

PETOL™ Tong Jack

TJA35

Operating Manual

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Form TJA35 revision 07/15/14

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PETOL™ Tong Jack Description

The TJA35 PETOL™ Tong Jack is a portable pneumatic powered actuator designed to provide the operating force on a tong handle. It was designed to eliminate the use of “cheaters” and overhead hoists on connections unable to be made up or broken out by hand.

The Tong Jack can produce up to 3500 pounds of force lifting on a tong handle. It is intended for use in a shop with a floor of adequate strength to support 3500 pounds.

The TJA35 offers the following features:

Tilting the unit back, and engaging the wheels allows the unit to be easily maneuvered around the workshop.

The applied force is controlled by adjusting an hydraulic relief valve on the side of the unit. A pressure gauge and pressure to force conversion chart are mounted to the unit to indicate the applied force produced.

The machine is operated by using minimum 40 psi regulated compressed air.

Tongs can be easily changed to accommodate different diameter ranges and torque requirements.

Warranty

What Is Covered

GEARENCH™ tools are expressly warranted to you, the purchaser, to be free of defects in material and workmanship.

How Long Coverage Lasts

This express warranty lasts for the lifetime of the GEARENCH tool. Warranty coverage ends when the tool becomes unusable for reasons other than defects in workmanship or material.

How Can You Get Warranty Service

To obtain the benefit of this warranty, contact a GEARENCH sales representative in Clifton, Texas.

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What Will We Do To Correct Problems

Warranted products will be repaired or replaced, at GEARENCH's option, and returned at no charge to you, the original purchaser; or, if after three attempts at repair or replacement during the warranty period, the product defect in material or workmanship persists, you can elect to receive a full refund of your original purchase price for the product.

What Is Not Covered

Defects, failures or conditions that are due to normal wear and tear, abuse or misuse, are not covered by this limited warranty. In addition, this limited warranty is in lieu of all other warranties, express or implied, verbal or written. To the maximum extent allowed by law GEARENCH disclaims all implied warranties, including implied warranties of merchantability and/or fitness for a particular purpose. GEARENCH also specifically denies any liability for any incidental damages and/or consequential damages, including but not limited to property damage to property other than the product itself, loss of sales profits, down time, costs or any other damages measurable in money, whether or not included in the foregoing enumeration.

Please be advised that some states do not allow the exclusion or limitation of incidental or consequential damages, so this limitation or exclusion may not apply to you. This warranty gives you specific rights, and you may also have other rights, which vary from state to state, province to province, or country to country.

Are Personal Injuries Covered

In the event you, someone working for you, or any other person sustain a personal injury as a result of using the GEARENCH tool, GEARENCH limits its potential liability for such a claim or injury to the fullest extent allowed by law, and disclaims and denies any liability for such personal injury.

Please be advised that some states do not allow the exclusion or limitation of liability for personal injuries, so the above limitation or exclusion may not apply to you, or the individual claiming injury.

No Other Express Warranty Applies

This GEARENCH LIMITED WARRANTY is the sole and exclusive warranty, express or implied for GEARENCH products. No employee, agent, dealer or other person is authorized to alter, modify, expand or reduce the terms of this warranty or to make any other warranty on behalf of GEARENCH.

Law Applicable

All matters related to the sale and/or use of the GEARENCH tool that is the subject of this limited warranty, along with the construction and enforcement of the terms of this limited warranty itself, shall be subject to the substantive and procedural laws of the state of Texas, not the conflicts of laws provisions of Texas, but rather the laws of Texas themselves.

Forum Selection Clause

Any dispute arising out of the sale and/or use of the GEARENCH tool that is the subject of this limited warranty shall be presented in the form of a claim or lawsuit to the offices of GEARENCH in Clifton, Bosque County, Texas. No claim or suit may be brought against GEARENCH, arising out of the sale and/or use of the tool, or arising out of the terms of this warranty, except in such forum. Purchase and/or use of the GEARENCH tool makes you subject to the benefits and limitations of this limited warranty. Accordingly, any writ, judgment or other enforcement, obtained from a jurisdiction, county, parish, state or federal court or other country, other than from the forum identified above, shall be void and unenforceable against GEARENCH.

Arbitration Clause

In the event of dispute or claim arises out of the sale and/or use of the GEARENCH tool that is the subject of this limited warranty, or arises out of the interpretation or enforcement of the terms and conditions of this limited warranty, such dispute shall be submitted to binding arbitration pursuant to the rules of the American Arbitration Association. If required to accomplish the purpose of this Arbitration clause, the purchaser hereby expressly waives any right to demand trial by jury.

Complete Agreement

This express limited warranty contains the entire agreement regarding express or implied warranties related to the GEARENCH tool that is the subject of it. No writing or language contained in the purchase order or any other document of the purchaser, or invoice of GEARENCH or any intermediate seller, shall be construed as modifying, in any way, the rights and liabilities contained in this limited warranty. GEARENCH expressly disclaims any obligations expressed in any customer purchase order or document that are contrary to the terms and limitations of this warranty.

Severability

If any term or limitation contained in this limited warranty is deemed unenforceable by law, then the term shall be severed from the remaining portions of the limited warranty which shall remain enforceable.

All communications to GEARENCH regarding the use of the tool and any aspect of the sale of the tool of this limited warranty should be addressed to GEARENCH.

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Safe Practices and Procedures

Responsibility

"It is the responsibility of the employer to train the employee in the proper selection and usage of tools, chains, etc., and to ensure that they are selected and used in that manner. In many instances, injury results because it is assumed that anybody knows how to use common hand tools. Observations and the record show that this is not the case. A part of every job instruction program should therefore be detailed training in the proper use of hand tools (and of all other special tools and equipment needed to accomplish the job)." - (Source: National Safety Council)

"Employers are responsible for the safe condition of tools and equipment used by employees, including tools and equipment which may be furnished by employees." - (Source: OSHA 1910.242A)

Replacement Parts

Use only PETOL™ replacement parts - no other parts are of comparable strength, quality and interchangeability.

Safety

While we pride ourselves on the quality and dependability we build into GEARENCH™ tools and products, we caution users that it is only prudent to know and follow the simple rules of safety when using our products, or anyone else's.

Always follow safe practices and procedures in accordance with the recommendations of OSHA, The National Safety Council (NSC), The Hand Tools Institute (HTI), The National Association of Chain Manufacturers (NACM), The International Association of Drilling Contractors (IADC), Etc. All applicable Governmental rules, regulations or restrictions, now in effect or which may be promulgated, take precedence over the suggestions in this publication. The information in this publication is designed to supplement standard safe practices and procedures, not in lieu of, or replacement thereof.

Safe Practices

(Source: The National Safety Council)

Failure to observe one or more of the following five safe practices accounts for most hand and powered tool accidents:

1. ALWAYS WEAR SAFETY GOGGLES TO PROTECT EYES
2. SELECT THE RIGHT TOOL FOR THE JOB
3. KEEP TOOLS IN GOOD CONDITION
4. USE TOOLS CORRECTLY
5. KEEP TOOLS IN A SAFE PLACE

Safety Goggles must always be worn by persons in any area where hand and powered tools are being used.

Never apply excess leverage to a wrench or tool by means of a "Cheater Bar". Never strike wrenches and tools with hammers or other objects.

All tools should be kept clean, inspected on a regular basis, and replaced when they show signs of wear.

Be especially careful not to place yourself in a position that could result in bodily injury in the event of a failure. Brace yourself firmly and pull rather than push when wrenching. (If necessary to push, do so with the flat of the hand rather than gripping around the wrench.)

Never stand under or near loads being hoisted off the ground.

READ SAFE PRACTICES AND PROCEDURES MANUAL, CATALOG INFORMATION AND PRODUCT LABELING PRIOR TO OPERATION.

Spinning and drill pipe chain, cathead chain, and the PETOL™ Connecting Link attachment are designed for the specific purpose for which the name indicates. Chains and attachments that are to be used for any other purpose should be selected in accordance with the recommendations of ASTM, NACM, Rigger's Handbook, and the commercial chain manufacturer's technical manuals.

Safety Sources and Publications

In the interest of Safety the following sources of Safety information is furnished:

The Hand Tools Institute (HTI)
25 North Broadway
Tarrytown, New York 10591
(914) 332-0040
www.hti.org

The National Safety Council (NSC)
1121 Spring Lake Drive
Itasca, Illinois 60143-3201
(630) 285-1121
www.nsc.org

International Safety Council
1121 Spring Lake Drive
Itasca, Illinois 60143-3201
(630) 285-1121

Responsibility of Distributors

IT IS THE RESPONSIBILITY OF THE PURCHASERS OF GEARENCH PRODUCTS TO CONVEY THE INFORMATION IN THIS PUBLICATION AND ANY OTHER INFORMATION RELATING TO THE INDIVIDUAL PRODUCT, THROUGH THE CHANNELS OF DISTRIBUTION, DOWN TO AND INCLUDING THE INDIVIDUAL USING THE PRODUCT

NOTE:

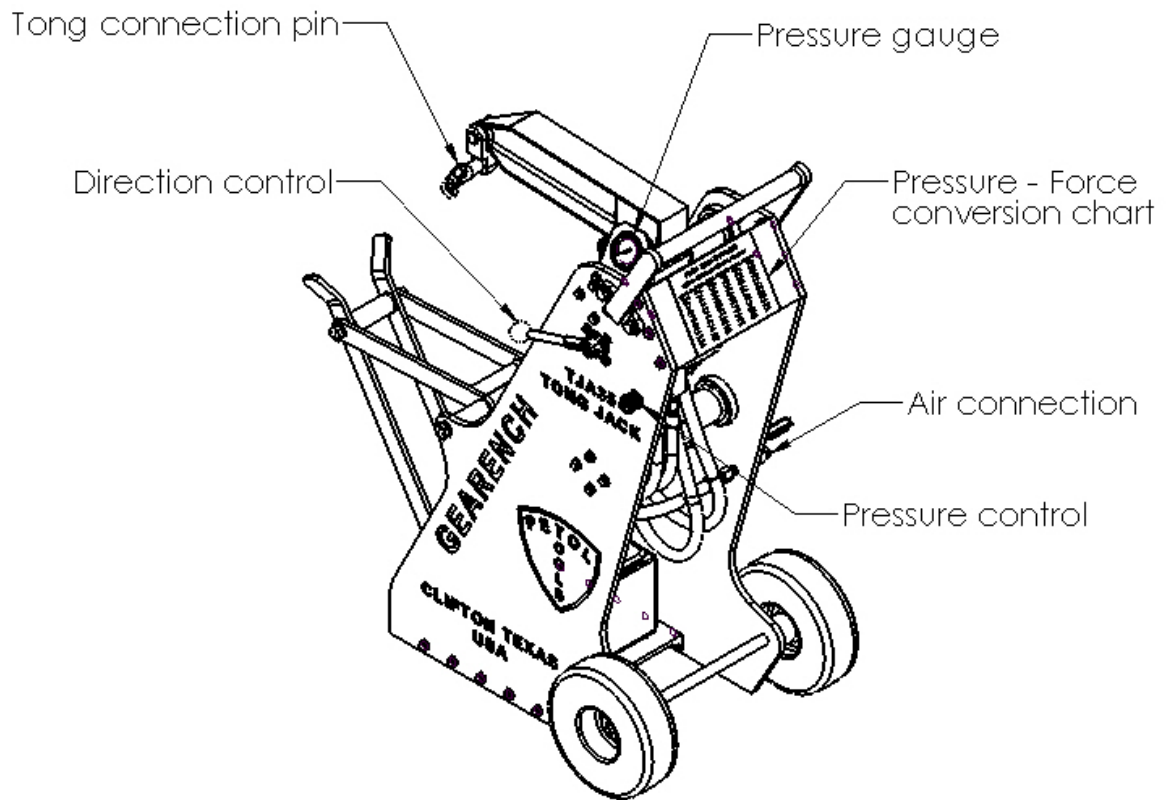
In view of the fact that the actual use determines whether safety requirements have been met, the ultimate responsibility to comply rests with the end user.

Safety Precautions

1. Select the right tool for the job.
2. Keep tools in good condition.
3. Use tools correctly.
4. Keep tools in a safe place.
5. Wear protective clothing, gloves and safety shoes as appropriate.
6. Use only PETOL™ & TITAN™ replacement parts to ensure proper strength.
7. Do not exceed limitations of machine.
8. Do not use machine for unintended purposes.
9. Inspect machine prior to use.
10. Use pressure control to regulate force.
11. Place machine close to vise.
12. Review operating manual and procedures prior to use.
13. Do not place tong on non-uniform surfaces.
14. Do not place tong on thin sections.
15. Insure all dies and inserts are in good working condition on tong and vise
16. Remove any unserviceable equipment from service.
17. If equipment slips in vise, stop and reset vise.
18. Insure proper body placement during operation.
19. Insure proper hand placement.
20. Remove trip hazards and unnecessary objects from area.
21. Wear appropriate personal protection equipment.

Operation

The operating controls of the PETOL™ Tong Jack are shown in the figure below. The pressure gauge is used to monitor and adjust the operating pressure. The pressure to force conversion chart is used to determine the actual force in pounds being applied to the tong. The air connection supplies the compressed air to the unit. The pressure control regulates the output pressure and adjusts the force produced. Turning the knob clockwise increases the pressure. Turning the knob counter-clockwise reduces the pressure. The direction control causes the arm to raise or lower. Lift the control to raise the arm, lower the control to lower the arm. The tong connection pin connects to the tong handle. If the tong has a clevis on the handle, use the “y” shaped link shown in the diagram. If the tong has a single handle loop, use two flat plate links in place of the “y” link.



Pressure to Force Conversion Chart

The chart below is in “force”. Torque is typically measured in foot-pounds. In order to calculate the torque, the length from the load pin to the pipe center must be known in inches. The torque in food pounds can then be calculated by the formula:

$$\text{Torque (foot-pounds)} = \text{Force (lbs)} \times \text{Length (inches)} / 12$$

Pressure - Force Conversion Chart			
Pressure (psi)	Force (lbs)	Pressure (psi)	Force (lbs)
170	200	1630	1900
260	300	1710	2000
340	400	1800	2100
430	500	1890	2200
510	600	1970	2300
600	700	2060	2400
690	800	2140	2500
770	900	2230	2600
860	1000	2310	2700
940	1100	2400	2800
1030	1200	2490	2900
1110	1300	2570	3000
1200	1400	2660	3100
1290	1500	2740	3200
1370	1600	2830	3300
1460	1700	2910	3400
1540	1800	3000	3500

Making-Up a Connection

Place the tool into a suitable vise with the connection as close to the vise as possible. Make up the tool by hand as tight as possible. Place the tong as close to the connection as possible. Move the Tong Jack into position and connect the tong to the Tong Jack. Connect the air supply to the Tong Jack. Lower the arm as far as possible. With the arm fully lowered, adjust the pressure control to provide the required torque.

WARNING: Under no circumstances should the maximum working load of the tong or vise be exceeded. The tong jack may be capable of providing more force than the tong is rated for.

Lift the arm to apply force to the tong. If the tong arm reaches the end of its travel, lower the arm, insure that the tong is still properly latched, and raise the arm again. Continue raising the arm until the arm stops moving. The tool will then be full made up. Lower the arm and unlatch the tong.

Breaking-Out a Connection

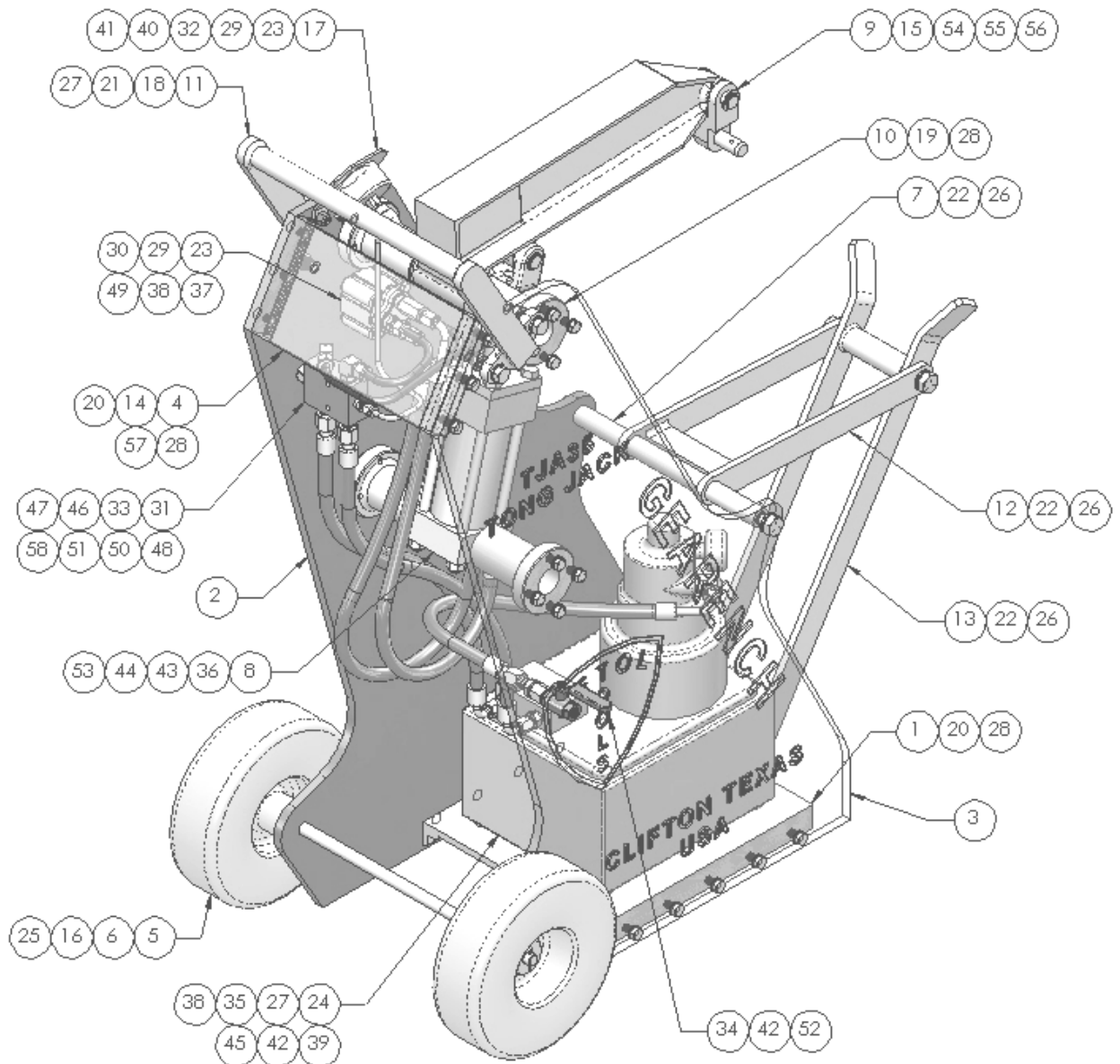
Place the tool into a suitable vise with the connection as close to the vise as possible. Place the tong as close to the connection as possible. Move the Tong Jack into position and connect the tong to the Tong Jack. Connect the air supply to the Tong Jack. Lower the arm as far as possible. With the arm fully lowered, adjust the pressure control fully counter-clockwise to achieve the minimum pressure possible. Raise the tong until the arm stops moving. Continue lifting on the tong handle while **SLOWLY** increasing the pressure until the connection breaks. Do not adjust the pressure higher than the rating of the tong or vise. If the connection does not break before reaching the rating of the tong, vise, or maximum pressure of the Tong Jack, stop the operation and use a safe method of producing higher torque. Should you need assistance, please contact GEARENCH™ for help in selecting appropriate equipment.

WARNING: Under no circumstances should the maximum working load of the tong or vise be exceeded. The tong jack may be capable of providing more force than the tong is rated for.

Lower the arm and unlatch the tong.

Parts List

The following drawing and parts list describe all parts, which may be needed as replacement items. Where appropriate, standard industrial, electrical, and hydraulic components have been used. Should a standard industrial item need replacing, the item may be purchased locally. To assist you in obtaining parts, the OEM component manufacturer and model numbers are shown on the parts list. Of course, all replacement parts will be supplied by GEARENCH™ if you prefer to order from us.



Parts List

Item	Qty.	Part Number	Description	Notes
1	1	TJB35	Base	
2	1	TJL35	Left plate	
3	1	TJR35	Right plate	
4	1	TJC35	Control panel	
5	2	TJW35-1	Wheel	McMaster-Carr 22245T17 (or equal)
6	1	TJW35-2	Axle	
7	1	TJG35	Guard	
8	1	TJY35	Hydraulic cylinder	Vickers (or equal) NZ16EE5N5KA04000
9	1	TJM35	Arm	
10	4	TJT35	Trunion mount	
11	1	TJH35	Handle	
12	1	TJS35-1	Tong support arm	
13	1	TJS35-2	Tong support leg	
14	1	TJN35	Nameplate	
15	1	HP375	Quick release pin	Carr-Lane CL-12-BLPT-3.00 (or equal)
16	2	HXC002	Cotter pin	1/8 x 1
17	2	HXN010	Locknut	5/16-18UNC nylon insert
18	4	HXN016	Locknut	1/2-13UNC heavy flexlock
19	16	HXS003	Hex bolt	3/8-16UNC x 1-1/4
20	16	HXS006	Hex bolt	3/8-16UNC x 1
21	4	HXS007	Hex bolt	1/2-13UNC x 2
22	6	HXS029	Hex bolt	5/8-11unc x 1-1/2
23	6	HXS069	Hex bolt	5/16-18UNC x 1-1/4
24	4	HXS072	Hex bolt	1/2-20UNF x 1
25	4	HXW003	Flat washer	5/8
26	6	HXW004	Spring lock washer	5/8
27	8	HXW005	Spring lock washer	1/2
28	32	HXW006	Spring lock washer	3/8
29	6	HXW008	Spring lock washer	5/16
30	2	UHCH-F97	Male connector	Swagelok S-600-1-6 (or equal)
31	2	UHCH-F15	Male elbow	Swagelok S-600-2-6ST (or equal)
32	1	UHCH-F95	Female elbow	Swagelok S-400-8-4 (or equal)
33	1	UHCH-F71	Male connector	Swagelok S-400-1-4 (or equal)
34	1	UHCH-F88	Female bulkhead	Weatherhead C5275X6 (or equal)
35	1	UHCH-F89	Male elbow	Weatherhead C5405X6X6 (or equal)

Item	Qty.	Part Number	Description	Notes
36	2	UHCH-F91	Male elbow	Weatherhead C5515X6X8 (or equal)
37	1	UHCH-F96	Male connector	Parker 6-6FFTX-S (or equal)
38	3	UHCH-F94	Male connector	Weatherhead C5205X6X6 (or equal)
39	1	UHCH-F45	Reducer bushing	Weatherhead C31095X8X6 (or equal)
40	1	UHCH-G08	Pressure gauge	Wika 9318275-UC (or equal)
41	1	UHCH-G10	Gauge mount	
42	3	UHCH-H12	Hydraulic hose	Gates (or equal) 6C2AT-6FJX90M-6FJX-23
43	1	UHCH-H13	Hydraulic hose	Gates (or equal) 6C2AT-6FJX90M-6FJX-37
44	1	UHCH-H14	Hydraulic hose	Gates (or equal) 6C2AT-6FJX90M-6FJX-29
45	1	UHCH-P21	Hydraulic pump	Power Team PA55A-B-A-A-A-A-A-B-D-BB-A-G
46	1	UHCH-T014	Hydraulic tube	
47	1	UHCH-T015	Hydraulic tube	
48	1	UHCH-T016	Hydraulic tube	
49	1	UHCH-V45	Directional valve	Barksdale 6942S23H03-MC
50	1	UHCH-V46	Relief valve cartridge	Sun RPEE-OAN
51	1	UHCH-V48	Relief valve body	
52	1	UHCH-V49	Ball valve (brass)	McMaster –Carr 47865K41 (or equal)
53	1	UHCY-ZB-RC	Cylinder rod clevis	Vickers S-462-10 (or equal)
54	1	TMW35	Master link	
54A	2	18-1-A	Chain link	Not shown, use in place of master link for single tong handle loop
55	1	HP009	Master link – arm pin	
56	1	HXKR075	Klipring	Rotor-clip PO-75 STPA (or equal)
57	4	HXBR001	Blind rivet	3/16 X 1/4
58	2	UHCH-F92	Male connector	Weatherhead C5315X6 (or equal)