



# PARTS MANUAL

1448 Haul Unit System

**Haul Unit S/N: F21800F**

Publication No. 050007A00

Rev No. 20915 R100623

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# Introduction

This parts manual contains assembly illustrations of the Akkerman 1448 Haul Unit System. The illustrations in this manual are intended to show typical construction of various parts. In some instances, the details of parts illustrated may not exactly represent their actual appearance, but will help to identify parts performing the same functions. Additional copies of this manual may be purchased from the Akkerman Product Support Department, or downloaded from the Akkerman web site at [www.akkerman.com](http://www.akkerman.com).

The 1448 Haul Unit System includes the 1448CX Haul Unit, dirt bucket, and track. The conveyor in the TBM carries the spoils to the dirt bucket. Once the dirt bucket is full, the dirt bucket is removed from the pipeline via a haul unit to the unloading area in the launch shaft where the dirt bucket is hoisted out of the shaft and unloaded.

## LOCATING PARTS

This parts manual is organized into 13 sections to help you locate parts information quickly. The first page of each section lists the assemblies within the section.

An Alphabetical Index, Section 12, is provided to help you find the page number of a specific assembly. If the part number is known, the Numerical Index, Section 13, can also be utilized to find the page number of the assembly.

## USE GENUINE AKKERMAN PARTS

The use of parts other than genuine Akkerman parts could affect the efficient performance of the Haul Unit. ALWAYS use genuine Akkerman parts.

## PARTS ORDERING

To order fast, accurate, and reliable parts service, call (800) 533-0386, (507) 567-2261, or fax (507) 567-2605, and provide the following information.

1. Model Number
2. Serial Number
3. Part Number, Description, and Quantity
4. Shipping Preference

## MEASUREMENTS

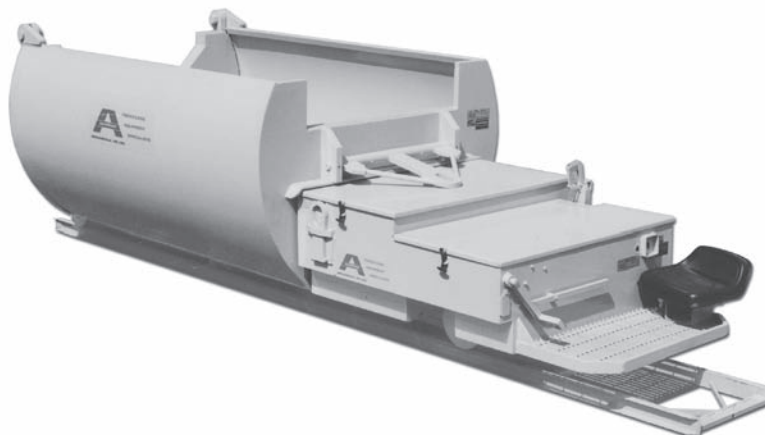
The unit of measure in this manual is in inches unless indicated otherwise.

## HARDWARE SPECIFICATION

All Akkerman products are assembled with SAE Grade 8 bolts, nuts, and washers. ALWAYS use matched fastener hardware when replacing or repairing the unit.

If you find any errors in this manual or have suggestions for improvement, please let us know. Email your comments via the Akkerman web site (Contact Us web page), or mail your suggestions to: Akkerman Inc., ATTN: Technical Publications, 58256 266th Street, Brownsdale, MN.

Akkerman Inc. reserves the right to improve its product without notice or obligation.



## 1448 Haul Unit with 720 Dirt Bucket

This manual includes the following final assemblies: 1448 Haul Unit 21800F; 540X Dirt Bucket 14590F, 600 Dirt Bucket 20750F, 600X Dirt Bucket 20700F, 660 Dirt Bucket 10700F, 720 Dirt Bucket 8670F, 720X Dirt Bucket 8675F, 780X Dirt Bucket 19140F; Track 7244F, 7245F, 7246F, 7247F; Slider Track 12220F, 17084F; Track Riser 9900F; Carrier 7270F; and Haul Cart 11266F.

## **NOTES**



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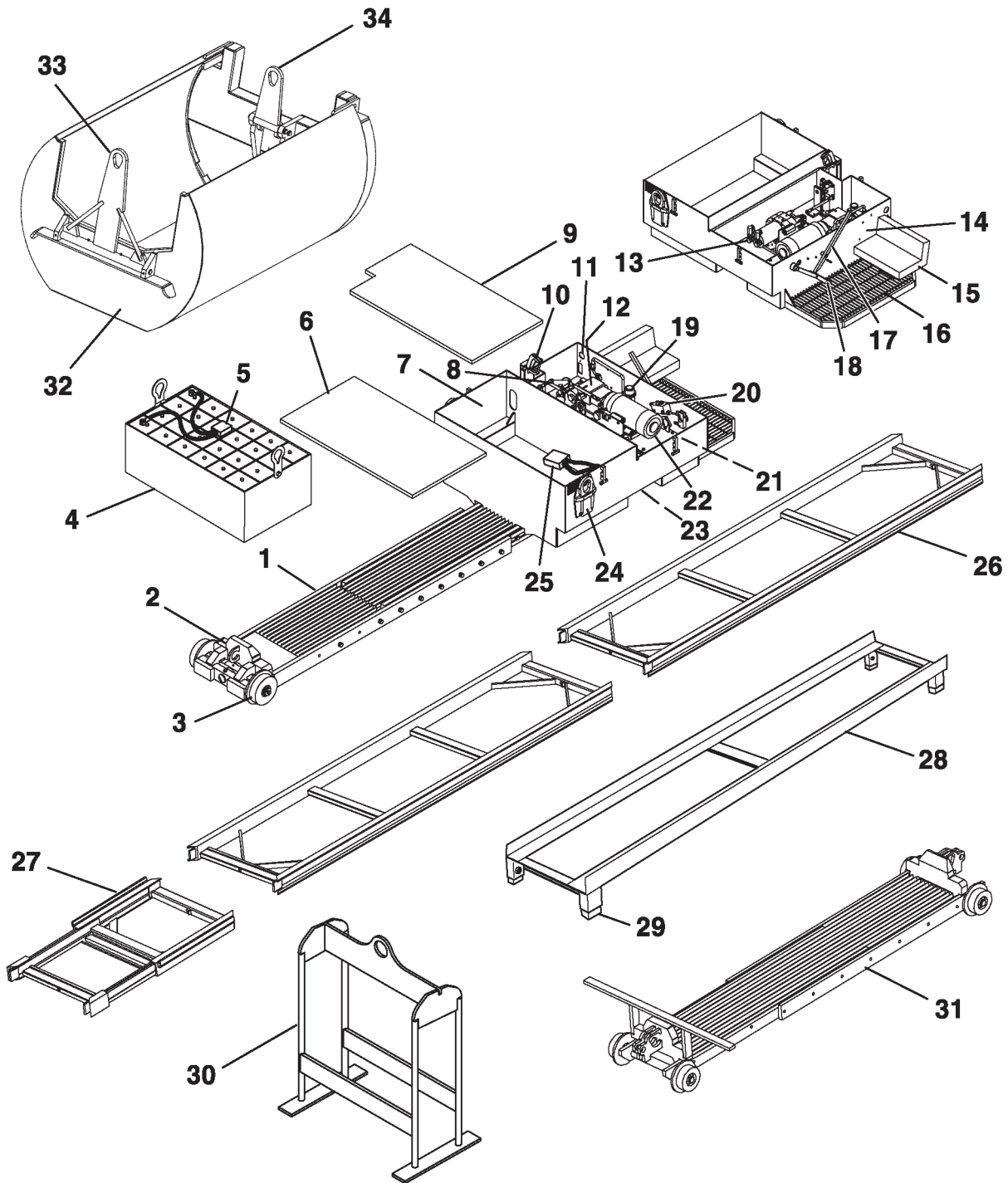
**NOTES**



# General Information

Terminology ..... 1

## TERMINOLOGY



1. Frame Assembly
2. Idler Assembly
3. Idler Wheel
4. Battery Pack
5. Battery Harness
6. Battery Compartment Cover
7. Battery Compartment
8. Throttle Linkage Assembly
9. Drive Box Cover

10. Controller
11. Filter Indicator
12. Hydraulic Pump
13. Hydraulic Motor
14. Battery Charge Indicator
15. Seat
16. Operator Platform
17. Brake Lock
18. Brake Pedal
19. Hydraulic Filler/Breather
20. Master Cylinder

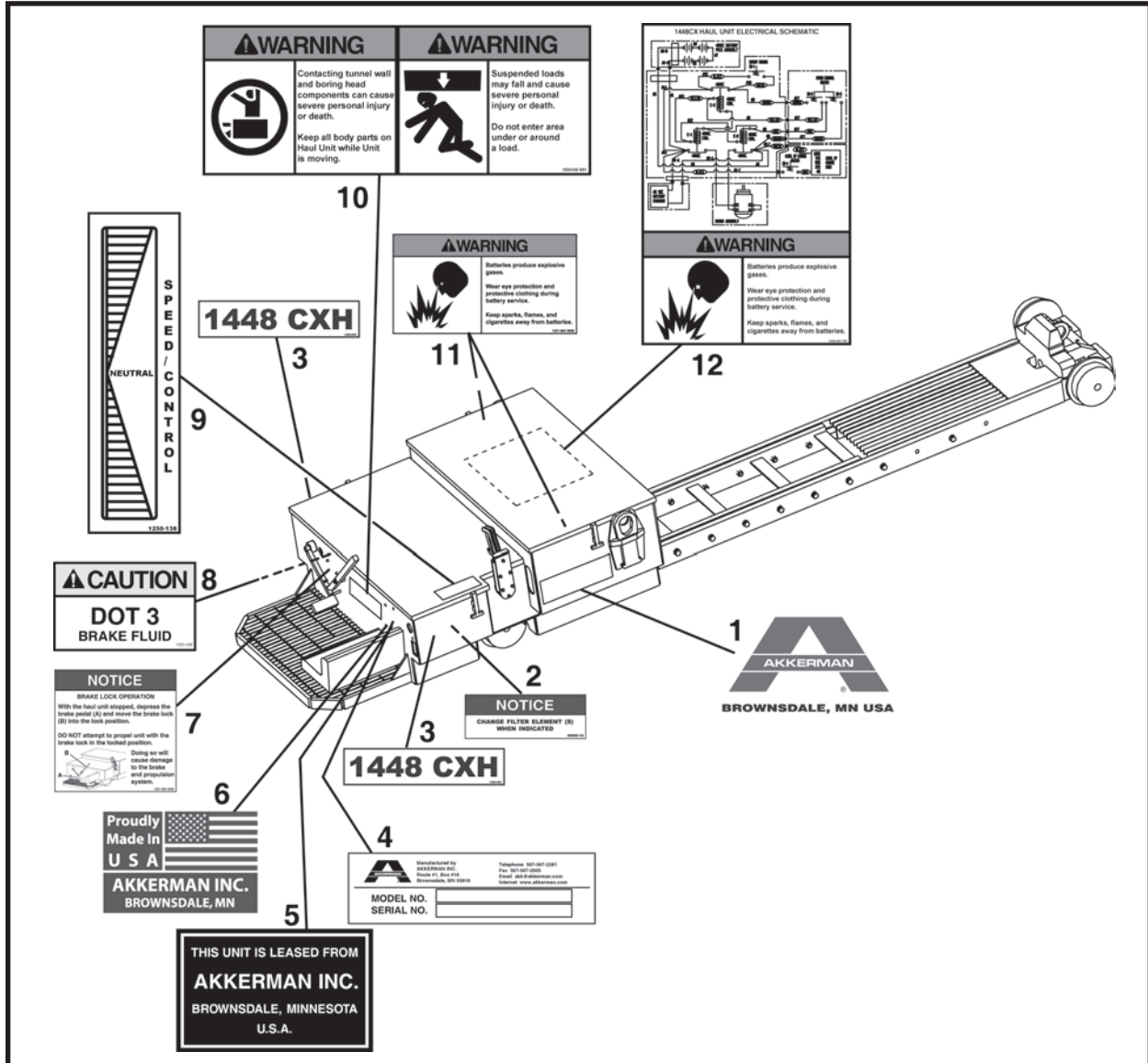
21. Contactors
22. Electric Motor
23. Drive Wheels
24. Lifting Eye
25. Contactor Harness
26. Track
27. Sliding Track
28. Track Riser
29. Riser Bar
30. Track Carrier
31. Haul Cart
32. Dirt Bucket



# Decals

1448 Haul Unit .....	1
Dirt Bucket .....	2

# 1448 HAUL UNIT

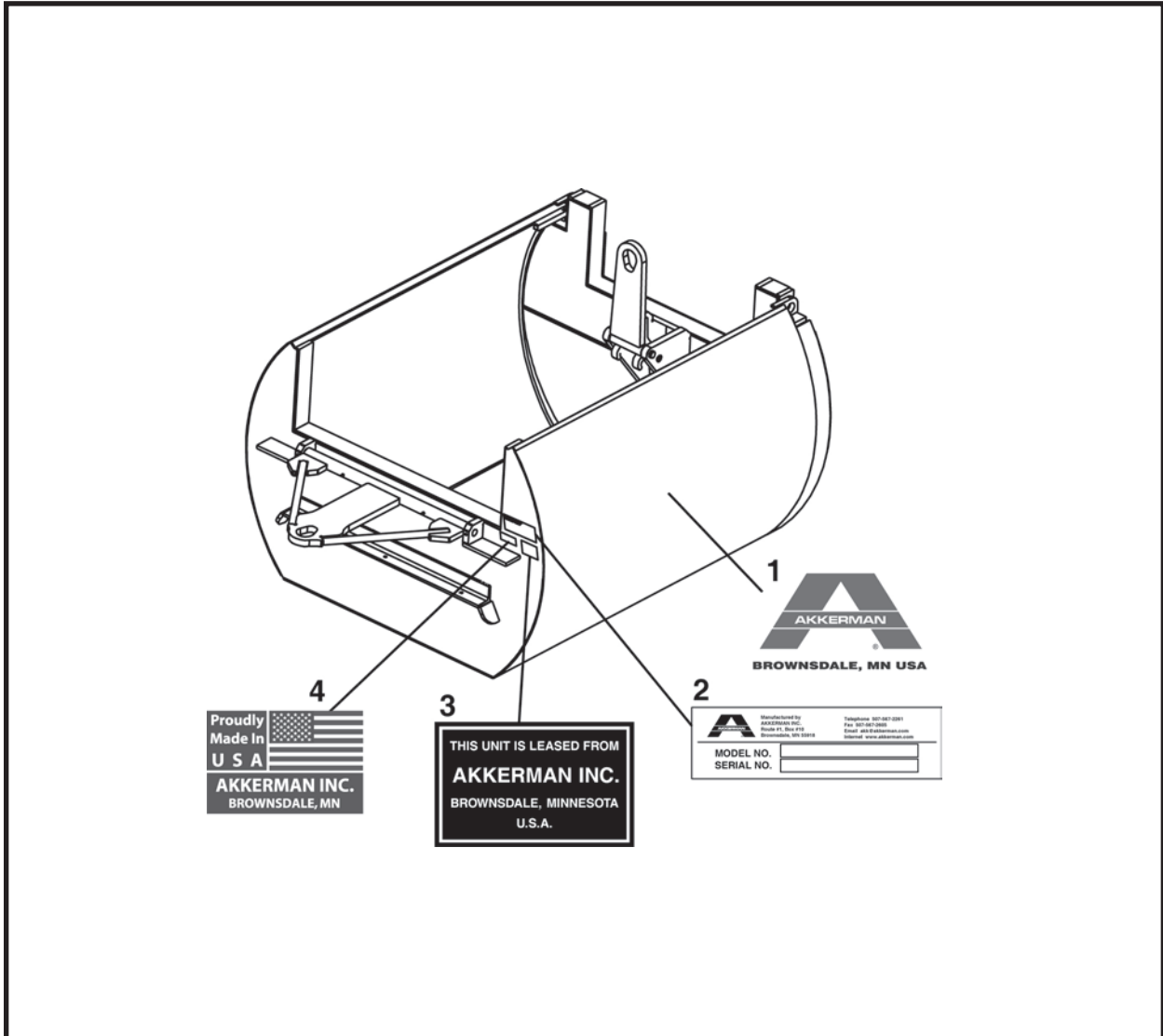


ITEM	QTY	PART NO.	DESCRIPTION
1	2	1251-246	DECAL, Akkerman, Large
2	1	40000-16	DECAL, Notice, Change Filter
3	2	1250-655	DECAL, 1448 CXH
4	1	REF	PLATE, Serial Number
5*	1	1250-098	DECAL, Lease
6	1	1250-544	DECAL, Made in USA
7	1	1251-055	DECAL, Brake Lock Operation
8	1	1250-258	DECAL, Caution, DOT 3
9	1	1250-138	DECAL, Speed Control
10	1	1250-550	DECAL, Warning, Tunnel Contact, Suspended Loads
11	2	1251-063	DECAL, Warning, Battery Gases
12	1	1250-583	DECAL, Warning, Battery Gases, Schematic

\* Note: Decal used only on leased equipment.

Free replacement safety decals are available. Contact your Akkerman Aftermarket Support representative.

# DIRT BUCKET



ITEM	QTY	PART NO.	DESCRIPTION
1	2	1251-245	DECAL, Akkerman, XLarge
2	1	REF	PLATE, Serial Number
3*	1	1250-098	DECAL, Lease
4	1	1250-544	DECAL, Made in USA

\* Note: Decal used only on leased equipment.

## **NOTES**



## Structurals

### Haul Unit

1448 Haul Unit Assembly, F21800F00 .....	2
Idler Axle Assembly, 021806A00 .....	3
Extended Frame Assembly, 021910A .....	4
Seat Assembly, 021807A00 .....	5
Pump To 48VDC Motor Assembly, 009565A01 .....	6
Pump Actuator Controller, 008599A01 .....	7
Drive Assembly, 021804A00 .....	8

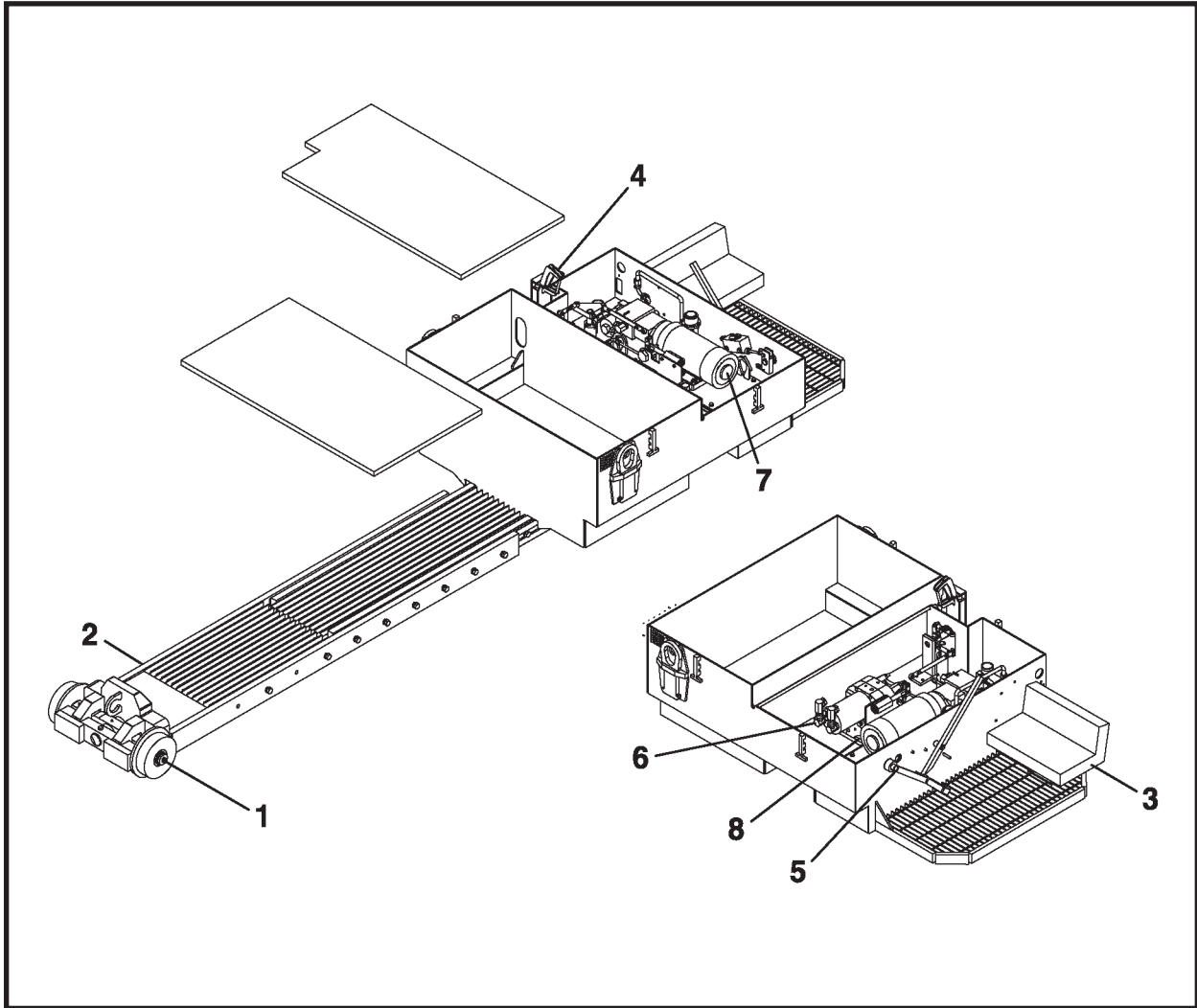
### Dirt Buckets

600/600X, F20750F/F20700F .....	10
660, F10700F .....	11
720/720X, F8670F/F8675F .....	12
780X, F19140F .....	13

### Track

Track (20 Gauge) .....	14
Slider Track (Ring Beam & Lagging), 022840A .....	15
Track Riser, F09900F00 .....	16
Track Carrier, F07270F00 .....	17

## 1448 HAUL UNIT ASSEMBLY, F21800F00



ITEM	QTY	PART NO.	DESCRIPTION
0	1	F21800F00	1448 HAUL UNIT ASSEMBLY
1*	1	021806A00	IDLER ASSEMBLY
2*	1	021910A	EXTENDED FRAME ASSEMBLY
3*	1	021807A00	SEAT ASSEMBLY
4**	1	021803A00	THROTTLE LINKAGE ASSEMBLY
5**	1	021816A00	BRAKE LINK ASSEMBLY
6***	1	009580A02	HYDRAULIC ASSEMBLY
6a***	1	008584A01	HYDRAULIC POWER SUPPLY (includes items 6a1 and 6b1)
6a1*	1	009565A01	PUMP TO 48VDC MOTOR ASSEMBLY
6b1*	1	008599A01	PUMP ACTUATOR CONTROLLER
7*	1	021804A00	DRIVE ASSEMBLY
8****	1	009480A01	ELECTRICAL FINAL ASSEMBLY

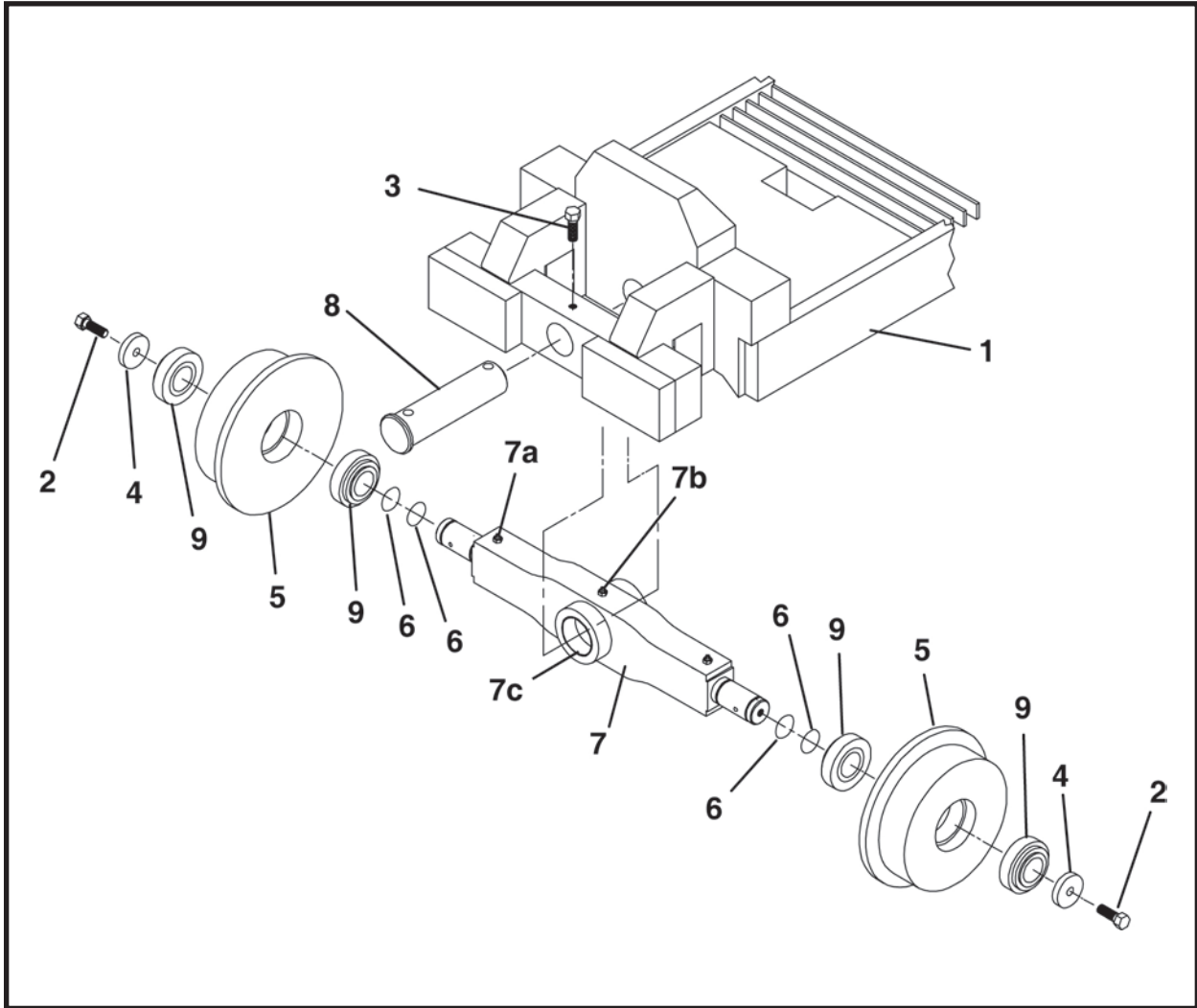
\* Refer to this section for parts breakdown.

\*\* Refer to Section 4, Operator Controls for parts breakdown.

\*\*\* Refer to Section 6, Hydraulics for parts breakdown.

\*\*\*\* Refer to Section 5, Electrical for parts breakdown.

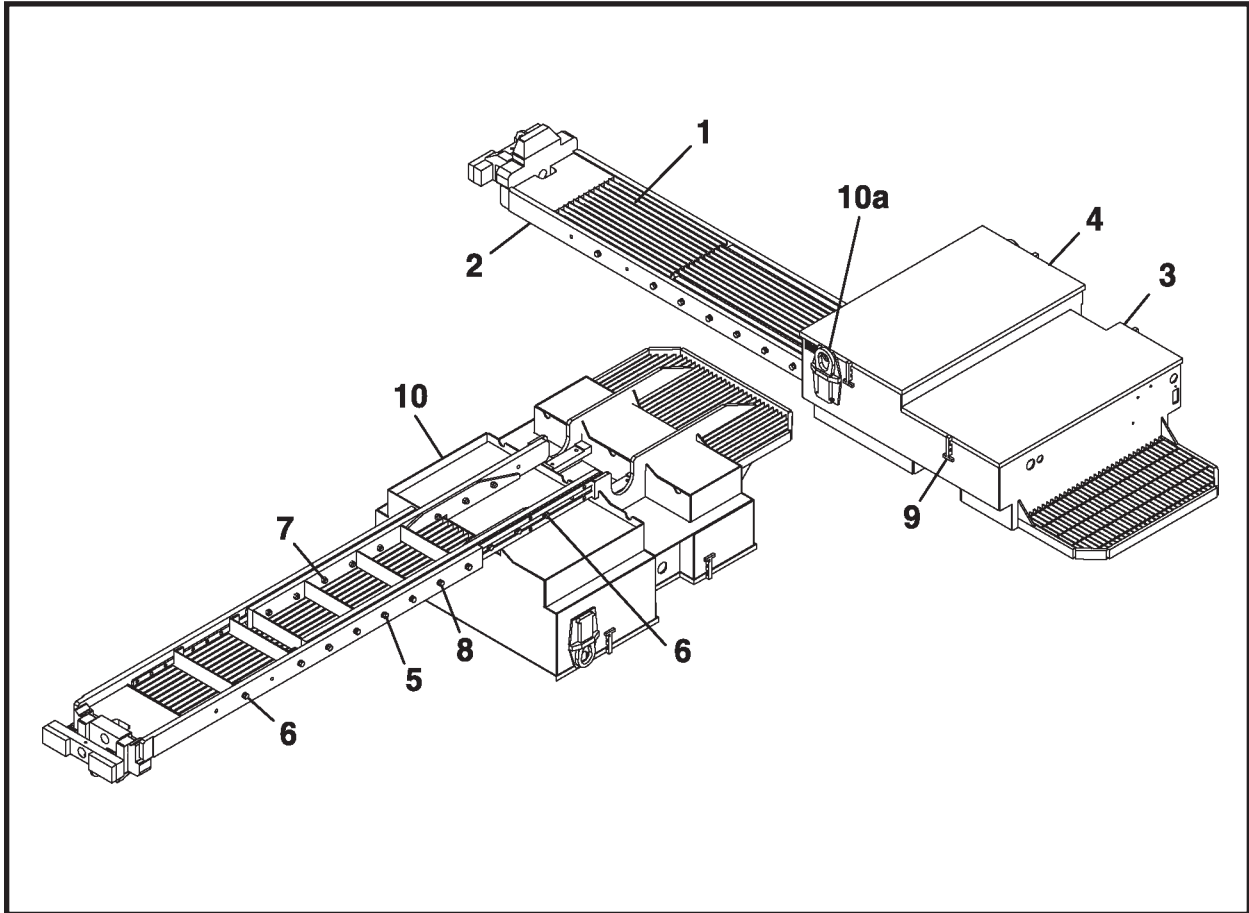
## IDLER ASSEMBLY, 021806A00



ITEM	QTY	PART NO.	DESCRIPTION
0	1	021806A00	IDLER ASSEMBLY
1	REF	021826A02	FRAME EXTENSION WELDMENT
2*	2	P0001-08-006	BOLT, 1/2 UNC x 1-1/2
3	2	P0001-08-016	BOLT, 1/2 UNC x 4
4	2	005069P01	WASHER, Wheel
5	2	021866P00	WHEEL
6	4	P0085-028	O-RING
7	1	007731A00	AXLE IDLER ASSEMBLY (Includes items 7a - 7c)
7a	2	P0063-001	FITTING, Grease 1/4 UNF
7b	1	P0063-003	FITTING, Grease 1/4 UNF 90 Deg.
7c	2	007737P	BUSHING, Idler
8	1	007678P00	ROD
9	4	P0065-004	BEARING

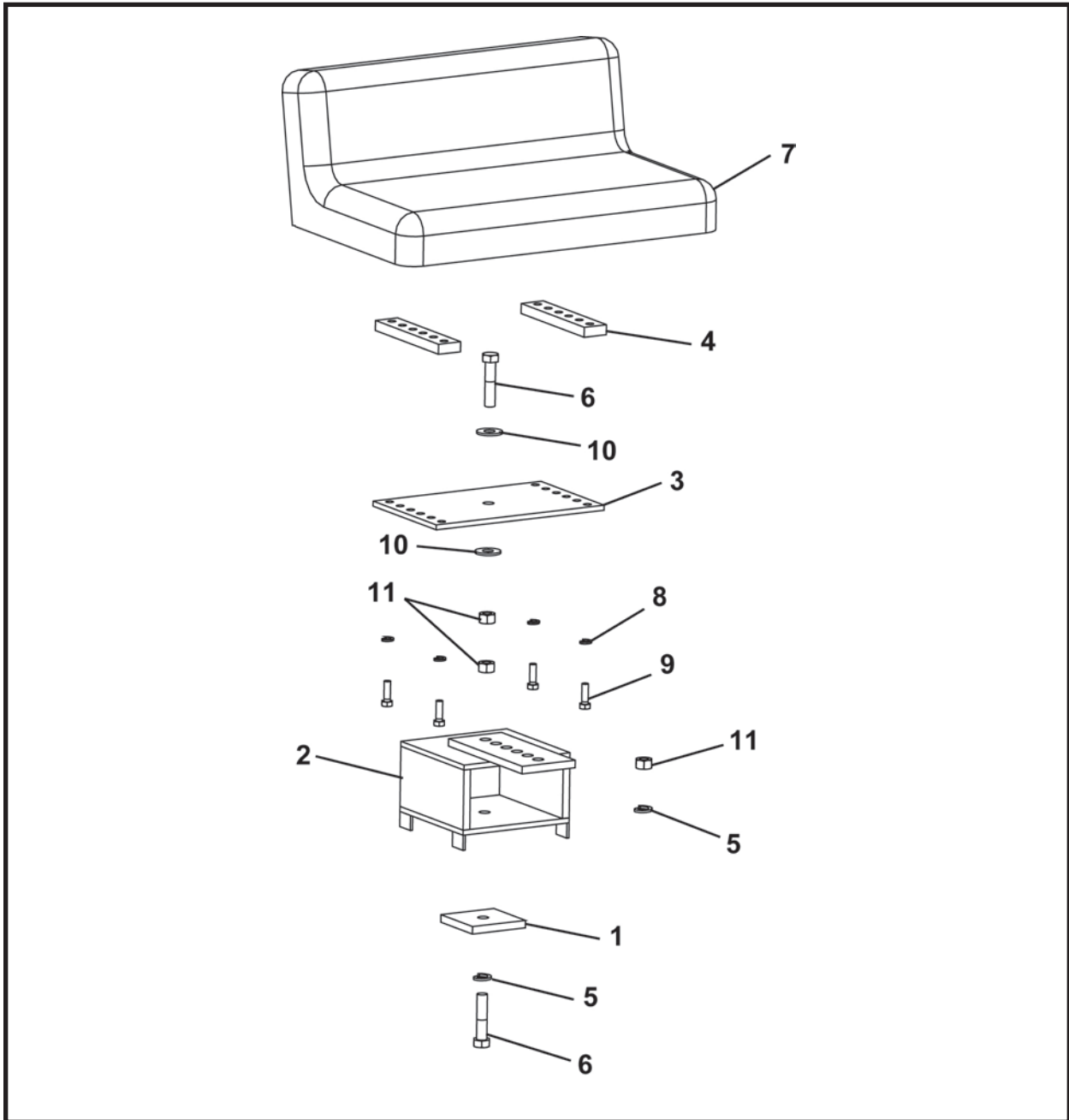
\* Use Loctite on Item 2. Do not use an Anti-Sieze lubricant.

## EXTENDED FRAME ASSEMBLY, 021910A



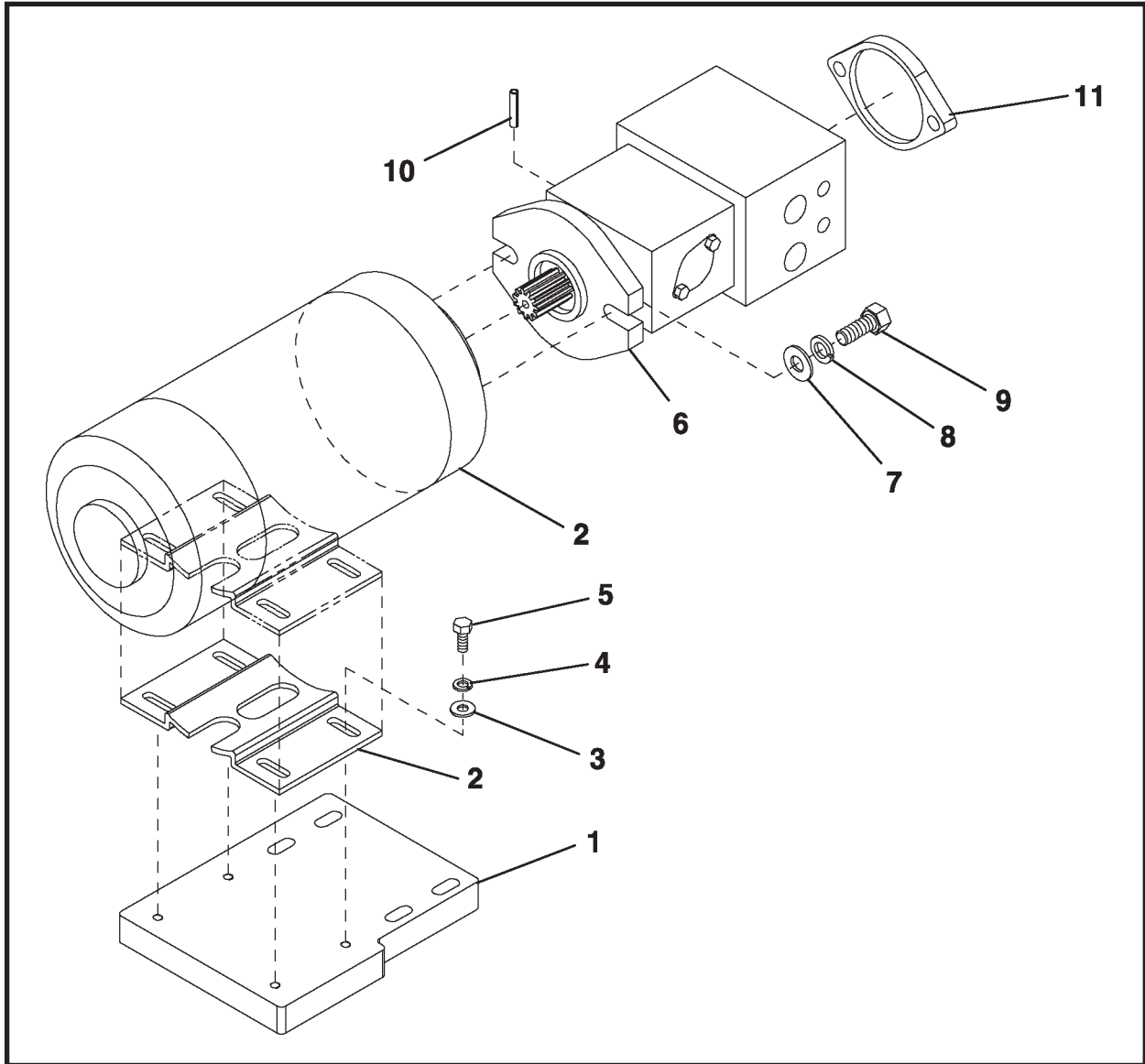
ITEM	QTY	PART NO.	DESCRIPTION
0	1	021910A	EXTENDED FRAME ASSEMBLY
1	1	021839A00	GRATE, Removable
2	1	021826A02	FRAME EXTENSION WELDMENT
3	1	021858P00	LID, Drive Box
4	1	021857P00	LID, Battery Box
5	22	P0045-010	WASHER, Lock 5/8
6	10	P0001-10-012	BOLT, 5/8-11 UNC x 3
7	22	P0003-10-000	NUT, 5/8 UNC
8	12	P0001-10-016	BOLT, 5/8-11 UNC x 4
9	4	P0059-031	STRAP, Rubber
10	1	021801A03	FRAME WELDMENT (includes item 10a)
10a	2	007794A00	LIFT EYE ASSEMBLY

## SEAT ASSEMBLY, 021807A00



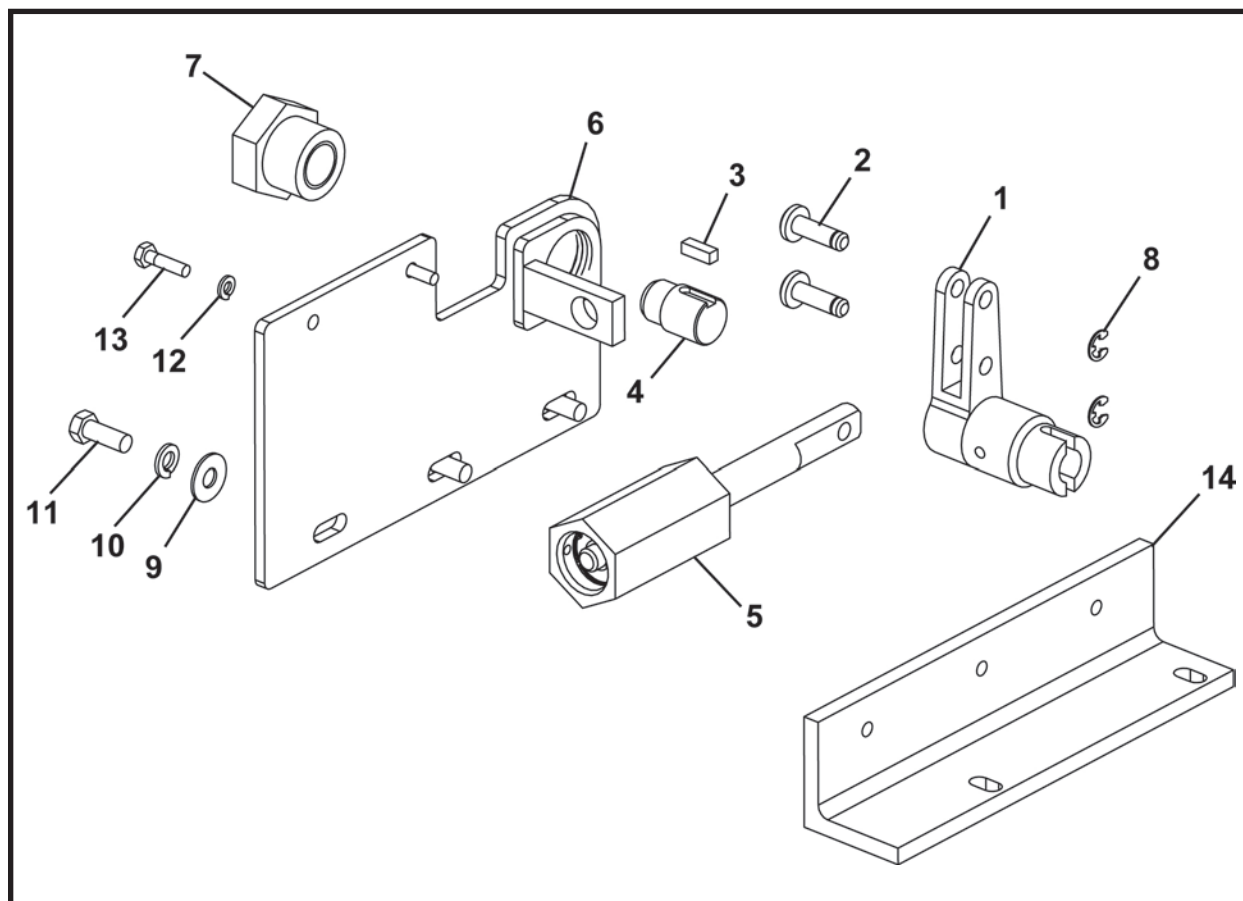
ITEM	QTY	PART NO.	DESCRIPTION
0	1	021807A00	SEAT ASSEMBLY
1	1	009995P00	BAR
2	1	021812A00	SEAT RISER
3	1	009994P00	BAR
4	2	009993P00	BAR
5	2	P0045-008	WASHER, Lock 1/2
6	2	P0001-08-010	BOLT, 1/2-13 UNC x 2-1/2
7	1	P0113-001	SEAT, Low Back
8	4	P0045-005	WASHER, Lock 5/16
9	4	P0001-05-004	BOLT, 5/16-18 UNC x 1
10	2	P0040-008	WASHER, Flat 1/2
11	3	P0003-08-000	NUT, 1/2

## PUMP TO 48VDC MOTOR ASSEMBLY, 009565A02



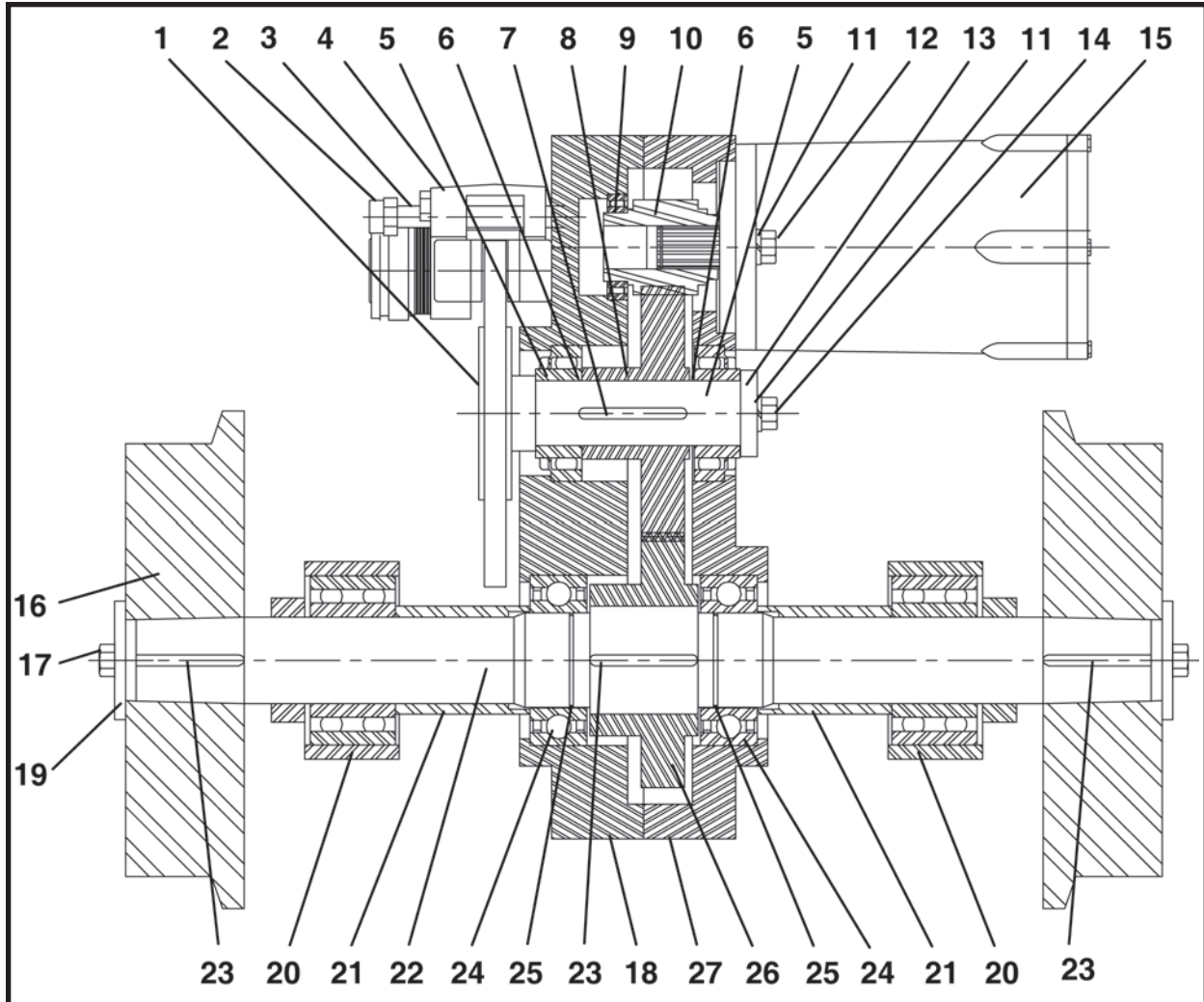
ITEM	QTY	PART NO.	DESCRIPTION
0	1	009565A02	PUMP TO 48VDC MOTOR ASSEMBLY
1	1	009782P00	PLATE
2	1	P0310-277AA	MOTOR, 48VDC W/Foot Bracket
3	4	P0040-005	WASHER, Flat 5/16
4	4	P0045-005	WASHER, Lock 5/16
5	4	P0001-05-003	BOLT, 5/16-18 UNC x 3/4
6	1	P0303-169	PUMP, Hydraulic, W/Relief & Cover
7	2	P0040-006	WASHER, Flat 3/8
8	2	P0045-006	WASHER, Lock 3/8
9	2	P0001-06-005	BOLT, 3/8-16 UNC x 1-1/4
10	1	P0049-115	PIN, Roll
11	1	P0303-170	COVER

## PUMP ACTUATOR CONTROLLER, 008599A01



ITEM	QTY	PART NO.	DESCRIPTION
0	1	008599A01	PUMP ACTUATOR CONTROL
1	1	008626A00	WELDMENT, Link Arm
2	2	007684P00	PIN
3	1	P0047-003	KEY
4	1	008218P00	SHAFT, Switch Control
5	1	007710A00	SPRING CONTROL
6	1	009584A01	WELDMENT, Plug Support
7	1	007688A01	BUSHING
8	2	P0044-017	E-CLIP
9	3	P0040-006	WASHER, Flat 3/8
10	3	P0045-006	WASHER, Lock 3/8
11	3	P0001-06-004	BOLT, 3/8-16 UNC x 1
12	2	P0045-004	WASHER, Lock 1/4
13	2	P0001-04-003	BOLT, 1/4-20 UNC x 3/4
14	1	008619P00	BRACKET

## DRIVE ASSEMBLY, 021804A00



ITEM	QTY	PART NO.	DESCRIPTION
0	1	021804A00	DRIVE ASSEMBLY
1	1	010853A01	BRAKE DISC & SHAFT WELDMENT
2	4	P0003-08-000	NUT, 1/2 UNC
3	4	016037P01	ROD
4	2	P0115-009	CALIPER, Disc Brake
4a	2	P0115-002	SET, Brake Pad
5	2	P0065-004	BEARING, Ball
6	2	P0085-026	O-RING
7	2	P0047-003	KEY
8	1	007284P00	GEAR, Output
9	1	P0065-009	BEARING, Ball
10	1	007732P00	GEAR, Input
11	3	P0045-008	WASHER, Lock 1/2
12	2	P0001-08-005	BOLT, 1/2-13 UNC x 1-1/4
13	1	005069P01	WASHER, Wheel
14	1	P0001-08-008	BOLT, 1/2-13 UNC x 2
15	1	P0304-122	MOTOR, Hydraulic
16	2	021864P00	PLATE
17*	2	P0001-12-008	BOLT, 3/4-10 x 2
18	1	010851P01	COVER

## DRIVE ASSEMBLY, 021804A00

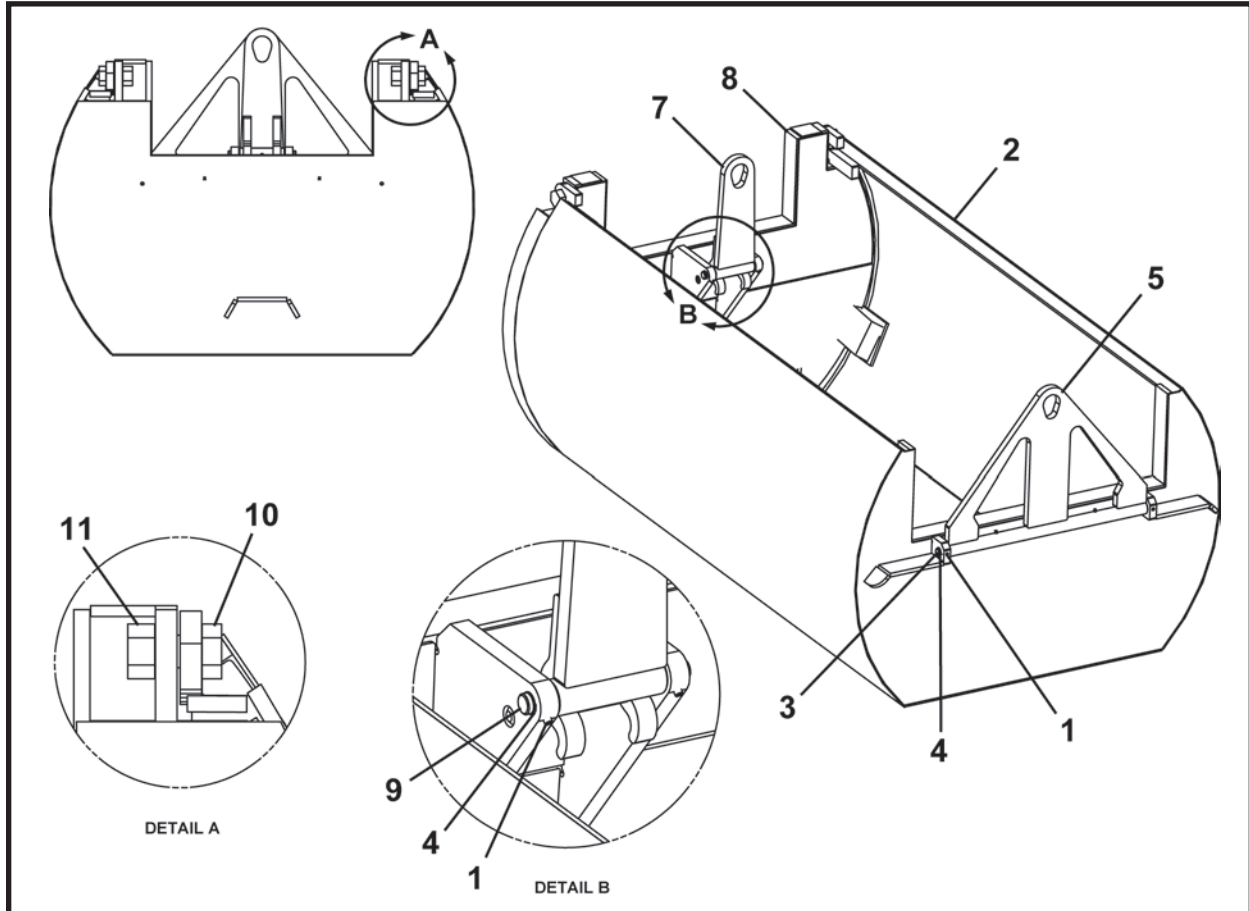
ITEM	QTY	PART NO.	DESCRIPTION
19	2	004124P01	WASHER
20	2	010859P00	PILLOW BLOCK (includes item 20a - 20b)
20a	2	P0063-004	FITTING, Grease 1/8
20b	2	P0065-062	BEARING
21	2	010866P01	TUBE
22	1	010858P02	AXLE
23	4	P0047-005	KEY
24	2	P0065-071	BEARING
25	2	P0085-032	O-RING
26	1	010857P00	GEAR, Output
27	1	010852P01	BAR
28**	1	011868A00	DIP STICK ASSEMBLY
29**	14	P0031-06-009	SCREW, Socket Head Cap, 3/8-16 UNC x 2-1/4
30**	14	P0046-006	WASHER, Hi-Collar Lock 3/8
31**	2	P0037-027	PIN
32**	1	P0063-012	FITTING, Relief
33**	1	P0416-003	PLUG, Pipe
34**	1	P0300-163	PLUG, Magnetic Drain
35**	1	P0300-026	PLUG, Hollow Hex
36**	1	P0024-010	SEALER
37**	1 QT	P0126-009	OIL, Synthetic Gear Case
38**	1	021815A00	GEAR BOX HOLD DOWN ASSEMBLY

QT - Quart

\* Apply Loctite® to Item 17

\*\* Not Shown

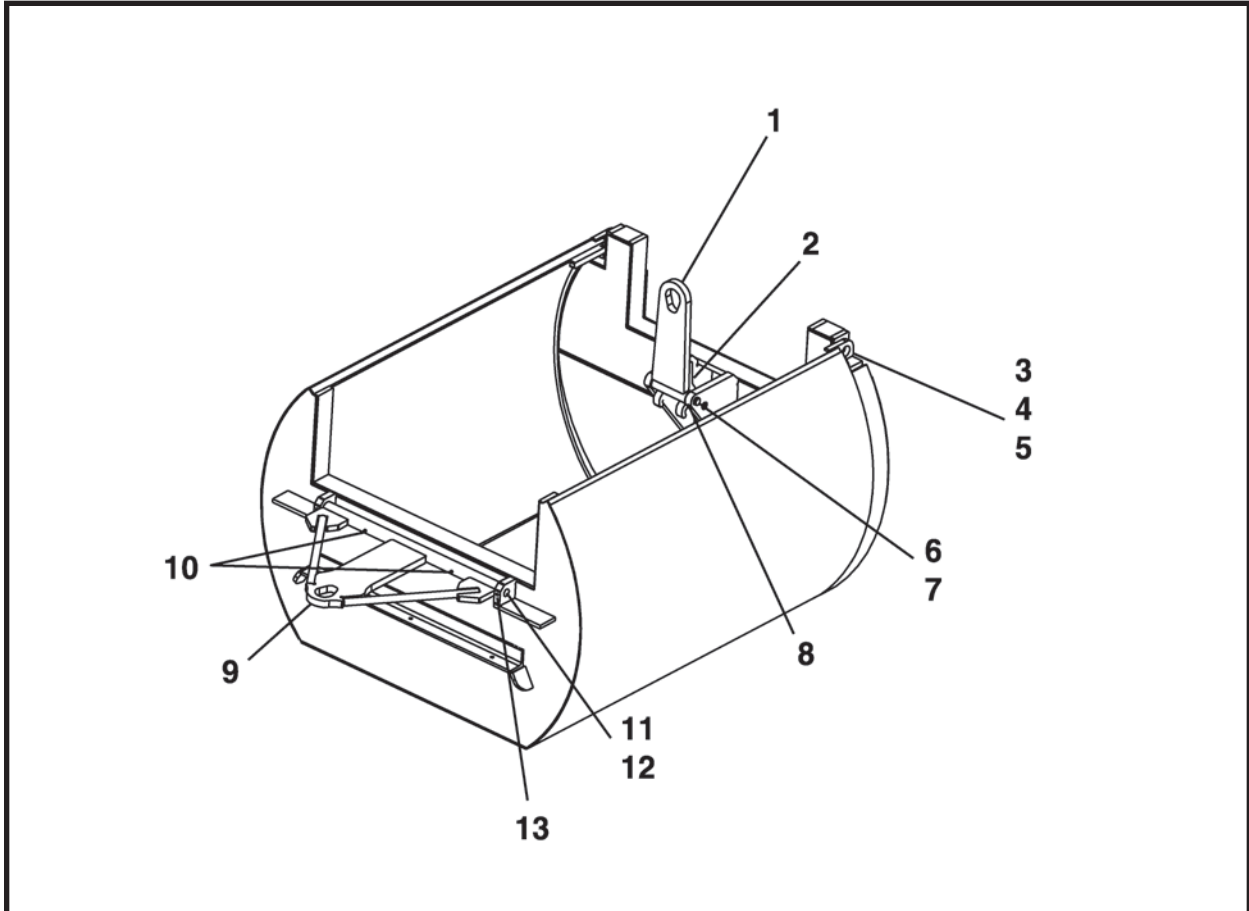
# DIRT BUCKET 600/600X



ITEM	QTY	PART NO.	DESCRIPTION
0.1	1	F20750F00	DIRT BUCKET, 600
0.2	1	F20700F00	DIRT BUCKET, 600X
1	4	P0032-003	SET SCREW, 3/8 UNC x 3/8
2.1	1	020752A00	WELDMENT, Bucket
2.2	1	020702A00	WELDMENT, Bucket
3	1	007889P00	LIFT BAR HINGE PIN
4	4	P0077-012	SNAP RING
5	1	020703A00	LIFT EYE, Front (includes item 6)
6	2	P0063-001	FITTING, Grease 1/4 UNF
7	1	010708A00	LIFT EYE, Door (includes item 7a)
7a	1	P0063-001	FITTING, Grease 1/4 UNF
8	1	020701A00	DOOR
9	1	009237P00	ROD
10	2	P0001-20-022	BOLT, Hex 1-1/2 -6 UNC x 5.5
11	2	P0003-24-000	NUT, Hex 1-1/2 UNC

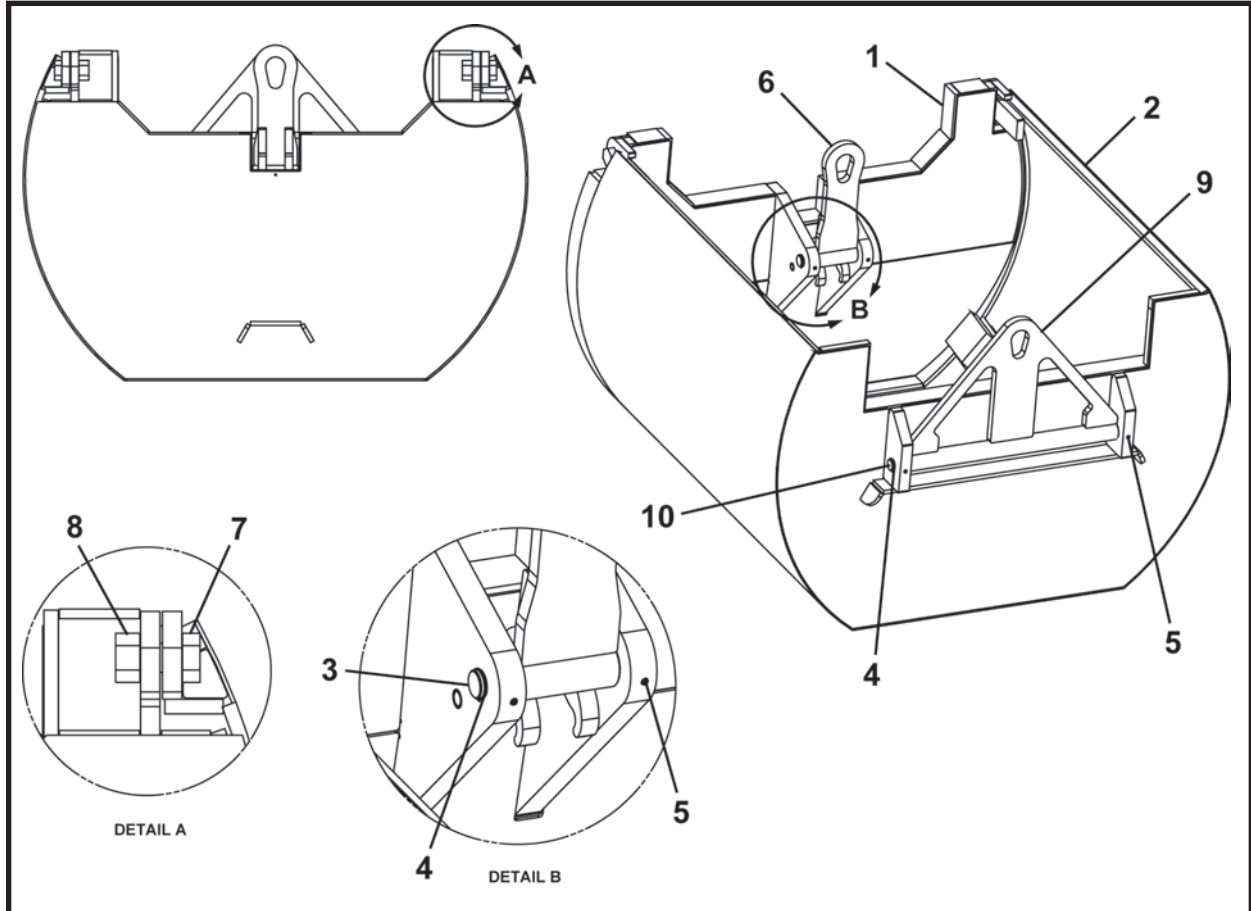
# DIRT BUCKET

660



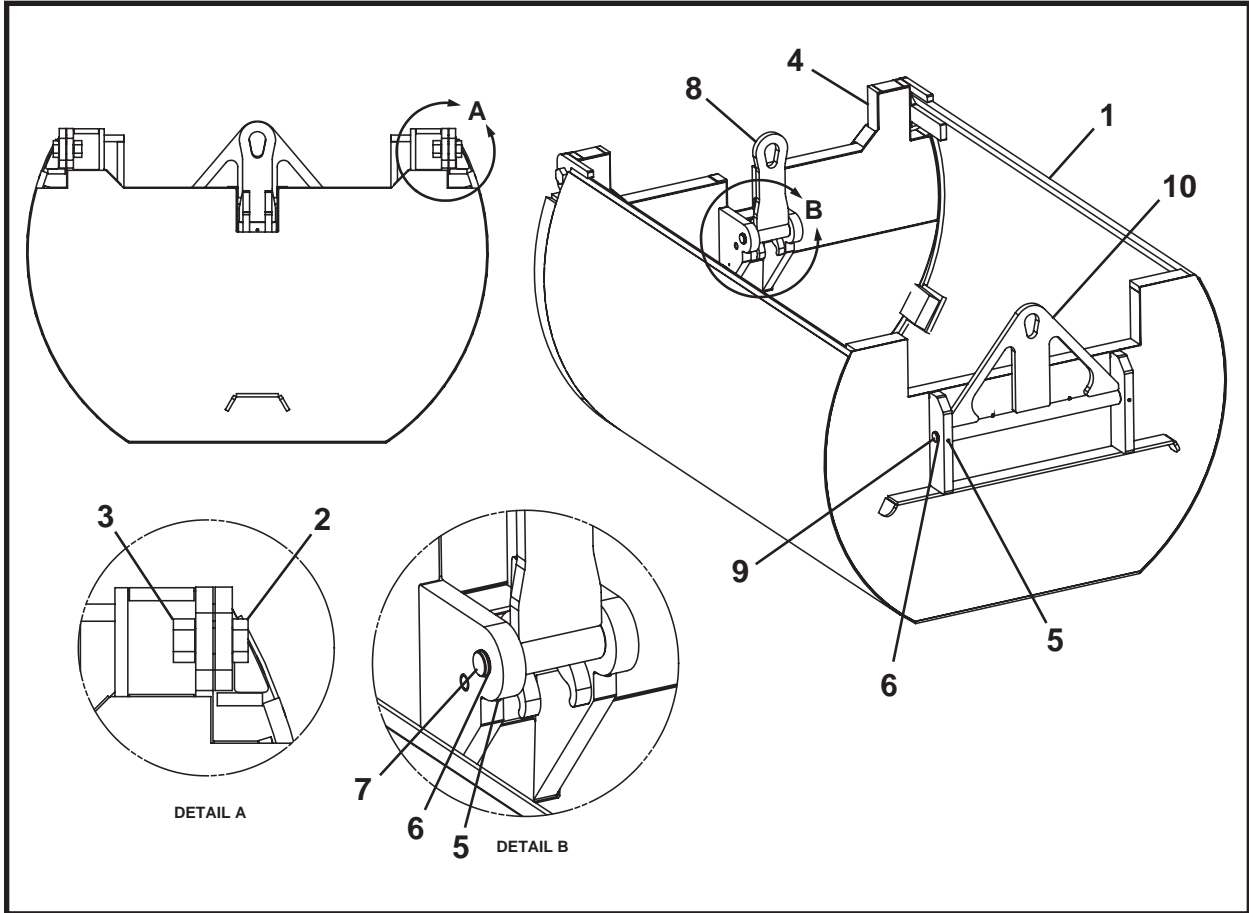
ITEM	QTY	PART NO.	DESCRIPTION
0	1	F10700F	DIRT BUCKET, 660
1	1	014566A00	LIFT EYE, Door (includes item 2)
2	1	P0063-001	FITTING, Grease 1/4 UNF
3	2	P0001-20-020	BOLT, Hex 1-1/2 UNC x 5
4	2	P0040-024	WASHER, Flat 1-1/2 SAE
5	2	P0003-24-000	NUT, Hex 1-1/2 UNC
6	1	014575P00	ROD
7	2	P0077-021	SNAP RING
8	2	P0032-003	SET SCREW, 3/8-16 UNC
9	1	014567A00	LIFT EYE, Front (includes item 10)
10	2	P0063-001	FITTING, Grease 1/4 UNF
11	1	014576P00	ROD
12	2	P0077-021	SNAP RING
13	2	P0032-003	SET SCREW, 3/8-16 UNC

## DIRT BUCKET 720/720X



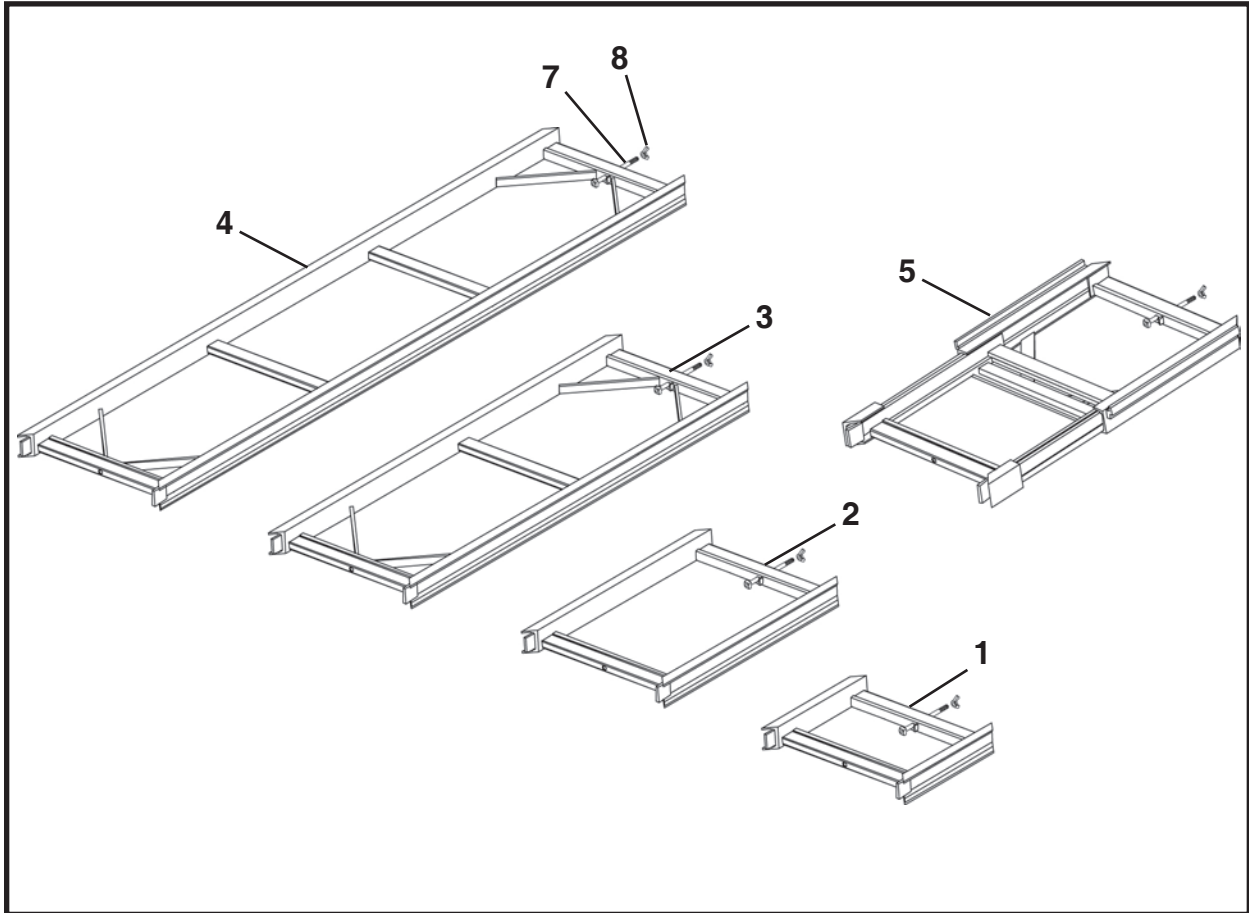
ITEM	QTY	PART NO.	DESCRIPTION
0.1	1	F08670F00	DIRT BUCKET, 720
0.2	1	F08675F00	DIRT BUCKET, 720X
1	1	007860A03	DOOR
2.1	1	008650A	WELDMENT, Bucket
2.2	1	008660A	WELDMENT, Bucket Ext
3	1	014575P00	LIFT BAR HINGE PIN
4	4	P0077-021	SNAP RING
5	4	P0032-003	SET SCREW, 3/8-16 UNC
6	1	014566A00	LIFT EYE, Door (includes item 6a)
6a	1	P0063-001	FITTING, Grease 1/4 UNF
7	2	P0001-20-022	BOLT, Hex 1-1/2 UNC x 5-1/2
8	2	P0003-24-000	NUT, Hex 1-1/2 UNC
9	1	014567A00	LIFT EYE, Front (includes item 9a)
9a	2	P0063-001	FITTING, Grease 1/4 UNF
10	1	014576P00	PIN, Door Lift Eye

**DIRT BUCKET, F19140F00**  
780X



ITEM	QTY	PART NO.	DESCRIPTION
0	1	F19140F00	DIRT BUCKET, 780X
1	1	019138A01	WELDMENT, Bucket
2	2	P0001-20-022	BOLT, 1-1/2 UNC x 5.5
3	2	P0003-24-000	NUT, Hex 1-1/2 UNC
4	1	019136A01	DOOR
5	4	P0032-003	SET SCREW, 3/8-16 UNC
6	4	P0077-021	SNAP RING
7	1	014575P00	PIN, Lift Eye Door
8	1	014566A00	LIFT EYE, Door (includes item 8a)
8a	1	P0063-001	FITTING, Grease 1/4 UNF
9	1	014576P00	PIN, Lift Eye Door
10	1	014597A	LIFT EYE

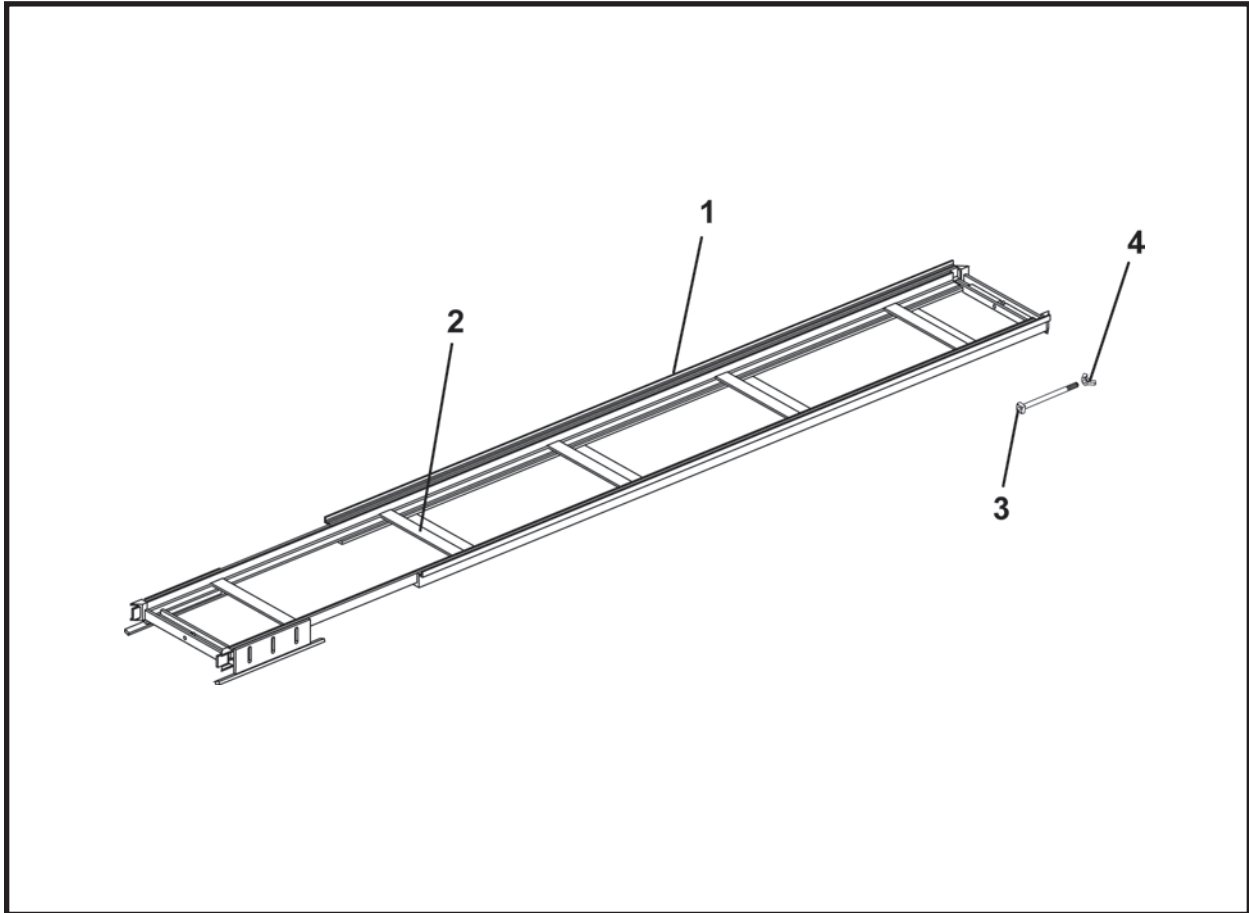
**TRACK  
(20 GAUGE)**



ITEM	QTY	PART NO.	DESCRIPTION
1	1	F07247F00	STARTER TRACK, 1 Foot
2	1	F07246F00	STARTER TRACK, 2 Foot
3	1	F07245F00	STARTER TRACK, 4 Foot
4	1	F07244F00	TRACK, 8 Foot
5	1	F12220F02	TRACK, Slider 13 in.
6	1	F17084F00	TRACK, Slider 36 in. (not shown)
7	A/N	007242A00	BOLT, Track
8	A/N	P0012-08-000	NUT, Wing 1/2 UNC

A/N - As Needed

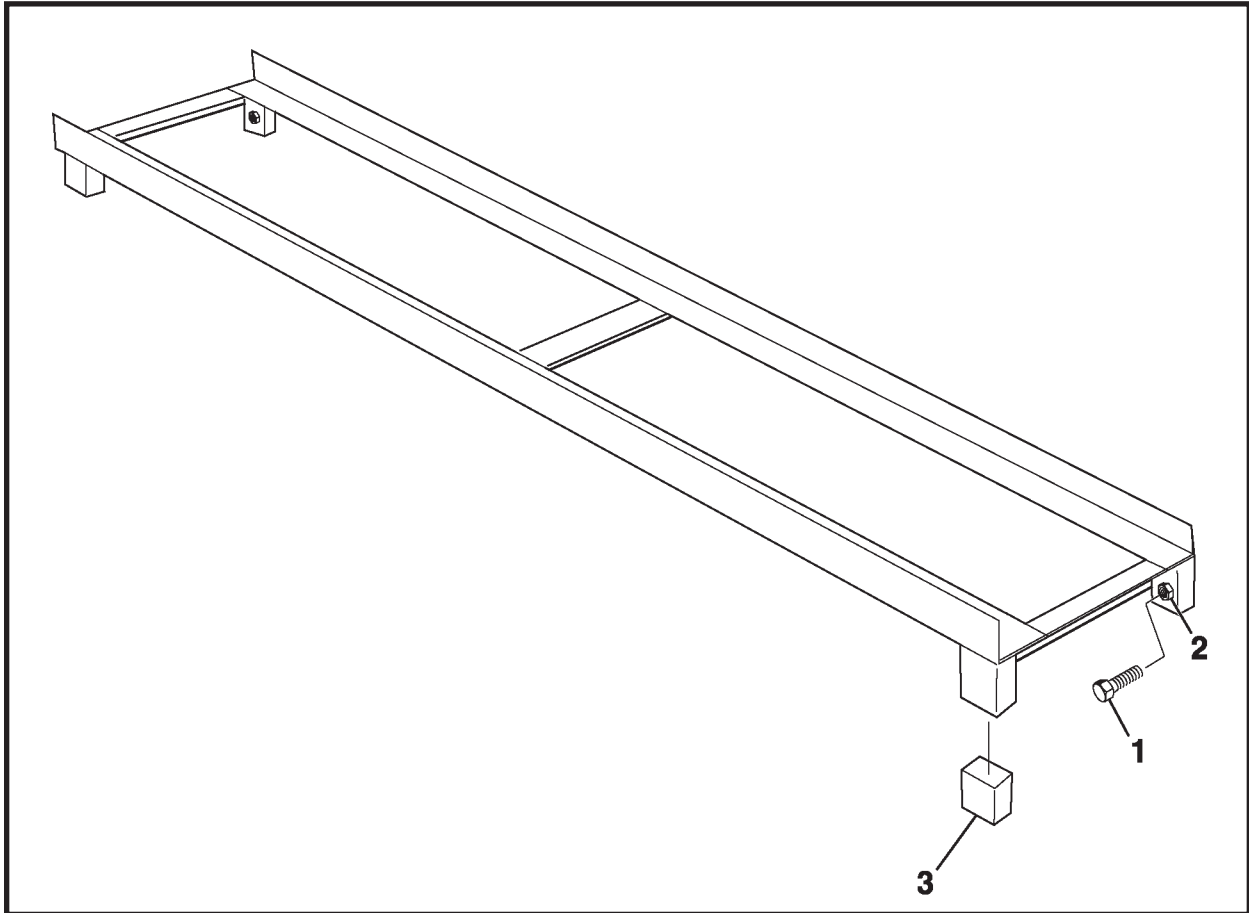
**SLIDER TRACK (RING BEAM & LAGGING), 022840A  
(20 GAUGE)**



ITEM	QTY	PART NO.	DESCRIPTION
1	1	022840A	TRACK, Slider (Ring Beam & Lagging)
2	12	1250-480	DECAL, Warning, Pinch Points
3*	1	007242A00	BOLT, Track
4*	1	P0012-08-000	NUT, Wing 1/2 UNC

\* Not part of 022840A Slider Track.

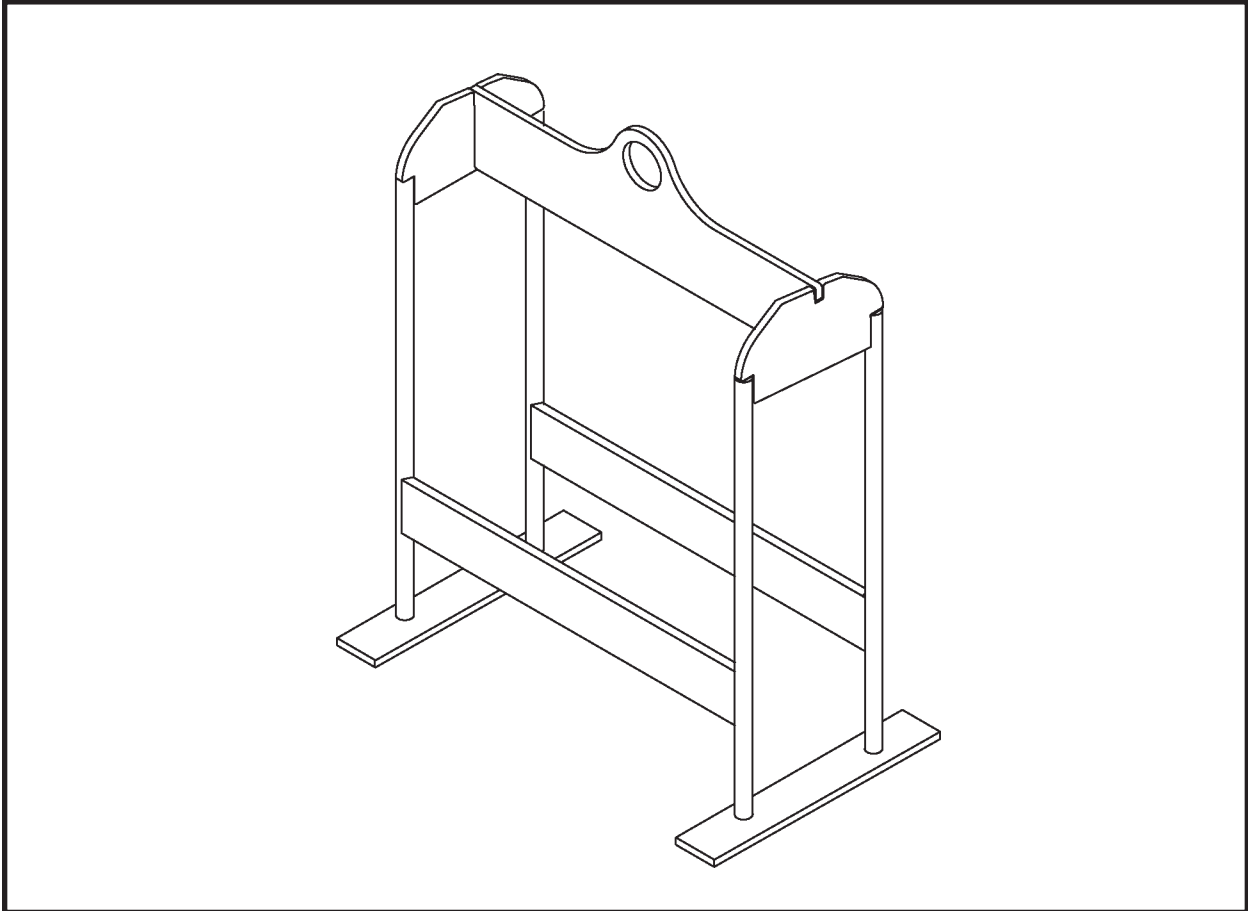
## TRACK RISER, F09900F00



ITEM	QTY	PART NO.	DESCRIPTION
0	1	F09900F00	TRACK RISER
1	4	P0001-06-003	BOLT, Hex 3/8 UNC x 3/4
2	4	P0003-06-000	NUT, Hex 3/8 UNC
3*	4	009901P01	BAR

\* The bar length is variable depending upon job setup.

# TRACK CARRIER, F07270F00



ITEM	QTY	PART NO.	DESCRIPTION
0	1	F07270F00	TRACK CARRIER

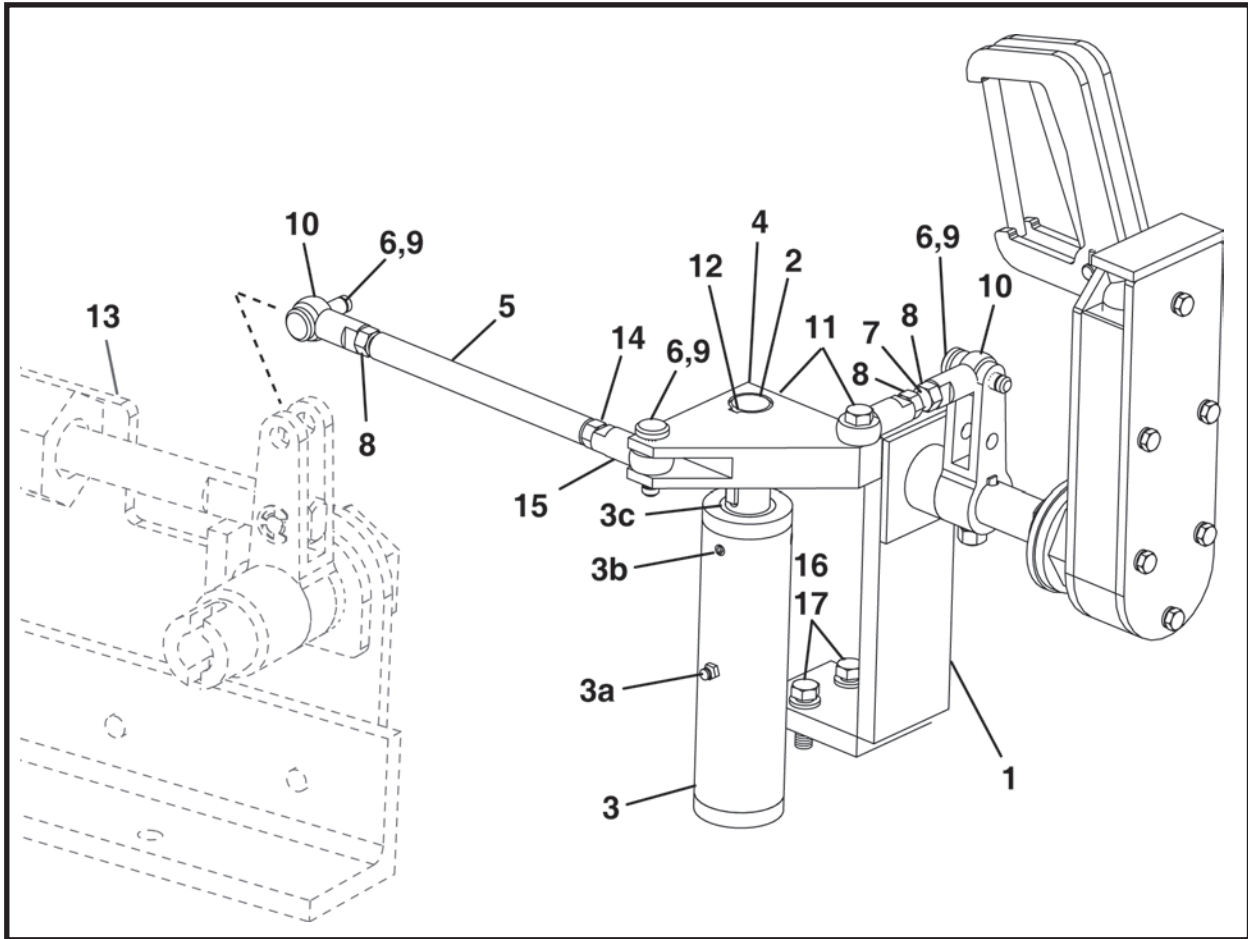
**NOTES**



## Operator Controls

Throttle Linkage Assembly, 021803A00 .....	2
Throttle Handle & Shaft Assembly, 021805A00 .....	3
Throttle Handle Assembly, 021810A00 .....	4
Brake Link Assembly, 021816A00 .....	6
(SN F21800F-27 & Before) .....	6
(SN F21800F-28 & After) .....	8

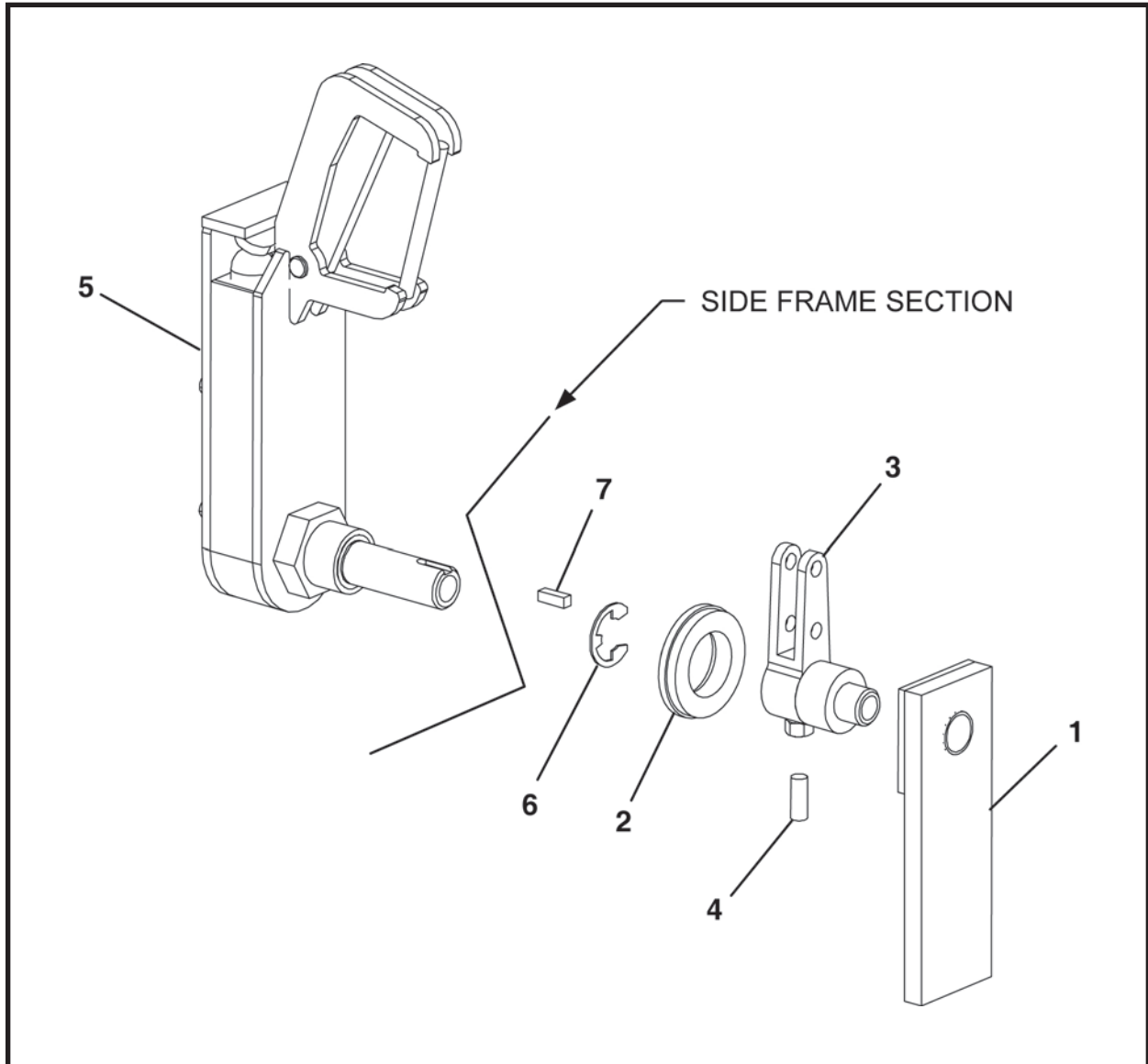
## THROTTLE LINKAGE ASSEMBLY, 021803A00



ITEM	QTY	PART NO.	DESCRIPTION
0	1	021803A00	THROTTLE LINKAGE ASSEMBLY
1	1	021805A00	THROTTLE HANDLE & SHAFT ASSEMBLY
2	REF	011859P00	SHAFT (included in item 3)
3	1	021808A00	BEARING & SHAFT POWER ASSEMBLY (includes items 2, 3a - 3c)
3a	1	P0063-001	FITTING, Grease 1/4
3b	3	P0033-04-008	SCREW, Set 1/4-20 UNC x 1/2
3c	1	021871A	BUSHING, Shaft
4	1	021863P00	BAR
5	1	021869P00	ROD
6	3	021865P00	PIN, Link
7	1	010983P00	LINK ROD
8	3	P0004-06-000	NUT, 3/8 UNF
9	3	P0044-017	E-CLIP
10	3	P0099-001	BALL JOINT ROD END, 3/8 UNF
11	2	P0001-06-004	BOLT, 3/8-16 UNC x 1
12	1	P0047-001	KEY
13*	REF	008599A01	PUMP ACTUATOR ASSEMBLY
14	1	P0036-006	NUT, 3/8 UNF (Left Hand)
15	1	P0099-002	BALL JOINT ROD END, 3/8 (Left Rod End/Left Hand)
16	2	P0001-06-005	BOLT, 3/8-16 UNC x 1-1/4
17	2	P0045-006	WASHER, Lock 3/8

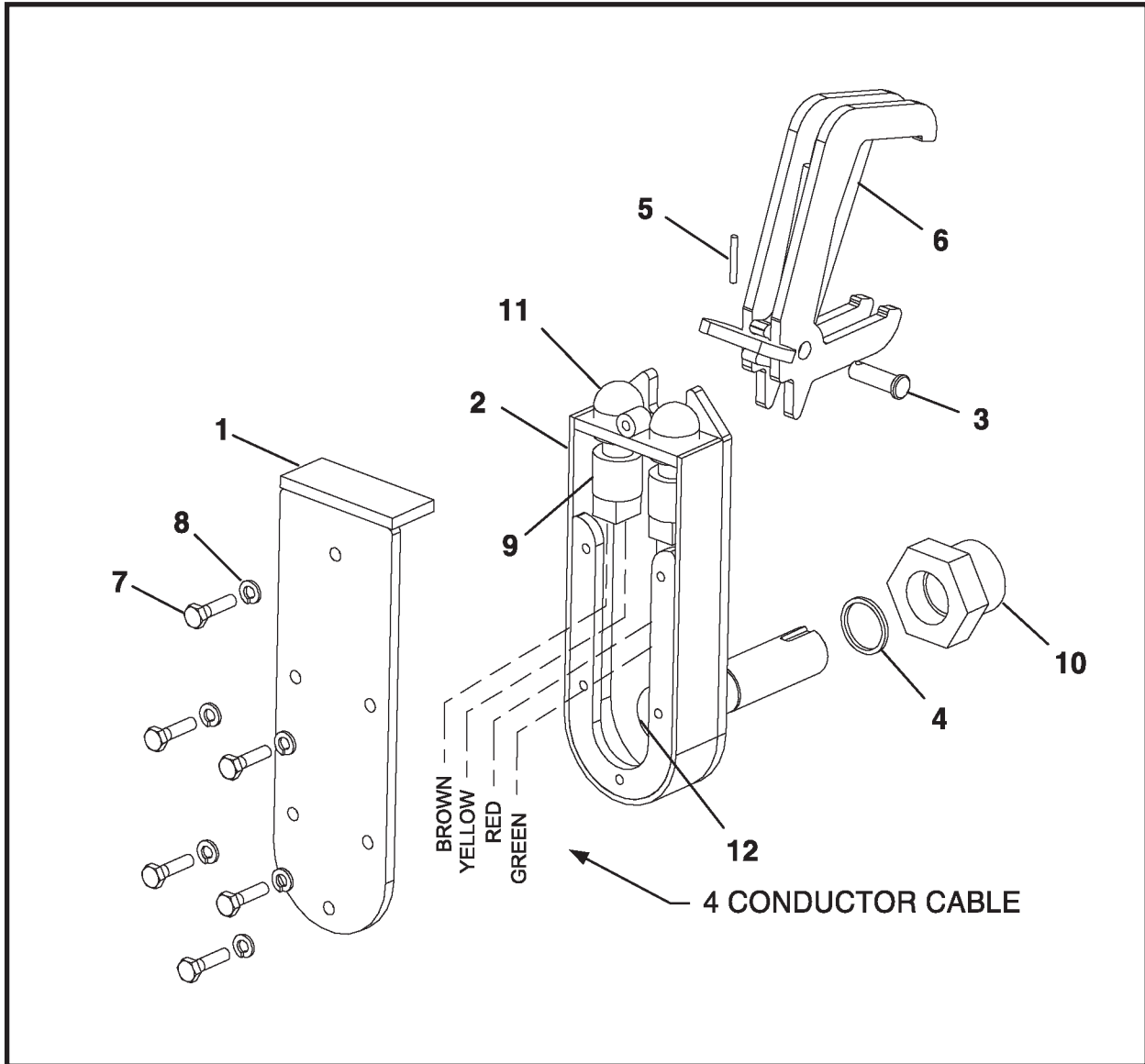
\* Refer to Section 3, Structural for parts breakdown.

## THROTTLE HANDLE & SHAFT ASSEMBLY, 021805A00



ITEM	QTY	PART NO.	DESCRIPTION
0	1	021805A00	THROTTLE HANDLE & SHAFT ASSEMBLY
1	1	011865A00	BRACKET, Throttle Linkage Support
2	1	011819P00	SHAFT SEAL SEAT
3	1	010985A00	WELDMENT, Link Arm
4	1	P0033-05-012	SCREW, Set 3/8-16 UNC x 3/4
5	1	021810A00	THROTTLE HANDLE ASSEMBLY
6	1	P0044-037	E-CLIP
7	1	P0047-003	KEY

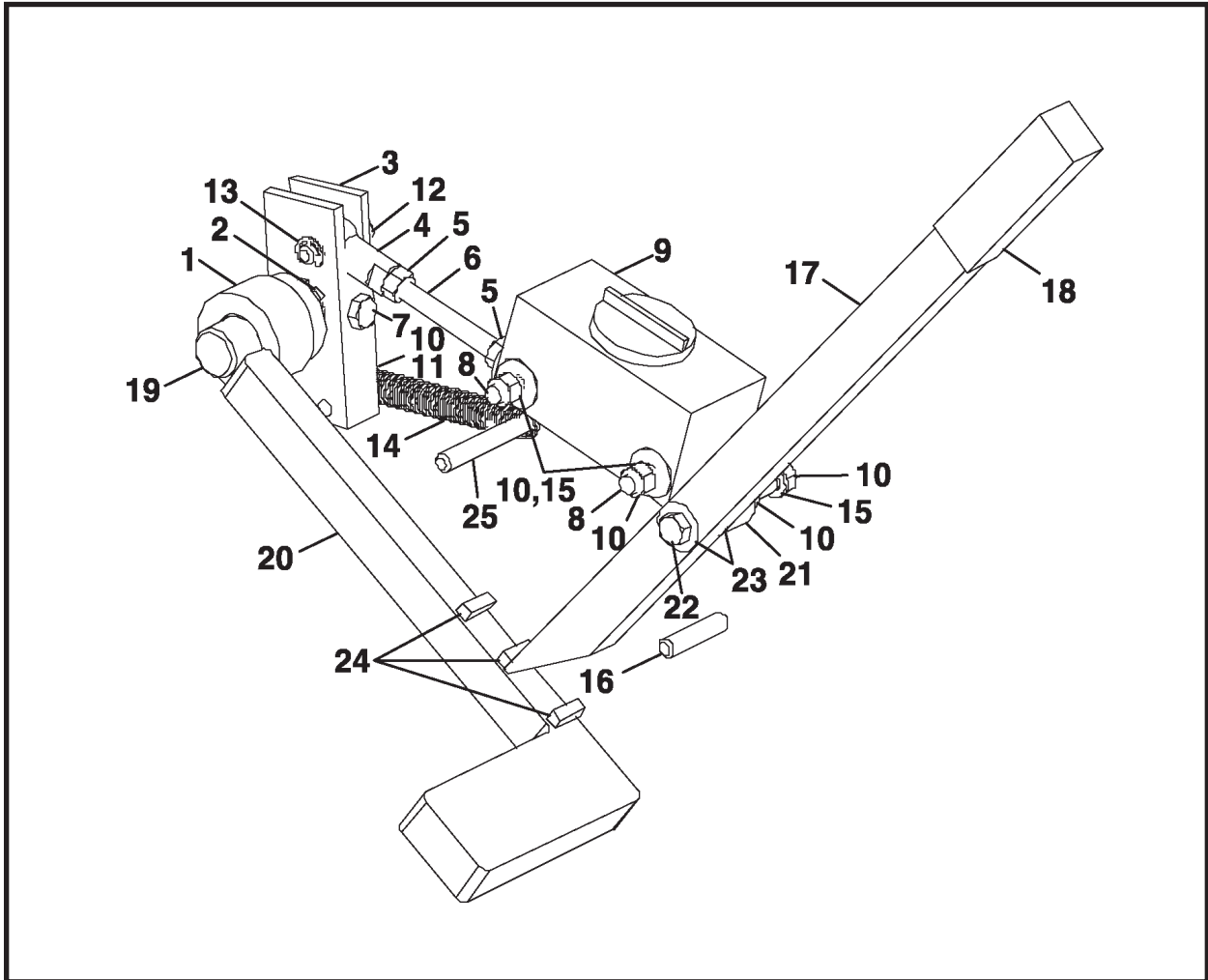
## THROTTLE HANDLE ASSEMBLY, 021810A00



ITEM	QTY	PART NO.	DESCRIPTION
0	1	021810A00	THROTTLE HANDLE ASSEMBLY
1	1	009459A00	WELDMENT, Throttle Cover
2	1	021811A00	WELDMENT, Throttle Handle
3	1	010646P00	PIN
4	1	P0085-120	O-RING
5	1	P0048-024	KEY, Cotter
6	1	009465A00	WELDMENT, Throttle Trigger
7	6	P0001-04-003	BOLT, 1/4-20 UNC x 3/4
8	6	P0045-004	WASHER, Lock 1/4
9	2	P0056-001	SWITCH
10	1	007686A	BUSHING, Shaft
11	2	P0056-002	BOOT
12	1	008261A00	CABLE ASSEMBLY, 4 Conductors

## **NOTES**

**BRAKE LINKAGE ASSEMBLY, 021816A00**  
(SN F21800F-27 & BEFORE)



ITEM	QTY	PART NO.	DESCRIPTION
0	1	021816A00	BRAKE LINKAGE ASSEMBLY
1	1	011307A	BUSHING, Lever (Includes item 1a)
1a	1	P0066-001	BUSHING, Brass
2	1	P0047-003	KEY
3	1	021879P00	LEVER, Linkage
4	1	P0099-001	BALL JOINT
5	2	P0004-06-000	NUT, 3/8 UNF
6	1	022818P	ROD, Threaded
7	1	P0001-06-005	BOLT, 3/8-16 UNC x 1-1/4
8	2	P0001-06-012	BOLT, 3/8-16 UNC x 3
9	1	P0115-008	MASTER BRAKE CYLINDER
10	5	P0003-06-000	NUT, 3/8 UNC
11	1	P0001-06-003	BOLT, 3/8-16 UNC x 3/4
12	1	021865P00	PIN, Linkage
13	1	P0044-017	E-CLIP
14	1	P0070-032	TENSION SPRING
15	3	P0045-006	WASHER, Lock 3/8
16	1	021880P00	PIN, Stop
17	1	021881P00	LEVER
18	1	-	HAND GRIP (Compound Tape)

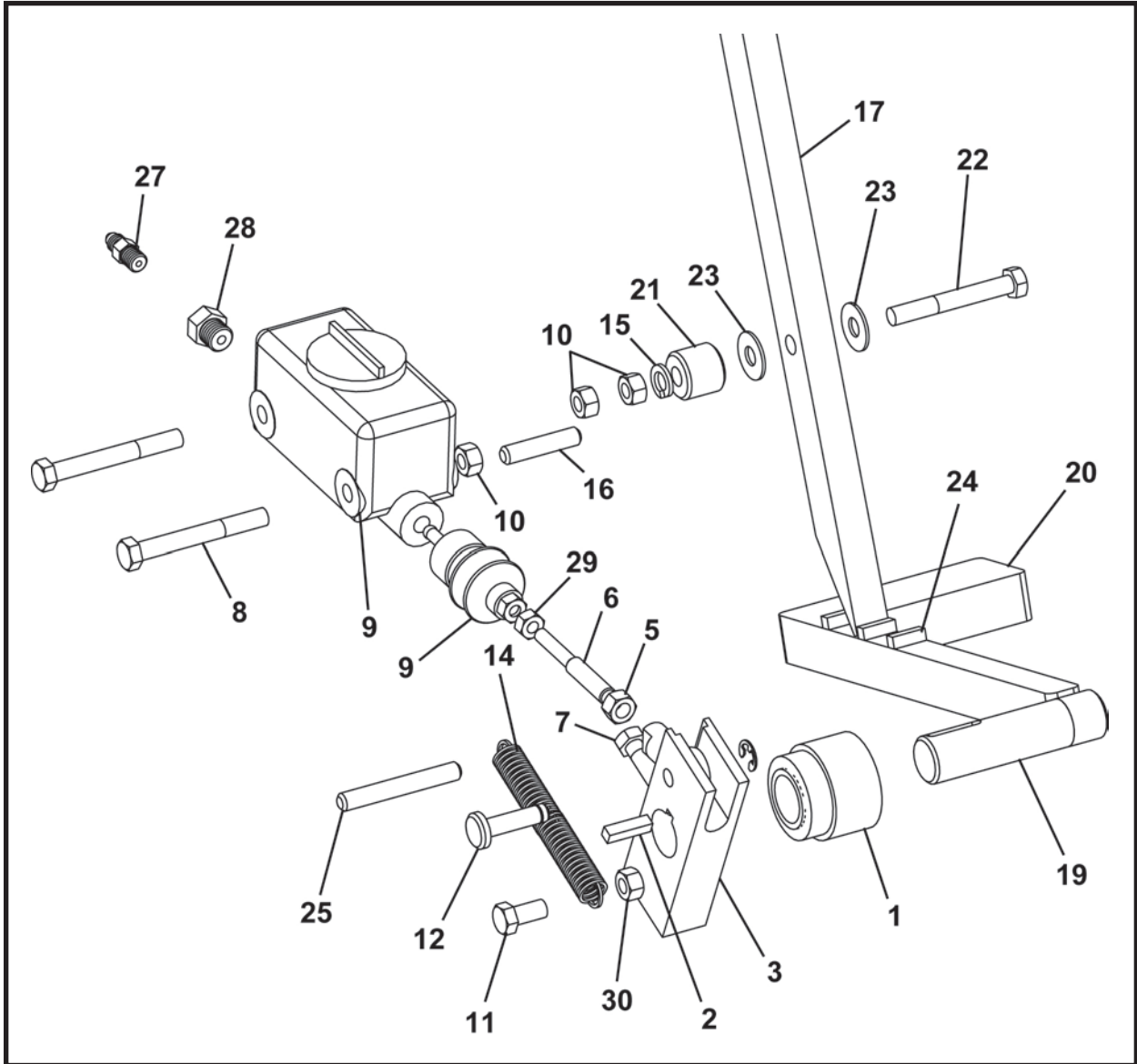
**BRAKE LINKAGE ASSEMBLY, 021816A00**  
**(SN F21800F-27 & BEFORE)**

ITEM	QTY	PART NO.	DESCRIPTION
19	1	021882P00	SHAFT, Brake
20	1	021883P00	PEDAL, Brake
21	1	021885P00	BUSHING, Spacer
22	1	P0001-06-011	BOLT, 3/8-16 UNC x 2-3/4
23	2	P0040-006	WASHER, Flat 3/8
24	3	021884P00	STOP, Locking
25	1	021886P00	ANCHOR, Spring
26*	1	021824A00	BRAKE HYDRAULIC ASSEMBLY (not shown)

\* See Section 6, Hydraulics for parts breakdown.

**NOTICE** If the brake linkage components in this manual do not match your brake linkage, contact your Akkerman Aftermarket Support Representative.

**BRAKE LINKAGE ASSEMBLY, 021816A00**  
(SN F21800F-28 & AFTER)



ITEM	QTY	PART NO.	DESCRIPTION
0	1	021816A00	BRAKE LINKAGE ASSEMBLY
1	1	011307A	BUSHING, Lever (Includes item 1a)
1a	1	P0066-001	BUSHING, Brass
2	1	P0047-003	KEY
3	1	021879P00	LEVER, Linkage
4	1	P0099-001	BALL JOINT
5	2	P0004-06-000	NUT, 3/8 UNF
6	1	022181P	ROD, Threaded
7	1	P0001-06-005	BOLT, 3/8-16 UNC x 1-1/4
8	2	P0001-06-012	BOLT, 3/8-16 UNC x 3
9*	1	022819P	MASTER BRAKE CYLINDER
10	5	P0003-06-000	NUT, 3/8 UNC
11	1	P0001-06-003	BOLT, 3/8-16 UNC x 3/4
12	1	021865P00	ROD
13	1	P0044-017	E-CLIP
14	4	P0070-032	TENSION SPRING

**BRAKE LINKAGE ASSEMBLY, 021816A00  
(SN F21800F-28 & AFTER)**

ITEM	QTY	PART NO.	DESCRIPTION
15	3	P0045-006	WASHER, Lock 3/8
16	1	021880P00	PIN, Stop
17	1	021881P00	ARM, Brake Linkage
18	1	-	HAND GRIP
19	1	021882P00	SHAFT, Brake
20	1	021883P00	BRAKE PEDAL
21	1	021885P00	BUSHING, Spacer
22	1	P0001-06-011	BOLT, 3/8-16 UNC x 2-3/4
23	2	P0040-006	WASHER, Hardened Flat 3/8
24	3	021884P00	STOP, Locking
25	1	021886P00	ANCHOR, Spring
26**	1	021824A00	BRAKE HYDRAULIC ASSEMBLY (not shown)
27*	1	P0300-158	FITTING, 03MJ-02MP
28*	1	P0300-776	FITTING, 06MB-02FP
29	1	P0003-05-000	NUT, 5/16 UNC

\* When ordering item 9, 022819P, Master Brake Cylinder; to ensure a proper seal, it is also recommended to order fittings items 27 and 28.

\*\* See Section 6, Hydraulics for parts breakdown.

**NOTICE** If the brake linkage components in this manual do not match your brake linkage, contact your Akkerman Aftermarket Support Representative.

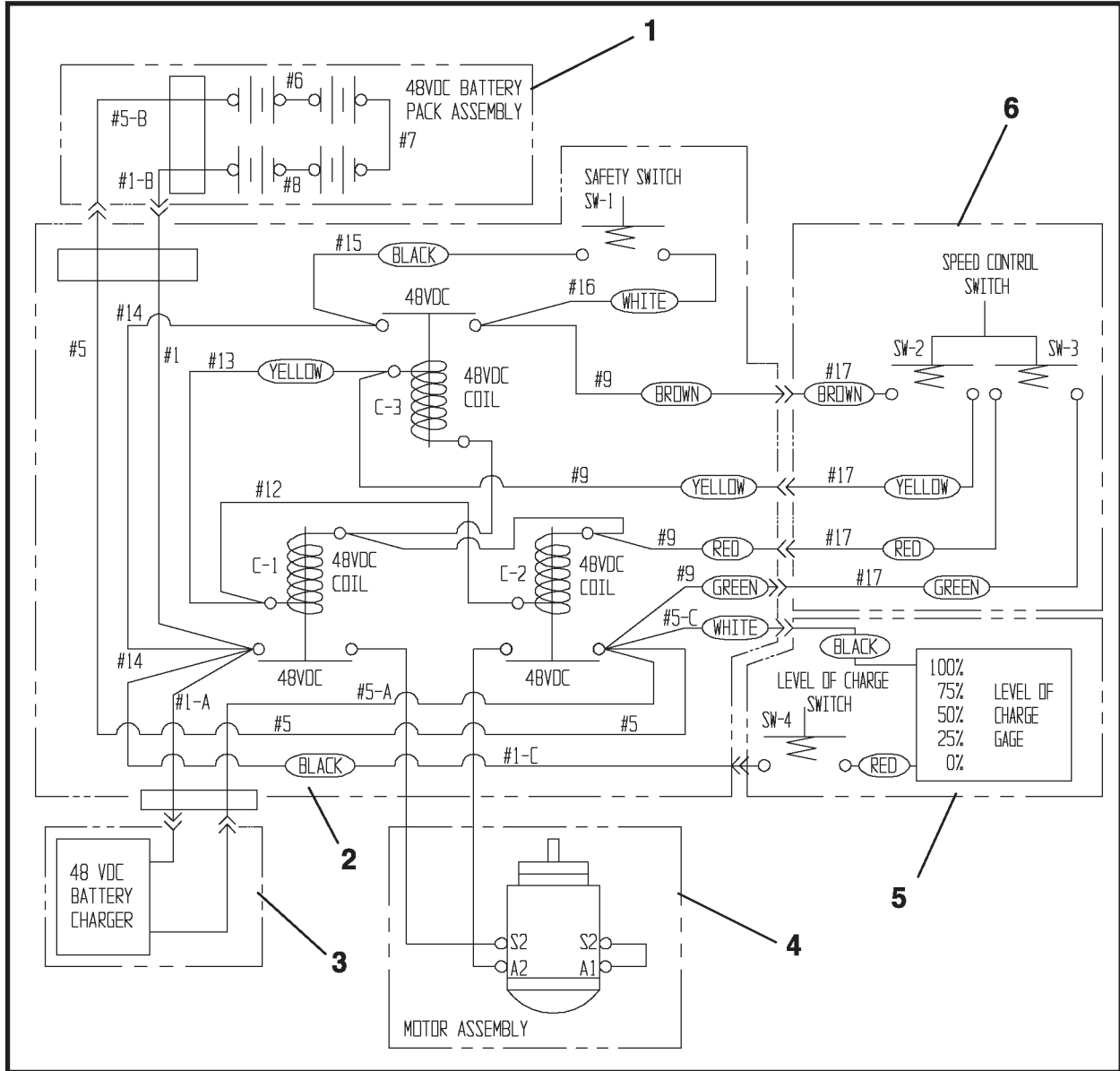
## **NOTES**



## Electrical

Electrical Schematic, 009480A01 .....	2
Contactor Assembly, 021802A00 .....	4
Charging System, 48 Volt DC, 009570A00 .....	6
Motor Wiring Assembly, 009575A00 .....	7
Gauge Mounting, 021817A00 .....	8
Battery Pack, 48 Volt DC, P0064-010 .....	9
Battery Charger, 48 Volt DC, F0310-714 .....	10

# ELECTRICAL SCHEMATIC, 009480A01

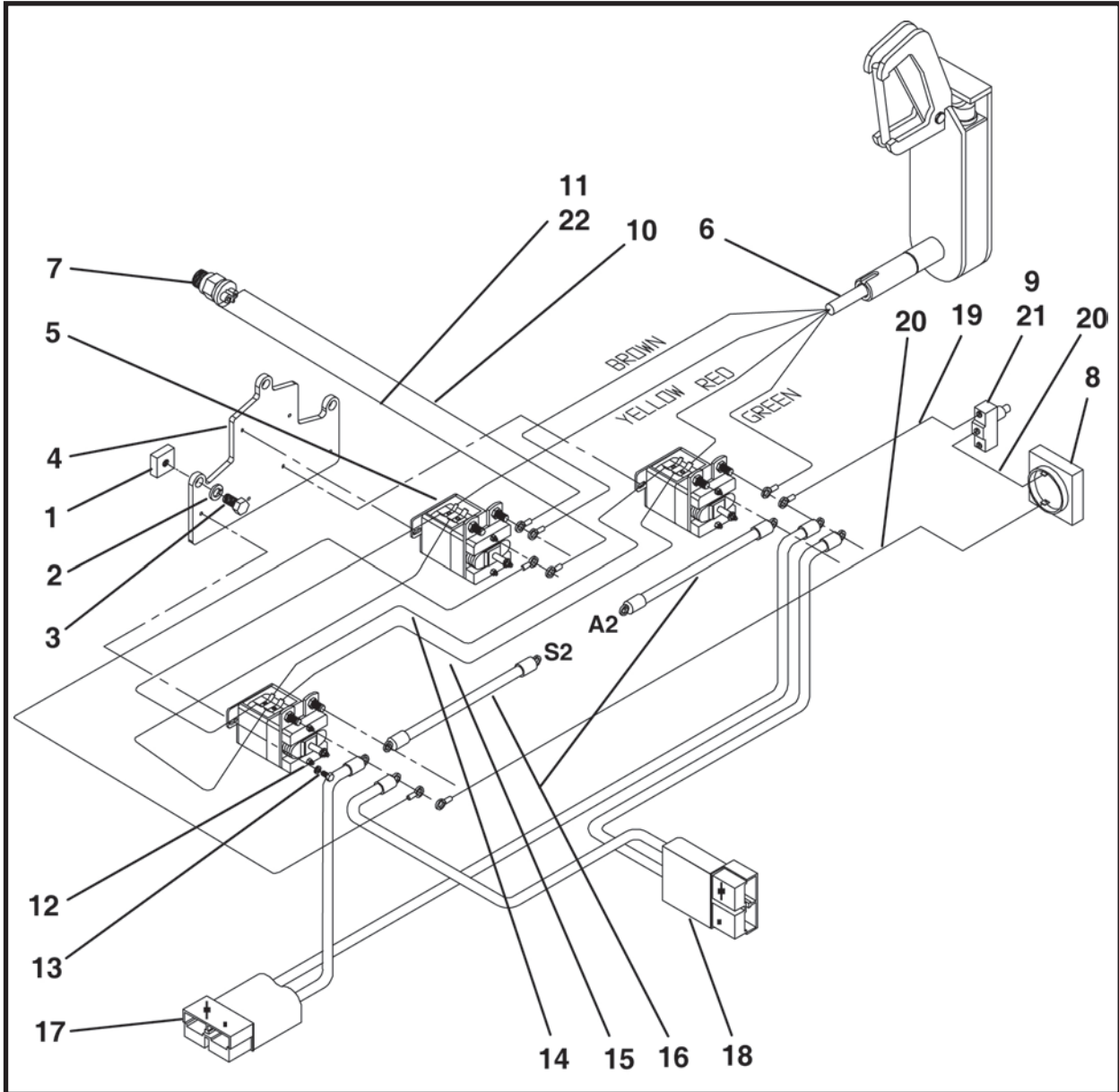


ITEM	QTY	PART NO.	DESCRIPTION
1	1	F0064-010	BATTERY PACK 48VDC
2	1	021802A00	CONTACTOR ASSEMBLY
3	1	009570A00	CHARGING SYSTEM 48VDC
4	1	009575A00	MOTOR WIRING ASSEMBLY
5	1	021817A00	GAUGE MOUNTING
6*	REF	021810A00	THROTTLE HANDLE ASSEMBLY

\* Refer to Section 4, Operator Controls for parts breakdown.

**NOTES**

## CONTACTOR ASSEMBLY, 021802A00



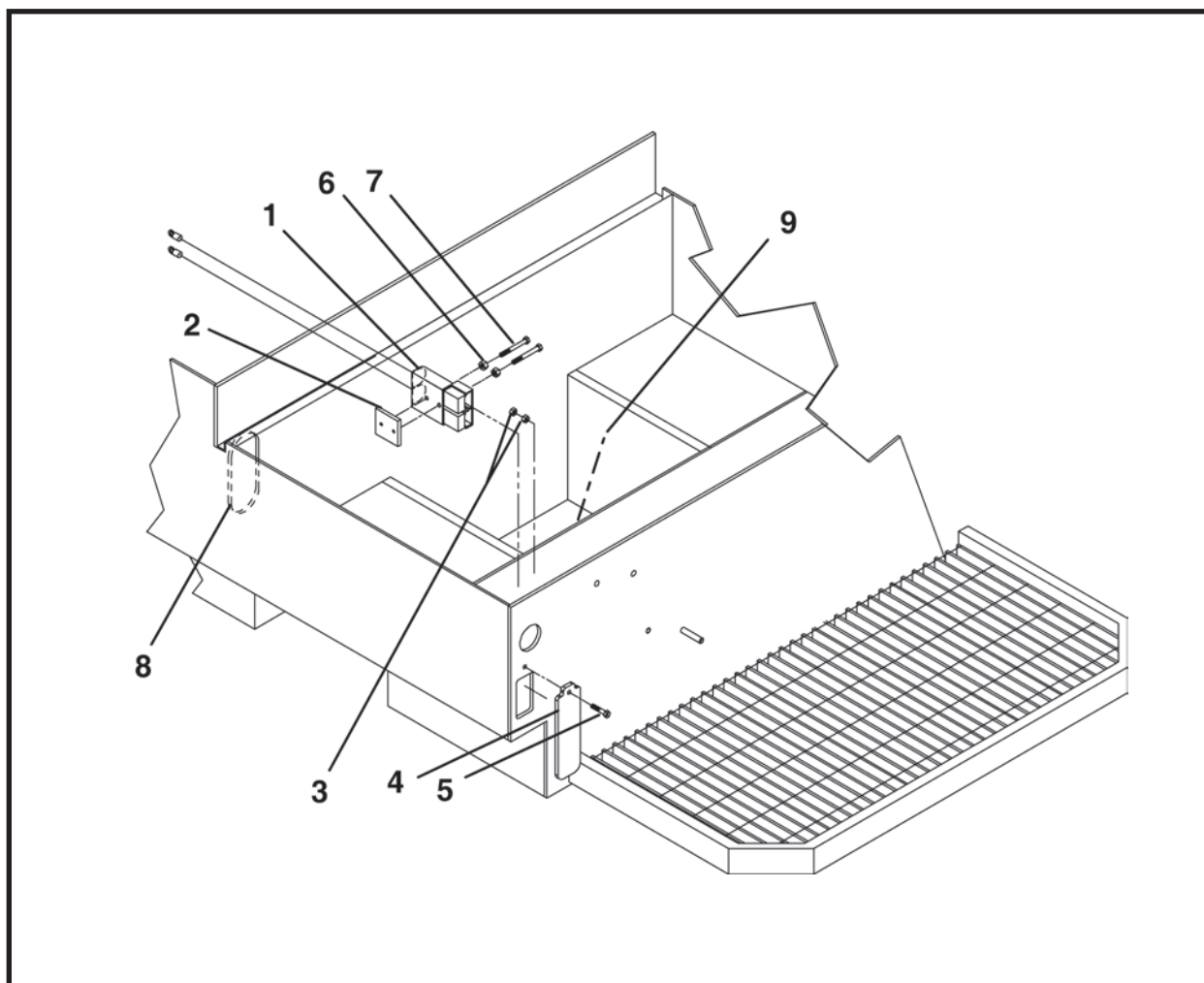
ITEM	QTY	PART NO.	DESCRIPTION
0	1	021802A00	CONTACTOR ASSEMBLY
1	3	P0011-006A	NUT, Square
2	3	P0045-006	WASHER, Lock 3/8
3	3	P0001-06-003	BOLT, 3/8-16 UNC x 3/4
4	1	008259P00	PLATE
5	3	P0056-035	CONTACTOR, 48 Volt (includes item 5a)
5a	1	P0056-032	CONTACTOR POINT SET
6	REF	008262A00	WIRE ASSEMBLY, 4 Conductor
7	1	P0056-037	SWITCH, On
8	REF	P0310-220	BATTERY INDICATOR
9	REF	P0056-024	SWITCH
10	1	009573A00	WIRE ASSEMBLY, #15
11	1	009574A00	WIRE ASSEMBLY, #16
12	6	P0045-003	WASHER, Lock 3/16

## CONTACTOR ASSEMBLY, 021802A00

ITEM	QTY	PART NO.	DESCRIPTION
13	6	P0017-10-243	SCREW, Round Head Machine 10-24 x 1/2
14	2	008273A00	WIRE ASSEMBLY, #8 (Yellow)
15	2	008272A00	WIRE ASSEMBLY, #10 & #11
16	REF	009576A00	WIRE ASSEMBLY, #2 & #4 (On Motor Assembly)
17	1	021813A00	HARNESS, Contactor
18	REF	009486A00	HARNESS, Charger
19	1	009578A00	WIRE ASSEMBLY, #5-C
20	2	009577A00	WIRE ASSEMBLY, #1-C
21	REF	P0056-027	BOOT (for item 9)
22	60 LI	P0054-497	TUBING, Clear Spiral Wrap

LI - Linear Inch

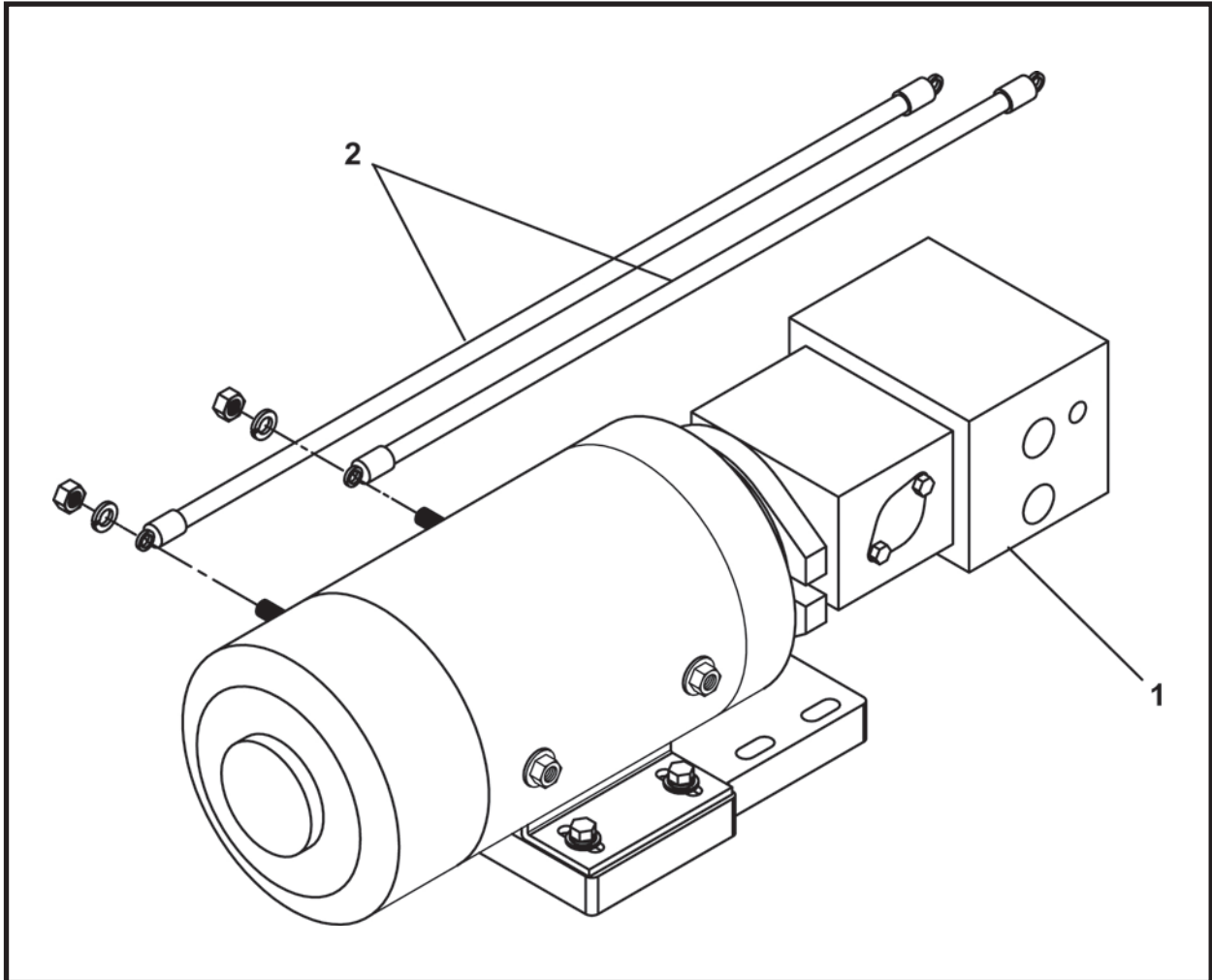
## CHARGING SYSTEM, 48 VOLT DC, 009570A00



ITEM	QTY	PART NO.	DESCRIPTION
0	1	009570A00	CHARGING SYSTEM, 48 VDC
1	1	009486A00	CHARGER HARNESS
2*	1	008551P00	BAR
3	2	P0003-04-000	NUT, 1/4
4	1	008636P00	PLATE
5	1	P0001-04-005	BOLT, 1/4-20 UNC x 1-1/4
6	2	P0003-04-000	NUT, 1/4
7	2	P0001-04-010	BOLT, 1/4-20 UNC x 2-1/2
8	1	011890A00	BATTERY CABLE FLAP ASSEMBLY (includes item 8a - 8c)
8a	1	011891P00	BELTING
8b	4	P0045-006	WASHER, Lock 3/8
8c	4	P0001-06-004	BOLT, 3/8 UNC x 1
9	1	011872P00	BELTING, Gear Box Flap Section

\* Replace 008551P00 with 008550P00 if receptacle interferes with access opening.

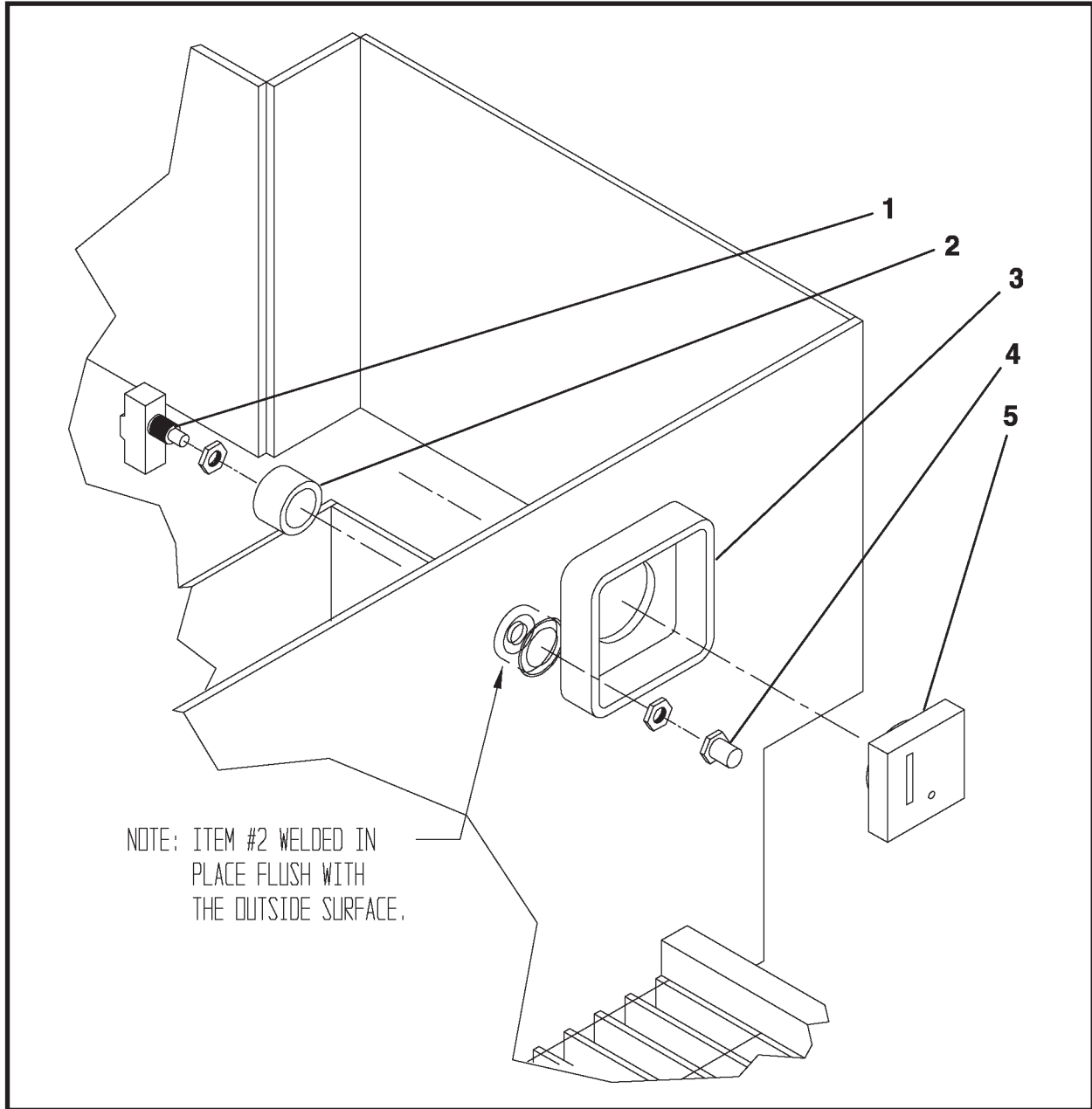
## MOTOR WIRING ASSEMBLY, 009575A00



ITEM	QTY	PART NO.	DESCRIPTION
0	1	009575A00	MOTOR WIRING ASSEMBLY
1*	REF	009565A02	PUMP TO 48VDC MOTOR
2	2	009576A00	WIRE ASSEMBLY, #4

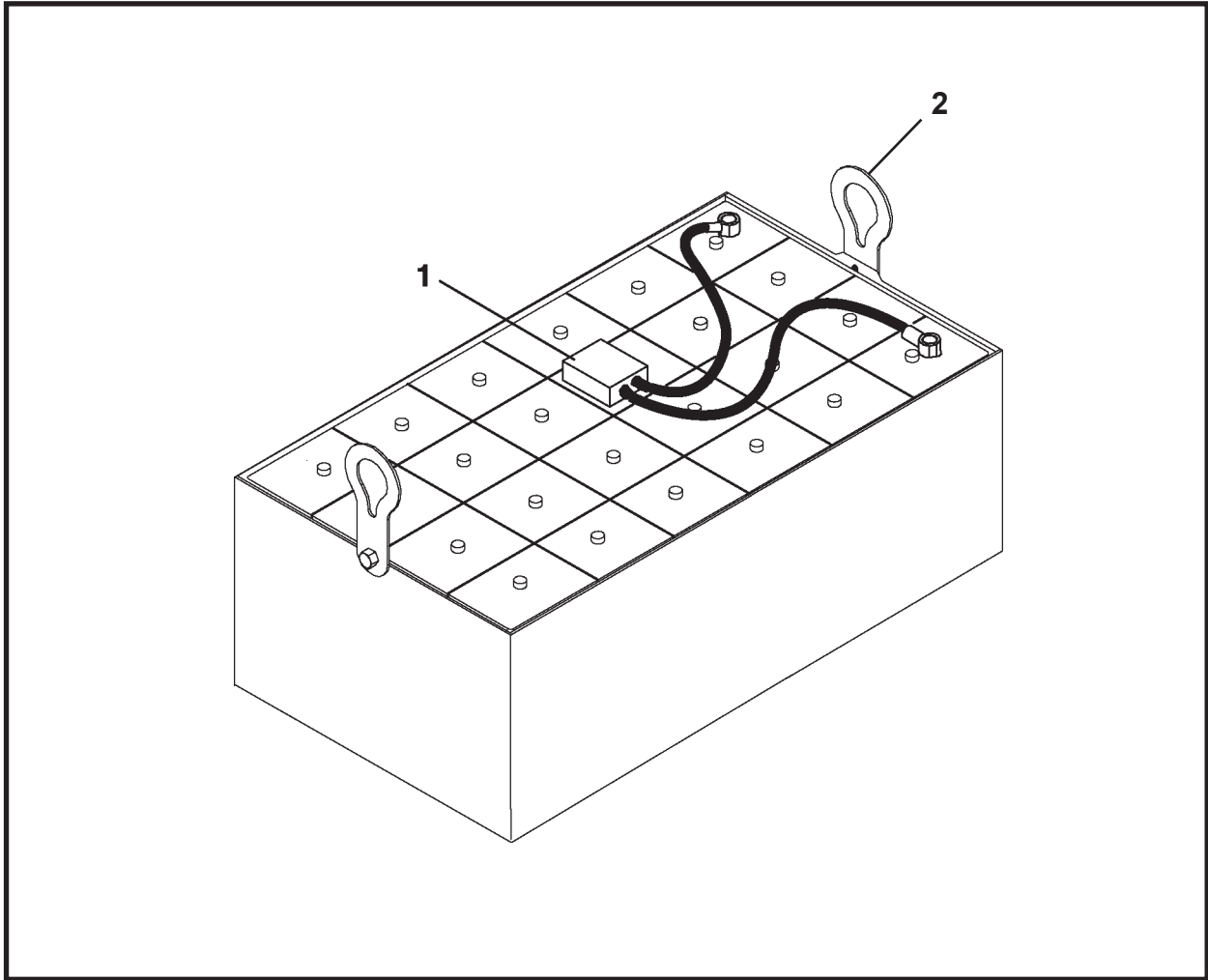
\* Refer to Section 3, Structural for parts breakdown.

## GAUGE MOUNTING, 021817A00



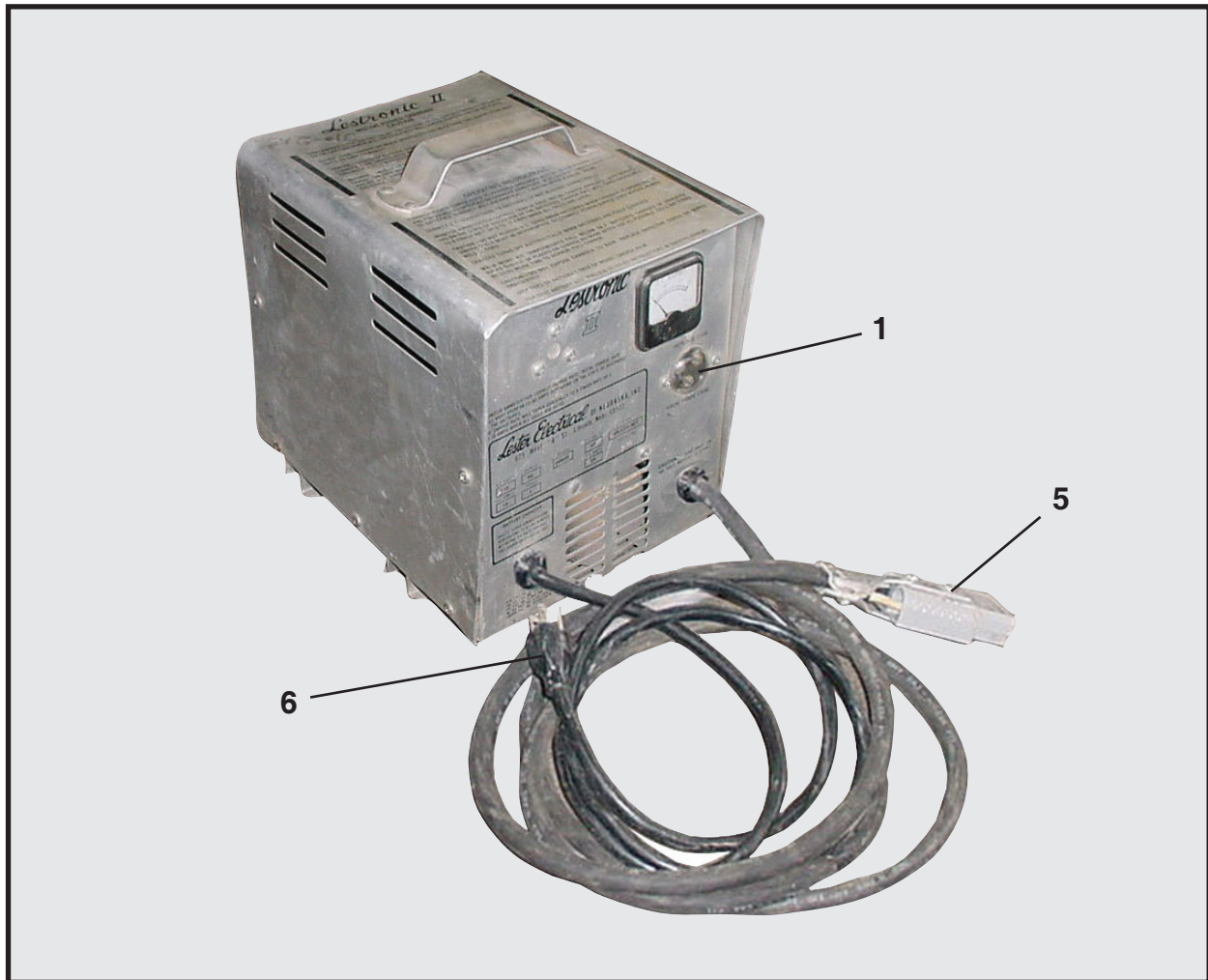
ITEM	QTY	PART NO.	DESCRIPTION
0	1	021817A00	GAUGE MOUNTING
1	1	P0056-024	SWITCH
2	1	008634P00	HOLDER, Switch
3	1	021844P00	COVER, Gauge Mounting
4	1	P0056-026	BOOT
5	1	P0310-220	BATTERY INDICATOR

# BATTERY PACK, 48 VOLT DC, F0064-010



ITEM	QTY	PART NO.	DESCRIPTION
0	1	F0064-010	BATTERY PACK, 48 Volt DC
1	1	P0055-116	CONNECTOR
2	2	010315P01	EYE, Lift

## BATTERY CHARGER, 48 VOLT DC



ITEM	QTY	PART NO.	DESCRIPTION
0.1	1	F0310-714	BATTERY CHARGER, 48 Volt DC (230V/60 Hz)
0.2	1	F0310-222	BATTERY CHARGER, 48 Volt DC (230V/50 Hz)
1	1	P0310-714B	FUSE ASSEMBLY, 25 Amp
2*	1	P0310-714D	AMP METER
3*	1	P0310-714C	KIT, Timer
4*	1	P0310-714E	RELAY
5	1	P0055-116	CONNECTOR
6	1	P0251-359	CONNECTOR, Male Replacement
7*	1	P0310-714A	CONNECTOR, Female Replacement (Used for extension cord)

\* Not Shown

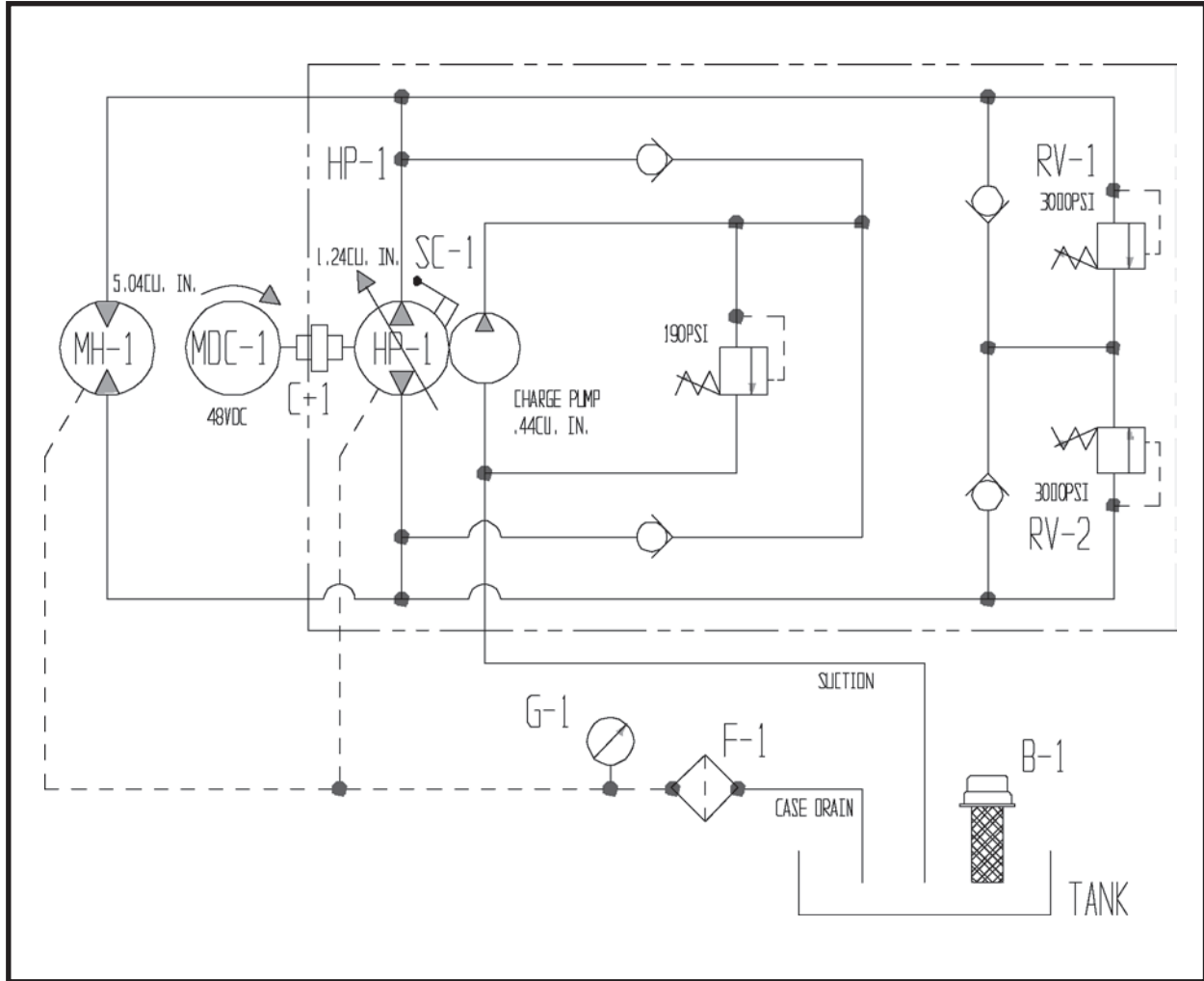
Battery Charger P0310-233 (230V/60 Hz), was used prior to January 2001. If replacement parts are needed, contact your Akkerman Aftermarket Support Representative.



# Hydraulics

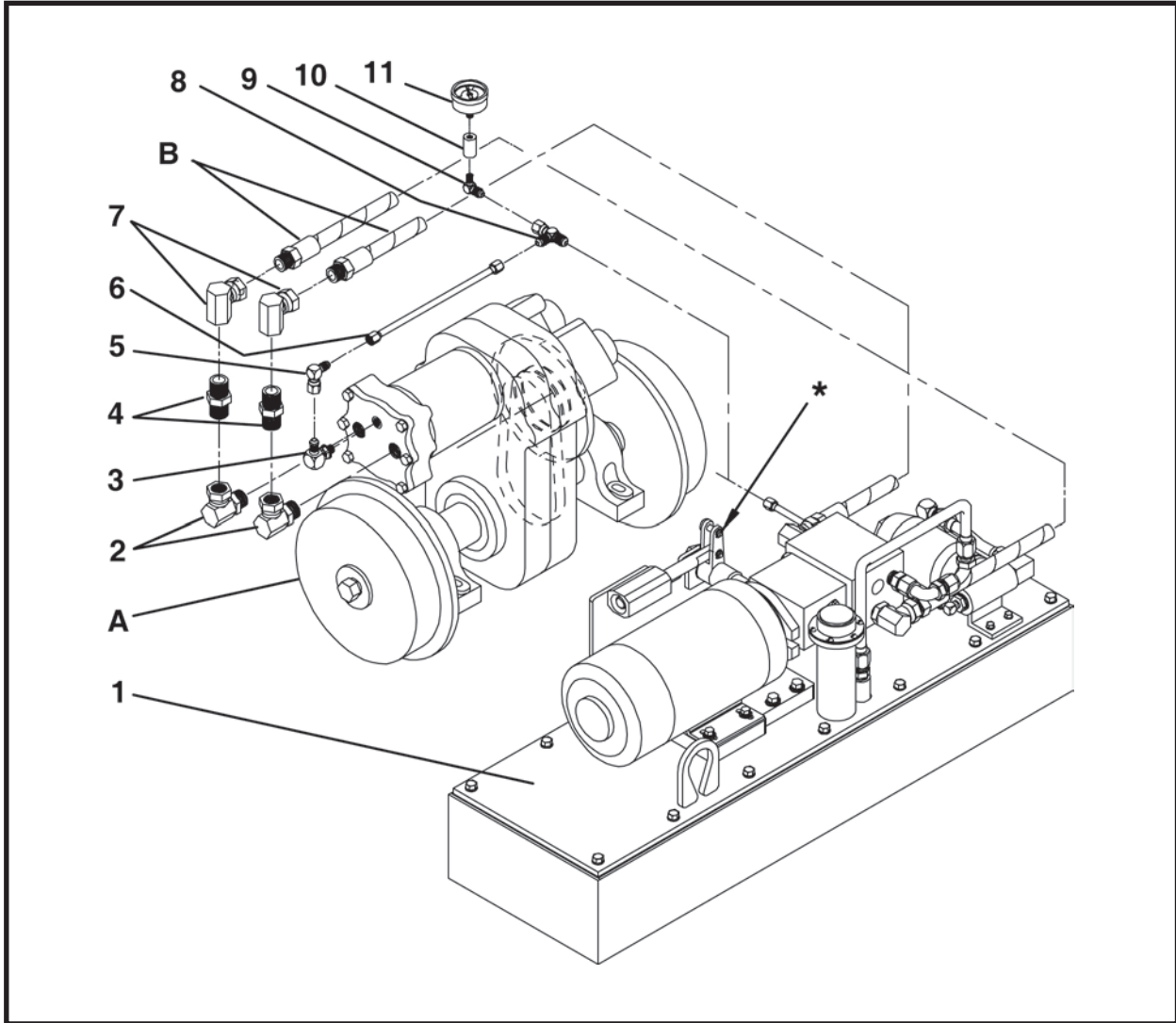
Hydraulic Schematic, 021822A00 .....	2
Hydraulic Assembly, 009580A02 .....	3
Hydraulic Power Supply Assembly, 008584A01 .....	4
Brake Assembly Hydraulics, 021824A00 .....	6
(SN F21800F-27 & Before) .....	6
(SN F21800F-28 & After) .....	7

## HYDRAULIC SCHEMATIC, 021822A00



ITEM	QTY	PART NO.	DESCRIPTION
MH-1	REF	P0304-122	MOTOR, Hydraulic
MDC-1	REF	P0310-277AA	MOTOR, 48 VDC
HP-1	REF	P0303-169	PUMP, Hydraulic
F-1	REF	P0309-127	FILTER HOUSING
F-1	REF	P0309-128	FILTER ELEMENT
B-1	REF	P0308-100	BREATHER/FILLER
G-1	REF	P0301-105	FILTER INDICATOR
SC-1	REF	021803A00	THROTTLE LINKAGE ASSEMBLY

## HYDRAULIC ASSEMBLY, 009580A02

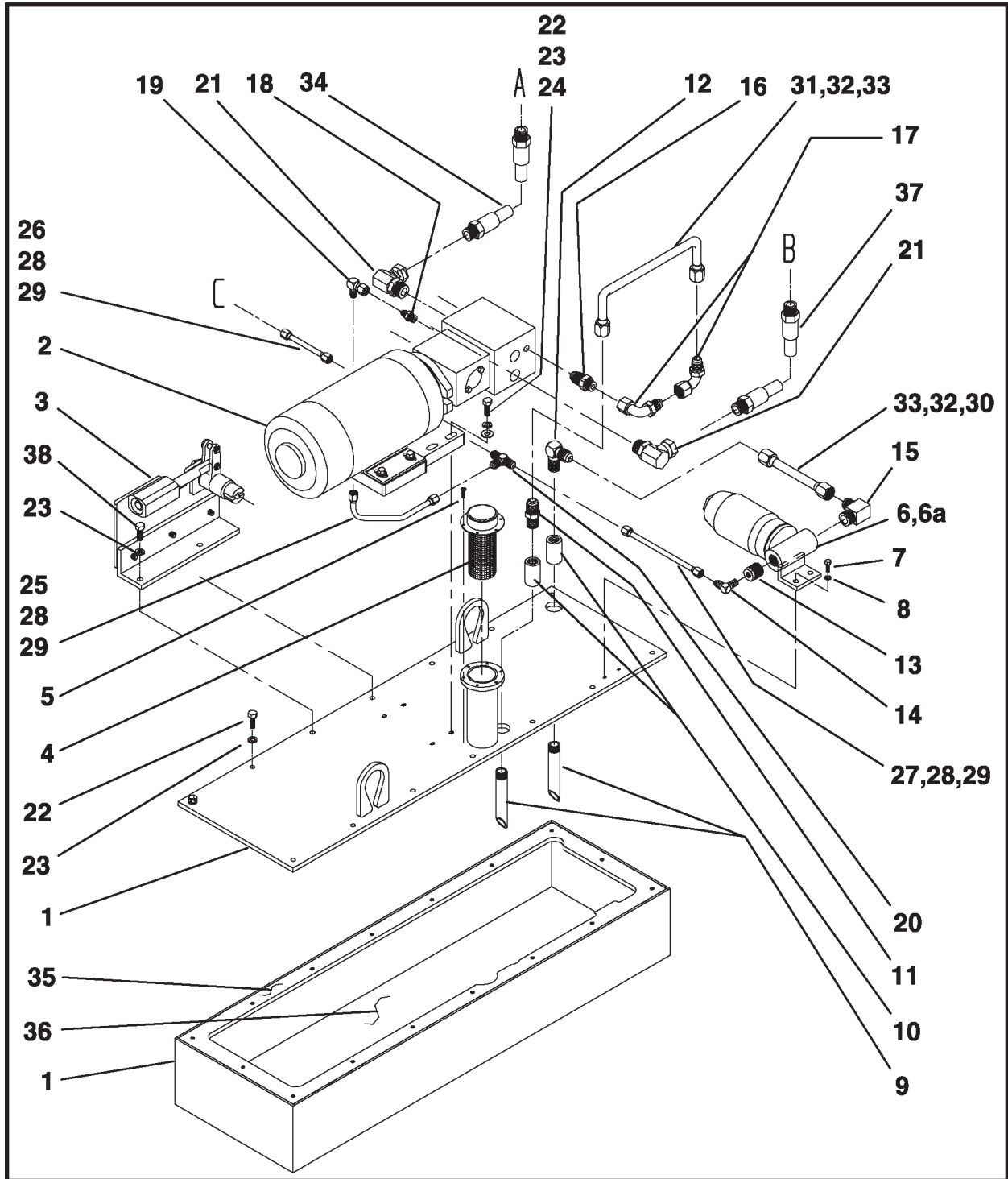


ITEM	QTY	PART NO.	DESCRIPTION
0	1	009580A02	HYDRAULIC ASSEMBLY
1	1	008584A01	HYDRAULIC POWER SUPPLY
2	2	P0300-136	FITTING, 12MB-12FPX90-Brazed
3	1	P0300-042	FITTING, 06MJ-06MB90
4	2	P0300-107	FITTING, 12MP-12MP
5	1	P0300-149	FITTING, 06MJ-06FJX90
6	1	A10311A-044	ASSEMBLY, Hose 3/8 x 44
7	2	P0300-100	FITTING, 12FP-12FPX90
8	1	P0300-192	FITTING, 06MJ-06FJX-06MJ
9	1	P0300-217	FITTING, 06MJ-02MP90
10	1	P0400-000	COUPLER, Pipe 1/8
11	1	P0301-105	GAUGE, Filter Indicator
A**	REF	021804A00	DRIVE ASSEMBLY
B	REF	-	To Hydraulic Power Supply, Item 1

\* To Throttle Linkage Assembly, 021803A00. Refer to Section 4, Operator Controls.

\*\* Refer to Section 3, Structurals for parts breakdown.

# HYDRAULIC POWER SUPPLY, 008584A01



ITEM	QTY	PART NO.	DESCRIPTION
0	1	008584A01	HYDRAULIC POWER ASSEMBLY
1	1	008586A00	TANK
2*	1	009565A02	PUMP TO 48VDC MOTOR ASSEMBLY
3*	1	008599A01	PUMP ACTUATOR CONTROLLER
4	1	P0308-100	FILLER BREATHER
5	6	P0017-10-245	SCREW, Machine Round Head
6	1	P0309-127	FILTER (includes item 6a)
6a	1	P0309-128	ELEMENT (10 micron)

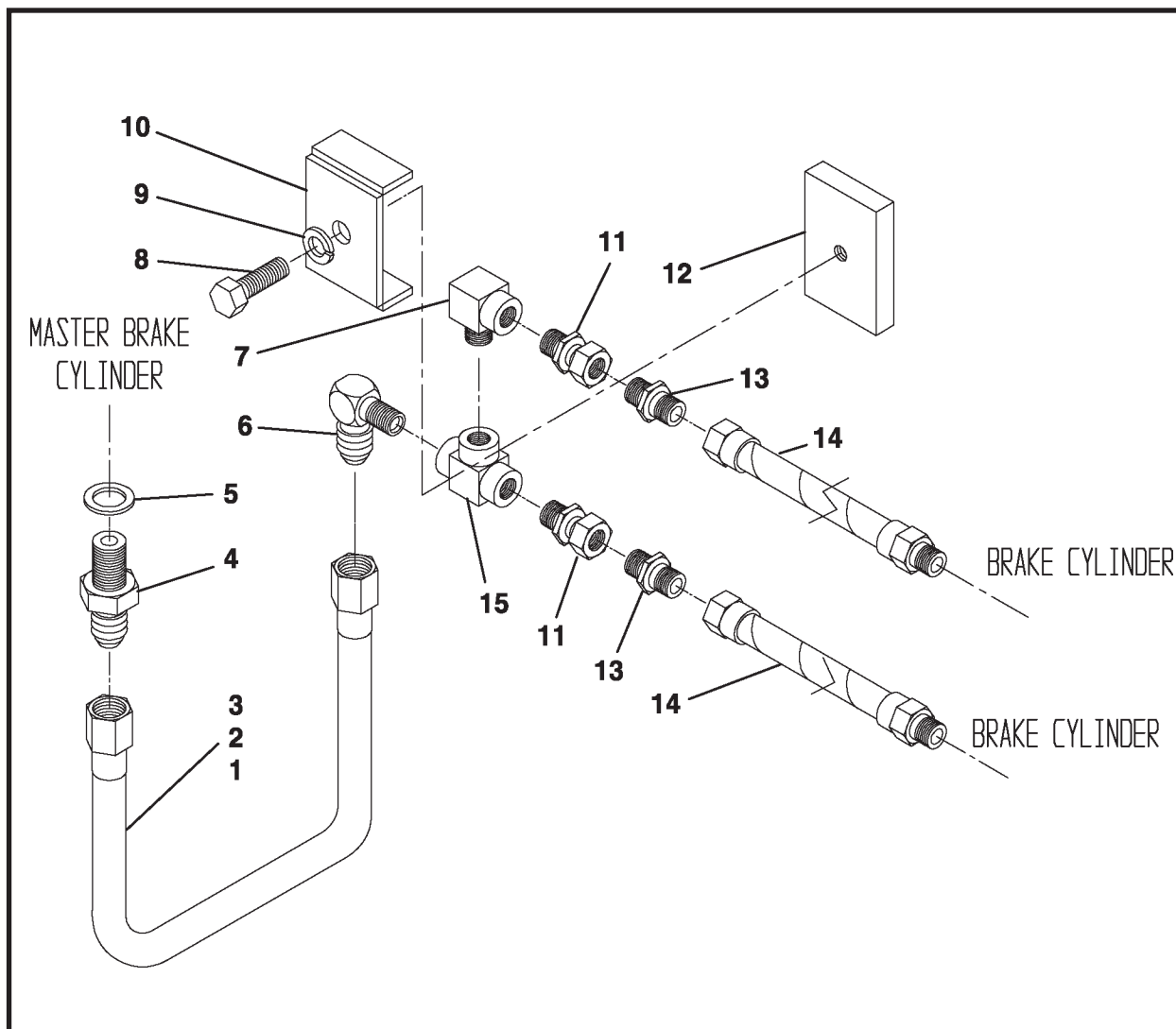
## HYDRAULIC POWER SUPPLY, 008584A01

ITEM	QTY	PART NO.	DESCRIPTION
7	2	P0001-04-003	BOLT, 1/4-20 UNC x 3/4
8	2	P0045-004	WASHER, Lock 1/4
9	2	009581P00	PIPE
10	2	P0400-003	COUPLER
11	1	P0300-142	CONNECTOR
12	1	P0300-143	ELBOW, 90 Degree
13	1	P0300-080	REDUCER
14	1	P0300-125	ELBOW, 90 Degree
15	1	P0300-197	ELBOW, 90 Degree
16	1	P0300-200	CONNECTOR
17	2	P0300-139	TUBE
18	1	P0300-041	CONNECTOR
19	1	P0300-149	TUBE
20	1	P0300-138	TEE
21	2	P0300-136	SWIVEL
22	18	P0001-06-004	BOLT, 3/8-16 UNC x 1
23	20	P0045-006	WASHER, Lock 3/8
24	4	P0040-006	WASHER, Flat 3/8
25	1	P0110-106-012	TUBE, 3/8 x 12
26	1	P0110-106-3.25	TUBE, 3/8 x 3-1/4
27	1	P0110-106-007	TUBE, 3/8 x 7
28	6	P0300-128	NUT, 3/8
29	6	P0300-127	SLEEVE
30	1	P0110-101-005	TUBE, 5/8 x 5
31	1	P0110-101-016	TUBE, 5/8 x 16
32	4	P0300-055	NUT, 5/8
33	4	P0300-056	SLEEVE
34	1	A10330A-042	ASSEMBLY, Hose 3/4 x 42
35	1	P0029-004	GASKET
36	10 Gal	P0126-003	OIL, Hydraulic
37	1	A10330A-050	ASSEMBLY, Hose 3/4 x 50
38	2	P0001-06-006	BOLT, 3/8-16 UNC x 1-1/2
A	REF	-	TO HYDRAULIC MOTOR (REAR PORT)
B	REF	-	TO HYDRAULIC MOTOR (FRONT PORT)
C	REF	-	TO PRESSURE GAUGE AND MOTOR CASE DRAINS

\* Refer to Section 3, Structural for parts breakdown.

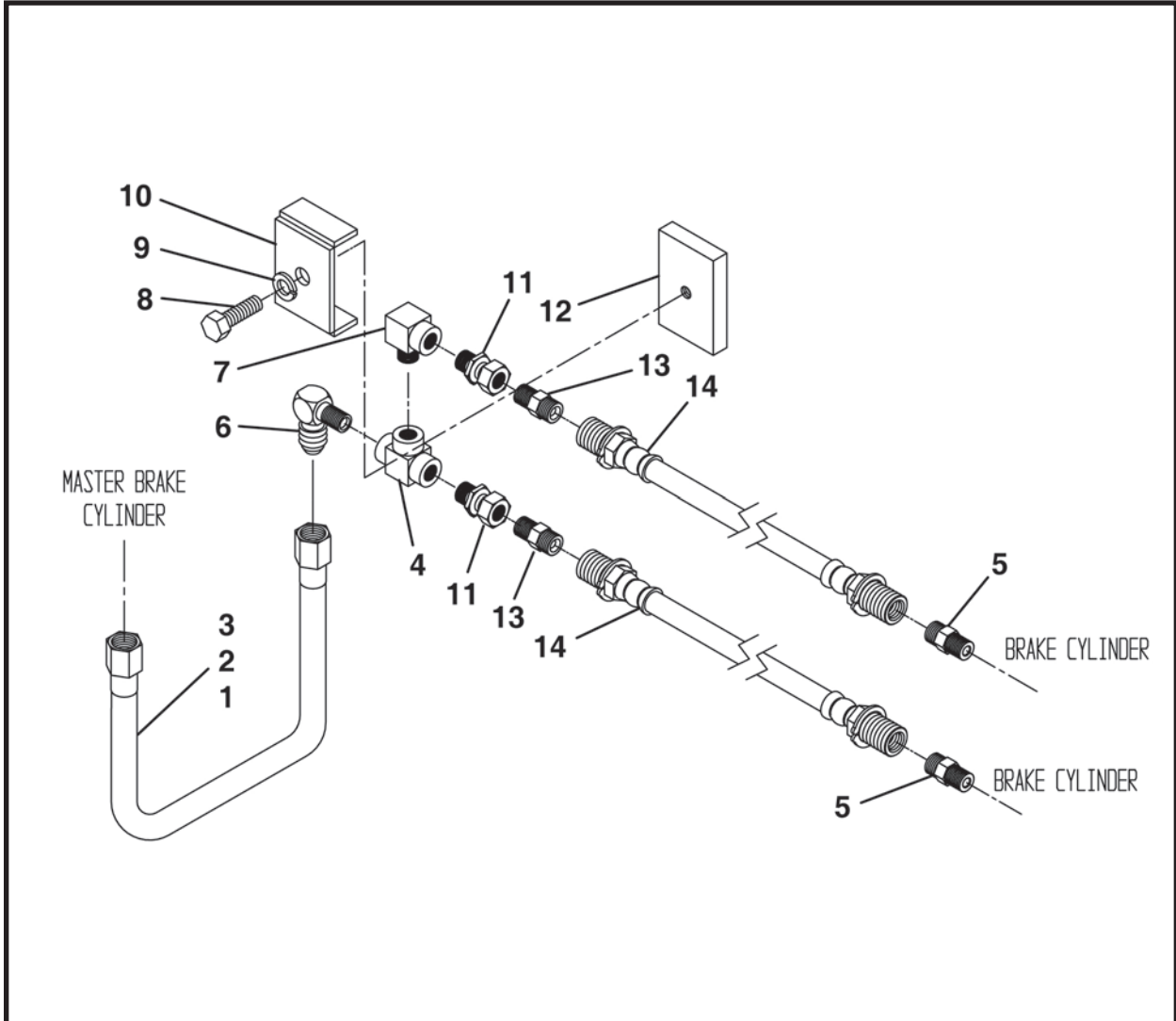
Gal - Gallons

**BRAKE ASSEMBLY HYDRAULICS, 021824A00**  
 (SN F21800F-27 & BEFORE)



ITEM	QTY	PART NO.	DESCRIPTION
0	1	021824A00	BRAKE ASSEMBLY HYDRAULICS
1	1	P0110-105	TUBE
2	2	P0300-154	NUT, JIC 3/16
3	2	P0300-155	NUT, JIC 3/16
4	1	021825A00	ADAPTER
5	1	021891P00	ROD
6	1	P0300-159	ADAPTER, Elbow
7	1	P0300-175	ADAPTER, Elbow
8	1	P0001-05-004	BOLT, 5/16-18 UNF x 1
9	1	P0045-005	WASHER, Lock 5/16
10	1	021894P00	BAR
11	2	P0300-227	SWIVEL
12	1	021893P00	BAR
13	2	021892P00	FITTING, Brake Hose
14	2	P0200-093	HOSE, BRAKE
15	1	P0300-226	TEE

**BRAKE ASSEMBLY HYDRAULICS, 021824A00**  
(SN F21800F-28 & AFTER)



ITEM	QTY	PART NO.	DESCRIPTION
0	1	021824A00	BRAKE ASSEMBLY HYDRAULICS
1	14 LI	P0110-105	TUBE
2	2	P0300-154	FITTING, 03TS
3	2	P0300-155	FITTING, 03TSN
4	1	P0300-226	FITTING, 02FP-02FP-02FP
5	2	P0200-094	FITTING, Brake Hose
6	1	P0300-159	FITTING, 03MJ-02MP90
7	1	P0300-175	FITTING, 02MP-02FP90
8	1	P0001-05-004	BOLT, 5/16-18 UNF x 1
9	1	P0045-005	WASHER, Lock 5/16
10	1	021894P00	BRACKET, Drilled
11	2	P0300-227	FITTING, 02MP-02FPX
12	1	021893P00	PLATE, Mounting
13	2	021892P00	FITTING, DOT 3 Brake
14	2	P0200-093	HOSE, Brake

LI - Linear Inch

## **NOTES**



# Valves

Does not apply to this system

## **NOTES**

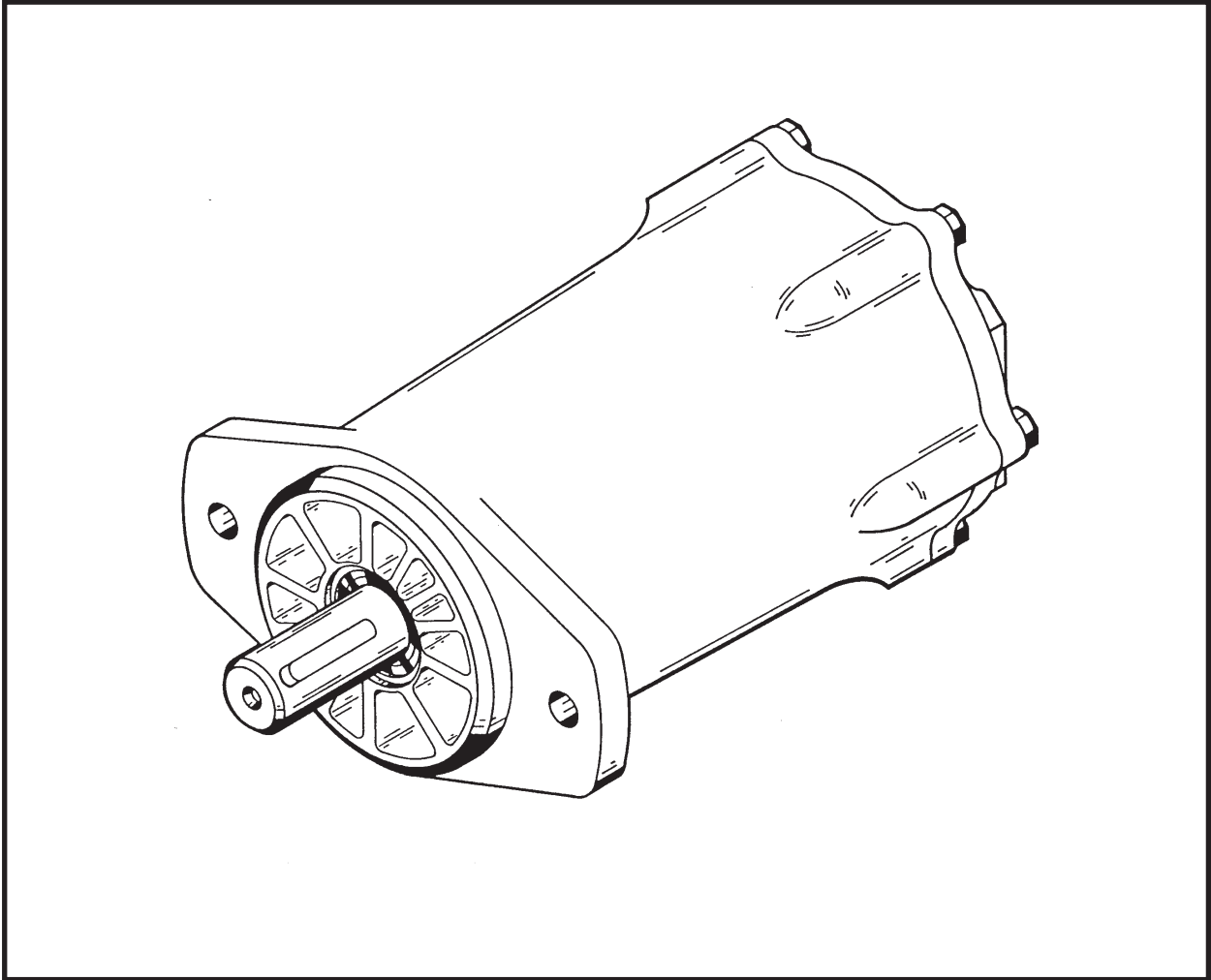


# Motors

Motor, 48/36 Volt DC, P0310-277AA .....	2
Motor, Hydraulic, P0304-122 .....	3



# MOTOR, HYDRAULIC, P0304-122



ITEM	QTY	PART NO.	DESCRIPTION
0	1	P0304-122	MOTOR, Hydraulic

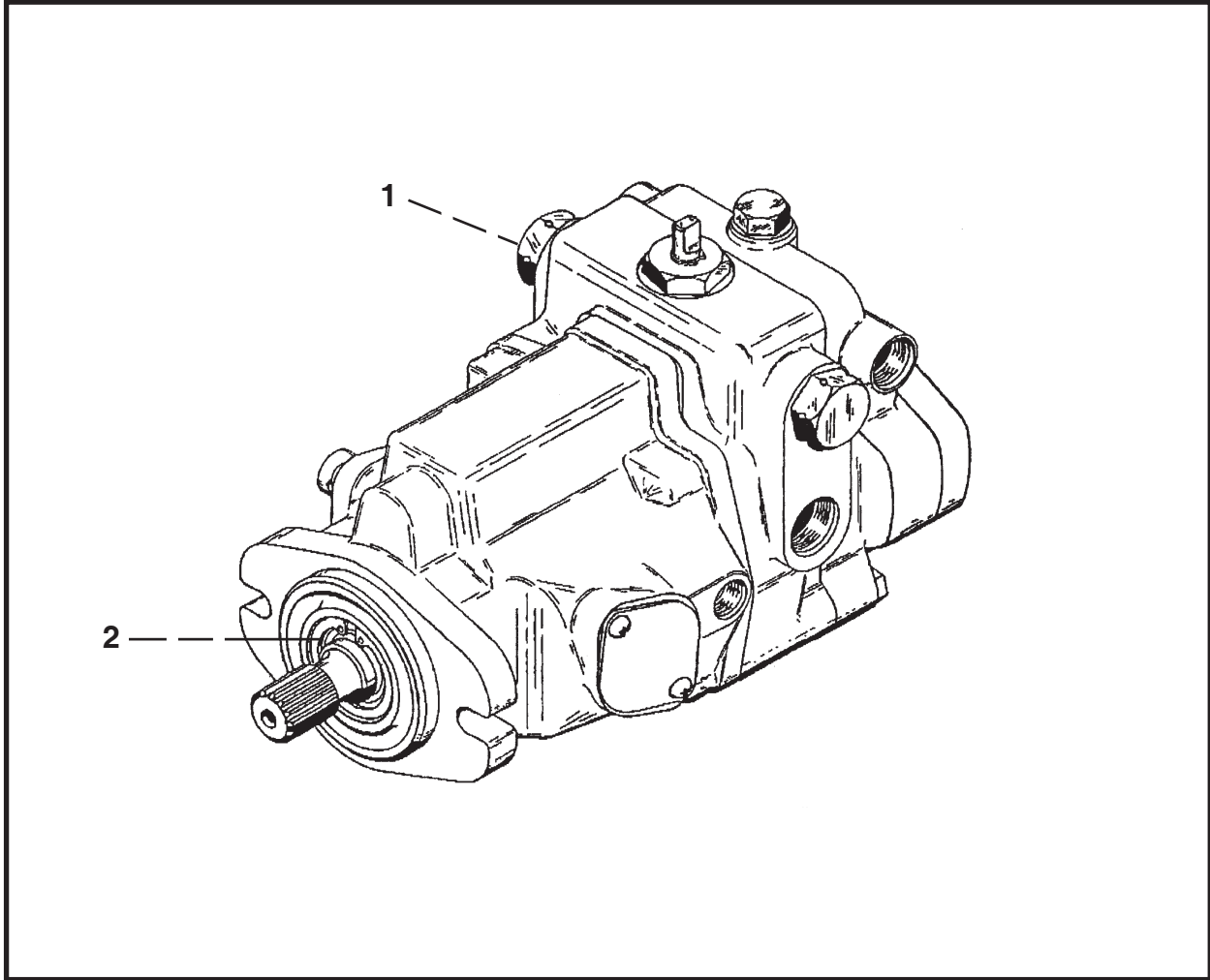
## **NOTES**



# Pumps

Pump, Hydraulic, P0303-169 ..... 2

# PUMP, HYDRAULIC, P0303-169



ITEM	QTY	PART NO.	DESCRIPTION
0	1	P0303-169	PUMP, Hydraulic
1	2	P0303-169B	RELIEF VALVE, 3000PSI
2	1	P0303-169C	SEAL, Shaft
3	1	P0303-188	KIT, Actuator Seal (not shown)



# Cylinders

Does not apply to this system

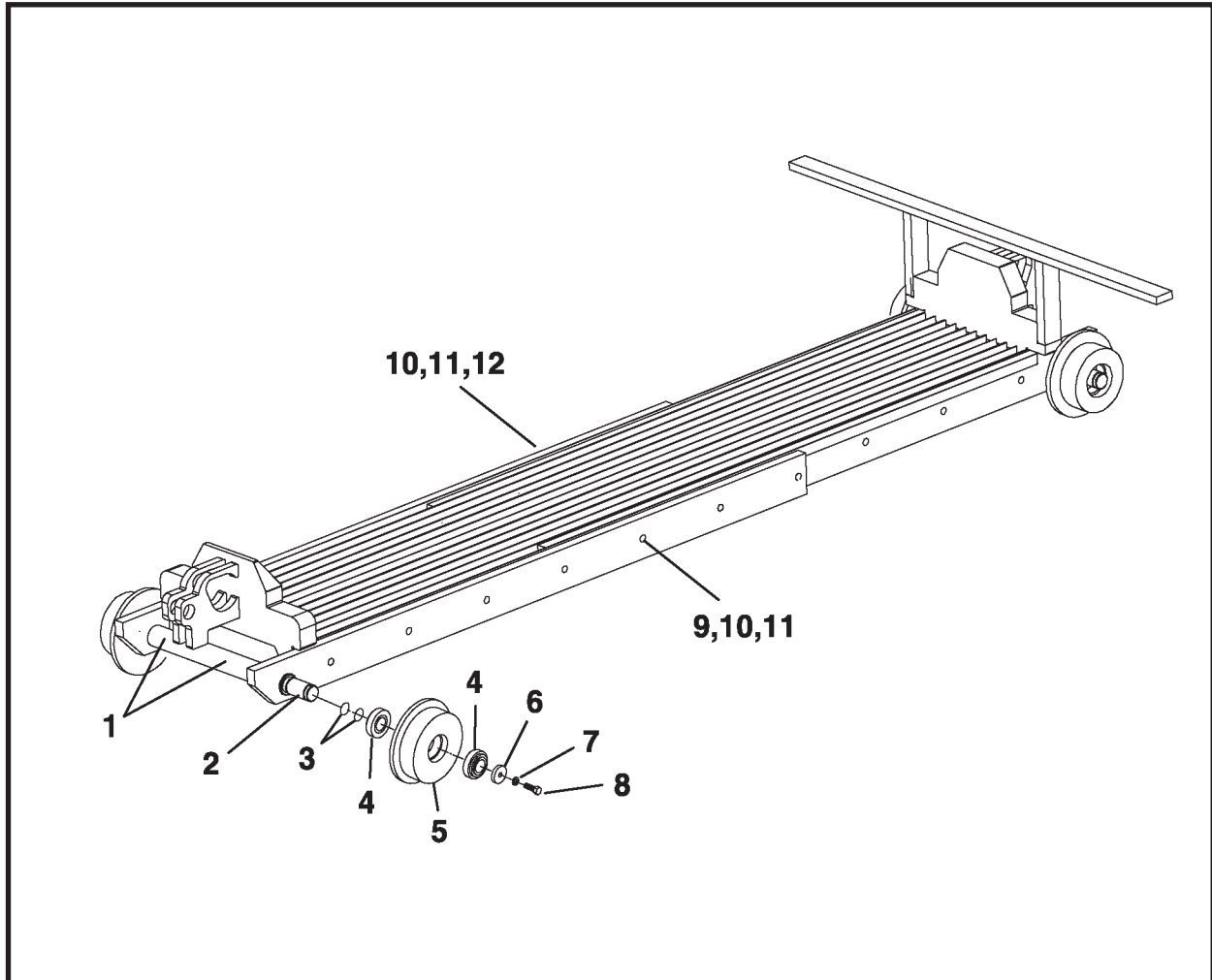
**NOTES**



## Miscellaneous

Haul Cart, F11266F00..... 2

## HAUL CART, F11266F00



ITEM	QTY	PART NO.	DESCRIPTION
0	1	F11266F00	HAUL CART
1	4	P0063-001	FITTING, Grease 1/4 UNF
2	2	011264P00	ROD, Drive
3	8	P0085-028	O-RING
4	8	P0065-004	BEARING
5	4	007677P00	WHEEL, Drive
6	4	005069P00	WASHER
7	9	P0045-008	WASHER, Lock 1/2
8	4	P0001-08-005	BOLT, 1/2 UNC x 1-1/4
9	6	P0001-10-014	BOLT, 5/8-11 UNC x 3.50
10	14	P0046-010	WASHER, Hi-Collar Lock, 5/8
11	14	P0003-10-000	NUT, 5/8
12	6	P0001-10-011	BOLT, 5/8-11 UNC x 2.75
13	4	P0033-08-016	SCREW, Set 1/2-13 x 1 (not shown)
14	2	P0090-004	PIN CLIP, 3/16 (not shown)



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