

APPLICATION STORY

THE NOT SO ITSY BITSY SPIDER RAN UP THE SIDE OF THE HILL

Hillside mowing can be tedious and sometimes dangerous work. Many mowers, because of their center of gravity, cannot perform well on steep inclines. In addition, many walk behind mowers require a significant amount of manual force when mowing on an incline. A new mower, called the "Spider", is being manufactured

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in Germany. It can tackle this application quite easily (inclines of up to 40° are possible), with no physical exertion. The reason being is because the mower is remote controlled. From the comfort of an air-conditioned truck cab, a worker can

control the mower, whether cutting a drainage ditch or a hillside.

The Spider is a 4-wheel drive, remote controlled mower. It is powered by 17HP gas engine turning at 3600 rpm. The cutting width of the deck is approximately 31.5 inches. The unit's speed can vary from 0 to 4.5 miles per hour (forward or reverse). The speed is controlled by a hydraulic pump driving the four separate hydraulic wheel motors, so the unit has four-wheel

(360°) drive capability. The steering of the wheels is accomplished by high torque, electric motors. The engine starting, stopping, speed, steering and clutch engagement are done via

the remote control. Another unique advantage is the cutting deck height is also controlled via the remote control.

The Ogura PTO clutch/brake was used in this application to provide a high amount of torque in a small space. The clutch/brake is fitted on the engine shaft. The engine shaft also has a pulley that drives the hydraulic pump, which powers the wheels of the mower. The clutch/brake incorporates an integral pulley. The pulley drives a belt, which drives the cutting blades. Any time the switch is thrown to engage the clutch, the battery provides 12 volts to



Ogura PTO clutch/brake

the clutch coil. This coil creates an electric magnet, which allows the clutch armature to be pulled in and contact the clutch rotor. The armature is attached to the pulley on the clutch, which drives the mower blades. If an obstacle or other obstruction is encountered, the switch can be released, disengaging the clutch. When that happens, the armature springs pull back against



Mower being controlled with remote



Spider mower on rough hillside terrain

the brake shroud in the PTO clutch/brake causing a mechanical drag, which helps to slow the blades to a stop.

This remote disengagement function is very useful if the mower is traveling across, or through, an area in which you wouldn't want to mow (water,

gravel road or new plantings).

Because the Spider operates via remote control, there are no size, age, or physical limitations in using this machine. Anyone from a child to an elderly person can control this 400 pound tank. Since the unit is controlled remotely a person that cannot walk, because of a disability or injury, could still cut their grass.

In the near future, Machine Design will be running a more detailed article about this application. In the meantime, if you would like to see on line videos of this machine in action, please visit www.spider-online.com.