

MODEL 706

VERTICAL DISPLACEMENT GYROSCOPE

The 706 Vertical Gyro is available with an optional mounting baseplate. The Model 706 is an internally isolated two-degree of freedom displacement gyroscope. Designed for use in fixed and rotary wing aircraft, it provides an accurate vertical reference for both pitch and roll attitude indication.

The gyro consists of an electrically driven rotor, mounted in a gimbal arrangement that provides measurements of angular displacement about two mutually perpendicular axes, pitch and roll.

Simultaneously sensing both the pitch and roll attitudes, the gyro transmits the attitude information in a synchro format for input to an attitude indicator and/or an autopilot. The gyro's spin motor was designed for optimum run-up, quickly reaching its operating speed of approximately 23,000 RPM.

The gyro is installed in a base assembly supported between two vibration isolators. Designed with entirely new electronics, the 706 incorporates an internal bank angle erection cutout circuit. The dynamic brake stops the spin motor within 70 to 90 seconds after the input excitation to the gyro has been removed.

The erection cutout circuits automatically remove the roll torquer when the aircraft's bank angle passes beyond +/- 7 degrees of vertical and reactivates when the aircraft returns to within +/- 3 degrees. This feature eliminates the necessity for an external rate switching gyro.

The gyro consists of electronic controls and a frame assembly that contains the outer and the inner gimbal assemblies. The gimbal assemblies include the spin motor assembly, the synchro and torquer winding assemblies, gravity-sensing electrolytic switches and slip ring and brush assemblies that provide the pitch and roll attitude sensing. All of these assemblies are enclosed inside a case which mates to the base assembly. The complete unit is hermetically sealed against the elements.



REFERENCE

FLIGHTLINE PART NUMBER
46060-10, 46060-11

FAA CERTIFIED
TSO 4c

NATIONAL STOCK NUMBER (NSN)
6615-01-259-0673

FSCM
50027

DOCUMENT CONTROL NUMBER
AP-G-T06-DW_B

MODEL 706



PERFORMANCE CHARACTERISTICS

Nominal Input Excitation:	115 volts, 400 hertz, single phase
Dynamic Brake Excitation	26 + 2 V DC, Optional Feature
Initial Erection:	1.0 deg. of vertical, within 1 minute
Final Erection:	0.5 deg. of vertical within 2 minutes (1.5 deg. To 2.5 deg./Min.)
Drift:	2.0 deg / 5 min.
Erection Rates Normal: Fast:	Between 1.5 deg. and 2.5 deg. per minute Greater than 45 deg. per minute
Power Consumption Start: Normal: Fast:	Less than 350 mA Less than 150 mA Less than 250 mA
Synchro Output Voltages Null: Per Degree:	Less than 30 mV AC 200 mV AC
Reliability:	2000 hours (MTBF)
Operating Temperature:	Between -54 to +71 deg. C
Weight:	5.7 lb max.
Connector:	24 pin male, mates with MS3106A or equivalent
Elapsed Time Indicator:	0000 to 9999 hours

GYROSCOPE CONNECTOR PIN FUNCTIONS

PIN	FUNCTION
a	Ground
K	Ground
J	Manual Fast Erection
G	115V 1Ø 400 Hz
H	115V Neutral
c	Power
U	Failure Flag
j	Autopilot
h	Interlock
b	Wheel Speed Failure Flag
T	Roll Erection Cutout Bypass
X	Pitch Precess (Climb)
Z	Roll Erection Common
Y	Pitch Erection Common
N	+28 VDC After Start Cycle
B	Y
A	X Pitch Synchro Output
C	Z
F	Y
E	X Roll Synchro Output
D	Z
P	200 MV/Deg
f	50 MV/Deg Pitch Radar Output
g	Common
L	200 MV/Deg
d	50 MV/Deg Roll Radar Output
e	Common

REFERENCE DRAWINGS

