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3501 S. Leonard Rd.  
St. Joseph, MO 64503 U.S.A.

Phone: (800) 821-7320  
Fax: (816) 233-7251  
E-mail: gray@grayusa.com  
grayusa.com

## Parts List TSL-50LP

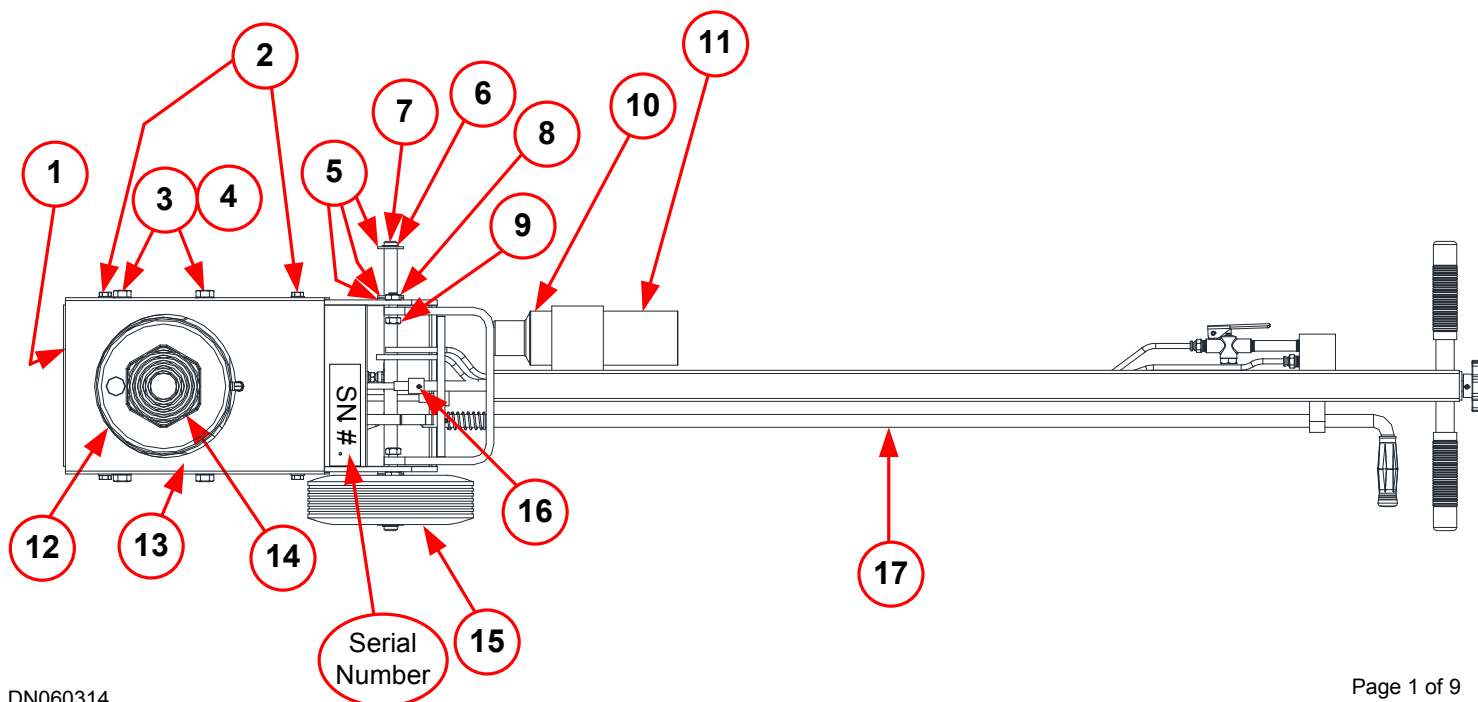
### Truck Service Lift

**SN: 940-000001 thru 940-000499**

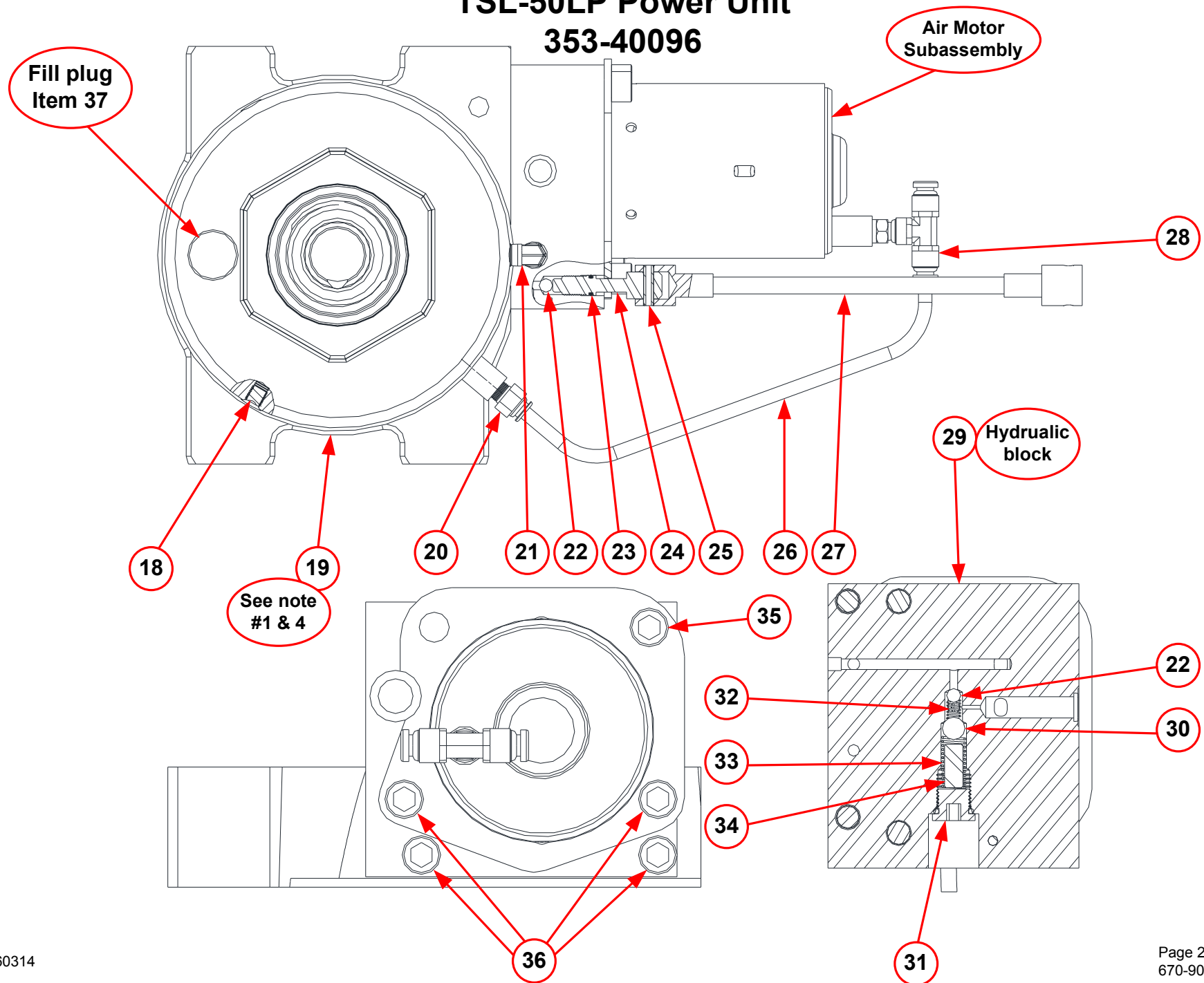
**SERIAL NUMBER REQUIRED ON ALL PARTS ORDERS**

## Final Assembly Parts List 940-00001

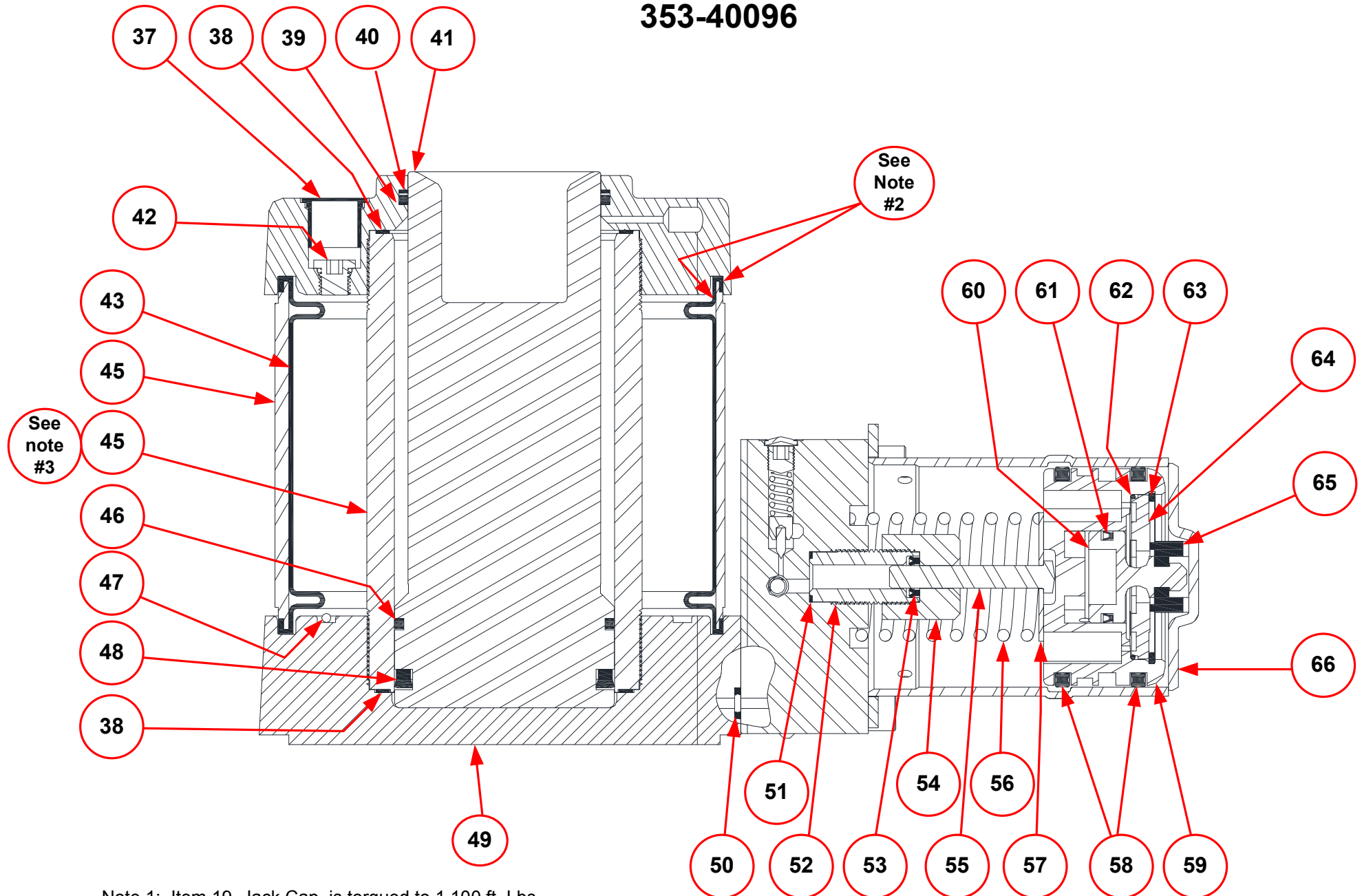
Item	Qty.	Part Number	Description	Kit
1	1	N/A	Base Frame Weldment	
2	4	202-01103	Screw, Self Tapping 5/16 -18, 5/8"	
3	4	200-31406	Capscrew, Hex Head, 1"	
4	4	204-11400	Washer, Lock	
5	6	204-01614	Washer, Plain 5/8	
6	2	230-12000	Retaining Ring 5/8"	^
7	1	850-04028	Grooved Shaft (Axel)	
8	2	203-11204	Nut, Hex, Jam	
9	2	202-01304	Capscrew, Hex Head 7/16	
10	1	940-04008	Extension Adapter, Short	
11	1	940-04001	Extension Adapter, Long	
12	1	353-40096	Power Unit, TSL-50LP	~
13	1	850-04004	Top Cover	
14	1	940-04007	Lift Pad, TSL-50LP	
15	2	480-02006	Wheel, 8" Dia. X 2.500" Hub, 5/8 Bore	^
16	1	235-21004	Roll Pin, 3/16 x 3/4"	
17	1	946-01007	Handle Subassembly	#
^	1	8850-01023	Main Wheel Kit – Contains 2 ea. items 6 & 15	^



# TSL-50LP Power Unit 353-40096



# TSL-50LP Power Unit 353-40096



Note 1: Item 19, Jack Cap, is torqued to 1,100 ft. Lbs.

Note 2: If replacing item 43, Bladder, Lubricate these surfaces with STP to prevent twisting of bladder during reassembly.

Note 3: Hydraulic cylinder, outer lip goes toward the top; inner lip goes toward the bottom.

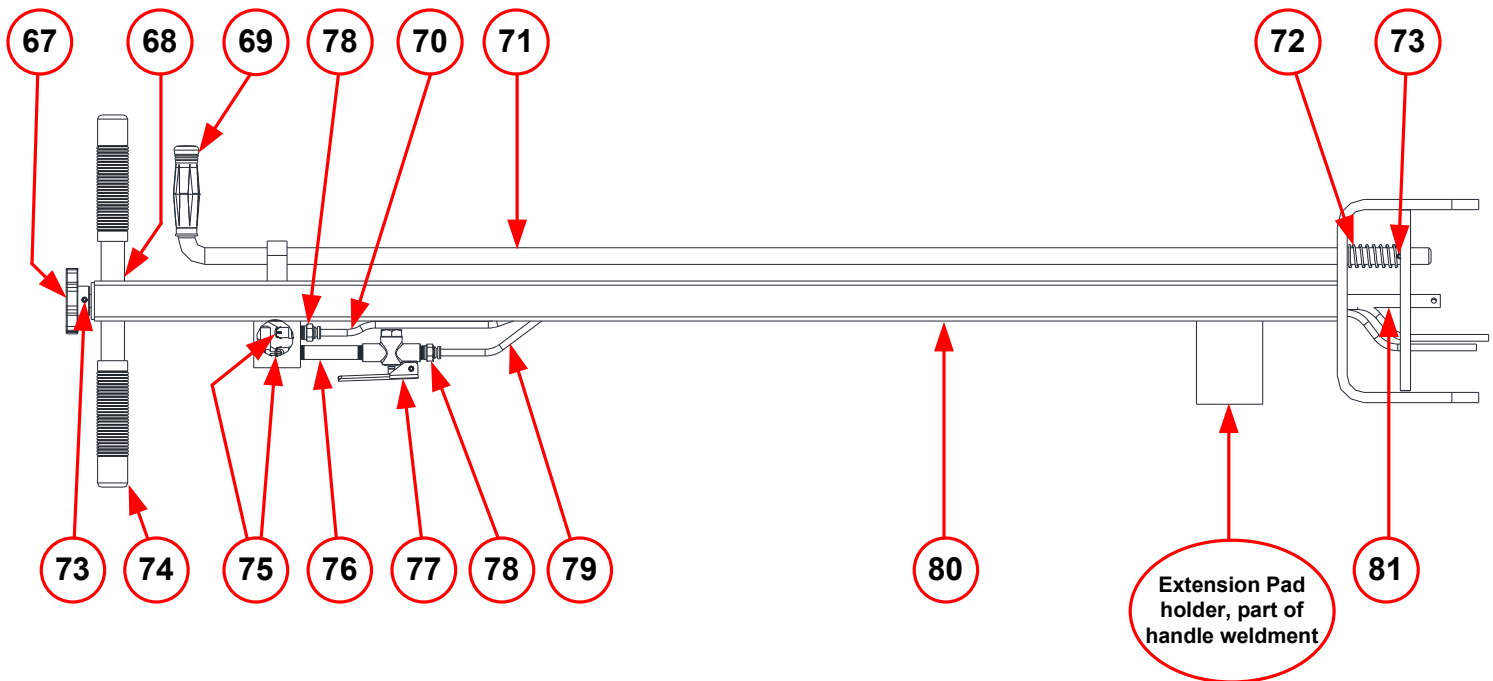
Note 4: If item 19, Jack Cap needs to be replaced use part number 353-43064 with 390-11150 wiper rod.

# TSL-50LP Power Unit Parts List

Item	Qty.	Part Number	Description	Kit
18	2	275-20010	Hollow Head Hex Plug, 1/8	~
19	1	353-43019	Jack Cap***replaced by 353-43065 also need 390-11150 wiper***	~
20	1	275-10001	Connector – 1/8 NPT to ¼ tube	~
21	1	275-11005	Elbow 1/8 NPT to ¼ Tube, brass	~
22	2	236-00005	Ball, ¼ Dia.	~
23	1	390-00002	O'Ring 3/8 OD x ¼ ID x 1/16	~, **
24	1	353-49166	Release Stem	~
25	1	235-21004	Roll Pin 3/16 Dia. X ¾"	~
26	1	8082-30027	Tubing, Nylon ¼" OD x 9 5/8"	~, >
27	1	850-04024	Flex Shaft	~
28	1	275-11006	Tee, ¼ NPT to ¼ tube, Brass	~, >
29	1	N/A	Hydraulic Block	~
30	1	236-00006	Ball, 3/8 Dia.	~
31	1	274-34001	Plug, Straight Thread, Recessed w/ O'Ring	~, >
32	1	233-10012	Spring, Compression ¼ OD x 3/8"	~
33	1	233-12002	Spring Compression .406	~
34	1	353-49162	Check Valve Spacer	~
35	1	201-11204	Capscrew, Socket Head 3/8 x ¾"	~, >
36	4	201-11211	Capscrew, Socket Head, 3/8 x 2 ¼"	~, >
37	1	680-00120	Cap Plug, Plastic	~
38	2	390-11083	Backup Ring, 3 1/8 x 3/16 x 3 ½"	~, **
39	1	390-11136	Backup Ring, Special 2.628 ID x .117W x .0425 thick	~, **
40	1	390-01044	Quad Ring, 2 5/8 x 2 7/8 x 1/8"	~, **
41	1	353-49347	Hydraulic Ram, TSL-50LP	~
42	1	274-32001	Plug, SAE #4 w/ O'Ring	~
43	1	353-49155	Bladder	~
44	1	850-02002	Outer Barrel Weldment	~
45	1	353-41036	Hydraulic Cylinder	~
46	1	390-01045	Quad Ring, 2 ¾ x 1/8 x 3"	~, **
47	1	353-49010	Magnet, 7/16"	~
48	1	390-11102	Seal, 2 ½ ID x 3" OD x ¼"	~, **
49	1	N/A	Bass Casting, Machined	~
50	2	390-10056	Quad Seal, 7/16 x 3/32"	~, **
51	1	390-10060	Backup Ring, 11/16 x ½ x .040	~, **
52	1	353-43030	Pump Housing	~
53	1	390-10055	Seal, 9/16 x 5/16 x 1/8	~, **
54	1	353-43029	Pump Housing Cap	~
55	1	353-49156	Pump Plunger	~
56	1	233-15003	Spring, Compression 1/34" OD	~
57	1	204-01106	Washer, 1.750 x .320 x .064	~
58	2	390-02010	Quad Ring, 3" OD x 2 5/8 ID x 3/16"	~, **, >
59	1	310-41017	Piston, Air Motor, Injection Molded	~, >
60	1	310-40004	Air Shuttle Piston, Injection Molded	~, >
61	1	390-10076	Seal, 1 ¼ OD x 1" ID x 1/8" W	~, **, >
62	1	390-01061	O'Ring, 2 ¼ x 1/16 x 2 1/8"	~, **, >
63	1	230-06001	Retaining Ring, 2 1/8" Dia.	~, >
64	1	310-91014	Piston Cap	~, >
65	1	315-00002	Seal, Shuttle Valve	~, **, >
66	1	N/A	Air Motor Cylinder Weldment	~, >

# Handle Subassembly 946-01007

Item	Qty.	Part Number	Description	Kit
67	1	232-20094	Hand Wheel, Release Knob	#
68	1	850-04010	Hand Bar, Drilled	#
69	1	232-20128	Handle Grip, 5/8 x 3 1/2"	#
70	1	8082-30022	Tubing, Nylon 60"	#
71	1	8850-02007	Handle Release Rod Weldment	#
72	1	233-14012	Spring, Compression	#
73	2	235-21011	Roll Pin 3/16 x 1 1/8"	#
74	2	232-20114	Hand Grip 7/8" x 5"	#
75	2	312-91004	Screen	#
76	1	275-01004	Nipple, 1/4" x 3"	#
77	1	312-00002	Air Valve	#
78	2	275-11004	Connector – 1/4 to 1/4" tube	#
79	1	8082-30021	Tubing, Nylon 45.5"	#
80	1	N/A	Handle Weldment	#
81	1	N/A	Release Control Rod	#



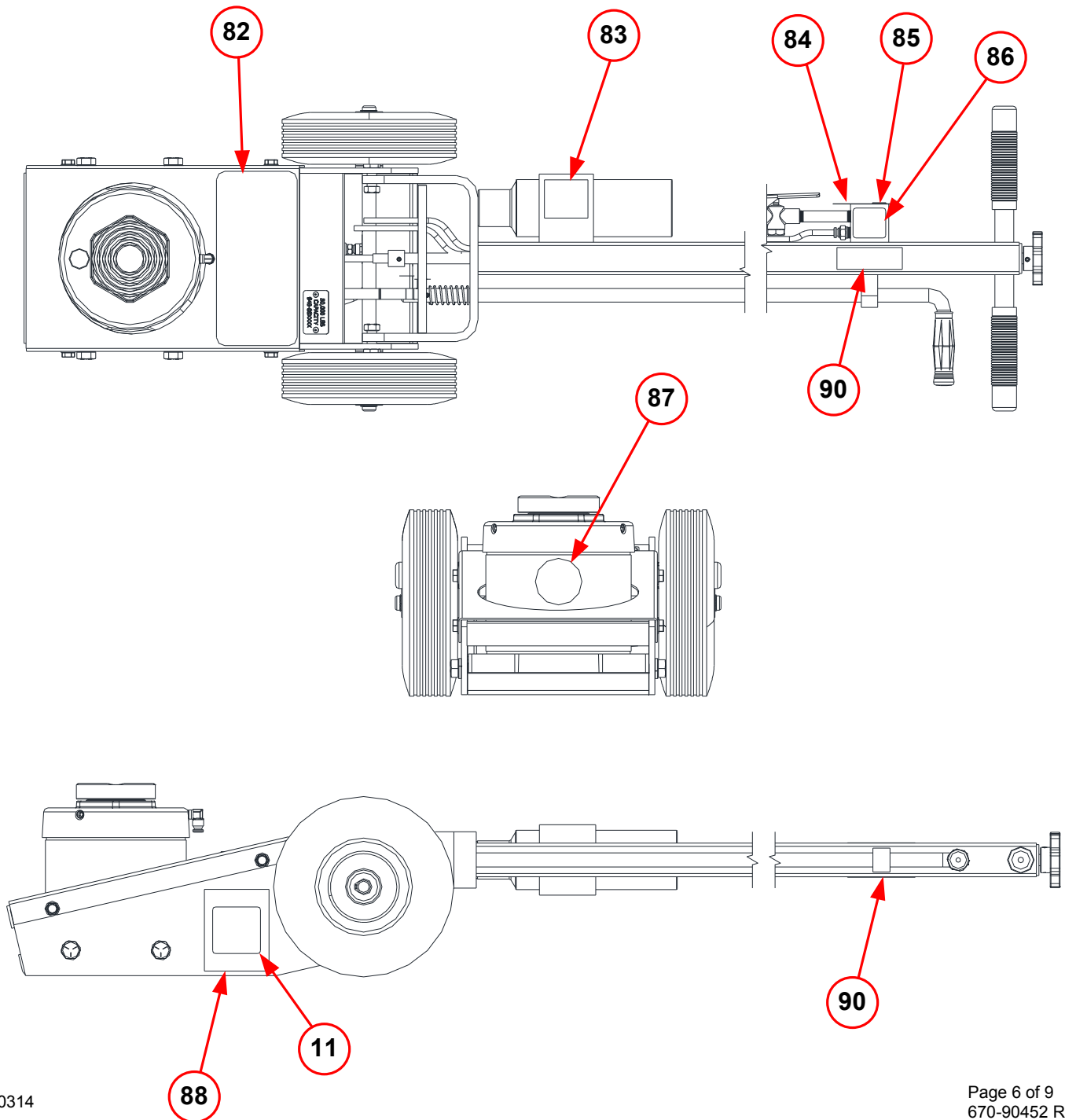
## Available Kits

Item	Qty.	Part Number	Description	Kit
82-90	1	8940-01004	Complete Decal Kit	*
**	1	8940-01003	TSL-50LP Soft Seal Kit Listed on page 4	**
18-66	1	353-40096	TSL-50LP Complete Power Unit (both hydraulics & air motor) pg 2 & 3	~
>	1	8850-01012	TSL-50LP Complete Air Motor Assembly shown on page 3	>
6 & 15	1	8850-01023	Main Wheel Kit – Contains 2 ea. items 6 & 15 pg 1	^
67-81	1	946-01007	Handle Subassembly (shown above)	#

# Placard Parts List

## Available in kit only 8940-01004

Item	Qty.	Part Number	Description	Kit
82	1	N/A	Identification Placard, TSL-50LP	*
83	1	N/A	Information Placard, Warning, TSL-50LP	*
84	1	N/A	Information Placard, Quick Coupler	*
85	1	670-10163	Closure, Plstic, Tapered	
86	1	N/A	Information Placard, Ram Retract	*
87	1	N/A	Information Placard, "Made in USA"	*
88	1	N/A	Information Placard, Warning Label	*
89	1	N/A	Information Placard, Multi Language	*
90	2	N/A	Notice, Ram Retract	*



## TSL-50LP TROUBLESHOOTING

### **PROBLEM: WILL NOT LIFT LOAD**

Possible Solutions:

1. Release stem is bent or damaged. Replace if needed.
2. Release knob is not tight enough. Tighten release knob.
3. Check ball is missing from behind the release stem. Install 1/4" steel check ball.
4. Unit is low on hydraulic fluid. Replenish with light hydraulic oil only.
5. Air pressure is too low. Raise the PSI going to the jack. PSI should range from 90-200 PSI.
6. Lifting too much weight. Use a lifting device with a higher lifting capacity.
7. Check ball is not seating. Remove, clean and re-seat check balls.
8. Seals are worn. Replace any worn parts if needed.

### **PROBLEM: RAM WILL NOT RETRACT**

Possible Solutions:

1. Main air supply to jack is not attached. These units have an air powered ram retract feature which requires the main air supply to be attached to the jack for lowering.
2. Oil reservoir is air bound (air has mixed with the hydraulic fluid). Follow this bleeding procedure:  
Leave main air supply attached to the jack. Locate the oil fill plug next to the main lifting ram on the jack. Slowly open the fill plug allowing any air to escape. If air or oil continues to escape then there is possibly an internal problem which may require rebuilding or replacing the power unit. If not replenish oil supply with **light hydraulic fluid only** and re-install fill plug.

### **PROBLEM: AIR MOTOR IS STALLING**

Possible Solutions:

1. Air pressure is too low. Raise the PSI going to the jack. PSI should range from 90-200 PSI.
2. Air motor piston needs lubricating. Insert a few drops of air tool oil into the airline & cycle jack.
3. Seals or parts are worn. Replace if needed.

### **PROBLEM: JACK IS SLOWLY LEAKING DOWN**

Possible Solutions:

1. Check balls are not seating. Remove, clean & re-seat check balls.
2. Check ball is missing from behind the release stem. Install 1/4" steel check ball.
3. Release knob is not tight enough. Tighten release knob.

### **PROBLEM: AIR IS ESCAPING FROM JACK**

Possible Solutions:

1. Some small air escaping can be normal. As long as it is not blowing hard enough to move the lift pad or effect the integrity of the lift (the lift itself is not seeping down) some air seepage may be normal.
2. If air escapes from the lift pad area, the seals at the bottom of the hydraulic cylinder need replaced (items 46 & 48).
3. If air escapes around the ram, the seals at the top of the hydraulic cylinder need replaced (item 39 & 40.)

## **TSL-50LP Hydraulic Fluid Checking/Filling Procedures**

### **Notice:**

The oil reservoir in the TSL jack is sealed and pressurized when in use. When checking the fluid level, DO NOT have the jack connected to the air supply.

1. Make sure ram is fully retracted.
2. Disconnect the air line.
3. Carefully remove the plastic fill plug (item 37) from the oil fill hole located on the top surface of the jack body.
4. Make sure the hole for the oil reservoir plug is clean & dry before removing the plug. Water and dirt can damage or destroy the hydraulic parts.
5. Remove plug (item 42) using a 3/16 Hex wrench.
6. Check fluid level. RAM MUST BE FULLY RETRACTED. The oil should be within ¼" of the bottom of the oil fill hole. If fluid is low, add a high-grade hydraulic fluid equivalent to Mobile Tellus T22. DO NOT use brake or transmission fluid.
7. Reinstall & secure the fill plug, replace the plastic plug, and connect to air supply and test for normal operation.

## **TSL-50LP Air Bleeding Procedures**

1. Leave air hose hooked up to jack
2. Open release knob on the top of the handle as if you were letting the jack down.
3. Slowly open the hydraulic fill plug (item 42) located underneath yellow plastic plug (item 37).
4. Allow air to escape; you can help this process by slowly pushing the ram down with your hand if it is already extended. Make sure all air and/or oil stop bubbling out.
5. If air and/or oil stop exhausting out, close fill plug and continue with use.
6. If air and/or oil continue to bubble out, the unit may be in need of repair or you may need to replace the power unit at this time. You may contact Gray's Customer Service Department at this time for parts or service.



## Field Service Instructions TSL-50LP

The following are precautionary notes to aide you in the reassembly of your TSL-50LP jack. All part numbers referred to are found on the Gray TSL-50LP Hydraulic Unit Parts List (670-90452 Rev C).

Do not remove any permanently installed plugs. There are no serviceable parts under these plugs.

Do not remove hydraulic cylinder, item 45, if it remains tight in the base plate, item 49.

After complete disassembly all parts should be thoroughly cleaned and dried before reassembly. Care should be taken to keep all contaminants out of the units. Be sure you install all seals correctly. An inverted seal or twisted quad ring will cause the unit to leak, operate abnormally, or not operate at all.

When installing the bladder, item 43, and outer barrel, item 44, the bottom sealing surface of the bladder and the groove in the base plate, item 49, must be completely dry. Set the assembly in place so that the outer barrel weldment (item 44) is located as shown. Then lubricate the top sealing surface and the top 1/4" of the inside surface of the bladder with a 50-50 mixture of STP and hydraulic oil. This will allow the jack cap, item 19, to spin onto the bladder without twisting it. If the bladder twists, the reservoir will not hold sufficient oil to get full stroke out of the ram. The outer barrel, item 44, must be held to prevent it from turning when tightening the jack cap, item 19. Be sure you have the 90 degree elbow, item 21, positioned correctly before tightening the jack cap. The jack cap should be tightened to 1100 ft-lbs. After the cap is tight, the reservoir should be filled with 32 oz. of Mobil DTE-11 hydraulic oil or equivalent. Consult the owner's manual for proper filling procedures.

When installing the hydraulic block, item 29, to the base plate, item 49, be sure the two mating surfaces are clean. Also make sure the quad rings, items 50, are installed properly. Assemble the parts using capscrews, item 36, and tighten to 35-40 ft-lbs. Install the air motor assembly using capscrews, items 36 and 35, to the hydraulic block. Use thread locking compound on all capscrews and tighten to 35-40 ft-lbs. Do not add lock washers.

Be sure to install the backup ring item 40, above the quad ring, item 39, in the jack cap, item 19.