2510 Cruz-Crane

Operators Manual

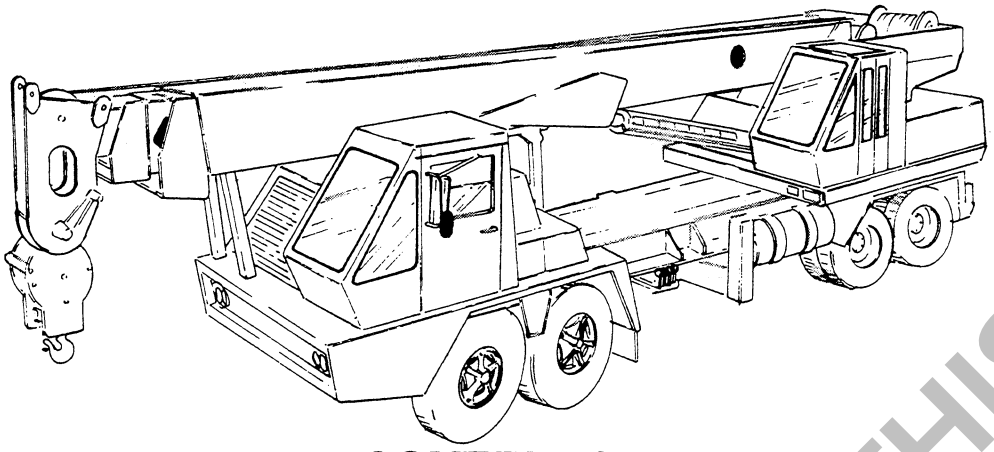
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SAFETY PRECAUTIONS

THIS SAFETY ALERT SYMBOL INDICATES IMPORTANT SAFETY MESSAGES IN THIS MANUAL. WHEN YOU SEE THIS SYMBOL, CAREFULLY READ THE MESSAGE THAT FOLLOWS AND BE ALERT TO THE POSSIBILITY OF PERSONAL INJURY OR DEATH.

CAUTION!

A hydraulic crane is NOT like a lattice boom friction crane in one very important way. In most cases, the safe lifting capacity of a lattice boom crane is based ON THE WEIGHT NEEDED TO TIP THE MACHINE. Therefore, operators of friction machines sometimes depend on signs that the machine might tip to warn them of impending danger.

This is a very dangerous thing to do with a hydraulic crane. Most hydraulic crane ratings are based ON THE STRENGTH OF THE MATERIAL OF THE BOOM (and other components). Therefore, the hydraulic crane operator who waits for signs of tipping to warn him of an overloaded condition WILL OFTEN BEND OR CAUSE SEVERE DAMAGE TO HIS MACHINE BEFORE ANY SIGNS OF TIPPING OCCUR.

OPERATORS OF ALL HYDRAULIC CRANES MUST BE GUIDED SOLELY BY THE RATING PLATE RECOMMENDATIONS CONCERNING LOAD, BOOM LENGTH, BOOM RADIUS, and other factors listed on the rating plate, such as outrigger position and level terrain.

Before starting the engine be sure all operating controls are in NEUTRAL. Never operate any of the controls from any position other than seated in the Operator's seat.

WARNING: Never allow anyone to ride on the outside of the Cab. The only person required when the machine is traveling is the Operator.

WARNING: Wear Eye Protection when servicing this machine.

WARNING: When shutting down the Carrier make sure transmission is in neutral. The engine can be started from the Crane cab. If the engine is started when the transmission is in gear, the Carrier can be set in motion.

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CONTROLS IN CARRIER CAB

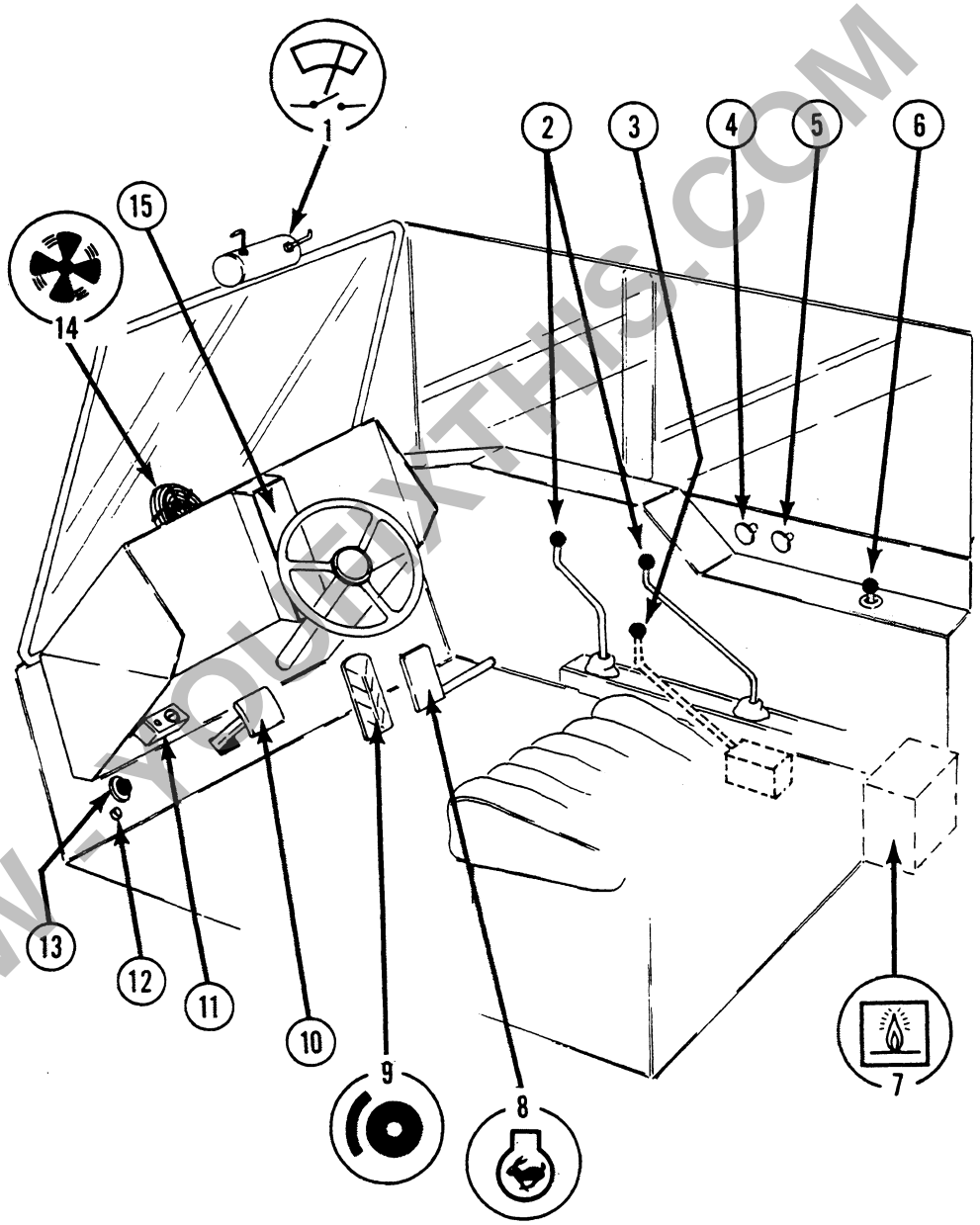


Figure 4. Carrier Controls

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Before starting the engine be sure all operating controls are in NEUTRAL. Never operate any of the controls from any position other than seated in the Operator's seat.

STARTING PROCEDURE

Once you've completed your pre-starting checks, start the engine by:

1. Making sure all controls are in neutral.
2. Depressing the accelerator ¼ way to the floor.
3. Turning the key to the on position.

COLD WEATHER STARTING

1. (Depress accelerator pedal as above).
2. Turn the key to "on" position, and depress the engine shut-off button at the same time. (Simultaneously switching the ignition on, depressing the engine shut-off button, and the accelerator allows the pistons to warm up before fuel is pumped into the cylinder).
3. Release shut-off button.
4. Press cold start button once to inject starting fluid into the engine. Pressing the button more than 2 or 3 times will cause engine to become ether-bound. Replace the container periodically. DO NOT ATTEMPT TO REFILL IT. A Thermostat on the engine prevents accidential discharge of ether into warm engine.
5. Don't keep the key in the "on" position for more than 30 seconds.
6. If the engine doesn't start, allow the starter motor to cool for about a minute before trying again.

EXTREME COLD WEATHER STARTING

When temperatures are below freezing the recommended starting procedure is to:

1. Recommend that the pump disconnect handle be pulled to remove the drag of the pump and hydraulic fluid.
2. Follow the starting procedure previously outlined.
3. After the engine has started, keep it at ¼ throttle for a few minutes to allow the engine to warm up.
4. Shut off the engine and reconnect the hydraulic pump to the engine by pushing down on the pump disconnect handle.
5. Start the engine and allow it to idle at ¼ throttle for 15 minutes to bring the hydraulic oil up to its operating temperature.

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ATTACHMENTS

REMOVING THE OUTRIGGERS

If counterweight is to be removed, remove it first.

Step 1: Retract the outriggers.

Step 2: Disconnect the hydraulic lines. The lines are color-coded for easy reassembly.

Step 3: Attach sling to hooking lugs provided. Attach hook and take in line just enough to take weight off of outrigger.

Step 4: Pull pin that keeps outrigger in place.

Step 5: Remove outrigger assembly, by setting assembly on a dolly and then removing dolly away from crane.

Step 6: Repeat same procedure for remaining outriggers.

REMOVING THE COUNTERWEIGHT

Step 1: Lower and extend outriggers until all the weight of the machine is off the tires.

Step 2: Swing the boom over the side of the machine (See Figure 30).

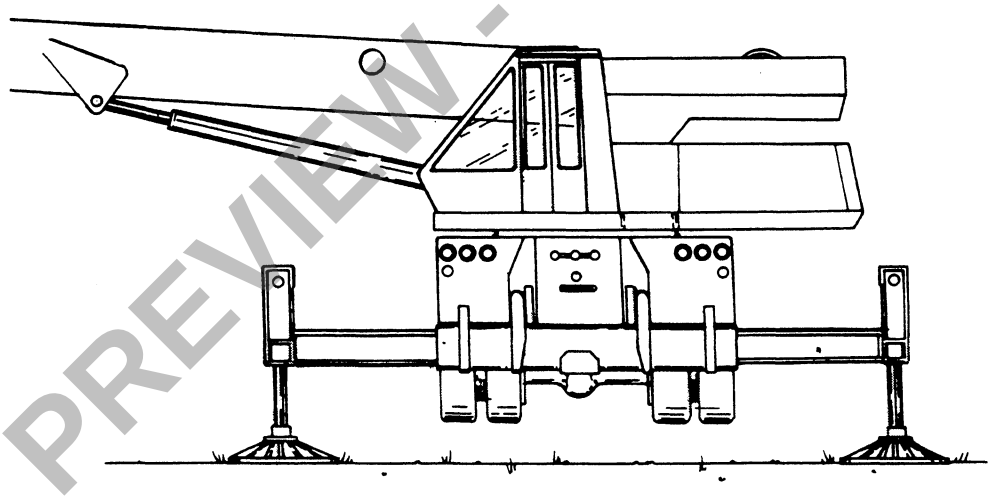


Figure 30. Swinging Boom Over Side of the Machine

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MAINTENANCE SCHEDULE

DELIVERY INSPECTION

Fuel Tank	Fill with approved fuel
Hydraulic Reservoirs	Check fluid level and fill
Swing Gearbox	Check oil level and fill
Engine Crankcase	Check oil level and fill
Radiator	Check coolant level and fill
Batteries	Check electrolyte level and fill
Main Transmission	Check fluid level and fill
Aux. Trans; Differentials	Check fluid level and fill

SPECIAL MAINTENANCE

ITEM	INTERVAL
Hydraulic Oil Filters	After first day or ten (10) hours of operation, remove and replace element and clean screen.
Engine	See Engine Manufacturer's literature.
First Week	Check torque on turntable bearing capscrews.

DAILY OR EVERY 10 HOURS

ITEM	PROCEDURE
Hydraulic Oil	Check Level
Outriggers	Clean dirt from channels
Tires	Check pressure
Fuel Tank	Fill (at end of shift to prevent condensation)
Engine	Check oil level
Cooling System	Check level
Turntable Open Gear	Lubricate
Operator's Compartment	Clean thoroughly, sweep out, wipe up any grease or oil, clean windows, and check control linkage cotter pins on valve spools.

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TORQUE CHARTS

MAXIMUM RECOMMENDED TORQUE VALUES FOR JIC SWIVEL NUTS (37° SEAT)

THD. SIZE	SIZE	OD TUBE	LB-FT PRESSURE
7/16 - 20	-4	1/4	9
1/2 - 20	-5	5/16	17
9/16 - 18	-6	3/8	20
3/4 - 16	-8	1/2	30
7/8 - 14	-10	5/8	40
1-1/16 - 12	-12	3/4	85
1-3/16 - 12	-14	7/8	100
1-5/16 - 12	-16	1	110
1-5/8 - 12	-20	1-1/4	150
1-7/8 - 12	-24	1-1/2	170
2-1/2 - 12	-32	2	300
	-40	2-1/2	400
	-48	3	500

To convert the thread size and OD tube size to millimeters multiply the value given in the chart by 25.4. To convert Lb-Ft Pressure to Newton-Meters multiply the value given in the chart by 1.36.

These values are the recommended torque values for JIC (37° Seat) swivel nuts either swaged or brazed type. The swivel nuts will normally withstand this torque for a minimum of 15 repeated assemblies.

The torque required to seal swivel female fittings or hose couplings to a male connector depends on many variables such as, fluid medium, surface finish, etc. The above values are intended only as a guide for the maximum values the fittings may be subjected to.

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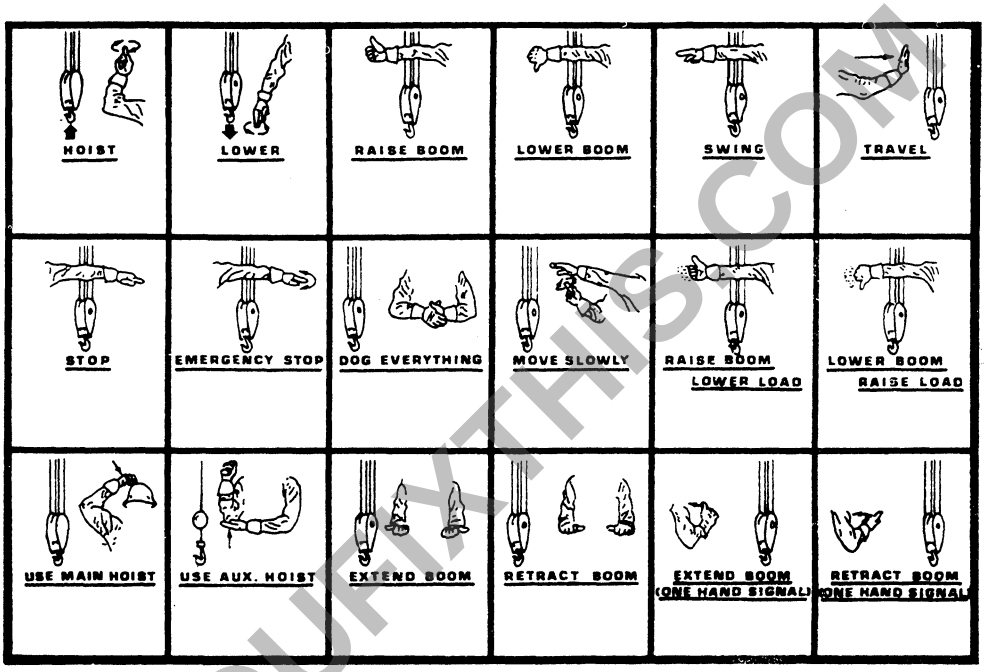
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HAND SIGNALS



ELECTRICAL CONDUCTOR CLEARANCE CHART

Conductor Voltage	Conductor Clearance When Crane is Working	Conductor Clearance When Crane is in Travel Position
50,000 v. or less	10′ (3.1m)	4′ (1.3m)
Over 50,000 v up to and including 345,000 v.	10′ (3.1m) plus 0.4″ (10.2mm) for each 1,000 v. over 50,000	10′ (3.1m)
Over 345,000 up to and including 750,000 v.		16′ (4.9m)

NOTE: Where local or other applicable safety codes or regulations specify greater clearance distances, the local or other applicable safety codes or regulations shall apply.

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CRANE INSTRUMENT PANEL

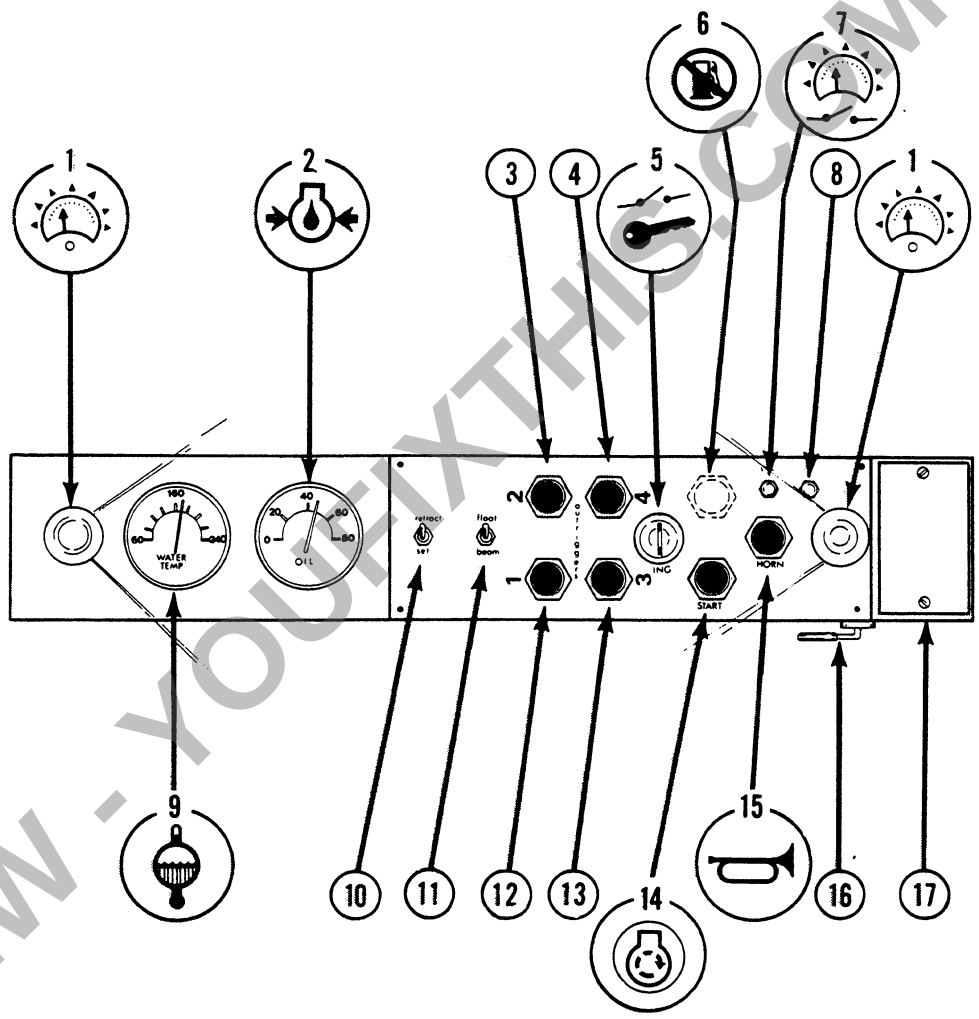


Figure 13 . Crane Instrument Panel

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RIGGING FOR 0°-15° 30° OFFSET IN ALL THREE JIB LENGTHS

WHEN USING	W/OFFSET	USE CABLE(s)
18' (5985mm) Jib	0° 15° 30°	1A 1A & 1C 1A & 2C
29' (8840mm) Jib	0° 15° 30°	1A & 1B 1A, 1B & 1C 1A, 1B & 2C
40' (12190mm) Jib	0° 15° 30°	1A & 2B 1A, 2B & 1 C 1A, 2B & 2C
	Cable lengths: A—39 ft. 9 in. (12115mm) B—21 ft. 1 in. (6425mm) C—2 ft. 8 in. (813mm)	

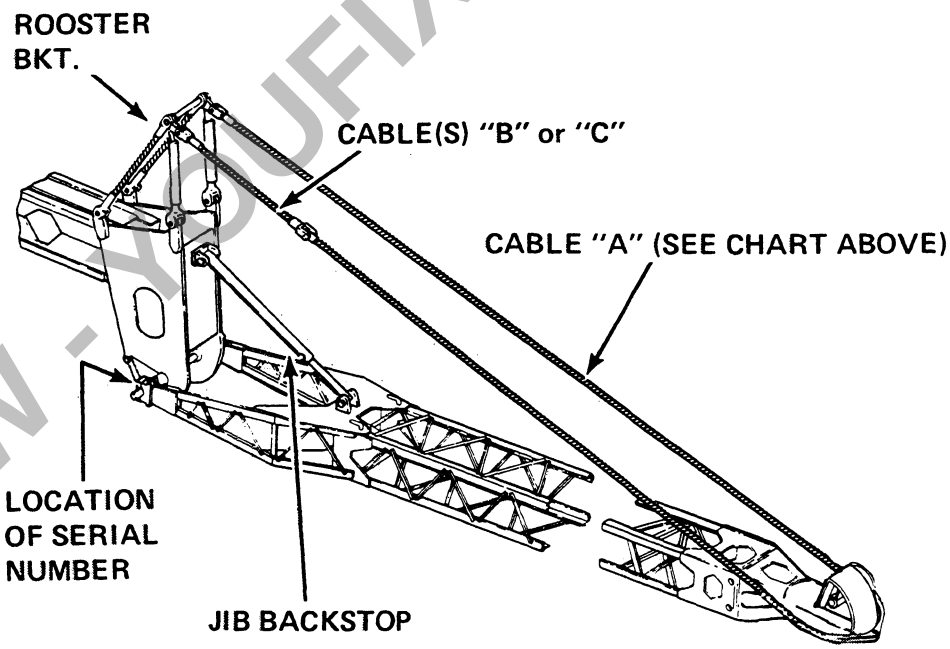


Figure 39. Lattice Jib

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