

## Application Story

### ***GOOD GRASS, LEGAL IN ALL STATES***

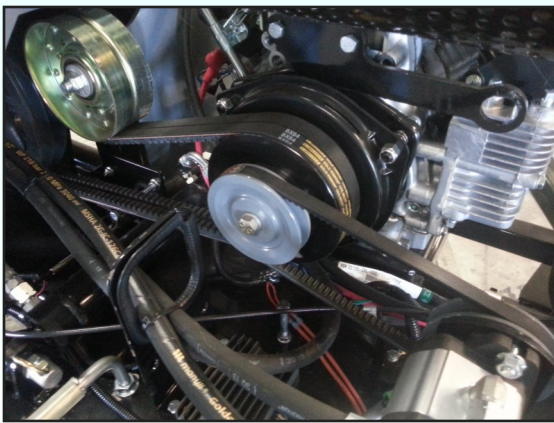
**W**hether it's on the baseball diamond, the 18<sup>th</sup> hole, the polo field or your own back yard, a green healthy lawn or turf is important in so many ways. Fertilizer and insecticides are not enough to ensure a vigorous and plush playing surface. Proper aeration and drainage are essential to allow top dressings to do their job. First Products of Tifton, Georgia produces the equipment that lays the groundwork for the green playing surfaces that you see in stadiums, on the links and for the sod that puts the finishing touch on a new home.

Since their inception in 1980, First Products has manufactured innovative, quality turf equipment for a variety of industries. From better ways to aerate and remove thatch to more efficient seeding and fertilizing, First Products solutions get the job done. At the heart of the product line is the "Universal Shaft System", which is used on a First Products' line of tow behind turf equipment. The USS is comprised of five different and unique shafts that each performs diverse functions to ensure the best turf possible. These interchangeable shafts allow the operator to aerate, core, spike, slice or seed all with the same piece of machinery. The latest in a diverse line of equipment is the Aera-Vator UA-60T.

The UA-60T is self-contained and is powered by a 21 horsepower Honda engine so no tractor is required. It can be towed by any mid-size utility vehicle and is designed to maintain school grounds, municipalities, sports complexes and landscaping needs, and is ideal for ball field and golf construction, renovation and infield grooming. The engine, via a gearbox and belts, powers the shaft which incorporates tines (some vibrating), blades or brushes which perform the aforementioned functions. During design and testing, engineers found it desirable to be able to engage or disengage the shaft. Without a clutch, as the shaft was rotating and lowered into the turf, the tines could potentially mar the surface upon contact. Initially, a centrifugal clutch was tested but these products inherently do not work at lower engine speeds.



*First Products Aera-Vator*



*Ogura clutch driving time belt*

Already familiar with their expertise in power transmission, First Products engineers contacted Ogura for assistance in selecting an electric clutch for the application. Since this equipment operates in a variety of weather conditions, reliability was of the utmost importance. After evaluating the operating parameters, the GT3.5-HU01D was selected to control the rotating shaft. The GT3.5-HU01D is mounted directly to the engine shaft and the output pulley is belted to a right angle gearbox. Also mounted beyond the clutch to the engine crankshaft is a second pulley which controls the hydraulic pump. This pulley is not connected to the clutch but rotates along with the engine shaft. Once the tines or blades of the Universal Shaft System contact the turf, 12V is applied, which engages the armature to the rotor and transfers motion to the output pulley. The belts transfer motion to the gearbox, which then rotate the aerating tines. Known for its rugged construction and quality materials, the clutch/brake allows the operator to engage or disengage the shaft at any speed from a remote switch. Ogura is proud to be a part of First Products' equipment and enhance the enjoyment of athletes, spectators, families and weekend warriors alike. For more information, visit <http://www.1stproducts.com/> ●