

**WHEEL TRACTOR-SCRAPER**

**CATERPILLAR**

**660**



**POSITIVE ACTION SCRAPER —**

- 54 Cu. Yd. (41,3 m<sup>3</sup>) heaped.
- 40 Cu. Yd. (30,6 m<sup>3</sup>) struck.
- Hydraulically controlled for positive cutting edge penetration, apron closure and material ejection.

**DIESEL TRACTOR —**

- 500 HP (flywheel) Caterpillar engine.
- Automatic, fuel-injection timing advance to give optimum performance at all RPM.

**POWER SHIFT TRANSMISSION —**

- Automatic shifting from torque divider drive to direct drive to overdrive in each of three forward speed ranges.
- Top speed 42 MPH (67,6 km/h).

**OPERATING AND SERVICING EASE —**

- Power steering, air brakes, single lever shift control, quick-response scraper controls.
- Major components accessible and independently removable.



SERIAL #



It is hereby certified the **Cat 660 Wheel Tractor-Scraper** with the above serial number is an authentic registered Classic Construction Model produced in a strictly limited single edition.

**Attested By** \_\_\_\_\_

# 660 TRACTOR

## CATERPILLAR ENGINE:

Flywheel Horsepower @ 1900 RPM ..... 500

Flywheel horsepower is the net horsepower at flywheel of standard engine operating under normal temperature and barometric conditions [up to 5000 ft. (1520 m) altitude]. Standard engine equipment includes fan, air cleaners, water pump, lubricating oil pump, fuel pump, charging alternator and air compressor.

NACC H.P. for U.S.A. tax purposes ..... 93

### Design Data:

Four-cycle, 5.4" (137,2 mm) bore and 6.5" (165,1 mm) stroke, eight-cylinder diesel. 1190 cu. in. (19,501 lit.) displacement.

Pressure-ratio controlled turbocharger. Intake air aftercooler. Parallel manifold porting with two intake and two exhaust valves per cylinder. Valves directly actuated by overhead camshafts. Variable Timing fuel system. Adjustment-free fuel pumps, non-fouling injection valves and precombustion chamber design.

Uses economical No. 2 Fuel Oil (ASTM Specification D396-48T), often called No. 2 furnace or burner oil, with a minimum cetane rating of 35. Expensive, premium-quality diesel fuel can be used, but is not required.

### Starting Methods, choice of:

Direct Electric Diesel Starting (24-volt motor).

Gasoline Engine Diesel Starting (12-volt gas engine starter).

## POWER SHIFT TRANSMISSION:

Caterpillar-built for 660. Three automatically selected speeds — Torque Divider Drive, Direct Drive and Overdrive — in each of three manually selected gear ranges for a total of nine forward speeds, three reverse. Torque Divider Drive combines high-torque, anti-stall characteristics with direct drive response and efficiency. Single lever shift control has torque divider lock-in for first range loading and second range dumping.

## DIFFERENTIAL CONTROL:

Caterpillar-built Differential Lock, engaged by foot pedal, actually prevents either drive wheel from spinning free in poor traction conditions. Allows normal differential action when not engaged.

## FINAL DRIVE:

Compact planetary design and full floating axles, removable independently of wheel mounting. Service-free, double-row roller bearings. Assemblies protected with Floating Duo-Cone Seals.

## TIRES (Tubeless):

Standard for: Tractor, Front .... 18.0-25 (20 PR)

Drive .... 37.5-39 (28 PR)

Scraper ..... 37.5-51 (36 PR)

Additional tires are available for special applications.

## STEERING:

Full-time, hydraulic boost with 13:1 steering ratio.

Width required for non-stop turn ..... 46'  
(14,02 m)

## BRAKES:

Air-actuated, cam-operated, expanding-shoe type (synchronized to brake scraper first). Drive wheels may be braked individually by hand lever.

Hydraulic retarder is standard.

## STANDARD EQUIPMENT:

Bucket-type torsionflex seat, seat belt, safety glass windshield, air vent, heat vent, dash lights, downshift indicator, air horn, dry-type air cleaner and headlights. Charging alternator with built-in full-transistor voltage regulator and two 200-ampere hour, 12-volt batteries for 24-volt system. (Charging generator, voltage regulator and two 60-ampere hour, 6-volt batteries for 12-volt system). Reversible fan.

## OPTIONAL EQUIPMENT:

Combination bowl-apron control lever. Rear-mounted flood lights. Fuel tank, radiator, oil filler and hydraulic tank cap locks. Alternator for 12-volt systems. Rain cap, ether starting aid, tool kit & windshield wiper. Traction control unit, windrow breaker, brakes & gears.

## WEIGHTS ON WHEELS

(Total Unit, Approx.)	LB.	(kg)
Empty:		
Tractor, front — 21% .....	24,250	(11009)
rear — 40% .....	46,200	(20975)
Scraper — 39% .....	45,050	(20453)
Total .....	115,500	(52437)
Loaded, based on 128,000 lb. (58112 kg) average load:		
Tractor, front — 13% .....	31,660	(14373)
rear — 37% .....	90,090	(40901)
Scraper — 50% .....	121,750	(55275)
Total .....	243,500	(110549)

## SERVICE INFORMATION

	U.S. GAL.	(liters)
Fuel tank .....	195	(738)
Lubricating system:		
Crankcase .....	15	( 57)
Transmission .....	33	(125)
Differential .....	41	(155)
Final drive — each side .....	7	( 26)
Cooling system .....	38	(144)
Total hydraulic system (steering and scraper) .....	92	(348)
Retarder system .....	7	( 26)

# POSITIVE-ACTION SCRAPER

## SCRAPER DESIGN

### CAPACITIES

Heaped, SAE rating ..... 54 cu. yd. (41.3 m<sup>3</sup>)  
 Struck, SAE rating ..... 40 cu. yd. (30.6 m<sup>3</sup>)

### DESIGN DATA

Low and extra-wide scraper bowl is operated by high-speed hydraulics. Cutting edge near center of bowl for minimum material travel. Power closing, "true-radius" apron. Hydraulic dozer-type ejector. Reinforced box-section construction with extensive use of high tensile strength steel. Minimum transporting width from inside-mounted apron arms and removable draft arms. Cantilever mounted wheels with Lifetime Lubricated bearings and Floating Duo-Cone Seals.

Maximum depth of cut ..... 19" (480 mm)  
 Width of cut (outside router bits) ..... 11' 11 1/2" (3645 mm)

#### Cutting Edge Dimensions:

**STANDARD** Center Section... 1 3/8" x 16" x 68 1/4"  
 (35 mm x 406 mm x 1734 mm)  
 Each End Section 1 1/4" x 13" x 35 1/2"  
 (32 mm x 330 mm x 902 mm)

**OPTIONAL** Center Section ..... Available in thickness up to 1 3/8" (35 mm).  
 Each End Section ... Available in thickness up to 1 3/8" (35 mm).

Maximum available hydraulic penetration force @ cutting edge (approx.)... 134,000 lb. (60836 kg)

Maximum depth of spread ..... 24" (610 mm)

Apron Opening — bowl 6" (150 mm)  
 off ground level ..... 9' 2" (2,79 m)

Apron Closure Force with cutting edge fully raised and apron opened 12" (300 mm) approx. .... 36,000 lb. (16350 kg)

## HYDRAULIC OPERATION

Bowl, apron and ejector individually controlled. (Combination bowl-apron lever available.) Bowl lever has raise, hold, power down and "fast-as-cable" quick-drop positions. Apron lever has open, hold, positive close and "float" positions. Ejector lever has forward, hold, and return positions. Automatic kickout on return.

**Bowl** uses two, 9.25" (235,0 mm) bore & 43.7" (1110 mm) stroke, double-acting cylinders with special quick-drop valves. Carry check valves isolate circuit from load in "hold" position.

**Apron** uses one, 9.25" (235,0 mm) bore & 33.2" (843 mm) stroke, double acting cylinder with multiplier linkage controlling force, speed and length of travel. Closure force regulated by relief valve protecting apron and bowl. Circuit pressure is controlled by sequence relief valve when bowl is raised with apron closed.

**Ejector** uses two, double-acting, two-stage telescoping cylinders with 8.25" (209,6 mm) to 6.5" (165,1 mm) bore & 89" (2261 mm) stroke.

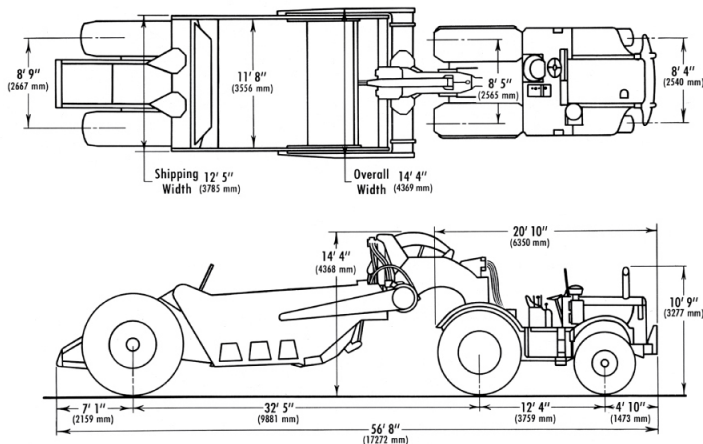
**Hydraulic Circuits** are filtered, closed systems utilizing swivel hydraulic joint at gooseneck. Powered by vane type pump:

Output @ 2000 RPM ... 145 GPM (549 lit/min)  
 Relief valve setting .... 2000 PSI (141 kg/cm<sup>2</sup>)

### CONVERSION TABLE

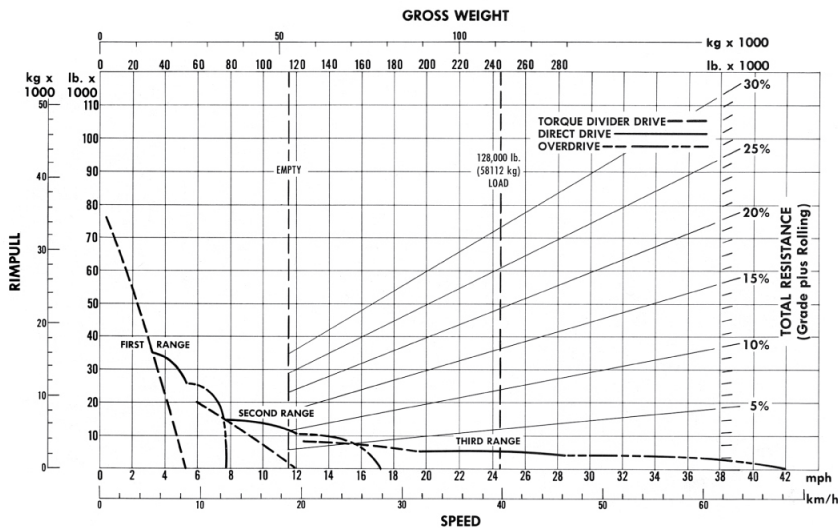
1 Mile = 1,609 Kilometers	1 Lb. = 0,4536 Kilogram
1 Foot = 30,48 Centimeters	1 Sq. In. = 6,452 Sq. Centimeters
1 Inch = 2,54 Centimeters	1 Sq. Ft. = 929 Sq. Centimeters
1 U.S. Gal. = 3,786 Liters	1 Sq. Yd. = 0,836 Sq. Meters
1 U.S. Gal. = 0,833 Imp. Gals.	1 Cu. Yd. = 0,7646 Cu. Meters
1 U.S. Gal. Diesel Fuel = 7,3 Lb. (approx.)	
1 U.S. Gal. Coolant = 8,3 Lb. (approx.)	

## OVERALL DIMENSIONS:



# 660

## GRADEABILITY-SPEED-RIMPULL



**To determine gradeability performance:** Read from gross weight down to the % of total resistance. [Total resistance equals actual % grade plus 1% for each 20 lb./ton (10 kg/t) of rolling resistance]. From this weight-resistance point, read horizontally to the curve with the highest obtainable speed range, then down to maximum speed. Usable rimpull will depend upon traction available and total weight on drive wheels.

Materials and specifications are subject to change without notice.

# CATERPILLAR

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