CSEEC2T

2 TON ENGINE CRANE

OPERATING MANUAL • WARNING INFORMATION • PARTS LIST

SPECIFICATIONS

Boom Position	1.	2	3	4
Maximum Capacity	1/2-Ton	1-Ton	1-1/2-Ton	2-Ton
Maximum Boom Height	96-1/2"	90-1/2"	84-1/2"	78-1/2"
Minimum Boom Height	0"	0"	5-1/2"	11-3/4"
Boom Ext. From End to Ram	48"	41-1/2"	34"	27"
Base Dimensions Unfolded	37-1/2" x 68"			
Base Dimensions Folded	32" x 22-1/2"			
Net Weight	229 Lbs.			
Shipping Weight	269 Lbs.			

Manufactured to comply with the ASME PASE-2019 Safety Standard

WARNING INFORMATION

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.

⚠WARNING **WARNING:** Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

IMPORTANT: READ THESE INSTRUCTIONS BEFORE OPERATING

BEFORE USING THIS DEVICE, READ THIS MANUAL COMPLETELY AND THOROUGHLY, UNDERSTAND ITS OPERATING PROCEDURES, SAFETY WARNINGS AND MAINTENANCE REQUIREMENTS.

It is the responsibility of the owner to make sure all personnel read this manual prior to using the device. It is also the responsibility of the device owner to keep this manual intact and in a convenient location for all to see and read. If the manual or product labels are lost or not legible, contact Cornwell for replacements. If the operator is not fluent in English, the product and safety instructions shall be read to and discussed with the operator in the operator's native language by the purchaser/owner or his designee, making sure that the operator comprehends its contents.

THE NATURE OF HAZARDOUS SITUATIONS

⚠WARNING

The use of portable automotive lifting devices are subject to certain hazards that cannot be prevented by mechanical means, but only by the exercise of intelligence, care, and common sense. It is therefore essential to have owners and personnel involved in the use and operation of the equipment who are careful, competent, trained, and qualified in the safe operation of the equipment and its proper use. Examples of hazards are dropping, tipping or slipping of loads caused primarily by improperly securing loads, overloading, off-centered loads, use on other than hard level surfaces, and using equipment for a purpose for which it was not designed.

METHODS TO AVOID HAZARDOUS SITUATIONS

⚠WARNING

- Read, study, understand and follow all instructions before operating this device.
- User and bystanders must wear eye protection that meets ANSI Z87.1 and OSHA standards.
- Wear eye protection that meets ANSI Z87.1 and OSHA standards, users and bystanders.
- Inspect crane before each use. Do not use if damaged, altered, modified, in poor condition, leaking hydraulic fluid, or unstable due to loose or missing hardware or parts. Take corrective action before using.
- **Never get under the load being lifted or suspended.**
- Use only on a hard level surface capable of supporting load.
- Do not raise the boom if the crane is equipped with a foldable or storable leg feature and the legs are in the upright position.
- Use only slings or chains with a rated capacity greater than the weight of the load being lifted.
- Do not exceed rated capacity.
- Do not lift or move a load that has a center of gravity extending beyond the front wheels.
- Do not allow load to swing or drop violently while raising, lowering or moving.
- Do not use (or modify) this product for any other purpose than that for which it was designed without consulting the manufacturer's authorized representative.
- Before moving, lower load to the lowest possible point.
- Apply the load restraint to the engine or load before transporting. See operating instructions in manual.
- No Alterations shall be made to this product and do not use any unapproved attachments.
- Failure to heed these warnings may result in serious or fatal personal injury and/or property damage.

WARNING: This product can expose you to chemicals including nickel, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

CONSEQUENCES OF NOT AVOIDING HAZARDOUS SITUATIONS

⚠WARNING

Failure to read this manual completely and thoroughly, understand its OPERATING INSTRUCTIONS, SAFETY WARNINGS, MAINTENANCE INSTRUCTIONS and not comply with them, and neglecting the METHODS TO AVOID HAZARDOUS SITUATIONS could cause accidents resulting in serious or fatal personal injury and/or property damage.

SETUP

Please refer to the exploded view drawing on page 5 in this manual in order to identify parts:

1. Secure the rear caster assemblies (#1) to the base frame (#26) with the bolts and washers provided and in accordance with the assembly drawing.
2. Loosely assembly the upright mast (#29) to the base frame (#26) in accordance with the assembly drawing and finger tighten the bolts (#8) and nuts (#7).
3. Loosely assemble the mast braces (#30) to the upright mast (#29) by finger tightening the bolt (#18), and nut (#6). Loosely assemble the opposite ends of the mast braces (#30) to the base frame (#26) by finger tightening the bolts (#5) and nuts (#6).
4. Tighten all the hardware mentioned in steps 2 and 3.
5. Slide the strap loops (#34) on to the leg extensions (#27, 28)
6. Install the leg extensions (#27 and #28) in the base frame (#26) where the holes in the legs line up with the holes in the base as shown in the assembly drawing. Secure the legs to the base using the detent pins (#10) and R-Clips (#9).
7. According to the assembly drawing, secure the hydraulic ram (#25) in between the mounting brackets on the upright mast (#29) using the bolt (#5) and nut (#6). Lean the ram up against the mast.
8. Secure the boom (#31) in between the mounting flanges located on top of the upright mast (#29) using the bolt (#19) and nut (#20).
9. Line up the hole in the hydraulic ram (#25) with the holes in the gussets of the boom (#31) and secure the ram to the boom with the bolt (#5) and nut (#6). It may be necessary to extend the ram to line up all the holes.
10. Pump the jack so the boom (#31) is horizontal to the ground. According to the assembly drawing, slide the boom extension (#32) inside the boom (#31) so the hole in the boom aligns with any of the four holes in the boom (#31). Secure the boom and boom extension together using the detent pin (#21) and R-Clip (#9).
11. Slide the u-bracket of the hook assembly (#33) over the end of the boom extension (#32), align all the holes and secure them together with the bolt (#22) and nut (#23).
12. Install the pump handle (#24) in the hydraulic ram (#25) pump linkage when using or in the upright mast (#29) holder for storage.
13. Sometimes air gets trapped in the hydraulic system during shipment. An air bound hydraulic system feels spongy when pumped and may not allow the jack to pump full incremental strokes.

PURGING AIR FROM THE HYDRAULIC SYSTEM:

a. Open the release valve by turning the handle in a counterclockwise direction two full turns.
b. Pump the handle ten full strokes.
c. Close the release valve by turning the handle in a clockwise direction until tight.
d. Pump the jack until the ram is extended to maximum height.
e. Repeat steps "a" through "d" until air is purged from the system.

OPERATION

This is the safety alert symbol used for the **OPERATING INSTRUCTIONS** section of this manual to alert you to potential personal injury hazards. Obey all instructions to avoid possible injury or death. **IMPORTANT:** Before attempting to raise any vehicle, check vehicle service manual for recommended lifting surfaces.

1. Before lifting, evaluate the work to be done by:
   a. Determining the weight of the load to be lifted and secure the boom extension in the boom in the appropriate hole position.
   b. Determine the crane's boom extension in order to ensure there is enough boom lift/travel to accomplish the work.

IMPORTANT: THE WORKING CAPACITY OF THE CRANE IS DETERMINED BY THE LOCATION OF THE EXTENSION BOOM. THE CAPACITY OF THE EXTENSION BOOM MUST EXCEED THE WEIGHT TO BE LIFTED. Secure the boom extension in the boom with the appropriate hardware provided, making sure it can not come loose during use.

2. Make sure the crane's front wheels extend beyond the extension boom's hook in order to avoid load tipping. Do not lift or move a load with a center of gravity that extends beyond the sides of the crane and the crane's front wheels.
3. Use balancers, levelers, slings, chains or any combination thereof (which are capable of sustaining the load) around the load before using the crane's hook to lift the load. Make sure the complete setup is secure before lifting.
4. Attach the crane's hook to the balancer, leveler, sling, chain or any combination thereof. Turn the release valve on the crane's hydraulic ram in a clockwise direction until tight. Before pumping the crane's jack handle, make sure the engine or load is free from all other restraints and connections that would hinder the raising of the load. Once the engine or load has cleared its location, make sure there is no slope in the floor or any obstructions on the floor that could cause the crane to tip and lose the load.
5. Immediately upon removal of the engine from the engine compartment or load from its position, the engine or load must be as close to the ground as possible when transporting. Lower the load to the proper transport height by slowly and carefully turning the hydraulic ram's release valve in a counter clockwise direction. When approaching the transport height, start turning the crane's release valve in a clockwise direction until tight. This same procedure of lowering the load is also used for moving a load to its final or temporary resting place or location.
6. In order to minimize swaying of the engine and tipping of the crane during transport, the sway restraint feature must be used. Move the adjustable anchors (#34) on the leg extensions (#27 and #28) so they are directly across from where the tie downs (#35) will be connected to the engine. Install the hook end of each ratchet tie down (#35) to the adjustable anchors (#34). The hooks at the opposite strap ends of the tie downs (#35) should be positioned as low as possible on the sides of the engine in secured locations. Each loose end strap from the hooks should be fed through the slots in the ratchet tie down drums and most of the slack taken up by lightly pulling on the strap ends. At the same time, activate the ratchet tie down mechanism on one tie down until the strap is snug but not tight. Do the same with the other tie down. Go back and forth tightening each tie down so the engine is not drawn to one side more than the other. The tie downs do not have to be extremely tight but snug enough to prevent the engine from swaying side to side during transport. The engine is ready to be transported. **WARNING! NEVER ATTEMPT TO RAISE OR LOWER THE CRANE'S BOOM WITHOUT FIRST REMOVING THE SWAY RESTRAINT FEATURE.**

PREVENTATIVE MAINTENANCE

This is the safety alert symbol used for the PREVENTATIVE MAINTENANCE section of this manual to alert you to potential personal injury hazards. Obey all instructions to avoid possible injury or death.

1. Always store the engine crane in a well protected area where it will not be exposed to inclement weather, corrosive vapors, abrasive dust, or any other harmful elements. The engine crane must be cleaned of water, snow, sand, grit, oil, grease and other foreign matter before using.
2. Lubricate the wheels, casters, and all pivot points on the crane according to an acceptable shop maintenance schedule. Maintenance intervals are dependant on time and usage.
3. Every engine crane owner is responsible for keeping the crane labels clean and readable. Use a mild soap solution to wash external surfaces of the engine crane but not any moving hydraulic components. Contact Cornwell for a replacement label if your engine crane's label is not readable.
4. Inspect the engine crane before each use. Do not use the crane if any component is cracked, broken or bent. Do not use the crane if it has loose or missing hardware or components, or is modified in any way. Take corrective action before using the engine crane again.
5. It should not be necessary to refill or top off the engine crane's jack reservoir with hydraulic oil unless there is an external leak. An external leak requires immediate repair which must be performed in a dirt-free environment by qualified hydraulic repair personnel who are familiar with this equipment. Authorized service centers are recommended.

IMPORTANT: In order to prevent seal damage and jack failure, never use alcohol, hydraulic brake fluid, or transmission oil in the crane's jack. Use a light weight turbine oil or jack oil.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSES	ACTION
1. Unit will not lift rated load.	Release valve not tightly close.	Close release valve firmly.
	Overload condition.	Use crane with proper capacity.
	Air trapped in hydraulic system.	Purge air from system by following steps "a" through "d" in the "SETUP INSTRUCTIONS" section of this manual.
	Hydraulic valves not operating properly.	Contact Cornwell Customer Service.
2. Unit will lift but leaks down.	Release valve not tightly closed.	Close release valve firmly.
	Hydraulic valve not tightly closed.	Contact Cornwell Customer Service.
3. Unit will not lower without load.	Reservoir has too much fluid.	Place crane in its upright position. Retract the ram. Remove the reservoir fill plug. Allow oil to drain out of fill plug hole until oil level is at bottom level of hole. Reinstall fill plug.
4. Poor lift performance or will not lift maximum height.	Hydraulic fluid low.	Place crane in its upright position. Retract the ram. Remove the reservoir fill plug. Add only high quality jack oil up to the bottom level of the hole. Reinstall fill plug. Purge air from system by following steps "a" through "d" in the SETUP INSTRUCTIONS section of this manual.
	Air trapped in hydraulic system.	Purge air from system by following steps "a through "d" in the "SETUP INSTRUCTIONS" section of this manual.

WARRANTY COVERAGE

Cornwell Quality Tools Company ("Cornwell") warrants against defects the hydraulic pump on this product for a period of TWO (2) YEARS from the date of original retail purchase. Cornwell Quality Tools Company ("Cornwell") warrants against defects the balance of components on this product for a period of 90 days from the date of original retail purchase. Subject to the conditions and limitations set forth below, Cornwell will, at its option, either repair or replace any part of the product(s) that proves defective by reason of improper workmanship or materials.

This warranty does not cover any damage to this product that results from accident, abuse, misuse, natural or personal disaster, or any unauthorized disassembly, repair, or modification. Repairs, disassembly and modification are only authorized to be made by Cornwell or a warranty service center approved by Cornwell.

WARRANTY SERVICE

To obtain warranty service, contact your Cornwell dealer.

EXCLUSIONS AND LIMITATIONS

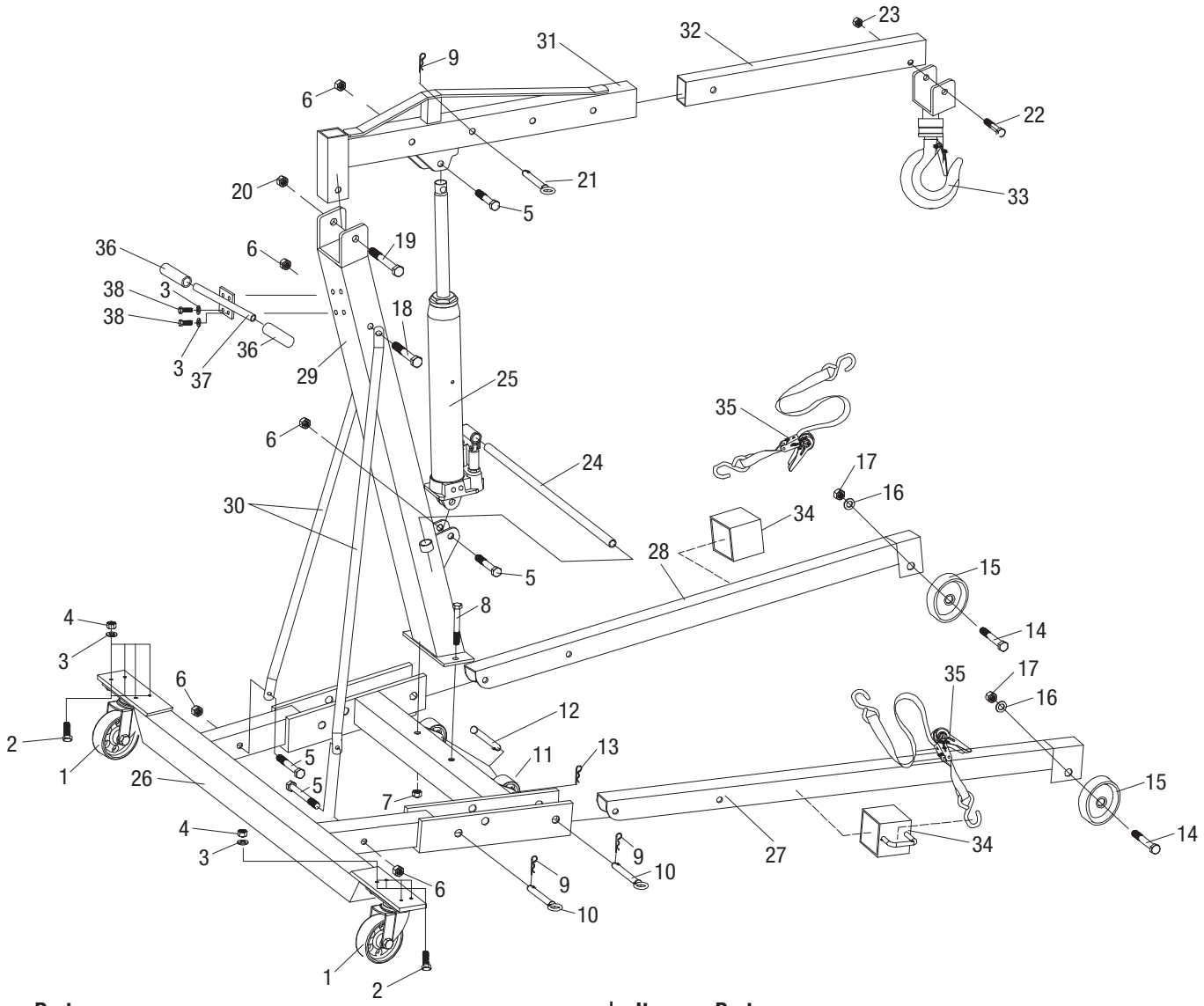
THIS WARRANTY AND THE REMEDIES SET FORTH ABOVE ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, REMEDIES AND CONDITIONS, WHETHER ORAL OR WRITTEN, EXPRESS OR IMPLIED. CORNWELL SPECIFICALLY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES, INCLUDING, TO THE EXTENT PERMITTED BY APPLICABLE LAW, ANY WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IF CORNWELL CANNOT LAWFULLY DISCLAIM IMPLIED WARRANTIES UNDER THIS LIMITED WARRANTY, ALL SUCH IMPLIED WARRANTIES ARE LIMITED IN DURATION TO THE DURATION OF THIS WARRANTY. IN NO EVENT SHALL CORNWELL BE LIABLE TO THE PURCHASER OR TO THE USER OF A CORNWELL PRODUCT FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES BASED UPON BREACH OF WARRANTY, BREACH OF CONTRACT, NEGLIGENCE, TORT, OR ANY OTHER LEGAL THEORY. SUCH DAMAGES INCLUDE, WITHOUT LIMITATION, EXPENSES, LOST REVENUES, LOST SAVINGS, LOST PROFITS, OR ANY OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING FROM THE PURCHASE, USE OR INABILITY TO USE THE CORNWELL PRODUCT.

Some states do not allow the exclusion or limitation of incidental or consequential damages or exclusions or limitation on the duration of implied warranties or conditions, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights that vary by state.

Repair kits and replacement parts are available for many Cornwell products, regardless of whether or not the product is still covered by a warranty plan.

CSEEC2T: 2 TON ENGINE CRANE

PARTS



Item No.	Part No.	Description	Qty.
1	RS522201	Rear Caster Assembly (3.5")	2
2	*	Bolt (M8x25)	8
3	*	Spring Washer (8)	12
4	*	Nut (M8x25)	8
5	*	Bolt (M16x85)	4
6	*	Nut (M16x85)	5
7	*	Nut (M14)	2
8	*	Bolt (M14x100)	2
9	*	R-Clip	5
10	*	Detent Pins (17x103)	4
11	RS522211	Middle Wheel Assembly	2
12	*	Pin (10x54)	2
13	*	R-Clip	2
14	*	Bolt (M12x75)	2
15	RS522215	Front Leg Wheel Assembly	2
16	*	Spring Washer (12)	2
17	*	Nut (M12)	2
18	*	Bolt (M16x100)	1
19	*	Bolt (M20x110)	1
20	*	Nut (M14)	1

Item No.	Part No.	Description	Qty.
21	*	Detent Pins (16x85)	1
22	*	Bolt (M12x75)	1
23	*	Nut (M14)	1
24	RS20024BL	Pump Handle - Blue	1
25	RS20023	Hydraulic Ram	1
26		Base Frame	1
27		Right Leg Extension	1
28		Left Leg Extension	1
29		Upright Mast	1
30		Mast Brace	1
31		Boom	1
32		Boom Extension	1
33	RS522233BK	Hook Assembly - Black	1
34	RS602131	Sliding Strap Loop (set of 2) - Black	1
35	RS20035	Strap (set of 2)	1
36		Handle Cover	2
37		Grab Handle	1
38		Bolt	4
	RSCSEEC2TPLK	Product Label Kit (not shown)	1

Only items identified by part number are available for purchase.
Parts identified by an asterisk, plus the caster hardware, are available in the Hardware Kit, RS200HK