SHUTTLELIFT (Carry Deck)
TELESCOPIC BOOM CRANE—FIXED CAB (TSS)

These charts have been adapted from the original manufacturer’s charts for use in NCCCO Written Examinations.

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Shuttlelift (Carry Deck) Telescopic Boom Crane—Fixed Cab (TSS)

**SPECIFICATIONS**

### Superstructure

#### Boom

7.21 m – 21.6 m (23 ft 8 in - 71 ft) full power main boom. Four-section boom with three (3) powered sections.

Maximum tip height: 24.0 m (79 ft).

#### Offsettable swingaway extension

5.1 m (17 ft) offsettable swingaway extension. Offsets 0°, 15°, and 30° via pivoting boom nose. Stows alongside base boom section.

Maximum tip height: 28.9 m (95 ft).

### Boom nose

Two nickel plated steel sheaves mounted on heavy duty tapered roller bearings with removable pin-type rope guards. Quick reeve type boom nose with four-position (0°, +30°, +60°, and + 80°) pivoting to minimize head height requirements. Lowers head height by 0.6 m (2 ft).

### Boom elevation

Two double acting hydraulic cylinders with integral holding valves provides elevation from -0° to +80°.

### Anti-two block device

Standard anti-two block device, which, when activated, provides an audible warning to the operator and “locks-out” all functions whose movement can cause two-blocking.

### Load indicator (LSI)

A simple effective and easy to use load indicating system used in conjunction with the anti-two block system to assist the operator in efficient operation of the unit within the limits of the load chart. The display panel displays the hook load and cuts-out the telescope and boom lift down function when a load limit is exceeded. The warning is by a flashing light on the display panel. In conjunction with the load display panel (receiver) there is a wireless transmitter and load sensing pin attached to the boom head that transmits the hook load to the display panel.

*Denotes optional equipment

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### Rated Capacity Limiter (RCL)

Similar to the Load Indicator System, the Rated Capacity Limiter uses a similar display panel (receiver) with the addition of displaying boom angle and boom length read-outs on the panel.

(wireless system)

### Load Moment Indicator (LMI)

“Graphics Display” of boom angle, boom length, boom radius, capacity, and allows for operator input to set the limit parameters based on the load chart. Displays color coded light bar and audible alarm with function cut-out if load exceeds the load chart parameters.

(hardwired system)

### Swing

Ball bearing swing circle with 360° continuous rotation. Hydraulic motor driven pinion with brake.

Maximum speed: 2.5 rpm

### Hydraulic system

One pressure compensated variable displacement axial piston pump with load sensing combined with two (2) gear pumps.

Maximum output of: 238 LPM (79 GPM).

Maximum operating pressure: 248 bars (3600 psi).

Six section valve bank, chassis mounted, operated via dash mounted, pilot pressure hydraulic joysticks.

227 L (60 gal) hydraulic reservoir with sight level gauge and steel side plating to guard against side impacts.

10 micron return line filter with full flow by-pass protection and service indicator.
Shuttlelift (Carry Deck) Telescopic Boom Crane—Fixed Cab (TSS)

Shuttlelift

SPECIFICATIONS

Superstructure continued

**Hoist specifications**

Piston motor driven with automatic spring applied / hydraulically released wet brake.

- Maximum hoist pull (first layer): 6804 kg (15,000 lb)
- Maximum permissible single line pull: 5670 kg (12,500 lb) (3.5:1 design factor)
- Maximum single line speed: 61 m/min (200 fpm)
- Rope construction: 6X19 XIPS/IWRC
- Rope diameter: 16 mm (5/8 in)
- Main hoist: 119 m (390 ft)
- Maximum rope stowage: Main hoist: 151 m (495 ft)

**Carrier**

**Chassis**

High strength alloy frame constructed with integral outrigger housings; front and rear lifting, tie-down, and towing lugs. 60 ft² carrydeck size with 13 608 kg (30,000 lb) deck only carrying capacity. Deck coated with anti-skid treatment.

**Outriggers**

Two-stage hydraulic telescoping beam with vertical jack at the four corners provides extended and down and retracted and down lifting capacities. Integral holding valves on both beam and jack cylinders.

- Outrigger pad size: 29.2 cm x 29.2 cm (11.5 in x 11.5 in)
- Maximum outrigger pad load: 20 321 kg (44,800 lb) / 339 p.s.i.

**Independent outrigger control rocker switches for beam or jack selection with separate extend/retract rocker switch. 360° bubble level located inside cab.**

**Standard engine (Tier III)**

Cummins QSB 4.5L, four cylinders / turbo-charged diesel rated at 974 kW (130 bhp) (Gross) at 2500 rpm. Standard 110V engine block heater and cold weather “ether” assist system. Engine hour meter located inside operators compartment.

- Maximum torque: 370 N·m (273 ft lb) at 2500 rpm.

**Fuel tank capacity**

189 L (50 gal)

**Transmission**

Powershift with four speeds forward and reverse. Stalk mounted direction shifter with rotary gear selection.

**Operators control station**

Frame mounted, open air style control station with cab shell includes all crane functions, driving controls, and overhead safety glass. Other standard equipment includes a suspension seat with seat belt, hourmeter, sight level bubble, and 2.5lb (1.1kg) fire extinguisher. The dash panel includes a multi-cluster gauge showing fuel, water temperature, oil pressure, and battery voltage. An engine monitoring indicator strip shows engine warning, stop engine, transmission low pressure, transmission high temperature, and low brake system pressure. The load indicator receiver is mounted to the top of the dash panel.

*Operators control station enclosed*

Includes the standard cab shell with the addition of front, rear, and right side glass, a split (2 piece) hinged door with sliding glass, front windshield wiper and washer, hot water heater and defroster with fan and cab dome light are included.
## Shuttlelift

### SPECIFICATIONS

**Electrical system**

Two 12V maintenance-free batteries, 820CCA at 0°. 63 amp alternator.

**Drive**

2 wheel (rear drive) or 4 wheel selection, front and rear axle drive with planetary hubs and limited slip differential.

**Steer**

Standard three steering modes.

Front two wheel, four-wheel coordinated, and four-wheel crab steer with electronic self alignment, three-position rocker selector on dash panel.

Outside turning radius:

- **Two-wheel steer:** 7.32 m (24 ft)
- **Four-wheel steer:** 4.04 m (13 ft 3 in)

**Suspension/axles**

- **Front:** Drive/steer with differential and planetary reduction hubs, axle is rigid mounted to frame.
- **Rear:** Drive/steer with differential and planetary reduction hubs, axle is pivot mounted to frame allows up to 3.5° of oscillation.

**Oscillation lockouts**

Manual switch to engage and disengage the rear axle lockouts. Engage when lifting on rubber and in crab steer mode, Disengage to allow oscillation when traveling over rough terrain.

**Brakes**

Hydraulic actuated internal wet-disc service brake acting on all four wheels. Dash mounted toggle switch with light for activating or release of the dry disc parking brake mounted on the transmission output yoke.

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<td>Optional: 17.5R25 radials</td>
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<tr>
<th>Lights</th>
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<td>Full lighting including turn indicators, head, tail, brake and hazard warning lights recessed mounted.</td>
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<th>Maximum speed</th>
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<th>Gradeability (theoretical)</th>
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<tr>
<td>63%...... (at engine stall) NO LOAD</td>
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<tr>
<td>38%......(at engine stall) with 13 608 kg (30,000 lb) DECK LOAD</td>
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<tr>
<th>Gross vehicle weight (G.V.W.)</th>
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<tr>
<td>Open cab: 19 786 kg (43,620 lb)</td>
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<tr>
<td>Closed cab: 20 285 kg (44,720 lb)</td>
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**Miscellaneous standard equipment**

- 22 t (25 USt) Two sheave “galvanize coated” hookblock, with “Quick Reeve”.
- Back-up motion alarm
- Outrigger motion alarm
- Dual rear-view mirrors

- **Optional equipment**
  - AUXILIARY LIGHTING: includes cab mounted amber flashing light, dual base boom mounted floodlights
  - CONVENIENCE PACKAGE: includes front and rear pintle hitch and headlight/tailight grille covers
  - ENCLOSED CAB PACKAGE: includes heater and defroster, cab dome light, all window glass, and two piece split door
  - 5.2m (17 ft) fixed extension
  - Air conditioner
  - Catalytic convertor
  - Hoist drum rotation indicator
  - Wire rope 3rd wrap indicator with hoist function cut-out
  - 3629 kg (8000 lb) below deck mounted tow winch
  - Foam – filled tires
Shuttlelift

LIFTING NOTES

1) The rated loads are the maximum lifting capacities as determined by operating radius, boom length and boom angle. The operating radius is the horizontal distance from the center of rotation of the crane to the center of gravity of a freely suspended load.

2) When boom length is between points listed on the capacity chart, the smallest rated load shown at either the next longer or shorter boom length shall be used.

3) For operating radius not shown, use load rating of next larger radius.

4) For operating boom angle not shown, use load rating of next smaller boom angle.

5) The rated loads shown on outriggers do not exceed 85% of actual tipping. The rated loads shown on rubber do not exceed 75% of actual tipping. These ratings are based on freely suspended loads with the crane leveled, standing on a firm, uniform supporting surface. Practical working loads depend on supporting surface, operating radius and other factors affecting stability. Hazardous surroundings, climatic conditions, experience of personnel and proper handling must all be taken into account by the operator.

6) The weights of all load handling devices such as hooks, hook blocks, slings, etc., except the hoist rope, shall be considered as part of the load. See reduction chart.

7) Ratings on outriggers are for either outriggers fully extended and down or fully retracted and down. Ratings for outriggers fully retracted and down will apply for any intermediate outrigger setting.

8) Ratings on rubber depend on tire capacity, condition of tires and proper inflation pressure (110 psi). When replacing tires, contact Manitowoc for proper specifications. Loads on rubber may be transported at a maximum speed of 2.5 mph on a smooth hard level surface with boom retracted to the shortest length possible and centered over front. For 360° ratings on rubber, rear axle oscillation locks must be in place. Do not use jib with crane on rubber. Jib may only be erected when on outriggers.

9) For on-rubber or pick-and-carry operations, the maximum combined total boom and deck load is 20,000 lb. For travel (with no load), the maximum load is 30,000 lb.

10) Do not induce any external side loads to boom or jib.

<table>
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<tr>
<th>RATING REDUCTIONS FOR LOAD HANDLING DEVICES INSTALLED (lbs)</th>
<th>FROM MAIN BOOM</th>
<th>FROM JIB</th>
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<td>MAIN BLOCK</td>
<td>475</td>
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<td>HOOK &amp; BALL</td>
<td>100</td>
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<td>JIB STOWED</td>
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<tr>
<td>JIB ERECTED</td>
<td>500</td>
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MAXIMUM PERMISSIBLE SINGLE LINE PULL

12,500 lbs

HOIST ROPE: 5/8" diameter

6 x 19 XIPS IWRC BRIGHT

OPERATION OF THIS EQUIPMENT IN EXCESS OF RATING CHARTS AND DISREGARD OF INSTRUCTIONS IS DANGEROUS AND VOIDS WARRANTY.
Shuttlelift (Carry Deck) Telescopic Boom Crane—Fixed Cab (TSS)

Shuttlelift

RANGE DIAGRAM

[Graph showing height above ground versus radius for different boom lengths and angles.]
### Shuttlelift RATED LOADS

#### MAIN BOOM LOAD RATINGS ON OUTRIGGERS

Extended and Down 360° or Retracted and Down Front/Rear

<table>
<thead>
<tr>
<th>Radius (ft)</th>
<th>23 ft Boom</th>
<th>35 ft Boom</th>
<th>47 ft Boom</th>
<th>59 ft Boom</th>
<th>71 ft Boom</th>
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RATED LOADS LISTED IN SHADED AREAS ARE GOVERNED BY STRUCTURAL STRENGTH, DO NOT RELY ON TIPPING.
# Shuttlelift

## RATED LOADS

<table>
<thead>
<tr>
<th>Radius (ft)</th>
<th>23 ft Boom</th>
<th>35 ft Boom</th>
<th>47 ft Boom</th>
<th>59 ft Boom</th>
<th>71 ft Boom</th>
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<tbody>
<tr>
<td></td>
<td>Boom Angle (deg)</td>
<td>Rated Load (lbs)</td>
<td>Boom Angle (deg)</td>
<td>Rated Load (lbs)</td>
<td>Boom Angle (deg)</td>
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</tr>
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<td>67</td>
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### Shuttlelift

**RATED LOADS**

<table>
<thead>
<tr>
<th>Radius (ft)</th>
<th>Front Rating (lbs)</th>
<th>360° Rating (lbs)</th>
</tr>
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<tbody>
<tr>
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<td>21,000</td>
</tr>
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<td>17,900</td>
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<td>21,000</td>
<td>15,000</td>
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<tr>
<td>12</td>
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<td>10,000</td>
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<tr>
<td>16</td>
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<td>7,920</td>
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<tr>
<td>18</td>
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<td>9,460</td>
<td>5,780</td>
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<tr>
<td>22</td>
<td>8,060</td>
<td>4,880</td>
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<td>6,960</td>
<td>4,140</td>
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<tr>
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<td>6,050</td>
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<tr>
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<td>570</td>
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**Rated loads listed in shaded areas are governed by structural strength, do not rely on tipping.**
# Shuttlelift

## RATED LOADS

<table>
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<th>Main Boom Angle (deg)</th>
<th>Jib Offset Angle</th>
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<td>23 ft–55 ft Main Boom</td>
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<td>2020</td>
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<td>2000</td>
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</table>

RATED LOADS LISTED IN SHADED AREAS ARE GOVERNED BY STRUCTURAL STRENGTH, DO NOT REPLY ON TIPPING.