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## OPERATING/ SERVICE INSTRUCTIONS USJC MODEL #: D-51225 20-TON LONG CHASSIS HYDRAULIC FLOOR/ SERVICE JACK



### **Assembly Instructions:**

1. Check the handle set screw for tightness.
2. Check that the breathable vent built into the cap is free of any obstacles.
3. Loosen the piston ram and pump packing nuts slightly. They are tightened all the way down at the factory for shipment. Tighten until no oil seeps out; they only need to be moderately tight.

### **Operating Instructions:**

**WARNING!!!** - Always use garage/ jack stands to support the vehicle before attempting any under vehicle inspections and/ or repairs.

1. Use the floor/ service jack on a smooth, hard, level surface only. Use the jack as a lifting device only.
2. Test the jack by using the foot pedal only to raise the saddle to full height without a load. The pedal should become very tight. If not, check the oil level or see the troubleshooting section. The jack is either air bound or low on hydraulic oil/ fluid.
3. The jack is easily maneuvered by depressing the Handle Lock Lever until the lock rod engages one of the two handle positions, and then pivoting the jack on its rear caster.
4. Place the jack in position so that the saddle will engage an approved lifting area of the vehicle. The saddle is raised to the contact point by the foot pedal. Light loads may be raised by the foot pedal alone. On low clearance vehicles it is often advantageous to operate the foot pedal by hand while watching to assure proper saddle contact. Surface on which jack rests should be fairly flat to prevent twisting of frame. Load should be centered in saddle.
5. Pump with handle for easy lifting. Do not attempt to raise jack beyond its travel stops.
6. To lower the load, pull back gently on the release lever.
7. Be certain that area beneath vehicle is clear before lowering vehicle. Always use the release lever lock to prevent unintentional operation of the release lever.

### **Refilling the Jack with Oil Instructions:**

1. Remove the filler plug and with the saddle down, and add AW-32 Light Hydraulic Oil or Hand Jack Hydraulic Oil, Grade 32, ISO Viscosity 32, SAE 5W20 until the level comes up to within 1/4" to 3/8" below the filler hole.
2. Overfilling will cause oil to squirt out of the vent hole as the jack is lowered, or may prevent the jack from lowering properly.
3. Insufficient oil will cause the jack to lift only part of the way up.
4. Always be sure to put in oil only when the saddle is all the way down.
5. Be careful not to let any dirt get into the reservoir while the Filler Plug is out.
6. Do NOT use brake fluid, transmission fluid, or any other fluids or hydraulic oils! Doing so could damage the seals, cause the jack to fail, and/ or void the warranty.

### **Safety Precautions:**

1. Follow OSHA Standards and ASME PASE-2014 'Safety Standard for Portable Automotive Service Equipment', Part 10—Service Jacks.
2. Never exceed the jack's rated load capacity. The lowering valve (release valve) is also designed to work as an overload protection device. If you attempt to raise a load that exceeds the jack's rated capacity, this valve will automatically release the cylinder pressure as an overload protection safety feature.
3. Only lift vehicles at the recommended lift points found in the vehicle's service manual.
4. Eye protection should be worn per OSHA recommendations.
5. Always check the jack prior to each use and do not use jack if any defect is observed.
6. Do not add accessories or make any modifications to the jack in any way.
7. Always use garage/ jack stands to support the vehicle and stay clear when lifting or lowering the vehicle.

### **Preventative Maintenance Instructions:**

1. Inspect the jack before each use. Take corrective action before using the jack if a leak or defect is detected.
2. Keep all working parts thoroughly lubricated. Keep the jack clean. Dirt is the major cause of jack failure, and all openings should be kept free of debris.
3. Packing nuts at the piston and pump plunger should be kept moderately tight. These packings are NOT under high pressure, and should only be tight enough to prevent leakage.
4. Keep oil filled to within 1/4" to 3/8" of fill opening. Replace the oil at least once per year.
5. Ball Valve may be removed for inspection and cleaning by removing the Ball Chamber Plug and using a small magnet. Remove the ball and the ball weight.
6. **IMPORTANT:** Whenever it is necessary to loosen or remove the Ball Chamber Plug, the gasket should be replaced with a new one. Oil leakage at this point is usually caused by trying to use an old gasket over again.

### **Relieve when Air-Bound Instructions:**

1. If the oil supply runs too low, the jack may become air-bound and work on only a half stroke of the handle.
2. Fill the jack with oil, raise the saddle, and then using the release lever (lowering lever), lower the saddle while holding the foot pedal depressed. This will flush out any air in the system, and excess oil may then run out of the vent.
3. Repeat if necessary. Be sure to properly fill the jack with oil before returning it to service.
4. Oil should never cover the piston rod.
5. If you cannot pump the jack saddle to full height, raise the saddle by hand and then perform this operation.

### **Troubleshooting Instructions:**

<b><u>Issue</u></b>	<b><u>Corrective Action</u></b>
Saddle will not raise:	1. Check the oil level. 2. Perform the ball valve test.
Oil spurts out of the vent hole:	1. The jack is overfilled with oil.
Jack will only lift part of the way up:	1. It may be low on oil; check and refill.
Jack will not lift load:	1. Check for proper oil level. 2. If pumping fails to raise the rated load, the lower ball valve may be leaking, and it should be inspected for dirt or other debris.
The load rises on the down stroke of the handle and then immediately settles back down while forcing the jack handle back up:	1. The upper ball valve may be leaking, and it should be inspected for dirt or other obstructions.
Jack bleeds down while under load:	1. The release handle may not be closed. 2. The release valve may be leaking. Replace the release valve packing housing O-rings. 3. The release needle valve may need to be adjusted.
Jack only rises on half-stroke, and then settles back down while forcing the handle back up:	1. The jack may be air-bound.

### **Ball Valve Test Instructions:**

1. If the jack will not raise at all, the ball valve may be obstructed by debris.
2. Open the release valve and keep it open.
3. Raise the saddle lift arm manually to full height.
4. Lower the saddle by pushing it all the way down (this will flush out any debris in the ball seats).
5. Close the release valve and try to pump up the jack.
6. If it now will not raise and hold, then the ball valve may need to be serviced.

### **Removing the Hydraulic Power Unit/ Cylinder Instructions:**

1. Remove the cotter in the cross head.
2. Remove the cotter and pin in the pump.
3. Remove the cotter and pin in the release yoke.
4. Place cotter key in while depressing foot pedal. This allows for easy removal and reassembly if spring is left on return rod.
5. Raise the lifting arm by means of the saddle, and place a block of wood between the arm and frame to hold up the arm.
6. This release the cylinder at the forward end so that it may be removed as a complete unit for service.

### **Replacing the Hydraulic Power Unit/ Cylinder Cup Instructions:**

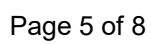
1. After removing the cylinder unit as described above, place it in a vise. Note that the vise jaws should grip the steel block, not the steel cylinder. Set the unit in the vise with the steel cylinder and piston up. Remove the vent plug.
2. Unscrew the cylinder cap and lift the piston out of the cylinder.
3. Remove the nut and washer which holds the cup at the end of the piston; put in the new cup, and replace nut and washer.
4. In fitting the new cup into the cylinder, USE GREAT CARE as the cup passes the filler plug hole not to cut or otherwise damage the cup. Then replace the cylinder cap.
5. To replace the small cup on the pump, turn the cylinder unit pump end upward in the vise.
6. Unscrew the packing nut and pull out the pump plunger. Remove the nut that holds cup to end of plunger, insert new cup, and replace nut.

### **Release Group Needle Valve Adjustment Instructions:**

In the release group assembly, the spring governs the load that the jack will lift. When the pressure with the cylinder overcomes the spring tension, the release valve floats off the seat. It is imperative that the release valve floats freely in the release group assembly. To check: use your forefinger and thumb to grasp the release valve where the release clevis pin passes through and wiggle it from side to side. There should be a minimum of 0.002 to 0.004 clearance in the release valve guide. If no movement is noted, follow these steps below:

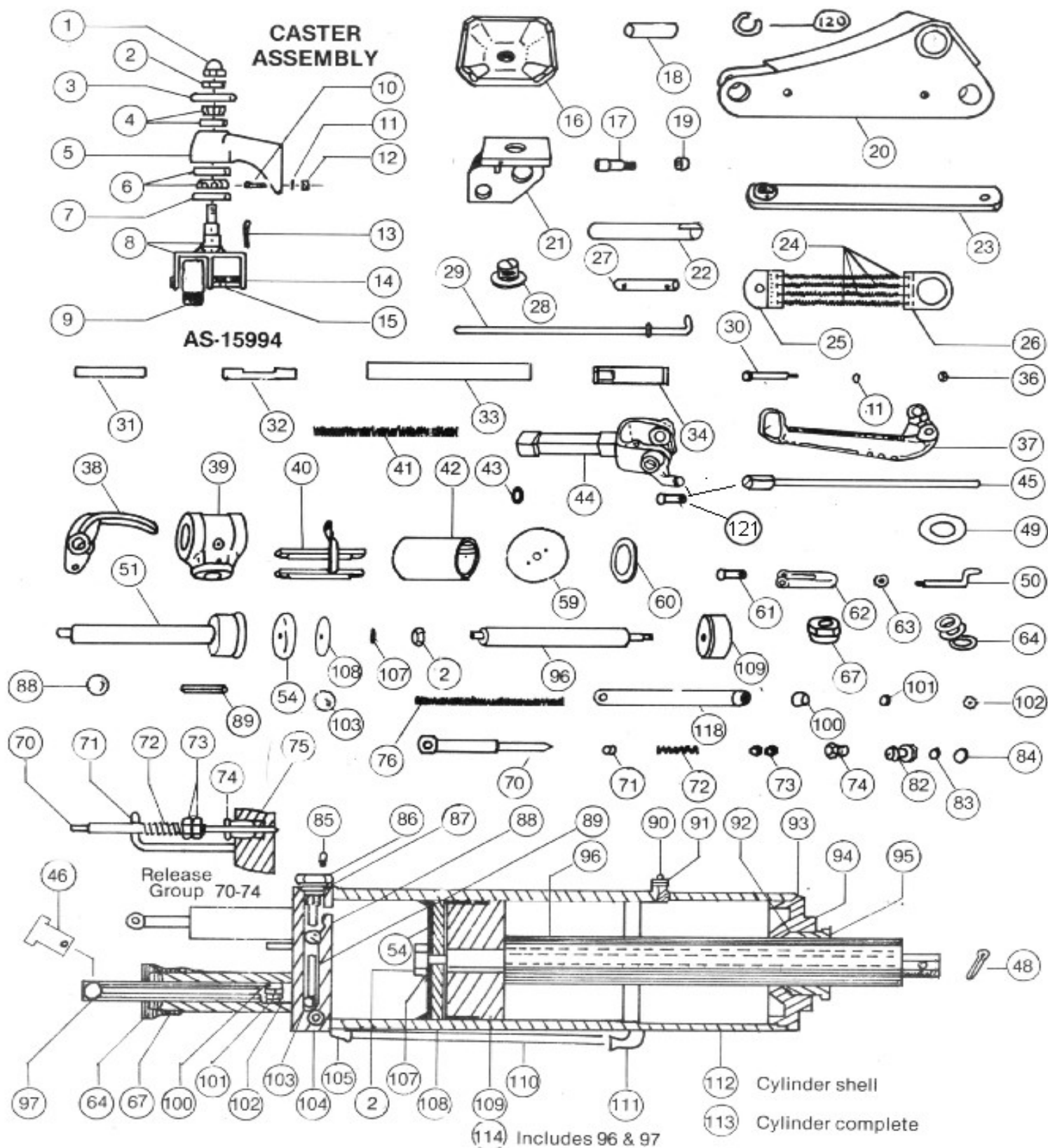
1. Measure the distance from the bracket to the first nut on the compression spring accurately and write it down (~ 2 inches).
2. Remove nuts, the spring, the valve rod, and the valve guide. It is not necessary to loosen the packing nut.
3. Insert the valve rod through the bracket's opening.
4. Slide the release valve guide onto the rod, but not seated in the hole, and insert the rod into the packing nut's opening.
5. Gently tap the end of the release rod with a hammer until it stays firmly seated in the internal needle seat.
6. Slide the release valve guide towards the bracket. Normally it will fit smoothly into the bracket hole. Note where the center alignment of the rod in the bracket hole is off. Tap the welded bracket accordingly with a hammer to gently bend the bracket and correct the misalignment. It is in alignment when you can smoothly slide the valve guide into the bracket's hole.
7. Reassemble the release valve parts.
8. Tighten the adjusting nut to the original dimension you wrote down in Step 1.
9. Test the jack for proper operation.

## FRAME AND LIFTING ARM ASSEMBLIES



# D-51225 20 TON

## MISCELLANEOUS CASTINGS AND STEEL PARTS CUP LEATHERS, PACKING, GASKETS AND FOLLOWERS



# D-51225 20 TON PARTS LIST

<i>Item No.</i>	<i>Part No.</i>	<i>Description</i>	<i>Item No.</i>	<i>Part No.</i>	<i>Description</i>
1.	S-6605	Acorn Nut	61.	S-4710	Release Lever Pin
2.	S-2232	Jam Nut	62.	S-5123	Release Yoke
3.	S-24650	Bearing Cap	63.	S-1863	5/16-24 Jam Nut
4.	AS-15814	Upper Bearing Assembly	64.	S-7412	Packing
5.	M-2028	Caster Bracket	65.	AS-15930	Frame Assembly
6.	AS-15815	Lower Bearing Assembly	66.	AS-16037	Center Wheel
7.	S-15429	Bearing Retainer	67.	M-1167	Packing Nut
8.	AS-15957	Caster Assembly	68.	S-11103	Front Roller Bearing
9.	M-1152	Caster Wheel	69.	S-1877	1/4 x 3/4 Cap Screw, Hx. Hd.
10.	S-4594	Hex screw 1/2 x 2-1/2	70.	S-21050	Release Valve
11.	S-1571	1/2 Lockwasher	71.	S-5173	Valve Guide
12.	S-9522	1/2 Nut	72.	S-2591	Release Spring
13.	S-293	Cotter Pin	73.	S-1934	Lock Nut 3/8
14.	S-15971	Caster Axle	74.	S-5176	Release Packing Nut
15.	S-15398	Bearing	75.	AS-21052	Packing House Assembly
16.	M-2043	Saddle	76.	S-9786	Comp. Spring
17.	S-15975	Shoulder Bolt	77.	S-5261	Release Rod
18.	S-15973	Saddle Bracket Pin	78.	AS-6660	Handle Shell
19.	S-15987	Castle Nut	79.	AS-6550	Lock Rod
20.	AS-15944	Lifting Arm	80.	S-2329	Lock Rod Return Spring
21.	AS-15950	Saddle Bracket	81.	AS-6545	Handle Assembly
22.	S-15974	Lift Arm Pin	82.	S-21051	O-Ring Housing
23.	AS-15954	Par. Link	83.	S-15047	O-Ring
24.	S-16061	Lift Arm Spring	84.	S-17829	O-Ring
25.	S-16059	Spring Retainer	85.	S-1805	Pipe Plug
26.	S-16058	Spring Retainer	86.	S-16196	Ball Chamber Plug
27.	S-15972	Par. Link Pin	87.	S-20886	Handle Grip
28.	S-16098	Saddle Screw	88.	S-5122	5/8 Ball
29.	S-27384	Spring Rod	89.	S-5355	Ball Weight
30.	S-7394	Tiecasting Bolt	90.	S-7026	Vent Plug
31.	S-6551	Tiecasting Pin	91.	S-5178	Pipe Plug
32.	S-6552	Foot Pedal Pin	92.	S-16022	Piston Packing
33.	S-15978	Axle	93.	S-22964	Cylinder Cap Gasket
34.	S-15976	Crosshead Pin	94.	M-2041	Cylinder Cap
35.	AS-16051	Cover Plate	95.	M-2042	Packing Nut
36.	S-508	Hex Nut 1/2	96.	S-15969	Piston Rod
37.	M-1416	Foot Pedal	97.	S-24497	Pump Piston Rod
38.	M-1148	Release Lever	98.	S-7075	Release Lock
39.	M-2045	Crosshead	99.	AS-22107	Release Lever Assembly
40.	AS-16039	Pump Bracket or M-2237	100.	S-24648	Pump Cup
41.	S-1365	Comp. Spring	101.	S-7413	Pump Cup Washer
42.	S-15996	Lift Arm Bushing	102.	S-1863	Hex Nut
43.	S-5125	Aluminum Washer	103.	S-3282	7/16 Ball
44.	M-1414	Handle Yoke	104.	S-5652	3/8 Pipe Plug
45.	AS-20495	Yoke Return Rod	105.	S-2	Line Connector
46.	S-6549	Pin	106.	M-1157	Release Lever
47.	S-794	Cotter Pin 3/16 x 1-1/2	107.	S-3010	3/4 Int. Lockwasher
48.	S-3234	Cotter Pin 3/16 x 2-1/2	108.	S-15968	Ram Cup Washer
49.	S-5200	Inside Hub Washer	109.	M-2167	Ram Head
50.	S-16070	Release Pull Lever	110.	S-3	Return Line
51.	AS-16054	Piston Rod Assembly	111.	S-4	Line Connector Elbow
52.	S-16032	Name Plate	112.	AS-15962	Cylinder Shell
53.	S-23872	1/4-20 Sq. Hd. Set Screw	113.	AS-15961	Cylinder Complete
54.	S-16023	Piston Cup	114.	AS-15965	Ram Head Assembly
55.	S-15694	Roll Pin	115.	S-23689	Roll Pin 1/4 x 1/2
56.	S-6586	Release Lever Pin	116.	S-5098	1/4-20 Sq. Hd. Set Screw
57.	M-1423	Tie Casting	117.	AS-12588	Front Wheel
58.	S-5096	Grease Fitting	118.	AS-24498	Pump Rod Assembly
59.	S-9147	Wheel Bearing Cover	119.	S-543	1/4 Lock Washer
60.	S-9149	Inside Wheel Washer	120.	S-25661	Bearing Spacer
			121.	S-5263	RIVIT

## **WARNING**

- A. THIS DEVICE IS A LIFTING DEVICE ONLY. THE LOAD SHALL BE SUPPORTED IMMEDIATELY BY OTHER APPROPRIATE MEANS.**
- B. DO NOT OVERLOAD. OVERLOADING CAN CAUSE DAMAGE TO OR FAILURE OF THE JACK.**
- C. LIFT ONLY ON AREAS OF THE VEHICLE AS SPECIFIED BY THE VEHICLE MANUFACTURER.**
- D. THIS JACK DESIGNED FOR USE ONLY ON HARD, LEVEL SURFACES CAPABLE OF SUSTAINING THE LOAD. USE ON OTHER THAN HARD, LEVEL SURFACES CAN RESULT IN JACK INSTABILITY AND POSSIBLE LOSS OF LOAD.**
- E. FAILURE TO HEED THESE WARNINGS MAY RESULT IN LOSS OF LOAD, DAMAGE TO THE JACK, AND/OR FAILURE RESULTING IN PERSONAL INJURY OR PROPERTY DAMAGE.**

