



CASTLEBERRY
Instruments & Avionics

MODEL 200-11EL DIRECTIONAL GYRO OPERATOR GUIDE



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General Information

This heading indicator also called directional indicator is a precision gyroscopic instrument that provides the pilot with a visual reference of the aircraft heading gyroscopically stabilized for short term accuracy.

The heading gyro is not magnetically stabilized or slaved therefore it is called a free gyro and may drift over time requiring periodic synchronization to the magnetic compass indication or other known heading reference. All free directional gyros have a drift rate based on its latitude position of the earth. The standard drift in degrees per hour can be calculated by multiplying 15 times the sin of the mean operating latitude. Drift is in a positive direction in the northern hemisphere and negative in the southern hemisphere. A directional gyro can be calibrated with an offset drift to provide less operational drift if it is known to always be used in proximity to a generally same latitude region.

This gyro is electrically operated to provide power for the rotor. The spinning mass rotor provides both the gyroscopic effect and turns impellers to create air flow to provide the leveling torque to keep gyro parallel to the earth.

Gyro Flag

The Gyro Flag is a monitor to determine integrity of gyro. It is controlled by internal circuitry that will cause the Flag to come into view if input power or gyro RPM becomes too low. Since it is affected by gyro RPM, the Flag does not go out of view immediately when power is applied. Typically it takes 1 to 3 minutes for the Flag to go out of view and up to 5 minutes if operating with low voltage.

Pre-flight Procedures

During pre-flight procedures the attitude gyro must be provided adequate electrical power with vibration to simulate normal environmental conditions. This is usually achieved by having engines running.

After observing the Gyro Flag go out of view, initial erection and alignment of the heading is accomplished by pushing and turning the "PUSH" knob until the heading display of the directional gyro agrees with the current magnetic compass indication or other known heading reference.

In-flight Procedures

Repeat the setting of the heading display of the gyro to agree with magnetic compass indication or other known reference as needed or desired for reference to correct heading.

Continued Airworthiness

There are no life limited parts that require periodic service or inspection. The gyro should be pulled for service if it fails to perform normal operation with nominal power applied. This gyro performs best if it is operated on a periodic or regular basis. If gyro has been setting for more than three months without use it should be run for a minimum of 30 minutes to redistribute the motor lubricants to achieve best performance.



Figure 1

Face views of various versions of 200-11EL Directional Gyro

