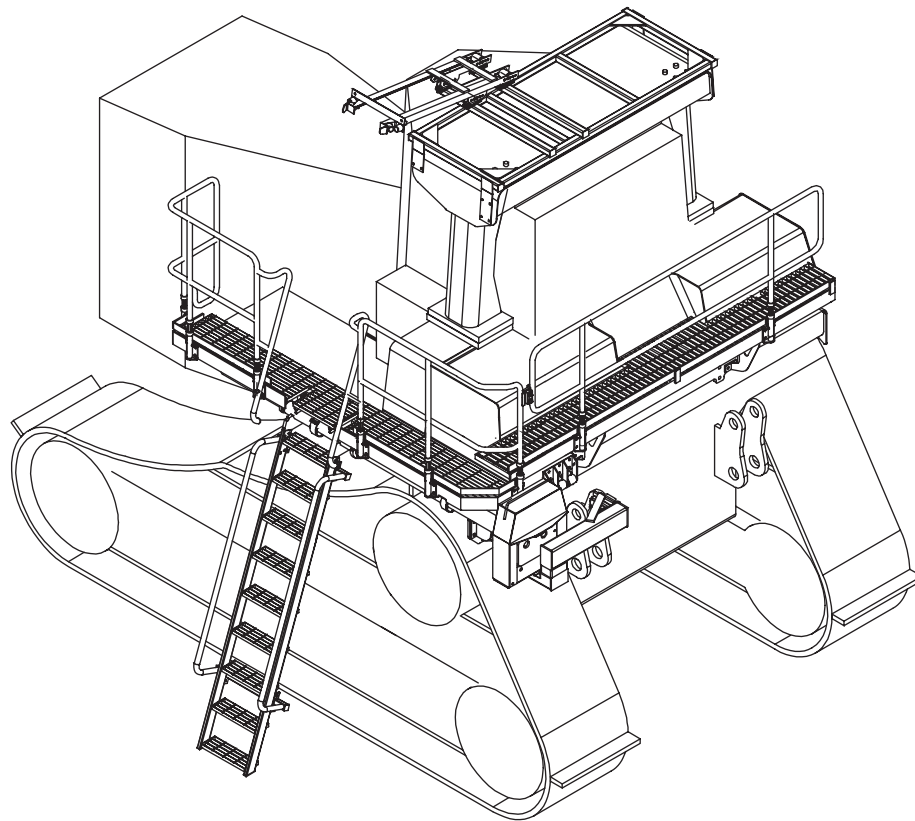


FOLDING LADDER

Manual for Cat D9R Dozer With Rear Landing



Model No.: PSA-D9R-FL
Serial No.: LD9-001 to LD9-003
Date Manufactured: 2003 onwards

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Caterpillar D9 Dozer



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NOTE

Follow all on-site/Mine lifting and safety procedures when installing PSFS to Truck.

Section 1

Installation and Mounting Instructions

See Drawing 22 031 (Page 4 & 6)

1. Remove grille plates from the rear of both mudguards.
Remove the light and/or horn from the rear of the left-side mudguard.
Draw out wiring for future re-use
2. Weld the Mounting Pads to the rear of the mudguards, in the corners made by the mudguard top plate and vertical inner plate, and in the corner made by the rolled outer edge of the mudguard top plate. All the rear mounting pads fit hard against the folded rear mudguard infill. All these mounting pads have bevelled edges to clear existing welds in the corners.
3. Measure forward from the back surfaces of the rear mounting pads and down from the top surface of the mudguard decks to locate the side mounting pads. Weld these mounting pads in position.

Welding:

Cat SP to AS1554

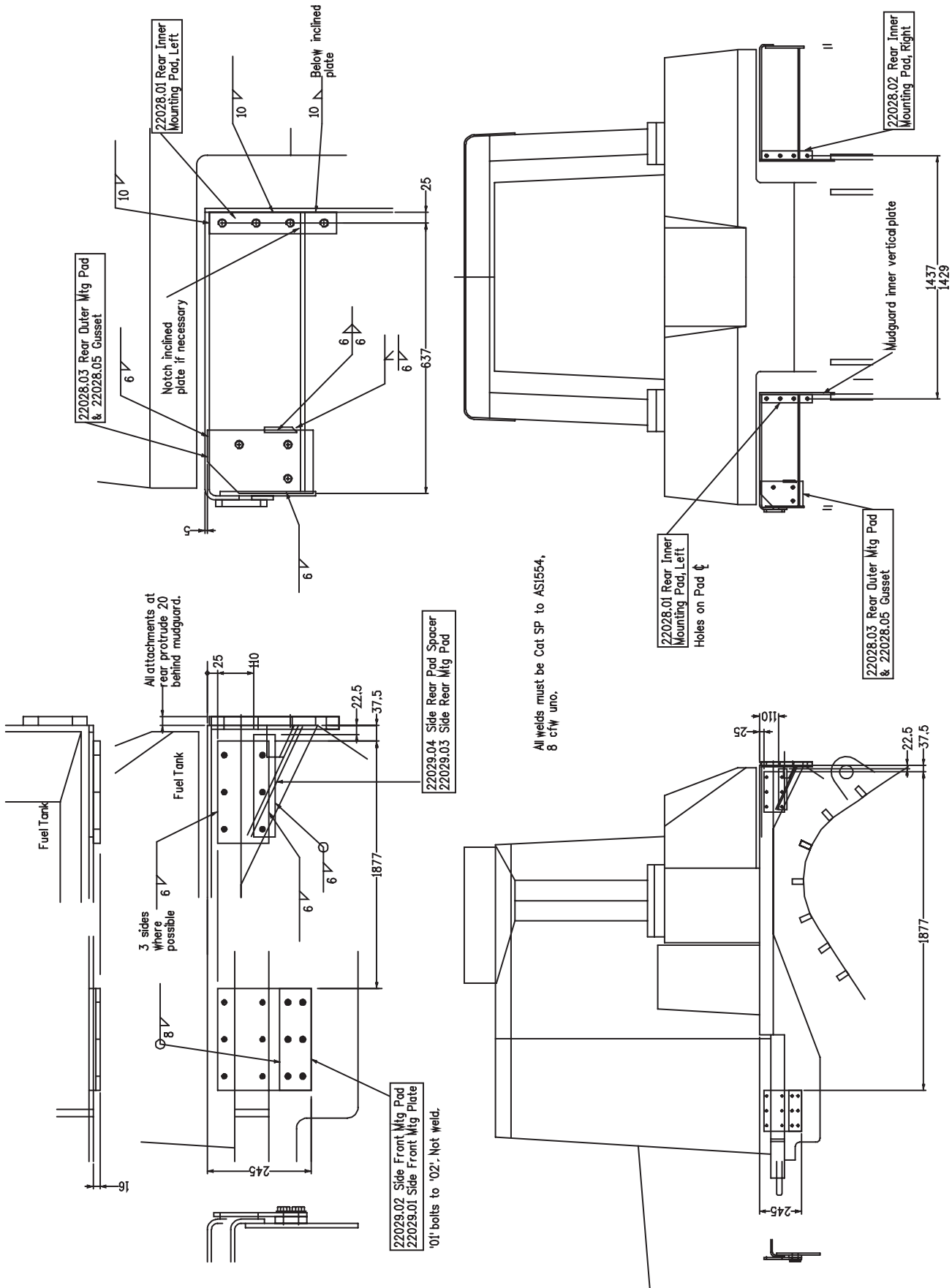
8 cfw.

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Section 1 Installation Instruction Drawings - 22 031



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Section 1 Installation Instructions (cont.)

Ref. Drawing - 22 032

Procedure

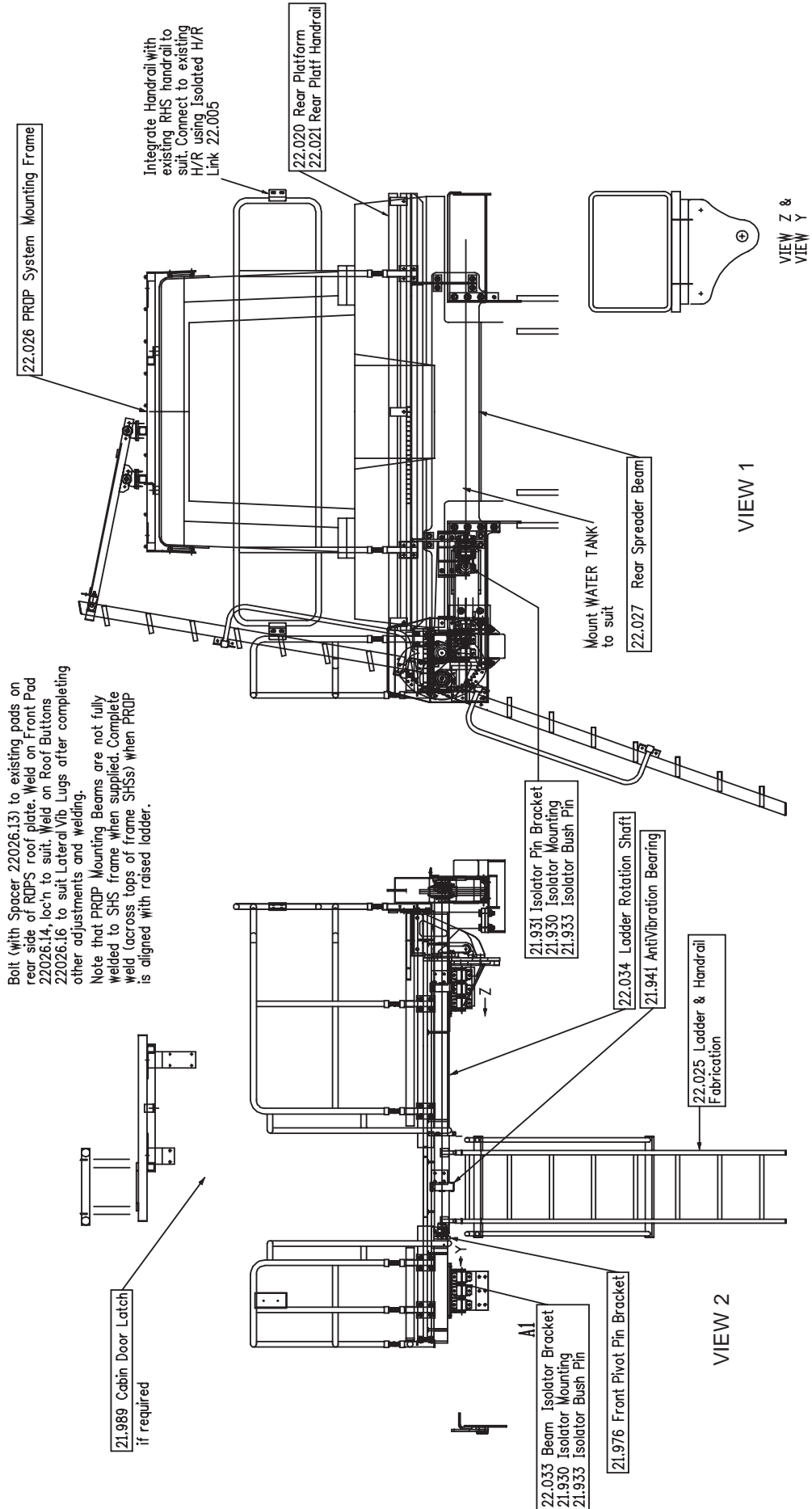
1. Fit Mounting Blocks per Drg 22 031
2. Per View 1, Spreader Plate: Fit Spreader Plate 22 027 to rear mounting blocks. Use Washer Plates 22.094 and washers under bolt heads - ensure maximum engagement of bolt threads in blind threaded holes. Washer Plates not shown in most Views in this drawing.
3. Per Views 2, Isolators: Fit Isolator Brackets 21 930 (See also View 2). Fit Landing Beam 22 022 with Ladder Shaft and Drive already assembled, supported by Isolators.
4. Fit Ladder. Using Spacers (within Actuator Cylinder Mounting 21 954), adjust drive so gears are not loaded when ladder is lowered.
5. Per Views 3, Complete Assembly and 4, PROP System:
Clamp PROP Mtg Beams 22 087 in position shown in Views 1&3 and mount PROP 21 945. Adjust position of Beams & PROP so that, with PROP attached to Isolators using middle holes (of set of 5), ladder gear drive is not loaded when ladder is fully raised. Attach PROP System Mounting Frame 22 026 atop cabin, on ROPS unless similar is already fitted by customer.
6. Per View 1: Fit Rear Walkway 22 020
Fit Handrails.
Weld Beams to Frame, 6cfw where visible from above.

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Section 1 Installation Instruction Drawings - 22 032

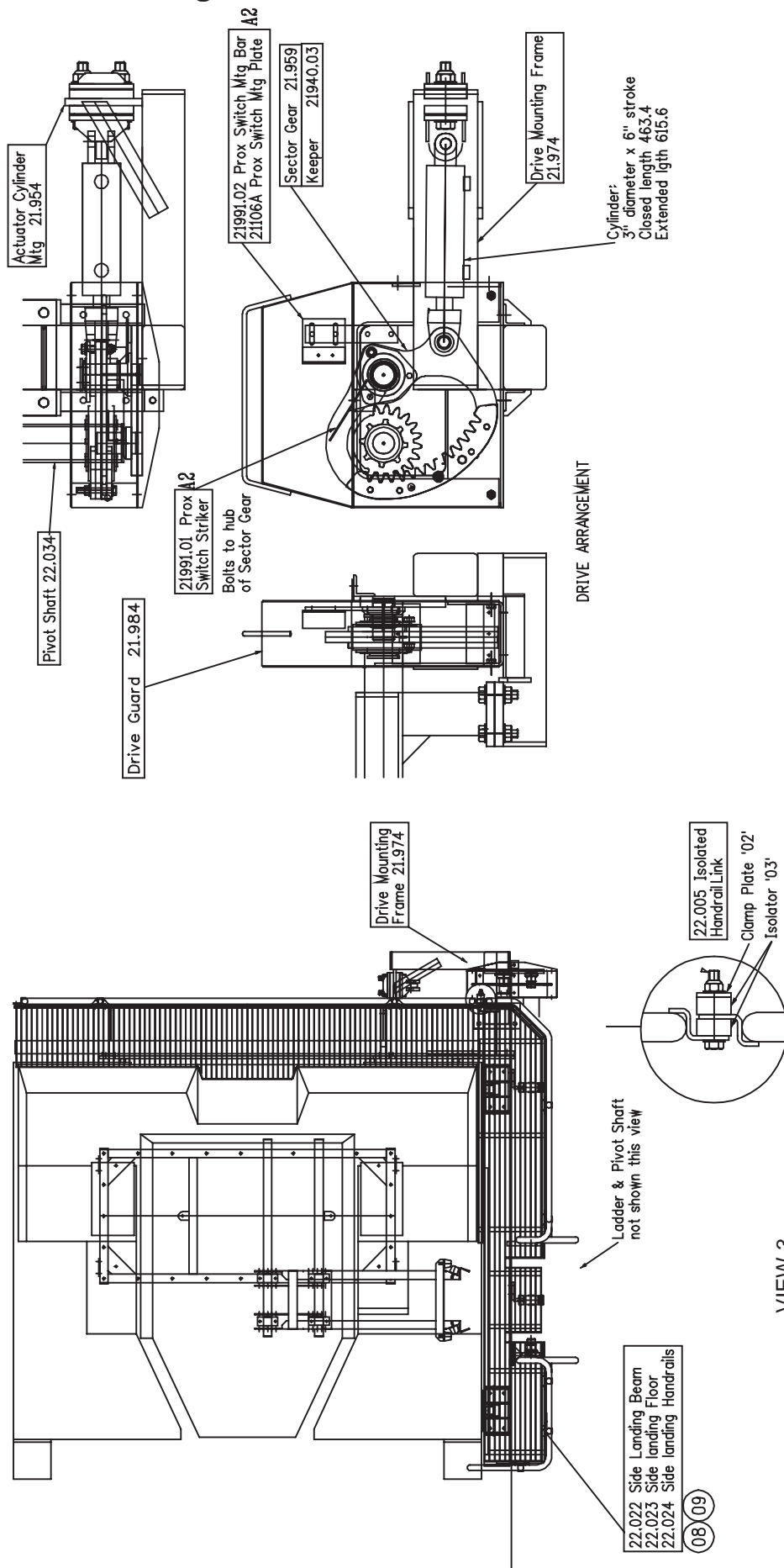


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Section 1 Drive Arrangement - Ref. 22 032



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Section 1 Installation and Mounting Instructions (cont.)

Maintenance Notes

NOTE

Follow all on-site/Mine lifting and safety procedures when installing PSFS to Truck.

WARNING

Raising the POWER STEP ladder by external means can create a vacuum in the hydraulic cylinder and create the opportunity to allow air into the hydraulic system, defeating the inherent safety features of the POWER STEP.

This must be avoided, to maintain safe operation of the POWER STEP.

In instances where the use of external means to raise the ladder must be used, please follow the following instructions:

Loosen hard plumbed hydraulic lines on cylinder side of lock valve on cylinder.

Raise ladder by available means.

Note: Make necessary arrangements to collect displaced oil, and be aware that air enters the piston side of the cylinder as ladder is raised.

Lock in raised position.

Re-tighten hydraulic fittings.

SECURE THE LADDER IN THE RAISED POSITION, MECHANICALLY, CHAIN & TAGOUT THE POWER STEP

To recommission the POWER STEP:

Loosen hydraulic fittings on cylinder side of lock valve.

Note: Collect displaced oil.

Lower ladder to lowest position, using alternate safety approved means, fully retracting cylinder. Ensure all personnel are clear of step radius.

Operate electrical control switch to purge air from the hydraulic line systems, lock valve and cylinder.

Tighten the hydraulic fittings either side of lock valve to restriction fitting.

Cycle step unloaded several times to purge all air from hydraulic system.

The Power Step will not operate correctly if there is any air in the hydraulic circuit (due to the incorrect operation of the lock valve).

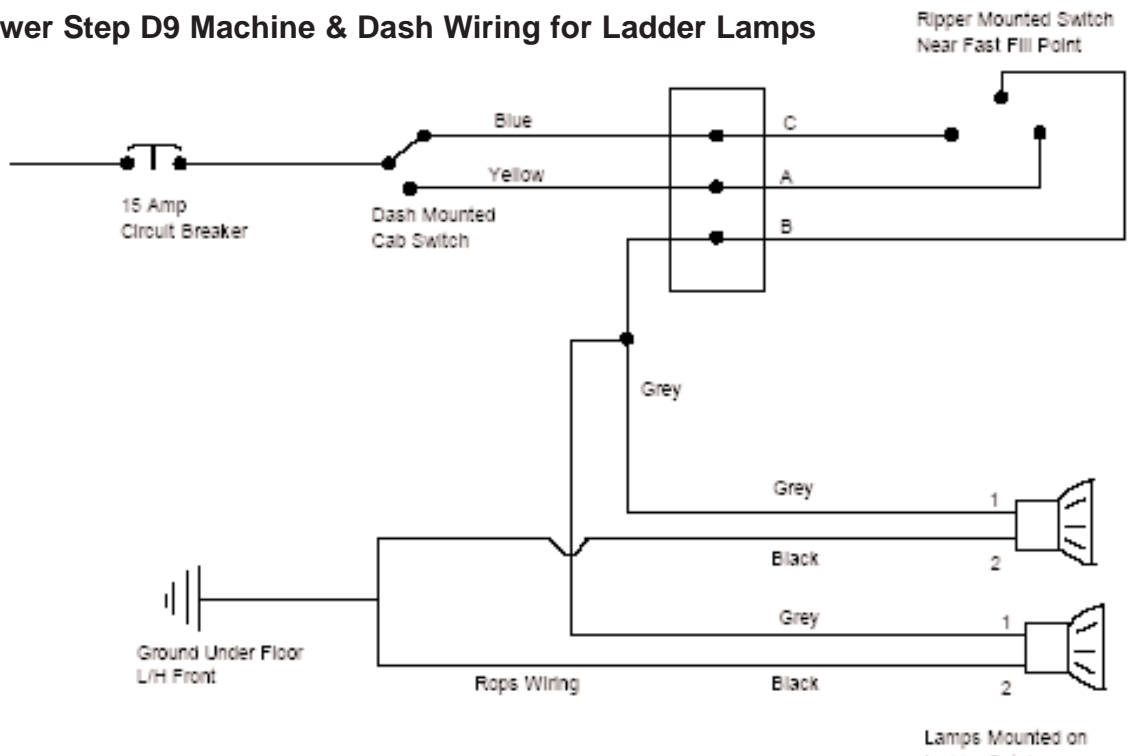
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Caterpillar D9 Dozer

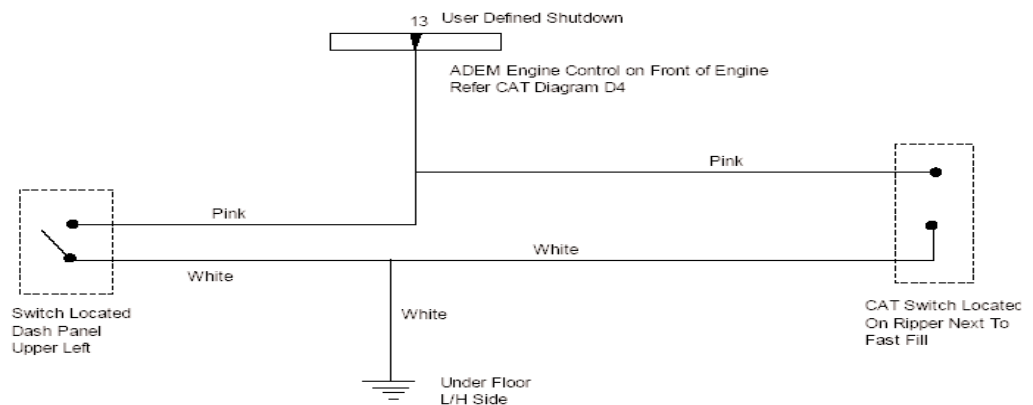


Section 2 Electrical System - Wiring Diagrams

Power Step D9 Machine & Dash Wiring for Ladder Lamps



Power Step D9 Shutdown Circuit

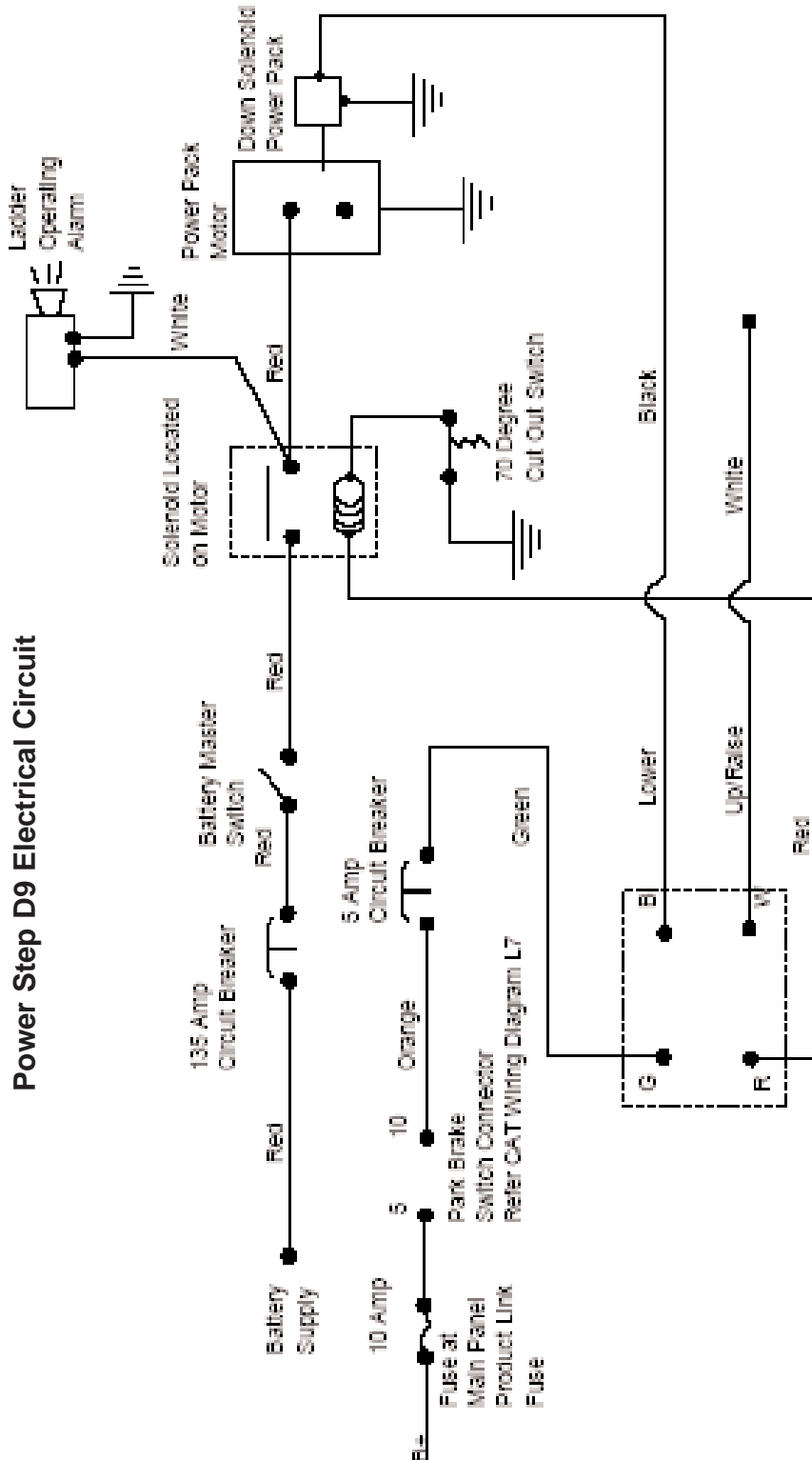


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Section 2 Electrical System - Wiring Diagrams



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Section 3 Recommended Maintenance Procedure

Daily

Visually check ladder and structure for damage, loose components, handrails, etc.

Check for hydraulic oil leaks from hydraulic cylinders, plumbing and hoses.

Notify the appropriate supervisor for any observed damage or malfunction.

500 Hours

Grease the nipples on the rotation shaft and sector gears.

Check main mounting bolts for torque.

Check hydraulic oil level in power pack and top up as necessary. (Ladder in raised position).

Top up using same hydraulic oil as used in hydraulics of machine.
Thoroughly check all electrical wiring for damage, replace as necessary.

Repeat daily check as above

5000 Hours

Change hydraulic oil in tank of hydraulic power pack (5.0 litres)

It is recommended that the same hydraulic oil be used in the power pack as the hydraulics of the machine.

Grease 4 grease nipples on rotation shaft and sector gears, all of these are accessible with the ladder lowered, and accessed from under the ladder.

Check and inspect all main bolts on ladder system.
Retorque if required.

Repeat daily check as above

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Section 4 Operating Procedure

To Lower Ladder (from the machine)

Position machine in a level, safe area, away from the work face, whenever possible.

Apply park brake and lower engine speed to idle.

Check that the area below the Ladder Access System is clear of people and obstacles, and lower ladder by operating the two position electrical switch adjacent to the ladder, to the down position by pressing the switch down.

Hold the switch in the down position until ladder is fully lowered.

If the truck is parked on uneven ground, the bottom of the ladder may touch the ground before the ladder is in the fully lowered position.

Should this occur, descend the ladder with caution.

To Raise Ladder

Ascend the ladder onto the landing of the truck.

Ensure the area around the ladder is clear of people and standing to the side, clear of the area the handrails and ladder raises into, operate the electrical switch to the raise position (up).

Hold the switch in the up position until the ladder is in the fully raised position.

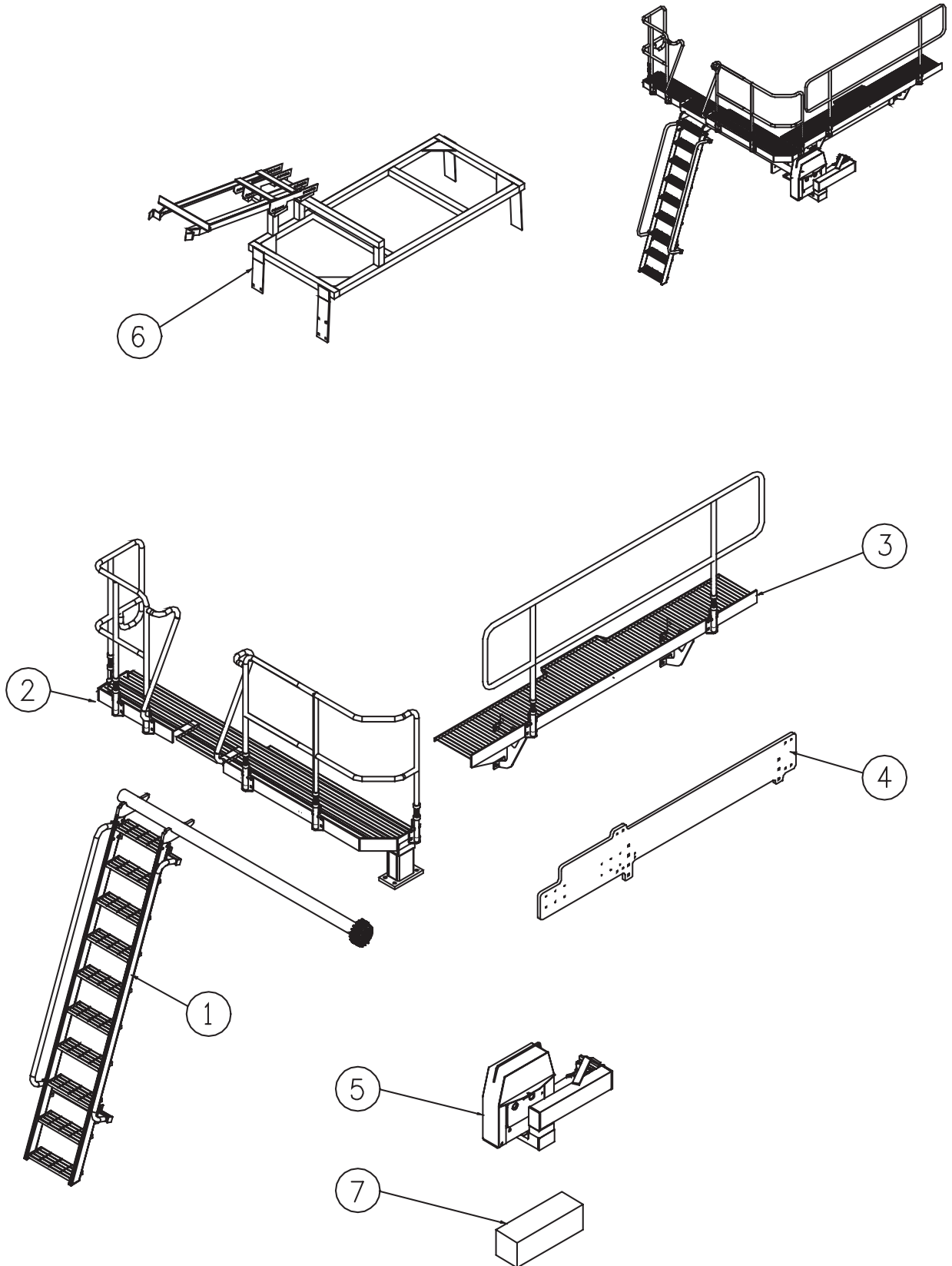
The ladder is now raised and stored.

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Caterpillar D9 Dozer



Section 5 Assembly Complete

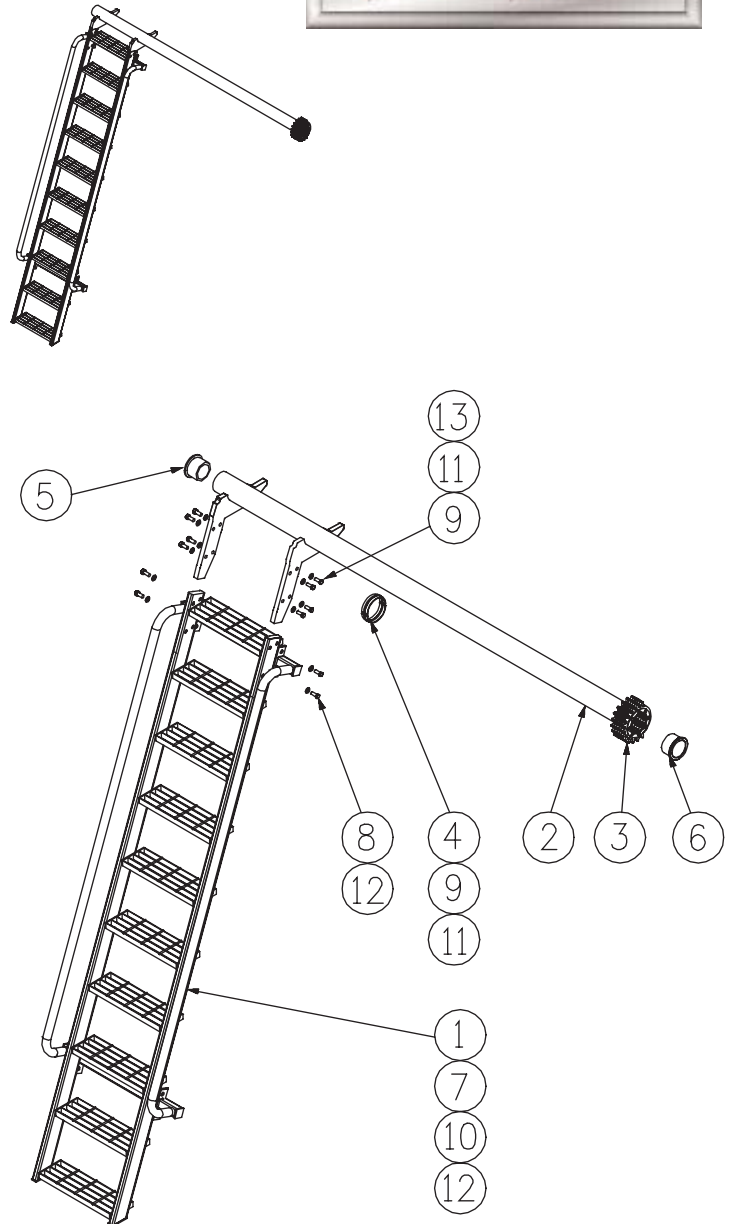


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Caterpillar D9 Dozer



Section 5-1 Ladder Assembly



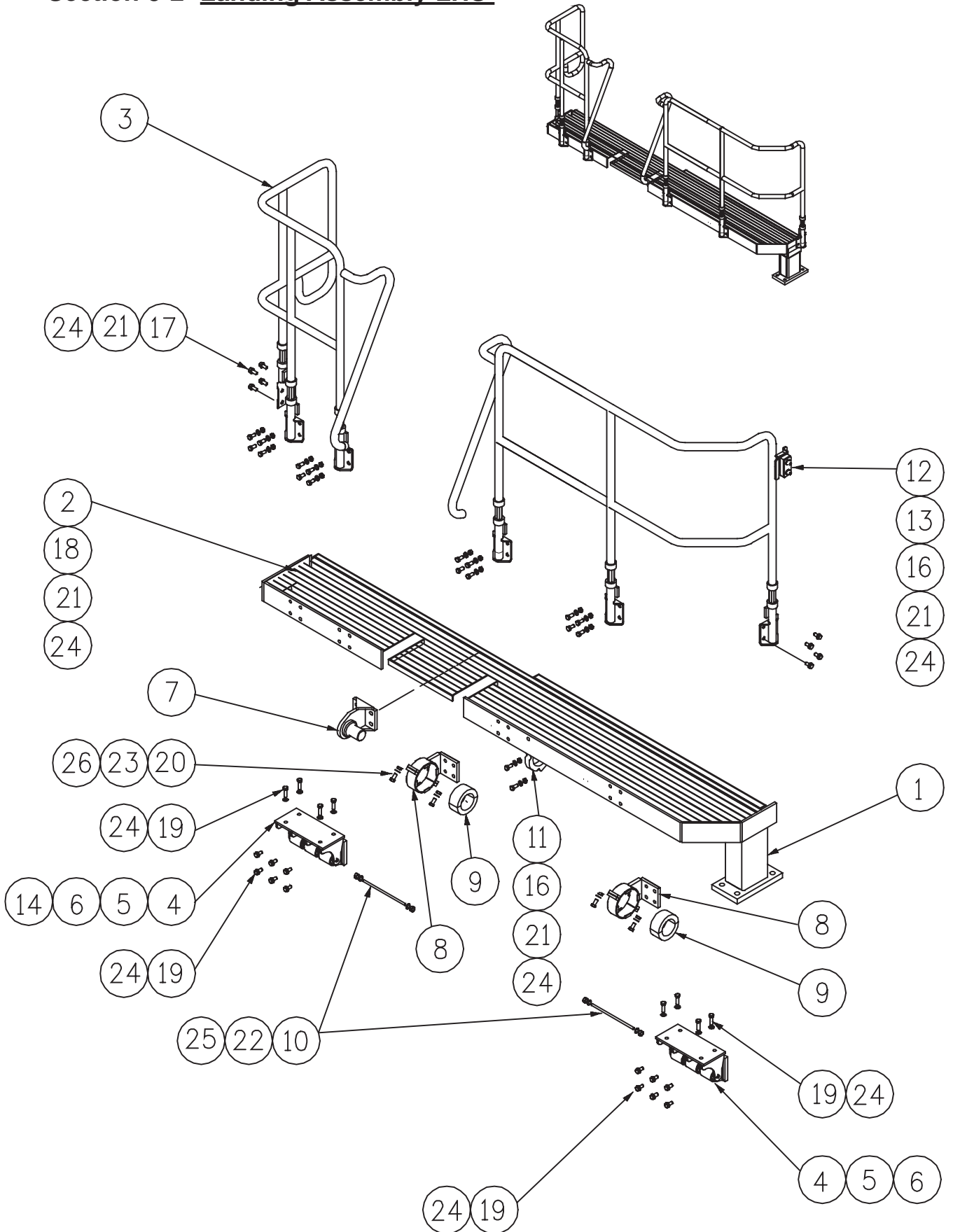
Item	Part No.	Part Name	Qty		
1	PS-22025	LADDER & HANDRAIL FABRICATION	1		
2	PS-22034	ROTATION SHAFT	1		
3	PS-21958-01	PINION	1		
4	PS-21926-01	LADDER SHAFT PIVOT BUSH-MIDDLE	1		
5	PS-21926-02	LADDER SHAFT PIVOT BUSH-NON DRIVE END	1		
6	PS-21926-03	LADDER SHAFT PIVOT BUSH- DRIVE END	1		
7	CPS-M12X50ZP	BOLT-M12 x 50	8		
8	CPS-M12X20ZP	BOLT-M12 x 20	8		
9	CPS-M8X35ZP	BOLT-M8 x 35	8		
10	CPS-M12NZP	NUT-M12	8		
11	CPS-M8NZP	NUT-M8	8		
12	CPS-M12WH	WASHER-M12	16		
13	CPS-M8WH	WASHER-M8	8		

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Section 5-2 Landing Assembly LHS



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Section 5-2 Landing Assembly LHS

See Drawing Page 15

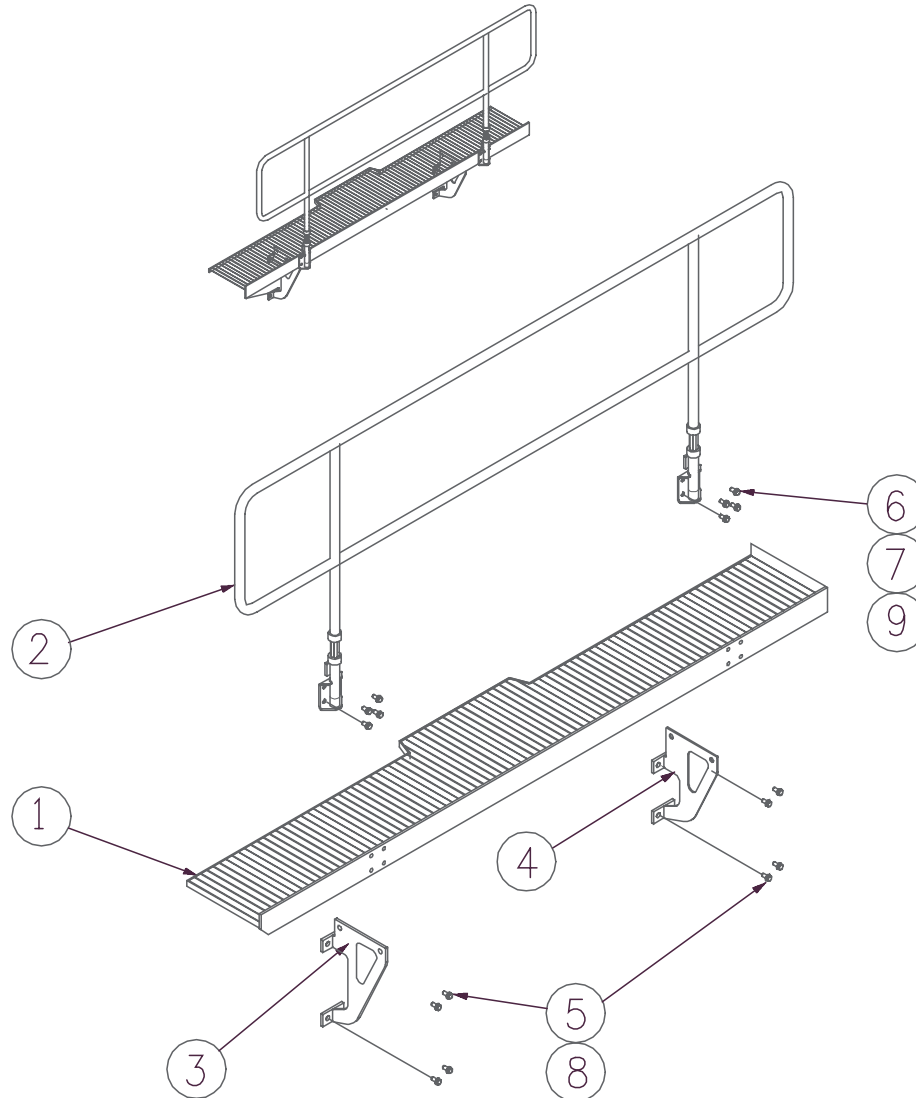
Item	Part No.	Part Name	Qty		
1	PS-22022	LANDING BEAM	1		
2	PS-22023	LANDING FLOOR	1		
3	PS-22024	HANDRAIL	1		
4	PS-21931	ISOLATOR PIN BRACKETS	2		
5	PS-22033	BEAM ISOLATOR BRACKET	2		
6	PS-21930	ISOLATOR MOUNTINGS	6		
7	PS-21976	FRONT PIVOT PIN BRACKET	1		
8	PS-21941-02	ANTI VIBRATION BEARING	2		
9	PS-21941-06	RUBBER BUSH	2		
10	PS-21933	ISOLATOR BUSH PIN	2		
11	PS-21925	MIDDLE BEARING MOUNTING	1		
12	PS-22005-01	ANGLE BRACKET	2		
13	PS-22005-03/02	ISOLATOR RUBBER/CLAMP	2		
14	CPS-M16X30	BOLT-M16 x 30	6		
15	CPS-M12X75ZP	BOLT-M12 x 75	2		
16	CPS-M12X65ZP	BOLT-SOCKET HEAD-M12 x 65	2		
17	CPS-M12X40ZP	BOLT-M12 x 40	24		
18	CPS-M12X30ZP	BOLT-M12 x 30	12		
19	CPS-M12X25ZP	BOLT-M12 x 25	20		
20	CPS-M8X35ZP	BOLT-M8 x 35	8		
21	CPS-M12NZP	NUT-M12	24		
22	CPS-1/2"NN	NUT-NYLOC-1/2"UNC	4		
23	CPS-M8NN	NUT-NYLOC-M8	8		
24	CPS-M12WH	WASHER-HARDENED-M12	60		
25	CPS-1/2"WH	WASHER-HARDENED-1/2"	4		
26	CPS-M8WH	WASHER-HARDENED-M8	8		

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Section 5-3 Landing Assembly - Rear



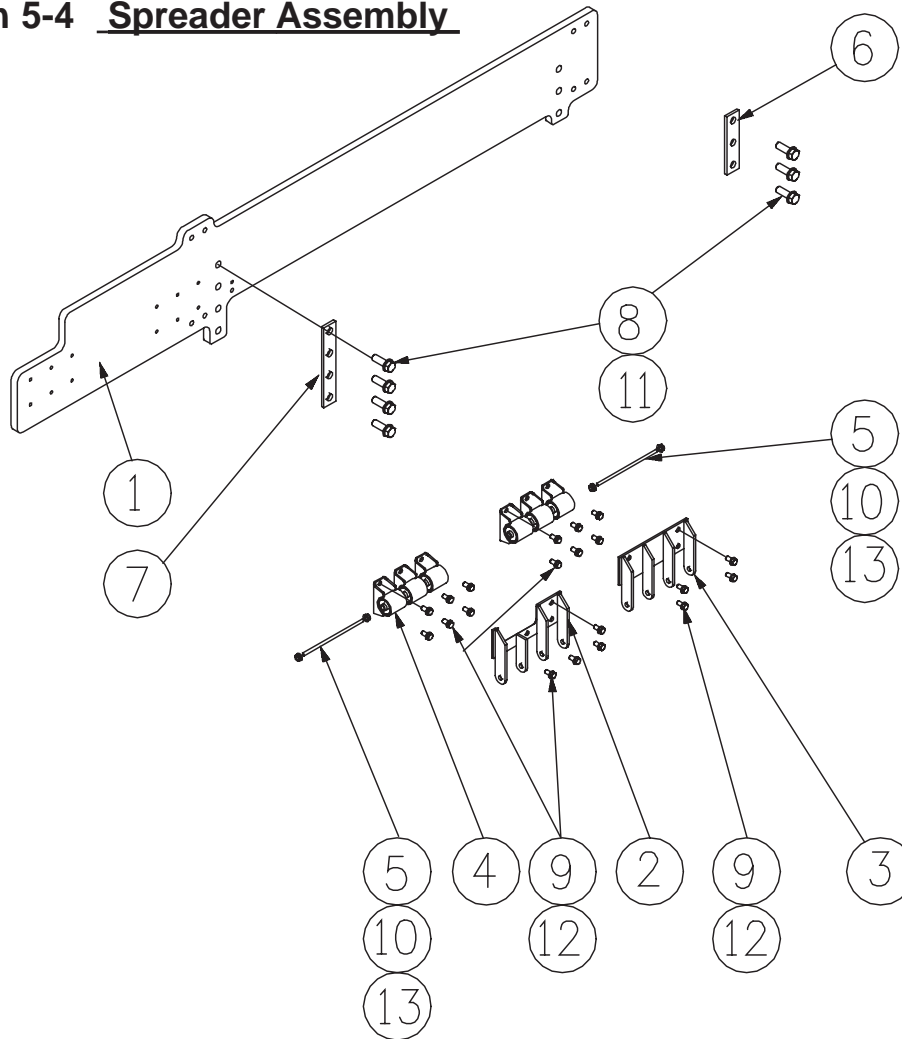
Item	Part No.	Part Name	Qty		
1	PS-22020	LANDING	1		
2	PS-22021	HANDRAILS	1		
3	PS-22020-05	OUTER WALKWAY MOUNTING LHS	1		
4	PS-22020-06	INNER WALKWAY MOUNTING RHS	1		
5	CPS-M16X40ZP	BOLT-M16 x 40	8		
6	CPS-M12X40	BOLT-M12 x 40	8		
7	CPS-M12NZIP	NUT-M12	8		
8	CPS-M16WH	WASHER-HARDENED-M16	8		
9	CPS-M12WH	WASHER-HARDENED-M12	8		

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Section 5-4 Spreader Assembly



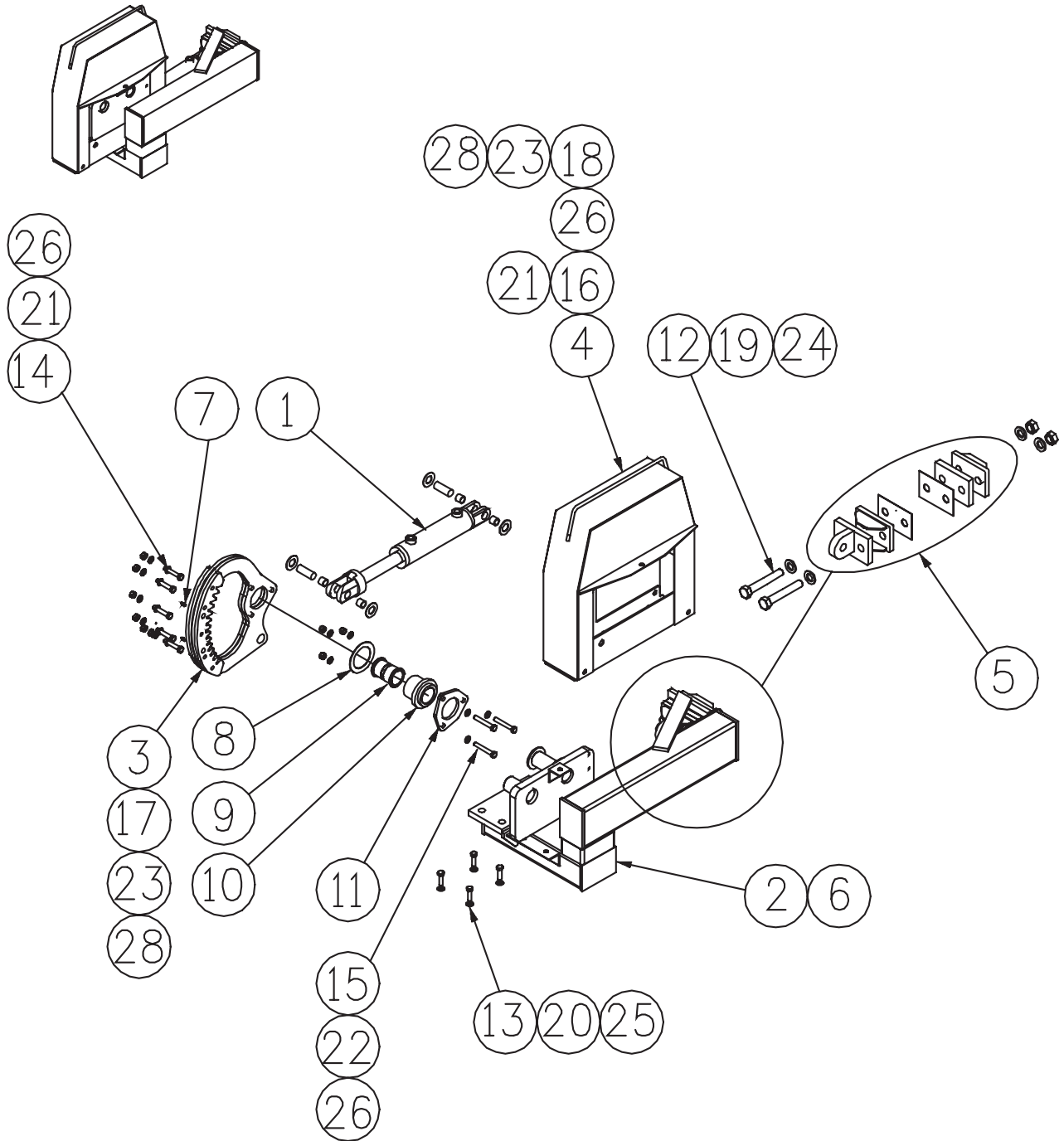
Item	Part No.	Part Name	Qty		
1	PS-22027	SPREADER	1		
2	PS-21931 98	ISOLATOR PIN BRACKET-OUTER	1		
3	PS-22931-99	ISOLATOR PIN BRACKET-INNER	1		
4	PS-21930	ISOLATOR MOUNTING	6		
5	PS-21933	ISOLATOR BUSH PIN	2		
6	PS-22094-02	WASHER PLATE-RHS	1		
7	PS-22281-01	WASHER PLATE-LHS	1		
8	CPS-M20X50ZP	BOLT-M20 x 45	6		
9	CPS-M12X25ZP	BOLT-M12 x 25	20		
10	CPS-1/2"NN	NUT-NYLOC-1/2" UNC	4		
11	PS-M20WH	WASHER-HARDENED-M20	6		
12	CPS-M12WH	WASHER-HARDENED-M12	20		
13	CPS-1/2"WH	WASHER-HARDENED-1/2"	4		

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Section 5-5 Drive Unit Assembly



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Section 5-5 Drive Unit Assembly

See Drawing Page 19

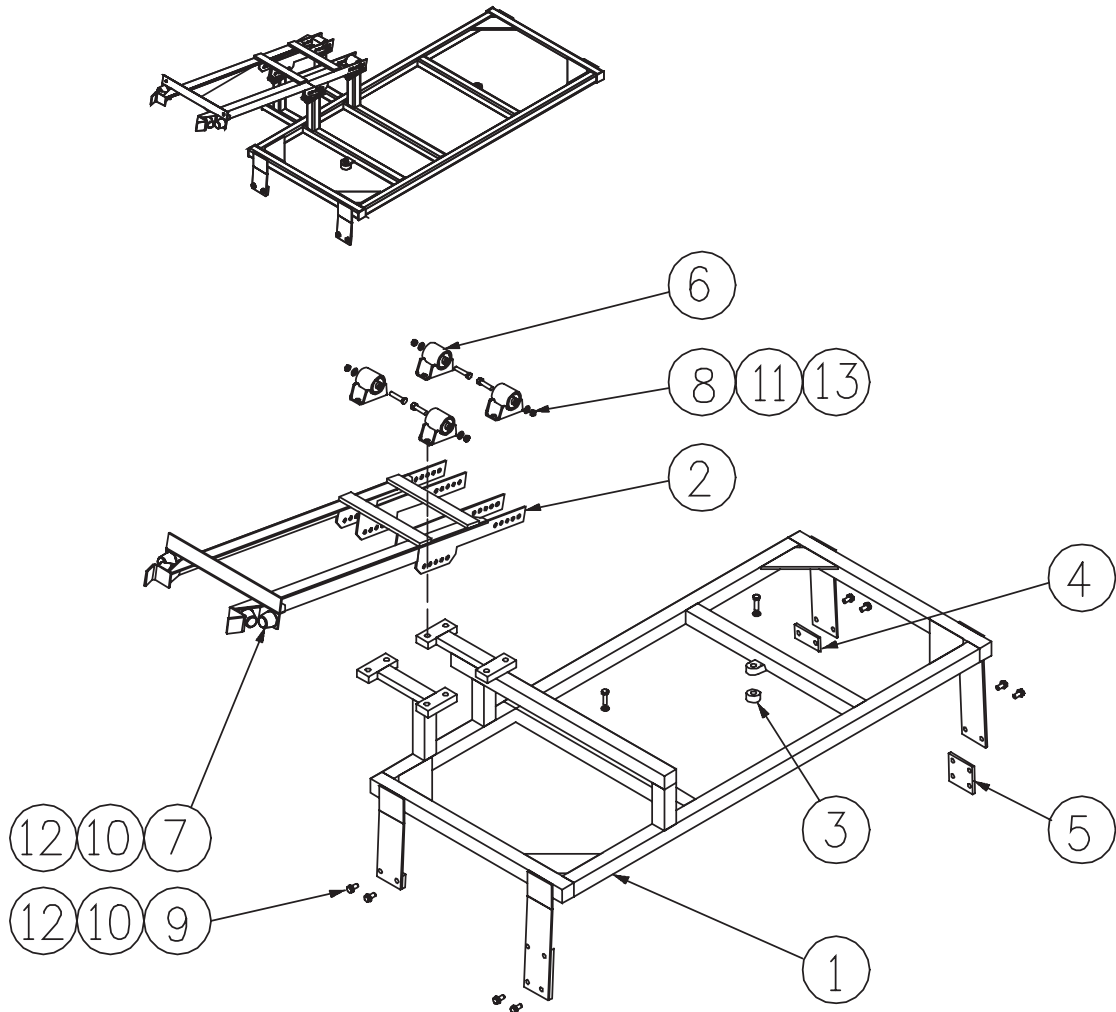
Item	Part No.	Part Name	Qty		
1	PS-63014	HYDRAULIC CYLINDER	1		
2	PS-21974	DRIVE MOUNTING FRAME	1		
3	PS-21959	SECTOR GEAR	1		
4	PS-21984	DRIVE GUARD	1		
5	PS-21954	ACTUATOR CYL. MOUNTING ASSEMBLY	1		
6	PS-21991	PROXIMITY SWITCH STRIKER	1		
7	PS-61006-2	GREASE NIPPLE M6 STR.	2		
8	PS-21940-03	PIVOT PIN KEEPER PLATE	1		
9	PS-21959-09	SECTOR GEAR BUSH	2		
10	PS-21959-08	SECTOR GEAR HUB	1		
11	PS-21959-05	CLAMP RING	1		
12	PS-M24X150ZP	BOLT-M24 x 150	2		
13	CPS-20X65ZP	BOLT-M20 x 65	4		
14	CPS-M12X80ZP	BOLT-M12 x 80	5		
15	CPS-M12X65ZP	BOLT-M12 x 65	3		
16	CPS-M12X25ZP	BOLT-M12 x 25	9		
17	CPS-M10X15ZP	BOLT-M10 x 15	4		
18	CPS-M5X15ZP	BOLT-M5 x 15	6		
19	PS-M24XNN	NUT-NYLOC-M24	2		
20	PS-M20NZP	NUT-M20	4		
21	CPS-M12NZP	NUT-M12	9		
22	CPS-M12NN	NUT-NYLOC-M12	3		
23	CPS-M5NN	NUT-NYLOC-M5	6		
24	CPS-M24WH	WASHER-HARDENED-M24	2		
25	CPS-M20WH	WASHER-HARDENED-M20	4		
26	CPS-M12WH	WASHER-HARDENED-M12	17		
27	CPS-M10WH	WASHER-HARDENED-M10	4		
28	CPS-M5WH	WASHER-HARDENED-M5	6		

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Caterpillar D9 Dozer



Section 5-6 PROP Assembly



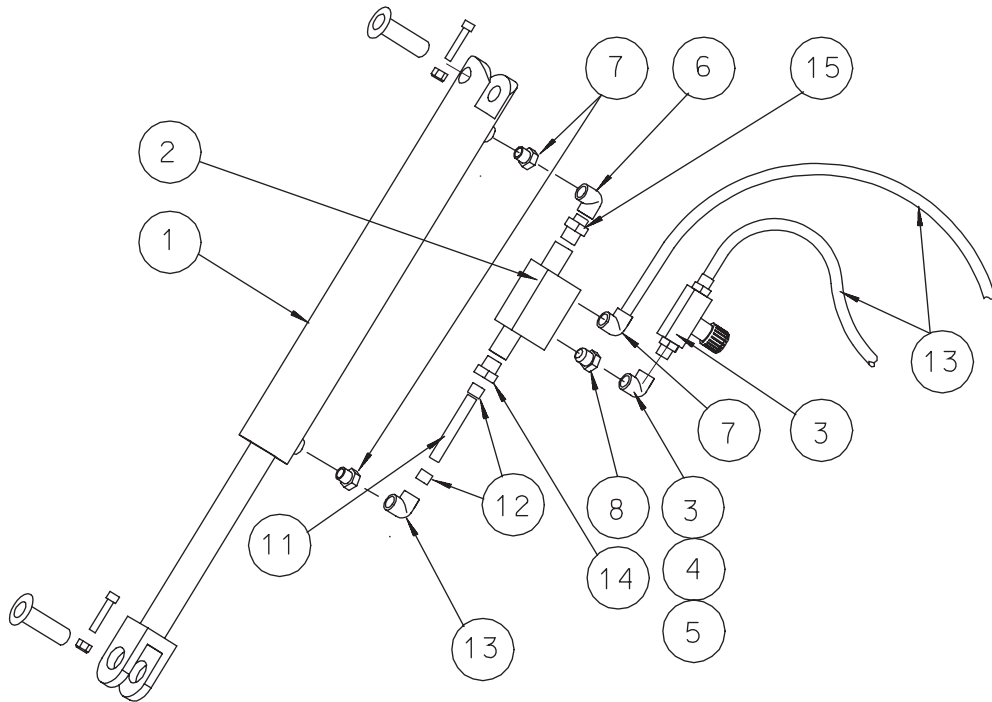
Item	Part No.	Part Name	Qty		
1	PS-22026	PROP MOUNTING FRAME	1		
2	PS-21945	PROP	1		
3	PS-22026-16	ROOF BUTTON	2		
4	PS-22087	PROP MOUNTING BEAM	2		
5	PS-22026-14	BOLTING PAD	2		
6	PS-22091-13	SPACER	2		
7	PS-21930	ISOLATOR MOUNTING	4		
8	PS-40003	BUFFER	4		
9	CPS-1/2"UNC	ISOLATOR PIN 1/2" x 4.5"	4		
10	CPS-M12X50ZP	BOLT-M12 x 50	8		
11	CPS-M12X25ZP	BOLT-M12 x 25	22		
12	CPS-M12ZP	NUT-M12	14		
13	CPS-1/2"NN	NUT-NYLOC-1/2" UNC	4		
14	CPSM12WH	WASHER-HARDENED-M12	22		
15	CPS-1/2"WH	WASHER-HARDENED-1/2"	4		

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Section 5-7 Hydraulic Cylinder



Item	Part No.	Part Name	Qty		
1	PS-63014	HYDRAULIC CYLINDER	1		
-	PS-63011K	SEAL KIT (NOT SHOWN)	1		
2	PS-63201	VALVE - PILOT OPERATED LOCKING	1		
3	PS-63202	FLOW CONTROL VALVE	1		
4	PS-63202B	FITTING - JIC NIPPLE	1		
5	PS-63202C	FITTING- JIC SWIVEL	1		
6	PS-61159	FITTING - ELBOW-9/16" JIC	1		
7	PS-61154	FITTING - ELBOW- O RING 1/4BSPPx9/16" JIC	1		
8	PS-61157	FITTING - O RING 1/4BSPPx 9/16" JIC	2		
9	PS-61158-0.30	FITTING - 0.030" RESTRICTION 90 DEG	2		
10	PS61163	REDUCER JIC x BSPP	2		
11	PS-61163	TUBE	2		
12	PS-60031-FT	FERRULES	2		
13	PS-60051-2.8	HOSE- HYDR. (9/6" JIC SWIVEL FITTING 2.8M)	2		
14	PS-61156-1MM	FITTING - 1MM RESTRICTION 90 DEG	2		
15	PS-61145	FITTING 9/16 JIC SWIVEL	1		

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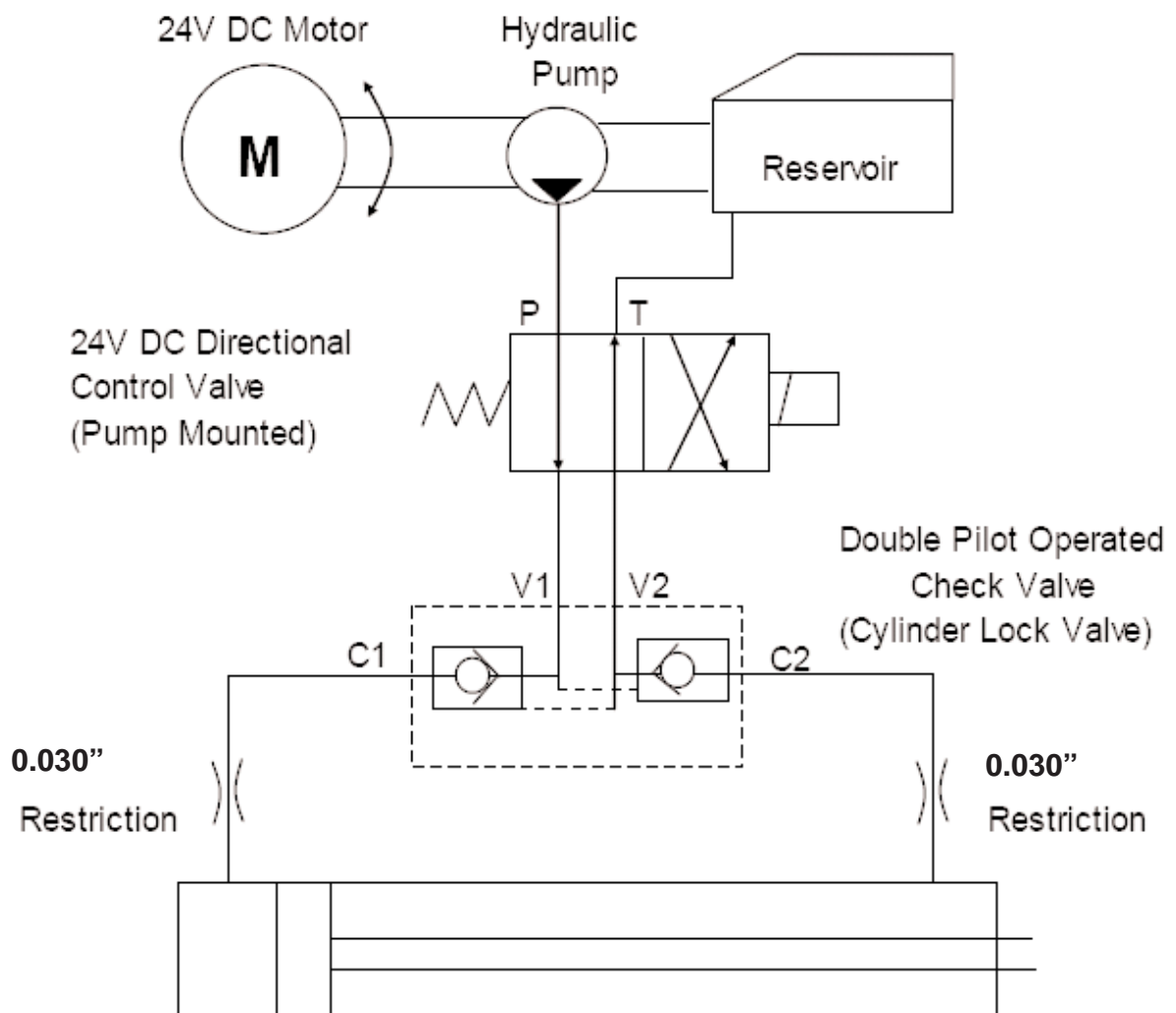
Caterpillar D9 Dozer



Section 5-7 Hydraulic Cylinder (Valve Diagram)

See also Drawing Page 22

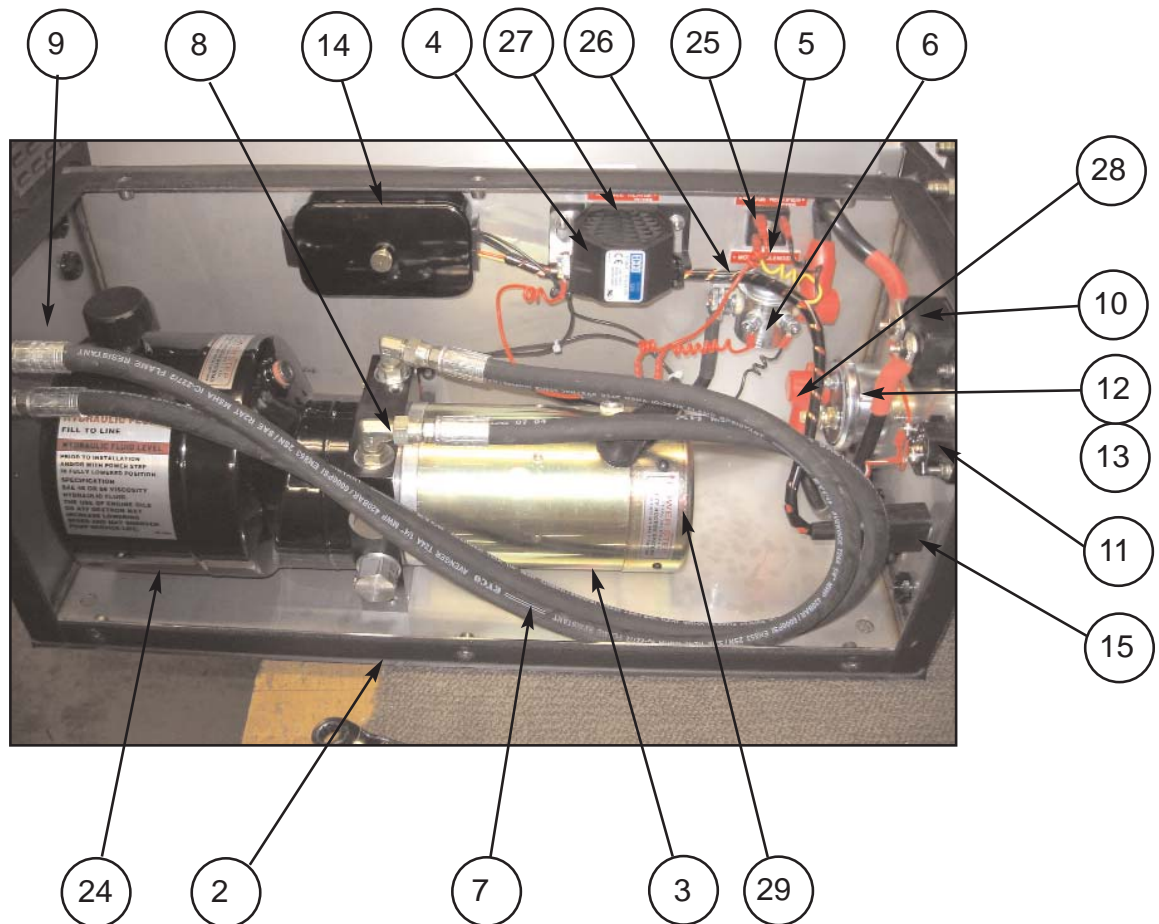
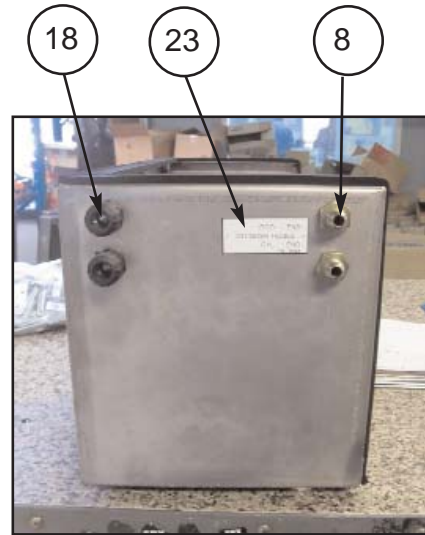
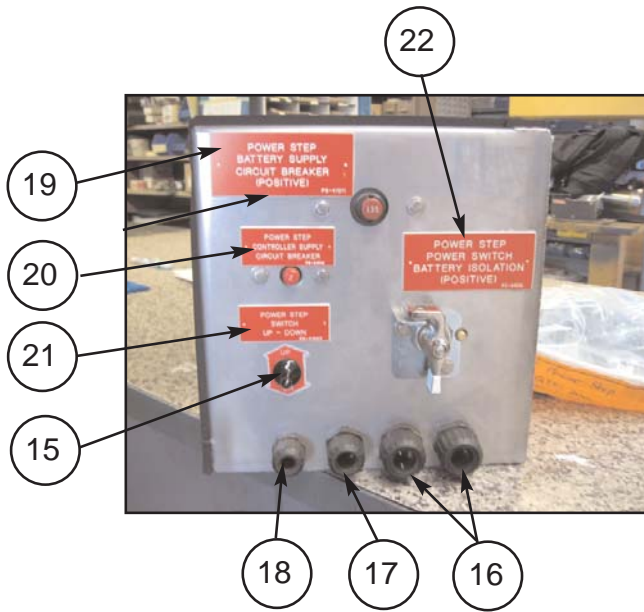
Double Acting Hydraulic System with
directional Control Valve and Cylinder
Lock Valve



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Section 5-8 Power Pack



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Section 5-8 Power Pack

Item	Part No.	Part Name	Qty		
1	PS-80103A-SS	POWER PACK ASSEMBLY (Incl. Items.2-11)	1		
2	PS-21107SS	MOTOR ENCLOSURE- SEALED ST/ST	1		
3	PS-80103A	POWER PACK	1		
4	PS-75024	AUDIBLE ALARM	1		
5	PS-84214	BRIDGE RECTIFIER	1		
6	PS-82402	SOLENOID	1		
7	PS-60050-900MM	HYDR. HOSES 9/16" JIC STRAIGHT SWIVEL	2		
8	PS-61152	HYDRAULIC FITTING	2		
9	PS-61177	HYDRAULIC FITTING	2		
10	PS-84213	135A CIRCUIT BREAKER	1		
11	PS-84212	5A CIRCUIT BREAKER	1		
12	PS-84303	ISOLATION SWITCH	1		
13	PS-84303-B	ISOLATION SWITCH BRACKET	1		
14	PS-1712080	SEALED WIRING BOX	1		
15	PS-73012	TOGGLE SWITCH KIT	1		
16	CPS-CAB20M20	WIRE HARNESS GLAND	2		
17	CPS-CAB16M20	WIRE HARNESS GLAND	1		
18	CPS-CAB12M16	WIRE HARNESS GLAND	3		
19	PS-41011	DECAL ELECTRICAL	1		
20	PS-41012	DECAL ELECTRICAL	1		
21	PS-41023	DECAL ELECTRICAL	1		
22	PS-41010	DECAL ELECTRICAL	1		
23	PS-41024	DECAL HYDRA-HOSES	1		
24	PS-41041	DECAL OIL TANK	1		
25	PS-41019	DECAL SOLENOID	1		
26	PS-41017	DECAL BRIDGE RECTIFIER	1		
27	PS-41018	DECAL ALARM	1		
28	PS-73010	RUBBER BOOT RED	3		
29	PS-73009	RUBBER BOOT BLACK	1		

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Caterpillar D9 Dozer



Section 5-9 Electrical Controls



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Section 5-9 Electrical Controls

Refer also Wiring Drawings Page 10 &11.

See Photo Page 26.

Item	Part No.	Part Name	Qty		
1	PS-73013	HAND CONTROL SWITCH ASSEMBLY	1		
-	PS-73013B	BRACKET	1		
-	PS-73005	HARNESS	1		
			1		
2	PS-75430	PROXIMITY SWITCH ASSEMBLY	1		
-	PS-75430A	BRACKET	1		
-	PS-75430B	BRACKET	1		
-	PS-75402	HARNESS	1		
3	-	MANUALS	1		
4	-	INSTALLATION DRAWINGS	-		
5	PS-41011	DECAL FOR 135A CIRCUIT BREAKER	1		
6	PS-84213	135A CIRCUIT BREAKER	1		
7	PS-76001	CONTROL BOX	1		
8	PS-77003	CONTROL BOX HARNESS	1		
9	PS-63202	FLOW CONTROL VALVE	1		
10	PS-60051-2.8M	HYDRAULIC HOSES	1		
11	PS-21107-SS	ENCLOSURE-ST. STEEL(for Power Pack)	1		