

BIG

PRODUCER

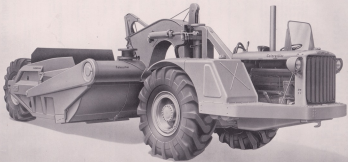


THE "CAT" DW21

DW21



"CATERPILLAR"
DIESEL DW21 TRACTOR



37 1/2"

“Caterpillar” DW21 Tractor and No. 21 Scraper

(SPECIFICATIONS ON OTHER SIDE)

Specifications of "Caterpillar" DW21 Tractor and No. 21 Scraper

GENERAL SPECIFICATIONS:

Overall Dimensions:

Length	40'-7"
Width	11'-6"
Height	16'-7"
Wheelbase	24'-7 1/2"

Tires:

DW21 Tractor	2-24:00-29-24 ply
No. 21 Scraper	2-24:00-29-24 ply

Gauge: (Center to Center of Tires)

DW21 Tractor	7'-0"
No. 21 Scraper	7'-0"

Maximum Ground Clearance:

Under DW21 Tractor at Axle	20"
Under Rear of No. 21 Scraper Bowl	17 1/2"

Width Required for Non-stop Turn:.....35'-0"

Brakes: Foot controlled, air operated

Weight, Shipping (Approximate):

On DW21 Tractor Wheels, Lbs.	32,200
On No. 21 Scraper Wheels, Lbs.	15,200
Total Weight, Lbs.	47,500

DW21 TRACTOR SPECIFICATIONS

Capacity:

Maximum engine horsepower at sea level	225
Tractive effort, lbs. at rated engine speed with loaded scraper with 24:00-29 tires:	
1st gear	25,000*
2nd gear	17,100
3rd gear	10,950
4th gear	5,880
5th gear	3,580
Reverse gear	25,000*

*Limited by weight on tires.

Travel speeds in m.p.h. at rated engine speed with loaded scraper with 24:00-29 tires:

1st gear	2.16
2nd gear	4.18
3rd gear	7.15
4th gear	12.18
5th gear	20.00
Reverse gear	2.79

Engine: "Caterpillar"—four cycle, water cooled:

Fuel	Commercial Diesel fuel
Number of cylinders	6
Bore and stroke	5 1/2" x 6"
Piston displacement, cu. in.	748
Horsepower—peak capacity	275 at 2600 RPM**
Horsepower—Net available to vehicle at sea level	225 at 1900 RPM
Speed control	Foot operated
RPM rated speed, governed at full load	1900
Maximum torque, lb. ft.	690
RPM at maximum torque speed	1400
NACC horsepower rating for USA tax purposes	63
Lubrication	Full pressure

**Peak horsepower capacity at 2600 RPM tested in accordance with the American Society of Mechanical Engineers 1949 Power Test Codes. As this covers a "stripped" engine and does not represent horsepower available at the flywheel, the value is offered only for comparison with engines similarly rated.

Starting Method:

Independent two-cylinder, vertical, four cycle gasoline engine, equipped with high tension magneto and impulse coupling, up draft carburetor and flyball governor. Bore 5 1/2". Stroke 4". 25 HP at 2700 RPM. Drive by multiple disc clutch and helical gears to Diesel engine flywheel. Electric starting for gasoline starting engine with 6 volt motor provided as standard equipment.

Standard Accessories:

One 6 volt, 17 plate battery, one 6 volt 40 ampere capacity generator, air horn, two 45 watt sealed beam headlights, and dash lights.

Transmission:

"Caterpillar", constant mesh spur and helical gears, pressure lubricated.

Clutch:

Double dry plate, with semi-metallic friction surfaces, foot operated.
Diameter of plates.....16"

Steering:

Positive, hydraulic follow-up type, 90° each way.

Hitch:

Triangular type—with widely spaced vertical and horizontal bearings.

Capacities:

Fuel tank	95	U. S. Gallons
Lubricating system:		
Crankcase	8 1/2	
Transmission, differential, and final drive	20	
Cooling system	1 1/2	
Hydraulic system (tractor and scraper)	24	

No. 21 SCRAPER SPECIFICATIONS

Method of operation.....Cable

Capacity:

Stroke	15 cu. yds.
Heaped (based on approximate 1:1 slope).....	19 1/2 cu. yds.
With 12-inch side boards:	
Stroke	18 cu. yds.
Heaped (based on approximate 1:1 slope)	22 1/2 cu. yds.

Width of Cut.....8'-6"

Cutting Edge:

Center Section	1" x 14" x 54 1/2"
Each End Section	3/4" x 13" x 29 1/2"

Type of Ejection.....Forward, positive

Apron Opening

Maximum Depth of Spread.....15 1/2"

No. 27 CABLE CONTROL SPECIFICATIONS

Type	Double drum
Mounting	Rear of tractor
Line Speed F.P.M.:	
Bare Drum	454
Full Drum	632
Cable Size	1/2"
Drum Capacity (1/2" cable), feet	225
Weight (approximate) lbs. (including adapter group)	1520

CATERPILLAR TRACTOR CO., . . . Peoria, Illinois

DIESEL ENGINES — TRACTORS — MOTOR GRADERS — EARTHMOVING EQUIPMENT

METHOD OF OPERATION.....Cable

CAPACITY:

Struck	15 cu. yd.
Heaped (based on approximate 1:1 slope)	20 cu. yd.
With 12-inch top extensions:	
Struck	18 cu. yd.
Heaped (based on approximate 1:1 slope)	23 cu. yd.
Load capacity	30,000 lb.

DIMENSIONS (OVER-ALL):

Length (with hitch and steering group)	34'
Length (scraper with tractor)	40' 7"
Width	11' 7"
Height (blade on ground)	10' 2"
Width of space required for minimum turn	23'
Gauge (center to center of tires)	7' 6"
Maximum ground clearance:	
Rear of bowl	1' 5 1/4"
Cutting edge (carrying position)	1' 6 1/4"

BOWL:

Type of material	High tensile steel
Height of sides	5' 0"
Bottom dimensions	9' 6" x 4' 9"
Type of bottom	Double—with steel beam fillers
Shape of bottom	Flat
Type of ejection	Forward, positive
Height of front apron	3' 4 1/4"
Apron opening	4' 3"
Height of ejector	6' 3/4"
Maximum depth of spread	1' 3 1/4"
Maximum depth of cut	Not limited
Lubrication fittings	Pressure type

CUTTING EDGE:

Width of cut	9' 6"
Dimensions:	
Center section	3/4" x 16" x 54 1/4"
Each end section	3/4" x 18" x 29 1/4"
Type	"Hi-Electro" hardened — reversible

SHEAVES:

Material	Forged steel, machined, "Hi-Electro" hardened
Bearings	Roller

CABLE:

Type	Improved plow steel, 6 x 19 IWRC Lang Lay
Ejection cable—size 3/8"	152'
Bowl lift—size 3/8"	97'
Apron lift—size 3/8"	28' 4"
Cable furnished	600' of 3/8", 28' 6" of 3/4"

HITCH:

Triangular type—with widely spaced vertical and horizontal bearings.

WHEELS:

Axles	Supported each end
Bearings	Tapered roller
Rims (5" taper)	17.00-29

TIRES:

Size	24.00 x 29—24 ply
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BRAKES:

Air actuated (synchronized with tractor brakes)—diameter and width

WEIGHT:

Shipping (approx.) lb.	32,100
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STATIC WEIGHT:

On wheels of DW21 Tractor and No. 21 Scraper, lb.

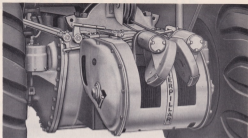
Empty:	Tractor	Scraper	Total
	37,110	18,265	55,375
Loaded: (based on 50,000 lb. load)			
Tractor	54,770	56,805	105,375
Scraper	52%	48%	100%

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CATERPILLAR TRACTOR CO.

PEORIA, ILLINOIS, U.S.A.



SPECIFICATIONS

For Use With Tractor Model	DW20	DW21
Line Speed F.P.M.:		
Bare Drum	454	454
Full Drum	652	652
Cable Size, inches.....	1/2	1/2
Drum Diameter, inches.....	11	11
Drum Length, inches.....	5	5
Drum Flange Diameter, inches.....	17	17
Drum Capacity (1/2 inch cable), feet.....	225	225
Sheave Diameter in inches.....	9 1/4	9 1/4
Number of Friction Surfaces, each clutch.....	12	12
Area of Friction Surfaces, each clutch, sq. in.....	732	732
Clutch Facing	Metallic	Metallic
Brake Band Diameter and Width, inches.....	18 x 3	18 x 3
Effective Brake Area, sq. in. each brake.....	167	167
Brake Lining	Molded	Molded
Weight (approx.) lbs. (including adapter group).....	1765	1765

Line pulls are ample to meet the most severe service requirements imposed by operation of scrapers.

CATERPILLAR

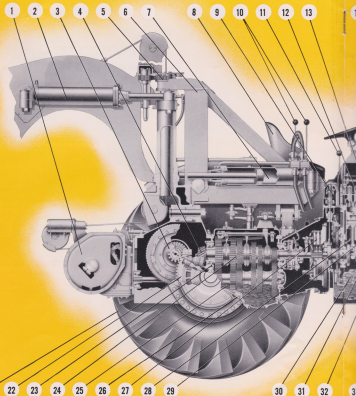
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No. 27 CABLE CONTROL

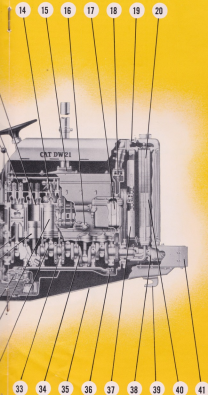
REAR DOUBLE DRUM HEAVY DUTY

DW 21 TRACTOR

"CATERPILLAR" DIESEL



SEL DW21 TRACTOR



1. "Caterpillar" No. 37 Cable Control.
2. Smooth, easy operating hydraulic steering system—built in anti-jacking design.
3. Heavy-duty differential.
4. Precision die quenched spiral bevel gear and matched pinion give quiet running, long life operation.
5. Timing gears assure correct angular relationship between beater and scraper over entire steering range (PE) either direction.
6. Rugged, safe triangular hitch—widely spaced vertical and horizontal bearings.
7. Large capacity hydraulic steering cylinder—based lower cylinder surface.
8. Convertible bucket type seat fixed with foam rubber—mounted on parallel linkage with coil spring; hydraulic cushion.
9. Precision built, hydraulic assisted governor gives quick, accurate response to load changes.
10. Handy, easy to reach control levers for cable control.
11. Gear with lever—five speeds forward, one reverse.
12. Valve rotators for long valve and valve seat life.
13. Heat resisting alloy steel valves—hardened valve seat inserts.
14. "Caterpillar"-built fuel injection valves and precombustion chambers give thorough, economical burning of fuel.
15. Built-in rain trap protects engine from moisture entering exhaust pipe.
16. Rear mirror—assists in keeping accurate maintenance and cost records.
17. Efficient, action type second fuel filter protect precision fuel injection parts from foreign particles in fuel.
18. Heavy-duty thermostats accurately control water temperature.
19. Valve an radiator overflow—prevents being coolant on steep grades.
20. Efficient, large capacity radiator.
21. Large 24.00-29, 24 ply tire—interchangeable with scraper tires.
22. Large capacity air activated brakes—can be operated independently or in unison.
23. Ball and roller bearings throughout transmission and drive.
24. Heavy-duty, two shaft type, constant mesh transmission.
25. Lubricating oil for transmission and final drive has separate pump and filter system.
26. "Widener" hardened final drive gears.
27. High capacity double plate clutch with long lived, semi-metallic linings—air assisted for light pedal action.
28. Stationary oil jets for plate cooling.
29. Aluminum alloy, oil cooled pistons—cast-in-place iron band for top piston ring groove.
30. Dual oil pump with speed pressure control.
31. Wet type, replaceable cylinder liners—"Widener" hardened and chemically treated for proper break-in and long life.
32. Heavy-duty crankshaft—forged of selected steel, "Widener" hardened and superfinished.
33. Special steel forged aluminum alloy main and connecting rod bearings—long lived—corrosion resistant.
34. Crankshaft drilled for oil passage.
35. Heavy-duty crankcase guard.
36. Auxiliary oil suction ball for correct lubrication on steep down-hill grades.
37. Large, efficient six blade radiator fan.
38. Dual hydraulic pump supplies all under pressure for two speed steering system.
39. Front pull hook.
40. Air-type oil cooler preserves lubricating qualities of oil.
41. Heavy wrap around type bumper—protects wheels and steering system from excessive shocks.

NO. 21 SCRAPER

HIGH PRODUCTION

(15 YARDS STRUCK 20 YARDS HEAPED)

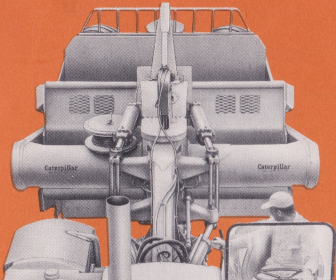


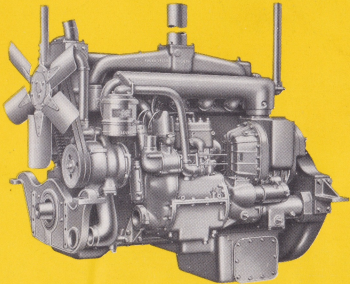
WIDE, IN-LINE PUSH BLOCK The wide push pad is located well to the rear for efficient pusher loading. The low position allows "in-line" power action with pusher, side arm trunnions and pulling tractor.

Big, low pressure tires keep the load on top of the soft fills, maintain low rolling resistance and give long tire life. When ground conditions are unusually adverse the tire pressure can be reduced without overloading.

EASY AXLE

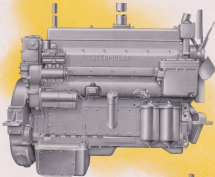
ADJUSTMENT When one scraper tire is replaced with a new one, a difference in diameter causes the cutting edge to dig deeper on one side than the other, thereby decreasing the loading efficiency. By simply removing four bolts and removing or adding shims, the axle is raised or lowered.





DW 20 AND DW 21 ENGINE

POWER PACKED PERFORMANCE!



225 HP

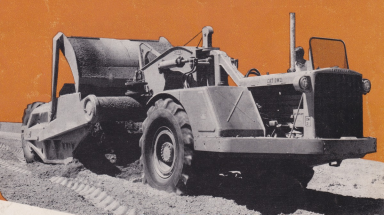
AT THE FLYWHEEL

@ 1900 R. P. M.

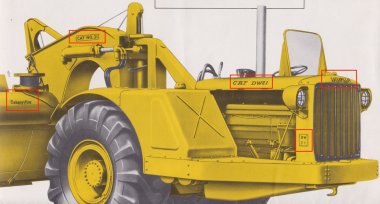
275 HP

@ 2000 R. P. M.

Peak rating when tested in accordance with A. S. M. E. Test Codes.



20.0 M.P.H. TRAVEL SPEED



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20.0