

SEARAILS 65LT Marine Terminal Crane KIT

Thank you for buying SEARAILS 65LT Marine Terminal Crane KIT.

Your complete satisfaction is guaranteed. If for any reason you are not 100% satisfied with this product please return it to SEARAILS and we will refund your money. No questions asked.

Although easy to assemble, glue, and rig, there are many different parts some of which require careful thought to their position in the schedule of construction. Some holes should be drilled after other parts are assembled and glued since some holes will pass through those other parts.

Read these directions carefully, and layout the parts in the order in which they are discussed. Group the parts together in their assemblies. Work in stages as directed. Read the directions carefully.



Description of the Prototype 65LT Marine Terminal Crane

The SEARAILS 65LT Marine Terminal Crane is a model of prototype cranes that accommodate the newest generation container ships. Constructed by Shanghai Zhenhua Port Machinery Company (ZPMC) these cranes are among the fastest in the world. They can lift up 65 long tons (145,600 lbs) at one time at a hoisting speed of 230 feet/minute. They can load or discharge over 30 cargo containers per hour. In the business of moving goods, speed means saving time and money.

Specifications

boom reach : 213 feet (net outreach 188 feet).

approximate cost : \$5.5 million

load or discharge rate : 30 cargo containers per hour

hoisting speed : 230 feet per minute

maximum lifting capacity : 65 long tons (145,600 lbs.)

weight : 1,200 Metric Tons.

height : 365 feet high with the booms up

220 feet high with the booms lowered

(220 feet is the equivalent of a 22 story building)



Material Cautions & Disclaimers

Materials used in the SEARAILS 65LT Marine Terminal Crane KIT include brass, cotton, natural waxes, hobby paints, and urethane resin. Use eye and breathing protection when machining, drilling, sanding, or cutting any of these materials as fumes and dust particles may be hazardous to your health.

Inventory & Description of Parts

You should find the following in the kit's package. If any parts are missing or defective please contact SEARAILS for a replacement.

Base Forward Tower
Base Forward Tower Cap
Base Aft Tower
Base Aft Tower Cap
Base Leg Port
Base Leg Starboard
Base Forward Tower Support Port
Base Forward Tower Support Starboard
Base Leg Port Forward Ladder
Base Leg Starboard Forward Ladder
Base Leg Port Aft Ladder
Base Leg Starboard Aft Ladder
Base Forward Tower Ladder Port
Base Forward Tower Ladder Starboard
Base Leg Port Walkway
Base Leg Starboard Walkway
Boom
Boom Forward Winch
Boom Aft Winch & Machine House
Boom Aft Winch Power Line Support
Boom Aft Winch Walkway Port
Boom Aft Winch Walkway Starboard
Boom Forward Winch Railing Port
Boom Forward Winch Railing Starboard
Boom Control Cab Access Ladder
Boom Main Rigging Line
Boom Articulation Rigging Line
Control Cab
Control Cab Walkway
Control Cab Hatch
Control Cab Overhead Railing
Control Cab Cable Port
Control Cab Cable Starboard
Control Cab Cable Drive Forward Port
Control Cab Cable Drive Forward Starboard
Control Cab Cable Drive Aft Port
Control Cab Cable Drive Aft Starboard
Control Cab Power Line
Gripper
Gripper Winch
Gripper Lifting Cable

Necessary Tools & Supplies

You will need the following tools and materials to construct this model.

Xacto handle, Dream dish detergent, Xacto chisel blades, CA Glue, 1523 Sandpaper (ultra fine grit), Sanding Sticks, Sandable primer (white), Round nose pliers, Paint (Acrylic or Enamel), Wooden Mallet, Paint brushes, #55 Drill Bit, Extra Fine Scissors (for rigging line knots)

Preparation of Parts

Before assembling the model you will need to clean and trim the parts.

1. Wash all plastic parts in household dish detergent to remove any residual mold release.
2. Carefully remove flashing from each part using blade or brush.
3. Drill holes in the following parts (see indicated figure for details).

Part Figure Boom Winch Forward 4 Boom Winch Aft 6 Boom Winch Housing 2 Boom Lifting Section 2 Control Cab 4 or 6 Gripper winch 2 or 4 Control Cab Cable Drives 1

Drilling of Parts

All drilled holes should be through holes except the two in the Boom Winch Housing.

The Boom Winch Housing holes are supports for the Boom Aft Winch Power Line Support and should be drilled only 1/16" deep (0.0625"). The six Boom Aft Winch drill holes should be made AFTER the bottom fixtures (Control Cab Cable Drives, Control Cab Power Line) have been glued in place.

If you intend to rig the gripper with six lines rather than eight, then you must drill two additional holes in both the Control Cab Lifting Support and the Gripper.

Drilling Templates

Template #1

Template #2

Template #3

Template #4

Template #5, Opt A

Template #6, Opt B

Template #7

4. Wash the drilled parts in dish detergent to remove residual plastic dust.

Brass Parts

This model kit includes a sheet of etched brass ladders and railed walkways which can be attached to the finished model to enhance its appearance.

Picture of model with brass attached.

1. Preparation of brass parts
 - a. Surface Preparation

All etched brass requires surface preparation to remove residual oils, greases, and other fluids to provide a clean surface to receive your paint. Retain all the pieces in their frames while preparing the surface. Wash brass parts in vinegar if you intend to paint them. Using 0000 fine steel wool, gently wipe the surface to provide a "grit" to which the paint may adhere.

NOTE: The Control Cab Power Line has been oxidized, and retains its black surface if not abraded.

b. Cut out parts

Part still in their frame need to be carefully removed. Please examine the connecting points and using a felt tip marker "tag" each one so that they are easier to locate when removing. Removing or separating the connection points requires either a sharp points cutting pliers (Xuron) or a chisel Exacto blade, handle, and mallet. Try to cut the midpoint of the connection, rather than one end or the other. Organize the parts in a small parts tray to avoid loss or damage while handling.

2. Form and attach brass parts to model

a. Boom Aft Winch Walkway Port and Starboard

Cut two pieces of Single Railing Walkway, each XN" long.

Remove one section of walkway only, from each end

Fold the Railing up to perpendicular to the walkway.

Fold in the exposed end railing sections

b. Boom Forward Winch Railing Port and Starboard

Cut two pieces of Single Railing Walkway, each XN" long

Remove one section of walkway only, from each end

Fold the Railing up to perpendicular to the walkway.

Fold in the exposed end railing sections

c. Base Leg Port and Starboard Forward Ladder

Cut two pieces of Ladder each XN" long

d. Base Leg Port and Starboard Aft Ladder

Cut two pieces of Ladder each XN" long

e. Base Forward Tower Ladder Port and Starboard

Cut two pieces of Ladder each XN" long

f. Base Leg Port and Starboard Walkway

Cut two pieces of Double Railing Walkway, each XN" long

Remove one section of walkway only, XN" from each end

Fold the Railing up to perpendicular to the walkway.

Fold in the cut end end sections

g. Control Cab Overhead Railing

Cut one piece of Single Railing Walkway XN" long

Remove railing from walkway

Fold the Railing following the outline of the Control Cab Overhead

Allow an opening to remain Aft of the Overhead

h. Control Cab Walkway

Cut one piece of Single Railing Walkway XN" long

Remove one section of walkway only, XN" from each end

Fold the Railing up to perpendicular to the walkway.

Fold in the cut end end sections

i. Control Cab Power Line

Perform these bends so the Power Line appears to be hanging loops

Holding down the one side of the Power Line, fold up the center section

Hold down the other unfolded side and fold up the opposite side

Fold the end with the .055" hole towards the loops at a ninety degree angle (the hole will hang down, allowing for an optional cable to be attached.)

Fold the opposite end away from the loops at a ninety degree angle (the tab formed will be glued to the aft centerline of the Boom for placement.)

Painting

1. Paint all parts with primer.
2. Paint parts as desired. See the **Description** section for example color schemes.

Assembly of Parts

Gluing - SEARAILS uses Cyanoacrylate glue. Use a fine grit sanding stick to remove paint from gluing points on parts to be joined.

Alignment - The SEARAILS 65LT Marine Terminal Crane is symmetrical about the centerline of the Boom. Care should be taken to maintain that symmetry for balance purposes. There are three alignment assistant points;

a. The Forward tower has one each immediately beneath the cross member. These should have their interior surfaces sanded smooth as the Boom requires them for placement alignment.

b. There are two "pin and socket" alignment tabs on each leg of the Base (remnants of a previous prototype) which must be sanded smooth. Care should be taken to insure good fit before gluing.

1. Control Cab (5 parts)
 - a. Attach the Control Cab Hatch to the exact middle of the overhead
 - b. Attach the Control Cab Overhead Railing centered with its opening Aft-facing
 - c. Turn the Control Cab over onto the tops of the Overhead Railing
 - d. Attach the Control Cab Walkway centered on the Aft of the Control Cab.
2. Gripper (2 parts)
 - a. Attach the Gripper Winch centered to the top of the Gripper
 - b. If you intend to have a container carried by the Gripper, now is the time to attach it
3. Rig Control Cab Gripper Assembly
 - a. Gripper Hoisting Cable

This is a simple continuous loop that runs through the two Control Cab Winch holes and the two Gripper Winch holes.

 1. Cut no more than XN" of rigging line
 2. Knot one end (it will be removed when the loop is finished and is used only to facilitate rigging)

3. Pass the line through the aft hole in the drilled through the Control Cab winch, snugging the knotted end to the hole opening
4. Pass the line down and then through one of the Gripper Winch holes
5. Pass the line up and through the empty Control Cab winch hole
6. Pass the line down and through the empty Gripp Winch hole
7. Adjust the height of the Gripper above the deck
8. Mark the place on the line that will retain the Gripper at the desired height,
9. Carefully pull the first knot out of the Control Cab Winch
10. Tie off the free end of the rigging line to the first knot
11. Glue the knot together, then pull the knot into the Control Cab Winch hole

b. Control Cab Cables (Port and Starboard)

- a. Cut two pieces of XN" Control Cab Cable
- b. Insert the cable through the Port and Starboard cable holes

c. Control Cab Cable Drives (Port and Starboard, Forward and Aft)

- a. Insert the cables through the forward and aft, port and starboard

Cable Drives

- b. Bend a small curve into each end of the forward end of the cables
- c. Snug the curve to the cable hole in the driver (the objective here is to create a friction hold on the cable IN the hole. If the curve is too big to accomplish this then cut the curve until just enough is left to form a "spike" that will jam into the hole
- d. glue the snugged cable in place in the forward driver
- e. Repeat the cable snugging in the aft drivers, insuring they both are at the same distance from the forward edge of the Boom's aft section

4. Boom

- a. Forward Winch
- b. Boom Aft Winch Power Line Support
- c. Boom Aft Winch Walkway Port
- d. Boom Aft Winch Walkway Starboard

Boom Forward Winch Railing Port

Boom Forward Winch Railing Starboard

Boom Control Cab Access Ladder

Boom Main Reaving Line

Boom Articulation Reaving Line

5. Base

- a. Base Legs and Towers
- b. Base Forward Tower Supports

6. Attach Boom Assembly to Base

7. Rig Boom