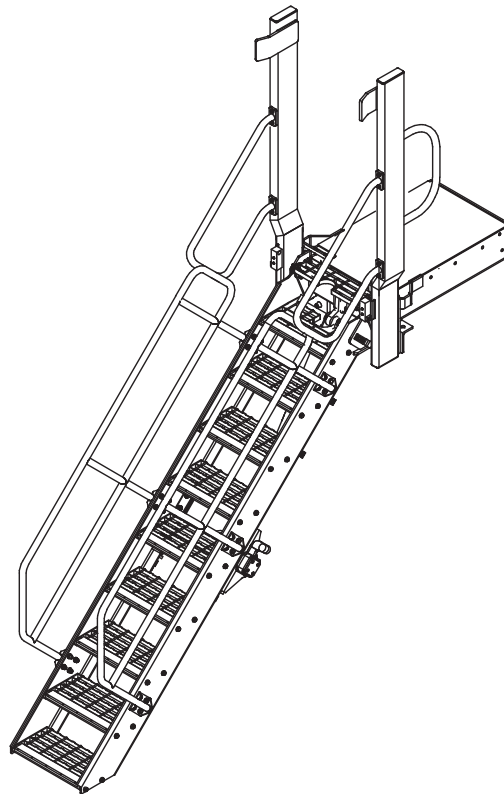


# FOLDING STAIRWAY



Manual Liebherr T282 Truck

Mt Arthur



Model No.: PSA-LIET282-FS

Serial No.: PSA-T282 -001 ~

Date Manufactured: March 2013



## **CONTENTS**

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8	Section 2 <u>Recommended Maintenance procedure</u>
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14	4-2 Stair Assembly Parts List
16	4-4 Hydraulic Cylinders & Plumbing Parts List Hydraulic Diagram
20	4-5 Power Pack Parts List
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# FOLDING STAIRWAY

Liebherr T282 Truck



## Section 1 Installation Drawings

PSA-T282-INST

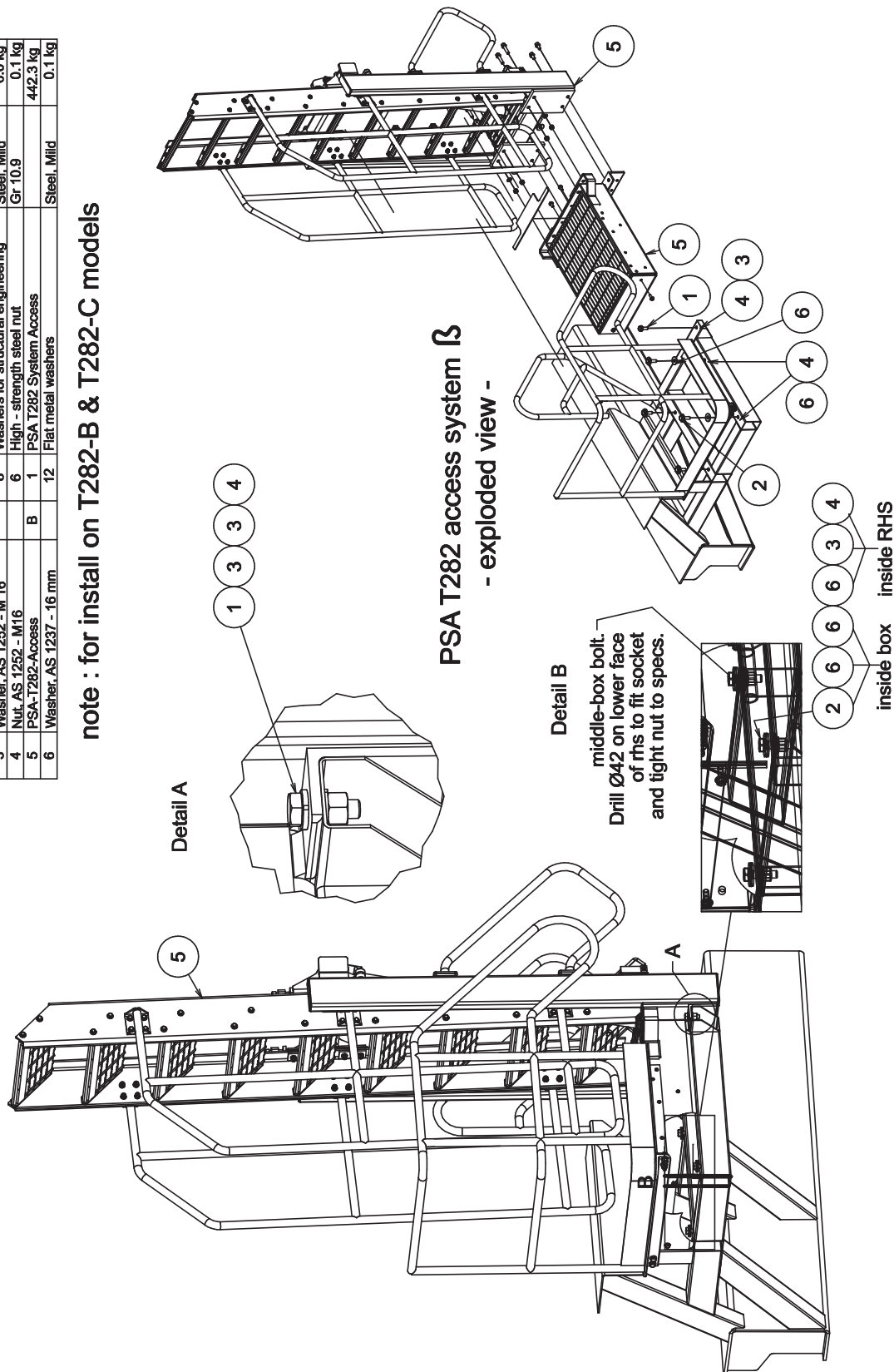
### NOTE

Follow all on-site/Mine lifting and safety procedures when installing PSFS to Wheel Dozer

ITEM	PART NO	REV	QTY	DESCRIPTION	MATERIAL	MASS
1	Bolt, AS 1252 - M16 x 50		2	High - strength steel bolts	Gr 10.9	0.1 kg
2	Bolt, AS 1252 - M16 x 60		4	High - strength steel bolts	Gr 10.9	0.1 kg
3	Washer, AS 1252 - M 16		8	Washers for structural engineering	Steel, Mild	0.0 kg
4	Nut, AS 1252 - M16		6	High - strength steel nut	Gr 10.9	0.1 kg
5	PSA-T282-Access	B	1	PSA T282 System Access		442.3 kg
6	Washer, AS 1237 - 16 mm		12	Flat metal washers	Steel, Mild	0.1 kg

note : for install on T282-B & T282-C models

PSA T282 access system installed.



# FOLDING STAIRWAY

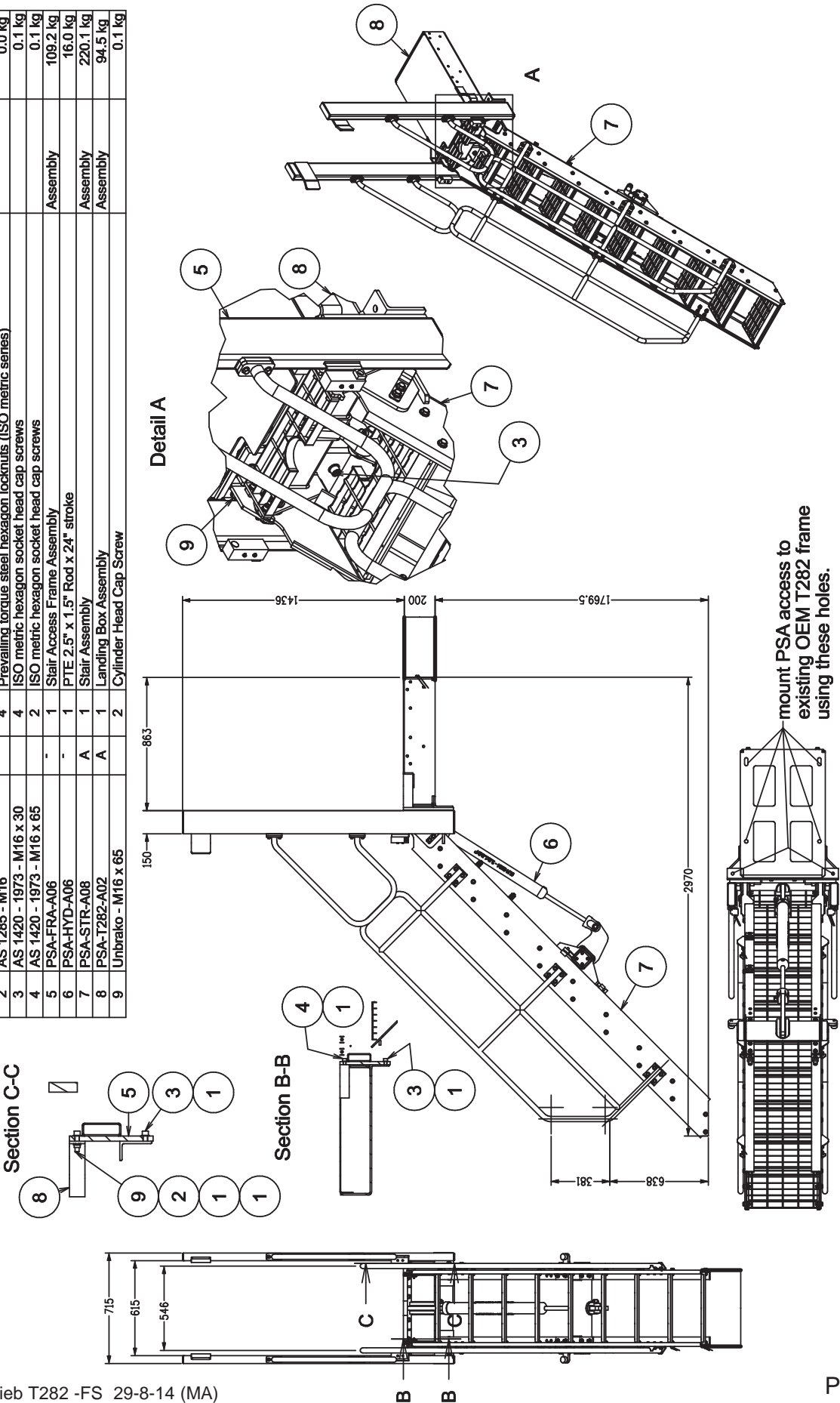
## Liebherr T282 Truck



### Section 1 Installation Drawings

PSA-T282-ACCESS Sht. 1

ITEM	PART NO	REV	QTY	DESCRIPTION	RAW MATERIAL	MASS
1	AS 1237 - 16 mm		12	Flat metal washers for general engineering purposes (metric series)		0.0 kg
2	AS 1285 - M16		4	Prevailing torque steel hexagon locknuts (ISO metric series)		0.0 kg
3	AS 1420 - 1973 - M16 x 30		4	ISO metric hexagon socket head cap screws		0.1 kg
4	AS 1420 - 1973 - M16 x 65		2	ISO metric hexagon socket head cap screws		0.1 kg
5	PSA-FRA-A06	-	1	Stair Access Frame Assembly	Assembly	109.2 kg
6	PSA-HYD-A06	-	1	PTE 2.5" x 1.5" Rod x 24" stroke	Assembly	16.0 kg
7	PSA-STR-A08	A	1	Stair Assembly	Assembly	220.1 kg
8	PSA-T282-A02	A	1	Landing Box Assembly	Assembly	94.5 kg
9	Unbrako - M16 x 65		2	Cylinder Head Cap Screw		0.1 kg



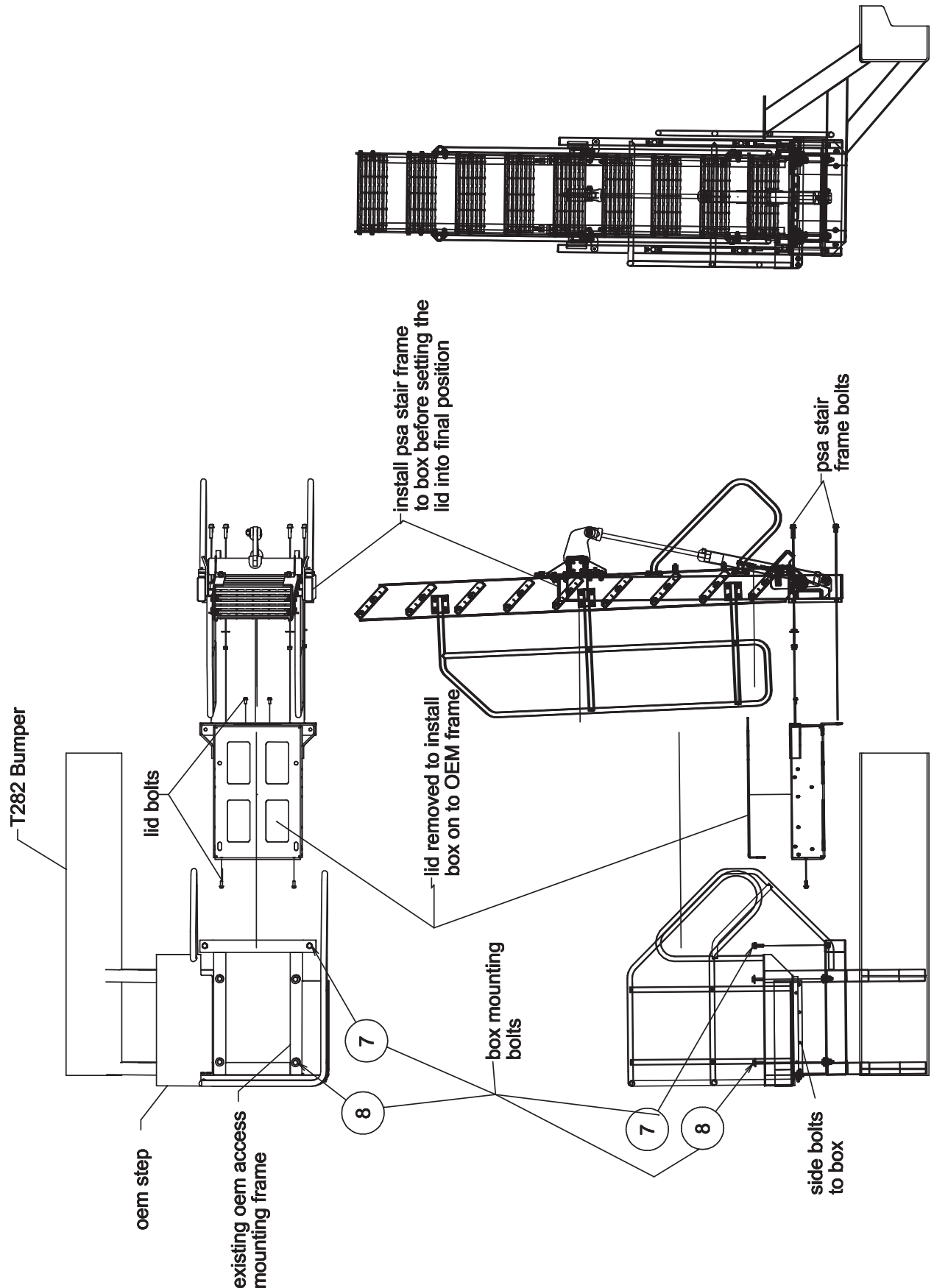
# FOLDING STAIRWAY

## Liebherr T282 Truck



### Section 1 Installation Drawings

PSA-T282-ACCESS Sht. 2



# FOLDING STAIRWAY

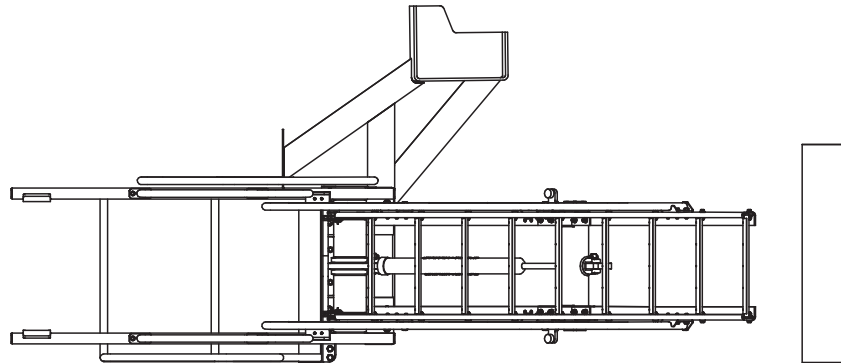
## Liebherr T282 Truck



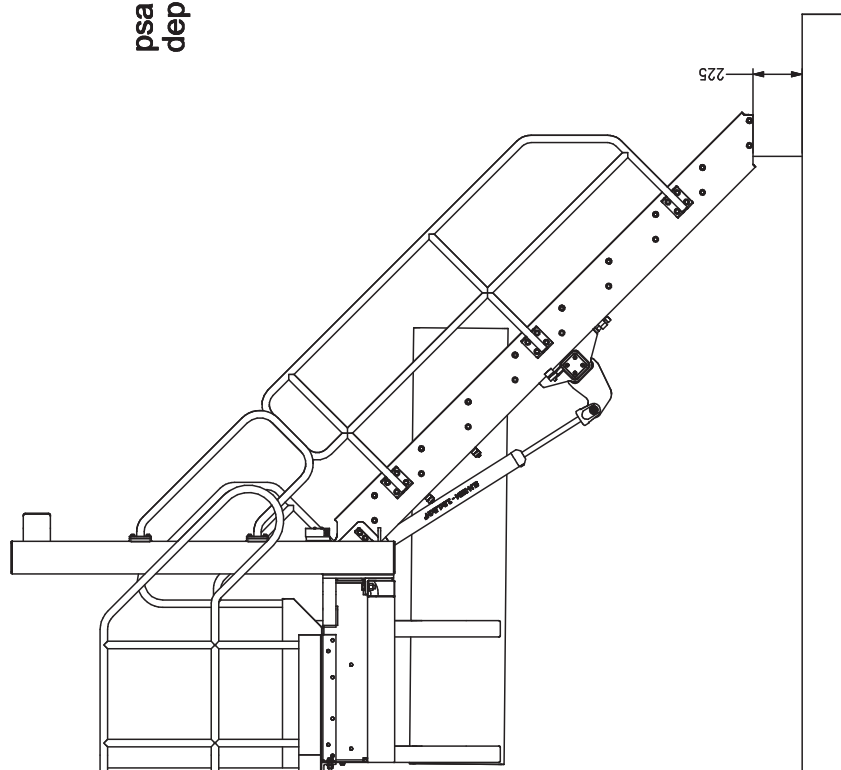
### Section 1 Installation Drawings PSA-T282-ACCESS S- Installed

#### **NOTE**

Follow all on-site/Mine lifting and safety procedures when installing PSFS to Wheel Dozer



psa stair installed  
deployed position



# FOLDING STAIRWAY

## Liebherr T282 Truck



### Section 1 Installation and Mounting Instructions

#### **WARNING**

Raising the POWER STEP platform 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 platform must be used, please follow the following instructions:

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

Raise platform by available means.

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

Lock in raised position.

Re-tighten hydraulic fittings.

SECURE THE PLATFORM 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 platform 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 valves to restriction fittings.

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).

#### **NOTE.**

**THE RELIEF PRESSURE OF THE POWERPACK IS TO BE SET TO 2800PSI.**

**IF THE POWERPACK IS REPLACED, THIS RELIEF PRESSURE WILL NEED TO BE RESET USING INLINE GAUGES.**

**FAILURE TO DO SO MAY RESULT IN ACCIDENT OR INJURY.**

# FOLDING STAIRWAY

## Liebherr T282 Truck



### Section 2 Recommended Maintenance Procedure

#### Daily

Visually check stairway 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 2 grease nipples on hinge pins

Check main mounting bolts for torque.

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

Top up using SAE46 or SAE68 hydraulic oil.

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 SAE46 or SAE68 hydraulic oil be used in the power pack.

Check and inspect all main bolts on stairway system.

Retorque if required.

**Repeat daily check as above**



# FOLDING STAIRWAY

## Liebherr T282 Truck



### Section 3 Operating Procedure

#### **To Lower Stairway (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 stairway may touch the ground before the ladder is in the fully lowered position.

Should this occur, descend the ladder with caution.

#### **To Raise Stairway**

Ascend the ladder onto the landing of the Loader.

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.

### **OPERATING NOTES**

#### **NOTE: FLOW CONTROL VALVE ADJUSTMENT:**

The valve should be positioned to restrict the flow and speed of the Power Step when lowering. Adjust the knob on top of the valve by turning left or right (clockwise) when the step is being lowered, until it is lowering at a safe and reasonable speed.

When it is adjusted, lock the adjusting knob by tightening the grub screw located on the side of the knob.

#### **NOTE: MAGNETIC 'GO' SWITCH ADJUSTMENT:**

The switch target trigger area is located on the opposite side and end from the cable entry point on the switch. Once it is mounted to the switch bracket, adjust the switch in or out from the stair steel trigger point, to be within 3mm - 10mm from touching each other when the stair is in the desired rest position.

[DO NOT EXCEED 10mm DISTANCE BETWEEN THE SWITCH AND STRIKER PLATE].

Test by raising and lowering the Power Step a couple of times and adjust again if necessary.

# FOLDING STAIRWAY

## Liebherr T282 Truck



### Section 4 Assembly Complete

See Drawing Page 10

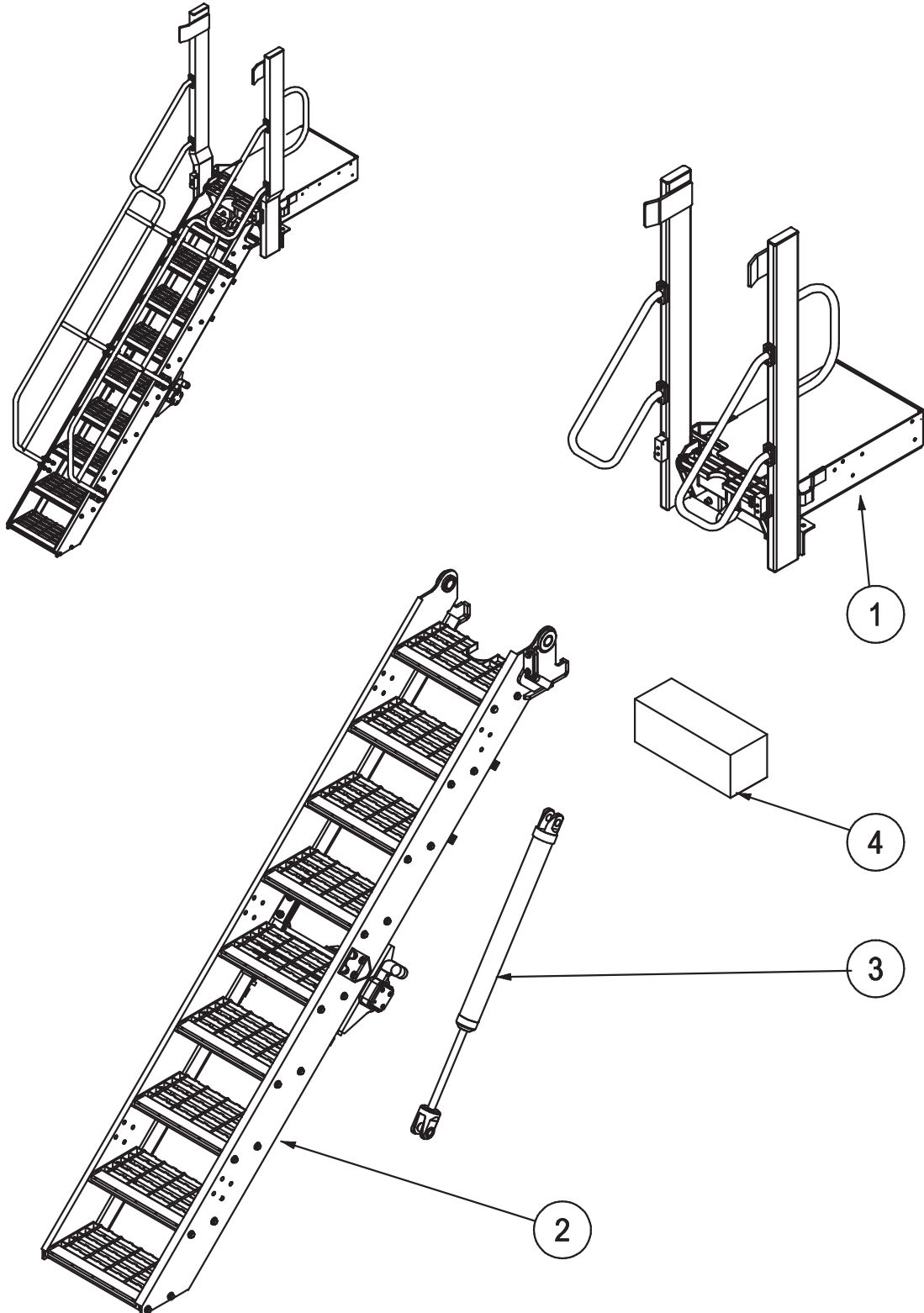
ITEM	PART NO.	PART NAME	QTY		
	PSA-LIE-T282-FS	ASSEMBLY COMPLETE	1		
1	PSA-FRA-A06-ASSY	BASE FRAME & MOUNTING	1		
2	PS-PSA-STR-A08	STAIR ASSEMBLY	1		
3	PS-62998-AH	HYDRAULIC CYLINDER	1		
4	PS-80103A-SLD-T282	POWER PACK	1		

# FOLDING STAIRWAY

Liebherr T282 Truck



## Section 4 Assembly Complete



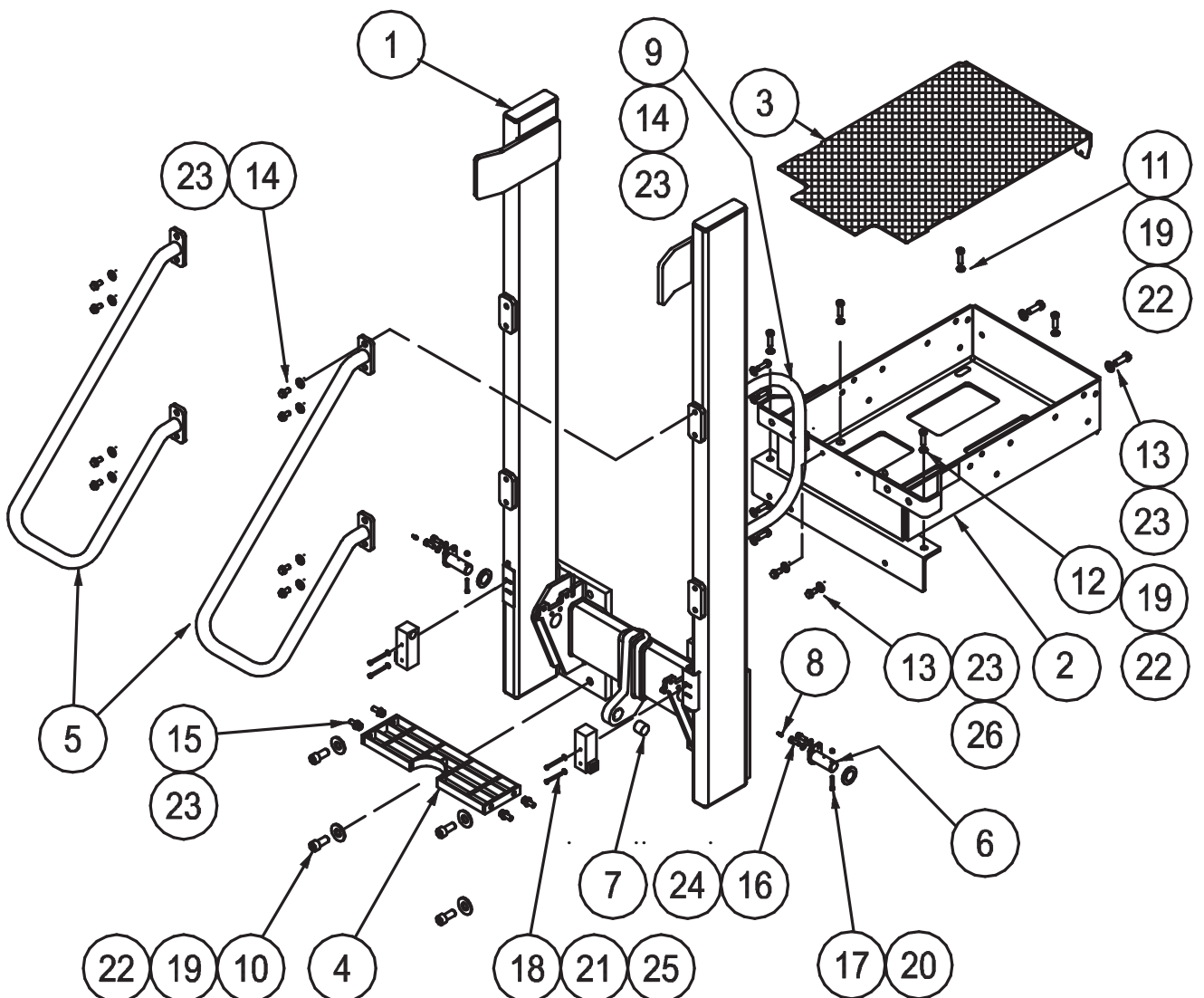
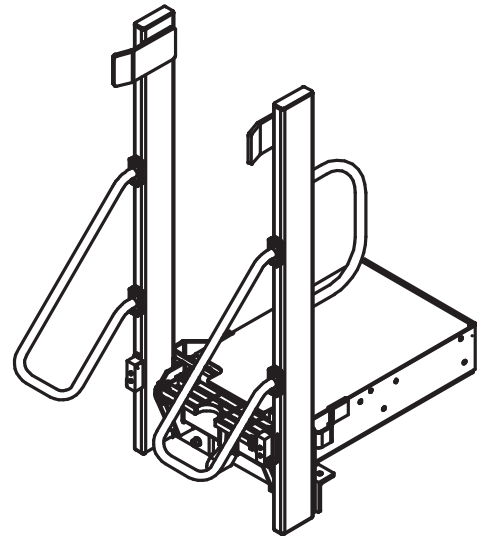
# FOLDING STAIRWAY

## Liebherr T282 Truck



### Section 4.1 Stair Base Frame and Mounting Assembly PSA-FRA-A06-ASSY

See Parts List Pg. 13



# FOLDING STAIRWAY

## Liebherr T282 Truck



### Section 4.1 Stair Base Frame and Mounting

PSA-FRA-A06-ASSY

See Drawing Page 16

Item	Part No.	Part Name	Qty		
1	PS-FRA-B10	FRAME	1		
2	PS-T282-A02	LANDING BOX ASSY	1		
3	PS-T282-B02	LID - LANDING BOX	1		
4	PS-STR-B17	LANDING DECK FABRICATION	1		
5	PS-HRI-B08	GRAB RAIL	2		
6	PS-P30-009	PIVOT PIN	2		
7	PS-HYD-C12	BUSH	1		
8	PS-61006	GREASE NIPPLE	2		
9	PS-FRA-A06	LANDING HANDRAIL	1		
10	CPS-M16X65S	BOLT-M16 x 65 SOCKET HEAD	8		
11	CPS-M16X60ZP	BOLT-M16 x 60	4		
12	CPS-M16X50ZP	BOLT-M16 x 50	2		
13	CPS-M12X30ZP	BOLT-M12 x 30	2		
13A	CPS-M12X40ZP	BOLT-M12 x 40	2		
14	CPS-M12X25ZP	BOLT-M12 x 25	12		
15	CPS-M12X20ZP	BOLT-M12 x 20	4		
16	CPS-M10X16ZP	BOLT-M10 x 16	4		
17	CPS-M6X50ZP	BOLT-M6 x 50	2		
18	CPS-M5X50ZP	BOLT-M5 x 50	4		
19	CPS-M16NN	NUT-NYLOC-M16	14		
20	CPS-M6NN	NUT-NYLOC-M6	2		
21	CPS-M5NN	NUT-NYLOC-M5	4		
22	CPS-M16WH	WASHER-HARDENED-M16	28		
23	CPS-M12WH	WASHER-HARDENED-M12	22		
24	CPS-M10WH	WASHER-HARDENED-M10	4		
25	CPS-M5WH	WASHER-HARDENED-M5	8		
26	CPS-M12NN	M12 NYLOC NUT	2		

# FOLDING STAIRWAY

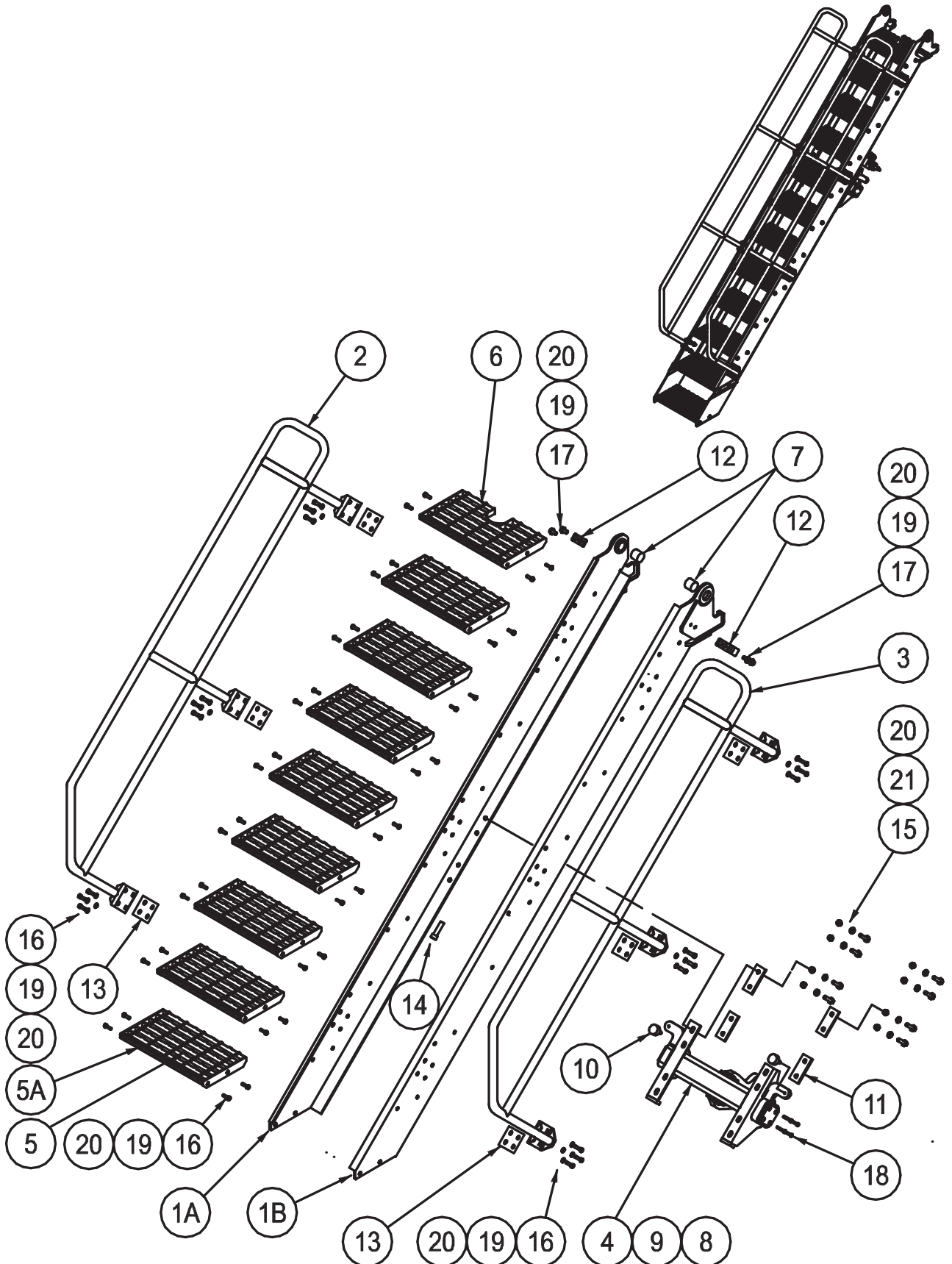
Liebherr T282 Truck



## Section 4-2 Stair Assembly

PSA-STR-A08

See Parts List Page 15



# FOLDING STAIRWAY

Liebherr T282 Truck



## Section 5-2 Stair Assembly

PSA-STR-A08

See Drawing Page 14

Item	Part No.	Part Name	Qty		
1A	PS-STR-B11-03	STAIR STILE - LEFT HAND	1		
1B	PS-STR-B11-04	STAIR STILE - RIGHT HAND	1		
2	PS-HRI-B06-03	STAIR HANDRAIL - LEFT HAND	1		
3	PS-HRI-B06-04	STAIR HANDRAIL - RIGHT HAND	1		
4	PS-STR-B10	STAIR ACTUATOR BEAM	1		
5	PS-STR-C21-01	STAIR TREAD	8		
5A	PS-32266-SAN-B/Y	NON-SLIP TREAD NOSING	8		
6	PS-STR-C21-02	STAIR TREAD -TOP	1		
7	PS-P30-008-02	PIVOT BUSH	2		
8	PS-HYD-C12	BUSH- (Actuator Beam)	1		
9	PS-STR-C62	BUMPER PAD (Rubber)	2		
10	PS-40003	BUFFER-RUBBER	2		
11	PS-23673	WASHER PLATE	8		
12	PS-FRA-C42	STRIKER	2		
13	PS-HR1-C65	HANDRAIL SPACER BLOCK(40mm)	6		
14	CPS-M16X60ZP	BOLT-M16 x 60 CAP SCREW	2		
15	CPS-M12X50P	BOLT-M12 x 50	8		
16	CPS-M12X35P	BOLT-M12 x 35	60		
17	CPS-M12X20ZP	BOLT-M12 x 20	4		
18	CPS-M8X40ZP	BOLT-M8 x 40 CAPSCREW	8		
19	CPS-M12NZP	NUT-M12	60		
20	CPS-M12WH	WASHER-HARDENED-M12	136		
21	CPS-M12NN	M12 NYLOC NUT	8		

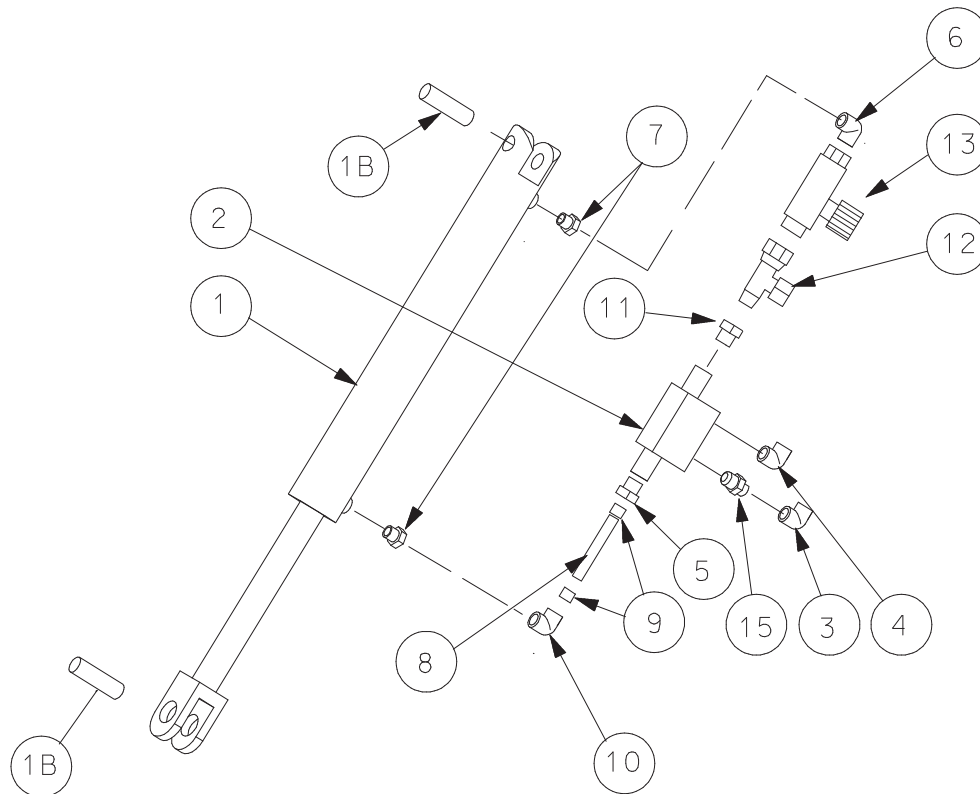
# FOLDING STAIRWAY

## Liebherr T282 Truck



### Section 4-4 Hydraulic Cylinder & Plumbing

PS- 62998-AH-T282



NOTE: HYDRAULIC CYLINDER ASSEMBLY P/No PS- 62998-AH includes Part No.s 1 to 11

Item	Part No.	Part Name	Qty		
1	PS-62998-AH	HYDRAULIC CYL. (with hard plumbing )	1		
	PS-62998-HPK	HARD PLUMBING KIT	1		
1A	PS-62998-A	HYDRAULIC CYLINDER 2 1/2"	1		
1B	PS-63009-P	PIN - CYLINDER	2		
1S	PS-63103	SEAL KIT (Not shown)	1		
2	PS-63201	VALVE - PILOT OPERATED LOCKING	1		
3	PS-61151	FITTING - ELBOW-9/16" JIC	1		
4	PS-61154	FITTING - ELBOW- O RING 1/4BSPPx9/16" JIC	1		
5	PS-61157	FITTING - O RING 1/4BSPPx 7/16" JIC	2		
6	PS-61158-5MM	FITTING - 5mm RESTRICTION 90 DEG	1		CYL. END
7	PS61163	REDUCER JIC x BSPP	2		
8	PS-61160	TUBE (Cut to suit) 510mm	1		
9	PS-61147	FERRULES	2		
10	PS-61158-1MM	FITTING - 1MM RESTRICTION 90 DEG	1		ROD END
11	PS-61145	FITTING- 9/6" JIC SWIVEL	1		
12	PS-61183	9/16" SWIVEL 'T' FITTING	1		
13	PS-63202A	FLOW CONTROL VALVE ASSEMBLY	1		
14	PS-T282-H/FKIT	HOSE & FITTING KIT (Not Shown)	1		
15	PS-61153	FITTING 'O' RING 1/4 BSPP x 7/16' JIC	1		

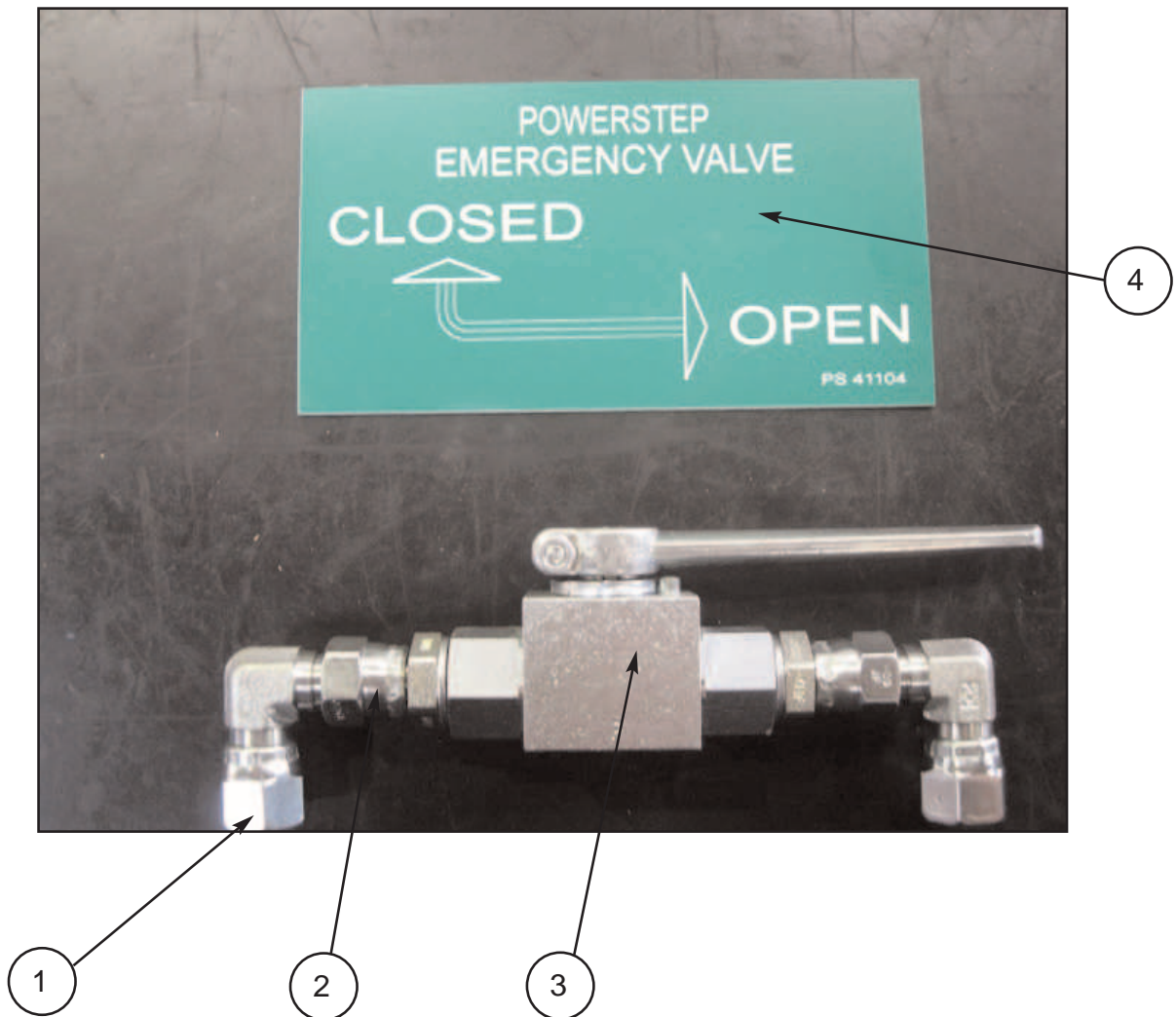


# FOLDING STAIRWAY

## Liebherr T282 Truck



### Section 4-4 Hydraulic Cylinder & Plumbing



Item	Part No.	Part Name	Qty		
1	PS-61159	9/16" SWIVEL FITTING	2		
2	PS-61145	FEMALE SWIVEL FITTING	2		
3	PS-63203	BALL VALVE	1		
4	PS-41104	OPEN/CLOSE DECAL	1		

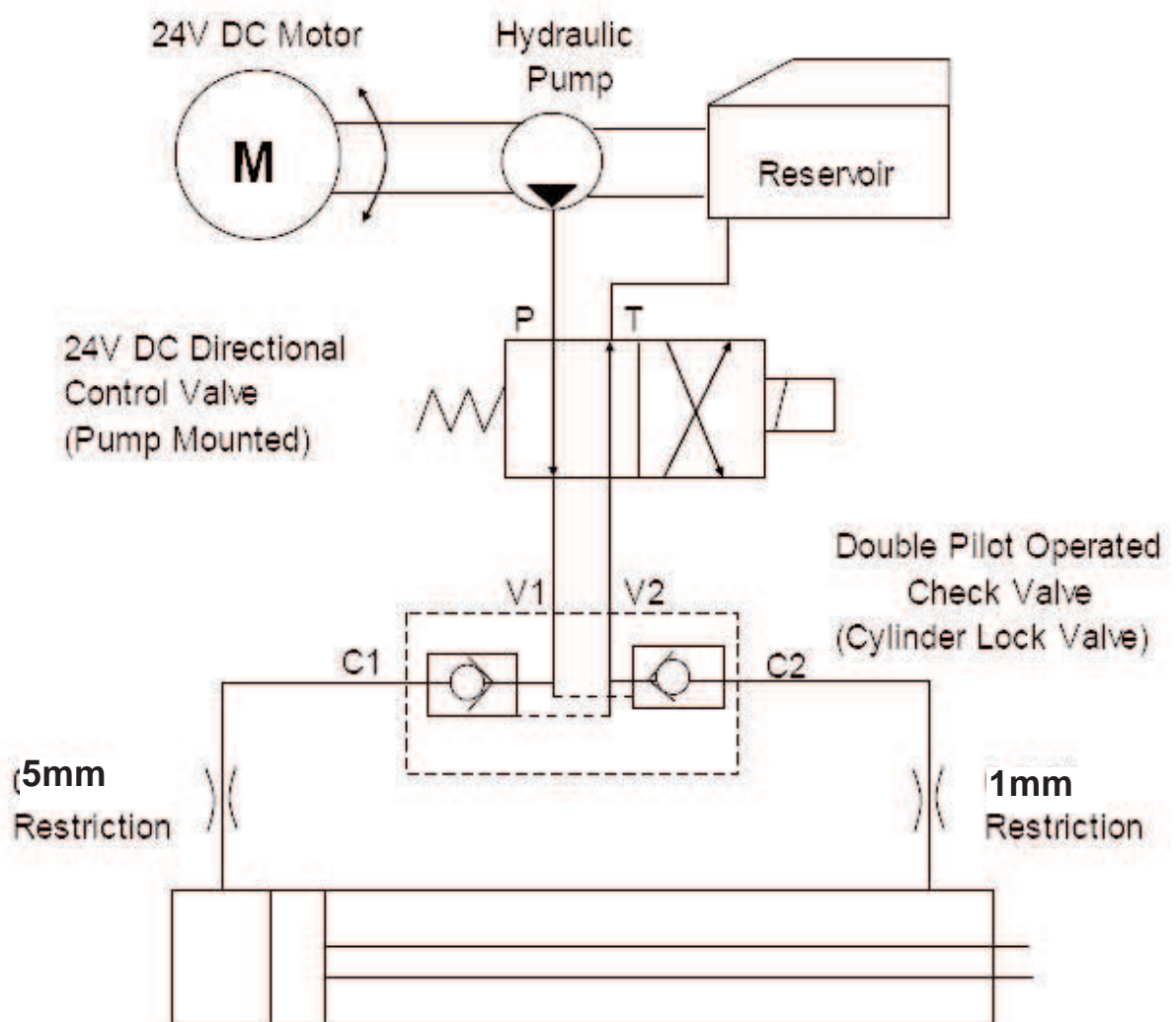
# FOLDING STAIRWAY

## Liebherr T282 Truck



### Section 4-4 Hydraulics (Valve Diagram)

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

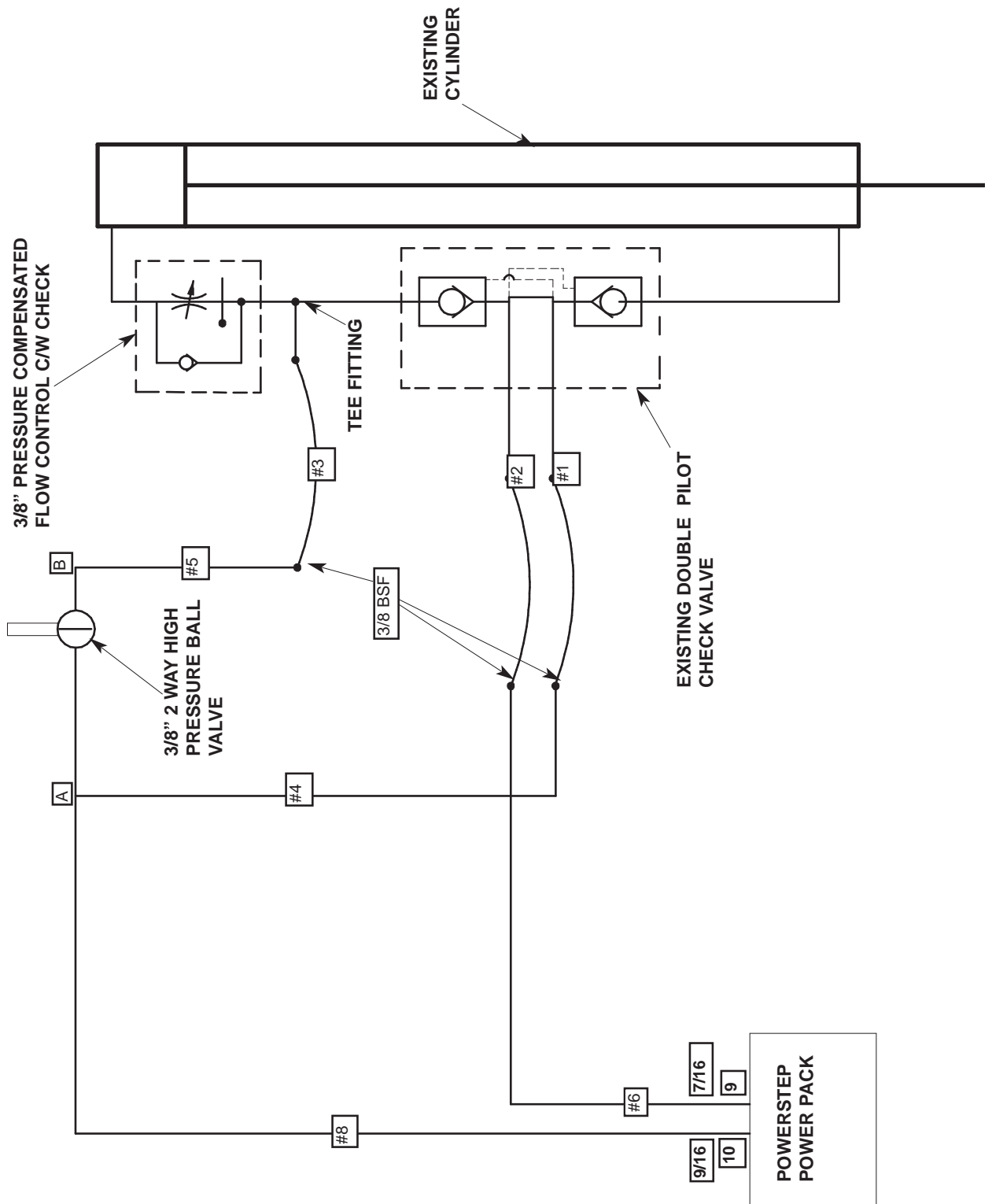


# FOLDING STAIRWAY

Liebherr T282 Truck



## Section 4-4 Hydraulic Cylinder & Plumbing Hydraulic Diagram Including Emergency Valve



# FOLDING STAIRWAY

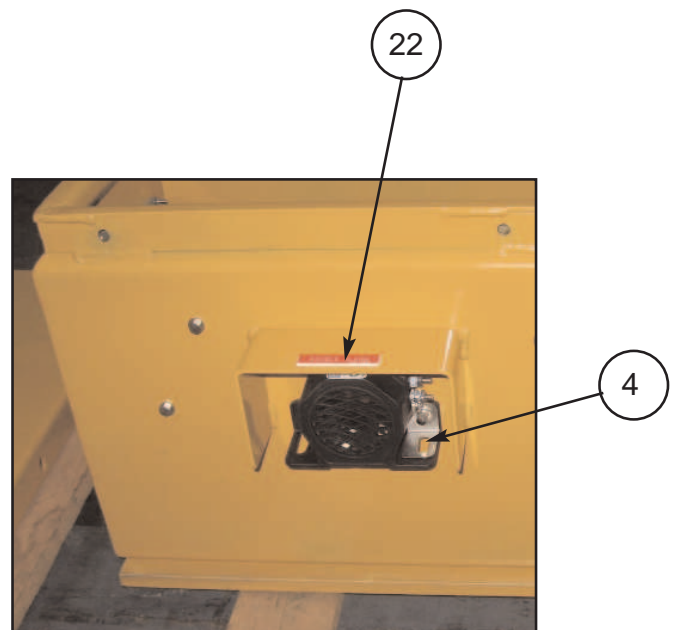
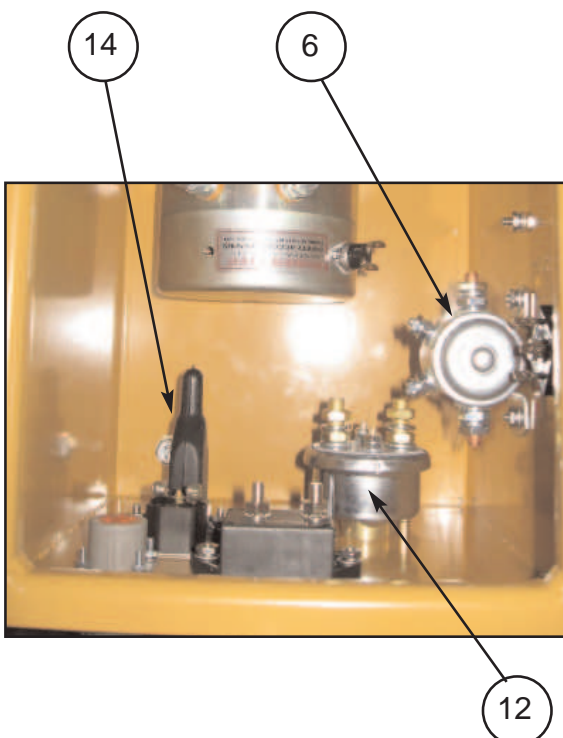
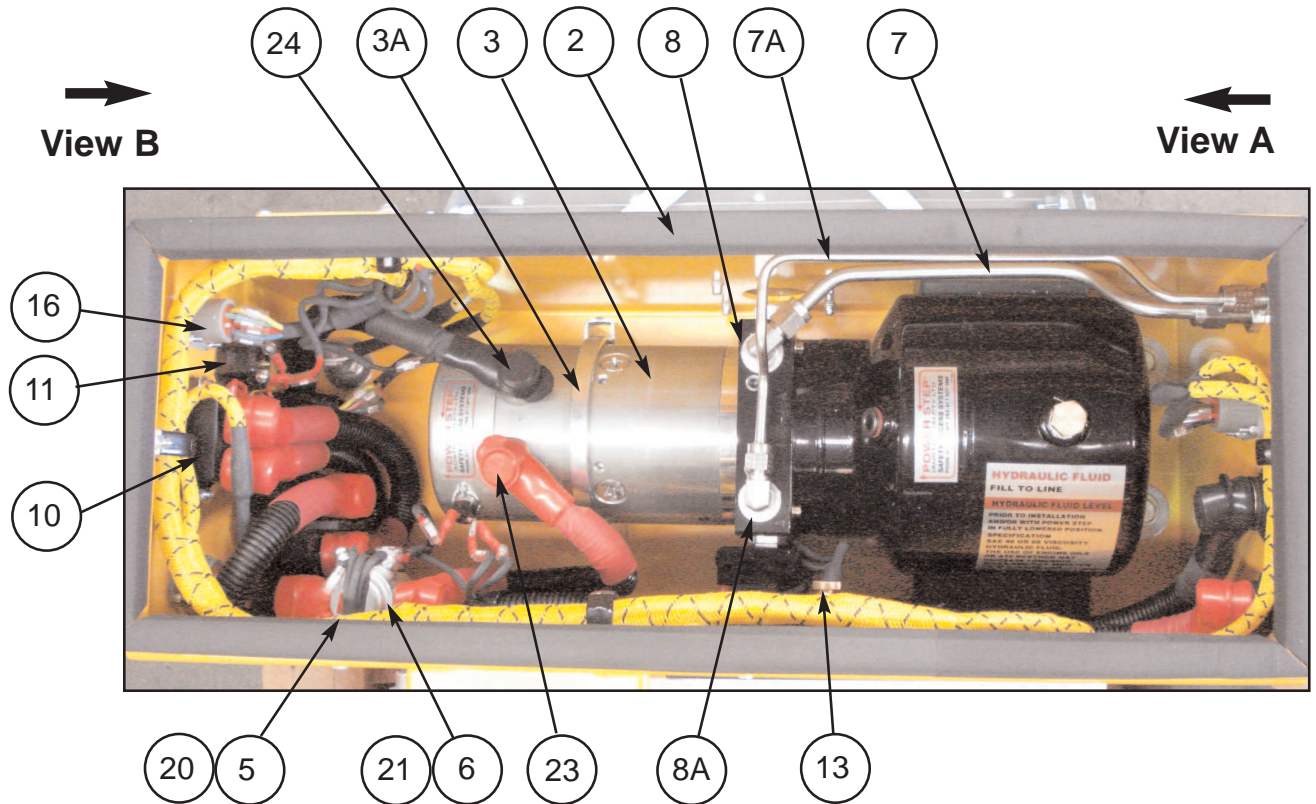
## Liebherr T282 Truck



### Section 4-5 Power Pack

PS- 80103A-SLD-T282

See Parts List Pg 22

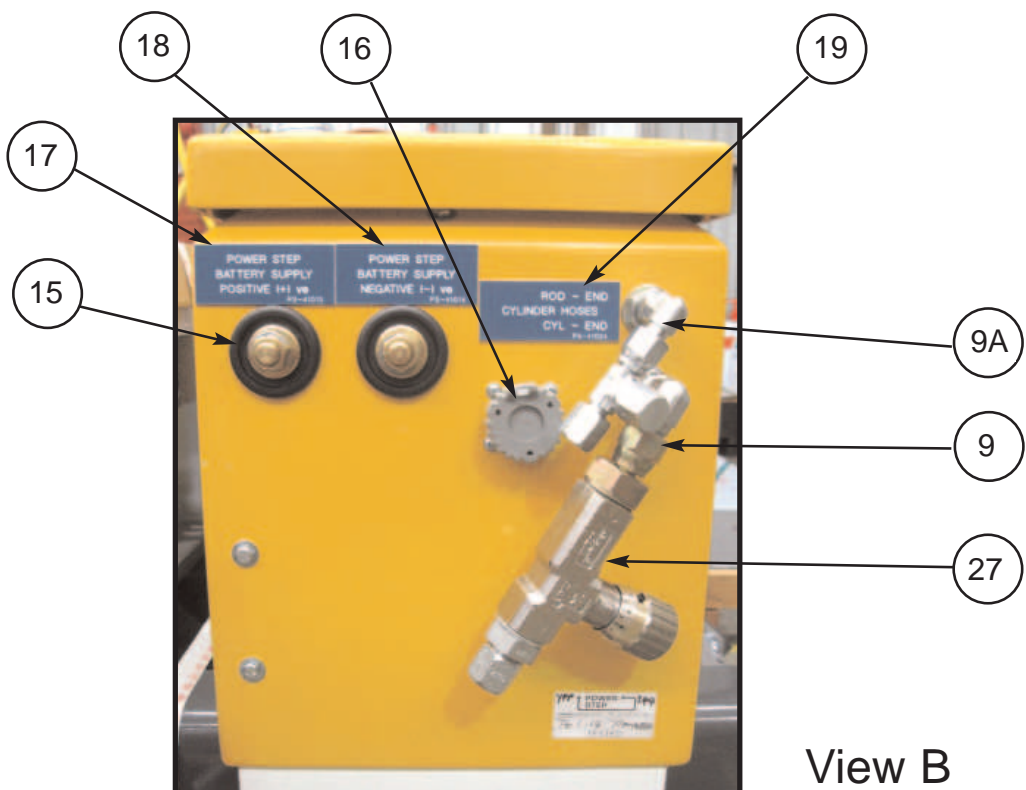
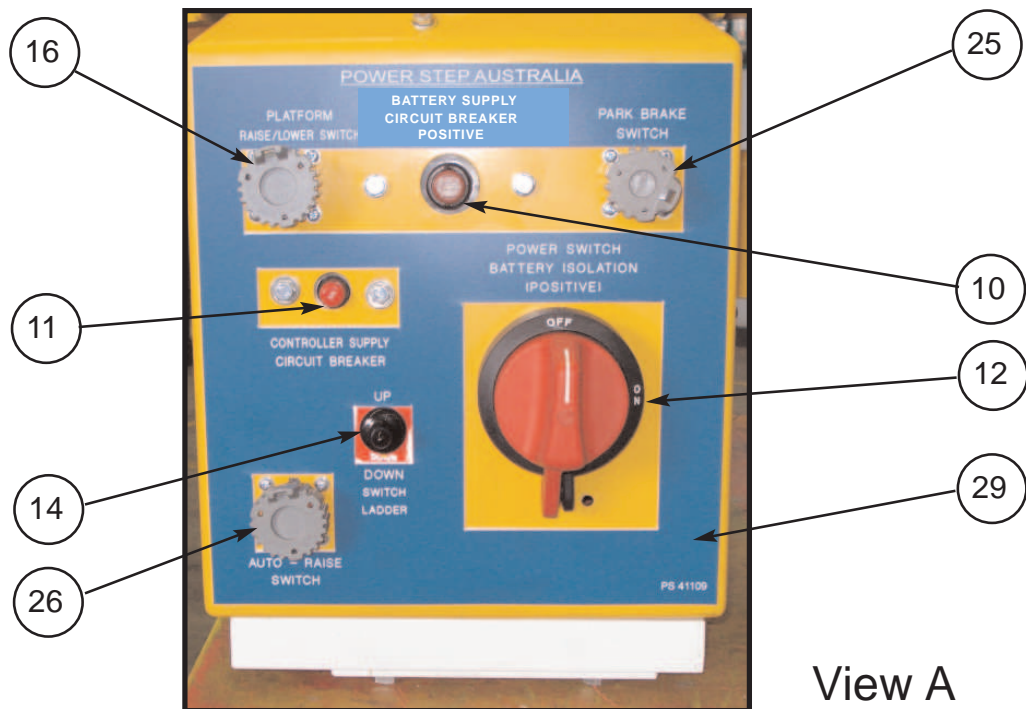


# FOLDING STAIRWAY

Liebherr T282 Truck

## Section 4-5 Power Pack PS-80103A-SLD-T282

See Parts List Pg 22



### NOTE.

THE RELIEF PRESSURE OF THE POWERPACK IS TO BE SET TO 2800PSI.  
IF THE POWERPACK IS REPLACED, THIS RELIEF PRESSURE WILL NEED TO BE  
RESET USING INLINE GAUGES.  
FAILURE TO DO SO MAY RESULT IN ACCIDENT OR INJURY



# FOLDING STAIRWAY

## Liebherr T282 Truck



### Section 4-5 Power Pack

PS-80103A-SLD-T282

See Photos Pg 20 & 21

Item	Part No.	Part Name	Qty		
1	PS-80103A-SLD	POWER PACK ASSEMBLY	1		
2	PS-21107-METAL	MOTOR ENCLOSURE- SEALED ST/ST	1		
3	PS-80103A	POWER PACK	1		
3A	PS-80103-CLAMP	CLAMP ELECTRIC MOTOR	1		
4	PS-82415	AUDIBLE ALARM	1		
5	PS-84214	BRIDGE RECTIFIER	1		
6	PS-82492	SOLENOID 24V START MOTOR	1		
7	PS-61160-M/EBBox-9/16"	HYDR. TUBE 9/16" FITTINGS	1		
7A	PS-61160-M/EBBox-7/16"	HYDR. TUBE 7/16" FITTINGS	1		
8	PS-61152	HYDRAULIC FITTING 9/16"	1		
8A	PS-61150	HYDRAULIC FITTING 7/16"	1		
9	PS-61177	HYDRAULIC FITTING 9/16"	1		
9A	PS-61176	HYDRAULIC FITTING 7/16"	1		
10	PS-84213	135A CIRCUIT BREAKER	1		
11	PS-84212	5A CIRCUIT BREAKER	1		
12	PS-84303	ISOLATION SWITCH- (INCLUDING BRACKET)	1		
13	PS-1712080	SEALED WIRING BOX	1		
14	PS-73012	TOGGLE SWITCH KIT	1		
15	PS-82493	BATTERY FEED STUDS	2		
16	PS-HD10-5-16P	5 PIN SOCKET	2		
17	PS-41013	DECAL-Battery Supply-Positive	1		
18	PS-41014	DECAL-Battery Supply-Negative	1		
19	PS-41024	DECAL HYDRAULIC-HOSES	1		
20	PS-41019	DECAL BRIDGE RECTIFIER	1		
21	PS-41017	DECAL SOLENOID	1		
22	PS-41018	DECAL ALARM	1		
23	PS-73010	RUBBER BOOT RED	4		
24	PS-73009	RUBBER BOOT BLACK	2		
25	PS-HD10-3-16P	3 PIN SOCKET (PARK BRAKE)	1		
26	PS-HD10-5-16P	5 PIN SOCKET	2		
27	PS-63202A	FLOW CONTROL VALVE ASSY.	1		
28	PS-41106	DECAL-BEACON/WORKLIGHT	1		Not shown
29	PS-41109	DECAL (Blue)	1		

# FOLDING STAIRWAY

Liebherr T282 Truck

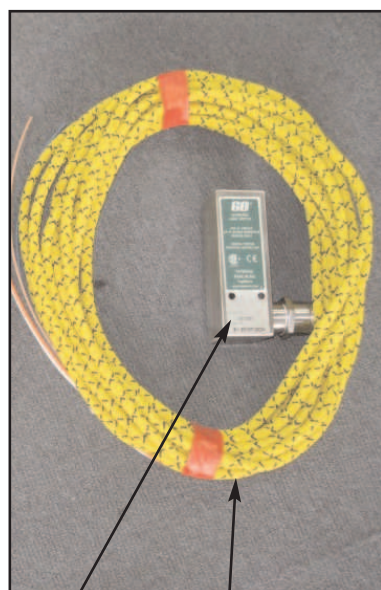


## Section 4-6 Electrical Controls

See Parts List Page 24

### Proximity Switch Assembly

Mounted on Fixed Landing

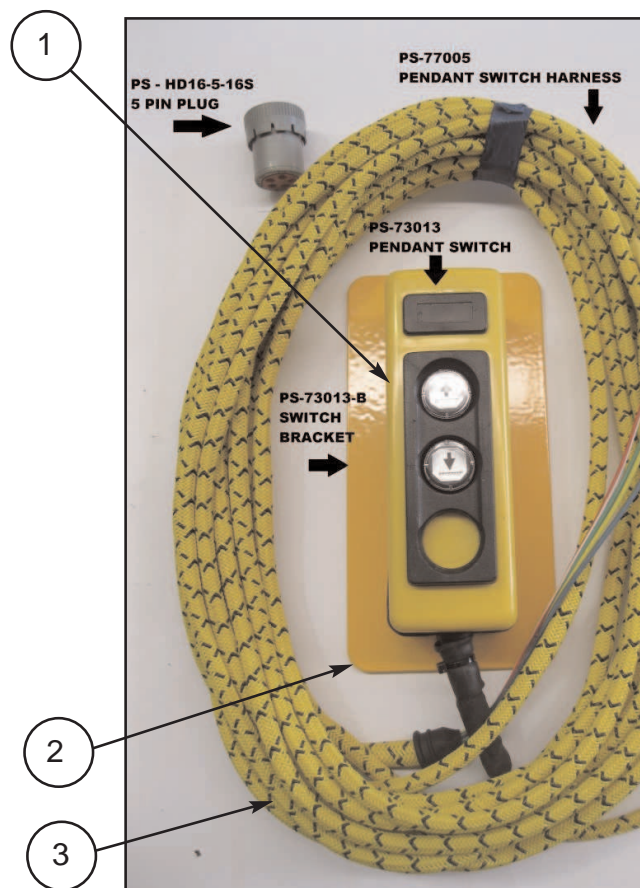


5

4

### Control Pendant Switch

Mounted on Handrail



1

2

3

# FOLDING STAIRWAY

## Liebherr T282 Truck



### Section 4-6 Electrical Controls Cont.

See Photos Page 23

Item	Part No.	Part Name	Qty		
1	PS-73013	CONTROL PENDANT SWITCH	1		
2	PS-73013-B	CONTROL PENDANT BRACKET	1		
3	PS-77005	HAND RAIL SWITCH HARNESS	1		
4	PS-77009AR	AUTO RAISE HARNESS	1		
5	PS-75430	PROXIMITY SWITCH	1		

### **WARNING**

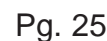
**LOW VOLTAGE BATTERIES WILL HARM THE FUNCTION  
OF THE POWER PACK AND THE CONTROL SWITCHES.**

**DAMAGE RESULTING DUE TO LOW VOLTAGE  
BATTERIES WILL VOID WARRANTY ON ALL  
ELECTRICAL COMPONENTS.**



**POWER STEP**

0201-03  
Sheet 2



# FOLDING STAIRWAY

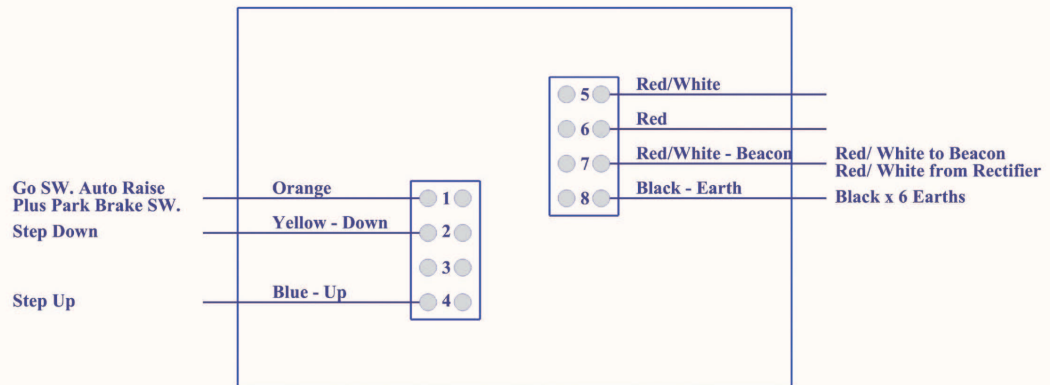
## Liebherr T282 Truck



### Section 4-6 Electrical Controls Wiring Diagrams Page 4

0201-02  
Sheet 5

#### WIRING HARNESS 1



#### Park Brake Harness - P/No 77006-PB

<u>Plug Term</u>	<u>Colour</u>		<u>Terminal ID.</u>	
(C)	Red	-	COM	Length 10m (Harness Flex No 12)
(A)	Red/White	-	N.C.	
(B)	Orrange	-	N.O.	

#### Go Switch Harness (Auto Raise) P/No 77009-AR

<u>Plug Term</u>	<u>Colour</u>		<u>Terminal ID.</u>	
(B)	Blue	-	No. 1 Terminal N.C. Contact	Length 10m (Harness Flex No 12)
(E)	White (Spare)	-	No. 2 Terminal N.O. Contact	
(A)	Orange	-	No. 3 Terminal N.C. Contact	
(C)	Brown (Spare)	-	No. 4 Terminal N.O. Contact	

#### Go Switch Harness (Cabin to Go Switch) P/No 77004 (Cabin Indicator Ladder Up/Down)

<u>Plug Term</u>	<u>Colour</u>		<u>Terminal ID.</u>	
(B)	Black	-	No. 1 Terminal N.C. Contact	Length 10m (Harness Flex No 12)
(B)	Black	-	No. 2 Terminal N.O. Contact	
(Bridge No. 1 and No. 2 in Go Switch)				
(A)	Red	-	No. 3 Terminal N.C. Contact	
(C)	Yellow	-	No. 4 Terminal N.O. Contact	

#### Hand Rail Switch Harness (P/No 77010) (Handrail SW to Power Pack Box)

<u>Plug Term</u>	<u>Colour</u>		<u>SW Contacts</u>		<u>Switch Terminal No.</u>	
(C)	Red/White	-	No 1	-	No 5	Length 10m (Harness Flex No 12)
(D)	Blue	-	No 2	-	No 4	
(B)	Yellow	-	No 3	-	No 2	
(A)	Green	-	No 4	-		

# FOLDING STAIRWAY

Liebherr T282 Truck



## Section 4-6 Electrical Controls Wiring Diagrams Page 5

### WIRING HARNESS 2

#### Go Switch

##### Auto - Raise Connection

N.C.	-	Orange	-	Blue
N.O.	-	Brown	-	White (Spare)

#### Go Switch - Cabin Indicator

##### Up/Down Lights Connection

N.C.	-	Red	-	Black
N.O.	-	Yellow	-	Black



Linked

#### Hand Control Switch - Mounted on Hand Rails (P/No 73013)

##### Power Step Wiring Harness (10m) and Connections Supplied

#### Contacts

1	-	Red/White	-	Power Supply
2	-	Blue	-	Up Switch
3	-	Yellow	-	Down Switch
4	-	Green	-	Start Sol Motor [FRS Power Pack only (Spare)]

#### Pendant Switch

##### Standard Switch Wiring and Connections

