

Gentle Yellow Giants Prowl the Arctic

The primary mission of a CATCO is transportation. Here, the CATCO is transporting a loader to Umiat, about 150 miles from Prudhoe Bay, the base of operation on the North Slope for Crowley and its CATCOs.



Photos by Gary L. Martin

CATCOs: truly a cat for all seasons.

BY GARY L. MARTIN

CATCOs might be described as gentle yellow giants; with eight big, soft paws that love the environment, they might also be described as the ultimate all-terrain vehicles or rollagons.

Crowley Co. owns nearly two dozen of these vehicles; they are used as a total support system for drilling operations on the North Slope. CATCOs are employed to transport extremely heavy equipment, materials, water and personnel. They are also used as drilling-rig supports, and their all-terrain capability allows the vehicle to be used in the pioneering stage of constructing ice roads.

CATCOs come in two versions (RD 85 and RD 105); they are identical except that the RD 105 has a fifth set of tires installed under its cargo dock. That difference raises the vehicle's payload capability by 15,000 pounds, to 45,000 pounds.

Dubbed land barges because of their uncommonly large carrying capacities, CATCOs have been around for several

decades. Crowley Co. obtained them to fill the need for an effective transport machine that is functional in most climates and environments while remaining environmentally friendly. Over the years, there have been many upgrades and modifications to the machines that have improved their overall function and performance.

They operate on ice and snow fields, delicate tundra, sod, swamps and marshes, and on desert sands. This is particularly valuable for pipeline operations on the North Slope, where the weather and terrain can be extreme and the ecosystem fragile.

Part of the vehicle's success is attributed to its large specialized tires. They are often described as 54-by-68-inch airbags; they do not have treads and each tire is top-roller driven and can form to virtually any terrain.

Air pressure for each tire can be independently controlled, and it is possible to do that while on the move by the vehicle's single operator. The payload is distributed over a very large

ground area, at an extremely low pressure—about 4 pounds per square inch. The ground pressure is so light that Crowley has a video that shows a 26,000-pound CATCO successfully rolling over a young woman lying in the sand.

Drive rollers, over each tire, places the vehicle's weight and the weight of its load directly on top of the bag producing friction and torque. This not only increases traction, it also results in the payload riding, in essence, on a cushion of air.

Each vehicle is powered by a Caterpillar diesel engine with 280 horsepower. Steering the yellow giant is done with a hydraulically activated joint centered between the cab and cargo deck.

It would be like placing a joint between the cab and bed of a pick-up truck. While both sections remain attached by the mechanism, they still have the freedom to roll and pitch independently over difficult terrain.

If the 16-by-12.5-foot attached cargo deck is not large enough to handle a

job, there also is a self-powered trailer unit. It is 16 feet by 40 feet long. It will work with either model, weighs 22,000 pounds and has a payload capacity that tops out at about 30,000 pounds. The trailer is powered by a Caterpillar diesel engine with 220 horsepower. Like the vehicles themselves, the trailer's frame is constructed of welded aluminum.

CATCOs can be transported anywhere in the world. They are designed to be disassembled and packed in a simple packing configuration for transportation by truck or cargo aircraft.

According to Craig Tornga, general manager Crowley Alaska Inc., CATCO's value, over the years, has been demonstrated many times on the North Slope. He said, "By its ability to work in the remote roadless areas of the Arctic, CATCOs allow for exploration in environmentally sensitive areas without the concerns of weather and terrain."

The Arctic is one of the world's most difficult operating areas with extremely stringent environmental conditions and requirements. As an example, the summer thaw melts the upper layers of the permafrost producing a marshy bog, with about 80 percent water content and delicate vegetation. Besides producing difficult working conditions, care of



Ron Hansel demonstrates the 10-knobs operating system that manages the air pressure for each tire. Tire pressure can be independently controlled, and it can be done while the CATCO is moving.

the ecology is of utmost concern to the people and legislators of Alaska.

For ordinary heavy-duty construction equipment to work in such areas, it would be impossible. They would destroy the environment and possibly start a cycle of thawing and erosion. To avoid this, a gravel-fill road, several feet deep, would have to be constructed on which to operate. This is an extremely expensive and time-consuming venture that could also lead to other environmental problems.

Another option would be to do the work throughout winter, approximately November to May. Ice roads would have to be built at an estimated cost of \$100,000 a mile. It would limit the work season, which would be at the mercy of Mother Nature.

CATCO, with its low, ground-baring pressure, would have no problem operating over the soft tundra. Even with multiple passes, the yellow giant barely leaves a footprint. According to Tornga, the overall cost of a project, done with a CATCO, could end up less expensive because time or seasonal constraints would not limit the work.

"Due to some of the remote locations," he said, "the CATCO units will provide access without the construction of ice or gravel roads, which could become very expensive and time sensitive."

Another advantage of using CATCOs on the North Slope is the navigation equipment installed on each vehicle. Fog during summer months and whiteouts in the winter, slow down, if not stall, productivity. Combine the navigational gear and improved visibility of its high cab, terrain, season, ecology or weather does not limit the gentle yellow giant.

Even when drilling rigs are in place and operating, CATCOs still have a mission, according to William Kuper, Crowley's general manager at the North Slope. They have the ability to supply rig operations with necessities like water, drilling mud, casings and fuel. They also can provide vacuum services and personnel shuttle in their eight-man cabs.

"We also provide many other services," he said. "Our machines have been used to construct tundra and sea ice roads and ice islands in the water.

"Besides the oil industry, CATCOs

also have worked for governmental and military organizations, and, we have even transported fuel and supplies to remote Native villages, during the worst parts of winter when nothing else was able to get in and out."

So, when all other transportation systems are shut down because of weather, the gentle yellow giants just keep rolling along. So, maybe they should simply be called, "The cats for all seasons." □



CATCOs have eight wheels, 10 if the trailer is being used. Each wheel is independently powered by a roller, which sets on top of the tire. Traction is achieved by the weight of the cargo deck and its payload.