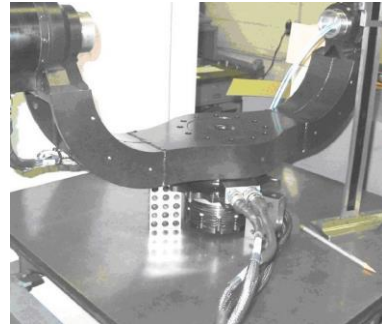




■ Features

- 2-Axis gimbal for synthetic-aperture radar application
- Designed and tested to operate in a high-performance military external store (high vibration, large temperature swing, high-humidity environment)
- Self-contained, environmentally-sealed servo electronics chassis
- Conduction cooled electronics with external forced-air cooling
- Electromagnetic fail-safe brakes on both axes
- Brushless explosion-proof torque motors
- High-accuracy resolver position feedback

- This gimbal assembly was constructed, analyzed, and tested to support a 45-pound (20 kg) antenna and on-gimbal transmit-receive electronics package which was furnished by our customer. Our goal was to provide a gimbal assembly to fit within specific space and gimbal range requirements and to endure a harsh operational environment. A simple mechanical interface was also established, both for the aircraft interface and for the antenna assembly. A 180° (+/-90°) roll gimbal angle was implemented, along with a maximum of +/-45° yaw motion. Maximum slew rate in roll was four seconds end-to-end over 180°.
- The servo electronics were a feed-forward design deriving position commands from a strapdown inertial sensor near the gimbal base to achieve pseudo-rate stabilization without the need for an on-gimbal rate gyro. An RS-422 command link was used, with proven Kratos SRE proprietary servo software. The electronics chassis has a diagnostic port connector through which servo tuning parameters may be adjusted in the event of a significant payload modification.
- The electronics were enclosed in a custom ½ ATR (tall) configuration line replaceable unit (LRU) chassis utilizing conduction-cooled electronics cards and servo amplifiers. A replaceable desiccant cartridge was installed for humidity control. The system was operationally thermally tested to 0-65,000 feet equivalent altitude of +130°F to -65°F (+54°C to -54°C).



SAR gimbal during inspection



Control electronics chassis
(in-process prior to paint)