**13-254 Caterpillar 666 4х4 тягач с одноосным полуприцепным скрепером с ведущей осью ёмк. 41,3 м3 гп 55 тн, гл. 0.61 м, рабочий вес 60 тн, полный вес 115 тн, D346T 500 лс и Cat D343T 400 лс, 65.9 км/час, США 1960-е г.**



 The Cat 666 80-ton tandem-powered scraper features a Cat 666 Four Wheel Tractor with an 80-ton scraper bowl.  Featuring a D346 tractor engine producing 560 HP and a D343A scraper engine producing 420 HP, the 666 80-ton scraper was capable of producing 980 HP.  With a Power Shift transmission, 9 forward and 3 reverse gears, top speeds of 42 MPH could be reached.  Measuring approximately 60′ long, 13′ 11″ wide, and 14′ 4″ tall, the 666 has a payload capacity of 160,000 lbs.

|  |  |
| --- | --- |
| **Type** | Four Wheel-Tractor Scraper |
| **Engine** | D346 (tractor) & D343A (scraper) |
| **Horsepower** | 980HP – 560HP (tractor) & 420HP (scraper) |
| **Transmission** | Power Shift – 9 forward & 3 reverse gears |
| **Length** | 60' |
| **Width** | 13' 11" |
| **Height** | 14' 4" |
| **Operating Weight** | 125,000 lbs. |
| **Payload Capacity** | 160,000 lbs. |
| **Capacity (Struck)** | 40 yd.³ |
| **Capacity (Heaped)** | 54 yd.³ |

Somewhat overshadowed by it’s legendary twin engined sibling, the Cat 666, it may surprise readers to know that there are far more Caterpillar 660’s still in operation and earning their keep some forty years after the last one came off the production line!

 Caterpillar introduced their 600 series in 1959 with the 14 cubic yard Cat 619B.

 This was followed by the 21 cubic yard 631A in 1960 and then by a whole range of machines in 1962, with capacities right up to 54 cubic yards.

 This was at a time when the motor scraper reigned supreme and was the chosen type of earthmoving machine for most jobs other than solid rock.

 Caterpillar introduced three really big three-axle scrapers that year, the 650, 660 and 666.

 All shared the same tractor unit but had differently configured bowls and the 666 was of course, tandem powered.

 In order to provide maximum cost and time savings, all three were designed to be tandem pushed in the cut to cut down loading and loiter time.

 The Peterson Tractor Co, a Cat dealer in California developed a special version of the (then) current Cat D9G track type tractor to push these monsters known as the tandem D9G – two D9G’s joined together by a frame, ball joint and operated by one man. The idea proved to be so successful, the patent rights to this design were purchased from Peterson by Caterpillar and the type was put into series production as the DD9G, and later on, the DD9H. It was only discontinued when Cat introduced their D10 in 1977.

 Three-axle scrapers have a couple of advantages over the two-axle, overhung type. First of all is speed, as provided the haul road is smooth and well maintained, top speed can safely be attained and maintained. Secondly is ride comfort. A three-axle scraper has considerably better riding characteristics as compared to a two-axle scraper, even a cushion hitch equipped example. Where the three-axle scraper has problems are with adverse grades and maneuverability – it takes quite a bit of real estate to turn one of these things around and hilly terrain does present some challenges.

 Our chosen subject, the 660, was designed for high speed, bulk earthmoving over terrain with few grades, and had a 40 cubic yard struck, 54 cubic yard heaped capacity bowl.

 It was powered by a single 450 horsepower Caterpillar D346 V8 diesel engine and was known as the 90F series.

 Caterpillar built 109 of these machines and it was only in production for two years before it was replaced by the 77F series which featured 50 more horsepower and a wider variety of tyre options.

 Both the 90F and 77F series 660 had a nine-speed Cat powershift transmission which allowed a top speed of around 40 miles per hour – not bad for a machine weighing 120 tons loaded!

 The 660 remained pretty much unchanged until 1969 when Caterpillar brought out a revised version, the 660B (58K series). Featuring a lot of improvements over the previous versions, these included an uprated engine, the Cat D346TA which was now putting out 550 flywheel horsepower, and the recently developed Caterpillar 8-speed semi-automatic powershift transmission. Another major revision was to the bowl which had the lift cylinders removed from their previous position either side of the gooseneck, outboard almost to the end of the draft tube.

 This last change was apparently to help avoid the bowl from going out of ‘square’ when serious horsepower was applied to the pushblock and the cutting edge struck something solid. These changes resulted in a slight weight loss for the machine, down to 117 tons loaded.

 With it’s slimmed-down look, new transmission and fifty more horses under the hood, the 660B could make almost 45 miles per hour.

 Regrettably for Caterpillar, the world was headed for an international slump in the sales of large earthmovers and sales for large scrapers dried up.

 Caterpillar made the decision to remove all of their large 3-axle scrapers from production around 1975 and has not seen fit to reintroduced them, leaving their model 657 as the only large motor scraper currently in production.

 However, owing to its simplicity, ruggedness and sheer bulk dirt shifting ability, many 660’s and 660B’s remain in service, especially in California where they can be seen running in fleets, an awe-inspiring sight.

 As the Cat D346 engine does not meet California states ridiculously low emission requirements, almost all of these machines have been repowered, the favoured engine being a Detroit Diesel 60 series!

Optional Equipment

 The 660 was available with a range of optional items to suit different operating conditions.

 These included a cab with heater, fast fuelling system, a choice of gasoline starting engine or electric starter for the engine, a Caterpillar Tractionaide, a hydraulically operated device for weight transfer to the drive wheels and different tyre options.

 Along with the model 660 scraper, additional equipment was available from preferred supplier Athey in the form of the 130 ton PH660 Coal Bottom Dump, 100 ton PW660 Earth Bottom Dump and the PR660 Rock Rear Dump.

 Although 660’s and 660B’s look very similar, there is one very prominent distinguishing spotting feature – on the early 660’s, the bowl lift rams are grouped together on the gooseneck. On a 660B, the bowl lift rams are mounted outboard near the ends of the draft tube.

**Following requests from a number of our readers, this month’s featured machine is the Caterpillar 666, however, no 666s were ever imported into New Zealand. By Richard Campbell**

The largest production twin engined motor scraper to be offered by any earthmoving equipment manufacturer, the Caterpillar model 666, was introduced in 1962 along with a raft of other ‘600 series’ motorscrapers that Caterpillar had been developing.

Boasting a whopping 54 cubic-yard-heaped bowl, the 666 was also offered as a single engined scraper, which was known as the 660.

From the outset, the Cat 666 was designed for high volume earthmoving and situations where it would spend most of its operational life, rather than being moved from job to job.

Applications in opencast mines, where grades were an issue, were ideal 666 territory.

Its three-axle configuration made it a fast and stable machine to handle, despite its size.

Initial machines had a 450horsepower Caterpillar D346T turbocharged V8 diesel installed in the tractor unit while a 335 horsepower Cat D343T inline six-cylinder diesel was fitted in the scraper. During its production life, the horsepower ratings were progressively increased to 550 horsepower and 400 horsepower respectively in the model 666B.

Caterpillar’s nine-speed powershift transmission provided the necessary gears to get the 666 moving, and move it sure could. A loaded machine. weighing over 118 tons, could reach speeds in excess of 42 miles per hour on a level haul!

The final production model, the 666B, had Caterpillar’s eight-speed semi-automatic transmission.

In order to save the service brakes on long downhill hauls, a hydraulic retarder was a standard part of the powershift transmission package.

Resembling one of Caterpillars 1950 offerings, the [DW20](https://contractormag.co.nz/classic-machines/caterpillar-dw20/) on steroids, layout of the 666 was actually quite conventional.

The steering axle was pinned in its centre to allow vertical movement and featured hydraulically boosted steering. A small V-shaped windrow breaker was placed slightly forward of the axle to help ease the way through poorly maintained fills.

A standard universal type hitch connected the tractor and scraper together and allowed lateral oscillation of up to 22 degress to either side of centre. The hitch was also fitted with anti-jacknifing stops which must have been of some comfort to the operator.

With easy access from either side of the machine the operator was seated slightly to left of centre, with a good view all around.

All operating controls were within easy reach and required minimum effort to use.

Standard operator comforts included a windshield and wiper, plus Cat’s bucket type torsionflex seat. Post-1972 machines were available with an optional ROPS cab.

Three sizes of tyre were required to outfit a 666: 18×25 on the steering axle, 37.5×39 on the tractor drive axle and a massive 37.5×51 on the scraper. Other sizes were available depending on the machine’s intended application.

Operation of the scraper was all-hydraulic with double acting cylinders used on all circuits. As previously mentioned, the 666 had a huge bowl and was rated at 40 cubic yards struck and 54 cubic yards heaped (even more with sideboards).

Some of the first machines off the line were put to work in the vast Kennecot copper mine in Nevada while others found homes in coal mines in Wyoming, Colorado, New Mexico and Pennsylvania.

In some of the more unusual applications a 666 fleet realigned a five-mile stretch of the Santa Fe railroad in Arizona while in the most bizarre instance, eight 666s built a cemetery in the California hills.

The Caterpillar 666 was phased out of production in the late 1970s and it is unlikely that a scraper of this size will ever be offered again by any manufacturer.

**The New Zealand Connection**

A tentative one at best, but during the late 1960s, Auckland mega Cat fleet owner W Stevenson & Sons seriously considered adding Cat 666’s to their spread of scrapers at the Kopuku opencast coal mine in the Waikato. Regrettably this wasn’t to be.

It is also rumored that Downer & Co looked at putting 666s into their opencast coal mining operation in Huntly but the ground pressure footprint of a loaded Cat 666 made this unfeasible, the soil being too elastic to effectively support the machine.

**Brief Specifications – Caterpillar 666 (mid-production)**

Engine (tractor):          Caterpillar D346T turbocharged V8, 500hp

Engine (scraper):         Caterpillar D343T turbocharged six-cylinder, 400hp

Transmission:             Caterpillar nine-speed barrel planetary powershift with retarder

Top Speed:                 42.6 mph

Brakes:                        Expanding shoe, cam operated

Steering:                      Hydraulically boosted

Turning Circle:            46’

Tyres (steer):              18.00×25

(drive):              37.5×39

(scraper):           37.5×51

Capacity:                    40 cubic yards struck, 54 cubic yards heaped

Operation:                   Full hydraulic

Length:                        56’8”

Width:                         14’4”

Height:                                    13’10”