LOAD CHARTS for Use in CCO Written Examinations

MANITEX
TELESCOPIC BOOM CRANE—FIXED CAB (TSS)

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STANDARD EQUIPMENT

- 2-Speed planetary hoist.
- 5-Ton (4.5 mt) hook and ball.
- 2 Sheave boom point.
- Anti-two-block shutoff.
- Boom hoist cylinder.
- System pressure gauge.
- 70-Gallon (265-liter) hydraulic reservoir.
- Removable boom rest.
- Finish paint in Manitex colors.
- Engine start/stop.
- Operator/service/parts manuals.
- 3-Section Telescopic boom 26’ to 68’ (7.93 m to 20.73 m).

- 260 Feet (79.25m) of 9/16" (14.3 mm) EIPS IWRC wire rope.
- 372° Non-continuous rotation.
- Pedestal, turret, rotation bearing and swing system.
- Dual operator control stations.
- Hydraulic capacity alert warning system (HYCAS) - audio.
- Audible outrigger/stabilizer motion alarm.
- A-frame link type outriggers.
- A-frame rear stabilizer.
- 3-Section vane type hydraulic pump.
- Signal horn.
- 18-Foot (5.49m) Subframe.
STANDARD SPECIFICATIONS AND FEATURES

BOOM — 26’ To 68’ (7.93m to 20.73m). Inverted-T cross section. 3-Section telescoping type, extended and retracted proportionally by double-acting hydraulic cylinder and cable-crowd system. Maximum tip height 79’ (24.09m).

BOOM POINT — Two high-density nylon sheaves mounted on heavy-duty roller bearings. Two removable pin-type rope guards.

HOIST — Maximum theoretical line speed 247 fpm (75.29 mpm). Maximum theoretical bottom-layer line pull 12,000 lb (5,443 kg). Two-speed planetary reducer. Spring-applied, pressure-released internal brake.

WIRE ROPE — 260’ (79.25m) of 9/16” (14.29mm) diameter 6 x 25 IWRC.

BOOM ELEVATION — Double-acting hydraulic cylinder. Working range from 13’ below horizontal to 80’ above.

SWING SYSTEM — Externally mounted, double-reduction planetary driven by hydraulic motor. Maximum theoretical swing speed 1.80 rpm. Wet multi-disc internal brake is spring applied, pressure released. Oversized diameter ball bearing swing circle with external gear. 372° Non-continuous rotation.

OUTRIGGERS — 20’10” (6.13m) Extended. A-frame link type. Operated independently for precise leveling. Equipped with double-acting hydraulic cylinders. 16” x 20” (406mm x 508mm) Pivoting pads. 8’ 1/2” (251.9mm) Maximum rise.

A-FRAME STABILIZERS — 8’ (2.44m) Retracted; 10’ (3.05m) extended. Operated independently for precise leveling. Double-acting hydraulic cylinders. 8’ x 11’ (243mm x 279mm) fixed pads. 9’ (279mm) Maximum rise.

SUBFRAME — Torsionally resistant, rigid 4-plate design. Mounted under crane full length of truck frame.

REAR UNDERRIDE PROTECTION — Supplied on factory-mounted cranes. Fabricated structure mounted under rear of bed.

BACK-UP ALARM — Supplied on factory-mounted cranes. Electronic audible motion alarm activated when truck transmission is in reverse gear.

MOUNTING — Pedestal and subframe are mounted to chassis by threaded rods and clamp plates. No welding, drilling, or bolting to truck.

CONTROL SYSTEM — Dual operator stations are equipped with four single-lever crane controls arranged to ANSI B30.5 standards. Fully proportional control valves and system pressure gauge. Each station also includes outrigger and stabilizer controls, engine start/stop, foot throttle, signal horn, capacity light indication, boom-angle indicator, bubble levels, load chart and range diagram.

HYDRAULIC SYSTEM — A 3-section vane pump direct mounted to power take-off on truck transmission provides 35 gpm (133 lpm) to the hoist, 8 gpm (30 lpm) to the swing circuit and 18 gpm (68 lpm) to other crane functions. 70-Gallon (265-liter) baffled reservoir includes 10-micron filter in the return line. Extensive use of SAE O-ring and face seal O-ring hydraulic fittings.

HYDRAULIC CYLINDERS — All are equipped with integral holding valves.

BOOM REST — Heavy-duty fabrication. Easily removed to simplify loading and unloading.

LOAD HOOK — 5-Ton (4.5mt) capacity hook with heavy-duty swivel and weight is provided for single-line operation.

HYDRAULIC CAPACITY ALERT SYSTEM (HYCAS) — Hydraulically senses boom hoist cylinder pressures and indicates an overload condition with an audible alarm. Optional shutdown prevents continuing overload.

ANTI-TWO-BLOCK SYSTEM — Audible warning and shutoff functions prevent hook from contacting boom point.


DESIGN/WELDING — Design conforms to ANSI B30.5. Welding conforms to AWS D1.1.

MANUALS — Operator, service and parts manuals depict correct crane operation, maintenance procedures and parts listing.

WARRANTY — 12-Month warranty covers parts and labor resulting from defects in material or workmanship.

OPTIONS

ELECTRONIC CAPACITY ALERT SYSTEM (ECAS) — Electronically senses boom hoist cylinder pressures. Color-coded gauge at each operator station and audible alarm indicate approaching overload. Optional shutdown system hydraulically prevents continuing overload.

FIXED SWING-AROUND JIB — 23’ (7.01m) Fixed length, stows along boom base. Maximum tip height 101’ (30.79m).

TELESCOPIC SWING-AROUND JIB — Working lengths 23’ (7.01m) and 40’ (12.19m). Stows along boom base. Telescopic section stows inside jib base. Manually pinned in retracted or extended position. Maximum tip height 118’ (35.97m).

H-STYLE STABILIZERS — Two vertical double-acting hydraulic cylinders - 18” (457.2mm) stroke with 12” (304.8mm) diameter pivoting pads.

BED — Choice of 8’ x 14’ to 20’ lengths (2.44m x 4.27m to 6.10m). Deck of high density hardwood or diamond steel tread plate. Cross sills on 12” (305mm) centers. Bolts to subframe.

Signal Horn

Operator/Service/Parts Manuals

3-Section Telescopic boom 26’ to 68’ (7.93m to 20.73m).

70-Gallon (265-liter) hydraulic reservoir.

18-Foot (5.47m) Subframe.

3-Section Telescopic boom 26’ to 68’ (7.93m to 20.73m).

260 Feet (79.25m) of 9/16” (14.3 mm) EIPS IWRC wire rope.

Pedestal, turret, rotation bearing and swing system.

Dual operator control stations.

Hydraulic capacity alert warning system (HYCAS) - audio.

Audible outrigger/stabilizer motion alarm.

A-frame link type outriggers.

A-frame rear stabilizer.

3-Section vane type hydraulic pump.

Signal horn.

18-Foot (5.47m) Subframe.

3-Section Telescopic boom 26’ to 68’ (7.93m to 20.73m).

70-Gallon (265-liter) hydraulic reservoir.

18-Foot (5.47m) Subframe.

3-Section Telescopic boom 26’ to 68’ (7.93m to 20.73m).

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Audible outrigger/stabilizer motion alarm.

A-frame link type outriggers.

A-frame rear stabilizer.

3-Section vane type hydraulic pump.

Signal horn.

18-Foot (5.47m) Subframe.
Manitex Range Diagram

**WEIGHTS**

- Total crane, including hydraulic fluid: 13,900 lb (6,305 kg)
- 23' (7.01m) Fixed length jib: 545 lb (247 kg)
- 40' (12.19m) Telescopic jib: 820 lb (372 kg)
- 15-Ton (13.6-m) single-sheave block: 260 lb (118 kg)
- 20-Ton (18.1-m) double-sheave block: 350 lb (159 kg)
- Hanger sheave for 3- and 4-part line: 50 lb (23 kg)
- 20'4" (6.20m) steel or wood bed: 1,900 lb (862 kg)

**DEDUCTIONS**

- Auxiliary Block: 50 lb (22.68 kg)
- Overhaul Ball: 120 lb (54.43 kg)
- Single-Sheave Load Block: 260 lb (117.93 kg)
- Double-Sheave Load Block: 350 lb (158.76 kg)
- Hose Reel: 190 lb (86.16 kg)
- Swing-Around Jib (Stowed): See Load Rating Chart

**WARNING**

- Lifting off the main boom point while the swing-around jib is erected is not intended or approved.

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**ALLOWABLE LINE PULL**

<table>
<thead>
<tr>
<th>1 PART LINE</th>
<th>2 PART LINE</th>
<th>3 PART LINE</th>
<th>4 PART LINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>OVERTAIL BALL</td>
<td>SINGLE SHEAVE LOAD BLOCK</td>
<td>AUXILIARY BLOCK</td>
<td>AUXILIARY BLOCK</td>
</tr>
<tr>
<td>8500 lb</td>
<td>17000 lb</td>
<td>25500 lb</td>
<td>34000 lb</td>
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<td>3856 kg</td>
<td>7711 kg</td>
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</tr>
<tr>
<td>7400 lb</td>
<td>14800 lb</td>
<td>22300 lb</td>
<td>29600 lb</td>
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<tr>
<td>3357 kg</td>
<td>6319 kg</td>
<td>10070 kg</td>
<td>13426 kg</td>
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**WARNING**

- Anti-Two-Block system must be in good operating condition before operating crane. Refer to Owner's Manual.
- Keep at least three wraps on load line on drum at all times.

- 9/16" (14.29 mm) 6x25 IWRC (3.5:1 SF), 29750 lb (13494 kg) Minimum breaking strength.
- Minimum breaking strength.
- Minimum breaking strength.
OUTLINE DIMENSIONS

TRUCK CHASSIS DATA

Minimum Requirements
Some configurations and options may increase requirements

Wheelbase ............................................. 238 In ............... 6,045mm
Cab to Axle ......................................... 168 In ............... 4,267mm
Frame Section Modulus ......................... 18 In^3 ............... 295cc
  50,000 psi ... 344,750 kPa
Frame Section Modulus ......................... 15.9 In^3 ............... 260cc
  10,000 psi ... 758,450 kPa
Nominal Frame Width .......................... 34 In ............... 864mm
Front Axle Gross Weight Rating ............ 12,000 lb ............... 5,443 kg
Rear Axle Gross Weight Rating ............. 21,000 lb ............... 9,525 kg

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Made in USA

Due to continuing improvements, Manitex reserves the right to change product specifications without notice.
### Load Ratings in Lbs with Outriggers and Stabilizers Extended

<table>
<thead>
<tr>
<th>Operating Height (ft)</th>
<th>Load at 26 ft</th>
<th>Load at 38 ft</th>
<th>Load at 48 ft</th>
<th>Load at 58 ft</th>
<th>Load at 68 ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>77</td>
<td>80</td>
<td>86</td>
<td>92</td>
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<td>41</td>
<td>45</td>
<td>50</td>
<td>55</td>
<td>61</td>
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</table>

### Jib Load Ratings with Outriggers and Stabilizers Extended

<table>
<thead>
<tr>
<th>Operating Height (ft)</th>
<th>Load at 23 ft</th>
<th>Load at 40 ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>77</td>
<td>80</td>
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<tr>
<td>40</td>
<td>59</td>
<td>63</td>
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</tbody>
</table>

### Deductions for Stowed Jib

<table>
<thead>
<tr>
<th>Load in Lbs</th>
<th>Deduction</th>
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<tbody>
<tr>
<td>400</td>
<td>300</td>
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### Warning

1. The operator must read and understand the owner's manual before operating this crane.
2. Positioning or operation of crane beyond areas shown on this chart is not intended or approved except where specified in owner's manual.
3. Loaded boom angles at specified boom lengths give only an approximation of the operating radius. The boom angle before loading should be greater to account for deflections. Do not exceed the operating radius for rated loads.
4. The operating radius shown in the jib rating chart is for fully extended boom only. When boom is not fully extended, use only loaded boom angle to determine load rating of jib. Do not rely on capacity alert system when lifting from jib.
5. Boom must be fully retracted when jib is erected, before lowering boom thru this area.
6. For boom angles not shown on jib load rating chart, use rating of next lower boom angle.
7. For boom lengths not shown, use rating of next longer boom length. For radii not shown, use rating of next longer radius.
8. Crane load ratings on outriggers are based on freely suspended loads with the machine leveled and standing on a firm uniform supporting surface. No attempt shall be made to move a load horizontally on the ground in any direction.
9. Practical working loads depend on supporting surface, wind, and other factors affecting stability such as hazardous surroundings, experience of personnel, and proper handling, all of which must be taken into account by the operator.
10. The maximum load which may be telescoped is limited by hydraulic pressure, boom angle, and boom lubrication. It is safe to attempt to telescope any load within the limits of the load rating chart.

### Definitions

1. Operating radius is the horizontal distance from the axis of rotation to the center of the vertical hoist line or tackle with load applied.
2. Loaded boom angle as shown in the column headed by \( \angle \) is the included angle between the horizontal and longitudinal axes of the boom base after lifting rated load at rated radius.