

PITTSBURGH[®] AUTOMOTIVE

Foldable Engine Crane



93840 1-Ton Engine Crane

⚠ WARNING

Read this material before using this product. Failure to do so can result in serious injury. **SAVE THIS MANUAL.**

When unpacking, make sure that the product is intact and undamaged. If any parts are missing or broken, please call 1-800-444-3353 as soon as possible.

Visit our website at: <http://www.harborfreight.com>

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Save This Manual

Keep this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's serial number in the back of the manual near the assembly diagram (or month and year of purchase if product has no number). Keep this manual and the receipt in a safe and dry place for future reference.

Specifications

1 Ton	70-3/4 IN.
3/4 Ton	75 IN.
1/2 Ton	79 IN.
1/4 Ton	82-3/4 IN.
Jack Capacity	3 Ton

Box A

Part	Description	Qty
29	Leg	2
26	Support	2
25	Support Post	1
24	Boom	1
23	Boom Extension	1
27	Jack	1
31	Handle	1

Box B

Part	Description	Qty
28	Base	1
	Assembly Hardware and Casters	Lot

Important Safety Information



In this manual, on the labeling, and all other information provided with this product:

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to personal injury.

CAUTION

CAUTION, without the safety alert symbol, is used to address practices not related to personal injury.

Safety Warnings



WARNING Read all safety warnings and instructions. *Failure to heed these markings may result in personal injury and/or property damage.* **Save all warnings and instructions for future reference.**

1. Study, understand, and follow all instructions before operating this device.
2. Do not exceed **1 ton** rated capacity for the Engine Crane.
3. Use only on hard, level surfaces.
4. Before moving, lower the load to the lowest possible point.
5. Use only sling or chains with a rated capacity greater than the weight of the load being lifted.
6. Do not allow load to swing or drop violently while lowering or moving.
7. Do not make any alterations or modifications to Shop Crane. Do not adjust safety valve.
8. Properly extend leg extensions and secure boom in proper setting before use.
9. Follow capacities marked on boom; capacity decreases as boom lengthens.
10. Wear ANSI-approved safety goggles and heavy-duty work gloves during use.
11. Verify replacement jack has same rating, mounting points and maximum length.
12. Do not use for aircraft purposes.
13. Inspect before every use; do not use if parts loose or damaged.
14. Keep your work area clean and well lit. Cluttered work areas invite accidents.
15. Keep bystanders, children, and visitors away while operating Engine Crane. Distractions can cause you to lose control.
16. Stay alert. Watch what you are doing, and use common sense when operating a jack. Do not use a jack while tired or under the influence of drugs, alcohol, or medication. A moment of inattention while operating jacks may result in serious personal injury.

17. Follow instructions in the “Inspection, Maintenance, And Cleaning” section of this manual. Use of unauthorized parts or failure to follow maintenance instructions may create a risk of injury and may void any applicable warranty.
18. Maintain labels and nameplates on the Engine Crane. These carry important information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
19. Before use, read manufacturer’s instruction manual for the object you will lift.
20. Industrial applications must follow OSHA requirements.
21. The warnings, precautions, and instructions discussed in this manual cannot cover all possible conditions and situations that may occur. The operator must understand that common sense and caution are factors, which cannot be built into this product, but must be supplied by the operator.



**SAVE THESE
INSTRUCTIONS.**

Assembly

⚠ WARNING

TO PREVENT SERIOUS INJURY AND DEATH: The correct bolts must be used during assembly. Carefully compare the bolts listed in the parts list and assembly diagrams near end of this manual to make sure that correct bolts are used in the correct place.

WARNING! For safety and ease of assembly, use two people to assemble the Engine Crane.

IMPORTANT! DO NOT TIGHTEN ANY BOLTS UNTIL YOU ARE FULLY FINISHED WITH ASSEMBLY. OTHERWISE PARTS WILL NOT LINE UP PROPERLY.

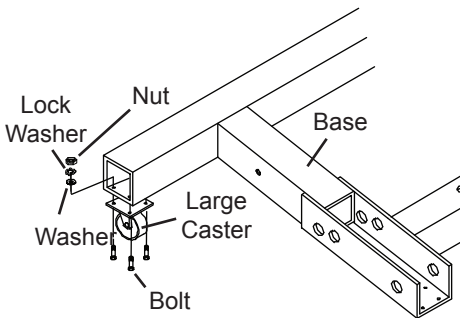


Figure 1

1. To attach two Large Casters to the rear section of the Base

of the Foldable Shop Crane, align the four mounting holes in each Large Caster with the four mounting holes on the underside of each Base end. Secure a Large Caster in place, using four Bolts, four Washers, four Lock Washers, and four Nuts.

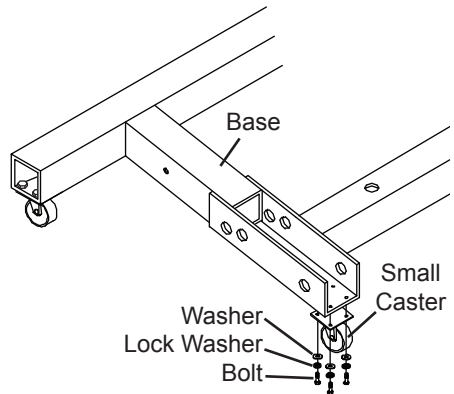


Figure 2

2. To attach two Small Casters to the front section of the Base of the Foldable Shop Crane, align the four mounting holes in each Small Caster with the four mounting holes on the underside of each base end. Secure a Small Caster in place, using four Bolts, four Washers, and four Lock Washers.

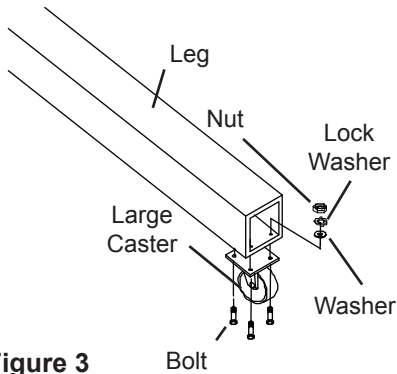


Figure 3

- To attach one Large Caster to each Leg of the Foldable Shop Crane, align the four mounting holes in each Large Caster with the four mounting holes on the underside of each Leg. Secure a Large Caster in place, using four Bolts, four Washers, four Lock Washers, and four Nuts.

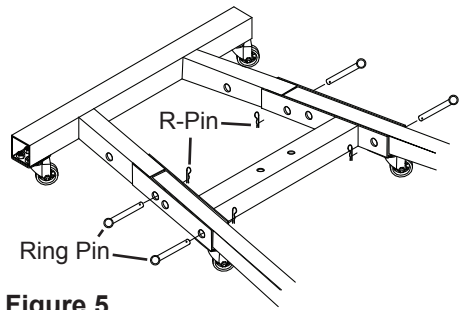


Figure 5

- Lock Legs in place using the Ring Pins. To insert the Ring Pins, lift up on front of Base until holes line up. After all four Ring Pins are inserted, insert one R-Pin through small hole at end of each Ring Pin until it snaps into place.

Note: Make sure Ring Pins are secure before proceeding.

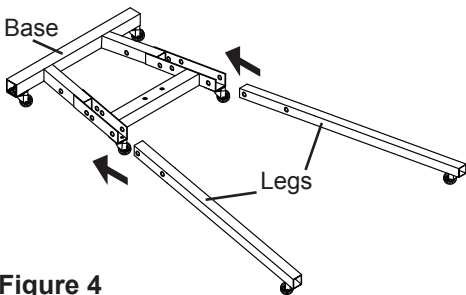


Figure 4

- Slide Legs into front of the Base.

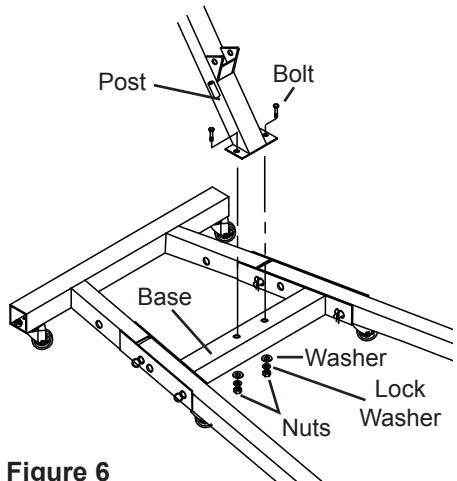


Figure 6

- Use the Bolts, Lock Washers, Washers, and Nuts to secure the bottom of the Post to the Base.

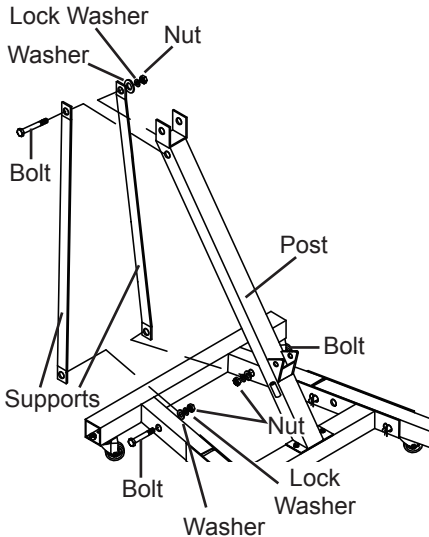


Figure 7

- Use two Bolts, Lock Washers, Washers and Nuts to fasten the lower ends of the Supports to the inside of the Frame, then use one Bolt, Lock Washer, Washer and Nut to fasten the top ends of the Supports to the Post.

Note: The bends of the Supports face out at the top and in at the bottom.

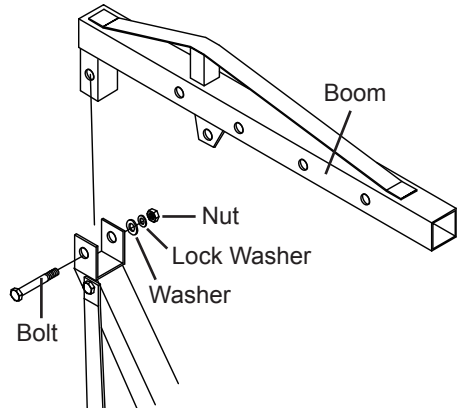


Figure 8

- Use the Bolt, Lock Washer, Washer and Nut to attach the Boom to the top of the Post.

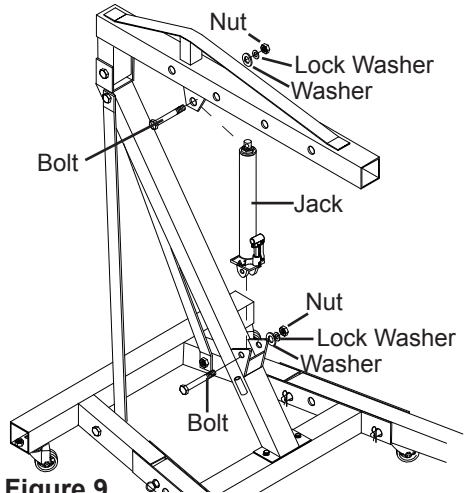


Figure 9

- Use a Bolt, Lock Washer, Washer and Nut to attach lower end of the Jack to the Post and another Bolt, Lock Washer, Washer and Nut to attach the top of the Jack to the Boom.

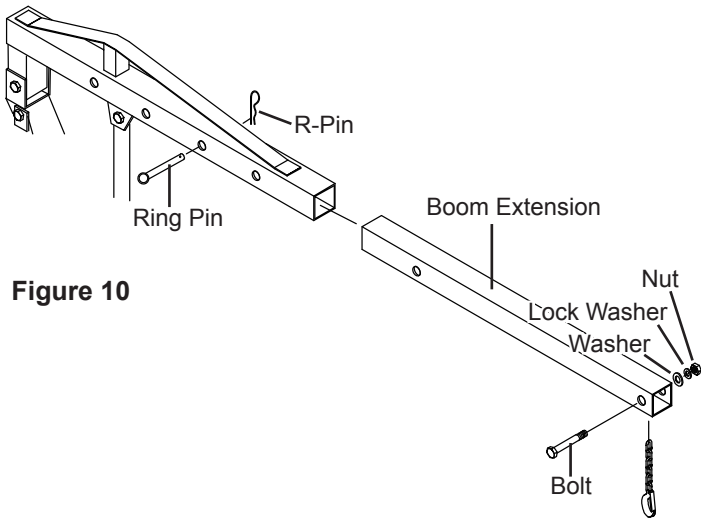


Figure 10

10. Slide the Boom Extension into the Boom and use the Ring Pin and R-Pin to secure at the desired load rating. Use the Bolt, Washer, Lock Washer and Nut to attach the Hook and Chain to the end of the Boom Extension.

Operating Instructions



Read **ENTIRE IMPORTANT SAFETY INFORMATION** section at the beginning of this manual, including all text under subheadings therein before set up or use of this product.

Note: Once Assembly is fully completed, tighten ALL Bolts before initial operation.

Lifting and Lowering

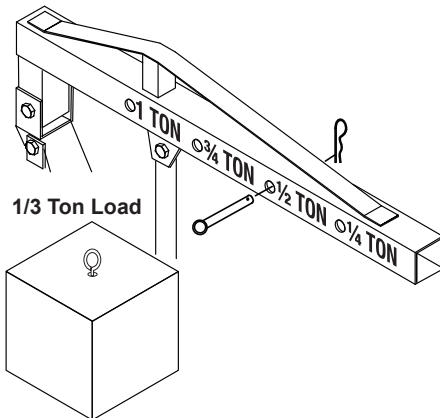


Figure 11

1. Locate the hole on the Boom with a weight limit higher than the weight you will be lifting.
For example: Locate the 1/2 TON hole on the Boom for a load that is under 1/2 Ton. See Figure 11 above.

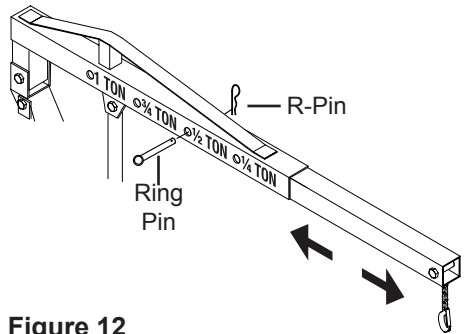


Figure 12

2. Adjust the Boom Extension so the hole furthest from the hook-end aligns with the chosen hole on the Boom. Secure into place by inserting the Bolt through all aligned holes and tightening in place with the Washer and Nut. See Figure 12 above.

WARNING! Do not stand under an object that is being lifted by the Shop Crane. Be aware of the possibility of a load slipping off the Hook and Chain. An item that falls from the Crane can cause serious injury.

3. Move the Crane so that the Hook and Chain is directly above the item to be lifted.
4. Securely attach the Hook and Chain to the item.
5. To raise the Boom, turn the Jack's release valve fully clockwise (right). Insert the Handle into the Jack and pump (up and down) repeatedly until the item has been lifted to the desired height.

WARNING! Be sure to fully tighten the release valve or else the Jack may lower or may not be able to reach the full height.

WARNING! DO NOT MOVE THE CRANE WHEN UNDER LOAD. The Casters are not designed to be rolled when the Crane is lifting heavy objects.

6. To lower the Crane, **SLOWLY** turn the Jack's release valve counterclockwise (left).

Folding the Frame

WARNING! Do not fold crane while loaded.

1. Lower Crane all the way.
2. Remove R-Pins from the front Ring Pins. Remove the front Ring Pins. Leave rear Ring Pins in.
3. Raise Leg until it rests against Handle.
4. Insert a front Ring Pin into the middle hole of the Base, for each Leg, and reinsert R-Pins.

Note: Be certain that, when unfolding, both Ring Pins and R-Pins are placed back in the proper places.

Bleeding Instructions

IMPORTANT! Before first use, check for proper hydraulic oil level and thoroughly test the equipment. If it does not work properly, bleed excess air from its hydraulic system as follows:

1. Open Release Valve and lower Jack completely.
2. Remove Oil Plug and fill with hydraulic oil (sold separately) to full level.
3. Apply downward pressure to the Boom and Pump the Jack Handle quickly several times.
4. Check the Oil Fill Hole and, if necessary, top off the Oil Fill Hole with hydraulic oil.
5. Replace the Oil Plug and close the Release Valve.
6. Test the equipment several times for proper operation before attempting to lift a load. If, after bleeding, the equipment still does not appear to be working properly, do not use the equipment until it has been repaired by a qualified service technician.

Maintenance and Servicing



Procedures not specifically explained in this manual must be performed only by a qualified technician.



WARNING

**TO PREVENT
SERIOUS**

**INJURY FROM ACCIDENTAL
OPERATION: Do not use
damaged equipment. If
abnormal noise or
vibration occurs, have
the problem corrected
before further use.**

Cleaning, Maintenance, and Lubrication

1. **Before each use**, inspect the general condition of the Jack. Check for broken, cracked, or bent parts, loose or missing parts, and any condition that may affect the proper operation of the product. If a problem occurs, have the problem corrected before further use.
Do not use damaged equipment.
2. **Before each use, thoroughly test the Jack for proper operation prior to its actual use. If the Jack appears *not* to be working properly, follow *Bleeding* instructions on page 9.**
3. **Change the hydraulic oil at least once every three years:**
 - a. With the Jack fully lowered, remove the Oil Filler Plug on the side of the Housing.
 - b. Tip the Jack to allow the old hydraulic oil to drain out of the Housing completely, and dispose of the old hydraulic oil in accordance with local regulations.
 - c. With the Jack upright, completely fill the Housing with a high quality hydraulic oil (not included) until the oil just begins to run out of the Oil Fill Hole.
 - d. Open the valve Release Screw and pump the Handle to bleed air from the system.
 - e. Reinstall the Oil Filler Plug.
4. Wipe dry with a clean cloth. Then, store the Jack in a safe, dry location out of reach of children and other non-authorized people.

Troubleshooting

⚠️ WARNING

TO PREVENT SERIOUS INJURY: Use caution when troubleshooting malfunctioning jack. Stay clear of supported load. Completely resolve all problems before use. If solutions presented in Troubleshooting guide do not solve the problem, have a qualified technician inspect and repair jack before use. After jack is repaired: Test it carefully without a load by raising and lowering it fully, checking for proper operation, BEFORE RETURNING JACK TO OPERATION.

DO NOT USE A DAMAGED OR MALFUNCTIONING JACK!

POSSIBLE SYMPTOMS						PROBABLE SOLUTION (Make certain that the Jack is not supporting a load while attempting a solution.)
Jack will not lift at its weight capacity	Chain and/or Hook lowers under load	Pump stroke feels spongy	Chain and/or Hook will not lift all the way	Handle moves up when Jack is under load	Oil leaking from Filler Plug	
X	X					Check that Release Valve is closed fully. Bleed air from the system.
X	X			X		Valves may be blocked and may not close fully. To flush the valves: 1. Lower the Chain / Hook and securely close the Release Valve. 2. Manually lift the Chain / Hook several inches. 3. Open the release valve and force the Chain / Hook down as quickly as possible.
X		X	X			Jack may be low on oil. Check the oil level and refill if needed. Jack may require bleeding - see instructions on page 9.
					X	Unit may have too much hydraulic oil inside, check fluid level and adjust if needed.

Jack Parts List

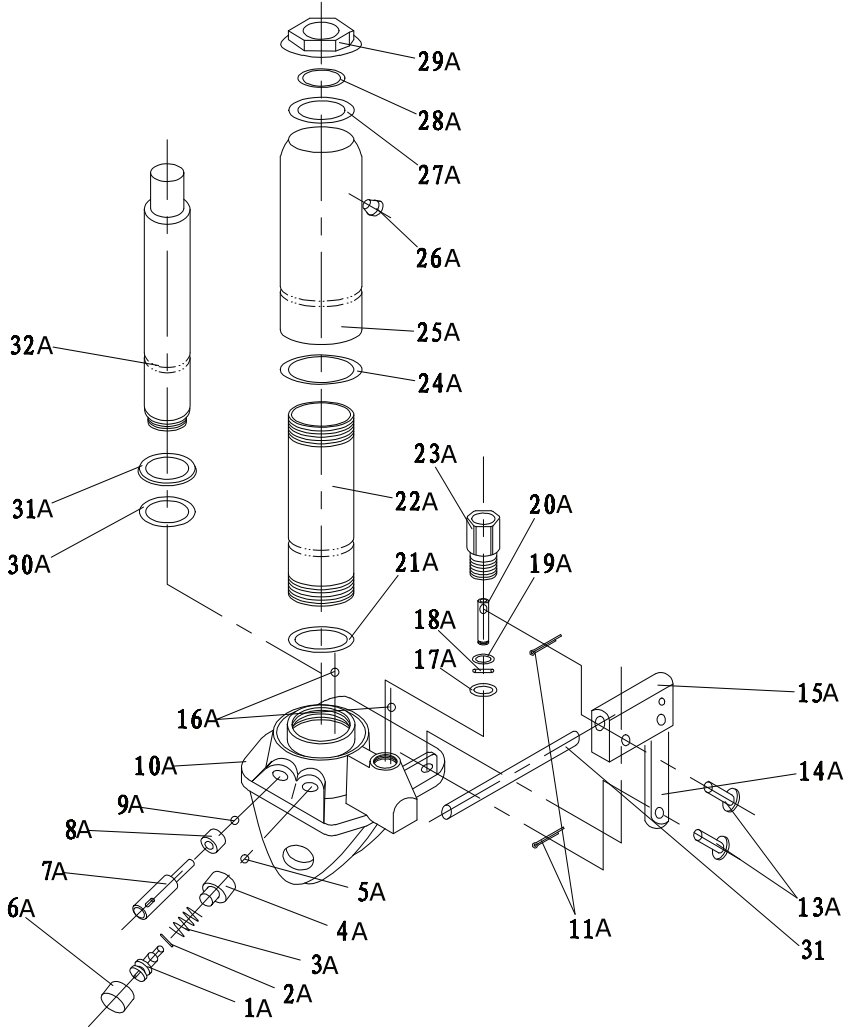
Part	Description	Qty
1A	Screw	1
2A	O-Ring	1
3A	Spring	1
4A	Ball Cup	1
5A	Steel Ball	1
6A	Screw Cover	1
7A	Release Valve	1
8A	Rectangle Seal Ring	1
9A	Steel Ball	1
10A	Base	1
11A	Pin	2
13A	Pin Shaft	2
14A	Connecting Bar	1
15A	Handle Sleeve	1
16A	Steel Ball	2
17A	Washer	1

Part	Description	Qty
18A	O-Ring	1
19A	Shield Ring	1
20A	Pump Core	1
21A	Washer	1
22A	Hydraulic Cylinder	1
23A	Pump Body	1
24A	Seal Ring	1
25A	Oil Tank	1
26A	Oil Plug	1
27A	Rectangle Seal Ring	1
28A	O-Ring	1
29A	Top Nut	1
30A	O-ring	1
31A	Bowl Washer	1
32A	Piston Rod	1

Note: When re-ordering parts from this list, use the part number with the “A” suffix.

Note: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.

Jack Assembly Diagram



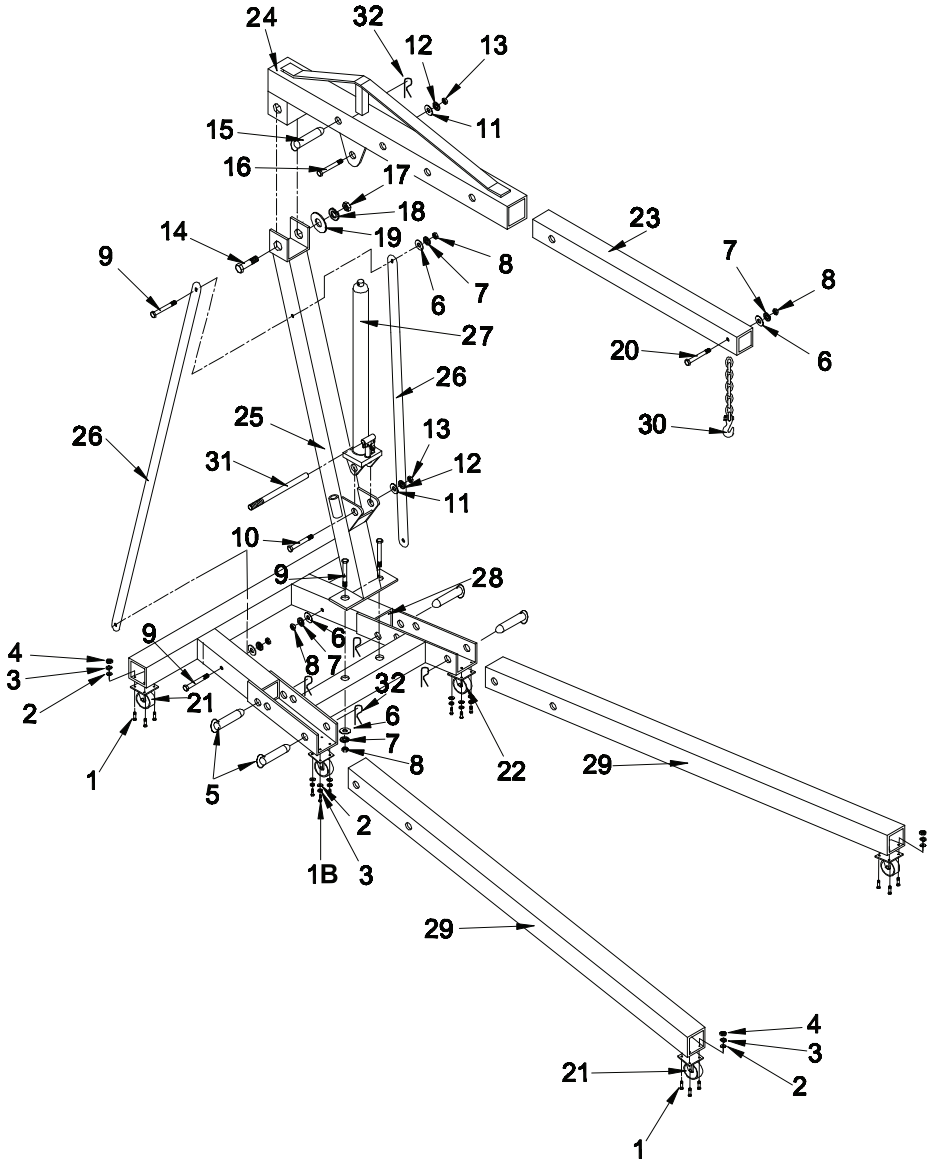
Engine Crane Parts List

Part	Description	Qty
1B	Bolt M8 x 14	8
1	Bolt M8 x 20	16
2	Washer M8	24
3	Lock Washer M8	24
4	Nut M8	16
5	Ring Pin 110mm	4
6	Washer M14	6
7	Lock Washer M14	6
8	Nut M14	6
9	Bolt M14 x 100	5
10	Bolt M16 x 90	1
11	Washer M16	2
12	Lock Washer M16	2
13	Nut M16	2
14	Bolt M18 x 110	1
15	Ring Pin 95mm	1

Part	Description	Qty
16	Bolt M16 x 80	1
17	Nut M18	1
18	Lock Washer M18	1
19	Washer M18	1
20	Bolt M14 x 80	1
21	Large Caster	4
22	Small Caster	2
23	Boom Extension	1
24	Boom	1
25	Support Post	1
26	Support Brace	2
27	Jack	1
28	Base	1
29	Leg	2
30	Chain/Hook Assembly	1
31	Handle	1
32	R-Pin	5

Note: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.

Engine Crane Assembly Diagram



Limited 90 Day Warranty

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that this product is free from defects in materials and workmanship for the period of 90 days from the date of purchase. This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, criminal activity, improper installation, normal wear and tear, or to lack of maintenance. We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

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