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Form No. 520698

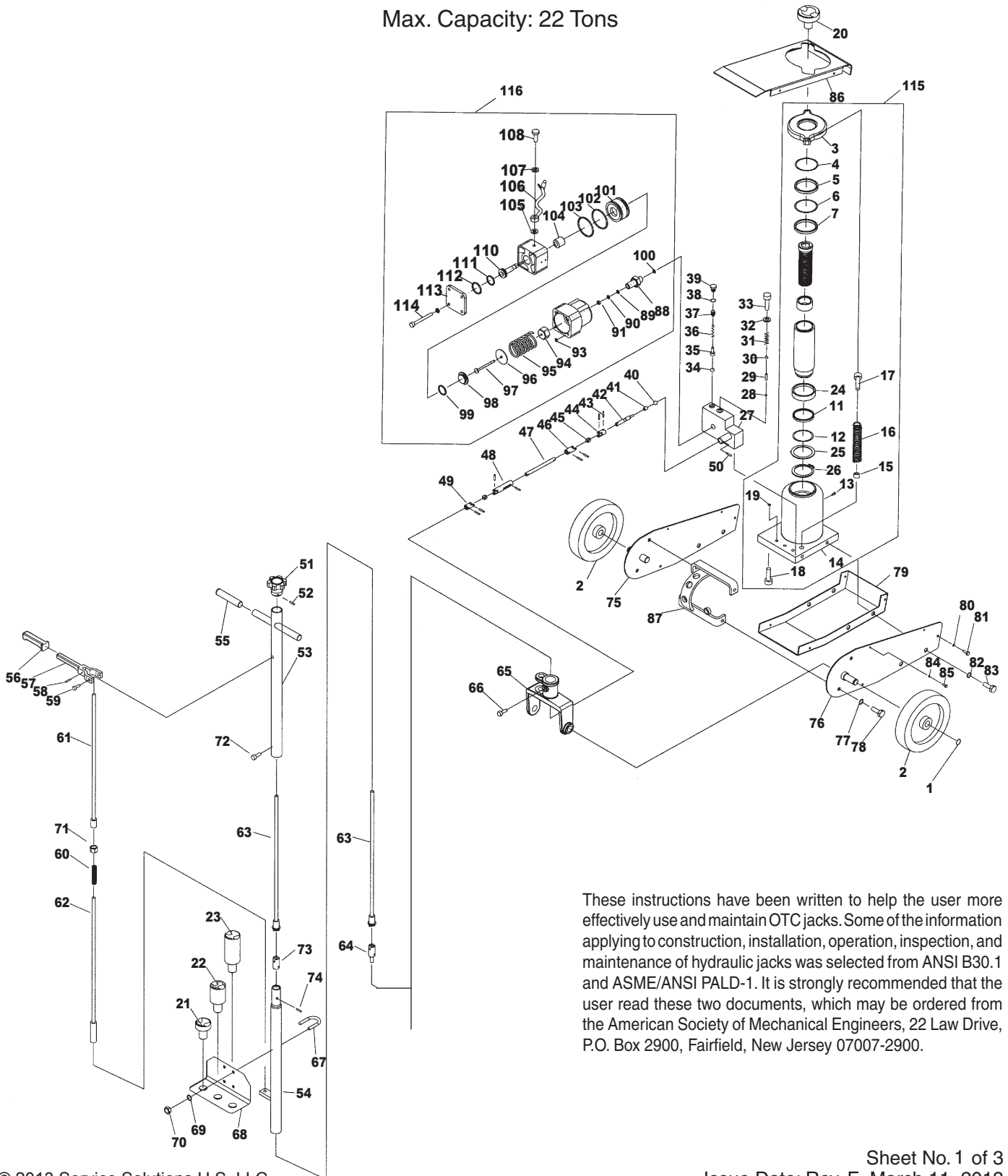
**Parts List &
 Operating Instructions**

for:

1788A

Air / Hydraulic Under Axle Jack

Max. Capacity: 22 Tons



These instructions have been written to help the user more effectively use and maintain OTC jacks. Some of the information applying to construction, installation, operation, inspection, and maintenance of hydraulic jacks was selected from ANSI B30.1 and ASME/ANSI PALD-1. It is strongly recommended that the user read these two documents, which may be ordered from the American Society of Mechanical Engineers, 22 Law Drive, P.O. Box 2900, Fairfield, New Jersey 07007-2900.

Replacement Parts

Item No.	Qty.	Description	Item No.	Qty.	Description
1	2	Snap Ring	61	1	Control Rod A
2	2	Wheel	62	1	Control Rod B
3	1	Spring Hanger	63	2	Convey Rod
4	1	Snap Ring	64	1	Rod Joint
5	1	Bushing	65	1	Handle Socket
6	1	O-ring	66	1	Bolt
7	1	Bushing	67	2	U-bolt
11	1	Washer	68	1	Fix Board
12	1	O-ring	69	4	Spring Washer
13	1	Oil Filler Plug	70	4	Nut
14	1	Oil Cylinder Assembly	71	1	Nut
15	2	Nut	72	1	Screw
16	2	Spring	73	1	Rod Joint
17	2	Bolt	74	1	Pin
18	3	Bolt	75	1	Frame Left
19	3	O-ring	76	1	Frame Right
20	1	20 mm Extension Adapter	77	4	Washer
21	1	20 mm Extension Adapter	78	4	Bolt
22	1	60 mm Extension Adapter	79	1	Bed
23	1	100 mm Extension Adapter	80	4	Washer
24	1	Piston Ring	81	4	Bolt
25	1	Washer	82	4	Washer
26	1	Snap Ring	83	4	Bolt
27	1	Valve Block	84	4	Washer
28	1	Steel Ball	85	4	Bolt
29	1	Pin	86	1	Cover Board
30	1	Steel Ball	87	1	Bracket
31	1	Spring	88	1	Cylinder Pump
32	1	Copper Washer	89	1	Y-Sealing Washer
33	1	Bolt	90	1	Nylon Washer
34	1	Steel Ball	91	1	Copper Washer
35	1	Ball Seat	93	1	O-ring
36	1	Spring	94	1	Hex Nut
37	1	Screw	95	1	Spring
38	1	Sealing Washer	96	1	Washer
39	1	Valve Plug Screw	97	1	Pump Plunger
40	1	Steel Ball	98	1	Washer
41	1	Sealing Washer	99	1	O-ring
42	1	Release Valve Rod	100	1	Copper Washer
43	8	Rivet	101	1	Piston
44	1	Universal Joint A	102	1	O-ring
45	2	Block	103	1	O-ring
46	1	Universal Joint B	104	1	Sealing Washer
47	1	Rod	105	1	Copper Joint Ring
48	1	Universal Joint C	106	1	Air Hose (with Air Valve)
49	1	Universal Joint D	107	1	Washer
50	1	Pin	108	1	Bolt
51	1	Knob	110	1	Release Air Rod
52	1	Pin	111	1	O-ring
53	1	Rear Handle	112	1	O-ring
54	1	Front Handle	113	1	Cylinder Cover
55	2	Handle Sleeve	114	4	Bolt
56	1	Sleeve	115	1	Power Unit Assembly
57	1	Lock Lever	116	1	Air Pump Assembly
58	1	Pin	—	3	Hairpin Clip
59	2	Bolt			
60	1	Spring			

Replacement Kits

Item
No. Qty. Description

**Adapter Rack Assembly
No. 520711:**

67 2 U-bolt
68 1 Fix Board
69 4 Spring Washer
70 4 Nut

**Air Block Assembly
No. 520708:**

18 3 Bolt
19 3 O-ring
27 1 Valve Block
28 1 Steel Ball
29 1 Pin
30 1 Steel Ball
31 1 Spring
32 1 Copper Washer
33 1 Bolt
34 1 Steel Ball
35 1 Ball Seat
36 1 Spring
37 1 Screw
38 1 Sealing Washer
39 1 Valve Plug Screw
50 1 Pin

**Air Hose Kit
No. 520703:**

105 1 Copper Joint Ring
106 1 Air Hose (w/ air valve)
107 1 Washer
108 1 Bolt

**Air Pump Hardware
No. 520730:**

88 1 Cylinder Pump
94 1 Hex Nut
95 1 Spring
96 1 Washer
97 1 Pump Plunger
101 1 Piston
110 1 Release Air Rod
113 1 Cylinder Cover
114 4 Bolt

**Air Pump Kit
No. 520702:**

116 1 Air Pump Assembly

**Air Seal Kit
No. 520700:**

89 1 Y-sealing Washer
90 1 Nylon Washer
91 1 Copper Washer
93 1 O-ring
98 1 Washer
99 1 O-ring
100 1 Copper Washer
102 1 O-ring
103 1 O-ring
104 1 Sealing Washer
105 1 Copper Joint Ring
111 1 O-ring
112 1 O-ring

Item
No. Qty. Description

**Frame Kit
No. 521987:**

75 1 Frame Left
76 1 Frame Right
87 1 Bracket

**Handle Kit
No. 520704:**

51 1 Knob
52 1 Pin
53 1 Rear Handle
54 1 Front Handle
55 2 Handle Sleeve
56 1 Sleeve
57 1 Lock Lever
58 1 Pin
59 2 Bolt
60 1 Spring
61 1 Control Rod A
62 1 Control Rod B
63 2 Convey Rod
64 1 Rod Joint
71 1 Nut
72 1 Screw
73 1 Rod Joint
74 1 Pin

**Handle Pivot Kit
No. 520706:**

65 1 Handle Socket

**Handle Retaining Screw
No. 520710:**

66 1 Bolt

**Hardware Kit
No. 521988:**

77 4 Washer
78 4 Bolt
80 4 Washer
81 4 Bolt
82 4 Washer
83 4 Bolt
84 4 Washer
85 4 Bolt

**Hydraulic Seal Kit
No. 520699:**

4 1 Snap Ring
5 1 Bushing
6 1 O-ring
7 1 Bushing
11 1 Washer
12 1 O-ring
13 1 Oil Filler Plug
19 3 O-ring
24 1 Piston Ring
25 1 Washer
26 1 Snap Ring

Item
No. Qty. Description

**Hydraulic Unit Kit*
No. 520701:**

82 4 Washer
83 4 Bolt
115 1 Power Unit Assembly

**Inspection Plate
No. 520729:**

84 4 Washer
85 4 Bolt
86 1 Cover Board

**Release Screw Assembly
No. 520707:**

40 1 Steel Ball
41 1 Sealing Washer
42 1 Release Valve Rod
43 8 Rivet
44 1 Universal Joint A
45 2 Block
46 1 Universal Joint B
47 1 Rod
48 1 Universal Joint C
49 1 Universal Joint D
50 1 Pin

**Return Spring Assembly
No. 520709:**

3 1 Spring Hanger
15 2 Nut
16 2 Spring
17 2 Bolt

**Skid Plate
No. 520827:**

79 1 Bed
80 4 Washer
81 4 Bolt

**Wheel Kit
No. 520705:**

1 1 Snap Ring
2 1 Wheel

**Adapter Kit
No. 563617:**

20 1 20-mm Extension Adapter
21 1 20-mm Extension Adapter
22 1 60-mm Extension Adapter
23 1 100-mm Extension Adapter
67 2 U Bolt
68 1 Fix Board
69 4 Spring Washer
70 4 Nut
— 4 Bushing
— 4 Hairpin Clip
— 1 Warning Sheet

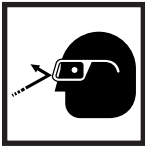
*If order 520701 manufactured before May 2012, 563617 must be ordered as well.

Safety Precautions

⚠ WARNING: Failure to heed the following warnings can result in personal injury and / or equipment damage. These warnings cannot cover every situation, so have safety foremost in your mind when setting up a job.



- Read, understand, and follow safety precautions and operating instructions. If the operator cannot read these instructions, operating instructions and safety precautions must be read and discussed in the operator's native language.



- Wear eye protection that meets the requirements of ANSI Z87.1 and OSHA.
- Inspect the jack before each use; do not use the jack if it is damaged, altered, or in poor condition.



- To prevent tipping, set up the jack on a hard, level surface.
- The load must not exceed the rated lifting capacity of the jack. Lift only dead weight.
- Center the load on the jack saddle; off-center loads can damage the seals and cause hydraulic failure.
- Use the jack for lifting purposes only. This jack is designed to LIFT loads, not support loads. Immediately support a lifted load with jack stands.
- Stay clear of lifted loads.
- The safety valve is set at the factory; no further adjustment is needed.
- Use only approved hydraulic fluid, such as Chevron AW Hydraulic Oil MV or equivalent.

Setup Instructions

1. Add 1/2 oz. clean lubricating oil to the air inlet, and connect the air supply. **IMPORTANT:** To prevent damage to the air pump, the air supply must be clean and dry.
2. Assemble the adapter holder to the handle using U-bolts, nuts, and spring washers provided. See Figure 1. **NOTE:** When not using the adapters, store them on the holder. Lock each adapter in place with a hitch pin.

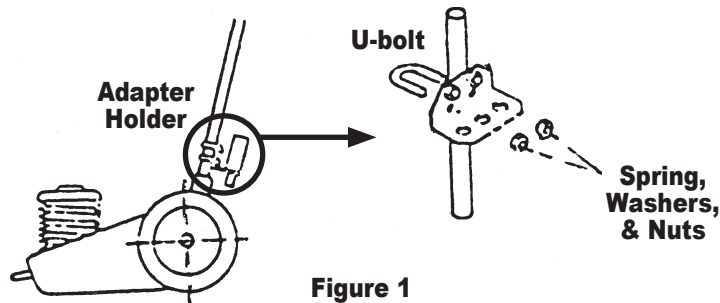


Figure 1

Operating Instructions

1. Tightly close the release valve knob (located on top of the "T" handle) by turning it clockwise.
2. Center the load on the jack saddle. Connect the air supply, and squeeze the air valve lever to raise the load. Release the air valve lever to stop movement.
3. Transfer the load to support stands.
4. To lower the jack, open the release valve knob by SLOWLY turning it counterclockwise.

NOTE: To adjust the handle, pull up and then release the lever to lock it in one of three positions.

Bleeding the Jack

Air bubbles can become trapped inside the hydraulic system, reducing the efficiency of the jack. Purge air from the system as needed by following these steps:

1. With the jack sitting on its base and the ram retracted, bleed air by opening the release valve.
2. Pump for 10 seconds.

Operating Instructions

Pump Prime Instructions

The air/hydraulic pump may lose its prime during shipment or after long periods without use. To prime the pump, follow these steps:

1. Remove the upper cover.
2. Loosen the hex socket bolt one-half turn. See Figure 2.
3. Close the release valve.
4. Operate the air pump while repeatedly tightening and loosening the bolt.
5. When the piston begins to rise, tighten the bolt. Verify the piston can rise to the maximum height position.

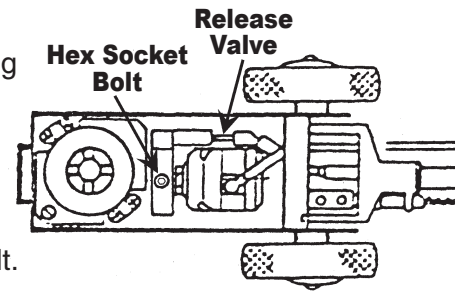


Figure 2

Preventive Maintenance

IMPORTANT: Dirt is the greatest single cause of failure in hydraulic units. Keep the jack clean and well lubricated to prevent foreign matter from entering the system. If the jack has been exposed to rain, snow, sand, or grit, it must be cleaned before it is used.

1. When the jack is not in use, keep the piston and pump rods fully retracted. Store the jack on its base and in a well protected area where it will not be exposed to corrosive vapors, abrasive dust, or any other harmful elements.
2. Maintain the oil level. If it's necessary to add oil, remove the filler plug, and fill the reservoir with Chevron AW Hydraulic Oil MV or equivalent.
3. Visually inspect the jack before each use. Take corrective action if any of the following problems are found:
 - a. Cracked or damaged housing
 - b. Excessive wear, bending, or other damage
 - c. Leaking hydraulic fluid
 - d. Scored or damaged piston rod
 - e. Incorrectly functioning swivel heads or adj. screw
 - f. Loose hardware
 - g. Modified or altered equipment

Troubleshooting Guide

Repairs must be performed in a dirt-free environment by qualified personnel who are familiar with this equipment.

Trouble	Cause	Solution
Erratic Action	1. Air in system 2. Viscosity of oil too high 3. Ram sticking or binding 4. Internal leakage in ram	1. With jack sitting on its base and ram retracted, bleed air by opening release valve. Pump 10 seconds. 2. Change to a lower viscosity oil. 3. Look for dirt, gummy deposits, leaks, misalignment, worn parts, or defective packings. 4. Replace worn packings. Look for excessive contamination or wear.
Ram does not advance	1. Release valve is open 2. Low/no oil in reservoir 3. Air locked system 4. Load is above capacity of system 5. Pump lost its prime	1. Close release valve located on top of "T" handle. 2. Fill with oil & bleed system. 3. With jack sitting on its base and ram retracted, open release valve, run pump for 10 seconds. 4. Use correct equipment. 5. Follow "Pump Prime Instructions."
Ram only extends partially	1. Low oil level in reservoir 2. Piston rod is binding	1. Fill reservoir with oil; bleed system. 2. Look for dirt, gummy deposits, leaks, misalignment, worn parts, or defective packings.
Ram advances slowly	1. Low air pressure 2. Pump not working correctly 3. Leaking seals	1. Adjust air pressure to 90–145 psi. 2. Rework pump. 3. Replace seals.
Ram advances but doesn't hold pressure	1. Release valve is open 2. Ram seals are leaking 3. Pump check valve not working 4. Overload valve leaking / not adjusted	1. Close release valve located on top of "T" handle. 2. Replace seals. 3. Clean / replace check valve. 4. Replace / adjust overload valve.
Jack leaks oil	1. Worn or damaged seals	1. Replace seals.
Ram will not retract, or retracts slowly	1. Release valve is closed 2. Reservoir too full 3. Ram damaged internally	1. Open release valve. 2. Drain oil to correct level. 3. Take jack to authorized service center for repair.

