CASTLEBERRY

INSTRUMENTS & AVIONICS

13405 Immanuel Rd.
Pflugerville, TX 78660

SERVICE ADVISORY

SA-1005
March/14
Revision: 3

Subject: Gyro Handling, Storage and Packaging

Purpose: To provide service facilities and aircraft operators information concerning Gyro Handling, Storage and Packaging.

Publication Number(s) Affected: All Vacuum Gyro Component Maintenance Manuals

This Service Advisory supercedes AIM Service Advisory SA-87, July 1, 1989.

INTRODUCTION:

The most delicate instruments in your airplane are gyros (see Figure 1). Carelessly setting a gyro indicator on an unprotected (soft) surface or transporting it without proper insulation from shock may cost you hundreds of dollars or more in repairs. Gyros are designed to withstand shocks of up to 15g, (depending upon design and application). They probably will not experience such a force in normal aircraft operation, lifting one end of a rate gyro or self-contained attitude indicator 3/4 in and dropping it on a hard surface is equivalent to approximately 20g to a gyro/indicator. Some directional and vertical gyros incorporate vibration isolators to increase their resistance to shock damage, however, lifting one end of a gyro with this design feature 2 1/2 inches and dropping it on a bench or other hard surface will produce enough shock to cause damage to the gyro.

SHOP PRACTICES:

Typically, the service center is not the place to look for gyro handling problems because technicians servicing gyros routinely see the effect of improper and rough handling. Some of the potential problem areas are:

A. Transporting of gyros between work center areas.
B. Improper handling of gyros during installation in an aircraft.
C. Transportation of gyros during packaging storage and shipping.
D. Improperly storing of gyro.

If you are experiencing high gyro repair costs, one or more of the causes listed above may be the reason. Failure to recognize the fragility of a gyro and failure to observe good, careful handling, storage and packaging techniques can become extremely expensive.

CASTLEBERRY

INSTRUMENTS & AVIONICS

13405 Immanuel Rd.
Pflugerville, TX 78660

SERVICE ADVISORY

SA-1005
March/14
Revision: 3

HANDLING GUIDELINES:

Observing the following guidelines in regards to handling gyros may help to reduce and control gyro maintenance costs. Applicable warranty, if any, may be void if the gyro/indicator is improperly handled.

A. Do not drop, kick, toss, bump, or rapidly tumble a container housing a gyro.

B. When installing a gyro, place the shipping container as near as possible to the point of installation. Remove the old gyro and gently place it next to the shipping container. Remove the new gyro from the shipping container and install it in the aircraft. Place the old gyro in the shipping container.

C. Transport gyros (even those in shipping containers) on foam padded carts or by other protective methods with large rubber wheels, not small casters.

D. Be extremely careful when setting gyros on fixtures, work benches, etc., or during handling, storing or packaging. Remember, dropping one end of a gyro 3/4 inch is equivalent to a 20g impact.

E. Do not move a gyro if the rotor is running. Allow a 20 minute run down after power source has been removed from the gyro/indicator. The instrument may be damaged if the gyro hits the internal stops.

F. Leave the gyro in the shipping container when transporting it between shops or to the airplane for installation.

STORAGE GUIDELINES:

To assist in reducing the maintenance costs associated with Gyro/Indicators, it is imperative that the original or equivalent shipping container be kept for future transporting purposes (see Figures 2 & 3). Applicable warranty, if any, may be void if the gyro/indicator is improperly stored.

A. Keep gyros in the original shipping container when instrument is stored and not in use.

B. When not installed in an airplane, store in their original shipping containers.

C. After installation of gyro/indicator, keep the original or equivalent shipping container for future transporting purposes.

CASTLEBERRY
INSTRUMENTS & AVIONICS
13405 Immanuel Rd.
Pflugerville, TX 78660

SERVICE ADVISORY

SA-1005
March/14
Revision: 3

SHIPPING GUIDELINES

Keep original shipping containers the gyro instruments are received in for future reshipment (see Figures 2 & 3). Proper packaging not only protects the gyro/indicator in general; it also reduces the opportunity of premature bearing failure. Applicable warranty, if any, may be void if the gyro/indicator is improperly shipped/transported.

Shipping containers as shown were typical at the time this document was created and may vary over time.

Ronald Lipson

Engineering Representative

CASTLEBERRY

INSTRUMENTS & AVIONICS

13405 Immanuel Rd.
Pflugerville, TX 78660

FIGURE 1

TYPICAL TYPES OF GYRO/INDICATORS

CASTLEBERRY

INSTRUMENTS & AVIONICS

13405 Immanuel Rd.
Pflugerville, TX 78660

Reinforced corrugated container

Gyro is inserted in foam protected reusable inner box.

Foam and cardboard insert.

Foam and cardboard insert.

TYPICAL SINGLE GYRO/INDICATOR SHIPPING CONTAINER

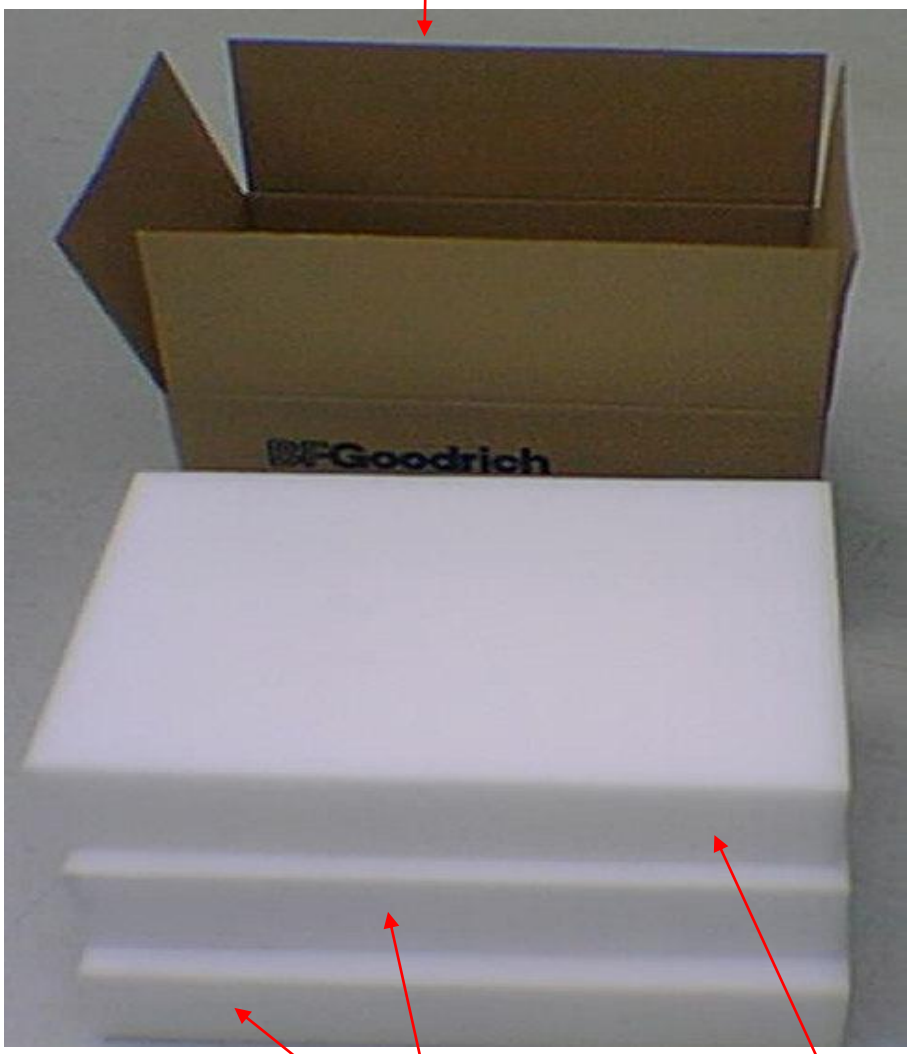
FIGURE 2

CASTLEBERRY

INSTRUMENTS & AVIONICS

13405 Immanuel Rd.
Pflugerville, TX 78660

Reinforced corrugated container



3 tier foam inserts (bottom, center with two cutouts for gyro and top

TYPICAL DUAL GYRO/INDICATOR SHIPPING CONTAINER
FIGURE 3