

## Special fast track design, close tolerances eliminated adjustment mechanism

*Gilman USA's design produced such accurate centerline locations that the requirement for an adjustment capability was eliminated.*

### Application

Three spindle cluster module for an outdoor power equipment manufacturer's engine transfer line.

### Challenge

On time delivery and tolerances for spindle centerline location within the work envelope were critical issues for this job. Another important factor was the customer's desire to use special tooling with the units.

### Solution

Gilman USA worked closely with the customer to establish and meet the necessary delivery date. In fact, Gilman was able to ship a few days earlier than the required date. This timing was noteworthy, considering the special spindle shafts necessary to accommodate the customer's desired tooling.

The issue of spindle-to-spindle centerline location tolerances was where Gilman's commitment to the best in manufacturing technology allowed a finished product that exceeded the customer's expectations. Originally, the design called for adjustments to be built into the assembly that would allow on-

site "steering" of the three spindle centerlines to keep their relative location in spec. The SIP Jig Borer allowed such accurate bore location that the requirements for "steering" adjustments were dropped from the design specifications by the customer. Of the original bore location specification of .0005",

Gilman USA's actual test results of the complete assemblies showed bore locations accurate to within .0002". The cluster spindle modules were mounted on Gilman Hardened Way slide assemblies. The slides were driven by hydraulic cylinders.



