Operator Oriented Design for Easy Operation

Wrist-control type single-lever (joystick) for steering/speed/directional change for easy and smooth operation.

A HYDROSHIFT transmission allows quick speed and directional changes (F3/R3).

Wrist-control type single-lever (joystick) for blade control reduces operating effort for blade lift/dig, tilt and angle.

Efficient Turbocharged S4D102E engine provides powerful and fuel-saving operation.

Inching pedal permits precise movement in tight quarters and allows for full hydraulic response and tractive effort at reduced ground speeds.

Long tracks provide greater stability and superior grading ability.

Simplified Maintenance
- Spin-on filters, air cleaner with dust evacuator.
- Easy-to-drain fuel tank minimizes maintenance.
- Automatic fan belt tensioner and radiator coolant reservoir facilitate simplified maintenance.
Responsive Operation

Joysticks are the logical choice for providing smooth, precise control in order to gain maximum productivity. Their operation mirrors the natural motion of the activity the operator wishes to perform.

Easy-to-see instrument panel

Ergonomically arranged instruments make it easier to check the machine condition. In addition, fuel meter and dust indicator warning light are installed on the panel for easier servicing.

Walk-through operator’s compartment

The operator’s compartment has a complete walk-through design, for easier access and exit.

The left joystick controls all speed and directional changes including:
- 1st to 3rd
- Forward and reverse
- Right and left steering

The right joystick controls all the blade functions including:
- Lifting / Digging
- Tilting
- Angling
VERSATILE OPERATION AND SUPERIOR PRODUCTIVITY

Efficient HYDROSHIFT transmission
The D31-20 is equipped with Komatsu’s unique HYDROSHIFT transmission, for smooth gear shifts, powerful traction and low fuel consumption.

The power train includes a damper and planetary type powershift transmission. HYDROSHIFT efficiently converts engine power to traction with minimal power loss through a direct-drive transmission. It offers smooth, easy shifting and good fuel efficiency.

Unlike ordinary powershift transmissions with torque converters, traction does not decrease, even when the engine is running at partial throttle.

Long track
The well positioned center of gravity provides good machine balance for grading and operation on slopes. In addition, the machine can travel over soft ground easily, and it can work productively in muddy areas.

Powerful, Fuel-Efficient, Clean Engine:
The Komatsu S4D102E engine is a fuel efficient, direct-injection turbocharged diesel.

Efficient fuel combustion improves consumption and lowers emission. Meets 1998 EPA emission standards.
Features high horsepower output and torque rise for strong pushing capability without lugging down.

SIMPLIFIED MAINTENANCE AND MAXIMUM DURABILITY, RELIABILITY

Simplified maintenance
Spin-on type filters are used throughout the machine, making it easy to replace filter elements.

Automatic fan belt tensioner eliminates troublesome belt adjustment.

Radiator coolant reservoir
Makes it easier to check the coolant level and eliminates frequent refilling.

Wet type steering clutches and brakes
The D31-20 has interconnected, joystick-operated, wet steering clutches and brakes for long service life and reliability.

The self-adjusting steering clutches are multiple-disc type with Pressure Proportion Control (PPC) control, insuring light-touch lever movements. The brakes are wet contracting-brand type that facilitate minimal lining replacements.

Lubricated track links
The clearance between the link pin and bushing is lubricated, wear and pitch elongation are minimized for extended service life. Power loss due to pin and bushing friction are reduced, increasing operation comfort and performance.
D31E-20/ D31P-20 SPECIFICATIONS

ENGINE
Model..............................................Komatsu S4D102E-1
Type ...................................................
4-cycle, water-cooled, direct injection
Aspiration ........................................ Turbocharged
No. of cylinders ........................................ 4
Bore ...................................................... 4.02" 102 mm
Stroke .................................................. 4.72" 120 mm
Piston Displacement .................................. 240 in³ 3.9 ltr.
Gross Horsepower* ............................. 75 HP 56 kW @ 2350 RPM
Flywheel Horsepower** ...................... 70 HP 52 kW @ 2350 RPM
Net Max. Torque .................................. 217 ft lb 294 Nm @ 1400 RPM
Governor ........................................... All-speed, mechanical
*Per SAE J 1995 conditions.
**Engine equipped with air cleaner, alternator (not charging), muffler and fan (SAE) J 1349.

DAMPER
Wet-type damper, with built-in torsion and friction springs, absorbs engine torque vibrations as well as stress from external impacts.

HYDROSHIFT TRANSMISSION
The unique Komatsu HYDROSHIFT transmission with planetary gears is hydraulically-controlled and force-lubricated. Efficient power flow and simplified direction and speed changes (3 forward and 3 reverse).

<table>
<thead>
<tr>
<th>Model</th>
<th>Transmission</th>
<th>Damper case</th>
<th>Final drive</th>
<th>Governor</th>
</tr>
</thead>
<tbody>
<tr>
<td>D31E-20</td>
<td>Gear-type hydraulic pump mounted</td>
<td>Gear-type hydraulic pump mounted</td>
<td>Rigid type</td>
<td>All-speed, mechanical</td>
</tr>
<tr>
<td>D31P-20</td>
<td>with wet, contracting-band, steering brakes to allow easy, light-touch steering/braking actions. A PPC valve built into the steering circuit facilitates smooth, shockless steering control.</td>
<td>with wet, contracting-band, steering brakes to allow easy, light-touch steering/braking actions. A PPC valve built into the steering circuit facilitates smooth, shockless steering control.</td>
<td>Rigid type</td>
<td>All-speed, mechanical</td>
</tr>
</tbody>
</table>

COOLANT & LUBRICANT CAPACITY (refilling)

<table>
<thead>
<tr>
<th>Model</th>
<th>Oil capacity</th>
<th>Coolant capacity</th>
<th>(90°) F</th>
<th>(25°) F</th>
<th>Relief valve setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>D31E-20</td>
<td>5.8 U.S. gal 22 ltr.</td>
<td>2.5 U.S. gal 9.5 ltr.</td>
<td>2.2 U.S. gal 8.4 ltr.</td>
<td>3.2 U.S. gal 12 ltr.</td>
<td>2,490 PSI</td>
</tr>
<tr>
<td>D31P-20</td>
<td>5.8 U.S. gal 22 ltr.</td>
<td>2.5 U.S. gal 9.5 ltr.</td>
<td>2.2 U.S. gal 8.4 ltr.</td>
<td>3.2 U.S. gal 12 ltr.</td>
<td>2,490 PSI</td>
</tr>
</tbody>
</table>

OPERATING WEIGHT (approximate)

<table>
<thead>
<tr>
<th>Model</th>
<th>Operating weight, including rated capacity of lubricant, coolant, and full fuel tank and ROPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>D31E-20</td>
<td>12,370 lb 5611 kg</td>
</tr>
<tr>
<td>D31P-20</td>
<td>13,470 lb 6110 kg</td>
</tr>
</tbody>
</table>

HYDRAULIC SYSTEM

Hydraulic control unit: Gear-type hydraulic pump mounted on rear of engine with capacity (discharge flow) of 240 U.S. gal/min 90 ltr., at rated engine RPM.

Relief valve setting 2,490 PSI, 175 kg/cm²

Control valves
- Three control valves for power-angle-tilt dozer
  - Positions: Blade lift.................Raise, hold, lower and float
  - Blade angle..........................Left, hold and right
  - Blade tilt................................Left, hold and right
- Additional control valve required for ripper
  - Positions: Ripper......................Raise, hold, and lower

Hydraulic cylinders: Double-acting, piston type

<table>
<thead>
<tr>
<th>Number of cylinders</th>
<th>Bore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blade lift</td>
<td>2</td>
</tr>
<tr>
<td>Blade tilt</td>
<td>1</td>
</tr>
<tr>
<td>Blade angling</td>
<td>2100 lb 8906 kg</td>
</tr>
</tbody>
</table>

FINAL DRIVE

Spur gear, single-reduction final drives. Bolt-on type sprockets for easy replacement.

<table>
<thead>
<tr>
<th>Model</th>
<th>Travel speed</th>
<th>Rated drawbar pull</th>
<th>Reverse</th>
</tr>
</thead>
<tbody>
<tr>
<td>D31E-20</td>
<td>1st 1.4 MPH 2.2 km/h</td>
<td>16,180 lb 7340 kg</td>
<td>1.5 MPH 2.4 km/h</td>
</tr>
<tr>
<td></td>
<td>2nd 2.4 MPH 3.9 km/h</td>
<td>8,710 lb 3950 kg</td>
<td>2.7 MPH 4.3 km/h</td>
</tr>
<tr>
<td></td>
<td>3rd 4.0 MPH 6.5 km/h</td>
<td>4,780 lb 2170 kg</td>
<td>4.4 MPH 7.1 km/h</td>
</tr>
<tr>
<td>D31P-20</td>
<td>Max. drawbar pull</td>
<td>19,910 lb 9030 kg</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>Travel speed</th>
<th>Rated drawbar pull</th>
<th>Reverse</th>
</tr>
</thead>
<tbody>
<tr>
<td>D31P-20</td>
<td>1st 1.4 MPH 2.2 km/h</td>
<td>16,070 lb 7290 kg</td>
<td>1.5 MPH 2.4 km/h</td>
</tr>
<tr>
<td></td>
<td>2nd 2.4 MPH 3.9 km/h</td>
<td>8,600 lb 3900 kg</td>
<td>2.7 MPH 4.3 km/h</td>
</tr>
<tr>
<td></td>
<td>3rd 4.0 MPH 6.5 km/h</td>
<td>4,630 lb 2100 kg</td>
<td>4.4 MPH 7.1 km/h</td>
</tr>
<tr>
<td></td>
<td>Max. drawbar pull</td>
<td>19,760 lb 8960 kg</td>
<td></td>
</tr>
</tbody>
</table>
**DOZER EQUIPMENT**

Use of high-tensile-strength steel in moldboard for extended service life. Hydraulic hoses for blade angle and tilt are protected with steel plates.

**Power-angle-tilt dozer**

<table>
<thead>
<tr>
<th></th>
<th>Overall length with dozer</th>
<th>Blade Capacity</th>
<th>Blade length x height</th>
<th>Max. lift above ground</th>
<th>Max. drop below ground</th>
<th>Max. tilt adjustment</th>
<th>Additional weight</th>
<th>Additional ground pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>D31E-20</strong></td>
<td>12'2&quot; 3710 mm</td>
<td>1.65 yd$^3$</td>
<td>7'11&quot; x 2'9&quot;</td>
<td>2'10&quot; 865 mm</td>
<td>1'3&quot; 370 mm</td>
<td>1'2&quot; 350 mm</td>
<td>1,870 lb 850 kg</td>
<td>1.13 PSI/0.08 kg/cm$^2$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.26 m$^3$</td>
<td>2415 mm x 840 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>D31P-20</strong></td>
<td>12'11&quot; 3940 mm</td>
<td>1.70 yd$^3$</td>
<td>9'5&quot; x 2'7&quot;</td>
<td>3'0&quot; 915 mm</td>
<td>1'1&quot; 320 mm</td>
<td>1'5&quot; 420 mm</td>
<td>1,980 lb 900 kg</td>
<td>0.57 PSI/0.04 kg/cm$^2$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.3 m$^3$</td>
<td>2875 mm x 790 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* (L: Blade length) x (H: Blade height)

---

Ground Clearance .......... 10" 315

Ground Clearance .......... 12" 360
STANDARD EQUIPMENT FOR BASE MACHINE

**Engine and Its Related Items:**
- Air cleaner, dry, double element type with dust indicator
- Automatic deaeration for fuel line
- Decelerator pedal
- Engine, KOMATSU S4D102E, 70HP (52 kW), turbocharged, direct injection, diesel
- Exhaust pipe, curved
- Fan, blower
- Fuel hose, general purpose

**Electric System:**
- Alternator, 25 Ampere, (24V)
- Back-up alarm
- Batteries, 2 x 12V, 70AH
- Lights (2 front & 1 rear)
- Starting motor, 4.5 kW (24V)

**Power Train and Controls:**
- Sprockets, one piece type
- Mono-lever steering with PPC
- Transmission, F3–R3

**Undercarriage:**
- Idler with recoil spring
- Track frames, 5 roller (D31E-20), 6 roller (D31P-20)
- Track roller guards, end section
- Track shoe assembly, 13” (330 mm) (D31E-20), 23.6” (600 mm) (D31P-20), single grouser shoes with sealed and lubricated link assembly

**Guards and Covers:**
- Crankcase guard and transmission guard, pull hook installable
- Engine hood and side panels
- Fenders, standard type
- Final drive case wear guard
- Radiator guard door, single, bolt-on type
- Rear cover, standard type
- ROPS mounting brackets

**Operator Environment:**
- Seat, suspension type
- Seat belt
- Mono-lever controls for blade

**Vandalism Protection:**
- Filler cap locks and cover locks

**Other Standard Equipment:**
- Marks and plates, English

*ROPS canopy or ROPS cab must be ordered for all machines.
*Dozer assembly and rear mounted equipment are not included.

**OPTIONAL EQUIPMENT**

- Fire extinguisher
- Front pull hook, for use with under guard
- Full length, segmented track roller guards
- Front sweeps
- Front, side & rear screens
- Heater-defroster for cab
- Hitch
- Hydraulics for ripper
- Power angle tilt dozer
- Instrument panel lock cover
- Radiator reservoir tank
- Radiator guard door, heavy-duty hinged
- Reversible cooling fan
- Swing type drawbar
- Tank guards

**ROPS Cab**

Meets ISO 3471, SAE J 1040a and SAE J 395a standards.
Includes: floor mat, front & rear wipers, and electric fan.

Additional weight (to tractor) ................. 1,030 lb 470 kg
Additional ground pressure D31E 0.68 psi 0.048 kg/cm²
D31P 0.33 psi 0.023 kg/cm²

**ROPS Canopy**

Meets ISO 3471, SAE J 1040a and SAE J 395a standards.

Additional weight (to tractor) ................. 505 lb 230 kg
Additional ground pressure D31E 0.41 psi 0.029 kg/cm²
D31P 0.20 psi 0.014 kg/cm²

*Note: ROPS Cab or ROPS Canopy must be ordered for all machines.

**Optional Ripper**

<table>
<thead>
<tr>
<th>Type</th>
<th>Multi-Shank</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Shanks</td>
<td>3 (5 shanks attachable)</td>
</tr>
<tr>
<td>Additional weight (to bare tractor)</td>
<td>970 lb 440 kg</td>
</tr>
<tr>
<td>Max. lift above ground</td>
<td>1’5” 440 mm</td>
</tr>
<tr>
<td>Max. digging depth</td>
<td>1'0” 310 mm</td>
</tr>
<tr>
<td>Digging Angle (degree)</td>
<td>50° (at 1’ depth)</td>
</tr>
<tr>
<td>Beam length</td>
<td>5’0” 1529 mm</td>
</tr>
<tr>
<td>Additional length</td>
<td>27” 785 mm</td>
</tr>
</tbody>
</table>

**Optional shoes**

<table>
<thead>
<tr>
<th>Model</th>
<th>D31E-20</th>
<th>D31P-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of shoe</td>
<td>15.8” 400 mm single-grouser shoe</td>
<td>23.6” 600 mm circular arc shoe</td>
</tr>
<tr>
<td>*Additional weight</td>
<td>+ 176 lb + 80 kg</td>
<td>+ 33 lb +15 kg</td>
</tr>
<tr>
<td>Ground contact area</td>
<td>2,331 in²</td>
<td>4,064 in²</td>
</tr>
<tr>
<td></td>
<td>15040 cm²</td>
<td>26220 cm²</td>
</tr>
<tr>
<td>*Additional ground pressure (tractor)</td>
<td>-1.00 PSI</td>
<td>± 0</td>
</tr>
<tr>
<td></td>
<td>-0.07 kg/cm²</td>
<td></td>
</tr>
<tr>
<td>*Additional height</td>
<td>—</td>
<td>1” 20 mm</td>
</tr>
</tbody>
</table>

*Addition to tractor.
**Support**

Count on Komatsu and your local distributor for the support you deserve. Our success depends on satisfying your need for productive equipment and supporting that equipment. That's why we have one of the largest and strongest heavy-equipment distributor organizations in North America. Their personnel are not only trained to help you select the equipment that is best-matched for your business but to support that equipment.

**Finance**  Through its finance company, Komatsu can offer you a wide variety of financing alternatives designed to meet your needs. Programs include municipal leases for governmental agencies, conditional sales contracts, and leases with $1 purchase options for customers interested in owning their equipment. Ask your distributor about Komatsu leasing. We offer finance and operating leases and the unique Advantage Lease which offers you predetermined purchase, return, and renewal options.

**Parts**  Three computer-linked parts distribution centers provide fast access to anywhere in the U.S. and Canada. Most parts are available overnight. Plus, Komatsu distributors keep a large assortment of commonly used parts in stock for immediate access.

**Remanufactured parts**  Save money and still have the same warranty as new parts at a fraction of the cost with like-new remanufactured parts.

**Maintenance**  Take advantage of the experience we have gained and ask your distributor about our factory-supported programs including: regular scheduled maintenance, oil and wear analysis, diagnostic inspections, undercarriage inspections, training, special service tools, parts programs, and even a special software program to help your distributor keep track of and manage service-related data.