

# **PETOL™ Tong Jack**

## **TJA35 / TJA35T**

# **Operating Manual**

**PETOL™ GEARENCH**

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## **PETOL™ Tong Jack Description**

The TJA35 and TJA35T 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 and TJA35T 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 a 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.

The TJA35 will lift the tong handle from approximately 22.67 to 39.46 inches above the floor. The TJA35T will lift the tong handle from approximately 34.67 to 51.46 inches above the floor.

## **PETOL™ GEARENCH Limited Warranty**

### **What Is Covered**

PETOL™ 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 PETOL 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 PETOL GEARENCH sales representative in Clifton, Texas.

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### **What We Will Do To Correct Problems**

Warranted products will be repaired or replaced, at PETOL 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 PETOL GEARENCH disclaims all implied warranties, including implied warranties of merchantability and/or fitness for a particular purpose. PETOL 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 PETOL GEARENCH tool, PETOL 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 PETOL GEARENCH LIMITED WARRANTY is the sole and exclusive warranty, express or implied for PETOL 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 PETOL GEARENCH.

### **Law Applicable**

All matters related to the sale and/or use of the PETOL 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 PETOL 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 PETOL GEARENCH in Clifton, Bosque County, Texas. No claim or suit may be brought against PETOL 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 PETOL 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 that from the forum identified above, shall be void and unenforceable against PETOL GEARENCH.

**Arbitration Clause**

In the event of dispute or claim arises out of the sale and/or use of the PETOL 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 PETOL 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 PETOL GEARENCH or any intermediate seller, shall be construed as modifying, in any way, the rights and liabilities contained in this limited warranty. PETOL 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 PETOL GEARENCH regarding the use of the tool and any aspect of the sale of the tool of this limited warranty should be addressed to PETOL 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™ & TITAN™ 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 PETOL™ 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**

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

Persons in any area where hand or powered tools are being used must always wear safety goggles.

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. See diagram on page 20.

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

## **Responsibility of Distributors**

IT IS THE RESPONSIBILITY OF THE PURCHASERS OF PETOL 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.**

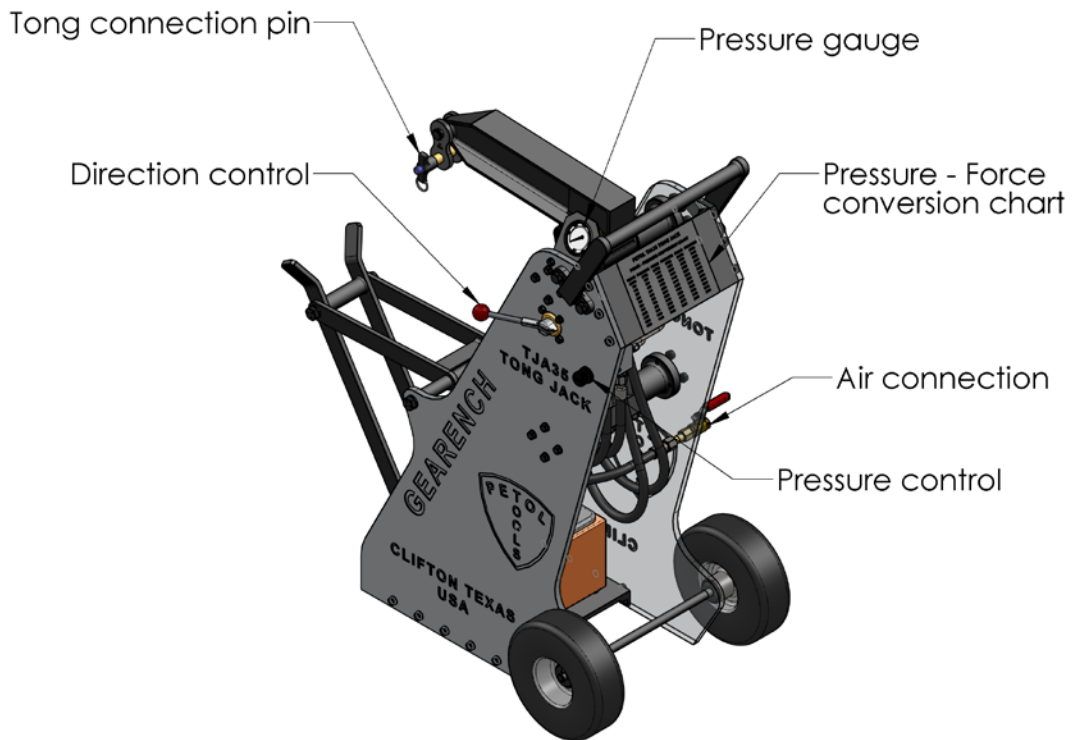
## **Safety Precautions**

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 appropriate personal protection equipment.
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. Ensure 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.



## 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:

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

<b>Pressure - Force Conversion Chart</b>			
<b>Pressure (psi)</b>	<b>Force (lbs)</b>	<b>Pressure (psi)</b>	<b>Force (lbs)</b>
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, ensure 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 PETOL™ 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.**

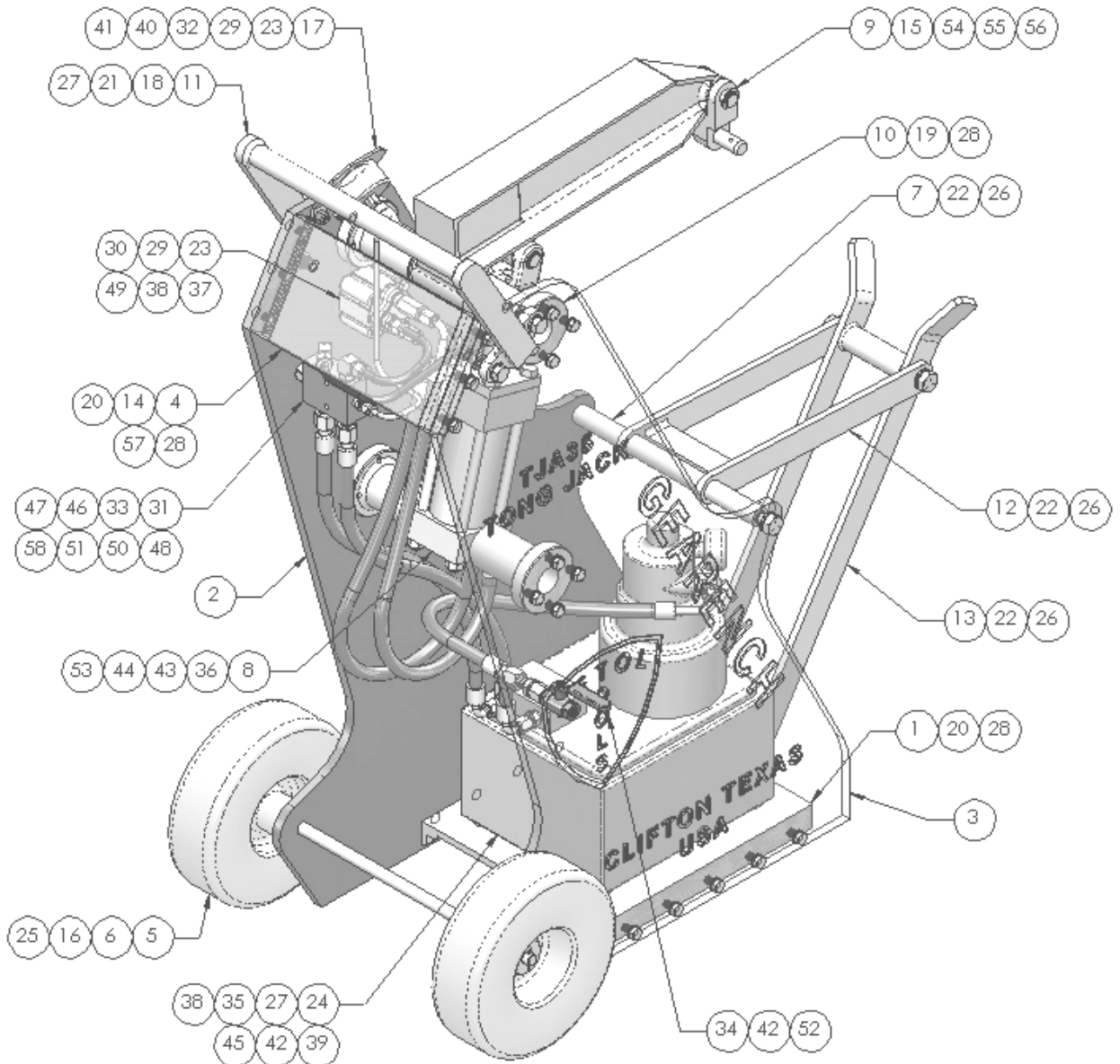
Lower the arm and unlatch the tong.

### **Maintenance**

It is recommended that the PETOL™ Tong Jack be inspected daily for cracked hydraulic hoses, leaking fittings, hydraulic reservoir fluid level, and damaged or missing fasteners or components. Any issues identified above must be repaired prior to use.

## 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 PETOL™ 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	TJA35 only
2	1	TJL35T	Left plate	TJA35T only
3	1	TJR35	Right plate	TJA35 only
3	1	TJR35T	Right plate	TJA35T only
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)

Item	Qty.	Part Number	Description	Notes
35	1	UHCH-F89	Male elbow	Weatherhead C5405X6X6 (or equal)
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)