

Document Title		Capstan and Roller Shelf Life and Service Life				
Document #	Rev	Type	Reason	Recommendation	Original Release Date	
ZSB-020	Original	Service Bulletin	Product Age Limitation	Mandatory	2016/09/29	

## Capstan and Roller Shelf Life and Service Life



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Serving Helicopter Rescue Hoist Users Worldwide

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**Purpose:** To advise the users of the Zephyr RHGSE of the life requirement for the capstans and rollers.

**Applicability:** All models of the Zephyr Rescue Hoist Ground Support Equipment

### **Shelf Life**

Zephyr has been advised that the shelf life of the material used to coat the capstans, the exit roller, and the encoder roller in the MagSens head is limited to 5 years from the date of manufacture when stored in the following conditions:

Temperature: 68 Deg. F to 77 Deg. F (20 Deg. C to 25 Deg. C)

Humidity: <80% RH

UV Exposure: UV exposure should be eliminated with opaque packaging non plastic material, such as paper based packaging material.

### **Service life**

The service life of the rollers will vary considerably depending on level of usage and the environment the equipment is stored in. The service life of the capstans is affected by the factors of slippage and surface finish.

Slippage is a function of a mismatch between the speed of the cable and the speed of the capstans. It can be affected by an improperly adjusted Rotatub, and or repeated operations at high load. It can be seen by the hook end of the cable coming out of the Rotatub before the counter reaches zero or the cable climbing up the Spooler walls instead of falling smoothly to the bottom of the Rotatub. At loads up to 400 lbs. slippage is not noticeable but as the capstan wears the slippage is increased thus increasing the wear rate.

Insuring the Rotatub is properly adjusted as per Service Bulletin ZSB-007 and insuring the capstans are not worn below the minimum diameters called out in Service Bulletin ZSB-008, will result in a maximum service life of 5 years.

The manufacturing date of the RHGSE is indicated on the unit's serial number, the last 2 digits of the number indicate the year of manufacture.

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**Results of operating with old capstans:**

As the capstan material ages it becomes harder, as it gets harder the coefficient of friction of the capstan material and the steel cable is reduced. As the friction is reduced the slippage increases. The increased slippage results in an increased wear rate, and it imposes increased twist into the cable. The result of operating at heavy loads with old worn capstans repeatedly is that the cable can be twisted and damaged.

**Corrective action**

If twisting is noticed, immediately reduce the load of the RHGSE and carefully retract the cable onto the hoist. The hoist should then be flown and the entire length of the cable extended and then retracted with a moderate load of 200 lbs. to allow the induced twist from the worn out capstans to be relieved from the cable.

**Capstan Date of Manufacture and Serialization**

All capstans since 09/11/15 have been serialized and the Date of Manufacture will be indicated by a label as of 09/29/16. Upon the expiration of the service life or replacement on an “on condition basis”, the Hubs of the Capstans can be turned in for a core charge discount on the replacement capstans.

**Replacement of the Capstans in Sets**

The capstans must be replaced as a set. The upper capstan and the lower capstan are not to be interchanged. Using an old capstan with a new capstan will result in slippage between the capstans and will induce excessive twist into the cable.

**Price / Availability:** Contact Zephyr International for information.