

Specifications

ENGINE

Model	Isuzu 4BD1T
Type	Water-cooled, 4-cycle, 4-cylinder in-line, direct injection chamber type, turbo-charged diesel engine
Rated flywheel horsepower	
DIN* 6271, net	58.8 kW (80 PS) at 2 200 min ⁻¹ (2 200 rpm)
SAE**J1349, net	58.2 kW (78 HP) at 2 200 min ⁻¹ (2 200 rpm)
(*DIN: Deutsche Industrie Norm (German Industrial Standards)	
(**SAE: Society of Automotive Engineers, USA)	
Maximum torque	299 N-m (30.5 kgf-m, 221 lbf-ft) at 1 600 min ⁻¹ (1 600 rpm)
Piston displacement	3.86 l (235 cu in)
Bore and stroke	102 mm x 118 mm (4.0" x 4.6")
Starting system	24 V/4.5 kW electric motor starting
Batteries	2 x 12 V/64 AH
Air cleaner	Dry type air cleaner with evacuator valve and double elements

TRANSMISSION

HST (Hydrostatic drive system) with engine speed sensing system and 2-speed (high/low) powershift transmission for maximum productivity and minimum tire slippage. Modulating function assures shockless acceleration/deceleration and directional change without braking. Neutral start system prevents accidental starts.

Travel speeds with 16.9-24-10PR (L-2) tires:

	Forward	Reverse
Low speed range	0-12.0 km/h (7.5 mph)	0-12.0 km/h (7.5 mph)
High speed range	0-32.0 km/h (19.9 mph)	0-32.0 km/h (19.9 mph)

Low speed range: For digging and loading operations
High speed range: For speedy job-to-job travel

AXLE AND FINAL DRIVE

4-wheel drive system. A semi-floating front axle is fixed to the front frame. Center-pin-supported, semi-floating rear axle provides total oscillation of ±13°. A spiral bevel gear for reduction and a single-reduction planetary gear on each wheel. Conventional differentials standard. Optional NoSPIN differential on front axle is recommended for slippery underfoot conditions.

BRAKES

Service brakes: Hydraulically boosted, inboard-mounted, wet disc brakes actuate all 4 wheels. 2 pedals provided: the right for service braking and the left for braking with inching traveling.

Parking brake: Dry disc type, applied on front propeller shaft.

TIRES

Front and rear: 16.9-24-10PR (L-2)
Rims: W15L-24

STEERING SYSTEM

Center-pivot-frame articulation. Full-hydraulic power steering. Articulation angle of 40° on each side for a minimum turning radius of 5 115 mm (16'9") measured at the outside corner of the bucket.

MAIN FRAME

Front and rear high-strength frames of welded box construction, linked by hardened steel pins and upper roller bearings and lower needle bearings.

FRONT-END ATTACHMENTS

Z-bar linkage provides superior breakout force and fast cycle times. Lift arm, linkage and bucket are made of high-tensile steel. All joint pins with dust seals for extended pin life and greasing intervals.

BUCKET CONTROLS

Lift arm: Positions Raise, Hold, Lower and Float. Automatic kickout at full lift height.

Bucket: Positions Tilt, Hold and Dump. Automatic bucket positioner adjustable to desired loading angle. No visual spotting required.

Cycle times with rated load in bucket:

Raise	5.3 sec
Dump	0.9 sec
Lower (empty bucket)	3.1 sec

HYDRAULIC SYSTEM

HST (HYDROSTATIC DRIVE SYSTEM)
HST with 4-wheel drive, coupled with a 2-speed (high/low) powershift transmission.

Pump type 1 variable displacement axial piston pump

Max. oil flow 154 l/min (40.7 US gpm, 33.9 lpm gpm)

Relief valve setting 370 bar (370 kgf/cm², 5 260 psi)

Motor type 1 variable displacement axial piston motor

HST charging pump 1 gear pump

Max. oil flow 50.3 l/min (13.3 US gpm, 11.1 Imp gpm)

Relief valve setting 30 bar (30 kgf/cm², 427 psi)

PUMP FOR LOADER AND STEERING

Pump type 1 gear pump

Max. oil flow 123 l/min (32.5 US gpm, 27.1 Imp gpm)

Relief valve setting:

 Loader operations 210 bar (210 kgf/cm², 2 990 psi)

 Steering 175 bar (175 kgf/cm², 2 490 psi)

HYDRAULIC CYLINDERS

High-strength piston rods and tubes. Cylinder cushion mechanisms are provided for steering cylinders to absorb shocks when piston rods reach stroke ends.

Dimensions:

	Q'ty	Bore	Rod dia.
Lift arm	2	110 mm (4.3")	60 mm (2.4")
Bucket	1	110 mm (4.3")	60 mm (2.4")
Steering	2	60 mm (2.4")	35 mm (1.4")

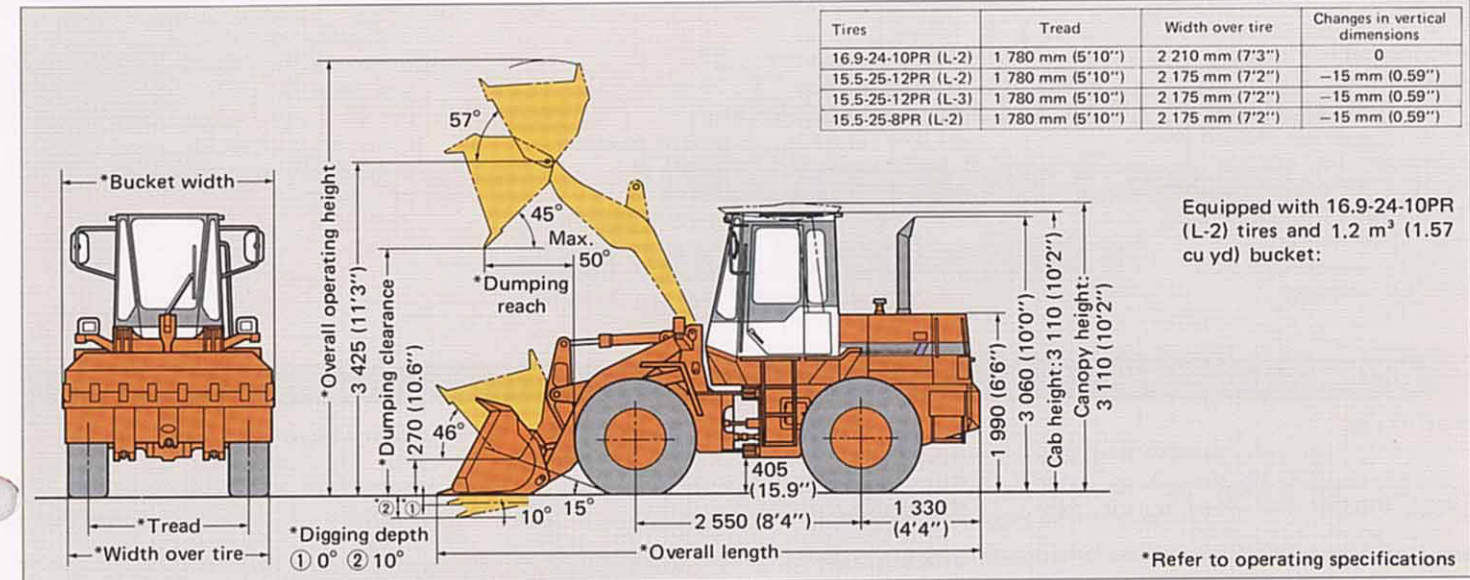
SERVICE REFILL CAPACITIES

	Liter	US gal	lpm gal
Fuel tank	120	31.7	26.4
Engine coolant	23.0	6.08	5.06
Engine oil	13.0	3.43	2.86
Transmission	5.5	1.45	1.21
Brake oil tank	0.28	0.074	0.062
Front axle	16.0	4.23	3.52
Rear axle	16.0	4.23	3.52
Hydraulic tank	60.0	15.9	13.2
Hydraulic system	70.0	18.5	15.4

OPERATING WEIGHT

Operating weight: 6 800 kg (15 000 lb), including rated capacity of lubricants, coolant, full fuel tank, 16.9-24-10PR (L-2) tires, 1.2 m³ (1.57 cu yd) capacity general-purpose bucket, canopy, operator and other standard equipments.

DIMENSIONS



SPECIFICATIONS

Bucket type	General purpose		Light material		
	With teeth	With cutting edges	With teeth	With cutting edges	
Bucket capacity	1.2 m ³ (1.57 cu yd)		1.5 m ³ (1.96 cu yd)		
	1.0 m ³ (1.31 cu yd)		1.3 m ³ (1.70 cu yd)		
Dumping clearance at max. height and 45° dump angle	2 585 mm (8'6")	2 635 mm (8'8")	2 520 mm (8'3")	2 565 mm (8'5")	
Reach at 2 130 mm (7'0") height and 45° dump angle	1 410 mm (4'8")	1 380 mm (4'6")	1 450 mm (4'9")	1 425 mm (4'8")	
Reach at max. height and 45° dump angle	1 065 mm (3'6")	1 015 mm (3'4")	1 145 mm (3'9")	1 095 mm (3'7")	
Reach with arm horizontal and bucket level	2 100 mm (6'11")	2 030 mm (6'8")	2 205 mm (7'3")	2 135 mm (7'0")	
Digging depth	Bucket horizontal	100 mm (3.9")	95 mm (3.7")	95 mm (3.7")	
	10° digging angle	275 mm (10.8")	260 mm (10.2")	295 mm (11.6")	275 mm (10.8")
Overall operating height	Bucket on ground	4 415 mm (14'6")	4 415 mm (14'6")	4 560 mm (15'0")	4 560 mm (15'0")
	Bucket in carry position	6 000 mm (19'8")	5 930 mm (19'5")	6 105 mm (20'0")	6 035 mm (19'10")
Overall length	Bucket on ground	5 980 mm (19'7")	5 920 mm (19'5")	6 050 mm (19'10")	5 995 mm (19'8")
	Bucket in carry position	5 115 mm (16'9")	5 100 mm (16'9")	5 145 mm (16'11")	5 130 mm (16'10")
Turning radius (outside corner of bucket carry position)	Straight	4 850 kg (10 700 lb)	4 780 kg (10 500 lb)	4 750 kg (10 500 lb)	4 675 kg (10 300 lb)
	Full 40° turn	4 200 kg (9 260 lb)	4 130 kg (9 110 lb)	4 100 kg (9 040 lb)	4 025 kg (8 870 lb)
Static tipping load*	Straight	64.7 kN (6 600 kgf, 14 600 lbf)	59.8 kN (6 100 kgf, 13 400 lbf)	57.3 kN (5 840 kgf, 12 900 lbf)	53.3 kN (5 440 kgf, 12 000 lbf)
	Full 40° turn	6 800 kg (15 000 lb)	6 850 kg (15 100 lb)	6 870 kg (15 100 lb)	6 920 kg (15 300 lb)
Breakout force					
Operating weight*					

Notes: 1. All dimensions, weights and performance data based on SAE J732 FEB80 and J742 FEB85 Standards.
2. Static tipping load and operating weight marked with * include 16.9-24-10PR(L-2) tires (no ballast) with lubricants, coolant, full fuel tank, canopy and operator. Machine stability and operating weight depend on tire size and other attachments. Compensate operating weight and static tipping load with weight changes listed below.

WEIGHT CHANGES

Tires and options	Change in operating weight	Change in tipping load	
		Straight	Full 40° turn
16.9-24-10PR (L-2)	0	0	0
15.5-25-12PR (L-2) tubeless tires	+69 kg (+152 lb)	+48 kg (+106 lb)	+42 kg (+93 lb)
15.5-25-12PR (L-3) tubeless tires	+132 kg (+291 lb)	+92 kg (+203 lb)	+82 kg (+181 lb)
15.5-25-8PR (L-2) tubeless tires	+43 kg (+95 lb)	+30 kg (+66 lb)	+26 kg (+57 lb)
ROPS cab in lieu of canopy	+519 kg (+1 140 lb)	+449 kg (+990 lb)	+429 kg (+946 lb)
Bucket teeth (removed)	-44 kg (-97 lb)	+56 kg (+123 lb)	+56 kg (+123 lb)
Bolt-on cutting edges (removed)	-100 kg (-220 lb)	+131 kg (+289 lb)	+131 kg (+289 lb)

STANDARD EQUIPMENT

Standard equipment may vary by country, so please consult your Hitachi dealer for details.

- Engine
- Alternator (24 V—30 A)
- Dry type air cleaner (dual element)
- Powershift transmission (2 fwd/2 rev)
- Conventional differentials
- Dry disc type parking brake
- Full hydraulic power steering
- Front and rear fenders
- Canopy
- Rear working lights (2)
- Turn signals and hazard lamps
- Rearview side mirrors
- Automatic bucket positioner
- Automatic lift arm kickout
- Standard tool kit
- Electric starter (4.5 kW)
- Engine preheater
- Hydrostatic drive system
- 4-wheel drive system
- Wet disc type service brakes
- 16.9-24-10PR (L-2) tires
- Horn
- Adjustable seat
- Headlights (2)
- Stop and tail lamps (2)
- Drawbar hitch
- 2-spool hydraulic valve
- 1.2 m³ (1.57 cu yd) general purpose bucket (with bolt-on teeth)
- Monitoring/alarm system
 - Audible and visible warning system
 - “Stop group”
 - Engine oil pressure, engine coolant temperature, HST charging pressure,

- brake oil level and parking brake.
- “Caution group”
 - Engine coolant temperature, engine oil filter clogging alternator charge, air cleaner clogging and parking brake.
- Gauge and pilot lamps
 - Engine coolant temperature gauge, fuel level gauge, hourmeter, speedometer, turn signal pilot lamps, headlight pilot lamps, working light pilot lamp, and engine pre-heater pilot lamp.

OPTIONAL EQUIPMENT

- ROPS cab (front and rear windshield washers and wipers, cigarette lighter, ashtray, floor mat, interior rear view mirror, cab-mounted working lights)
- Cab pressurizer
- Suspension seat
- Air conditioner (factory option)
- Seat belt
- Emergency steering system
- Lockable covers (Not attachable with ROPS cab)
- Backup alarm
- Additional hydraulic equipments:
 - 3-spool hydraulic valve less 3rd spool control lever and 3rd spool ports plugged
 - 3-spool hydraulic valve kit (3-spool valve, control lever, hoses and pipings)

WORKING EQUIPMENT

- Loading bucket

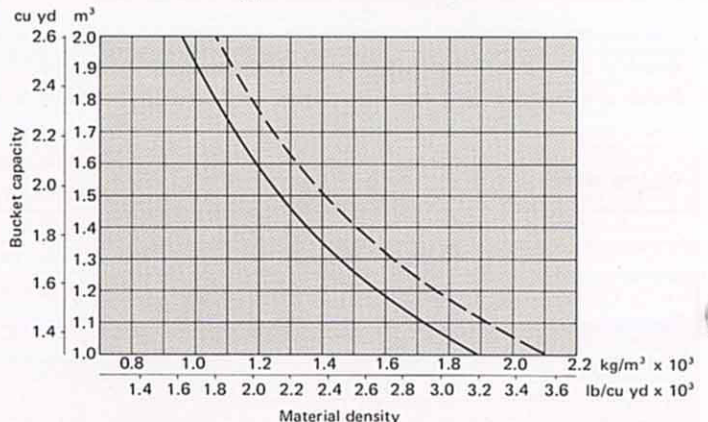
Bucket type	Bucket capacity *	Bucket width	Bucket weight
General purpose with bolt-on teeth	1.2 m ³ (1.57 cu yd)	2 350 mm (7'9")	580 kg (1 280 lb)
Light material with bolt-on teeth	1.5 m ³ (1.96 cu yd)	2 350 mm (7'9")	650 kg (1 430 lb)

*SAE heaped

- Excavation bucket: 1.0 m³ (1.31 cu yd)
- Multi purpose bucket: 1.0 m³ (1.31 cu yd)
- Cutting edges (Not applicable with bucket teeth)
- Logging equipment
- Dumping fork
- Lumber grapple
- Lumber fork
- Multi coupler
- Tires:
 - 15.5-25-12PR (L-2)
 - 15.5-25-12PR (L-3)
 - 15.5-25-8PR (L-2)

BUCKET SELECTION

- ROPS cab in lieu of canopy
- Standard canopy



This guide will help you in selecting proper bucket size for material density and loader configurations. However, specific bucket size should only be determined after adding or subtracting all the tipping load changes due to specifications.

These specifications are subject to change without notice. Illustrations may or may not include optional equipment and accessories, and all standard equipment.