



# SERVICE LETTER

DATE: 1 FEBRUARY 1983  
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## HANDLING AND SHIPPING GYROS

TO: All owners and operators of Hughes Helicopters

MODELS AFFECTED:

All 500 Model 369HE, 369HM and 369HS Series Helicopters equipped with Rate Gyros, Vertical Gyros, Directional Gyros or Attitude Gyros.

Gyros, whether rate gyros, vertical gyros, directional gyros or attitude gyros, are the most delicate instruments in your helicopter. The gimbal bearings in gyros are designed to operate with very little friction, and as a result are very fragile. The bearings are easily damaged if the gyro is mishandled, and repairs are very expensive.

Guidelines for the proper handling and shipping of gyros are attached to this letter. If followed, they will help you eliminate gyro bearing damage caused by mishandling and the expensive repairs that result from such damage.

A handwritten signature in cursive script that reads 'Edward Koch'.

Edward Koch, Manager,  
Customer Service Department  
Hughes Helicopters, Inc.  
Product Support Department

## GYRO HANDLING AND SHIPPING GUIDELINES

**CAUTION:** Handle a gyro as if it were an egg. The gyro transmitter operates in a gimbal, which allows it to swing in any direction. Some gyros are caged, which means a locking device is installed to prevent the gyro transmitter from swinging during ground handling or shipment. If caging is provided, ensure the gyro is caged before and during all ground handling of the gyro, or a helicopter with the gyro installed.

## SHIPPING AND TRANSPORTING GYROS

- (1). Always transport or ship a gyro in its original container, with the dunnage used by the manufacturer. If the original container and dunnage is not available, use substitutes approved by or supplied by the gyro manufacturer. Extensive damage to gyro bearings frequently occur when a gyro is shipped or transported improperly packed. Shipping in other than approved containers can void the manufacturers warranty.
- (2). Outer shipping containers for gyros are clearly marked **THIS SIDE UP**. Placing a container with a gyro inside in any position other than the position indicated on the container can cause the gyro to be damaged.
- (3). Do not remove the gyro from its shipping container until it is beside the helicopter for installation, or the work bench for testing. When it is necessary to see the gyro at any other time, open the top of the container and remove the dunnage. Before moving the gyro, replace the dunnage and reseal the container.
- (4). When moving the gyro locally, use a foam padded cart with large rubber wheels, not small casters. If a truck is used, the truck must have pneumatic tires, and the container must be positioned where it will not be bounced or jarred during movement of the truck.
- (5). Do not drop, kick, toss, bump or tumble a container housing a gyro.
- (6). When it is necessary to ship a gyro, use air shipment.
- (7). Retain all gyro shipping containers and dunnage for reuse.

## GYRO HANDLING

- (1). When installing a gyro, place the container housing the gyro as near as possible to the point of installation. If applicable, remove the gyro to be replaced and gently place it next to the shipping container. Remove the new gyro from the shipping container and install it in the helicopter. If applicable, properly pack the removed gyro in the shipping container for transport to the shop, etc.

## GYRO HANDLING (CONT)

- (2). Where practical, do not ground handle a helicopter in which an installed gyro has been energized, for 20 minutes after power has been removed from the gyro.
- (3). Do not move a gyro if the gyro rotor is running. Allow a 20 minute run down after power is removed.
- (4). Do not rotate or tumble the gyro during handling.
- (5). When removing or installing a gyro, remember, it is to be treated like an egg. Do not bump it, drop it, strike it, tumble it or jolt it.
- (6). Be extremely careful when setting a gyro on a fixture, bench, table or any surface. Dropping one end of a gyro 3/4-inch is equivalent to a 20g impact for the gyro. A 2-1/2 inch drop can ruin the gimbal bearings.