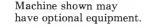
CATERPILLAR

CAT



Summary of features

- Cat 3406 diesel Engine . . . with 893 cu. in./14.6 liters displacement.
- **Operator comfort and convenience** is provided by a soundsuppressed cab with pressurized and filtered air circulation system, tinted glass, fully adjustable seat and advanced critical machine function warning system.
- Four-wheel oil-immersed multiple disc brakes...adjustmentfree and completely sealed from dirt and grit.
- Single-lever power shift transmission ... fast, easy speed and direction changes ... four speeds forward, four reverse.
- **CAT PLUS services** . . . from your Caterpillar Dealer . . . the most comprehensive, total customer support system in the industry.



Caterpillar Engine

The net power at the flywheel of the vehicle engine operating under SAE standard ambient temperature and barometric conditions, 77° F/25° C and 29.61" Hg/100 kPa, using 35 API gravity fuel oil at 60° F/15.6° C, and after deductions for fan, air cleaner, water pump, lubricating oil pump, fuel pump, alternator and muffler. No derating is required up to 7,500 ft./2300 m altitude. Caterpillar four-stroke-cycle 3406 turbocharged diesel Engine with six cylinders, 5.4''/137 mm bore, 6.5''/165 mm stroke and 893 cu. in./ 14.6 liters displacement.

Direct injection fuel system with individual, adjustment-free injection pumps and valves.

Cam-ground and tapered aluminum alloy pistons with three ring design: both compression rings ride in iron band cast into piston. Piston undersides are cooled by oil spray. Steel-backed aluminum alloy bearings. High-carbon steel alloy crankshaft with Hi-Electro hardened journals. Pressure lubrication with full-flow filtered oil and heat exchanger oil cooler. Dry type air cleaner with primary and safety elements, automatic dust ejector and service indicator.

24 -volt direct electric starting system with ether starting aid standard. (Ether canister not included.)

C

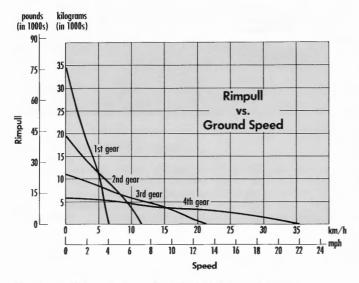


transmission

Cat planetary, power shift with four forward and four reverse speeds. Single lever on left side of steering column controls both speed and direction. Rotate handle for speed ranges in forward and reverse. Move the lever forward or backward for directional changes. Transmission lever is locked in neutral by depressing the transmission lock control knob on the steering column.

Maximum speeds, forward and reverse, with standard tires:

	1st	2nd	3rd	4th
Forward, MPH	3.6	6.5	11.5	20.4
km/h	5.9	10.5	18.6	33.0
Reverse, MPH	4.2	7.4	13.2	23.5
km/h	6.8	12.0	21.3	37.8



*(Usable pull will depend upon traction and weight of equipped tractor.)



axles

Front axle fixed, rear axle oscillates $\pm 15^{\circ}$. One rear wheel can drop or rise a total of 24"/610 mm with all wheels remaining on ground for maximum traction. Free-floating axle shafts can be removed independently of wheels and planetaries. Conventional differentials.



final drives

All-wheel drive with planetary reduction in each wheel. Torque is developed at the wheel, putting less stress on axle shafts. Planetary units can be removed independently of wheels and brakes.



frame

Two frames fabricated from steel plate and rolled boxsections. Two hardened-steel pins couple the front and rear frames. Both pins ride in double-tapered roller bearings.



(System meets OSHA regulations)

Service - Four-wheel, air over oil, fully enclosed oil-immersed multiple-disc. Self-adjusting with modulated engagement.

Parking - Spring applied-air released, dry multiple-disc mounted on transfer gear case. Operator applies manually. Audible alarm and red light warn operator if transmission is engaged while parking brake is applied.

Emergency - Uses parking brake on transfer gear case. Audible alarm and red light warn operator if air pressure drops below 70 psi/ 4.83 bar with transmission engaged. When air pressure drops below 40 psi/2.76 bar brake will automatically apply, bringing machine to a controlled stop.



Center-point frame articulation. Rear and front wheels • track. Full hydraulic power with flow amplified system. Flow to steering cylinders is controlled by a steering wheel-operated metering pump. Full-flow filtering. Adjustable steering column.

Minimum turning radius (over tires) (§)	
Steering angle (each direction)	
Hydraulic system - two 5.0"/127 mm	bore, double acting cylinders
powered by a vane-type pump.	0.0
Output @ 2100 RPM and	
1000 pai/60 has/6905 1/Da	70 mm /970 1:+/min

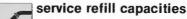
00 psi/69 bar/6895 kPa70 gpm/270 lit/min



1

controls

Implement controls are located at the operator's right forward of the instrument panel. Right lever controls blade lift and tilt, left lever controls blade tip.



	U.S. Gallons	Liters
Cooling system	22.5	85
Crankcase	7.4	28
Transmission	16.4	62
Differentials and final drives:		
Front	23	87
Rear	21	81
Fuel tank	156	589
Hydraulic system (includes tank)	30.3	115
Hydraulic tank	23	87



operating weight

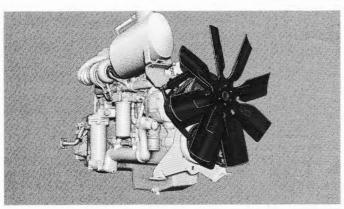
Includes coolant, lubricants, sound-suppressed cab plus ROPS, straight bulldozer and hydraulics, full fuel tank

Maximum	operating	weight	including	counterweight and 75%	,
Ca Cl, in	all tires				ţ
Counterwe	ight				į
Tire ballast	t~				

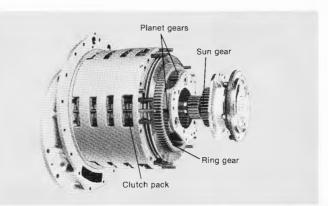


(Cab plus ROPS is standard)

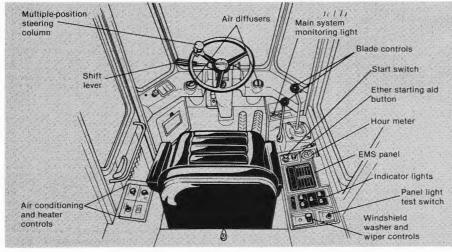
ROPS (Rollover Protective Structure) offered by Caterpillar for this machine meets ROPS criteria: SAE J394, SAE J1040c and ISO 3471. It also meets FOPS (Falling Object Protective Structure) criteria SAE J231 and ISO 3449.



Turbocharged Cat 3406 diesel Engine features proven adjustmentfree Cat direct-injection fuel system with replaceable individual injection pumps and valve. Fuel injection valves resist clogging, even over long periods of idling, and can be replaced without system rebalancing.



Power shift transmission provides quick on-the-go shifting. Torque loads are spread through planetary gear sets. Clutch packs surround each gear set and engage with special hydraulic modulation for smooth, cushioned shifting. Clutch plates and gears are continuously cooled by oil for dependable performance and long life.

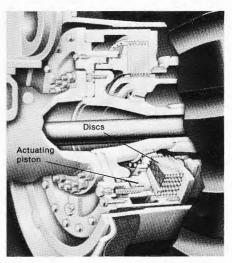


Operator's compartment features tilt steering column and fully adjustable seat with seat belt. Instrument panel contains hour meter, start and shutdown switch, windshield washer and wiper controls, ether aid button and light switches.

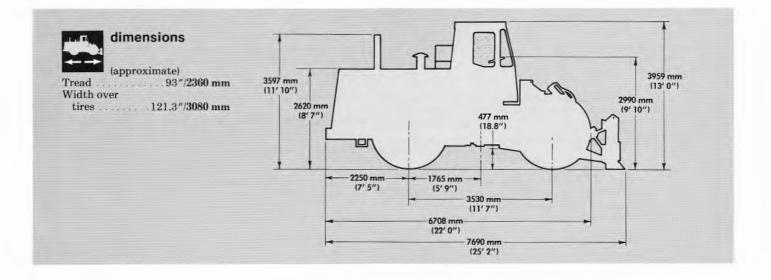
Electronic Monitoring System (EMS) shows status of important machine systems with three levels of warning.

- I Operator Awareness: LED light indicates a potential but not yet critical problem.
- II Operator Response Required: Main warning light indicates continued operation could cause eventual component failure.
- III Immediate Shutdown Required: Flashing light and horn warn that continued operation will cause immediate failure of a component.

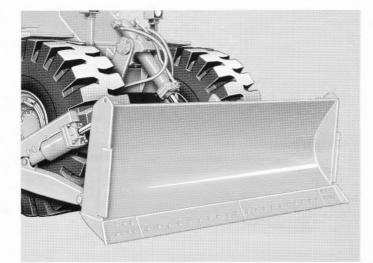
A circuit test switch verifies system reliability.



Four-wheel oil-immersed, multiple disc brakes have 2140 sq. in./1.38 m² of braking surface per wheel. Each brake has eight discs and nine plates completely sealed in a large reservoir of oil for long life. They require no adjustment.







Straight blade delivers fast production dozing in stockpiled material and general earthmoving. Heat-treated steel moldboard has replaceable full-width skid plates. In-seat hydraulic tilt and tip are standard. Push plate is optional.



standard equipment

24-volt direct electric starting. 35-amp alternator. Crankcase guard. Muffler. Power shift transmission. Backup alarm. Ether starting aid. Fenders. Drawbar. Horn. Rear view mirrors. Front windshield washer and wiper. Soundsuppressed, pressurized cab plus ROPS. Adjustable seat. Seat belt. Service, parking and emergency brake system. Power train guard. Hydraulic tank sight gauge. Front working lights. Stop/ tail lights. Vandalism protection with common key for engine oil

optional equipment

(with approximate change in stands	ard operatin	g weight.)
	Lb	Kg
Air conditioning system:		
Heats only	20	9
Heats and cools	170	77
Alternator, 50-amp		
(standard with air conditioner)	11	5
Bulldozer, includes hydraulics	12,530	5680
Cab, sound-suppressed (removed)	-511	-232
Canopy, ROPS (removed)	-1598	-725
Counterweights (front)	5020	2280
Differential, NoSPIN (rear only)	2	1
Fast fuel fill system	15	7
Fast oil fill system	6.6	3
Hydraulic system, one valve	-42	-19
Lighting system, 2 lights for use with ROPS		
cab or ROPS canopy	11	5
Push plate	525	238
Starting aids:		
Ether, no canister	1	.5
Engine coolant	4	2
Receptacle	4	2

Blade:

Capacity
Length (over end bits)
Height
Ground clearance @ max. raise
Depth of cut (max.)
Tilt adjustment (from horizontal)
Tip adjustment, max
Lift speed at rated RPM1.5 ft/sec/457 mm/sec

Cutting edges (2), reversible:

Length, each section	61"/1560.6 mm
Width × thickness	$''/254 imes 25 \ \mathrm{mm}$

End bits (2), self-sharpening:

Length, each	
Width × thickness	$10'' \ge 0.87''/254 \times 22 \text{ mm}$

Hydraulic system:

Pump output @ rated RPM and	
1000 psi/69 bar/6895 kPa	
Relief valve setting	. 2250 psi/155 bar/15 513 kPa
Cylinder, lift — bore \times stroke	$\dots 5'' \ge 36''/127 \times 914 \text{ mm}$
$Tip(2) - bore \times stroke \dots$	$6.5'' \ge 10''/165 \times 254 \text{ mm}$

dipstick and filler spout compartment, cab and engine starting. 29.5×25 , 16 PR (L-3) tires. Functions monitored by EMS -

LEVEL I – Alternator. Fuel level.

LEVEL II - Coolant temperature. Hydraulic oil temperature. Transmission oil temperature.

LEVEL III - Engine oil pressure. Brake pressures. Parking brake applied.

Critical functions have both audible and visible warning systems.

	Lb	Kg
Supplemental steering	250	112
Suspension seat	30	14
Tires, set of four:		
$29.5 \times 25, 16 \text{ PR} (L-2)$	-650	-296
$29.5 \times 25, 16 \text{ PR} (L-4) \dots$	1240	562
$29.5 \times 25, 16 \text{ PR} (L-5)$	2750	1252
29.5×25 Radial	140	64
Tires, set of four with ballast:		
$29.5 imes25,16~\mathrm{PR}$ (L-3) (std.)	8540	3880
$29.5 \times 25, 16 \text{ PR} (L-4)$	9750	4432
29.5×25 , 16 PR (L-5)	11,290	5132
$29.5 \times 25, 16$ PR Radial	9380	4264
Tool kit	18	8
Vandalism protection:		
Instrument panel guard		
(for use without cab)	4	2
Cap locks for:		
Radiator	3	1.4
Hydraulic tank	3	1.4
Fuel tank	3	1.4
Windshield wiper and washer		
(for rear window)	10	5

Materials and specifications are subject to change without notice.



For Coal Handling



Summary of features

Operator comfort and convenience are provided by a sound suppressed cab with pressurized and filtered air circulation system, tinted glass, fully adjustable seat and advanced critical machine function warning system.

Articulated frame design with hinge point midway between front and rear axles . . . front and rear wheels track at all times, reducing rolling resistance in soft underfoot conditions.

Machine balance . . . equal weight distribution on axles increases tractive effort when dozing.

Cat designed and manufactured power train ... for optimum match, performance, and efficiency.

Single-lever power shift transmission . . . fast, on-the-go speed and direction changes . . . four speeds forward, four reverse.

Servicing case . . . centralized service points and swing-away platforms permit quick, easy maintenance:

CAT PLUS services... from your Caterpillar Dealer ... the most comprehensive, total customer support system in the industry.

Modification features

Choose a high production coal scoop or "U" blade arrangement to suit your needs.

Radial tires offer higher flotation in soft underfooting. Ballasting the rear tires (scoop only, blade — front and rear) adds additional weight for increased traction.

Rear counterweight (scoop only — 824C, 834B) balances the additional weight of the scoop. 824C uses the **980C rear bumper** to permit use of the counterweight. **Front counterweight** is recommended for "U" blade arrangement. **Cat bulldozer arrangement** (less blade) is required for use with "U" blade.

NoSPIN differential prevents wheel spin when moving on the pile. If one wheel should momentarily lose traction, the opposite wheel continues to drive.

Suction fan (814B, 824C) brings in air from above the machine, keeping the radiator core from plugging with coal dust or debris. A radiator-mounted air scoop (dealer or AEM supplied) should be used with the suction fan.

Neutralizer pedal (scoop only) allows the operator to neutralize the transmission, maintaining high engine RPM for fast hydraulic response when lifting or dumping scoop.



Caterpillar Engine

Caterpillar turbocharged diesel Engine with direct injection fuel system and individual, adjustment-free injection pumps and valves. Cam-ground and tapered aluminum alloy pistons with three ring design: both compression rings ride in iron band cast into piston. Piston undersides are cooled by oil spray. Steel-backed aluminum alloy bearings. High-carbon steel alloy crankshaft with Hi-Electro hardened journals. Pressure lubrication with full-flow filtered oil and heat exchanger oil cooler. Dry type air cleaner with primary and safety elements, automatic dust ejector and service indicator. 24-volt direct electric starting system with ether starting aid standard. (Ether canister not included.)

Transmission

Cat planetary, power shift with four forward and four reverse speeds. Single lever on left side of steering column controls both speed and direction. Rotate handle for speed ranges in forward and reverse. Move the lever forward or backward for directional changes. Transmission lever is locked in neutral by depressing the transmission lock control knob (814B and 824C only) on the steering column.

Axles

Front axle fixed, rear axle oscillates $\pm 15^{\circ}$ to keep all wheels on the ground for maximum traction. Free-floating axle shafts can be removed independently of wheels and planetaries.

Final drives

All-wheel drive with planetary reduction in each wheel. Torque is developed at the wheel, putting reduced stress on axle shafts. Planetary units may be removed independently of wheels and brakes for servicing ease.

Frame

Two frames fabricated from steel plate and rolled sections. Joined at the center by two hardened-steel pins. Upper and lower doubletapered roller bearings, with 1000 hour lube intervals on each.

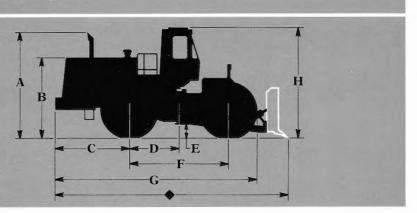
814B 824C 834B

Operating Specifications

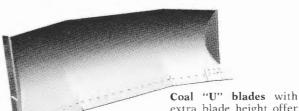
	814B		824C		834B	
Engine						
Model	Cat	3306	Cat	3406	Cat	3408
Cylinders	eur (6		3
Rated RPM	22			00		00
Displacement	638 in ³	10.5 L	893 in ³	14.6 L	1098 in ³	18 L
FWHP/kW	210 FWHP	157 kW	310 FWHP	231 kW	450 FWHP	336 kW
Travel Speeds MPH/km/h	forward	reverse	forward	reverse	forward	reverse
Gear	3.5/5.6	3.9/6.3	3.7/6.0	4.2/6.8	3.9/6.3	4.9/7.9
1			6.5/10.5	7.5/12.1	7.0/11.3	8.7/14.0
2	6.9/9.8	7.0/11.3 12.2/19.6	11.6/18.7	13.2/21.1	12.3/19.8	15.2/24.5
3	10.7/17.2					
4	18.6/29.9	21.2/34.1	20.6/33.2	23.5/37.8	21.2/34.1	26.0/41.8
Steering	18'8"	5693	20'4"	6207 mm	25'10"	7967
Minimum turning radius (over tires)	45	5683 mm	204	6207 mm 2°	25 10	7863 mm
Steering angle (each direction)	4.	, 	7.	2		,
Service refill capacities					20.1	1017
Cooling system	12 gal	44 L	22.5 gal	85 L	28 gal	106 L
Crankcase	7.5 gal	29 L	7.4 gal	28 L	11 gal	42 L
Transmission Differentials and final drives:	15.9 gal	60 L	16.4 gal	62 L	27 gal	102 L
front	13.7 gal	52 L	23 gal	87 L	38 gal	144 L
rear	13.5 gal	51 L	21 gal	81 L	38 gal	144 L
Fuel tank	122 gal	462 L	156 gal	589 L	157 gal	594 L
Hydraulic system (includes tank)	35 gal	134 L	30.3 gal	115 L	85 gal	325 L
Hydraulic tank	23 gal	87 L	23 gal	87 L	60 gal	225 L
Weight						
Base vehicle*	40,980 lb	18,585 kg	45,908 lb	20 820 kg	66,600 lb	30 210 kg
Rear counterweight		1	7,200 lb	3266 kg	7200 lb	3266 kg
Front counterweight	3,527 lb	1600 kg	5,028 lb	2281 kg	6,000 lb	2722 kg
Tire ballast	5,000 lb	2268 kg	7,808 lb	3542 kg	11,800 lb	5352 kg
Bulldozer arrangement (less blade)	5,143 lb	2332 kg	8,450 lb	3832 kg	9,889 Ib	4486 kg**
Dimensions						
Tread width	7'3"	2200 mm	7'9"	2360 mm	8'6"	2591 mm
Width over tires	9'4"	2845 mm	10'5"	3170 mm	11'8"	3565 mm
Α	11'1"	3389 mm	11'10"	3597 mm	13'4"	4070 mm
B	8′	2439 mm	8'7"	2620 mm	9'8"	2955 mm
С	6'1"	1851 mm	7'5"	2250 mm	9'6"	2883 mm
D	5'6"	1675 mm	5'9"	1765 mm	6'3"	1905 mm
Ε	18"	459 mm	19"	477 mm	18.3"	466 mm
F	11'	3350 mm	11'7"	3530 mm	12'6"	3810 mm
G	17'10"	5440 mm	22'	6708 mm	25'4"	7718 mm
Н	11'10"	3605 mm	13'	3959 mm	13'6"	4102 mm

*Includes coolant, lubricants, sound suppressed cab, ROPS, hydraulics, full fuel tank and operator. **Weight includes dozer trunion group which normally is part of chassis arrangement.

Dimensions (approximate)



 Changes with implement. Refer to scoop and blade specification chart. **Coal scoops** incorporate push and carry, dump and tilt features for optimum efficiency.



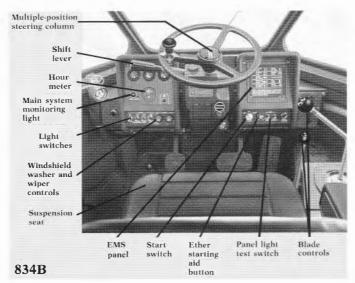
extra blade height offer maximum production on coal piles.

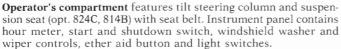
Scon and Data Specifications

	814B		824C		834B	
	Weldco	Balderson	Weldco	Balderson	Weldco	Balderson
Coal Scoops						
Carry capacity	.14	12	20	18	30	27
m ³	10.7	9.2	15.3	13.8	22.9	20.6
Dozing capacityyd ³	28	24	40	36	60	55
m ³	21.4	18.3	30.6	27.5	45.9	42
Width	156	147	170	158.5	162	208
mm	3962	3734	4318	4026	4115	5283
Heightin	60	64	60	80.	96	82
mm	1524	1626	1524	2032	2438	2083
Dump height in	66	56	65	76.8	65	62.8
mm	1676	1422	1651	1951	1651	1595
Dump angle	55°	53°	55°	45°	50°	45°
Weight*lb	14,200	11,500**	17,400	15,500**	28,500	19,660**
kg	6191	5216	7586	7031	12 928	8918
Overall vehicle length in	27'9"	28'6"	31'1"	31'10"	35'3"	36'3"
mm	8466	8687	9462	9703	10 744	11 049
Coal "U" Blades						
Capacityyd ³	7.5	13.8	12	21.1	23.0	27.7
m ³	10.6	10.6	9.2	16.0	17.6	21.2
Width	142	170	156	188	188	243
mm	3607	4318	3962	4775	4775	6173
Heightin	45	58	60	69	72	71
mm	1143	1473	1524	1758	1829	1803
Weight*lb	3,900	3,985	5,200	7.120	9,500	8,975
kg	1769	1808	2359	3230	4309	4071
Overall vehicle length in	23'9"	24'2"	25'5"	27'5"	31'9"	30'6"
mm	7290	7366	7747	8357	9677	9296

*Add scoop or "U" blade weight to base vehicle weight for operating weight.

**Balderson scoop dozer weight includes radiator guard and headlight extensions for base machine.





Electronic Monitoring System (EMS) gives quick visual status check of important machine systems with three levels of warning: **I.** Operator awareness; **II.** Operator response required; and **III.** Immediate shutdown required. A circuit test switch verifies system reliability.



Servicing ease is designed in:

• Dealer-installed swing out radiator guard permits quick, efficient clean out.

• Centralized service center behind deck at rear of cab provides access to fuel filter, implement system pilot filter, transmission filter, engine fuel priming pump, air cleaner and engine oil fill and dipstick.

• Transmission can be serviced through a hinged service door in walkway floor plate behind cab and can be removed with cab and ROPS on machine.

• Access doors permit quick servicing and accessibility to steering valve, supplemental steering valve module, steering and implement pumps, pilot relief valve and other hydraulic components. Electrical panel is easily accessible. Diagnostic connector provides quick analysis of electrical system malfunctions.

814B 824C 834B



Implement hydraulics

Implement controls are located at the operators right, forward of the instrument panel. Right lever controls blade lift and tilt, left lever controls tip. 834B can be modified to include both functions in a single lever. All hoses are Caterpillar XT-3 and are specially designed for high pressure hydraulic systems. Couplings are reusable, so only hoses need to be replaced should wear or damage occur.

Gear pump output @ rated RPM and 1000 psi/69 bar/6895 kPa	
814B	
824C	
834B (with scoop)	
834B (with blade)	

Steering

Center-point frame articulation. Rear and front wheels track. Full hydraulic power with flow amplified system. Flow to steering cylinders is controlled by a steering wheel-operated metering pump. Full-flow filtering. Adjustable steering column.

Brakes

814B — Four-wheel, air over hydraulic wedge actuated, automatically adjusted shoe brakes.

824C — Four-wheel, air over oil, fully enclosed oil-immersed multiple-disc. Self-adjusting with modulated engagement.

834B — Four-wheel, full-hydraulic, fully enclosed oil-disc type. Self-adjusting. Fade-resistant, with smooth modulation. Two brake pedals.

ROPS

(Cab plus ROPS is standard)

ROPS (Rollover Protective Structure) offered by Caterpillar for these machines meets ROPS criteria: SAE J394, SAE J1040c and ISO 3471. Horsepower to gross machine weight indicated on ROPS certification plate on machine. It also meets FOPS (Falling Object Protective Structure) criteria SAE J231 and ISO 3449.



Base vehicle standard equipment

Note: Standard and optional equipment may vary outside U.S.A. Consult your Caterpillar dealer for specifics.

814B 24-volt direct electric starting. 35-amp alternator. Fuel priming pump. Dry-type air cleaner. Muffler. Full engine enclosures. Fenders. Horn. Adjustable seat. Seat belt. ROPS cab and canopy. Cab sound suppressed and pressurized. Hydraulic system. Power shift transmission. Dash lights. Lockable tool box. Front warning horn. Backup alarm. Hitch. Crankcase guard. Service meter. Air filter service indicator. Visual hydraulic oil lever indicator. Electric Monitoring System.

824C 24-volt direct electric starting. 35-amp alternator. Crankcase guard. Muffler. Power shift transmission. Backup alarm. Ether starting aid. Fenders. Drawbar. Horn. Rear view mirrors. Front windshield washer and wiper. Sound suppressed, pressurized cab plus ROPS. Adjustable seat. Seat belt. Service, parking and emergency brake system. Power train guard. Hydraulic tank sight gauge. Front working lights. Stop/tail lights. Vandalism protection with common key for engine oil dipstick and filler spout compartment, cab and engine starting. Electronic Monitoring System.

834B 24-volt direct electric starting. 50-amp alternator. Crankcase guard. Muffler. Power shift transmission. Backup alarm. Ether starting aid. Fenders. Drawbar. Horn. Rear view mirrors. Front windshield washer and wiper. Soundsuppressed cab plus ROPS. Suspension seat. Seat belt. Service, parking and emergency brake system. Power train guard. Hydraulic tank sight gauge. Front and rear working lights. Stop/tail lights. Electronic Monitoring System.

Modification information

CargopHannodHeation

Front counterweight. Rear counterweight (824C, 834B). 980C rear bumper (824C). NoSPIN differential. Suction fan (814B, 824C). Neutralizer pedal. Bulldozer arrangement (less blade).

Tire ballasting. Air scoop.

Auxiliary equipment attachments

Balderson or Weldco scoop. Balderson or Weldco "U" blade. Balderson air scoop.

*Warranty of product not supplied by Caterpillar is the responsibility of the manufacturer of that product.

Optional equipment

- □ Air conditioner/heater
- □ Alternator, 50-amp (814B, 824C)
- □ Conterweights, front (824C)
- □ Fast fuel fill system
- □ Fast oil fill system (824C, 834B) □ Fuel heater (834B)
- \Box Fire suppression system (834B)
- \Box Gauge package
- ☐ Heater, engine coolant
- □ Lighting system
- \Box Seat cover (824C)
- \Box Suspension seat (814B, 824C)
- □ Static seat (834B)

Starting aids:

- Engine coolant heater (824C, 834B)
- Starting receptacle Heavy duty batteries (814B)
- Ether, no canister
- □ Supplemental steering
- Tool kit
- □ Vandalism protection: Instrument panel guard
- Cap locks
- Windshield washer and wiper (rear window)