide a detailed list of requirements to be followed when performing defueling. Also read and understand all of the safety alert messages and procedures in this section. Maintenance of a compressed natural gas system is to be performed **ONLY** by authorized service personnel.

Required Tools

- Defueling receptacle on vehicle*
- Defueling nozzle and gas pressure regulation system
- Place to put the fuel removed from the vehicle

* If your CNG system does not have a defueling receptacle, contact the CNG system manufacturer for defueling instructions specific to your system.

Basic Rules for Defueling

- Consume as much fuel as possible prior to defueling
- Notify appropriate nearby personnel prior to defueling and clear the area of all unessential people
- ALWAYS ground (earth ground) the vehicle AND the fuel system being defueled
- NEVER defuel indoors
- Always wear personal protective equipment
- Be familiar with evacuation routes

G. Defueling Prior to Minor Repairs That Require No Welding

Defueling is required when a CNG fuel system component has failed, or when a CNG fuel storage cylinder has sustained level 2 or 3 damage and must be removed from the vehicle for repair or replacement. Minor repairs of components or systems not connected or related to the CNG fuel system do not require defueling as long as all safety precautions are carefully followed and no welding will be performed.

Relieve the pressure from the CNG tank such that only residual CNG vapor remains. Typically the CNG system would have nominally 689kPa (100 psig) on board in gaseous pressure when the system is "defueled". Defueling to 100 psig is acceptable if none of the repairs involves the CNG equipment on the vehicle or if no welding on the vehicle is required. If the repair involves the fuel system in any way or if welding on the vehicle will be performed, it is necessary to defuel and purge the system with an inert gas such as nitrogen.

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General Information

COMPRESSED NATURAL GAS (CNG) FUEL SYSTEM (CONTINUED)

WARNING

Venting does not completely empty the system of combustible gas. Never weld on a compressed natural gas vehicle unless the compressed natural gas fuel system has been purged with inert gas. See Paragraph H below.

There are two methods by which to defuel a CNG vehicle using a Defueling Panel with a Defueling Receptacle.

1. Atmospheric Venting Method

- a. You must first check to see if this method is legal in your area. There could be local environmental regulations regarding the release of methane into the atmosphere.
- b. If atmospheric venting is acceptable in your area, then a vent stack apparatus that meets the requirements established in either the Uniform Building Code or the International Building Code must be followed as well as NFPA 52.
- c. With the local authority having jurisdiction, typically the Fire Marshal should be consulted.
- d. BOTH the vehicle AND the fuel system should be grounded. Use a minimum 14-gauge multi-stranded wire. Contact the CNG system manufacturer for attachment points for the ground wire.
- e. Restrain all tanks during depressurization to prevent the tanks from moving.
- f. Attach a defueling nozzle to the defueling receptacle. Contact the CNG system manufacturer for the minimum distance the vent hose should be positioned above the ground.
- g. After this nozzle is connected, the valves that allow system pressure to reach the defueling receptacle must be turned to the "defueling enabled" position (if equipped).

2. Compressor Inlet Method

- a. This procedure requires pre-planning and special equipment installed at the CNG fueling station. Check with your CNG fueling station supplier or installer.
- b. In this method, the vehicle is connected through the fueling nozzle to the defueling panel receptacle and the compressor at the fueling station extracts the compressed natural gas from the vehicle.
- c. BOTH the vehicle AND the fuel system should be grounded. Use a minimum 14-gauge multi-stranded wire. Contact the CNG system manufacturer for attachment points for the ground wire.

H. Purging with an Inert Gas Prior to Welding or Major Repairs

If welding or major repairs is required, you must remove all of the fuel from the vehicle including the residual fuel and replace it with an inert gas such as nitrogen. The objective is to completely purge the system of all combustible gas. In order to complete the operation, the entire system should be purged with the inert gas 3 times to a pressure of at least 689kPa (100 psig). Approximately 70kPa (10 psig) of residual inert gas pressure should be left on the system during the major repair.

WARNING

Never weld on a compressed natural gas vehicle unless the compressed natural gas fuel system has been purged with inert gas.

NOTICE

Avoid exposing CNG system parts to molten metal from weld, torch, cutting, or grinding splatter. The CNG system and/or the CNG system components can be damaged.

COMPRESSED NATURAL GAS (CNG) FUEL SYSTEM (CONTINUED)

I. Recharging the Fuel System after Purging and after Major Repairs

After repairs, the inert gas must be removed from the system in a similar manner as the inert gas was introduced. Specifically, the entire system should be charged 3 times with approximately 689kPa (100 psig) of natural gas. Between each natural gas charging session, the system should be vented or extracted to remove the remaining inert gas from the system. See the Notices below and the atmospheric venting method instructions above.

NOTICE

It is critical when venting between gas charging sessions to make sure the tank pressure never goes below 34kPa (5 psig). 69-138kPa (10-20 psig) is the recommended cutoff for this procedure. This will ensure that outside air does not re-enter the tank due to the pressure dropping too low in the tank.

NOTICE

If venting to atmosphere, you must first check to see if this method is legal in your area as some natural gas will be vented along with the inert gas.

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General Information

STORING REFUSE IN THE BODY

Heil does not recommend storing refuse in the body overnight. The different types of debris and corrosive elements usually collected can cause severe corrosion inside the body decreasing the life of your body. This corrosion can affect unloading and decrease the structural life of the body. In addition, storing refuse in the body overnight can increase the risk of fire.

MAINTENANCE/LUBRICATION INFORMATION

Before performing maintenance, check the job carefully to find all the hazards present and make sure all safe guards or safety devices are in place to protect all persons and equipment involved.

GREASE LUBRICANT RECOMMENDATION

Use a grease gun. Before engaging grease gun, clean the fitting. Always pump enough grease to purge the joint of contaminated grease and wipe off the excess grease. Lubricate a unit as given on the lubrication decal on the unit and in the Parts and Service Manual and Operator's Manual. Use NLGI 000 grease.

OIL LUBRICANT RECOMMENDATION

Use only non-detergent engine oil to lubricate all moveable mechanical parts not furnished with grease fittings. Apply sufficient oil to give good lubrication, but do not bathe parts in oil. Always wipe off excess oil.

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HYDRAULIC OIL SPECIFICATIONS

Heil hydraulic oil (MV32) contains the following specifications.

Gravity	API (ASTM D-287) 31.0
Specific Gravity @ 60°F (15.6°C)	(ASTM D-287) 0.8780
Flash Point	(ASTM D-92) 410°F
Pour Point	(ASTM D-97) -60°F
Viscosity @100°F @210°F	SUS (ASTM D-445 & ASTM D-2161) 153 SUS (ASTM D-445 & ASTM D-2161) 47.3
Viscosity Index	(ASTM D-2270) 155
Rust Protection	(ASTM D-665 A & B) Pass
Foam Test	(ASTM D-892) Pass
Four-Ball Wear Test	(ASTM D-4172) (40kg, 1800RPM, 130°F, 1 hr) 0.66
Zinc %wt.	(XRF) .04












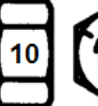







The following oils by brand name are approved for use in the hydraulic system on this equipment and considered to be all temperature hydraulic fluids.

- Shell Tellus T32
- Mobil DTE 13M
- Texaco Rando HDZ 32

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General Information

METRIC BOLT AND CAP SCREW TORQUE VALUES

Property Class and Head Markings	 	 		 
Property Class and Nut Markings	  	  	  	  

CAUTION

DO NOT use these values if a different torque value or tightening procedure is given for specific application. Torque values listed are for general use only. Check tightness of fasteners periodically.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical property class.

Fasteners should be replaced with the same or higher property class. If higher property class fasteners are used, these should only be tightened to the strength of the original.




NOTICE

Make sure fasteners threads are clean and that you properly start thread engagement. This will prevent them from failing when tightening.

Tighten plastic insert or crimped steel-type lock nuts to approximately 50 percent of the dry torque shown in the chart, applied to the nut, no to the bolt head. Tighten toothed or serrated-type lock nuts to the full torque value.

Metric Bolt and Cap Screw Torque Values Table																
Size	Class 4.8				Class 8.8 or 9.8				Class 10.9				Class 12.9			
	Lubricated		Dry		Lubricated		Dry		Lubricated		Dry		Lubricated		Dry	
	N m	lb ft	N m	lb ft	N m	lb ft	N m	lb ft	N m	lb ft	N m	lb ft	N m	lb ft	N m	lb ft
M6	4.8	3.5	6	4.5	9	6.5	11	8.5	13	9.5	17	12	15	11.5	19	14.5
M8	12	8.5	15	11	22	16	28	20	32	24	40	30	37	28	47	35
M10	23	17	29	21	43	32	55	40	63	47	80	60	75	55	95	70
M12	40	29	50	37	75	55	95	70	110	80	140	105	130	95	165	120
M14	63	47	80	60	120	88	150	110	175	130	225	165	205	150	260	190
M16	100	73	125	92	190	140	240	175	275	200	350	225	320	240	400	300
M18	135	100	175	125	260	195	330	250	375	175	475	350	440	325	560	410
M20	190	140	240	180	375	275	475	350	530	400	675	500	625	460	800	580

BOLT TYPE IDENTIFICATION CHART

IH Type	S.A.E. Grade	Description	Bolt Head Marking**
1	1 or 2	No radial lines. Low or medium carbon steel not heat treated. NOT USED, replace with same grade bolt.	
5	5	Three radial lines. Quenched and tempered medium carbon steel.	
8	8	Six radial lines. Quenched and tempered special carbon or alloy steel	

COLD WEATHER WARMUP PROCEDURE

When ambient air temperature is cold (below -18 degrees C), it is necessary to warm up the unit's hydraulic oil before you start your daily route operation, check the oil level, or adjust hydraulic pressure settings. The hydraulic oil is sufficiently warmed when the temperature is between 120° and 160°F.

WARNING

Moving parts on the unit are dangerous. Serious injury or death can occur if a person is struck by the equipment. Clear all people from the area before you operate the unit.

Follow the steps below to warm up the hydraulic oil.

1. START the TRUCK and let the engine idle.
2. APPLY the PARKING BRAKE and make sure it holds.
3. ENGAGE the HYDRAULIC PUMP for approximately five minutes.
4. MAKE SURE the AREA IS CLEAR of all unnecessary people BEFORE you operate the controls.
5. OPERATE the PACKER EXTEND and PACKER RETRACT functions through ten (10) cycles while the engine idles. See the Operator's Manual for operation instructions.
6. Make sure the oil temperature on the site gauge is between 120° and 160°F. If not, repeat step 5.
7. Check for fluid leaks. Repair if necessary.
8. The unit is now ready to go on route.

PROXIMITY SWITCH TROUBLESHOOTING

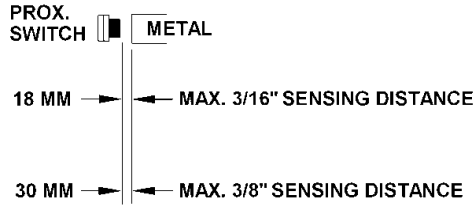
When one or more of a unit's functions do not operate properly and there are proximity switches in the circuits of the unit for these functions, refer to the following table as a guide to find the problem(s).

NOTICE

Heil proximity switches have a Light Emitting Diode (LED) on the switch to indicate that the switch is sensing metal. The light changes color when the switch senses metal. Green indicates the switch is ON. Yellow indicates the switch senses metal. Some proximity switches only have the yellow light.

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General Information

PROXIMITY SWITCH TROUBLESHOOTING TABLE	
Probable Cause	Remedy
Loose or corroded electrical connections.	Replace the electrical connections.
Damaged Switch A. Cracked Ferrite core causing the fine internal wire to break. B. Cracked Ferrite core – but wire is not broken – the sensitivity of switch will increase which causes sensing distance to increase or switch work intermittently as the temperature changes.	<ul style="list-style-type: none"> DO NOT strike switch to make it work. DO NOT damage the switch when you adjust it. DO NOT adjust switch too close to the metal it is sensing.
Voltage spikes from truck chassis electrical system will break down the internal electronics of the proximity switch.	<ol style="list-style-type: none"> Make sure the power source from the chassis manufacturer is clean. The body electrical system is protected from voltage spikes.
Improper Sensing Range	Adjust proximity switches to sense metal as follows: <div style="text-align: center;">  </div>
If the controller input light stays on when a switch is unplugged (the signal wire is carrying +12V DC)	Check the proximity switch electrical circuits for the source of the problem.
If proximity switch LED light is NOT ON.	<ol style="list-style-type: none"> Check the fuse relay block (Half/Packs with IFM controllers). The fuse/relay box is located in the cab. Or Check the in-line fuses (Side Loaders with IFM controllers). The in-line fuses are located in the cab. Unplug proximity switch. Check the power wire (terminal C) for +12 VDC with a multi-meter. Check ground signal with multi-meter for continuity to chassis ground. Check the signal wire for continuity to appropriate controller input terminal. (Refer to SM9.) If all three (3) wires are good, replace the proximity switch.

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 Heil 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

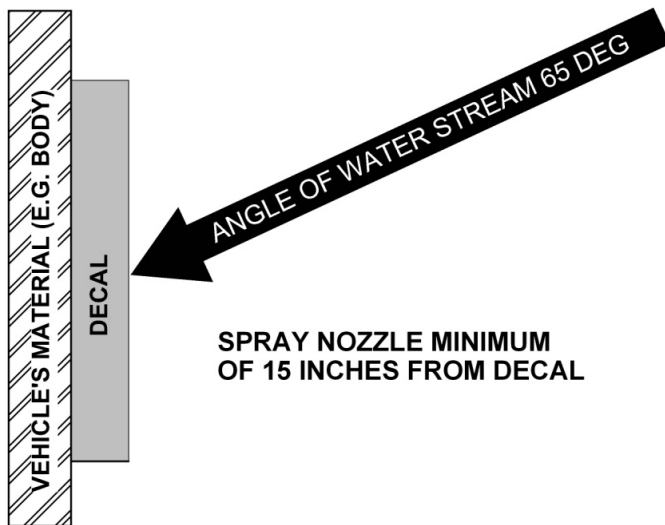
When normal cleaning procedures do not remove difficult debris from the decals, try the following:

- 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.

PT 1000A

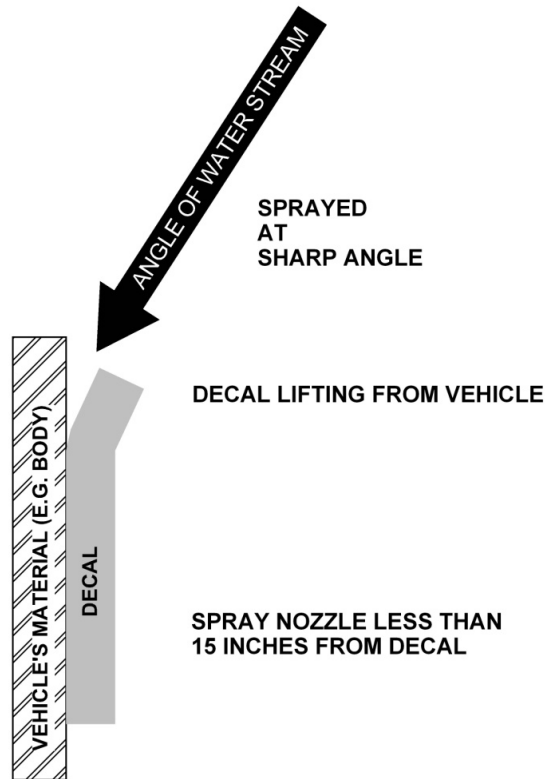
General Information

DECAL CARE (CONTINUED)



RECOMMENDED TECHNIQUE

Figure 3. Recommended Technique

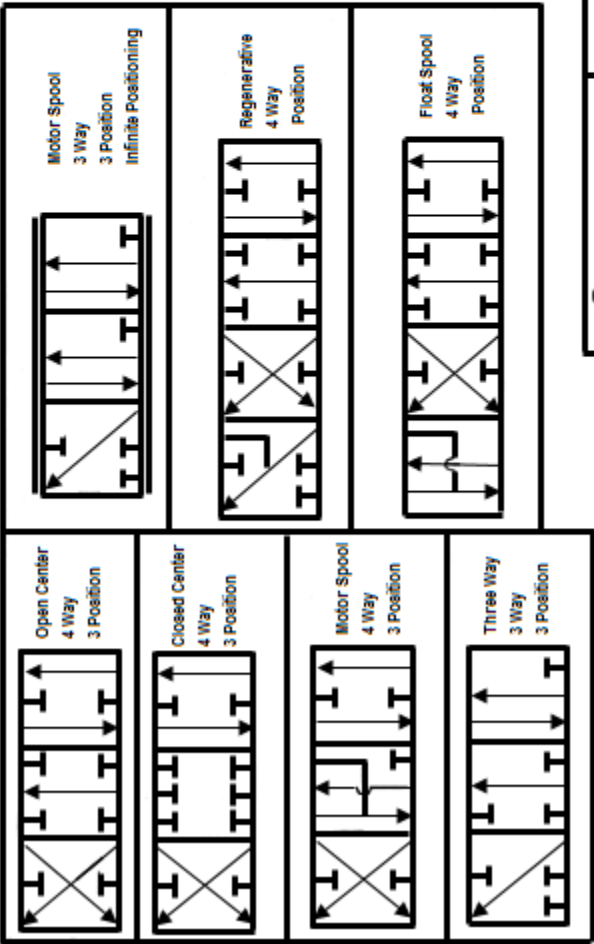


INCORRECT TECHNIQUE

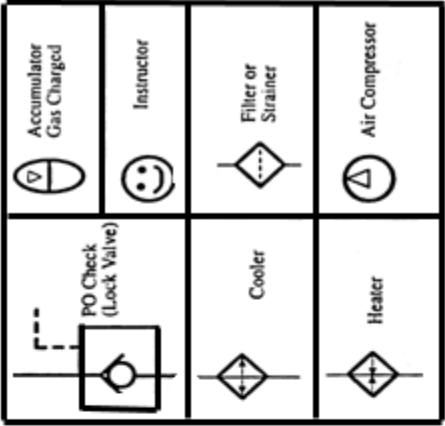
Figure 4. Incorrect Technique

HYDRAULIC SYMBOLS

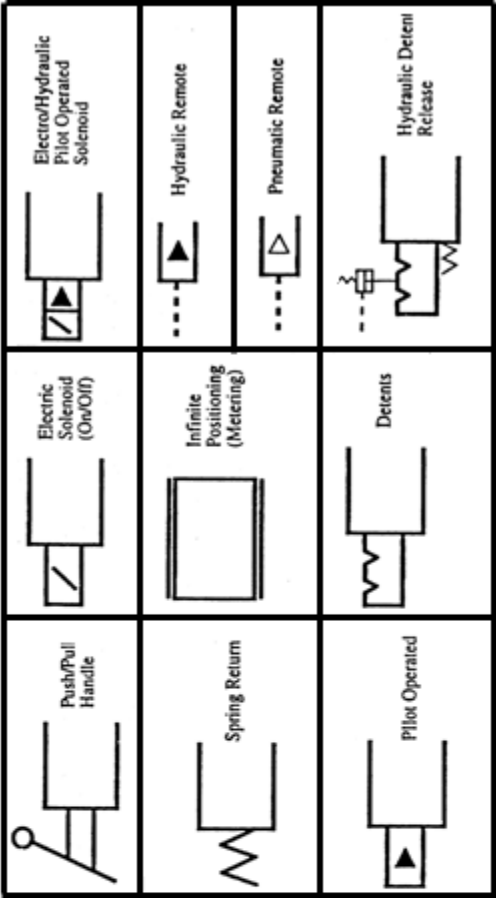
Directional Control Valves



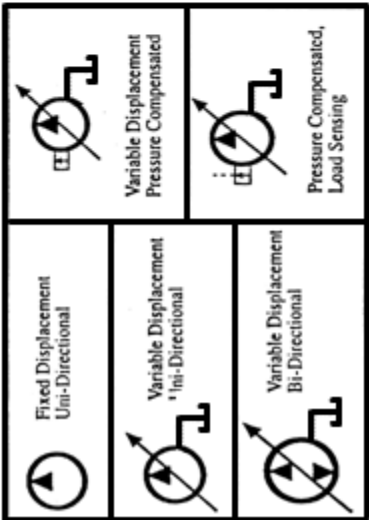
Miscellaneous



Spool Action Options



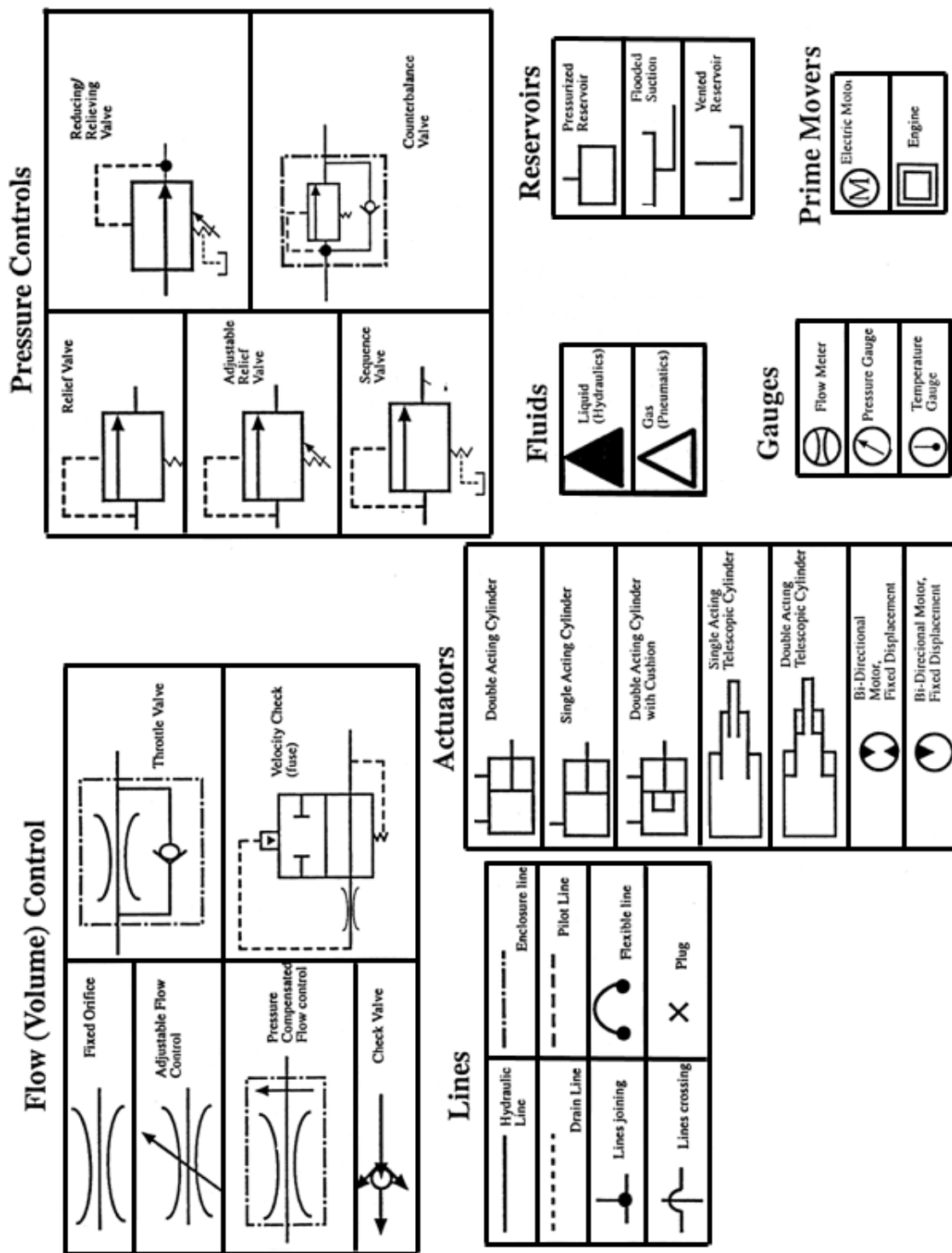
Pumps



PT 1000A
















General Information

HYDRAULIC SYMBOLS (CONTINUED)



ELECTRICAL SYMBOLS

SYMBOL DEFINITIONS

	BATTERY
	FUSE
	SOLENOID
	CONTACT RELAY
	NORMALLY OPEN CONTACT OF CR1
	NORMALLY CLOSED CONTACT OF CR1
	INDICATOR LIGHT (GREEN)
	PUSH BUTTON SWITCH NORMALLY CLOSED
	PUSH BUTTON SWITCH NORMALLY OPEN
	TOGGLE SWITCH
	DIODE
	PRESSURE SWITCH
	LIMIT SWITCH NORMALLY OPEN
	LIMIT SWITCH NORMALLY CLOSED
	CAPACITOR

PT 1000A

NOTES

SECTION 2

BODY AND TAILGATE

PT 1000A

Body and Tailgate

SPECIFICATIONS

A. Body

Hydraulic Oil Tank	107 L
Hydraulic Oil System Capacity	137 L
Hydraulic In-Tank Oil Filter	3-Micron
Hydraulic Cylinders:	
Ejector;	
001-7098	4-Stage Telescopic x 2522mm Stroke
001-7099	4-Stage Telescopic x 3159mm Stroke
001-7099	4-Stage Telescopic x 3700mm Stroke
001-7099	4-Stage Telescopic x 4724mm Stroke
Main System Relief Valve Pressure	2750 19MPa
Pump Operational Flow	100 LPM

B. Tailgate

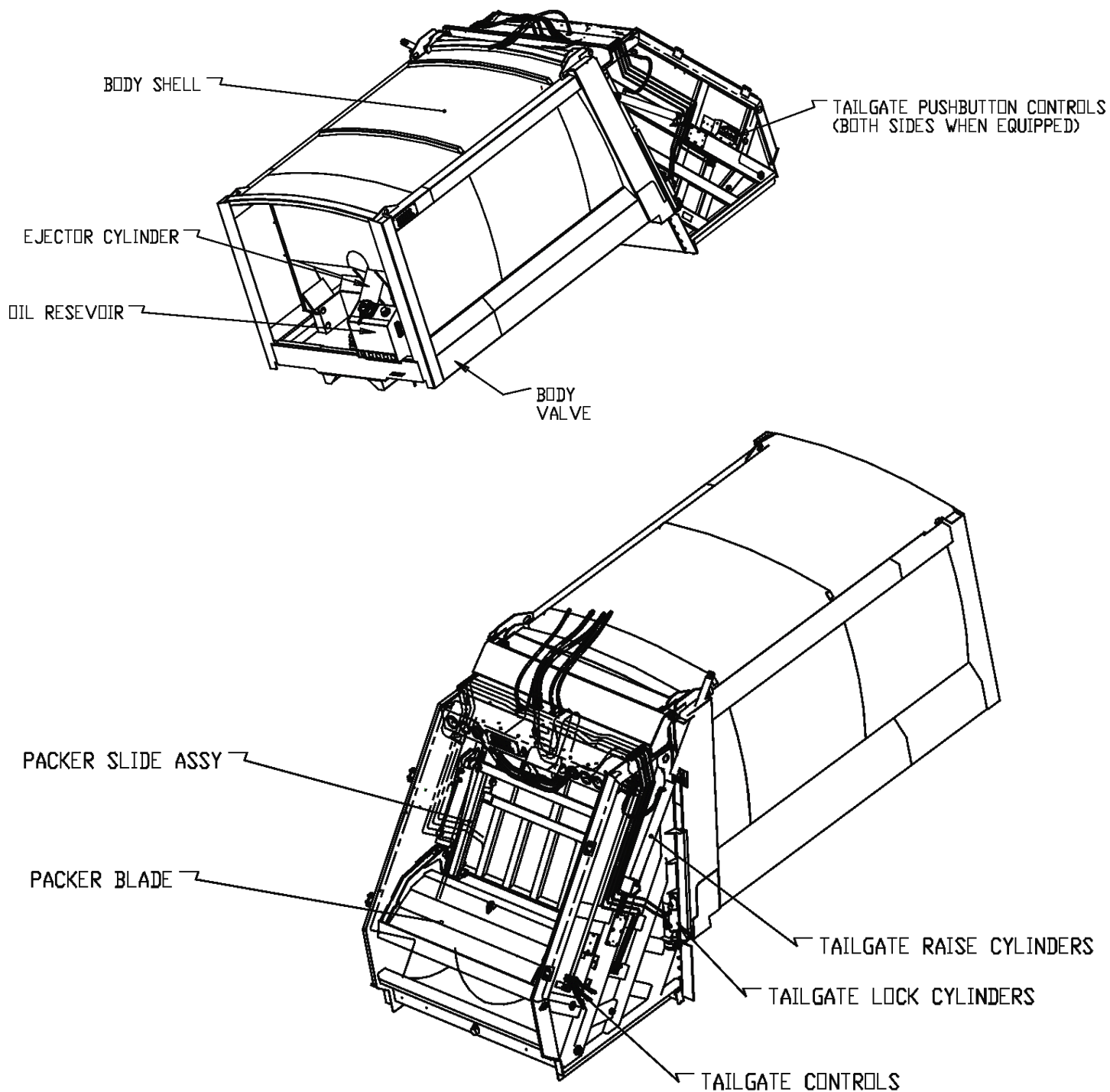
Hydraulic Cylinders:	
Blade (lower panel)	102mm Bore x 549mm Stroke
Slide	102mm Bore x 673mm Stroke
Tailgate Raise.....	76mm Bore x 787 mm Stroke
Tailgate Lock	76 x 92 mm Stroke
Container Arm	82mm Bore x 254mm Stroke
Tailgate Valve:	
Optional Work Port.....	10 MPa
Blade Back-Off Relief	26.9 MPa
Packer Blade Detent.....	14.5 MPa
Slide Detent.....	14.5 MPa
Pressure Switch Settings (Electrical Units).....	17 MPa
Tailgate Packer Mechanism Cycle Times (Empty Hopper):	
Complete Cycle.....	18 Seconds
Reload	5 to 6 Seconds

PT 1000A

Body and Tailgate

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BODY NOMENCLATURE



PT 1000A

Body and Tailgate

SIDE ACCESS DOOR

A side access door is installed on the street side of the body. This door will provide access to the hopper area for cleanout purposes. Be sure door is closed and latched properly at all times.

WARNING

Make sure the unit is in the Lock-Out/Tag-Out mode when you do maintenance or service procedures, when you go in the hopper, enter the side access door, or climb on the body or equipment. Equipment can be operated when the unit is not in the Lock-Out/Tag-Out mode. When the unit is not in the Lock-Out/Tag-Out mode, equipment operated while you do maintenance or service procedures, enter the hopper or climb on the body or equipment can cause serious injury or death.



Figure 5. Optional Street Side Access Door

TAILGATE SUPPORT PROPS

Two support props are on the unit and must be used whenever the tailgate is opened for service or maintenance. Both props must be used.

⚠ DANGER

A tailgate in motion is dangerous. Serious injury or death may occur if a person is struck by a moving tailgate or becomes trapped between the tailgate and the body. Clear the area near the tailgate of all unnecessary people before you lower the tailgate.

⚠ CAUTION

Two props are installed on the unit. Both props must be used!

A. How to Use the Tailgate Props

1. Set unit on level surface and apply parking brake.
2. Raise tailgate enough so that props can be rotated out from body crossmember.
3. Without stepping between body and tailgate, use the handle on the prop to fully rotate the prop until it is perpendicular to the rear of the body. Repeat on opposite side of tailgate. See the figures below.

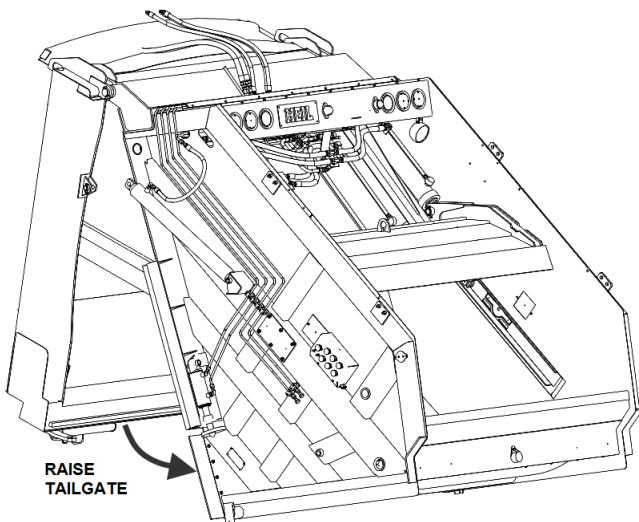


Figure 6. Tailgate Raised Enough to Rotate Out the Props

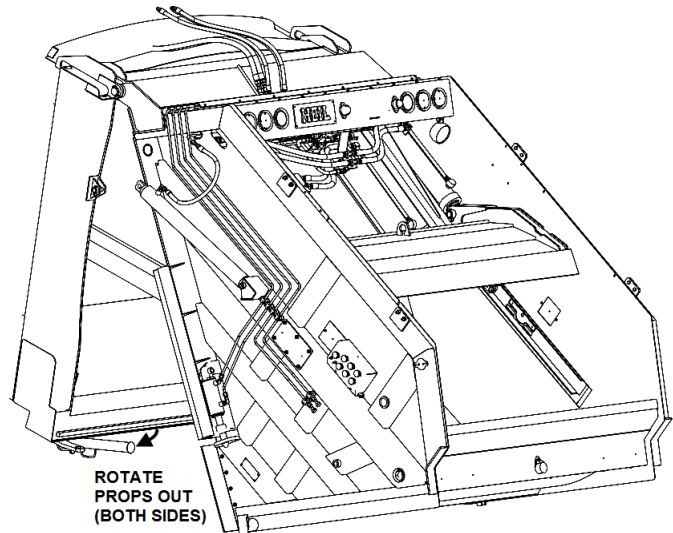


Figure 7. Rotate Tailgate Support Props until Perpendicular to Body

PT 1000A

Body and Tailgate

TAILGATE SUPPORT PROPS (CONTINUED)

CAUTION

Do not proceed to lower the tailgate until both props are in place.

4. Slowly LOWER tailgate until props mate with the tailgate stop.

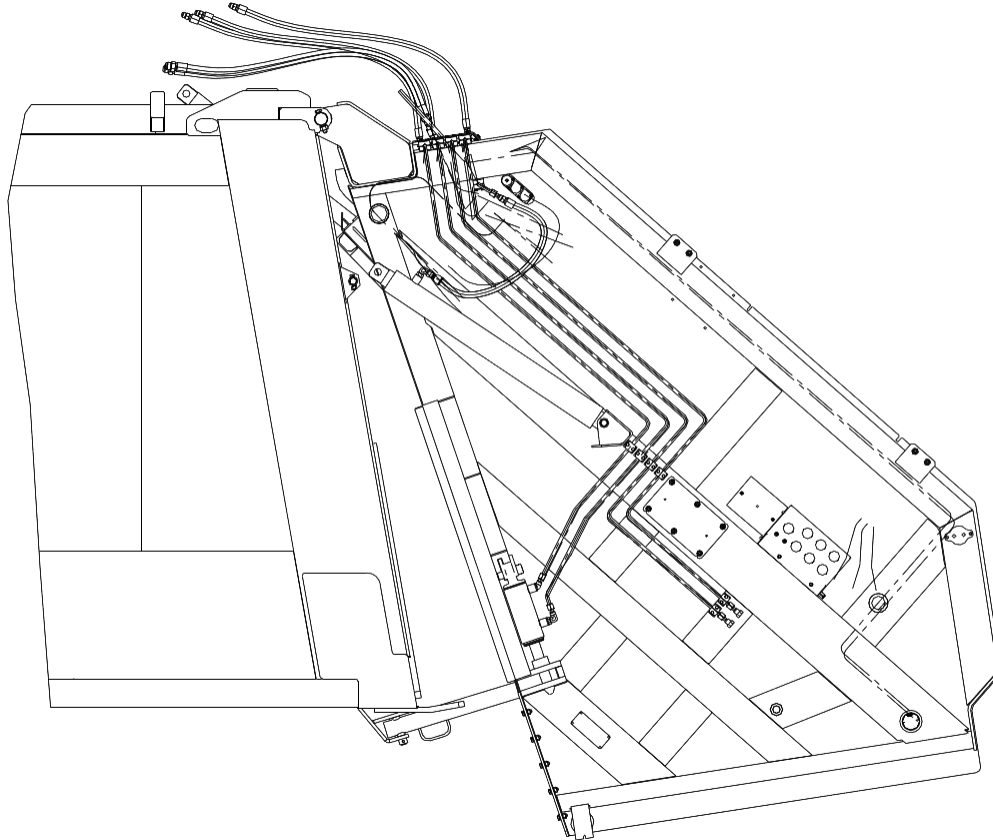




Figure 8. Tailgate Lowered onto Both Streetside and Curbside Props

5. TURN the ENGINE OFF and REMOVE the ignition KEY.
6. Put the unit in the **Lock-Out/Tag-Out mode** .

B. How to Store the Tailgate Props

DANGER

A tailgate in motion is dangerous. Serious injury or death may occur if a person is struck by a moving tailgate or becomes trapped between the tailgate and the body. Clear the area near the tailgate of all unnecessary people before you lower the tailgate.

1. With all persons clear of the work area, take the unit out of **Lock-Out/Tag-Out mode** .
2. Raise tailgate enough so that props can be rotated into stored position against body crossmember.
3. LOWER the tailgate until it is completely CLOSED.
4. LOCK the tailgate.

DESCRIPTION OF PACKING CYCLE

Normal sequence of the packing operation is as follows:

1. First Half of Packing Cycle

When the slide reaches the bottom position in the cycle, the packing mechanism will stop automatically.

2. Second Half of Packing Cycle

To begin second half of operation, push in on both levers. Packing mechanism will stop when second half of cycle is completed. The tailgate throttle control switch is connected to the slide spool linkage. Each control lever can be operated separately, but throttle advance will only occur when the slide lever is engaged.

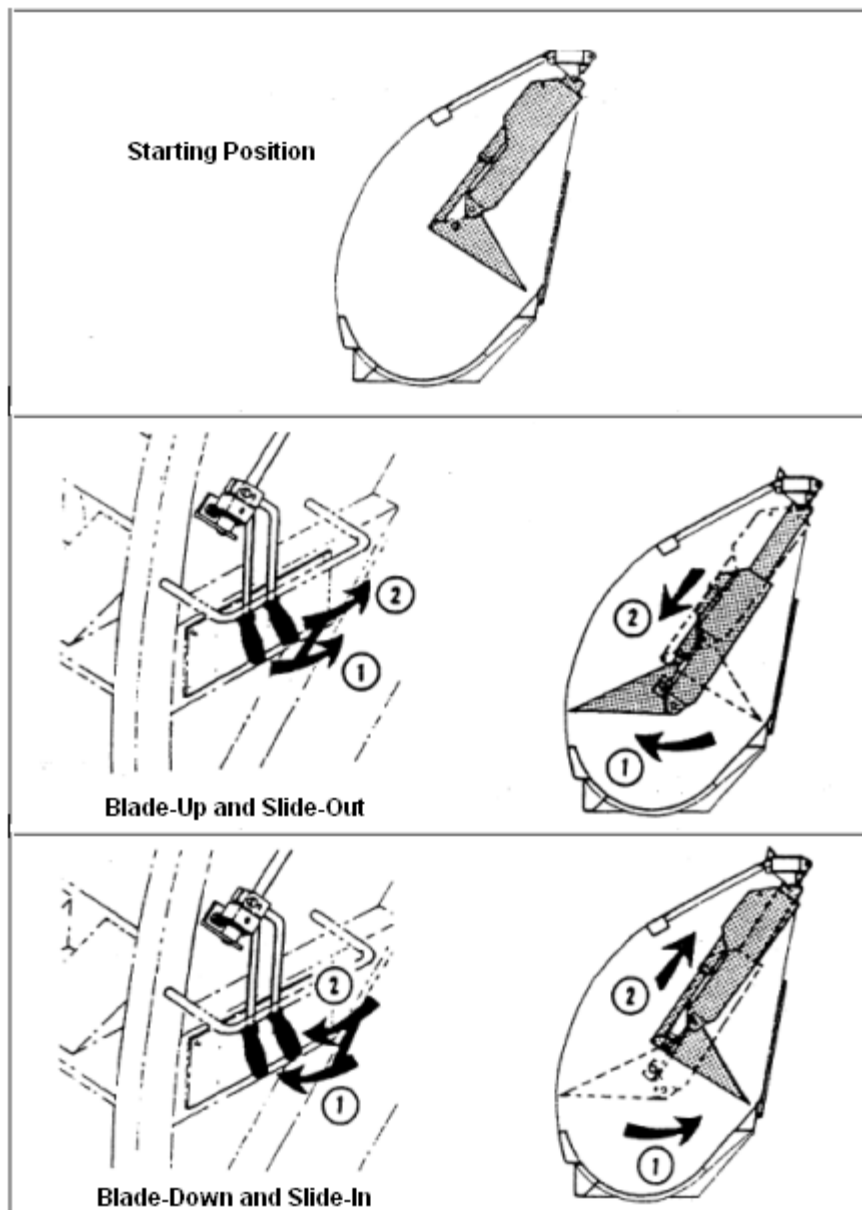


Figure 9. Packing Cycle

PT 1000A

Body and Tailgate

SECTION 3

MAINTENANCE AND

ADJUSTMENT

PT 1000A

Maintenance and Adjustment

BODY DAILY CHECKLIST

Make sure you perform a daily check of the unit. Refer to the Operator's Manual for the Daily Checklist. Many checks in the Daily Checklist are maintenance related, such as checking tire pressures and hoses for wear and damage.

DAILY CHECKLIST MAINTENANCE ITEMS	
ITEM	REQUIRED ACTION
Low air pressure in tires	Inflate the tire to the correct air pressure given on the tire.
Worn tire	Replace when the wear is greater than allowed by law or before the tread is no longer visible.
Damaged tire	Replace immediately BEFORE going on route.
Hydraulic pump leaks	Determine the cause of the leak and repair immediately.
Damaged hydraulic pump	Repair or replace IMMEDIATELY .
Loose or missing hardware for the hydraulic pump	Tighten loose hardware. Replace missing hardware immediately.
Damaged decal or decal not readable	Replace decal immediately.
Low level of hydraulic oil	Fill the hydraulic oil tank immediately.
Worn or damaged hoses	Replace immediately.
Leaks at cylinders, hoses or fittings	Tighten loose connection.
Loose or missing hardware	Tighten loose connections. Replace missing hardware.
Worn fiber guards	Replace hoses/fittings as necessary. Install new fiber guard on new hoses.
Worn or damaged tailgate lock components	Replace worn or damaged components.
Loose or missing tailgate lock hardware	Tighten loose hardware. Replace missing hardware.
Damaged tailgate seal	Replace seal.
Body structure has loose or missing hardware	Tighten loose hardware. Replace missing hardware.
Body structure has cracked weld joints	Repair immediately.
Body mounting brackets have loose hardware, damaged hardware or cracked welds	Tighten loose hardware. Replace missing hardware. Repair cracked welds.
Air regulator	90 PSI, typically located at front of body.

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Maintenance and Adjustment

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BODY PREVENTIVE MAINTENANCE CHART

Preventive maintenance must be performed to ensure the safe and reliable operation of your unit. Use the chart below as a guideline for when essential items should be checked and serviced. Severe use or adverse conditions may require more frequent maintenance.

BODY PREVENTIVE MAINTENANCE CHART						
*HOURS OF OPERATION						
COMPONENT/SYSTEM	8	40	200	1000	2000	CHECK/SERVICE
Hydraulic System	<input checked="" type="checkbox"/>					Check oil level – add if necessary
		<input checked="" type="checkbox"/>				Check cylinders, pump, hoses, tubes, fittings, and adapters for leaks. Check hoses for cracks, crushes, and cover blisters. Repair or replace if necessary with genuine Heil parts. Any replacement hose should be the same size and pressure rating as listed on the original OEM hose.
		<input checked="" type="checkbox"/>				Check Control valve seals for leaks. Repair or replace if necessary.
				<input checked="" type="checkbox"/>		Replace filter after first 30 days of operation, then every 6 months or 1000 hours of operation OR when filter bypass light is ON.
				<input checked="" type="checkbox"/>		Replace tank breather filter every time you replace filter element.
					<input checked="" type="checkbox"/>	Drain, flush, and refill. Change filter element.
Electrical, Battery Cables	<input checked="" type="checkbox"/>					Check for proper operation.
		<input checked="" type="checkbox"/>				Check battery cables from battery to starter for loose cables, rubbing or damage and abrasions to cables. Replace if necessary.
Operator Controls	<input checked="" type="checkbox"/>					
Front Mount Pump or Power Take-Off (PTO)		<input checked="" type="checkbox"/>				Check seals for leaks and operation. Replace if necessary
		<input checked="" type="checkbox"/>				Check drive line for smooth operation. Replace as necessary.
		<input checked="" type="checkbox"/>				Check set screws for tightness. Tighten as necessary.
		<input checked="" type="checkbox"/>				Make sure keys are in place. Replace if necessary.
			<input checked="" type="checkbox"/>			For greaseable PTOs (non-wet spline), remove the pump's bolt flange about 2 inches from the PTO and apply grease to female pilot of PTO pump flange. Failure to lubricate female pilot of PTO as given may cause damage to the pump shaft. Greasing is NOT required on wet spline PTOs such as the Chelsea 890/897 series.

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Maintenance and Adjustment

BODY PREVENTIVE MAINTENANCE CHART						
*HOURS OF OPERATION						
COMPONENT/SYSTEM	8	40	200	1000	2000	CHECK/SERVICE
Grease Fittings		<input checked="" type="checkbox"/>				Lubricate as shown on Body Lube Chart.
Body Undercoating					<input checked="" type="checkbox"/>	Inspect body undercoating and repair as necessary.
Fork Bearing Block Bolts (Front Loaders Only)			<input checked="" type="checkbox"/>			For Front Loaders Only, each of the four fork bearing block bolt torques should be 460 Ft-Lbs.
Calibrate Cylinder Sensors (Odyssey Front Loader Models Only)					<input checked="" type="checkbox"/>	For Odyssey models only, calibrate cylinder sensors. See Service Manual - Odyssey Cylinder Sensors Calibration.
Tailgate Seal Integrity	<input checked="" type="checkbox"/>					
* Daily = 8 hrs. Weekly = 40 hrs. Monthly = 200 hrs. 6 Months = 1000 hrs. Yearly = 2000 hrs.						

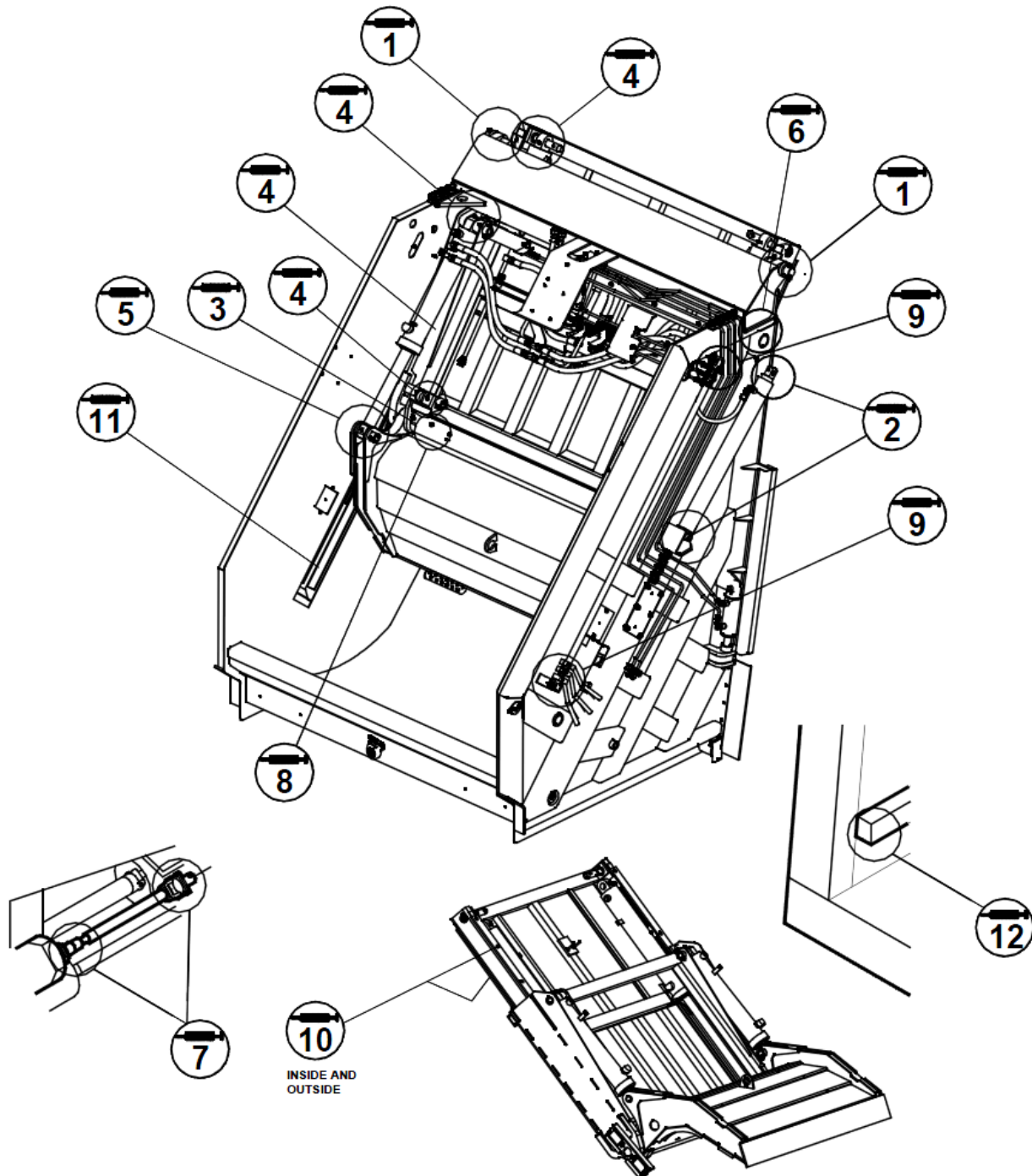
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Maintenance and Adjustment

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BODY LUBRICATION GUIDE

Use No. 1 pressure gun grease. Clean fittings before applying grease and always pump enough grease into joint to remove the old grease. Wipe off excess grease. For slide surfaces, use cloth or brush to coat. Lubricate moveable mechanical parts without fittings every 60 days with non-detergent engine oil. Refer to the image below and the table on the next page.



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Maintenance and Adjustment

BODY LUBRICATION GUIDE (CONTINUED)

Use No. 1 pressure gun grease. Clean fittings before applying grease and always pump enough grease into joint to remove the old grease. Wipe off excess grease. For slide surfaces, use cloth or brush to coat. Lubricate moveable mechanical parts without fittings every 60 days with non-detergent engine oil. Refer to the image on the previous page and the table below.

REF. NO.	LOCATION	QTY.	INTERVAL
1	Tailgate Hinge	2	Weekly / 40 Hours
2	Tailgate Cylinders (2/Cyl.)	4	Weekly / 40 Hours
3	Blade Shoe/Slide	2	Weekly / 40 Hours
4	Slide Cylinders (2/Cyl.)	2	Weekly / 40 Hours
5	Blade Cylinders (2/Cyl.)	4	Weekly / 40 Hours
6	Inner Slide Pivot	2	Weekly / 40 Hours
7	PTO Drive Shaft	4	Weekly / 40 Hours
8	Blade to Slide Bearing	2	Weekly / 40 Hours
9	Tailgate Control Levers	2	Weekly / 40 Hours
10	Inner/Outer Slide Bearing	2	Weekly / 40 Hours
11	Slide Track	2	Weekly / 40 Hours
12	Ejector Panel Tracks	4	Grease Monthly / Every 200 hours
-	Ejector Cylinder (Not Shown)	2	Weekly / 40 Hours

PACK/EJECT CYLINDERS MAINTENANCE

Heil Environmental recommends completing the following tasks to make sure the pack/eject cylinders are working properly and not damaged.

WARNING

Make sure that the unit is in Lock-Out/Tag-Out mode before you perform maintenance/service procedures, or when you enter or climb on the hopper/body/related assemblies. Equipment is operational when the unit is not in Lock-Out/Tag-Out mode. Equipment operated while you do maintenance or service procedures can cause serious injury or death so also make sure to clear the area around the unit of all bystanders.

DO

DAILY

1. Remove all trash, metal, etc. from behind the packer panel.
2. Visually inspect packer tracks and hopper floor for excessive wear or damage. Repair or replace if necessary

WEEKLY

1. Inspect pack/eject cylinder pins (both ends) for wear or damage. Replace if necessary.
2. Grease all pins.

DO NOT

1. Damage cylinder rod by striking it with any piece of metal, shovel, etc, when cleaning behind the panel.
2. Leave trash, metal, etc. behind the packer panel to accumulate as damage to cylinder may occur.

WARNING

Failure to follow these instructions can result in damage to the Heil body, truck chassis or can cause personal injury!

PT 1000A

Maintenance and Adjustment

COLD WEATHER WARM-UP PROCEDURE

When ambient air temperature is cold (below 0 degrees F), it is necessary to warm up the unit's hydraulic oil before you start your daily route operation or to check the oil level. The hydraulic oil is sufficiently warmed when the temperature is between 120° and 160°F.

WARNING

Moving parts on the unit are dangerous. Serious injury or death can occur if a person is struck by the equipment. Clear all people from the area before you operate the unit

Follow the steps below to warm up the hydraulic oil.

1. START the TRUCK and let the engine idle.
2. APPLY the PARKING BRAKE and make sure it holds.
3. ENGAGE the HYDRAULIC PUMP for approximately five minutes.
4. MAKE SURE the AREA IS CLEAR of all unnecessary people BEFORE you operate the controls.
5. OPERATE the PACKER EXTEND and PACKER RETRACT functions through ten (10) cycles while the engine idles. See the Operator's Manual for operation instructions.
6. Make sure the oil temperature on the site gauge is between 120° and 160°F. If not, repeat step 5.
7. Check for fluid leaks. Repair if necessary.
8. The unit is now ready to go on route.

PREPARING THE UNIT TO CHECK THE OIL LEVEL

Before checking the oil level or adding oil, make sure the unit is in the following position with all cylinders collapsed:

- Truck – on level ground
- Tailgate and Body – fully down and locked
- Ejector Panel – at the front of the body
- Packer Panel – in the in-transit position with all cylinders retracted

The oil tank is mounted behind the chassis cab. The oil level in the standard tank must be kept between the low and full marks as indicated on the sight gauge. See the figure below.

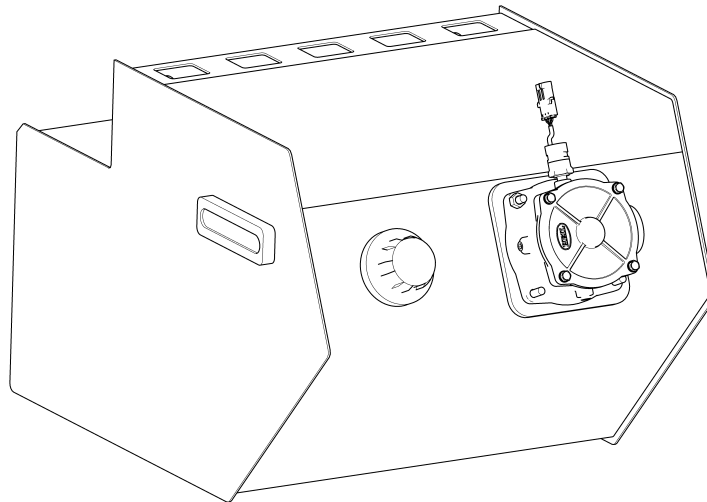


Figure 10. Hydraulic Oil Tank and Sight Gauge

PT 1000A

Maintenance and Adjustment

CHECK OIL LEVEL

Check the hydraulic oil level (after warming up the oil) daily or every eight (8) hours, whichever comes first. Fill as necessary.

Important: Contamination is a hydraulic system's worst enemy. Do not let dirt enter the system. Use a clean rag and remove dirt or other contamination around any system component before you disconnect or remove it. While you fill the reservoir, filter the oil through a 200 mesh (or finer) screen. Never use a cloth to filter the oil.

WHEN TO CHANGE OIL FILTER ELEMENT

Change the filter more often under certain conditions such as an extremely dusty atmosphere or area. Use only Heil replacement filters. Purchase the filter element from your local Heil distributor.

Change the filter element every 1000 hours or every six (6) months or when indicated by the filter monitor light located in the cab.

Maintenance and Adjustment

CHANGE HYDRAULIC OIL FILTER ELEMENT

To change the hydraulic oil filter, refer to the figure below and follow these steps:

1. Remove nuts and filter cover.
2. Remove the filter element with the by-pass assembly and discard as required.
3. Clean the housing with a clean, lint-free cloth.
4. Check the o-ring and gasket. Replace them if necessary.
5. Lubricate all o-rings and gaskets.
6. Install new element.
7. Reinstall cover with nuts. Torque nuts to 13 in/lbs.

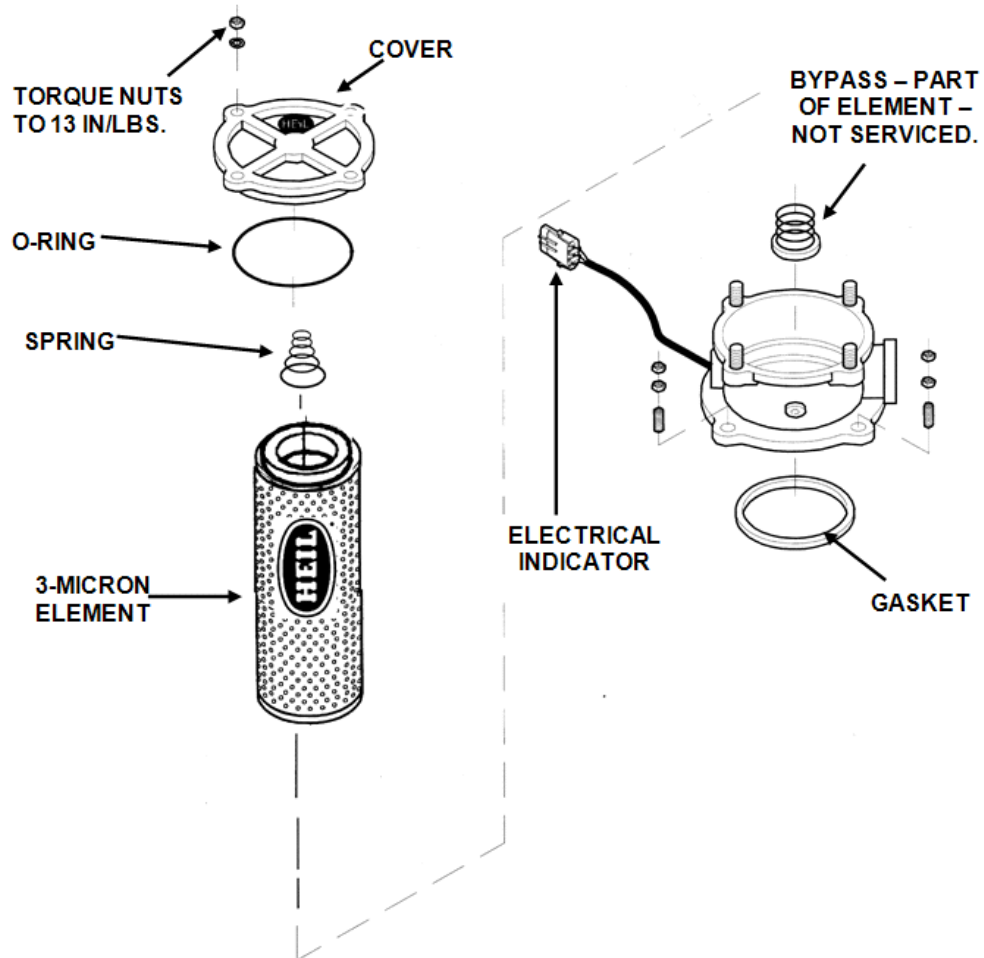


Figure 11. Hydraulic Oil Filter

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Maintenance and Adjustment

DRAIN AND CLEAN THE HYDRAULIC OIL TANK

Change the hydraulic oil at least annually or every 2000 hours of operating time, whichever comes first.

Remember that almost all hydraulic system malfunctions can be traced to dirt in the fluid. When working with the hydraulic system, the hands, tools, working area and parts must be as clean as possible.

CAUTION

Wear proper eye protection when you are working on or around hydraulic lines or components. Wear proper eye protection and avoid contact with hydraulic oil if possible. Never check for oil leaks with your hands.

To drain and clean the hydraulic oil tank, follow these steps:

1. Disengage the pump, shut off the engine and remove the ignition key.

WARNING

Make sure the unit is in the Lock-Out/Tag-Out mode when you do maintenance or service procedures, or when you go in the hopper, climb in or on the body or on equipment. Equipment can be operated when the unit is not in the Lock-Out/Tag-Out mode. When the unit is not in the Lock-Out/Tag-Out mode, equipment operated while you do maintenance or service procedures, go in the hopper or climb in or on the body or on equipment can cause serious injury or death.

NOTICE

If your employer or company has Lock-Out/Tag-Out procedures that are different from the following procedures, use your employer's or company's procedures. If your employer or company does not have Lock-Out/Tag-Out procedures, use the procedures that follow.

2. Contact your supervisor if you have any questions about Lock-Out/Tag-Out procedures. If your supervisor has any questions, that person can contact ESG Technical Service. Perform the **Lock Out/Tag Out procedures** ⁹.
3. Remove the fill cap from the top of the tank.
4. Remove the drain plug from the bottom of the tank so that the oil drains into a container.
5. While fluid is draining from the tank, remove and replace the filter/breather assembly. Change the assembly every time the in-tank filter is replaced.
6. To drain the entire hydraulic system, disconnect all hoses at the adapter and drain the hoses into a container.
7. Remove and replace the in-tank filter as described in **Change the Hydraulic Oil Filter**.
8. Remove the outlet flange and 100 mesh suction strainer to gain access to the tank inside.
9. Remove sediment from the tank bottom.
10. Install the outlet flange with a new gasket and the 100 mesh suction strainer into the tank.
11. Install the drain plug in the tank bottom.
12. Reconnect and tighten all hose connections that were disconnected.

DRAIN AND CLEAN THE HYDRAULIC OIL TANK (CONTINUED)

NOTICE

Before filling the tank be sure the funnel is clean and 200 mesh (or finer) screen is used to strain the hydraulic oil.

13. Fill tank with recommended oil, checking the sight gauge as you fill. Refer to **Hydraulic Oil Specifications** ¹⁷.
14. Check the entire system to make sure all connections are tight and no leaks are found.
15. Start the truck's engine and engage the pump.

⚠ WARNING

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

16. Operate the packing panel through 10 cycles to be sure all air is out of the circuits.
17. Operate the automated container lift mechanism.
18. Operate tailgate – full up and full down.
19. Operate body raise (dump units) – full up and full down.
20. With the packing panel in the retracted position and lift in the in-transit position, check tank oil level. If necessary, add recommended as described under **Check Oil Level** ⁴⁴.

PURGE THE HYDRAULIC SYSTEM

If the hydraulic system becomes contaminated because of component failure or some other reason, you must purge the hydraulic system.

To purge the system, follow these steps:

1. Extend the packer/ejector cylinder to lower the oil level in the tank.
2. Remove and replace the in-tank oil filter element in the tank.
3. Engage the packer/ejector control lever and allow the oil to circulate through the new filter, cleaning the oil.

NOTICE

Before filling the tank be sure the funnel is clean and 200 mesh (or finer) screen is used to strain the hydraulic oil.

4. Repeat the procedure as necessary until the system is purged.

NOTICE

If contaminated hydraulic oil reaches the cylinders, the unit may need to be removed from service until the contamination is removed. For more information, contact the Heil Technical Services.

PT 1000A

Maintenance and Adjustment

PRIMARY (UNDERBODY) VALVE

This 2-lever, 3-section air controlled valve is located under the front left side (street) of the body. It controls the ejector panel and tailgate raise/lower functions. See the Operation Manual for operational information.

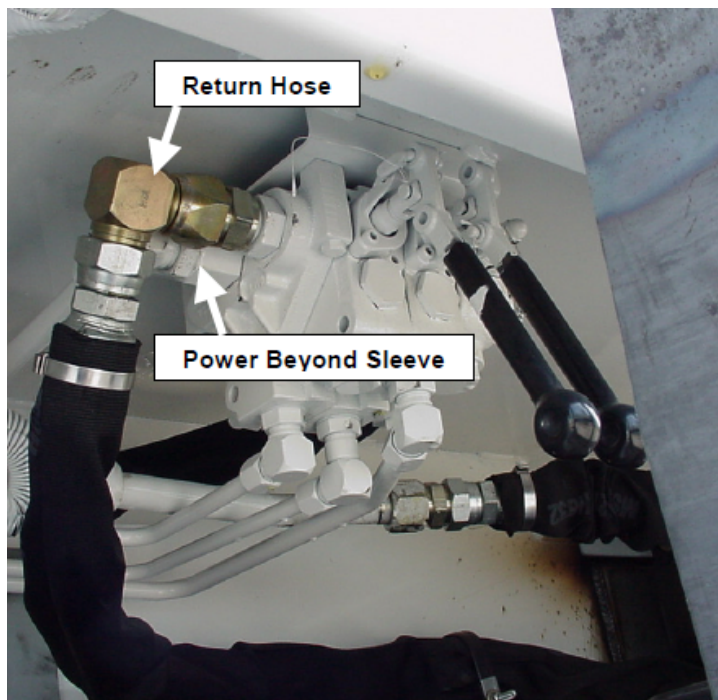


Figure 12. Primary Underbody Valve

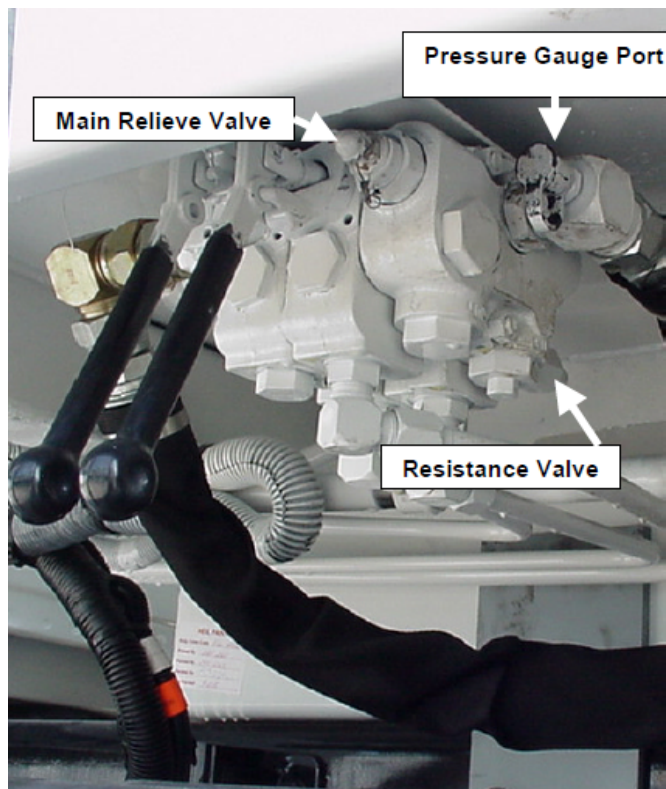


Figure 13. Main Relieve Valve, Pressure Gauge Port and Resistance Valve

Maintenance and Adjustment

TAILGATE (SECONDARY) VALVE (MANUAL CONTROL UNITS ONLY)

The tailgate valve controls the packing mechanism through the complete cycle. With this control, the position of the blade and slide and their respective cylinders can be positioned as desired. Refer to the Operation Manual for operational instructions. This valve uses separate valve sections that are bolted together.

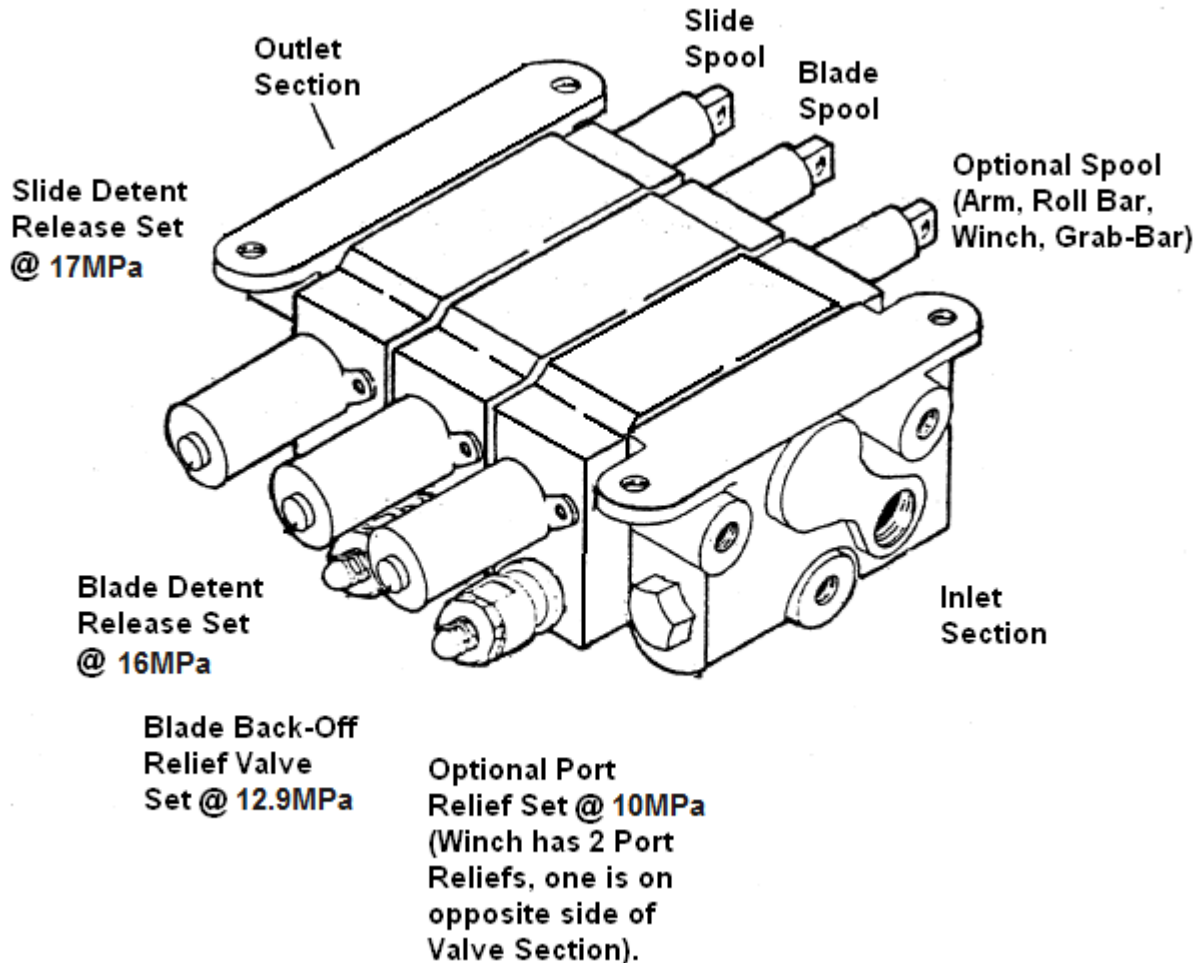


Figure 14. Tailgate (Secondary) Valve Nomenclature

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Maintenance and Adjustment

PRESSURE ADJUSTMENT SETTINGS

A. Unit Preparation

Follow these unit preparation steps prior to making any pressure adjustments listed in this section.

1. Make sure area around unit is clear to enable arm and fork operation.
2. Place wheel chocks on both sides of driver side rear wheel.
3. Make sure parking brake is set.
4. Notify anyone in area that the arms and forks will be operated during this procedure.
5. Make sure unit is full of hydraulic oil.
6. Make sure hydraulic oil is at least 49 degrees C before beginning any pressure checks or adjustments.
 - a. If unit oil is not at desired temperature, engage the hydraulic pump.
 - b. Activate and hold the tailgate lock function for two minutes.
 - c. After two minutes release tailgate lock function and cycle the packer/ejector circuit to mix the hot oil.
 - d. Repeat steps (b) and (c) until oil is at desired temperature.

NOTICE

The unit must remain in neutral during all pressure setting procedures. Make sure that the work area is clear of uninvolved people and that the parking brake is fully applied and wheels fully chocked.

B. Required Tools

These are the tools required to make pressure adjustments.

QUANTITY	TOOL
1	Open end wrench
1	Ratchet with screwdriver attachment
1	Hydraulic pressure gauge

C. Valve Locations

The hydraulic control valves are located on the front left side (street side) of the body and on the rear of the body above the hopper.

D. Pressures and Cycle Times

MODEL	MAIN RELIEF	RESISTANCE RELIEF	BLADE DETENT	SLIDE DETENT	BLADE BACK OFF RELIEF	OPTIONS RELIEF (REEVING MECH OPTION)	TAILGATE CYCLE TIME @100LPM
PT 1000A	19MPa	N/A	16MPa	17MPa	12.9MPa	10MPa	16 - 18 sec
EOS Setting		Disengage at 300 RPM above throttle advance RPM					
NOTES:	1: Main Pressure settings have a tolerance range of +/- 0.5MPa. and are to be set at operating speed - WI594						
	2: Port Relief Pressure settings have a tolerance range of +/- 0.7MPa. and are to be set at operating speed - WI594						

PRESSURE ADJUSTMENT SETTINGS (CONTINUED)

E. Underbody Valve

This 2-lever, sectioned valve is located under the front left (street side) of the body. It controls the ejector panel and tailgate raise/lower functions.

1. Follow the procedure on the previous page for warming the hydraulic oil.
2. Install a 0-35MPa glycerin filled pressure gauge into the NPT port on the elbow going into the valve inlet section.
3. Remove any dirt and/or grease around the body two-stage relief valve.
4. The main relief valve is located in the inlet section and is an adjustable relief set at 19MPa. All adjustments must be made with the throttle advance switch depressed.

F. Resistance Relief Adjustment

The resistance valve is located in the ejector section of the underbody valve and preset at 16MPa. When the slide panel moves refuse from the hopper into the body, resistance will begin to increase quickly. As resistance increases, pressure within the slide cylinders increases and when the pressure passes through 16MPa, the valve will open momentarily allowing the ejector panel to slide back into the body for the refuse to enter, approximately 2 inches. The valve will close when the slide kicks out at 17MPa.

When packing a light load, the panel may move approximately one inch and if packing a heavy load the panel may move as much as three inches, depending on refuse moisture content, compactability, etc. If load is too light, be sure system pressure is correct and the slide and blade kick-outs are properly set.

If adjustment to the resistance relief is required, perform the following steps.

1. Loosen lock nut on the adjustment screw.
2. If loads are light and the ejector panel reached the front of the body, turn adjustment screw in (clockwise) 1/8 turn.
3. Retighten lock nut and check load weights.
4. If the ejector panel stalled before reaching the front of the body, turn adjusting screw out (counterclockwise) 1/8 turn.
5. Repeat steps 1 thru 4 to increase or decrease resistance as necessary to get desired payloads.

NOTICE

The effectiveness of the resistance valve setting can only be determined by fully loading the unit. The initial valve setting (starting point) can be made by turning the adjuster screw all the way in and backing it out 1 ½ turns.

G. Tailgate Valve

Refer to **Blade Back-Off Relief Adjustment** ^[52], **Tailgate Valve Linkage Adjustment** ^[56], and **Blade and Slide Detent Adjustment Procedure** ^[52].

H. Contact Heil Technical Services at 866-310-4345 for help with pressure adjustments.

PT 1000A

Maintenance and Adjustment

BLADE BACK-OFF RELIEF ADJUSTMENT

A relief is provided in the tailgate valve to allow the lower panel to back off slightly (2 to 5 inches of cylinder stroke) during the final stages of packing the load. If the cylinders back-off excessively (5 to 7 inches of cylinder stroke), the back-off relief needs to be adjusted or replaced.

For proper relief adjustment procedures, contact Heil Technical Services at 866-310-4345 for further instructions.

BLADE AND SLIDE DETENT ADJUSTMENT PROCEDURE (MANUAL CONTROL UNITS ONLY)


Each spool is held in the shifted position by a detent mechanism until the stroke of its cylinders has been completed. At this point hydraulic pressure increases to a predetermined point then the detent mechanism shifts the spool back to neutral. To adjust and check the operation, refer to this procedure: Install a 5000 PSI gauge in the Primary Control Valve at the 90° elbow tapped for 1/4" NPT gauge connection.

A. Blade Detent Adjustment

Blade Kick-Out Pressure is 2350 PSI.

WARNING

Do NOT stand in or on the hopper sill while adjustments are being made on the packing mechanism with the machine running.

1. Position the packing mechanism to blade-down and slide-out.
2. Turn OFF the PTO (or front mount pump).
3. Turn OFF ignition, remove key, and follow a lock out procedure.
4. Remove blade control linkage on secondary valve. Engage blade spool by hand (in either direction).
5. Engage blade spool by hand (in either direction).
6. Lower main relief pressure in Primary (Underbody) Valve two (2) turns out (counterclockwise). Refer to **Pressure Adjustment Settings** .
7. Start engine.
8. Engage PTO (or front mount pump).

WARNING

Be sure all persons are clear of the packing mechanism.

9. Depress engine throttle advance.
10. Slowly increase the main relief pressure and note the pressure when the spool kicks out of detent (returns to neutral). See chart for correct kick-out pressure for your unit.
11. If setting is incorrect, remove the rubber plug on the end of the blade spool to expose the detent release adjustment screw. See the figure on the next page.
12. Insert screwdriver and turn adjustment screw in (clockwise) to increase kick-out pressure or out (counter-clockwise) to lower kick-out pressure. One full revolution of the adjustment screw is approximately equal to an 800 PSI (5.5MPa) change in the kick-out pressure.

NOTICE

Be careful not to force the adjusting screw or it may deform the internal adjusting rod and make the valve inoperative. Be sure the internal spool does not turn in the valve while making this adjustment by holding the linkage end of the spool being adjusted, see Figure 18. Blade/Slide Spool Detent Mechanism.

Maintenance and Adjustment

BLADE AND SLIDE DETENT ADJUSTMENT PROCEDURE (MANUAL CONTROL UNITS ONLY)

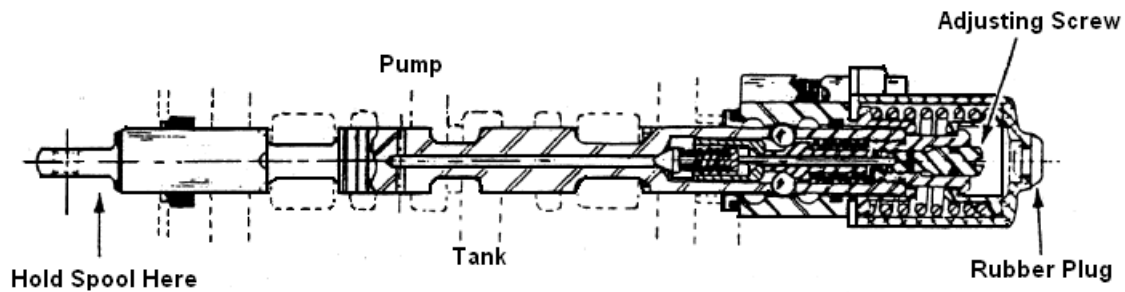




Figure 15. Blade / Slide Spool Detent Mechanism

B. Slide Detent Adjustment

Slide Kick-Out Pressure is 2500 PSI.

1. Position the packing mechanism to blade-down and slide-out.
2. Turn off PTO (or front mount pump).
3. Turn off engine, remove keys and follow **Lock-Out/Tag-Out procedures** .
4. Remove slide control linkage on secondary valve (bottom valve spool).
5. Follow the same procedure to check and set slide detent pressure as blade detent adjustment (except operate slide spool).
6. After detent pressures are set, re-connect all linkages and reset the main relief pressure. Refer to **Pressure Adjustment Settings** .

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Maintenance and Adjustment

DISASSEMBLY/ASSEMBLY OF VALVE SECTION

1. Mark each valve section numerically to avoid incorrect reassembly.
2. Remove three (3) assembly stud nuts from the inlet section using a 9/16" thin wall socket. See the figure below.
3. Remove valve sections by sliding from assembly studs.
4. Remove and discard o-rings in each section. Thoroughly clean o-ring counterbores and ground surfaces of each section.
5. Replace the four O-rings in each section.
6. Replace valve sections on assembly studs in the same manner in which they were removed. O-ring counterbores should be to the left when facing "A" portend of the valve.

NOTICE

Use care in replacing valve sections to avoid dislodging O-Rings from counterbores.

7. Reassemble three (3) stud nuts on stud assembly; torque nuts evenly to 32 ft./lbs.

CAUTION

Do NOT use lock washers with stud nuts. If stud nuts are NOT tightened to the proper torque, valve spools may bind or stick or cause section seals to extrude.

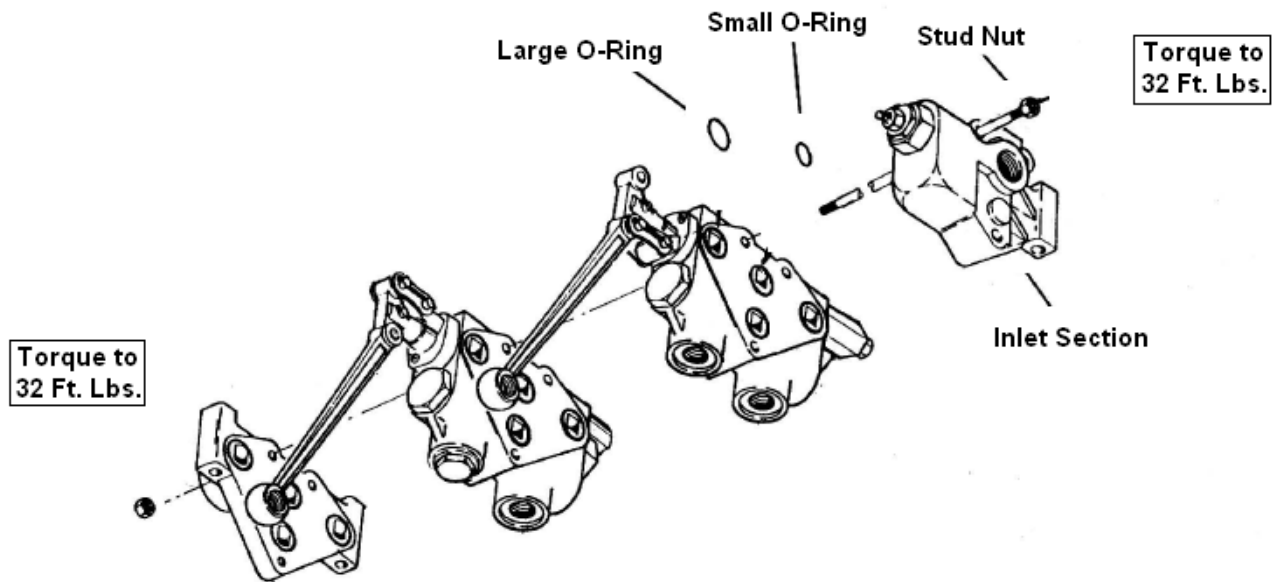


Figure 16. Valve Sections

REPLACING SPOOL SEALS

1. Remove bonnet assembly parts from back of valve section. Keep parts in order of disassembly, see the figure below.
2. Remove complete handle assembly from spool on the front of valve section, see the figure below.

NOTICE

Do NOT remove spool as the seals can be replaced externally. Prevent spool from turning or moving by inserting a screw driver through clevis slot or running a rod through clevis slot and using a handle. Do NOT hold the spool with a wrench. This will destroy spool finish.

3. Remove retainer plate washer, back-up washer and spool seal, see the figure below.
4. Thoroughly clean counterbore.
5. Lightly oil new seal and slide over spool and insert in seal counterbore. Put washers back on spool and reassemble handle assembly. Torque screws evenly to 10 ft./lbs.
6. Reassemble bonnet assembly, making sure it goes together in same order as when removed.
7. Torque bonnet screws evenly to 10 ft./lbs.

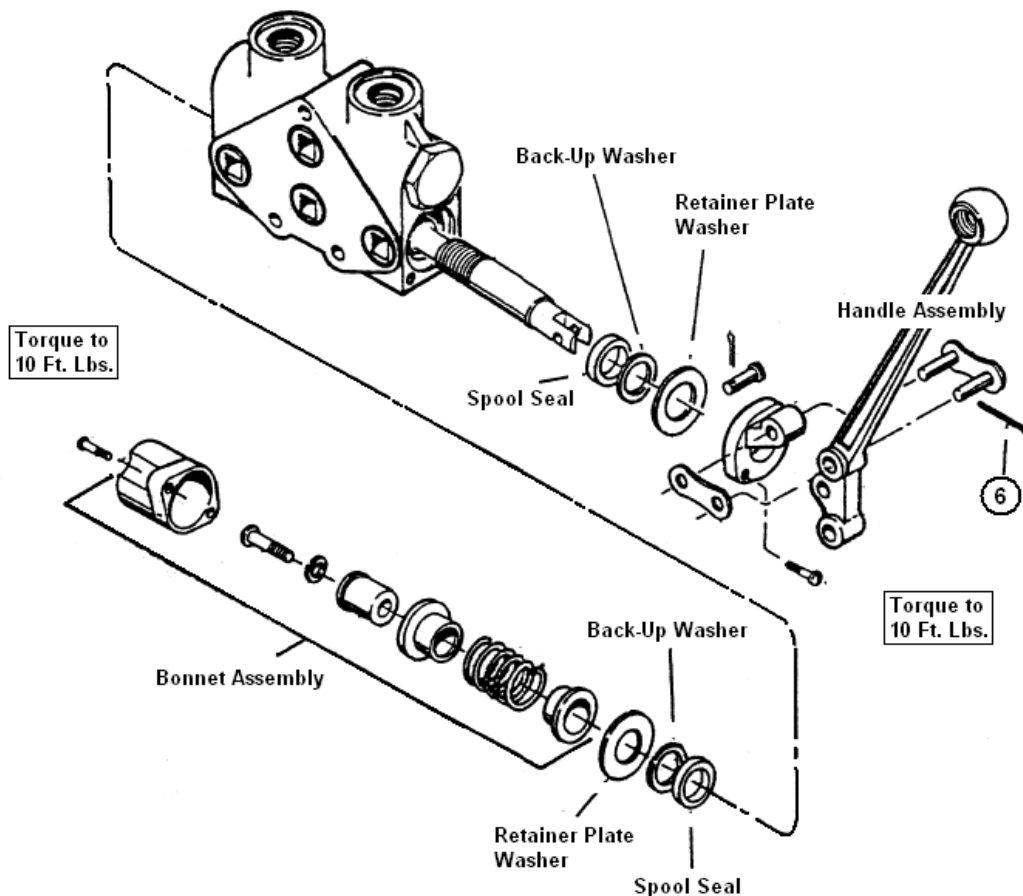


Figure 17. Spool Seals

PT 1000A

Maintenance and Adjustment

NEUTRAL INTERLOCK (ELECTRONIC CONTROLLED ENGINES)

The neutral interlock features on this unit **MUST NOT** be altered in any way. This includes, but not limited to, bad wiring, incorrect programming, or unintended use of these features. Wiring of these systems is shown in the Schematics section.

WARNING

Changing or altering any neutral interlock features could result in property damage, personal injury or death!

TAILGATE VALVE LINKAGE ADJUSTMENT

1. Loosen the jam nut behind the yoke.
2. Screw the yoke out (clockwise) to pull levers closer to the unit. Screw yoke in (counter-clockwise) to pull levers away from the unit.
3. Re-assemble and check. The levers need to be in the same relative position to each other and not hit the body or the lever guard. After the proper position is attained, tighten the jam nut against the yoke and re-install linkage to valve spool.

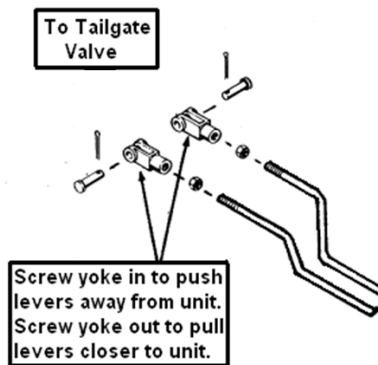


Figure 18. Tailgate Valve Linkage Adjustment

Maintenance and Adjustment

SLIDE WEAR STRIPS

Slide wear strips on a standard model are bronze and should be greased weekly by applying a line of grease on the exposed portion of the wear bar when extended, both inside and outside. Refer to **Body Lubrication Guide**^[39] and Lubrication Guide Decal on the unit. Replacement is necessary before the slide wear strips wear down to the button head cap-screws that secure them. Fully extend the slide and inspect the two outer wear strips from inside the tailgate. Inspect the underside wear strips from inside the body.

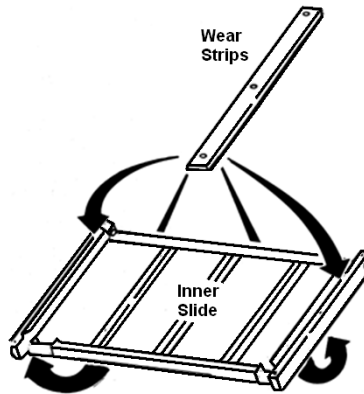


Figure 19. Slide Wear Strips

PT 1000A

Maintenance and Adjustment

THROTTLE ADVANCE PROXIMITY SWITCH ADJUSTMENT

The PT 1000A has an engine throttle switch which is automatically actuated. The function of the switch is to speed up the truck engine to the proper setting to achieve the correct compaction cycle time. The switch actuator is connected to the slide spool only. Since both control levers are moved simultaneously, the slide is not active until the blade spool is in neutral. The slide is last part of both cycles; therefore it keeps the throttle engaged through that entire portion of the cycle. The valve spool travel from neutral to full engagement of the spool is about 5/16" (8mm) in both directions. The proximity switch should be adjusted so it engages the throttle half way between neutral and full detent of the slide spool in each direction.

A. Throttle Advance Proximity Switch Adjustment

The throttle advance proximity switch is located on the inside of the tailgate. Adjust by loosening the clamps on the striker side left to right as needed to trigger the proximity switch when the valve is activated.

B. Tolerance

Proximity switch should actuate when spool travels 5/32" (4mm) \pm 1/16" (1.6mm) from the neutral position in either direction.

Maintenance and Adjustment**OPTIONAL CONTAINER MECHANISM ADJUSTMENT PROCEDURE**

Install a 5000 PSI gauge in the Primary Valve at the 90° elbow tapped for 1/4" NPT gauge connection; make sure gauge has been checked for accuracy.

A. Winch

1. Disengage PTO.
2. Remove the hoses or tubes and fittings connecting the valve to winch at the Secondary Valve ports.
3. Install "O" rings plugs in two secondary valve ports.
4. Engage PTO.
5. Depress throttle advance and engage the winch control lever in both directions.
6. The pressure should read 1400 PSI \pm 100 PSI for 8000# and 12,000# winches.
7. If pressure is incorrect, make the necessary adjustment by the following procedure:
 - a. Remove the cover nut which will expose the adjustment screw.
 - b. Pull spool out to adjust relief on detent cup end.
 - c. Push spool in to adjust relief on spool yoke end.
 - d. Loosen the leak nut.
 - e. Turn adjustment screw clockwise (IN) to increase the pressure, counterclockwise (OUT) to decrease the pressure.
 - f. After proper pressure is reached tighten the locknut and re-install cover nut.
8. Reconnect fittings, hoses or tubes; if applicable.

B. Container Mechanism or Roll Bar (Without Winch- Single Mechanism)

1. Engage PTO.
2. Depress throttle advance and engage mechanism control lever until cylinders bottom out (check in both directions).
3. The pressure should read 1400 PSI \pm 100 PSI in with cylinders extended.
4. If pressure is incorrect, make the necessary adjustment by the following procedure:
 - a. Remove the cover nut which will expose the adjustment screw.
 - b. Pull spool out to adjust relief on detent cup end.
 - c. Push spool in to adjust relief on spool yoke end.
 - d. Loosen the lock nut.
 - e. Turn adjustment screw clockwise (IN) to increase the pressure, counterclockwise (OUT) to decrease the pressure.
 - f. After proper pressure is reached tighten the lock nut and re-install cover nut.

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Maintenance and Adjustment

TROUBLESHOOTING

TROUBLE	PROBABLE CAUSE	REMEDY
<i>Sticking plungers</i>	<ol style="list-style-type: none"> 1. Excessively high oil temperature 2. Dirt in oil 3. Valve warped from mounting 4. Excessive high pressure in valve 5. Handle or linkage binding 6. Plunger bent 7. Return spring damaged 8. Spring or detent cap binding 9. Valve not at opening temperature 	<ol style="list-style-type: none"> 1. Eliminate restriction in hydraulic lines and filtering system. 2. Change oil, clean system. 3. Loosen and check valve. 4. Check with gauge on inlet and cylinder lines. 5. Free up linkage. 6. Replace valve. 7. Replace faulty parts. 8. Loosen cap, re-center and retighten. 9. Let system warm up.
<i>Leaking seals</i>	<ol style="list-style-type: none"> 1. Paint on or under seal 2. Excessive back pressure 3. Dirt under seal 4. Scored plunger 5. Loose seal plates 6. Cut or scored seal 	<ol style="list-style-type: none"> 1. Remove and clean. 2. Open line to reservoir. 3. Replace valve. 4. Clean and tighten. 5. Replace faulty parts.
<i>Detent control fails to hold</i>	<ol style="list-style-type: none"> 1. Worn detent cam 2. Spring or ball broken or deformed 3. Plunger stroke restricted 4. Weight of lever excessive 5. Cycle time too fast 	<ol style="list-style-type: none"> 1. Replace worn parts. 2. Replace damaged parts. 3. Check linkage. 4. Check linkage and mechanism. 5. Check cycle time.
<i>Unable to move plunger in or out</i>	<ol style="list-style-type: none"> 1. Dirt in valve 2. Plunger cap full of oil 3. Bind in linkage 	<ol style="list-style-type: none"> 1. Clean and flush out. 2. Replace seals. 3. Free up linkage.
<i>Load will not hold</i>	<ol style="list-style-type: none"> 1. Cylinder leaking or worn 2. Oil bypassing valve plunger 3. Port relief valve not holding 	<ol style="list-style-type: none"> 1. Check cylinders. 2. Replace valve. 3. Remove and clean.
<i>Poor hydraulic system performance or failure</i>	<ol style="list-style-type: none"> 1. Defective pump 2. Dirt in relief valve 3. Relief valve defective 4. Worn cylinders 5. Load too heavy 6. Internal valve crack 7. Plunger not at full stroke 8. Reservoir low on oil 9. System filter clogged 10. Line restricted 11. Ejector cylinder leakage 12. Duo-press not properly adjusted 13. Blade back off relief stuck open 	<ol style="list-style-type: none"> 1. Check pressure or replace. 2. Disassemble and clean. 3. Check as per instructions. 4. Repair or replace. 5. Check line pressure. 6. Replace valve. 7. Check movement and linkage. 8. Add oil. 9. Replace filter. 10. Check lines. 11. Check for internal bypassing and external leakage. 12. Replace relief cartridge. 13. Check pressure and adjust as specified.
<i>Outer Slide Drifts down</i>	<ol style="list-style-type: none"> 1. Regenerative spool stuck 2. Slide Cylinder bypassing 	<ol style="list-style-type: none"> 1. Free spool or replace valve. 2. Inspect Slide Cylinder for bypass.
<i>Excessive Heat</i>	<ol style="list-style-type: none"> 1. Control Valve spool partially shifted 2. Restriction in line or valve 	<ol style="list-style-type: none"> 1. Lubricate and free up linkage. 2. Remove restriction.

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Maintenance and Adjustment

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TROUBLESHOOTING

TROUBLE	PROBABLE CAUSE	REMEDY
<i>Throttle with no advance</i>	<ol style="list-style-type: none">1. Air leak or line breakage2. Air line obstruction3. Cable disconnected	<ol style="list-style-type: none">1. Trace air lines back to supply and repair leaks.2. Clean air lines and valves back to supply.3. Tighten attaching hardware or replace faulty part.

PT 1000A

Maintenance and Adjustment

DOUBLE ACTING TELESCOPIC HYDRAULIC CYLINDER DISASSEMBLY AND ASSEMBLY

Step 1 The cylinder is best serviced when mounted in the vertical position, for both disassembly and assembly. Also, it is best located where a hoist can be used directly overhead of the cylinder for removing the plungers if complete disassembly is required. A typical stand is shown in Figure 1, made of angle welded to a base anchored to the floor and an adjustable wrap around chain to secure the cylinder to the stand. Because of oil spillage and safety, we recommend draining the cylinder of oil before disassembling. Figure 2 shows a typical sequence of disassembling of the cylinder plungers in steps which are further described in this manual.

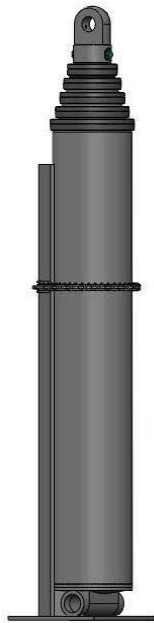


Figure 20.

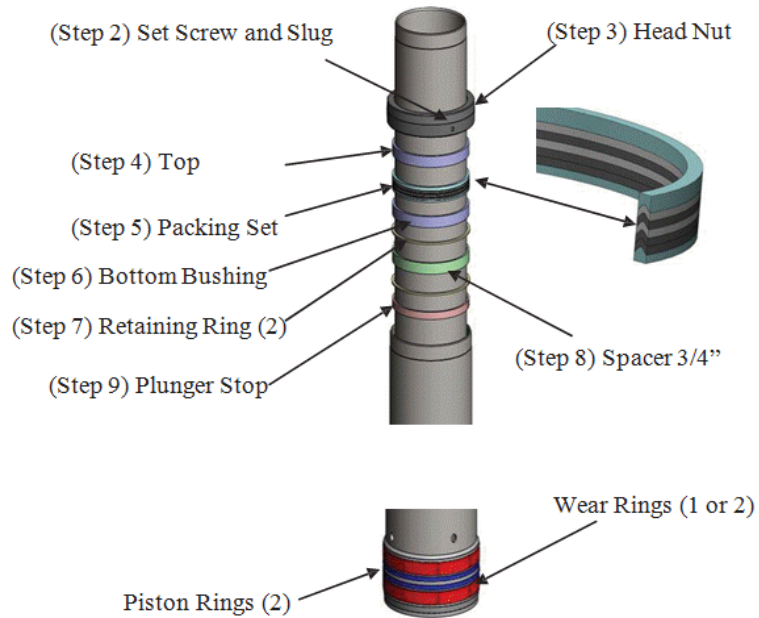


Figure 21.

Step 2 - Set Screws

All head nuts are secured to the plunger by a set screw. Under the set screw is a nylon slug to protect the plunger threads. To remove the head nut, the set screw must be loosened using an allen wrench. (Figure 12).

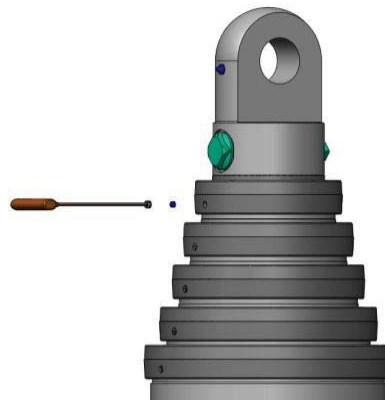


Figure 22.

Maintenance and Adjustment

DOUBLE ACTING TELESCOPIC HYDRAULIC CYLINDER DISASSEMBLY AND ASSEMBLY (CONTINUED)

Step 3 - Head Nuts

After the set screws have been loosened, tap head nut gently around its circumference and unscrew the head nut with a chain wrench, or an equivalent tool. Do not use a chisel, punch or weld any studs to the head nut to remove. (Figure 13).

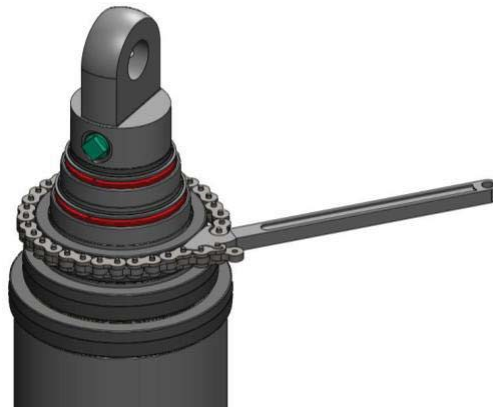


Figure 23.

Step 4 – Top Bushings

Using a bushing removal tool (Figure 14), Thread the ends into holes on top of bushings and lift the bushing upward.

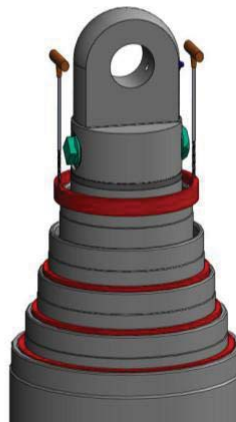


Figure 24.

PT 1000A

Maintenance and Adjustment

DOUBLE ACTING TELESCOPIC HYDRAULIC CYLINDER DISASSEMBLY AND ASSEMBLY (CONTINUED)

Step 5 – Packing

To remove packing, pull the plunger up about one foot. Add tape to a clean area as shown in Figure 6. Push the plunger down past the packing then pull the plunger up. The packing will stick to the tape and be pulled out with the plunger. Repeat as needed.

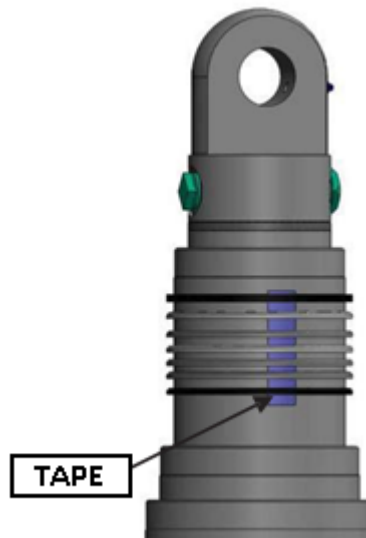


Figure 25.

Step 6 – Bottom Bushings

To remove the bottom bushing use tape applied in step 5. Push the plunger down past the bushing then pull the plunger up. The bushing will stick to the tape and be pulled out with the plunger. Repeat as needed.

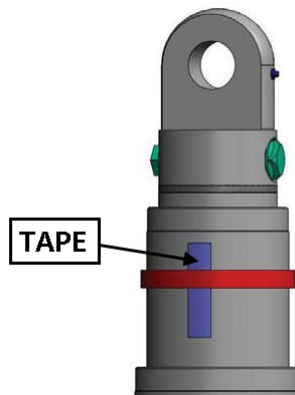


Figure 26.

Maintenance and Adjustment

DOUBLE ACTING TELESCOPIC HYDRAULIC CYLINDER DISASSEMBLY AND ASSEMBLY (CONTINUED)

Step 7 - Retainer Rings

Using a tool shown in Figure 17, insert the hooked end into the retaining ring slot. Force the retaining ring out of the groove and lift ring out of plunger.

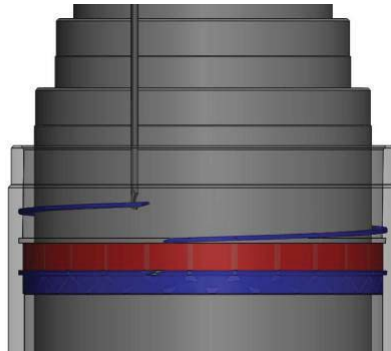


Figure 27.

Step 8 – Spacers

To remove spacer, pull the plunger up about one foot. Add a minimum of two layers of duct tape (Figure 16) to a clean area as shown in Figure 9. Push the plunger down past the spacer then pull the plunger up. The spacer will stick to the duct tape and be pulled out with the plunger. Repeat as needed.

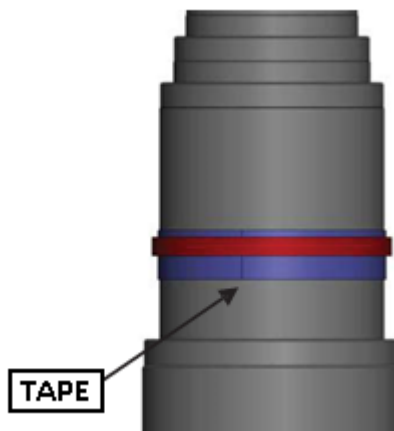


Figure 28.

PT 1000A

Maintenance and Adjustment

DOUBLE ACTING TELESCOPIC HYDRAULIC CYLINDER DISASSEMBLY AND ASSEMBLY (CONTINUED)

Step 9 – Second Retaining Ring and Plunger Stop

Repeat Step 6 to remove second retaining ring. The plunger is now free to lift out. The plunger stop will come out with the plunger.



Figure 29.

Reassembly of Cylinder

All bores in the packing area and plunger outside diameters must be free of tool marks and scratches. Polish with a fine paper, crocus cloth or a Scotch Brite pad. All parts should be clean and free of any contamination. A complete Major Repair Kit as called out on Page 25 (ordering information) is recommended. Install the piston rings. The guide ring may require a slight grind on the end for proper fit. The end gap should not exceed 1/8". Drop all plungers into the body in the vertical position, as shown in Fig. 1 on page 17. Assemble the remaining parts in the reverse sequence as listed in Fig. 2. The packing should be presoaked in oil before installing. (Do not use a detergent oil.) Note Fig. 2 for the direction of the packing. Use a tool similar to Figure 18, seat each lip individually, making sure packing is nestled uniformly. After the head nuts are tightened, make sure there is a nylon slug under the set screw. After installing the cylinder in the unit, cycle the cylinder several times to remove any entrapped air. Adjust the headnuts if required for proper sequencing of all the rams. Make sure the headnut lock screw is tight when finished.

Maintenance and Adjustment**DOUBLE ACTING TELESCOPIC HYDRAULIC CYLINDER DISASSEMBLY AND ASSEMBLY
(CONTINUED)****Step 10 - Setting Head Nuts**

Remove the small slug located opposite the set screw. Using an allen wrench (Figure 12), tighten the headnut down until the hex wrench bottoms out on the top of the plunger. Remove the hex wrench and replace the slug. Install the set screw using a nylon slug to protect the threads.

**Figure 30.**

PT 1000A

Maintenance and Adjustment

DOUBLE ACTING TELESCOPIC HYDRAULIC CYLINDER DISASSEMBLY AND ASSEMBLY (CONTINUED)

Typical Tool End Shapes for Removing and Installing New Parts



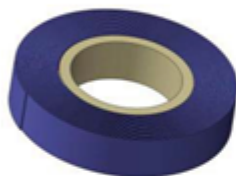
Allen wrench for
removing set screws



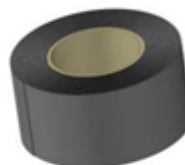
Chain wrench for
removing Head Nuts



Threaded tool for
removing set screws



Adhesive tape for
removing packing set
and bottom bushing



Duct tape for
removing spacer



Removal of retaining
rings



Installation of packing set



Maintenance and Adjustment

DOUBLE ACTING TELESCOPIC HYDRAULIC CYLINDER DISASSEMBLY AND ASSEMBLY (CONTINUED)

Tool Kit

(Part No: 1-TK-1) Used to install packing, remove retainers and spacers.



Figure 31.

Chain Wrench with Add'l Chain

(Part No: 1-CW-19) Used to tighten and remove head nuts.

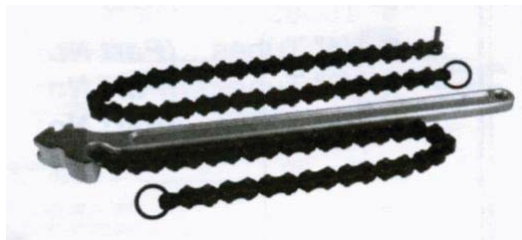


Figure 32.

Strap Wrench

(Part No: 1-TL-19) To hold plungers from turning during assembly or disassembly.



Figure 33.

PT 1000A

Maintenance and Adjustment

DOUBLE ACTING TELESCOPIC HYDRAULIC CYLINDER DISASSEMBLY AND ASSEMBLY (CONTINUED)

Thread Lift Rings - For lifting tubes

3" Tubes.....(Part No: 2-TL-20-3)

4" Tubes.....(Part No: 2-TL-20-4)

5" Tubes.....(Part No: 2-TL-20-5)

6" Tubes.....(Part No: 2-TL-20-6)

7" Tubes.....(Part No: 2-TL-20-7)

8" Tubes.....(Part No: 2-TL-20-8)

8 1/4" Tubes...(Part No: 2-TL-20-8 1/4)

9 1/8" Tubes...(Part No: 2-TL-20-9 1/8-1)

(8 15/16" Thd.)

9 1/8" Tubes...(Part No: 2-TL-20-9 1/8)

(9 1/16" Thd.)

9 3/4" Tubes...(Part No: 2-TL-20-9 3/4)



Figure 34.

Maintenance and Adjustment

DOUBLE ACTING TELESCOPIC HYDRAULIC CYLINDER DISASSEMBLY AND ASSEMBLY (CONTINUED)

Pushers - For Installing Plunger Stops, Spacers and New Style Retainers

3" Tubes.....(Part No:	2-TL-21-3)
4" Tubes.....(Part No:	2-TL-21-4)
5" Tubes.....(Part No:	2-TL-21-5)
6" Tubes.....(Part No:	2-TL-21-6)
7" Tubes.....(Part No:	2-TL-21-7)
8" Tubes.....(Part No:	2-TL-21-8)
8 1/4" Tubes...(Part No:	2-TL-21-8 1/4)
9 1/8" Tubes...(Part No:	2-TL-21-9 1/8)
9 3/4" Tubes...(Part No:	2-TL-21-9 3/4)

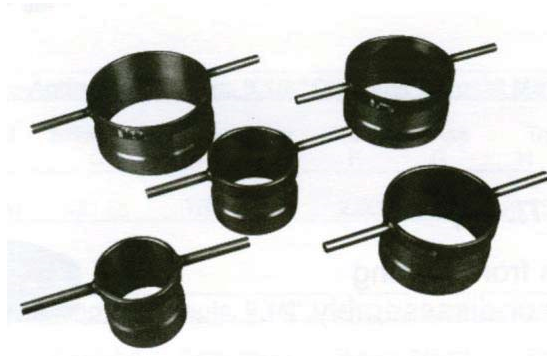


Figure 35.

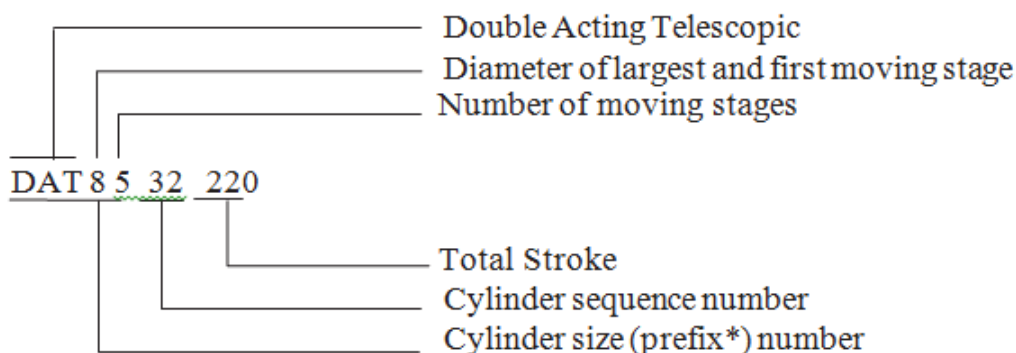
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Maintenance and Adjustment

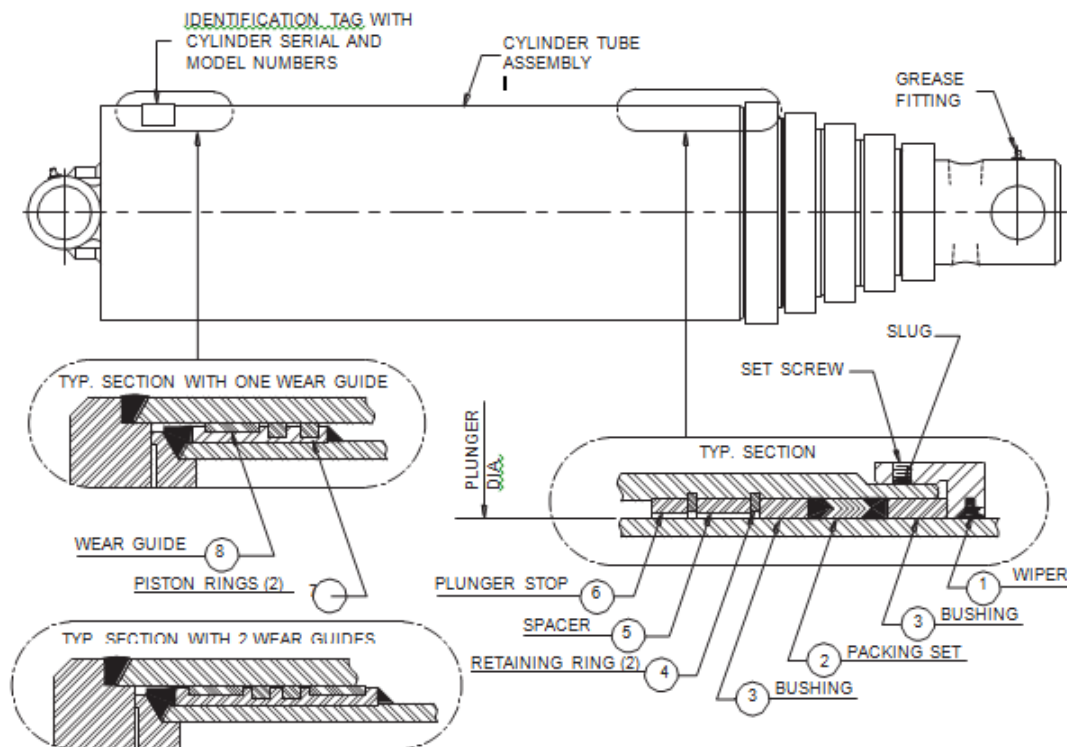
DOUBLE ACTING TELESCOPIC HYDRAULIC CYLINDER DISASSEMBLY AND ASSEMBLY (CONTINUED)

Whenever requesting information or ordering parts, always refer to the cylinder and serial number stamped on the bottom end of the cylinder body. A complete parts list is identified on all Custom Hoists cylinder assembly prints.

Three types of Repair Kits are available for all double acting telescopic cylinders. To order, use the prefix number (*) of the cylinder stamped on the body.



KIT NO.	DESCRIPTION	CONSISTS OF ITEMS LISTED FOR ALL PLUNGERS	WHEN USED
SK-*	SEAL KIT	1-2	Minor Field Repair
MPK-*	MINOR PACKING KIT	1-2-3	When Bushing Shows Excessive Wear
MRK-*	MAJOR REPAIR KIT	1-2-3-4-5-6-7-8	Major Overhaul Of Cylinder



Maintenance and Adjustment**CLEAN AND INSPECT THE TAILGATE SEAL**

Periodically check the tailgate seal to make sure it mates properly with the body and inspect for possible wear, damage or leaking. Replace the seal as necessary. See the figure below.

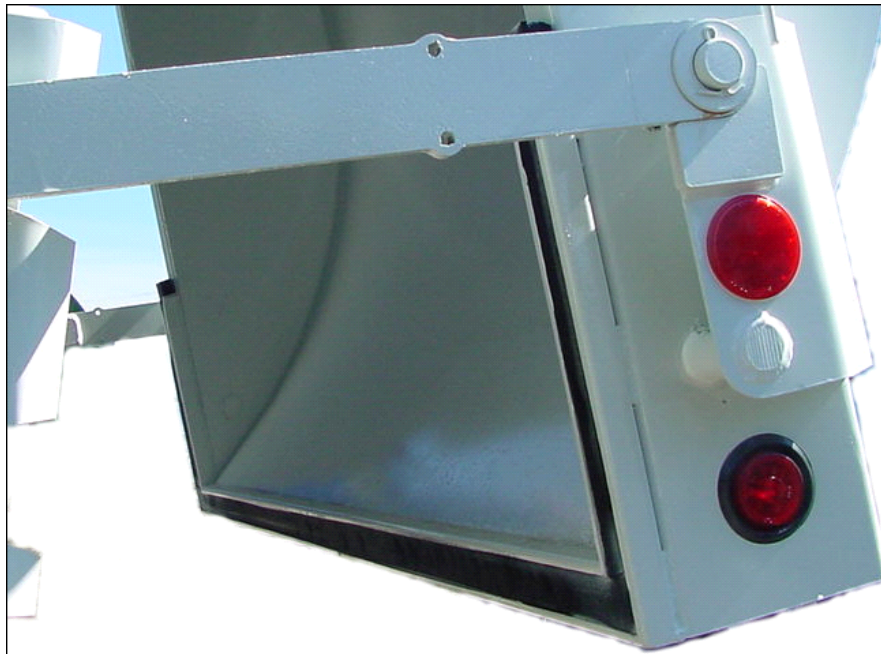



Figure 36. Tailgate Seal


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Maintenance and Adjustment

INSPECT PROXIMITY SWITCHES

See **Proximity Switch Troubleshooting**  for recommended procedures for inspecting proximity switches.

TAILGATE LUBRICATION

See **Grease Lubrication Recommendation**  and **Body Lubrication Guide** in this section.

GREASE LUBRICANT RECOMMENDATION

Use a grease gun. Before engaging grease gun, clean the fitting. Always pump enough grease to purge the joint of contaminated grease and wipe off the excess. Lubricate a unit as given on the lubrication decal on the unit and in the Body Lubrication Guide paragraph of this section.

Use grade NLG1000 grease or equivalent.

OIL LUBRICANT RECOMMENDATION

Use only non-detergent engine oil to lubricate all moveable mechanical parts not furnished with grease fittings. Apply sufficient oil to give good lubrication, but do not bathe parts in oil. Always wipe off excess.

REPAIRING CRACKED WELD JOINTS

Repair all cracked weld joints immediately after finding cracked weld joints. If you are unsure of the proper repair procedure, call Heil Technical Services at 866-310-4345.

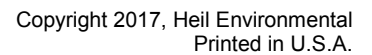
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SECTION 4

SCHEMATICS

TAILGATE HARNESS - 263-1772

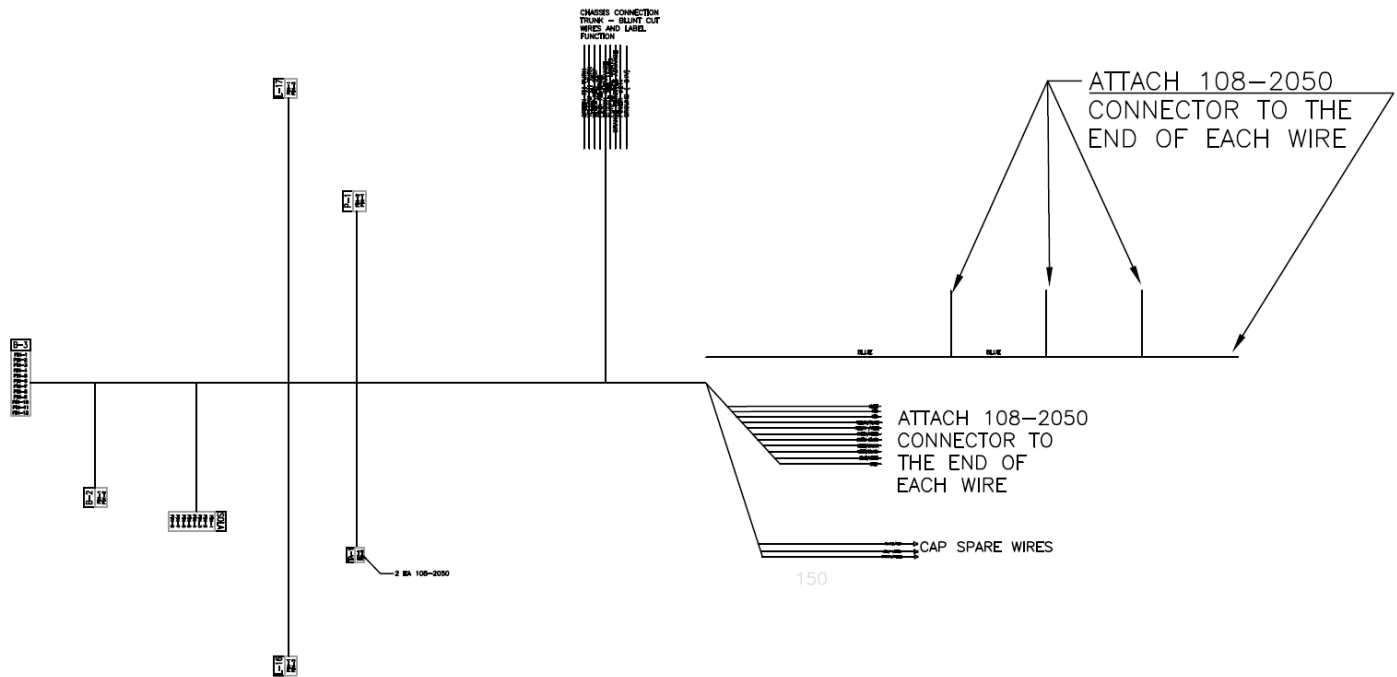


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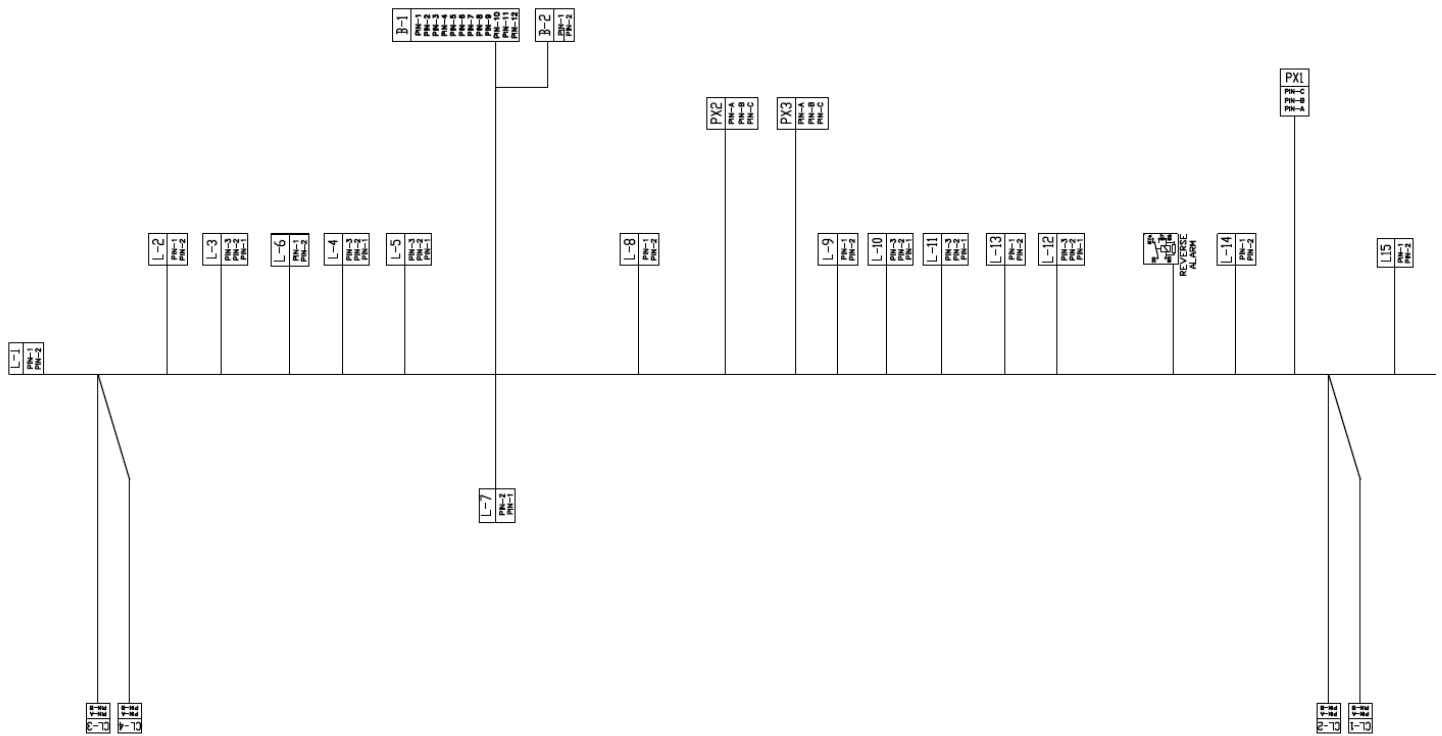
TAILGATE HARNESS - 263-1773



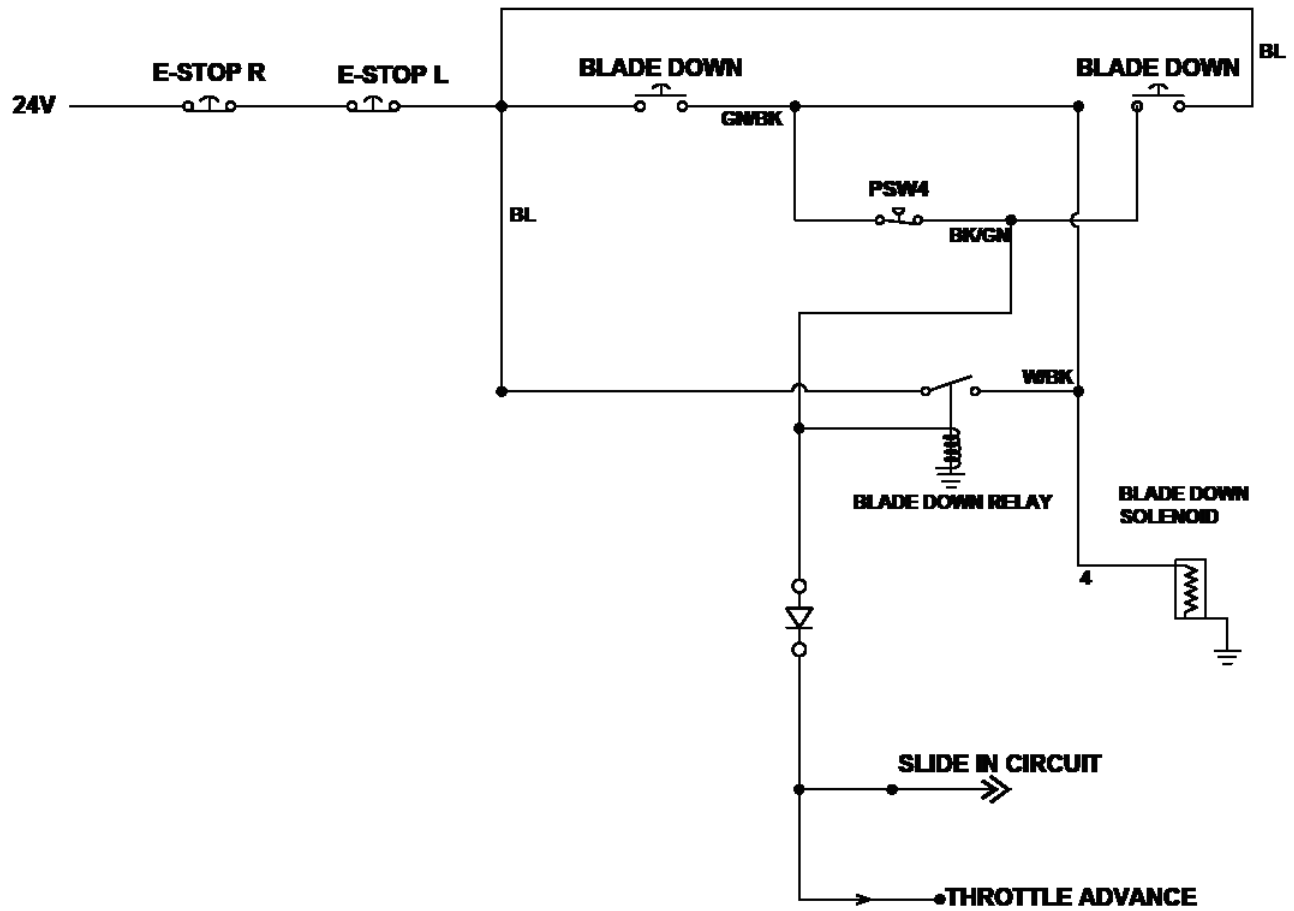
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Schematics

TAILGATE MECHANICAL HARNESS 263-1788



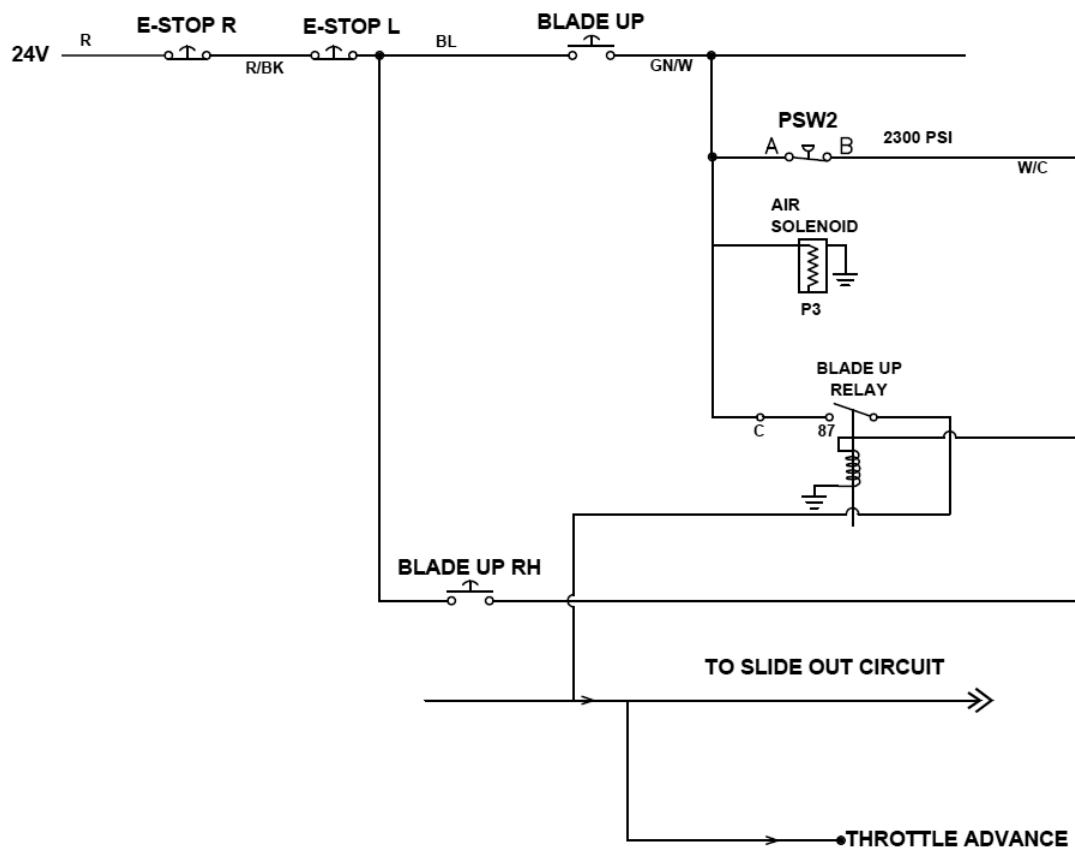
BLADE DOWN SLIDE IN CIRCUIT



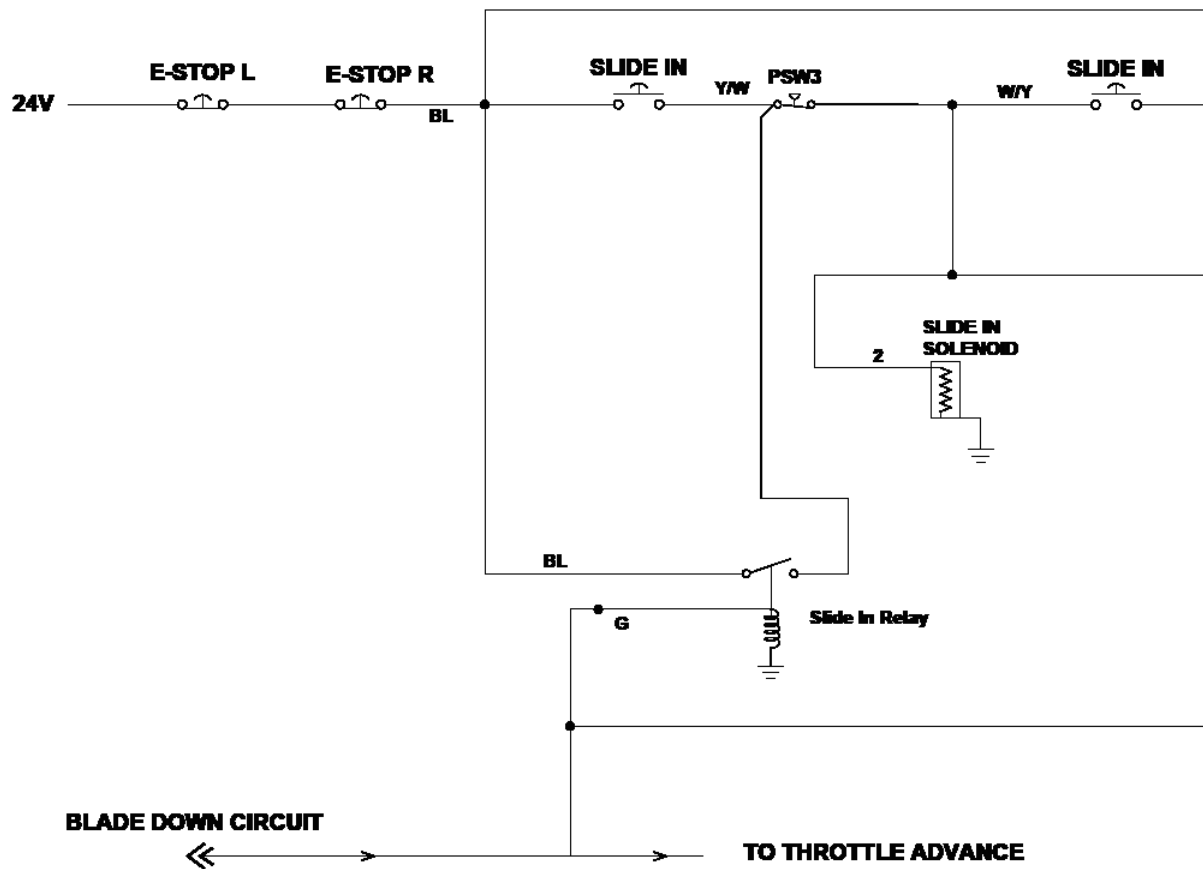
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Schematics

BLADE UP SLIDE OUT CIRCUIT



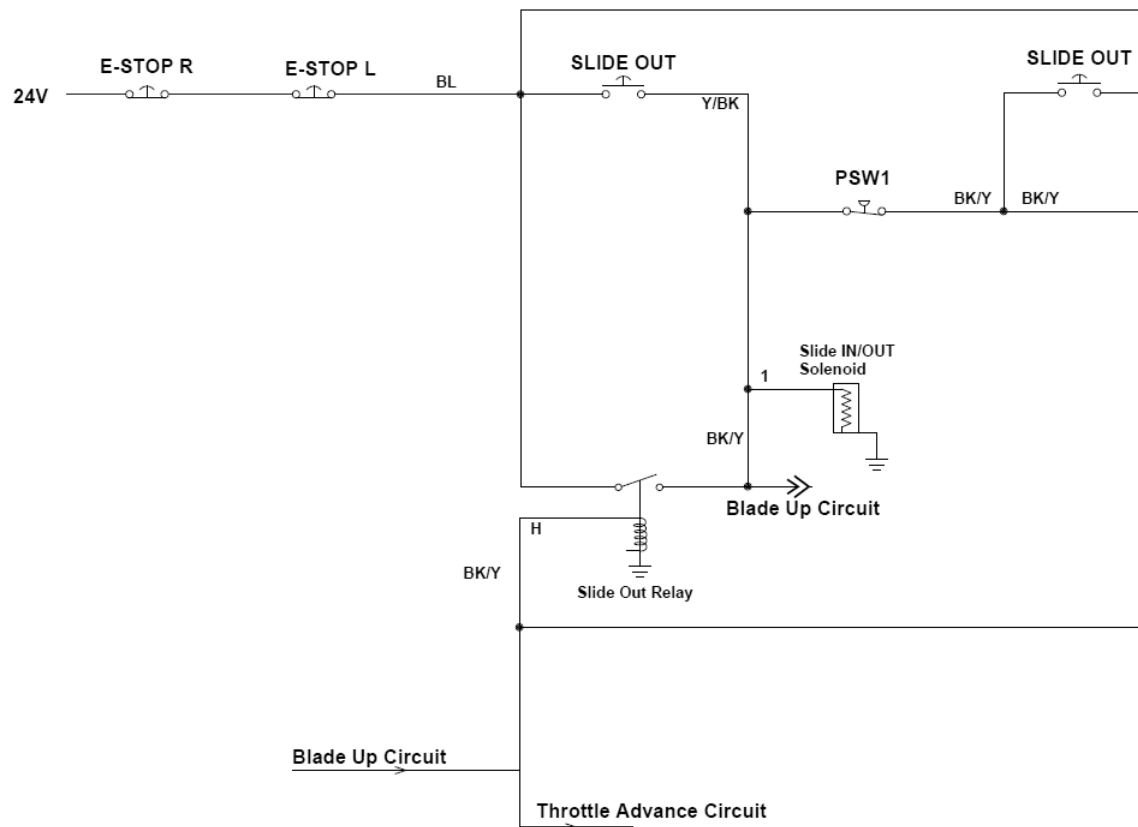
SLIDE IN CIRCUIT



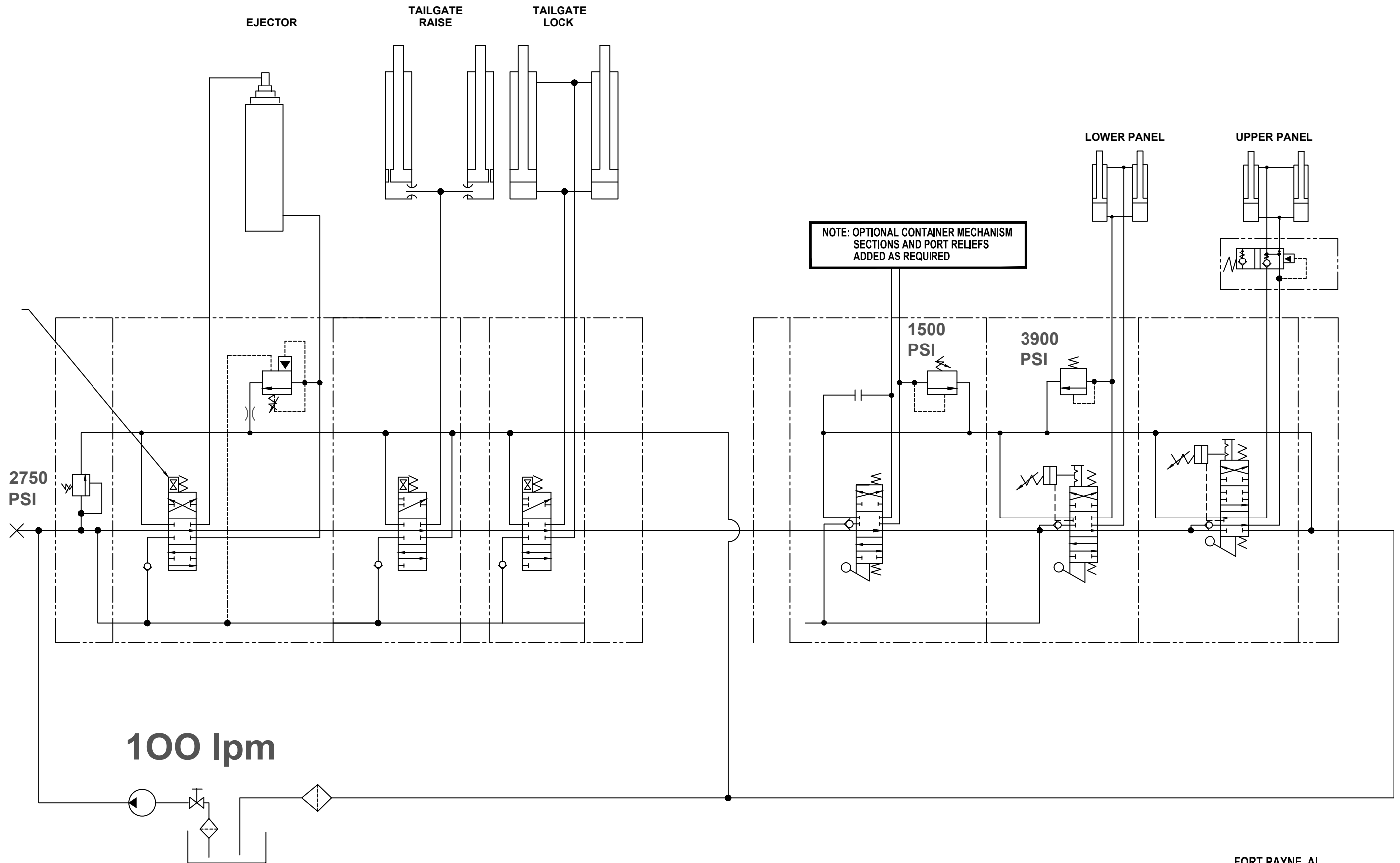
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Schematics

SLIDE OUT CIRCUIT



PNEUMATIC
ACTIVATION



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HYDRAULIC SCHEMATIC
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HEIL ENVIRONMENTAL INTERNATIONAL WARRANTY STATEMENT

Heil Environmental Industries ("Heil") warrants its solid waste collection equipment to be free from defects in material and workmanship under normal use for a period of six (6) months (1000 hours of operation) 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 its Service Bulletins and Operation Manuals are performed. Heil warranty is not transferable.

This warranty is expressly limited to the repair or replacement of any component or part thereof, of any such unit 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 original equipment owner 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 warranty registration form must be on file with Heil's warranty department. 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. The parts warranty covers parts only, providing that factory inspection reveals a defect in material or workmanship. Labor, inbound/Outbound Freight, troubleshooting, 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 FOR LOSS OF PROFITS, PRODUCT, TIME OR ANY OTHER DIRECT, INCIDENTAL, OR INDIRECT CONSEQUENTIAL LOSSES, DAMAGES OR DELAYS. ANY IMPROPER USE, OPERATION BEYOND RATED EQUIPMENT/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 AFFECTS 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 or specific contract terms & conditions, no employee or representative is authorized to modify this warranty in any way nor shall any other warranties be granted. However, Heil retains the right to modify its warranty program prospectively at any time.

The above warranty supersedes and is in lieu of all other warranties expressed or implied.



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