

## RESOLVER, BRUSHLESS

This fin actuation system is used to control the fins of the MK-82 Early Accurate Weapon. The actuation system receives commands from the autopilot to provide roll, pitch, and yaw control to the weapon airframe. The actuation system consists of four rotary actuators, a squib-activated battery, and a GPS antenna. Each rotary actuator has a brushless DC motor, electromagnetic brake, planetary gear reduction, ball screw, and precision potentiometer for position feedback.

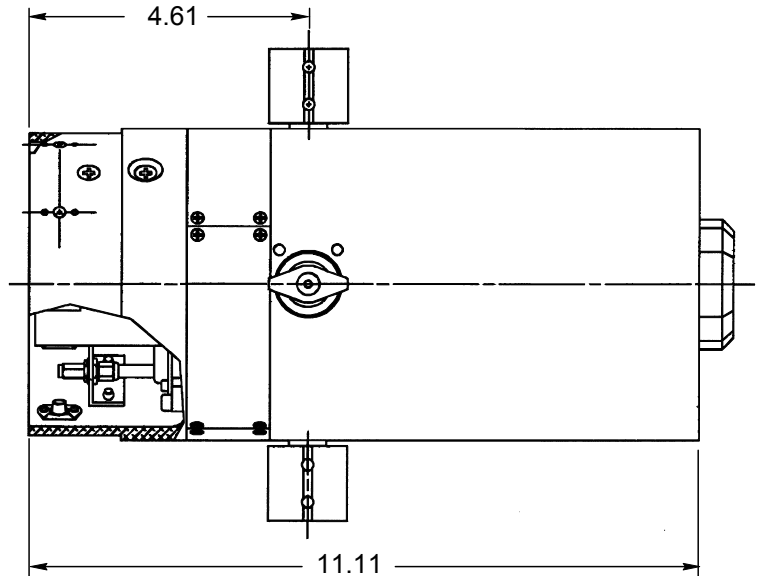
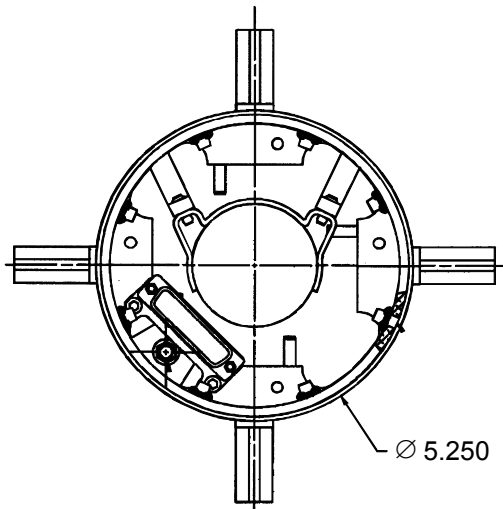
TYPICAL ACTUATOR CHARACTERISTICS			
CHARACTERISTIC	UNITS	SYMBOL	VALUE
RATIO - MOTOR TO BALLNUT	–	N	5.067:1
BALLSCREW LEAD	IN	l	0.10
CRANK ARM RADIUS	IN	–	1.0
ELECTRICAL STROKE	DEGREES	–	±20°
PEAK TORQUE (MIN)	IN-LBS	T <sub>P</sub>	300
CURRENT LIMIT	AMPS	I <sub>p</sub>	5.4
NO LOAD SPEED (MIN)	DEGREES/SEC	ω <sub>nl</sub>	160
BACKLASH	DEGREES	–	1.0
WEIGHT (MAX)	POUNDS	W <sub>T</sub>	12.0

TYPICAL MOTOR CHARACTERISTICS			
CHARACTERISTIC	UNITS	SYMBOL	VALUE
VOLTAGE	VOLTS DC	E	28
TORQUE SENSITIVITY	OZ-IN/AMP	K <sub>t</sub>	3.9
BACK EMF	VOLTS/Krpm	K <sub>e</sub>	2.8
RESISTANCE	OHMS	R	1.6
INDUCTANCE	mH	L	0.6
ROTOR INERTIA	OZ-IN-SEC <sup>2</sup>	J	1.8X10 <sup>-4</sup>

TYPICAL BRAKE CHARACTERISTICS			
CHARACTERISTIC	UNITS	SYMBOL	VALUE
VOLTAGE	VOLTS DC	E	28
RATED STATIC TORQUE	IN-LBS	–	1.0
CURRENT	AMPS	–	0.13

TYPICAL THERMAL BATTERY CHARACTERISTICS			
CHARACTERISTIC	UNITS	SYMBOL	VALUE
MAX ACTIVATION CURRENT (PINS 13 TO 24)	AMPS	–	4.5
NOMINAL VOLTAGE OUTPUT - SECTION 1	VOLTS DC	–	±28
NOMINAL VOLTAGE OUTPUT - SECTION 2	VOLTS DC	–	±18

CAUTION: PYROTECHNIC DEVICES ARE HAZARDOUS AND MUST BE HANDLED IAW PUBLISHED SAFETY INSTRUCTION.



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