Service Newsletter

October 27, 2003

TITLE
MAINTENANCE PRACTICES – HANDLING OF AIRPLANE GYRO INSTRUMENTS

TO
Cessna Distributors, Service Stations and Cessna Pilot Centers

MODELS AFFECTED
All propeller model airplanes

DISCUSSION

NOTE: This Service Newsletter supersedes Service Newsletter SNL99-14 dated November 15, 1999.

Flight instruments, particularly gyros, must be handled with extreme care and packaged carefully to ensure the gyro is not damaged during removal, shipment and/or installation.

It is recommended that extreme caution be used when storing, handling, transporting, removing or installing any gyro. The following precautions should be taken when handling a gyro.

1. A gyro may be damaged by moving it after electrical power, vacuum or air pressure is removed but before the gyro rotor stops. The gyro rotor will not come to a complete stop for approximately 15 minutes after electrical power, vacuum or air pressure is removed.

2. Do not remove gyro from the panel until it has stopped rotating.

3. Handle gyros with utmost care; "Handle Like Eggs", rough handling of the gyro will cause damage.

4. Do not strike or bump the gyro or move it quickly. As an example, lifting one end of a rate gyro 3/4 inch and dropping it on a bench is equivalent to about 20g shock to the gyro.

5. When transporting gyros, even on a cart, leave the gyro in the shipping container.

Refer to the attached Honeywell Service Memo No. 377: Transportation and Handling of the KI 256 Flight Command Indicator and the KG 258 Horizon Gyro for additional detailed handling recommendations.
All gyro's returned to Cessna Warranty Administration for credit must be in compliance with the following:

1. All ports and vents must be sealed and plugged.
2. All original manufacturing seals must be intact and unbroken.
3. All gyro's are to be carefully packaged and returned to Cessna in the same type container in which the replacement gyro was received.
4. All electrical pin connectors are to be protected by tape or other means to ensure they are not bent or broken.

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SERVICE MEMO NO: 377

SUBJECT: Transportation and Handling of the KI 256 Flight Command Indicator and the KG 258 Horizon Gyro

Since the introduction of the KI 256 and the KG 258, the need for delicate handling of these instruments has been constantly evident. The history of the repair of these units indicates that they suffer frequent damage due to improper handling, packing, and shipping. Therefore, we must insist that any units returned for any reason be properly packed and shipped in the original shipping containers. Units returned in any other containers will be considered not under warranty, will not be eligible for core exchange credit, and charges will be assessed for repair.

The gyro is a delicate instrument containing supports and precision bearings that rotate at high speeds. A sharp blow to a spinning gyro will induce oscillations, both vertically and horizontally. The slower the speed of the gyro when the blow occurs, the more severe the oscillations. A gyro at rest can be damaged by a sharp blow, which will cause similar problems. Also, damage to a gyro causes friction that interferes with normal gyroscopic precession.

The following practices must be observed in order to reduce and/or eliminate damage to the instruments:

1. Store the unit in its original shipping container until it is installed in an aircraft.
2. Keep the unit in its original shipping container for all transportation, including to and from the aircraft.
3. When the unit must be moved without a shipping container (for example, in the repair shop on a cart) place it on a shock-absorbing pad.
4. The gyro should never be subjected to more than 10 G's when it is outside of the original package or 25 G's while inside of the original package.
5. Never strike a gyro or move it rapidly. This is particularly harmful when it is running up or running down.
6. Any vacuum or air pressure applied to a gyro must be from a clean and filtered source at a pressure not exceeding 4.75 +/- .25 in. Hg. Follow aircraft manufacturers' recommendations for air system filter replacement to ensure that the gyros have the cleanest air possible. If the aircraft's vacuum or air pump fails, check the filter and the lines connected to the gyro for contamination.

7. When power, vacuum, or air pressure is removed from a gyro, allow a minimum of 15 minutes for the unit to completely run down before it or the aircraft is moved.

8. At engine start-up, or whenever power, vacuum, or air pressure is applied to a gyro, allow a minimum of 3 minutes for the unit to reach operating speed before it or the aircraft is moved.

Follow these practices at all times. Whether transporting a unit to stock, to the repair shop, or to the aircraft, or handling the unit in the stockroom, the shop, or the aircraft, these transportation and handling procedures must be adhered to consistently.

Observing these procedures will not only increase gyro life and accuracy, they will also decrease instrument and gyro damage due to negligence, and consequently decrease both the failure rate and the repair costs.