Hydraulic Excavator

SK210HLC

SK210HLC-10

Bucket Capacity:
0.92 - 1.22 cu. yd. SAE

Engine Power:
160 hp (119 kW) @ 2,000 rpm

Operating Weight:
52,500lbs (23,800kg)

Note: This document may contain attachments and optional equipment that are not available in your area. It may also contain photographs of machines with specifications that differ from those sold in your area. Please contact your nearest KOBELCO dealer for items you require.

Due to our policy of continuous product improvement, all designs and specifications are subject to change without advance notice.

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Bulletin No. SK210HLC-10-NA-101-180300N

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In 2006, KOBELCO developed the 8 ton SK80H, the world’s first hybrid excavator. It was then followed by another industry first, the KOBELCO SK200H-9 hybrid to further reduce the environmental impact versus a conventional excavator.

Now, KOBELCO has reinvented the hybrid excavator with the SK210HLC-10 that has new technology using lithium-ion batteries, an industry first, where it can achieve better fuel economy and additional power to provide increased efficiency to be even more productive than a standard 20 ton excavator.

KOBELCO machines have always been known for their excellent fuel economy and now have set the new industry standard for hybrid excavators.

KOBELCO backs the hybrid technology with a 5 year/10,000 hour warranty on the hybrid components.

The KOBELCO revolutionary hybrid system has further evolved with the introduction of the SK210HLC-10. The new electric swing motor combined with the additional hybrid components are optimized for efficiency without sacrificing productivity. During heavy digging, the motor/generator/lithium-ion battery assist the engine and hydraulic pump in order to reduce fuel consumption and engine exhaust emissions. The components of the hybrid system work in harmony with the same size engine as a conventional SK210LC-10, therefore making the machine even faster for increased cycle times.

Increased power means increased productivity. Greater fuel economy means higher efficiency.
During high-load operation
- The stored electrical power in the lithium-ion battery now flows back to the motor/generator to assist the engine to power the hydraulic functions. Reducing the power demand on the diesel engine, reduces fuel flow and thereby increases overall efficiency.

During swing deceleration
- The braking energy generated during swing deceleration is converted into electrical energy, and then the electricity is accumulated in the lithium-ion battery.

During low-load operation
- The unused energy of the lightly loaded engine is used to generate electrical power, and recharge the lithium-ion battery to full standby level.

Into the era of “genuine hybrid machines”.

Hybrid Assist System

An independent swing electric system enables powerful and outstanding operability and performance for combined operation of swing and attachment.

Powerful electric swing acceleration by an independent electric system
- The swing motor is powered by electrical energy, stored in the lithium-ion battery.

Adoption of a lithium-ion battery for the first time in the excavator industry
- The adoption of the large capacity lithium-ion battery provides mass energy storage for optimum efficiency.

Runtime
- 17.6 times longer
  - Higher power capacity of the lithium-ion battery provides longer, more consistent, engine assist power and independent swing.

Hybrid
- Unused or underutilized power is used to charge the battery.
Conventional
- Unused power will be wasted just running engine.

E/G output

Load level

Electric Charge

Electric Assist

E/G

Hybrid
- The previously stored electrical power is sent back to the main engine during periods of heavy digging loads. This causes the diesel injection pump to reduce fuel injection quantity, thereby reducing fuel consumption.

Conventional
- The engine demand is high and so fuel injection quantity to the main engine is at maximum to provide full power to the main pumps.

Runtime
- 17.6 times longer
More power and higher efficiency.

- **Elbow extends**
- **Power Boost**

The KOBELCO’s original hybrid system minimizes fuel consumption while maximizing power. With nimble movement and outstanding digging power, this excavator improves job productivity. More power and higher efficiency.

- **Drawbar Pulling Force**
  - 51,000lbs (227kN)

**Integrated System**

- **Boom to Arm Regeneration System**
  - Innovative engineering uses the downward movement of the boom to push fluid to extend the arm. Gravity and kinetic energy greatly reduce the amount of power needed to move fluid through the system.

**Exhaust Gas Recirculation (EGR)**

- **Hydraulic circuit reduces energy loss**
  - Improved hydraulic layout minimizes hydraulic pressure resistance from turbulence and valve restrictions.
  - Fuel efficiency is increased because it takes less energy to move fluid through a circuit with low flow resistance.

**AIS (Auto Idle Stop)**

The engine will stop automatically after 60 seconds of inactivity if the safety lock lever is in the up position. This eliminates wasteful idling during standby, saving fuel and reducing CO₂ emissions.

**Reduces fuel consumption and minimizes exhaust emissions**

Hino engines are renowned for fuel efficiency and environmental performance, and KOBELCO has tuned them specifically for construction machinery. The high-pressure common rail fuel injection system, the variable-geometry (VG) turbocharger, and the exhaust gas recirculation (EGR) system and cooler reduce particulate matter (PM) and minimize formation of Nitrogen Oxide (NOx).

**Conforms to Tier IV Final exhaust emissions standards**

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**Heavy Lift**

10% more hydraulic pressure (Heavy Lift) means greater lifting power, at close radius, allowing for smooth and steady operation while moving heavy objects.

**Dedicated Electric Swing System (DESS)**

The KOBELCO Hybrid utilizes a completely independent electric swing system, powered by the lithium-ion battery. This system instantly delivers full swing torque during the combined operation, of swing and arm “in” required to dig against the sidewall of a trench. There is no “sharing” of pressure or flow with this system, maximizing productivity.

**Power to do more, faster**

- **Power Boost**
  - When you need more power instantly, engage Power Boost to get 10% more digging force, with no time limit.

**Fuel Efficiency**

The hybrid system continuously provides reduced fuel consumption, while boosting efficiency in all modes. For jobs where fuel efficiency is more of a concern, the operator can select “S” or “ECO” mode to even further reduce fuel consumption while maintaining machine performance.

**Revolutionary technology boosts efficiency and minimizes fuel consumption**

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**SCR System with DEF**

Engine exhaust system utilizes Selective Catalytic Reduction (SCR) to convert NOₓ into harmless nitrogen and water emissions. SCR combined with a Diesel Particulate Filter (DPF) makes the SK210LC a much cleaner machine meeting US EPA regulations for Tier IV final. This approach allows KOBELCO to tune the engine for maximum efficiency and performance.

**Non reduction rate**

About 88% decrease* (Compared to previous models)

*88% cleaner than Tier IV Interim
Increased power with enhanced durability to maintain the machine’s value

Smart system design increases strength and eliminates hydraulic problems. Enhanced reliability and durability takes productivity to a new level.

Built to operate in tough working environments

Reinforced and redesigned boom and arm offers excellent durability during demanding work conditions to reliably handle higher work volume.

1 Enlarged reinforcement of the arm
Arm base plate thickness has been increased.

2 Modified foot boss shape
Arm foot boss shape has been changed to better distribute stress.

500 Hour Attachment Lubrication Interval
The self lubrication bushings are used at the attachment pins and the bushings with high abrasion resistant property are used at the pins around the bucket. The lubrication cycle of the lubrication points around the bucket is 250 hours and that of other lubrication points is 500 hours.

* Flanged arm to bucket bushings protect the side of the arm from contact and then wear from the bucket ears. Should the bucket bushings need replacement, they can be replaced separately from the larger main bushing, reducing costs.

Improved filtration system reliability

Clean, contaminant-free fuel and hydraulic fluid are essential to stable performance. The improved filtration systems reduce the risk of mechanical trouble and enhance longevity and durability.

Hydraulic fluid filter
Our super fine filter separates out even the smallest particles. A new cover prevents contamination when changing filters.

Three Track Guides
The large capacity element features a double filter structure that keeps the engine running clean even in industrial environments.

5,000 hours Long-life hydraulic fluid replacement
1,000 hours Hydraulic fluid filter changing

Double-element air cleaner
Pre-filter with built-in water separator maximizes filtering performance.

Fuel filter
Pre-filter with built-in water separator maximizes filtering performance.

Hydraulic fluid filter restriction indicator
Detects clogging by measuring the difference in pressure between incoming and outgoing hydraulic fluid. Detecting filter restriction prevents contamination from getting into the hydraulic fluid reservoir reducing the risk of damage to the hydraulic system.
Comprehensive safety and intuitive operation

User-friendly design and enhanced safety means greater efficiency and productivity.

**Color Multi-display**
Brilliant colors differentiate multiple graphics on cab LCD. Graphics indicate fuel consumption, maintenance intervals and more.

1. Analog-style gauges provide an intuitive reading of fuel level and engine temperature
2. Green indicates ECO mode selected or efficient operation in other modes
3. PM accumulation (left)/DEF level (right)
4. Switchable between power supply monitor, fuel consumption, and rear view camera image
5. Digging mode switch  
6. Monitor display switch

**One-touch attachment mode switch**
A simple flick of switch sets the hydraulic flow amount to match attachments and attachment mode. Helpful icons let the operator confirm the proper configuration at a glance.

**Safety**

**ROPS Cab**
ROPS (Roll-Over-Protective Structure)-compliant cab complies with ISO standards (ISO-12117-2: 2008), and ensures greater operator safety in the event of a roll-over. KOBELCO encourages operators to wear their seat belt during operation.

**Expanded field of view for greater safety**

- Standard Top FOP guard that complies with ISO/TS66 certification (Jibkov ISO10262)

**Optional right side camera**

- Standard rear-view camera ensures safety checks behind the machine. Color video displays on cab monitor.

- Standard rear swing flashers and rear work lights

- Mounting brackets for vandalism guards are standard equipment (contact your KOBELCO dealer to fit vandalism or front rock guards).

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Cab comfort takes a step ahead

The newly refined cab puts the operator first, ensuring a quieter, more comfortable work environment and easier operation.

**Comfort**

- AM/FM stereo radio
- Spacious storage tray
- Large cup holder
- USB connector/12V power outlet

**A light touch on the lever means smoother, less tiring work**

- Five air outlets deliver warm or cool air directly to the operator.

**More comfortable seat means higher productivity**

- Suspension seat absorbs vibration
- Seat back can be lowered flat
- The side consoles slide and can be adjusted independently of the adjustable seat position, forward and backward.

**Quiet Inside**

- The high level of air-tightness ensures a quiet, comfortable cabin interior.

**Low Vibration**

- Coil springs absorb small vibrations and high suspension mounts filled with silicone oil reduce heavy vibration. The long stroke achieved by this system provides excellent vibration protection.

**Wider, Open View, makes the operators job and control easier.**

- The front window features one large piece of glass without a center pillar on the right side for a wide, unobstructed view.

**Wide access**

- Large door allows easy access in and out of the cab

- The expanded cab provides plenty of room for a large door, more headroom and smoother entry and exit.

**Easy control**

- It takes 25% less effort to move the operation lever, which reduces fatigue over long working hours or continuous operations.

**Interior equipment adds to comfort and convenience**

- Five air outlets deliver warm or cool air directly to the operator.

**Suspension seat absorbs vibration**
Efficient maintenance keeps the machine in peak operating condition

Maintenance Work, Daily Checks, Etc., Can Be Done from Ground Level

The layout allows for easy access from the ground for many daily checks and regular maintenance tasks.

Easy, on-the-spot maintenance

Ample space in the engine compartment allows service staff to comfortably perform maintenance in a natural body position. The distance between access steps is smaller so getting to and from the engine compartment is easier. The hood is lighter and easier to raise and lower.

Ground-level Access

Design allows for easy access at ground level for daily checks and maintenance work.

Maintenance Work, Daily Checks, Etc., Can Be Done from Ground Level

Examples of displaying maintenance information

- Displays only the maintenance information that’s needed, when it’s needed
- Self-diagnostic function provides early warning detection and display of electrical system operational condition
- Service-diagnostic function makes it easier to check the status of the machine
- Record function for any possible ongoing or intermittent service issues

Easy Access to In-cab Maintenance Features

- Easy-access fuse box
- DEF regeneration is an automatic function, but should manual regeneration be called for, a switch to engage it is readily available.
- Air conditioner filter can be easily removed without tools for cleaning. One for outside air and one for inside air.
- Fuel tank drain valve

Easy Cleaning

- Special sloped crawler side frame design is easily cleaned of mud and minimizes dirt build up.
- Detachable two-piece floor mat with handles for easy removal.

Total Support for Machines with Network Speed and Accuracy

KOMEXS is a satellite-based system for receiving machine information. Manage your machines anywhere in the world using the Internet. Location, workload and diagnostic data aid business operations.

- Fuel consumption data
- Operating hours
- Graph of work content

Machine information display function

- Machine Maintenance Data
  - Provides maintenance status of separate machines operating at multiple sites.
  - Maintenance data is also relayed to KOBELCO service personnel, for more efficient planning of periodic servicing.

- Security System
  - Location data
  - Accurate location data can be obtained even from sites where communications are difficult.

- Fuel Consumption Data
  - Data on fuel consumption and idling times can be used to indicate improvements in fuel consumption.

- Operating Hours
  - A comparison of operating times of machines at multiple locations shows which locations are busier and more profitable.
  - Operating hours on site can be accurately recorded, for running time calculations needed for rental machines, etc.

- Graph of Work Content
  - The graph shows how working hours are divided among different operating categories, including digging, idling, travelling, and optional operations (N&B).

- Direct Access to Operational Status
  - Location data
  - Operating hours
  - Fuel consumption data
  - Graph of Work Content

- Maintenance Data and Warning Alerts
  - Engine Start Alarm
    - Sends a notification if the engine is started outside of pre-defined hours.
  - Area Alarm
    - Sends a notification if the machine leaves a pre-defined area.
Specifications

<table>
<thead>
<tr>
<th>Engine</th>
<th>Model</th>
<th>HINO DIESEL-K3SK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Direct injection, water cooled, 4-cylinder engine with intercooler, intercooler/COX engine with EJNN60S Stage V, EPA Tier IV Final</td>
<td></td>
</tr>
<tr>
<td>No. of cylinders</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Bore and stroke</td>
<td>4.41 x 132 mm (s x 1.5)</td>
<td></td>
</tr>
<tr>
<td>Displacement</td>
<td>11.26 cu. in (187.12 L)</td>
<td></td>
</tr>
<tr>
<td>Rated power output</td>
<td>106 kW (142 PS) at 2,000 rpm (SAE NET)</td>
<td></td>
</tr>
<tr>
<td>Max. torque</td>
<td>472 lb-ft (640 Nm) at 1,200 rpm (SAE NET)</td>
<td></td>
</tr>
<tr>
<td>Oil cooler</td>
<td>4.0 gal (15 L) at 800 rpm (Without fan)</td>
<td></td>
</tr>
</tbody>
</table>

Hydraulic System

| Type | Two variable displacement pumps + 1 gear pump |
| Max. discharge flow | 1 s x 5.3 U.S.gph (1 x 20 L/min) |
| Relief valve setting | 3400 psi (23.5 Mpa) |

Pump

Type | Air cooled type |
| Engine oil pressure | 4,970 psi (34.3 Mpa) |
| Travel reduction gear | 5,480 psi (37.8 Mpa) |
| Cooling system | 1 gear pump |
| Fuel tank | 1 x 5.3 U.S.gph (1 x 20 L/min) |
| Refilling | 1 gear pump |
| Specified pumps | Two variable displacement pumps + 1 gear pump |

Travel Motor

Type | Air cooled type |
| Engine oil pressure | 4,970 psi (34.3 Mpa) |
| Travel reduction gear | 5,480 psi (37.8 Mpa) |
| Cooling system | 1 gear pump |
| Fuel tank | 1 x 5.3 U.S.gph (1 x 20 L/min) |
| Refilling | 1 gear pump |
| Specified pumps | Two variable displacement pumps + 1 gear pump |

Travel System

| Travel motors | 2 x axial piston, two-speed motor |
| Parking brakes | 4 disc brake per motor |
| Travel speed | 3.7 km/h (2.2 mph) |
| Breakout pulling force | 50,000 lbs (226 kN) (SAE) |
| Gradients | 10% (35°) |
| Ground clearance | 1.8 x 650 mm |

| Cab & Control |

Relief valve setting | Oil cooler |
| Pilot control pump | Control circuit |
| Travel circuit | Power Boost |
| Boom, arm and bucket | Travel circuit |
| Pump | Two hand levers and two foot pedals for travel |
| Electric rotary type engine (inside) | Two hand levers for excavating and swing |

| Boom, Arm & Bucket |

| Boom cylinder | 4.7" (120 mm) x 4.3" (115 mm) |
| Arm cylinder | 3.3" (85 mm) x 6.7" (170 mm) |
| Bucket cylinder | 4.7" (120 mm) x 3.9" (100 mm) |

| Refilling Capacities & Lubrications |

| Fuel tank | 64.5 U.S. gal (302L) |
| Cooling system | 1.8 U.S.gal (7L) |
| Engine oil pressure | 9.0 U.S.gal (34L) |
| Travel reduction gear | 2.5 U.S.gal (9.5L) |
| Swing reduction gear | 1.8 U.S.gal (6.9L) |
| Hydraumatic tank | 8.0 U.S.gal (30L) |
| Oil cooler | 9.0 U.S.gal (34L) |

| Digging Force |

| Arm length | Unit: ft-in (m) |
| Bucket digging force | 29,330 (790) |
| Arm crowning force | 32,100 (812) |

| Hydraulics P.T.O. |

| Specification | Output |
| NBB | (43.4) 714 |
| Rotary | (75) 1,058 |

| Operating Weight & Ground Pressure |

| Bucket type | Capacity (SAE) (kN) |
| Width (inches) (m) | Bucket Weight (lb) (kg) |
| 9'8" (2.98) | 11'6" (3.5) |
| General | 1.14 | 437 (196) |
| Heavy Duty | 1.8 | 547 (247) |
| Severe Duty | 1.6 | 481 (216) |

| Dimensions |

| Arm | Standard (9'8" (2.98) m) | Long (11'6" (3.5) m) |
| A | Overall length | 31'6" (9.60) |
| B | Overall height (to top of boom) | 9'8" (2.98) |
| C | Overall width | 10'5" (3.18) |
| D | Overall height (to top of cab) | 10'5" (3.18) |
| E | Ground clearance at rear end | 3'6" (1.06) |
| F | Ground clearance | 1'6" (4.06) |
| G | Full swing radius | 9.0" (2.29) |
| H | Distance from center of swing to rear end | 9.0" (2.29) |
| I | Tower radius | 12" (30.5) |
| J | Overall length of crawler | 14'7" (4.49) |
| K | Track gauge | 7'10" (2.39) |
| L | Slack Width (inches) (m) | 24" (600) |
| M | Overall width of superstructure | 9.0" (2.29) |

| Operating & Working Pressure |

| Shaped Triple pressure area (screw area) |
| Shaft width | Maximum pressure | Max. flow US GPM, (rpm) |
| In (mm) | psi (kPa) | lpm (gpm) |
| 24" (600) | 4,970 (34.3) | 1.8 |
| 28" (700) | 5,480 (37.8) | 2.2 |
| 31.5" (800) | 6.1 (41.8) | 3.0 |
| 35" (900) | 6.5 (45.1) | 4.0 |

* Without including height of shoe leg

** Without including height of shoe leg

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* Specifications for SK210HLC-10

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Specifications

ENGINE
- Turbocharged and inter-cooled HINO J08E4 6354
- Tier IV Final Diesel engine
- Automatic engine deactivation
- Two 12V, 40Ah batteries
- 24V, Side starting motor
- 60-amp alternator
- Removable radiator clean-out screen
- Automatic engine shut-down if low engine oil pressure
- Side by side oil, hydraulic and engine radiators
- Double-element air cleaner

HYDRAULIC
- Automatic swing brake
- Grease-type track adjusters
- Sealed & lubricated track links

SWING SYSTEM & TRAVEL SYSTEM
(H-mode, S-mode and ECO-mode)
- Working mode selector
- Double-element air cleaner
- Automatic engine shut-down if low engine oil pressure
- Removable radiator clean-out screen
- 60-amp alternator
- 24V, 5kW starting motor

OPTIONAL EQUIPMENT
- Rain visor
- Vandal Guards available via KOBELCO Parts Department
- Additional hydraulic circuits
- 600mm, 700mm and 900mm shoes are optional
- Two-way control pattern changer
- 12V converter
- Attachment pressure release switch
- Travel alarm
- AM/FM stereo radio
- Emergency escape hammer
- Automatic climate control
- Easy to read multi-display monitor
- Tinted safety glass
- Top guard
- Skylight
- Intermittent windshield wiper with double-spray washer
- Heater and defroster
- Handrails

Lifting Capacities

<table>
<thead>
<tr>
<th>A</th>
<th>S (1.5m)</th>
<th>L (3.0m)</th>
<th>15 (4.5m)</th>
<th>20 (6.0m)</th>
<th>25 (7.5m)</th>
<th>AT MAX</th>
</tr>
</thead>
<tbody>
<tr>
<td>5'10&quot;</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>8'10&quot;</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>10'</td>
<td>11,590</td>
<td>13,600</td>
<td>17,070</td>
<td>19,410</td>
<td>21,750</td>
<td>16,020</td>
</tr>
<tr>
<td>10'6&quot;</td>
<td>11,770</td>
<td>13,790</td>
<td>17,250</td>
<td>19,580</td>
<td>21,920</td>
<td>16,200</td>
</tr>
<tr>
<td>12'6&quot;</td>
<td>12,700</td>
<td>14,750</td>
<td>18,220</td>
<td>20,530</td>
<td>22,900</td>
<td>17,250</td>
</tr>
<tr>
<td>14'6&quot;</td>
<td>14,240</td>
<td>16,320</td>
<td>20,540</td>
<td>22,680</td>
<td>25,040</td>
<td>18,800</td>
</tr>
<tr>
<td>16'6&quot;</td>
<td>15,530</td>
<td>17,640</td>
<td>21,880</td>
<td>24,190</td>
<td>26,540</td>
<td>19,900</td>
</tr>
</tbody>
</table>

Rating over front
Rating over side or 90 degrees
A – Reach from swing centerline to arm tip
B – Arm bucket pin height above/below ground
C – Lifting capacities in pounds (kilograms)

<table>
<thead>
<tr>
<th>A</th>
<th>10'</th>
<th>15'</th>
<th>20'</th>
<th>25'</th>
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<tbody>
<tr>
<td>5'10&quot;</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>8'10&quot;</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>10'</td>
<td>11,590</td>
<td>13,600</td>
<td>17,070</td>
<td>19,410</td>
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<td>10'6&quot;</td>
<td>11,770</td>
<td>13,790</td>
<td>17,250</td>
<td>19,580</td>
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<td>12'6&quot;</td>
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<td>14,750</td>
<td>18,220</td>
<td>20,530</td>
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<td>14,240</td>
<td>16,320</td>
<td>20,540</td>
<td>22,680</td>
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<tr>
<td>16'6&quot;</td>
<td>15,530</td>
<td>17,640</td>
<td>21,880</td>
<td>24,190</td>
</tr>
</tbody>
</table>

Rating over front
Rating over side or 90 degrees
A – Reach from swing centerline to arm tip
B – Arm bucket pin height above/below ground
C – Lifting capacities in pounds (kilograms)

Notes:
1. Do not attempt to lift or hold any load that is greater than these lift capacities at their specified lift point radius and heights. Weight of all accessories must be deducted from the above lift capacities.
2. Lift capacities are based on machine standing on level, firm, and uniform ground. User must make allowance for job conditions such as soft or uneven ground, out of level conditions, side loads, sudden stopping of loads, hazardous conditions, experience of personnel, etc.
3. Arm bucket pin, without bucket is defined as lift point.
4. The above lifting capacities are in compliance with SAE J/ISO 10567. They do not exceed 87% of hydraulic lifting capacity or 75% of tipping load. Lifting capacities marked with an asterisk (*) are limited by hydraulic capacity rather than tipping load.
5. Operator should be fully acquainted with the Operator’s and Maintenance Instructions before operating this machine. Rules for safe operation of equipment should be adhered to at all times.
6. Lifting capacities apply to only machines as originally manufactured and normally equipped by KOBELCO CONSTRUCTION MACHINERY CO., LTD.