CATERPILLAR

D10
Track-type Tractor

Machine shown may include optional equipment.

Summary of features

- **Turbocharged Cat D348 diesel Engine** delivers 700 flywheel horsepower.
- **Elevated sprocket design** removes final drives from wear environment and reduces shock loading for extended power train life.
- **Resilient mounted bogey undercarriage system** means reduced impact loading on rollers and roller frames and improved vehicle traction and operator ride. Sealed and Lubricated Track, Lifetime Lubricated rollers and idlers, and two-piece master link are standard.
- **Pivot shaft and pinned equalizer bar** control roller frame alignment and oscillation.
- **Modular design of major components** facilitates repairs, allows component exchange and permits pretesting of units before installation.
- **Accessory drive system,** mounted to the main frame, is a self-contained unit for easy servicing and simplified engine removal.
- **Cooling system** features hydrostatically driven fan mounted between radiator and easy service hinged oil coolers for excellent cooling and noise reduction. Hinged and louvered grill.
- **Tag link dozer stabilizer** brings the blade close to the tractor for excellent balance, better implement control and tractor maneuverability.
- **Isolation mounted operator's compartment** has console mounted machine and implement controls within easy reach. Angled seat helps provide excellent visibility both front and rear.
- **Simple maintenance** with reduced grease points, hydraulic track adjusters, extensive use of sight gauges, spin-on fuel and oil filters.
- **CAT PLUS** . . . from your Caterpillar Dealer . . . the most comprehensive, total customer support system in the industry.

Caterpillar Engine

Flywheel power @ 1800 RPM . . . . . 522 kW/**700 HP**
(Kilowatts (kW) is the International System of Units equivalent of horsepower.)

The net power at the flywheel of the vehicle engine operating under SAE standard ambient temperature and barometric conditions, 29°C/85°F and 995 mbar/29.38″ Hg, using 35 API gravity fuel oil at 15.6°C/60°F and after deductions for fan, air cleaner, water pump, lubricating oil pump and fuel pump. Engine will maintain specified flywheel power up to 2300 m/7,500 ft. altitude.

Caterpillar 4-stroke-cycle D348 60° V12 diesel Engine, with 137 mm/**5.4″** bore, 165 mm/**6.5″** stroke and 29.3 liters/**1,786 cu. in.** displacement.

Twin turbochargers with water cooled bearings for long life. Parallel manifold porting with two intake and two exhaust valves per cylinder. Stellite-faced valves, hard alloy steel seats, valve rotators.

Cam-ground and tapered aluminum alloy pistons with 3-ring keystone design, cooled by oil spray. Steel-backed aluminum bearings, Hi-Electro hardened crankshaft journals. Pressure lubrication with full-flow filtered and cooled oil. Dry-type air cleaners with primary and safety elements.

D10
Track-type Tractor

engine (continued)

24-volt direct electric starting system with glow plugs for preheating precombustion chambers. 50-amp alternator. Four 12-volt, 220 amp-hour batteries.

Engine/torque-divider module is isolation mounted to the main frame to reduce vehicle vibration and structure-radiated noise.

transmission

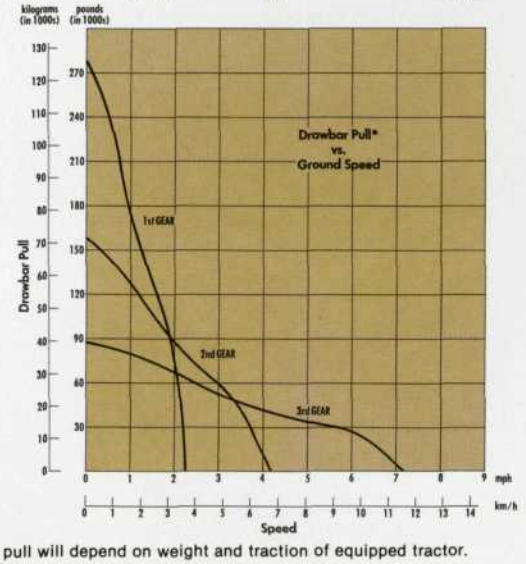
Planetary-type power shift with 533 mm/21″ diameter, high-torque-capacity oil clutches. Special modulation system permits unrestricted speed and direction changes under full load.

Single-stage torque converter with output torque divider. Connected to transmission by double universal joint for unit construction to provide servicing ease.

Modular transmission and bevel gear plug into rear of main drive case and can be exchanged with ripper installed.

Travel speeds at rated engine RPM:

Gear	Forward Speed Km/h	Forward Speed MPH	Reverse Speed Km/h	Reverse Speed MPH
1	3.8	2.4	4.6	2.9
2	6.8	4.2	8.0	5.0
3	11.6	7.2	13.8	8.6



*Usable pull will depend on weight and traction of equipped tractor.

steering and braking

Hydraulically released, spring applied multiple-disc clutches and brakes are cooled by pressurized oil and require no adjustment. Each assembly serviceable as a unit.

Hand levers combine steering clutch disengagement and braking in one control for each track. Pull back slightly to disengage steering clutches, fully back to brake track.

A single pedal simultaneously applies brakes to both tracks for service or emergency stops. Parking-emergency brake is applied by transmission safety lever. A service tool, electrically driven from auxiliary start receptacle, is available when towing is required to allow in-seat brake release upon loss of control system pressure.

final drives

Crown-shaved, two stage planetary in-line final drive gears, splash lubricated and sealed with Duo-Cone® Floating Ring Seals. Sprockets with three, 120° bolt-on, replaceable rim segments.

track roller frame

Tubular design to resist bending and torsional loads. Lifetime Lubricated rollers and idlers are resiliently mounted to roller frame by a series of bogies. Bogies oscillate on sealed and lubricated cartridge pin connections; travel controlled by resilient pads.

Oscillating roller frames attach to tractor by a pivot shaft and pinned equalizer bar. Large pivot bushings operate in an oil reservoir. The equalizer bar-roller frame ball joint pins are sealed and lubricated; saddle connection is a low friction, no maintenance bushing. Equalizer bar oscillation restrained by resilient pads. Recoil system is fully sealed and lubricated.

Number of rollers (each side) 8
Oscillation . . . . . 502 mm/**19.75″**

Sealed and Lubricated Track

Sealed and Lubricated Track surrounds the track pin with lubricant to eliminate internal bushing wear as critical maintenance consideration. Lubricant is held in place by a sealing arrangement consisting of a polyurethane seal, a rubber load ring and a thrust ring. Additional lubricant is contained in a reservoir drilled into the track pin. Extends track wear life and undercarriage maintenance intervals — reduces costs. Keyed shoes, hydraulic track adjusters, track guiding guards and two-piece master link standard.

Pitch . . . . . 260 mm/**10.25″**
Number of shoes (each side) 46
Shoe type . . . . . Keyed, Extreme Service
Width of standard shoe . . . . . 712 mm/**28″**
Length of track on ground . . . . . 3911 mm/**154″**
Ground contact area with standard shoes . . . . . 5.56 m^2/**8,624 $in.^2$**
Grouser height (from ground face of shoe) . . . . . 102 mm/**4.0″**

service refill capacities

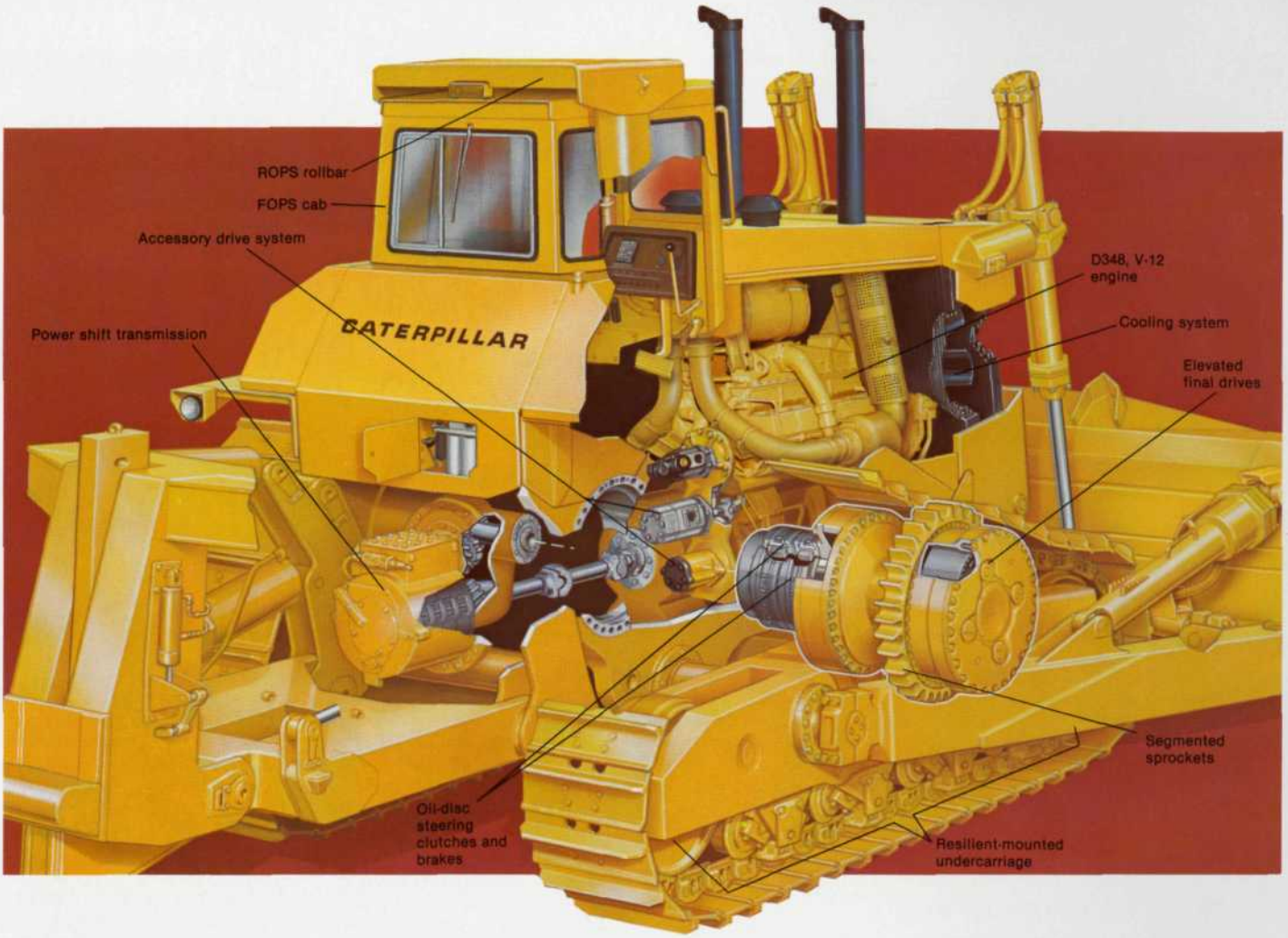
	Liters	U.S. Gallons
Fuel tank	1446	382
Cooling system	197	52
Lubrication systems:		
Diesel engine crankcase	79	21
Transmission, bevel gear and steering clutch compartments (includes torque converter)	264	69.7
Tank only	180	47.5
Final drives (each)	11	3
Roller frame (each) (includes recoil bearing and pivot shaft compartment)	108	28.6
Implement hydraulic system, four valve	250	66
Tank only	180	47.5

weight (approximate)

	106″ gauge	114″ gauge
Shipping, includes lubricants, coolant, 5% fuel and ROPS with FOPS cab	64 202 kg **141,538 lb**	64 849 kg **142,966 lb**
Operating, includes lubricants, coolant, full fuel tank, hydraulic controls, 10U Bulldozer, Multishank ripper, ROPS, FOPS cab and operator	86 622 kg **190,966 lb**	87 062 kg **191,936 lb**

ROPS

ROPS (Rollover Protective Structure) offered by Caterpillar for this machine meets ROPS criteria: SAE J395 and ISO 3471. The cab also meets FOPS (Falling Object Protective Structure) criteria SAE J231 and ISO 3449.



Elevated sprocket design means extended power train component life. With sprockets separated from the track roller frames, the final drives and steering clutches and brakes are relieved of (1) all vertical shock loads from ground contact, (2) all dozer and drawbar implement loads, and (3) gear and bearing misalignment commonly associated with track frame bending. Final drives are also less exposed to water and mud that can freeze and damage seals. And abrasive wear usually caused by materials lodging between sprocket teeth and bushings is greatly reduced.

Resiliently mounted undercarriage has four major bogies pinned to each track roller frame. Each bogey in turn has a minor bogey carrying two track rollers. All bogies oscillate on sealed and lubricated cartridge pins. Rubber pads control resiliency and travel of the major bogies. Front and rear idlers are part of the front and rear major bogy assemblies, which allows either idler to "ramp" over obstacles. Successive minor bogies conform to the obstruction through floating action. Results:

- Improved vehicle and operator ride.
- Low impact loading of track rollers, links, pins, track frames — also reducing noise.
- Excellent traction . . . rollers are almost always in contact with the rails and sharing the load with neighboring rollers, keeping more track on the ground.
- Reduced sizing of track components, meaning easier servicing and lower undercarriage costs.

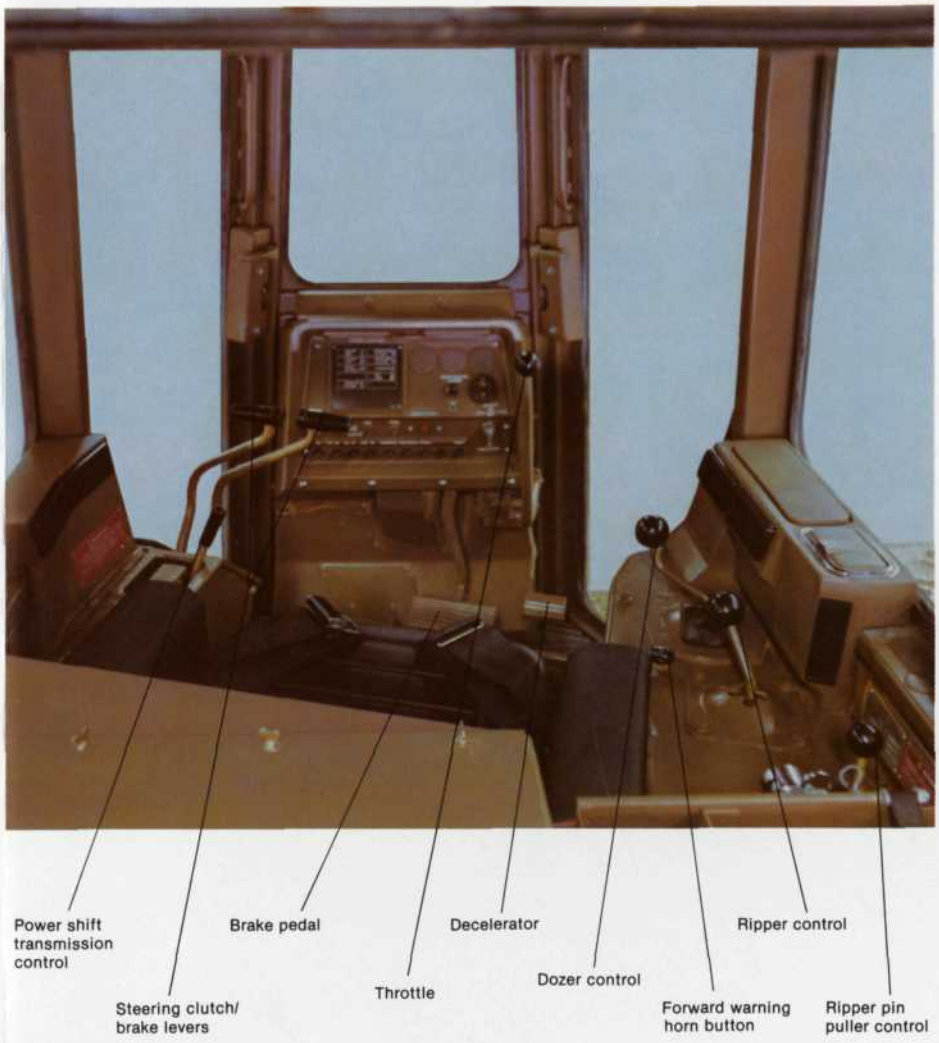
Tubular roller frames have added resistance to bending and torsional loading . . . hence long service life. A 273 mm/**10.75"** diameter rear pivot shaft and pinned equalizer bar eliminate diagonal bracing. Clean design provides 701 mm/**27.6"** ground clearance, reduces mud retention and abrasive wear to components, and improves machine mobility.

Cooling system features hydrostatic fan mounted between radiator cores for cooling efficiency and noise control. Air is pulled through engine coolant core and then blown through the power train oil cooler core, exiting through the front grill. Grill and oil cooler cores are hinged for easy service access.

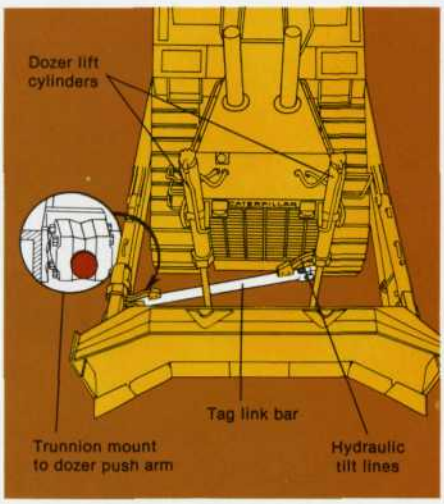
And modular design throughout:

- **Power shift transmission** plugs into rear of main drive case, easily removes as a unit. Also, complete transmission and bevel gear modules can be pulled out as a package by simply pulling the drive axles, removing one bolt ring, a transmission lube line, a pressure line and the control linkage. Ripper need not be removed.
- **Final drive** planetary gears and bearings can be inspected or changed without breaking the track. Entire final drive system, or final drive plus steering and brake system, can be removed as a unit by breaking the track.
- **Engine and torque divider** form a module, isolation mounted to the main frame at three points.
- **Accessory drive system** — isolation mounted to main frame rather than on engine — significantly simplifies engine/torque divider removal. Accessory drive shaft powers pumps, alternator and air conditioner compressor. Floor plate in operator's compartment provides easy service access.

Low daily maintenance means low operating costs and high machine productivity. Grease points are eliminated on the basic tractor and reduced on ripper and dozer for fast, economical service. Fast-check sight gauges are used for hydraulic oil, power train oil and coolant levels. Spin-on oil filters provide quick, contaminant-free filter replacement. Spin-on fuel filters and fuel priming pump are located inside the service door on the back of the fuel tank for easy servicing.



Isolation mounted operator's compartment is designed for efficiency, comfort and convenience. Transmission, transmission safety and steering/brake levers are console mounted on the left for convenient machine control. Dozer and ripper controls at operator's right provide easy implement actuation. Single brake pedal applies brakes to both tracks simultaneously. Fully adjustable suspension seat, angled 15° to the right, joins with the tapered fuel tank, hood and track to give excellent visibility front and rear. Instrument panel mounted directly in front of the operator includes electronic monitoring system for critical machine systems. Cab with rollbar meet rollover and falling object protection requirements. Optional fire suppression system is available for added machine and operator safety, while optional air conditioner and heater, mounted under seat for protection, can be added for additional operator comfort. Wide angle rearview mirror is standard with new cab.



Tag link dozer stabilizer brings the blade in close to the tractor for excellent machine balance and maneuverability, better control of dozer and greater blade penetration force. Tag link bar connects and transmits dozer side loads to the main frame, eliminating the need for diagonal bracing. Tilt lines route down the tag link for good protection and easy servicing in all applications. And with dozer in close to the tractor, blade lift cylinders can mount to the top front corners of the radiator guard to provide good forward visibility, increase cylinder mechanical efficiency and eliminate the need for a cross tube.

Rugged Cat Rippers are available for added machine versatility. Hydraulic tip adjustment cylinders vary shank angle to aid penetration and help lift and shatter rock . . . for high productivity and long shank life. Streamlined and narrowed ripper frame improves single shank performance through minimum clogging and slab retention. Standard single shank pin puller lets operator adjust shank length from the seat. Multishank ripper allows use of one, two or three shanks, depending on job conditions.

Ripper Specifications

Ripper	Beam Width	Cross Section	Maximum Penetration	Maximum Clearance Raised (under tip)	*** Shank Positions	Weight (without hydraulic controls)	Total Tractor Operating Weight (with 10U blade and ripper)**
Single Shank, Deep Ripping Arrangement	1830 mm 72″	Not Applicable	1778 mm 70″	991 mm 39″	4	9375 kg 20,672 lb	86 221 kg 190,117 lb
Multishank Arrangement	2870 mm 113″	559 × 559 mm 22″ × 22″	1143 mm 45″	584 mm 23″	2	10 820 kg 23,858 lb*	87 520 kg 192,982 lb

*Includes one shank. Add 711 kg/1,567 lb. for each additional shank.
**Machine operating weight also includes hydraulic controls, blade tilt cylinder, lubricants, full fuel tank, ROPS cab and operator.
***Shank cross section 100 × 400 mm/3.9″ × 15.7″.

hydraulic controls

Complete system consists of pump, tank with filter, valves, lines, linkage and control levers. Hydraulic pilot valves assist operations of ripper and dozer tilt controls. Four optional hydraulic systems, all with external valves, include:

	Kg	Lb
One valve, for 10C Bulldozer	213	470
Two valves, for 10S or 10U Bulldozer and tilt	249	550
Three valves, for 10C Bulldozer and ripper with hydraulic shank pitch adjustment	340	750
Four valves, for 10S or 10U Bulldozer, tilt function and ripper with hydraulic shank pitch adjustment	363	800

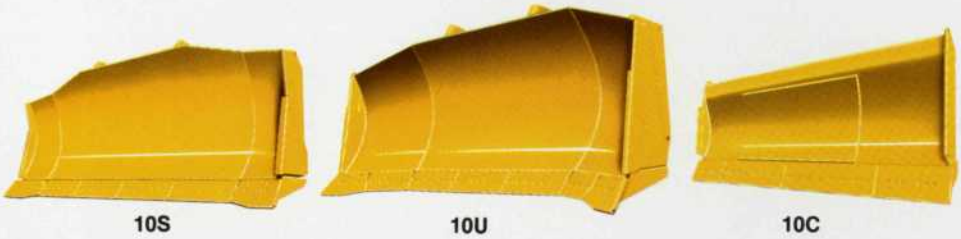
Pump, gear-type:
- Output @ 69 bar/**1000 psi** ..... 579 liters/min/**153 gpm**
- Tilt cylinder flow ..... 144 liters/min/**38 gpm**
- Pump rpm @ rated engine speed 1800

Relief valve setting, Bulldozer ..... 172 bar/**2500 psi**
Tilt cylinder ..... 179 bar/**2600 psi**
Ripper ..... 172 bar/**2500 psi**
Drive ..... Geared from auxiliary drive

Control Valve Positions:
Bulldozer ..... Raise, hold, lower, float
Ripper ..... Raise, lower, extend, return, hold
Tilt cylinder ..... Tilt right, hold, tilt left

Reservoir:
Mounting ..... Fender (isolation mounted)
Tank capacity ..... 178 liters/**47 gal.**

D10 Bulldozers are designed for tough dozing, reclamation and push-loading jobs. Cutting edges and end bits are DH-2 steel for durability. Tag link dozer coupling brings blade close to tractor for better balance and control. Dozer lift cylinders mount to top corners of radiator guard to improve mechanical advantage. Single lever controls all blade movement, including tilt.



10S 10U 10C

Bulldozer Specifications

Blade	Overall width* (Tractor with bulldozer)	Height	Digging Depth	Ground Clearance	Maximum Tilt	Weight**	Total Operating Weight*** (Tractor with bulldozer)
10S	5486 mm **18'0"**	2159 mm **85"**	686 mm **27"**	1499 mm **59"**	813 mm **32"**	12 630 kg **27,849 lb**	78 050 kg **172,100 lb**
10U	6004 mm **19'8"**	2231 mm **87.4"**	711 mm **28"**	1549 mm **61"**	940 mm **37"**	12 950 kg **28,554 lb**	78 370 kg **172,806 lb**
10C	3810 mm **12'6"**	1525 mm **60"**	1170 mm **46"**	600 mm **23.6"**	Not Applicable	9500 kg **20,948 lb**	74 920 kg **165,199 lb**

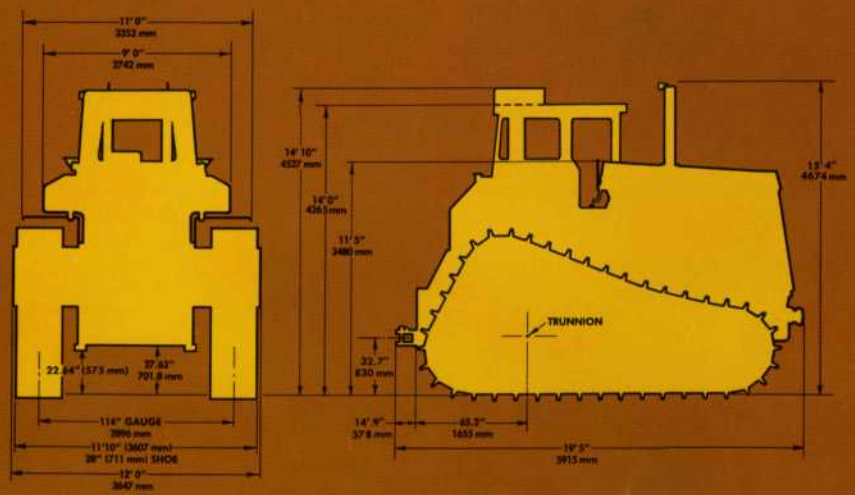
*Width over corner bits.
**Does not include hydraulic controls, but 10S and 10U include blade tilt cylinder.
***Includes hydraulic controls, blade tilt cylinder (10U or 10C), coolant, lubricants, full fuel tank, ROPS with FOPS cab and operator. 10C includes crankcase guard group compatible with 10C dozer trunnion.

dimensions
(approximate)

Ground clearance, from ground face of shoe per SAE J894 ..... 701mm/**27.6"**
Drawbar height from ground face of shoe ..... 777 mm/**30.6"**
Width over trunnions ..... 4216 mm/**13'10"**

WITH FOLLOWING ATTACHMENTS, ADD TO BASIC TRACTOR LENGTH OF 19' 5" (5920 mm)

SINGLE SHANK RIPPER	8' 7" (2616 mm)
MULTI-SHANK RIPPER	6' 3" (1905 mm)
S - DOZER	5' 5" (1651 mm)
U - DOZER	7' 4" (2235 mm)
C - DOZER	4' 5" (1346 mm)
CUSHION PUSH BLOCK	2' 11" (890 mm)



CATERPILLAR

transportability

Transporting the D10 is remarkably easy because basic machine design is geared for quick component installation and removal. Where rail transport is available, the D10 can be shipped intact with only the blade removed. Where axle load limits permit, the machine can be shipped in a runnable configuration by truck with just the work tools removed. In areas where weight laws are more restrictive, the D10 can be partially or wholly disassembled for legal transport. The chart at right can be used as a guide when complying with local shipping regulations.

	Kg	Lb
Basic machine (includes lubricants, coolant, 5% fuel and ROPS cab)	64 202	141,538
Removal of components reduces weight as follows:		
ROPS rollbar for cab	771	1,700
Cab	411	905
712 mm/28″ Extreme Service track (each side)	5171	11,400
Track roller frame (each side)	8723	19,230
Pivot shaft	889	1,960
Dozer lift cylinders	744	1,640
Final drives (each side)	1678	3,700
Clutch/brake assembly (each side)	846	1,865
Transmission/bevel gear module	1996	4,400

standard equipment

50-amp alternator. Blower fan. Cab, FOPS sound suppressed, with ROPS rollbar (includes cab assessory group and mirror). Decelerator and hand throttle lever. 24-volt direct electric starting. Rigid drawbar. Precleaner with prescreener. Dry-type air clearners. Mufflers. Engine side guards. Fuel priming pump. 8-roller track frame. 712 mm/28″ extreme service grouser tracks (46-section). Sealed and Lubricated Track. Lifetime Lubricated rollers and idlers. Hydraulic tank. Hydraulic track adjusters. Lighting system (four lights forward, two rear). Suspension-type undercarriage. Pinned equalizer bar. Pivot shaft. Hinged extreme service crankcase guard. Pull hook. Hinged power train guard. Track guiding guards. Hinged radiator and blast deflector guards. Power shift transmission. Starting receptacle. Electric hour meter. Adjustable suspension seat. Tool box. Backup alarm. Front warning horn. Automatic emergency braking. Lighted instrument panel with light/warning horn for critical systems. Seat belt. Vandalism protection includes instrument panel guard and cap locks for: fuel tank, power train tank, implement hydraulic tank, engine oil filler, radiator filler and dip stick, plus battery box locks (two).

optional equipment

(with approximate change from operating weight)

	Kg	Lb
Air conditioner	79	175
Counterweight, rear mounted	3890	8,577
Counterweight, front mounted	3375	7,440
Fast-fill fuel system	5	11
Fire extinguisher	14	30
Fire suppression system	68	150
Gauges (PTO temperature, coolant temperature & hydraulic oil temperature)	1	2
Heaters:		
Cab (with defroster)	48	105
Engine coolant	8	17.5
Oil change system, quick service	8	18.5
Push block, cushioned	3456	7,620
Push plate	278	612
Rippers:		
Single shank, deep ripping (includes 711 kg/1,567 lb. shank)	8392	18,500
Multishank (includes one shank)	7711	17,000
Ripper shank (for multishank ripper)	612	1,350
Tool kit	6	14
Tracks, pair, Sealed and Lubricated:		
762 mm/30″ maximum width on 2692 mm/106″ gauge	374	825
810 mm/32″, Extreme Service	726	1,600
810 mm/32″, Standard Service	91	200

Materials and specifications are subject to change without notice.

AEHQ9389 (12/80)
(Replaces AEHQ9285)

Printed in U.S.A.