CBFC, manual.doc



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CBFC COUNTERBALANCED FLOOR CRANE OPERATION AND MAINTENANCE MANUAL

Rev. 3/6/2017



Receiving instructions:

After delivery, remove the packaging from the product. Inspect the product closely to determine whether it sustained damage during transport. If damage is discovered, <u>immediately</u> record a complete description of the damage on the bill of lading. If the product is undamaged, discard the packaging.

NOTES:

The end-user is solely responsible for confirming that product design, installation, use, and maintenance comply with laws, regulations, codes, and mandatory standards applied where the product is used.

<u>lable of Contents</u>
Signal words
Safe use recommendations
FIG. 1A: CBFC-500 exploded parts diagram & bill of materials
FIG. 1B: CBFC-500 rated loads for specified boom lengths
FIG. 2A: CBFC-1000 exploded parts diagram & bill of materials
FIG. 2B: CBFC-1000 rated loads for specified boom lengths
FIG. 3A: CBFC-2000 exploded parts diagram & bill of materials
FIG. 3B: CBFC-2000 rated loads for specified boom lengths
FIG. 4: Manual hydraulic pump exploded parts diagram & bill of materials9
Operation10
Operating the manual hydraulic pump10
Boom length adjustment
Inspections
Maintenance
Labeling diagram
Limited Warranty

SIGNAL WORDS:

This manual uses SIGNAL WORDS to indicate the likelihood of personal injuries, as well as the probable seriousness of those injuries, if the product is misused in the ways described. Other signal words call attention to uses of the product likely cause property damage. The signal words used appear below along with their definitions.

▲ DANGER

Identifies a hazardous situation which, if not avoided, WILL result in DEATH or SERIOUS INJURY. Use of this signal word is limited to the most extreme situations.

AWARNING

Identifies a hazardous situation which, if not avoided, COULD result in DEATH or SERIOUS INJURY.

▲CAUTION

Indicates a hazardous situation which, if not avoided, COULD result in MINOR or MODERATE injury.



Identifies practices likely to result in product/property damage, such as operation that might damage the product.

Safe use recommendations:

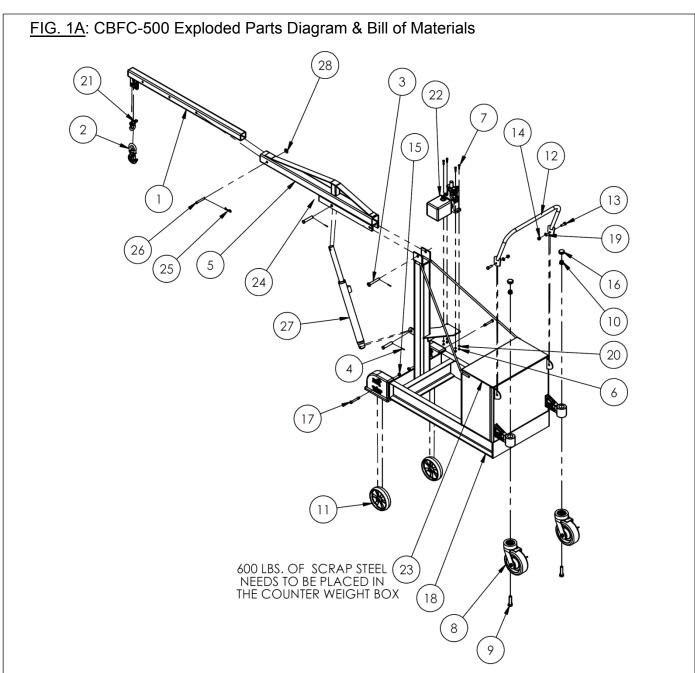
We strive to identify hazards associated with the use of our products. However, material handling is inherently dangerous and no manual can address every risk. The end-user ultimately is responsible for exercising sound judgment at all times during use of this product.

AWARNING Material handling is dangerous. Improper or careless operation might result in serious personal injuries sustained by the operator and bystanders. Always apply material handling techniques, including rigging methods, learned during training and use the product properly:

- Failure to read and understand the entire manual before assembling, using or servicing the product <u>constitutes misuse</u>. Read the manual to refresh your understanding of proper use and maintenance procedures as necessary.
- DO NOT attempt to lift items that weigh more than the maximum rated load of your crane. The capacity of the crane decreases as boom length increases. Capacities of each model for all 3 boom lengths are presented in FIGS. 1A, 2A & 3A on p. 3, 5, and 7 respectively.
- DO NOT stand or sit on either the crane or the load. Avoid contact with the casters.
- Stand clear of the load while raising and lowering it!
- ONLY use the crane on <u>even</u>, <u>level</u>, compacted surfaces capable of supporting the combined weight of the crane and a full capacity load. DO NOT attempt to move the crane up or down sloped surfaces.
- DO NOT perform maintenance on this crane UNLESS it is unloaded and the casters are chocked to prevent movement. If the crane requires repair, ONLY install manufacturer-approved replacement parts.
- DO NOT attempt to raise a load unless the load hook is centered above it.
- ALWAYS observe the boom while raising and lowering a load. It should rise smoothly. Watch for binding or jerky movement and listen for unusual noises. Tag the unit "Out of order". Do not use it if you observe anything abnormal.
- DO NOT use the crane unless it is in normal operating condition. Inspect the unit before each use following the inspection instructions on p. 11 to determine whether it is functioning normally.
- Always watch the load carefully while raising and lowering the boom.
- DO NOT continue to move the pump handle back-and-forth if the boom is fully elevated (does not continue to rise).
- Before leaving the crane unattended, unload it and relieve hydraulic pressure by turning the release lever counterclockwise until the boom begins to descend. Lower the boom completely; then close the release valve.
- DO NOT alter the pressure relief valve setting!
- DO NOT use the crane UNLESS every label is present (see "Labeling diagram" on p. 12) and readable.
- DO NOT modify this crane in any way. Modifications automatically void the limited warranty and might make the crane unsafe to use.
- Always make sure that the shackle pin (see item 21 on p. 3; 2 on p. 5; 23 on p. 7) is secure before applying a load to the load hook. Tighten the screw pin before each use.

NOTICE Proper use and maintenance are essential for this product to function properly.

- Always use this product in accordance with the instructions in this manual and consistent with any training relevant to devices used in conjunction with this product (e.g. rigging).
- Periodically lubricate pivot points.
- Keep the product clean & dry.
- Only use approved replacement parts. To order replacement or spare parts for this equipment, contact the factory.



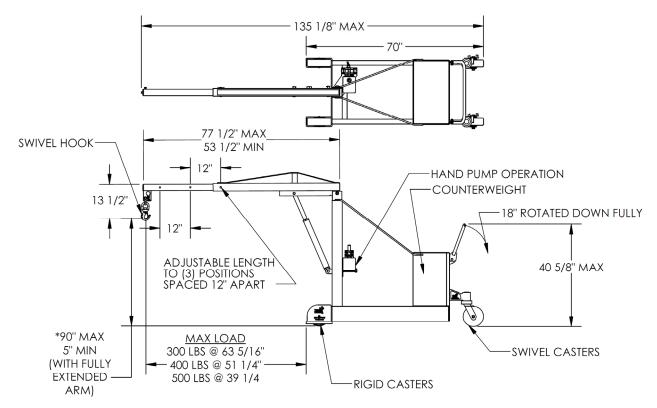
Item				Item			
no.	Part no.	Description	Quantity	no.	Part no.	Description	Quantity
1	28-514-089	Frame, inner boom weldment	1	15	37032	¹ / ₂ " nylon insert jam nut	2
2	08-145-001	Swivel hook, 2-ton	1	16	99-024-003	Guard/cover/endcap/plug	2
3	28-612-001	Pin, weldment, pivot, outer boom	1	17	16-145-031	$^{1}/_{2}$ " -13 x $3^{1}/_{2}$ " bolt with grease zerk	2
4	65077	¹ / ₈ " x 1 ¹ / ₄ " zinc-plated cotter pin	3	18	16-514-235	Weldment, frame	1
5	28-514-088	Frame, weldment, outer boom	1	19	33011	¹ / ₂ " USS flat washer, low carbon, plain finish	2
6	36102	¹ / ₄ " – 20 grade a zinc-plated hex nut	4	20	33618	1/4" medium split lock washer	4
7	11007	$^{1}/_{4}$ " – 20 x 1 $^{1}/_{4}$ " hex bolt	4	21	08-145-010	¹ / ₂ " 2-ton shackle	1
8	16-132-227	8/3-FWB-NTP caster	2	22	99-640-003- 002	Assembly, hand pump, ¹ / ₂ gal. pump	1
9	11359	³ / ₄ " – 10 x 3" HHCS #2 zinc-plated bolt	2	23	16-014-386	Frame, counterweight, top	1
10	37039	³ / ₄ " – 10 zinc-plated nylock nut	2	24	33-112-034	³ / ₄ " x 3 ³ / ₄ " zinc-plated clevis pin	2
11	16-132-216	Caster / wheel	2	25	45286	¹ / ₈ " x 2 ⁵ / ₈ " #11 hitch pin clip	1
12	15-525-007	Weldment, handle	1	26	28-112-030	¹ / ₂ " x 3 ¹ / ₂ " retaining clevis pin, zinc- plated	1
13	11209	1/2" - 13 x 11/2" HHCS #2 zinc- plated bolt	2	27	99-021-904	Cylinder, hydraulic	1
14	37030	¹ / ₂ " – 13 nylon insert lock nut	2	28	33012	1/2" flat washer, low carbon, zinc finish	1

FIG 1B: CBFC-500 rated loads for specified boom lengths

NOTE: DO NOT use the crane unless the inner and outer booms are securely pinned together.

Although the outer boom has only one set of pin holes, the inner boom has 3 sets to allow boom length to be adjusted. Boom length increases in 12 inch increments. Boom length determines the maximum rated load of the crane, which decreases as boom length increases as indicated in the table below:

Boom length	Maximun	n rated load
39 ¹ / ₄ inches	500 lb.	(227.3kg)
51 ¹ / ₄ inches	400 lb.	(181.8kg)
63 ⁵ / ₁₆ inches	300 lb.	(136.4kg)



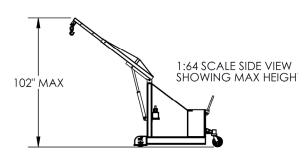
*WHEN BOOM IS FULLY RETRACTED AND THE CYLINDER IS FULLY RETRACTED HOOK HEIGHT IS 16 7/16"

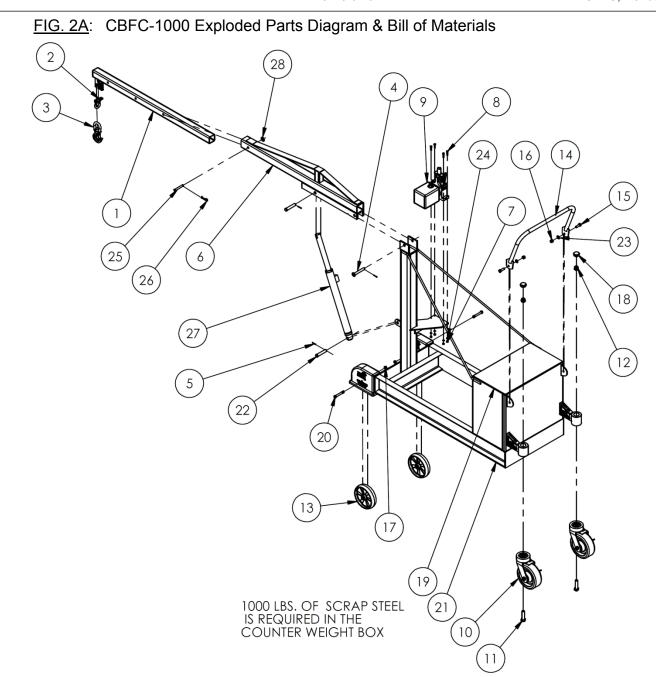
*WHEN BOOM IS FULLY RETRACTED AND THE CYLINDER IS FULLY EXTENDED HOOK HEIGHT IS 74 7/16"

STANDARD FEATURES

MODEL NUMBER IS CBFC-500 OVERALL WIDTH IS 29" OVERALL LENGTH IS 135 1/8" MAX OVERALL HEIGHT IS 102" MAX MAX CAPACITY IS 500 LBS HAND PUMP OPERATION APPROX. SHIPPING WEIGHT: 1,259 LBS







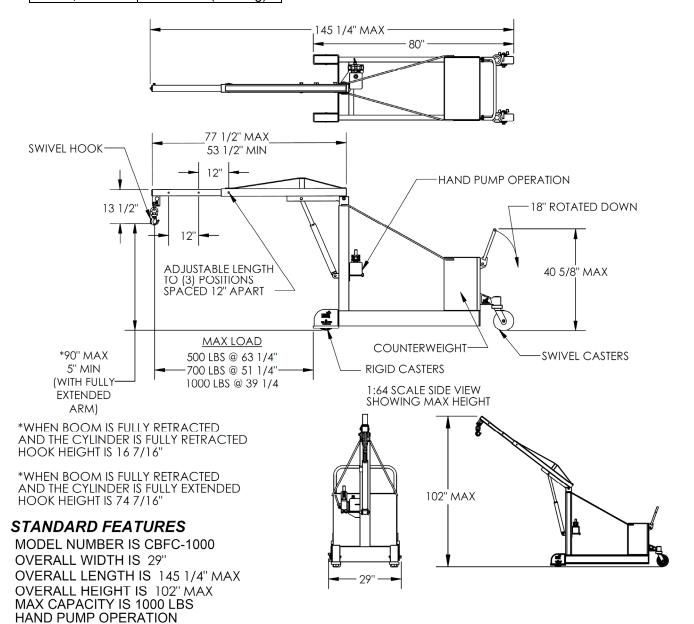
Item no.	Part no.	Description	Quantity	Item no.	Part no.	Description	Quantity
1	28-514-089	Frame, inner boom weldment	1	15	11209	¹ / ₂ " – 13 x 1 ¹ / ₂ " HHCS #2 zinc- plated bolt	2
2	08-145-010	¹ / ₂ " 2-ton shackle	1	16	37030	¹ / ₂ " – 13 nylon insert lock nut	2
3	08-145-001	Swivel hook, 2-ton	1	17	37032	1/2" nylon insert jam nut	2
4	28-612-001	Pin, weldment, pivot, outer boom	1	18	99-024-003	Guard/cover/endcap/plug	2
5	65077	¹ / ₈ " x 1 ¹ / ₄ " zinc-plated cotter pin	3	19	16-014-386		1
6	28-514-088	Frame, weldment, outer boom	1	20	16-145-031	$^{1}/_{2}$ " -13 x $3^{1}/_{2}$ " bolt with grease zerk	2
7	36102	1/4" – 20 grade a zinc-plated hex nut	4	21	16-514-236	Weldment, frame	1
8	11007	$^{1}/_{4}$ " – 20 x 1 $^{1}/_{4}$ " hex bolt	4	22	33-112-034	³ / ₄ " x 3 ³ / ₄ " zinc-plated clevis pin	2
9	99-640- 003-002	Assembly, hand pump, ¹ / ₂ gal. pump	1	23	33011	¹ / ₂ " USS flat washer, low carbon, plain finish	2
10	16-132-227	8/3-FWB-NTP caster	2	24	33618	1/4" medium split lock washer	4
11	11359	3/4" – 10 x 3" HHCS #2 zinc- plated bolt	2	25	28-112-030	¹ / ₂ " x 3 ¹ / ₂ " retaining clevis pin, zinc- plated	1
12	37039	³ / ₄ " – 10 zinc-plated nylock nut	2	26	45286	¹ / ₈ " x 2 ⁵ / ₈ " #11 hitch pin clip	1
13	16-132-216	Caster / wheel	2	27	99-021-904	Cylinder, hydraulic	1
14	15-525-007	Weldment, handle	1	28	33012	1/2" flat washer, low carbon, zinc finish	1

FIG 2B: CBFC-1000 rated loads for specified boom lengths

NOTE: DO NOT use the crane unless the inner and outer booms are securely pinned together.

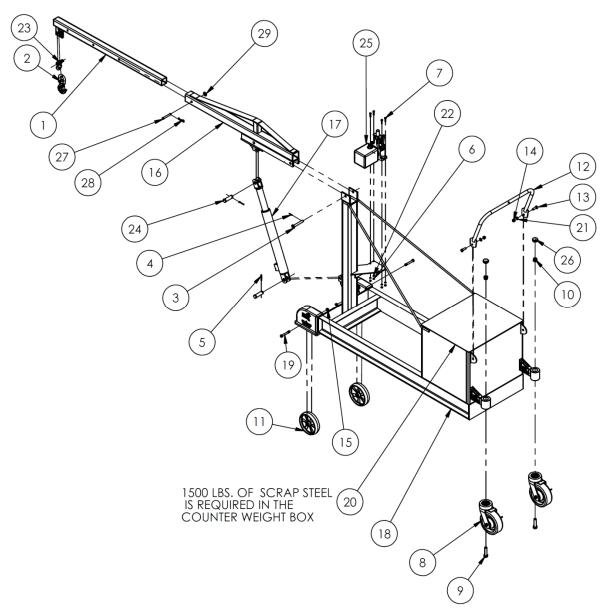
Although the outer boom has only one set of pin holes, the inner boom has 3 sets to allow boom length to be adjusted. Boom length increases in 12 inch increments. Boom length determines the maximum rated load of the crane, which decreases as boom length increases as indicated in the table below:

Boom length	Maximum rated load				
39 ¹ / ₄ inches	1000 lb.	(454.5kg)			
51 ¹ / ₄ inches	700 lb.	(318.2kg)			
63¹/₄ inches	500 lb.	(227.3kg)			



APPROX. SHIPPING WEIGHT: 1,845 LBS

FIG. 3A: CBFC-2000 Exploded Parts Diagram & Bill of Materials



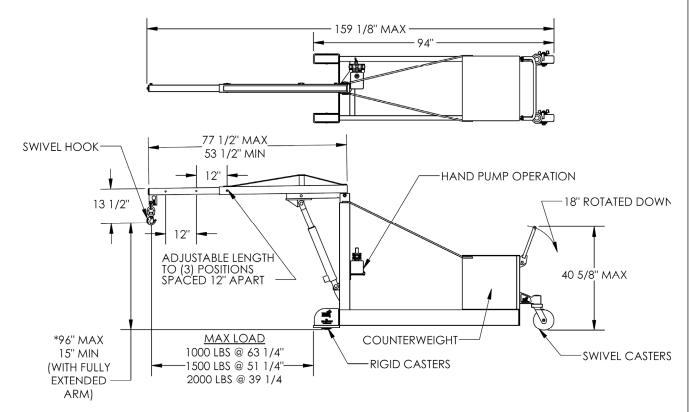
Item no.	Part no.	Description	Quantity	Item no.	Part no.	Description	Quantity
1	28-514-089	Frame, inner boom weldment	1	15	37032	1/2" nylon insert jam nut	2
2	08-145-001	Swivel hook, 2-ton	1	16	28-514-114	Frame, weldment, outer boom	1
3	28-612-001	Pin, weldment, pivot, outer boom	1	17	99-021-904	Cylinder, hydraulic, 2" x 18" stroke	1
4	65077	1/8" x 11/4" zinc-plated cotter pin	1	18	16-514-237	Weldment, frame	1
5	65127	Cotter pin, zinc-plated	2	19	16-145-031	$^{1}/_{2}$ " -13 x $3^{1}/_{2}$ " bolt with grease zerk	2
6	36102	1/4" – 20 grade a zinc-plated hex nut	4	20	16-014-390	Frame, counterweight, top	1
7	11007	¹ / ₄ " – 20 x 1 ¹ / ₄ " hex bolt	4	21	33011	¹ / ₂ " USS flat washer, low carbon, plain finish	2
8	16-132-227	8/3-FWB-NTP caster	2	22	33618	1/4" medium split lock washer	4
9	11359	3/ ₄ " – 10 x 3" HHCS #2 zinc- plated bolt	2	23	08-145-010	¹ / ₂ " 2-ton shackle	1
10	37039	3/4" – 10 zinc-plated nylock nut	2	24	16-112-070	Pin, clevis, 1" x 3"	2
11	16-132-216	Caster / wheel	2	25	99-640-003- 002	Assembly, hand pump, ¹ / ₂ gal. pump	1
12	15-525-007	Weldment, handle	1	26	99-024-003	Guard/cover/endcap/plug	2
13	11209	¹ / ₂ " – 13 x 1 ¹ / ₂ " HHCS #2 zinc- plated bolt	2	27	28-112-030	¹ / ₂ " x 3 ¹ / ₂ " retaining clevis pin, zinc- plated	1
14	37030	¹ / ₂ " – 13 nylon insert lock nut	2	28	45286	¹ / ₈ " x 2 ⁵ / ₈ " #11 hitch pin clip	1
				29	33012	¹ / ₂ " flat washer, low carbon, zinc finish	1

FIG. 3B: CBFC-2000 rated loads for specified boom lengths

NOTE: DO NOT use the crane unless the inner and outer booms are securely pinned together.

Although the outer boom has only one set of pin holes, the inner boom has 3 sets to allow boom length to be adjusted. Boom length increases in 12 inch increments. Boom length determines the maximum rated load of the crane, which decreases as boom length increases as indicated in the table below:

Boom length	Maximum rated load				
39 ¹ / ₄ inches	2000 lb.	(909.1kg)			
51 ¹ / ₄ inches	1500 lb.	(681.8kg)			
63 ¹ / ₄ inches	1000 lb.	(454.5kg)			



*WHEN BOOM IS FULLY RETRACTED AND THE CYLINDER IS FULLY RETRACTED HOOK HEIGHT IS 23 3/16"

*WHEN BOOM IS FULLY RETRACTED AND THE CYLINDER IS FULLY EXTENDED HOOK HEIGHT IS 78 3/16"

STANDARD FEATURES

MODEL NUMBER IS CBFC-2000 OVERALL WIDTH IS 29" OVERALL LENGTH IS 159 1/8" MAX OVERALL HEIGHT IS 107 1/2" MAX MAX CAPACITY IS 2000 LBS HAND PUMP OPERATION APPROX. SHIPPING WEIGHT: 2,356 LBS

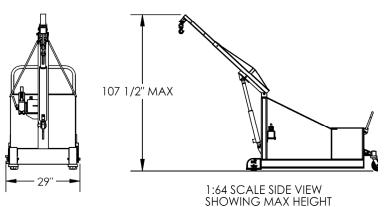
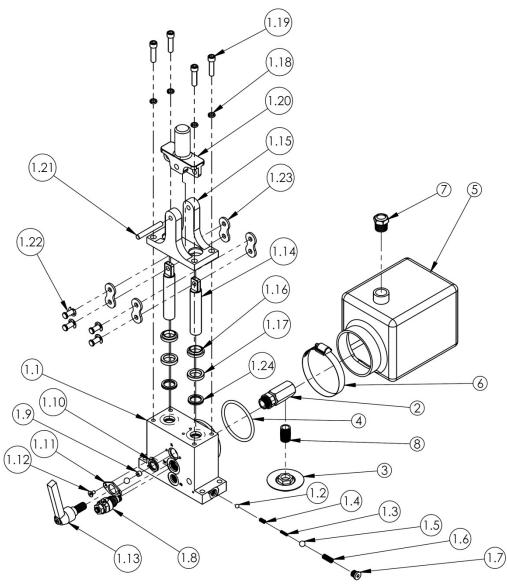


FIG. 4: Manual Hydraulic Pump (99-640-003) Exploded Parts Diagram & Bill of Materials (models produced before June 1, 2014)



Item				Item			
no.	Part no.	Description	Quantity	no.	Part no.	Description	Quantity
1	99-140-003	Hand pump assembly	1	1.16	99-016-045	Bracket, pivot, casting	1
1.1	99-039-003	Pump, manual, hand pump	1	1.17	99-144-003	Wiper, solid profile, piston	2
1.2	99-110-007	¹/₄in. ball bearing	2	1.18	99-113-005	Spacer, seal	2
1.3	99-146-004	Spring, compression, inlet check	2	1.19	0129169	Lock washer, high collar, zinc-plated	4
1.4	99-146-006	Spring, compression, retainer	2	1.20	93257	⁵ / ₁₆ in. – 18 x 1 ¹ / ₄ in. SHCS bolt	4
1.5	99-110-006	³/8in. ball bearing	3	1.21	99-040-004	Lever, rocker, casting	1
1.6	99-146-005	Spring, compression, outlet check	2	1.22	99-112-016	Dowel pin, pivot	1
1.7	99-116-005	MORB hollow hex plug, SAE 4	2	1.23	11484-01103	Pin, SS grooved Clevis w/snap ring, ⁵ / ₁₆ in. x 18-8	4
1.8	99-153-006	Valve, pressure relief, 210 bar	1	1.24	99-042-001	Chain, side plate, #80	4
1.9	99-111-004	Busing, seat, ball	1	2	99-116-001	Suction fitting, mini manifold	1
1.10	99-144-005	Seal, square profile, release	1	3	99-031-018	Accessories, hydraulic, screen	1
1.11	99-117-008	Retainer, seal	1	4	99-144-007	O-ring, 3in. boss	1
1.12	94198	FHSCS utility grade, 10-24 x ³ / ₈ in.	2	5	01-023-008	Reservoir, oil, 0.5 gal.	1
1.13	99-025-023	Handle, release	1	6	99-145-061	Clamp, worm gear hose, 2 ¹³ / ₁₆ in. – 3 ³ / ₄ in.	1
1.14	99-144-004	Seal, square profile	2	7	01-116-003	Breather, ¹ / ₂ in. NPT	1
1.15	99-041-004	Plunger/piston, pump	2	8	99-031-033	Close pipe nipple	1
	•	· · · · · · · · · · · · · · · · · · ·	•	*	99-144-001	Replacement seals (kit)	1

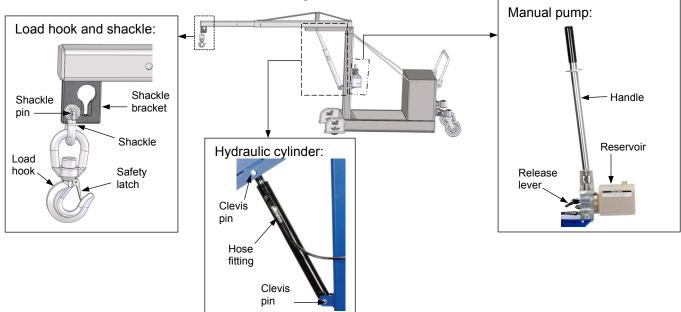
Operation:

- 1) Prepare the load with appropriate rigging to properly interface with the load hook at the end of the boom.
- If necessary, adjust the position of the boom.
 - a. To raise the boom, move the pump handle back-and-forth.
 - b. To lower the boom, slowly turn the release handle (item no. 1.13 in FIGS, 4A and 4B) counterclockwise until the boom begins to lower. To increase the lowering rate, turn the release handle further counterclockwise. Close the release valve when the boom position is adequately adjusted. To close the valve, turn the release handle clockwise until the connection is tight.
- 3) Attach the rigging to the load hook. The floor crane must be on a sound, level and dry surface. Before raising the boom, be sure that the load hook is centered above the load. If the hook is not centered above the load, the load might swing when the boom lifts it off of the ground.
 - <u>NOTE</u>: Rigging and all other load-engaging equipment must be added to the weight of the load to determine the net weight of the load applied to the crane. The net weight must be less than or equal to the rated load of the crane. As FIGS. 1B, 2B & 3B on p. 4, 6, & 8 indicate, rated load for each model of crane decreases when the boom is extended.
- 4) Slowly raise the load until it is entirely suspended by the boom. Only raise the load a few inches above the ground.
 - a. The load should not swing as it rises.
 - b. The crane should not tip or rock when the load is suspended.
 - c. If the crane is unstable when the load is suspended, do not use the crane to transport the load. Return it to the ground and use another means to move it.
- 5) Carefully push the crane to transport the load. Do not leave the crane with a suspended load. Always lower the boom until the load is entirely supported by the ground or other surface before leaving the crane.

Operating the manual hydraulic pump:

The floor crane is equipped with a hand-operated hydraulic pump that controls the up and down movement of the load hook. With the lowering lever in the closed position (rotated clockwise until the connection is snug), moving the pump handle back-and-forth causes the cylinder to extend. The cylinder attaches to the bottom of the outer boom. As the cylinder extends, the booms pivot upwardly and this elevates the load hook.

To lower the booms, rotate the release lever counterclockwise until the booms begin to descend. The farther the lever is rotated counterclockwise, the faster the booms lower. If you wish to change load elevation, but not lower the load completely, simply close the release valve when the load is at the desired height by rotating the release lever clockwise until the connection is snug.

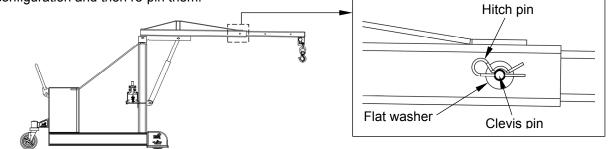


To remove air from the hydraulic system:

- 1. Disconnect the cylinder from the crane by removing the clevis pins (see "Hydraulic cylinder" above left).
- 2. Lay the cylinder on a flat surface with the hose on top.
- 3. Loosen the hose fitting but do not disconnect the hose. Wrap a rag around the fitting.
- 4. Circulate oil to the cylinder by slowly moving the handle back and forth. Air and oil will sputter from the fitting. When no more air is present, tighten the fitting and reconnect the cylinder to the crane.

Boom length adjustment:

To adjust the length of the boom, first use the hand pump to raise the end of the boom until the boom is level. Remove the hitch pin and flat washer; then pull out the clevis pin. The inner boom is now unfastened from the outer boom. Align the appropriate holes in the inner and outer booms to achieve the necessary boom configuration and then re-pin them.



Inspections:

AWARNING If a problem is discovered during an inspection, restore the crane to normal operating condition BEFORE using it again.

- DO NOT use a crane that is structurally damaged in any way. Structural damage includes, but is not limited to, cracked welds, warping or deformation of the frame, the upright girder, or the inner or outer boom.
- Improper maintenance or repair may make the crane unsafe to use, which could result in serious personal
 injuries or death. DO NOT attempt to repair or maintain the crane UNLESS you are qualified and authorized to
 do so.
- Lower the boom and unload the crane BEFORE beginning maintenance/repairs.
- Only qualified, authorized personnel trained to maintain hydraulic components should attempt troubleshooting and repair of this equipment.
- (A) Before each use, inspect the following items:
 - 1.) Hydraulic system check for oil leaks. Also check the hose for cuts, kinks, or other damage.
 - 2.) Structural members, cylinder brackets, & booms (inner and outer) examine each item for damage, deformation, and corrosion.
 - 3.) Cylinder and pump raise and lower the boom. Listen for unusual noise; watch the cylinder to confirm that it does not bind but extends and retracts smoothly.
 - 4.) Load hook and shackle closely examine the load hook and shackle. Make sure that neither is severely worn, warped, bending or cracking. Confirm that the safety latch (of the hook) operates correctly. Also inspect the shackle bracket. The bracket should be square and rigid and lack cracks and significant bends. The pin hole (for the shackle pin) should not be elongated.
- (B) Inspect the following at least once per month:
 - 1.) Oil level lower the boom completely. Oil should be within ¾in. of the top of the reservoir with the boom in the fully lowered position. [See "Yearly inspection" below for the hydraulic fluid specifications.]
 - 2.) Hoses check for cuts, kinks, and other damage. Confirm that the ends of the hose are firmly connected to the pump and the cylinder.
 - 3.) Hardware check the integrity of all nuts, bolts, and pins. Replace any item that is damaged.
 - 4.) Casters move the crane and determine whether any caster is loose, significantly worn, or damaged. Remove any material stuck to the surface of the casters.
 - 5.) Complete assembly listen for unusual noises and watch for abnormal movement while elevating and lowering the boom.
 - 6.) Labels check all information/safety labels. The crane should be labeled at all times as shown in the labeling diagram on p. 12.

(C) Yearly inspection:

In addition to the inspections described above in parts A and B, check the hydraulic fluid at least once per year. Change the oil if it darkens, becomes gritty, or turns a milky color (indicating the presence of water). Replace the hydraulic fluid with anti-wear hydraulic oil of viscosity grade 150 SUS at 100°F, (ISO 32 at 40°C), for example, AW 32 or HO 150 hydraulic oil, or a non-synthetic transmission fluid. You may use a synthetic transmission fluid if you flush the system with the synthetic fluid before filling the reservoir.

Maintenance:

The <u>end-user</u> should implement a maintenance program to ensure that the product functions properly. The following steps should be utilized in conjunction with inspections.

Step 1: Tag the boom, "Out of Service."

Step 2: Remove any dirt or other matter from all surfaces.

<u>Step 3</u>: Conduct a "Before each use" inspection. If deformity, corrosion, rusting, or excessive wear of structural members is found, DO NOT use the product.

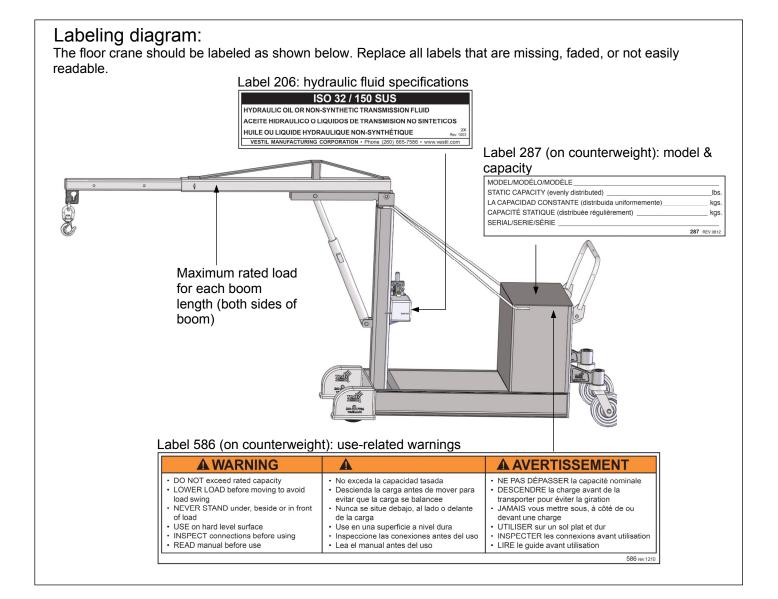
Step 4: Perform all other necessary adjustments, replacements and/or repairs. DO NOT modify the boom.

AWARNING DO NOT use the product if adjustments and repairs are incomplete! Return it to service ONLY after finishing all necessary repairs and adjustments but do not modify the crane.

"Adjustments" are simple corrections that restore the crane to normal operating condition, such as tightening loose fasteners or removing dirt or other debris from the surface. "Repairs" involve removing worn parts and installing replacement parts.

"Modifications" on the other hand, are actions that alter the crane from its original condition. Such actions include bending the frame or removing parts. <u>NEVER</u> modify this product. Modifications automatically void the limited warranty and might make the crane unsafe to use.

Step 5: Make a dated record of all repairs, adjustments and/or replacements made to the table.



LIMITED WARRANTY

Vestil Manufacturing Corporation ("Vestil") warrants this product to be free of defects in material and workmanship during the warranty period. Our warranty obligation is to provide a replacement for a defective original part if the part is covered by the warranty, after we receive a proper request from the warrantee (you) for warranty service.

Who may request service?

Only a warrantee may request service. You are a warrantee if you purchased the product from Vestil or from an authorized distributor AND Vestil has been fully paid.

What is an "original part"?

An original part is a part <u>used to make the product as shipped</u> to the warrantee.

What is a "proper request"?

A request for warranty service is proper if Vestil receives: 1) a photocopy of the <u>Customer Invoice</u> that displays the shipping date; AND 2) a <u>written request</u> for warranty service including your name and phone number. Send requests by any of the following methods:

 Mail
 Fax
 Email

 Vestil Manufacturing Corporation
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 Phone

 Angola, IN 46703
 (260) 665-7586

In the written request, list the parts believed to be defective and include the address where replacements should be delivered.

What is covered under the warranty?

After Vestil receives your request for warranty service, an authorized representative will contact you to determine whether your claim is covered by the warranty. Before providing warranty service, Vestil may require you to send the entire product, or just the defective part or parts, to its facility in Angola, IN. The warranty covers defects in the following *original* dynamic components: motors, hydraulic pumps, electronic controllers, switches and cylinders. It also covers defects in *original* parts that wear under normal usage conditions ("wearing parts"), such as bearings, hoses, wheels, seals, brushes, and batteries.

How long is the warranty period?

The warranty period for original dynamic components is <u>1 year</u>. For wearing parts, the warranty period is <u>90 days</u>. The warranty periods begin on the date when Vestil ships the product to the warrantee. If the product was purchased from an authorized distributor, the periods begin when the distributor ships the product. Vestil may, at its sole discretion, extend the warranty periods for products shipped from authorized distributors by *up to* 30 days to account for shipping time.

If a defective part is covered by the warranty, what will Vestil do to correct the problem?

Vestil will provide an appropriate replacement for any *covered* part. An authorized representative of Vestil will contact you to discuss your claim.

What is not covered by the warranty?

- 1. Labor;
- 2. Freight;
- 3. Occurrence of any of the following, which automatically voids the warranty:
 - Product misuse:
 - Negligent operation or repair;
 - Corrosion or use in corrosive environments;
 - Inadequate or improper maintenance;
 - Damage sustained during shipping;
 - Collisions or other incidental contacts causing damage to the product;
 - <u>Unauthorized modifications</u>: DO NOT modify the product IN ANY WAY without first receiving written authorization from Vestil. Modification(s) might make the product unsafe to use or might cause excessive and/or abnormal wear.

Do any other warranties apply to the product?

Vestil Manufacturing Corp. makes no other express warranties. All implied warranties are disclaimed to the extent allowed by law. Any implied warranty not disclaimed is limited in scope to the terms of this Limited Warranty.

