



The earliest member of the Goer family was this vehicle built by Clark Equipment Company. Based on their Michigan Division Model 75 log skidder. Clark's machine was powered by a Cummins six-cylinder diesel engine. (Courtesy, Patton Museum, Fort Knox, Kentucky)



The side panels of the cab portion of production vehicles were corrugated for added strength. The front winch, missing from this vehicle, was a standard Ordnance model, and was recessed into the front panel. In most applications this winch is powered via a power take-off shaft, but when installed on the Goer, it was driven by a hydraulic motor. (Courtesy, History Office, US Army Tank Automotive Command)

GOER!

David Doyle takes up the story of the intriguingly-named 8-ton 4x4 Caterpillar

The decade following WW2 was a period of unprecedented developments in tactical vehicles by the US military. Even before the close of hostilities, studies had begun towards the design of future generations of vehicles. Special consideration was given to vehicles capable of operating in extreme off-road conditions, particularly if the machine also offered a substantially increased load-carrying capacity. In 1956, as part of this quest for mobility combined with carrying capacity, the United States Armor Board began evaluating large wheeled earth-moving equipment which might be suitable for potential tactical application. The Board felt that this type of construction equipment could be used as a basis for a new series of tactical vehicles.

In 1957 testing began on a number of commercially-available vehicles, all equipped with articulated steering. As a result of these tests, development contracts were awarded to

Clark Equipment, Le Tourneau-Westinghouse, and Caterpillar for 4x4 all-terrain vehicles of various weight classes. Clark supplied a prototype in the 5-ton class whilst

Le Tourneau-Westinghouse offered three variants in the 15-ton class... cargo (XM437), tanker (XM438) and wrecker (XM554). However none of these made it into series production.

In the 8-ton class was an entry from the Caterpillar Tractor Company. With a background in the design and construction of heavy articulated vehicles, and military contracting experience dating back to the Holt tractors of the Great War, it is not surprising that the Cat' design did well and, in 1960, Caterpillar was awarded a \$5 million contract to design, develop and build eight 8-ton cargo trucks. These were delivered during 1961 and 1962 for testing. In June 1962 two 10-ton wreckers and two 2500-gallon tankers were added to the contract as well.

In May 1963, another contract was awarded to Caterpillar covering 13 cargo vehicles, eight tankers and two wreckers, all of which were



Further developments resulted in this 1965 version of the XMS20E1. It used the same engine as its predecessor, but this was now coupled to a six-speed transmission with torque converter and planetary drive. The cab was redesigned, reducing the vehicle's overall length. The self-recovery winch installation was also revamped completely. (Courtesy, Patton Museum, Fort Knox, Kentucky)



Much of the vehicle's strength was a result of careful design. Rather than massive steel members, instead stringers and ribs made of relatively-thin steel, reminiscent of aircraft and ship design, provided strength. (Courtesy, History Office, US Army Tank Automotive Command)



Originally, Caterpillar created a multi-fuel version of their D333 six-cylinder engine to satisfy the US Army's desire for multi-fuel capabilities in their tactical transport vehicles. The engine produced 192bhp from its 8603cc. Later models used the straight-diesel model D333C engine. Cargo variants of the Goer were 380in (9652mm) long, and it was just over 96in (2440mm) high. The 105 gallons (420 litres) of fuel, divided into two tanks, gave it a range of approximately 300 miles (480km). Top speed was listed as 31 mph (50km/h), though the lack of suspension and the large earth-mover tyres tended to cause control problems, encouraging most operators to keep the speed down. (Courtesy, History Office, US Army Tank Automotive Command)

Below: The Goer could be operated on side slopes of up to 30°. The rear axle of the M520 was powered through a drive-shaft, and used the same differential as did the front axle. For such a large and cumbersome-appearing vehicle, tests at Aberdeen Proving Ground showed it to be remarkably agile in mud and rugged terrain. (Courtesy, History Office, US Army Tank Automotive Command)



destined to be service test vehicles. These machines were delivered to units in Germany for extensive troop trials during 1964. At the end of the trial period, the vehicles were stored until 1966 when they were sent to Pleiku, Vietnam for further trials in support of

the 4th Infantry Division.

During the trials in Vietnam, the Goer proved itself successful, establishing a reputation for dependability and the ability to push its way through terrain where no other vehicle could go.

Due to this success, in May 1971 Caterpillar Tractor Company was at last awarded a production contract. This contract was for the purchase 812 M520 cargo vehicles, 117 M553 wreckers and 371 M559 tankers. Production began immediately, with final



Number 1300, the final Goer, leaving the Marinette Marine assembly plant where the bodies were built; Cat supplied the mechanical components to Marinette Marine. Although it was tested successfully in 1964, seven years passed before this production order was placed. (Courtesy, Jeff Rowsam)



A winterisation system, including a hardtop cab enclosure, was developed for the XM520 series vehicles. Installation of this system permitted operation of the vehicle at temperatures as low as -65°F (-36°C). The tyres used on these vehicles, huge 10-ply 18.00x33 off-road tyres, also doubled as the suspension system. (Courtesy, Patton Museum, Fort Knox, Kentucky)



When fitted with a materials-handling crane, the M520 was designated M877. Despite the three large cargo doors (one on each side and one at the rear) found on cargo Goers, this crane was invaluable to expedite unloading in combat areas, where time is critical. (Courtesy, History Office, US Army Tank Automotive Command)




Most of the Goer vehicles were equipped with a soft-top cab cover, as is this example. The universal joints and drive-shafts coupling the front and rear sections can be clearly seen in this photo. (Courtesy, History Office, US Army Tank Automotive Command)



Though the M553 retained the large drop-side panels of the M520, the same cannot be said for the tailgate. In its place was a much smaller panel, through which could be played the cable of the rear drag winch. Intended for recovering mired sister vehicles, the hydraulically-powered winch, built by Pacific Car and Foundry, had a 45,000 lb (20,454kg) capacity. It was electrically controlled through a tether. (Courtesy, History Office, US Tank Automotive Command)

deliveries being made in June 1976 although it is almost certain that Caterpillar did not build the production vehicle themselves, rather preferring to subcontract to Marinette Marine. Cat' and Marinette Marine had a relationship going back many years, based

on Cat' supplying powerplants for ships built at Marinette's yard and it seems that Cat' supplied the mechanical components, and Marinette Marine built the bodies at their shipyard. Although their use in Southeast Asia was

successful, the Goer was not long for service with the military. Awkward to use on hard-surfaced roads, as well as being oversized, the Goer was superseded by the Oshkosh heavy expanded mobility tactical truck (HEMTT) which managed to combine off-road heavy transport mobility with adequate road performance. Accordingly, the Goers were surplus, but sadly with a demilitarisation order similar to that of the M151. Critical components in the steering and driveline had to be destroyed before title was transferred. Those that do exist in private collections are rare re-assemblages of these vehicles. 



The Marinette Marine plant also produced 371 examples of the fuel tanker variant. Fully loaded, these tankers tipped the scales at 46,550 lb (21,160kg). Like all the other Goers, the M559 was 108in (2743mm) wide. The cab portions of the M520 and the M877 were identical, whereas the cab of the M559 - as well as that of the M553 - differed. The cab sections of the later two vehicles included the necessary power take-offs and controls for operating the specialised equipment housed in their rear units. (Courtesy, History Office, US Tank Automotive Command)



A full array of recovery and repair equipment was carried on the M553, including two spare tyres. Other Goer vehicles were not equipped with spare tyres as their crews did not have the means of changing them. Notice the warning beacon mounted on the tractor unit. (Courtesy, History Office, US Tank Automotive Command)



A chain hoist and davit was provided for use on either side of the M553. The various tools, towbars, lifting slings and spreaders of the wrecker filled the normally spacious cargo compartment. Whereas other members of the M520 series vehicles were designated as 8 ton 4x4 vehicles, the 37,870 lb (17,214kg) kerb weight and 46,550 lb (21,160kg) loaded weight of the M553 forced it to be classified as a 10 ton 4x4. Note the curious additions to the wheel arches. (Courtesy, History Office, US Tank Automotive Command)



Caterpillar's entry into the large Goer fray was the XM437E1, rated at 16 tons. Also powered by the 9300cc Detroit Diesel 8V-71, Cat' used a five-speed main transmission and two-speed auxiliary box to transmit the power to the ground at the front. (Courtesy, History Office, US Tank Automotive Command)

DESCRIPTION

Like much of Caterpillar's earth-moving equipment, the Goer consisted of separate front and rear units. The units were connected by an articulated joint that permitted lateral oscillation up to 20° and a steering angle up to 60°.

The forward unit had the cab, with seats for the driver on the left and the vehicle commander to his right, and the engine behind the crew area. The Goer had a moveable windshield and a typical military removable canvas top with separate side curtains.

A Caterpillar D533 (multi-fuel) or D533C (diesel) six-cylinder engine, producing 192bhp from 8603cc, was arranged to drive the vehicle via a six-speed 'power-shift' automatic transmission. A short propeller shaft connected the driveline to the front differential and out to the planetary drives in the front hubs.

The rear differential was driven through a clutch and universally-jointed drive-shafts from the front differential. The final drives in the rear wheels were also planetary. The rear-wheels were automatically driven in first and second gears, but were automatically disconnected as the transmission shifted from second to third gear. The operator could manually override this automatic disengagement of the rear wheels if need be.

Amazingly, these huge vehicles were fully amphibious using the wheels for propulsion in the water. The cargo bed, of corrugated construction, made up the bulk of the rear section of the cargo Goer. A hinged tailgate and drop-sides (or doors) allowed rapid discharge of cargo, with watertight seals to preserve the Goer's swimming ability. The large cargo area could transport six standard military pallets simultaneously, or one CONEX container and two pallets or 25 55-gallon (220 litre) drums. The standard military-type Gar Wood 10,000 lb (4545kg) capacity winch was recessed into the front panel of the cab.

Some of the cargo trucks were fitted with a crane for loading and unloading, and were designated M877. Like most US wheeled vehicles, special kits were developed for the Goer including an arctic kit, infra-red driving light kit, wheel chain kit, machine-gun kit, and a trailer brake kit.

M553 WRECKER

The general arrangement of the M553 was very similar to that of the M520. However rather than a cargo box as the second section, the M553 carried a variety of recovery equipment.

Among the recovery gear was a hydraulically-operated crane with a maximum lifting capacity of 10,000-20,000 lb (4545-9090kg), depending on the operating radius. The boom was 6 ft (1830mm) long, and extendable to 16 ft (4.88m). A hydraulic pump, driven by the engine crankshaft, operated the hydraulics, and manually-operated outriggers were used to stabilise the truck during recovery operations.

Like the cargo trucks, the M553 also had the standard 10,000 lb (4545kg) capacity front-mounted self-recovery winch.

M559 2500-GALLON FUEL TANKER

The M559 was the tanker variant of the Goer family, featuring a 2500-gallon (10,000 litre) stainless-steel tank, pump, military aircraft fuel filler, four pressure discharge outlets, three discharge hoses and a large bulk outlet. All three hoses could be discharged simultaneously and there was also a gravity discharge outlet for handling bulk fuel at storage sites.

The fuel tanker version of the large Caterpillar Goer was the XM438E2. Tipping the scales at 39,580 lb, it had a capacity of 5,000 gallons (20,000 litres) of fuel - twice that of the M559. The ability of these vehicles to conquer undulating terrain is shown here. The size of these machines can be appreciated by comparing it to the driver and observer on board. (Courtesy, History Office, US Tank Automotive Command)



Using the same concepts that brought about the M520, in 1959 a bigger version was tried. Built by Le Tourneau-Westinghouse, the XM437 was a 15 ton 4x4, powered by a Detroit Diesel 8V-71 driving through a five-speed transmission, the vehicle could achieve 35mph (57km/h) on flat smooth surfaces. (Courtesy, Rock Island Arsenal Museum)



The Army felt that the size and weight of the Goer would have been excessive for the contemporary M62 and M543 5-ton 6x6 wreckers. Hence, of the 13 preproduction vehicles tested, two were of the M553 recovery variant shown here. (Courtesy, Patton Museum, Fort Knox, Kentucky)