



TECHNICAL NOTE

Checking of the J-RO prerotator, and mounting of a recall sandow on the braking system of the belts

COMPULSARY

Employed symbolic:

This notes uses three levels of warnings: DANGER, CAUTION and NOTE, associating three colours red, yellow and grey. The meanings are as follows:

DANGER

Identifies an important instruction that, if not followed, can cause damages and accidents whose consequences can lead to serious physical injuries or even death.

CAUTION

Identifies an important instruction that, if not followed, can cause serious accidents or even physical injuries.

IMPORTANT NOTE

Underlines an instruction that, if not followed, can cause damages to the engine or the gyroplane, and can also lead to the suspension of warranty.

REMARK

Identifies practical information for a better use of the product.

During a revision of the document (for example Rev1), a vertical line in the left margin of the document shows a change in the text or in the illustration.

To ensure satisfactory results, the operator has to scrupulously respect the procedures written in this document, applying widely used methods and good common mechanical sense, all the time in the respect of its national regulations. All nylstop nuts unscrewed during the operations must be replaced with new ones.

DTA sas shall not be liable for the quality of the work done during the operations required by the present document.

1 - Information

- **Date** : March 16th 2016
- **Impacted aircrafts** : J-RO 912S & 914
- **Application** : immediately
- **Motivation**: Prevent any risk of deterioration of the prerotation system.
- **Object** :
 - 1° Bendix lubrication
 - 2° Checking of the tension of the recall sandow for the pneumatic prerotator cylinder,
 - 3° Checking the proper operation of the three-ways valve controlling the compressed air
 - 4° Mounting of a recall sandow between the tension roller arm and the belts brakes pads..
- **Risks** :

For the complete description of the prerotator mechanism, please refer to the document « How to replace the belts ».

Reminder :

The « Maintenance schedule » Section 7.4.7 for the 100 hours maintenance, specify the following operations :

Operation 132 : Check the tension of the belts

Operation 135 : lubricate the Bendix

Operation 138 : inspect the recall sandow for the cylinder

The instruction document for replacing the belts indicates:

 - 1° A minimum length of the piston rod visible when the system is not in action
 - 2° A check of the tension rod
 - 3° A check of the proper operation of the braking system of the belts

If these operations are not carried out properly, the following risks can happen when the pilot stops the prerotation :

 - 1° The Bendix can seize up on its shaft, and remain engaged, resulting in driving the flexible shaft. In this case, the Bendix free wheel will not be employed.
 - 2° The driven pulley will turn and will drive the belts despite the braking system, especially if the tension of the recall sandow is weak. This way, slipping between the grooves of the driven pulley and the pads of the brake system, the belts will degrade, due to friction and the temperature rise. At the end, all that remains will be a Kevlar braid cluster, rolled around the propeller hub.

This already happened on at least one J-RO.

- **Labour : (time needed : 2 H)**
 - ⇒ France : Maintenance can be done by the owner/pilot himself, if he has the technical capacities and knowledge, as well as the tooling and supplies required.
 - ⇒ Other countries : Please approach the local aviation authorities to conform to your specific regulations. Generally, maintenance is done by a certified mechanic.

- **DTA SAS reference documents:**
 - ⇒ How to replace the belts Edition 10-2015 Revision 2 - 03-2016
 - ⇒ Illustrated Parts Catalog J-RO Edition n°2 – Décembre 2015
 - ⇒ Maintenance Schedule J-RO Edition 02-2015

2 - Supplies

- **Cost, availability, information:**
 - ⇒ A Ø4 sandow length and safety wire Ø0.6 can be sent by DTA SAS upon request
 - ⇒ Costs for no specific nuts and washers, costs linked to the immobilization of the machine and eventual loss of time and income, costs linked to telephone calls and delivery of parts, are not covered by this note and will neither be taken into account nor reimbursed by DTA..

- **Tooling :**
 - ⇒ Safety wire twister
 - ⇒ Cutting pliers
 - ⇒ ruler

- **Lubricants/threadlocker/diverse :**
 - ⇒ High performance synthetic spray grease
 - ⇒ Nylstop nut M8 (Qty 3)

3 – Realization procedure

- **Safety procedures:** The gyroplane will be immobilized, engine OFF, general switch OFF.

- **Preparation :**
 - ⇒ Take out the engine covers
 - ⇒ Remove the belts according to the document « How to replace the belts »
 - ⇒ Take out the recall system for the tension roller arm (Illustrated Part Catalog DG-16 page 1 & 2) and remove the Thermal Protecting sheath of the sandows.

➤ **Operations :**

- 1° Check the length of the recall system for the tension roller arm.
 - ⇒ Perform the photo 1 operation
 - ⇒ Total length must be between 145 and 155mm
 - ⇒ If the length is more important, adjust the tension by moving the sandow assembly knot.
 - ⇒ Put back in place the thermal protection sheath (DG771-5)
- 2° Add to the belt brake bracket a recall sandow
 - ⇒ Position the sandow as shown of Photo (2), turning twice around the tension roller arm, then pull moderately
 - ⇒ Tie a first half knot, strongly pulling on both ends
 - ⇒ Double this knot, tightening strongly (Photo 2)
 - ⇒ Secure with safety wire (Photos 3 & 4) each of the knot ends to the part of the sandow going round the tension roller arm, approx. 5mm from the knot.
 - ⇒ Cut each end approx. 10mm away from the knot, and burn slightly the ends.
- 3° If necessary, lubricate the Bendix shaft
 - ⇒ Perform the lubrication according to photos 9 & 10
- 4° Put back together :
 - ⇒ The recall system for the tension roller arm
 - ⇒ The belts (photo 5)

➤ **Finishing and controls :**

- 1° Check that the bracket for the belt brake pads lifts up correctly in pulling by hand on the tension roller arm as indicated on Photo 6, and releasing abruptly.
- 2° Perform the following:
 - ⇒ Check that the belts are braked properly by strongly pulling them down (Photo 7)
 - ⇒ Check the tension of the belts according to the document « How to replace the belts » (photo 8)
- 3° Engine stopped, operate the prerotator in order to check:
 - ⇒ The speed at which the tension roller arm extends completely (5 to 8 seconds for the belts to be completely in tension)
 - ⇒ The tensioning of the belts
- 4° Release the prerotatot button in order to check:
 - ⇒ That the compressor stops
 - ⇒ The « pschitt » sound indicating the air pressure is released (three-ways valve)
 - ⇒ The recall of the tension roller arm
 - ⇒ That the belts are correctly braked, by pulling strongly downwards (photo 7)

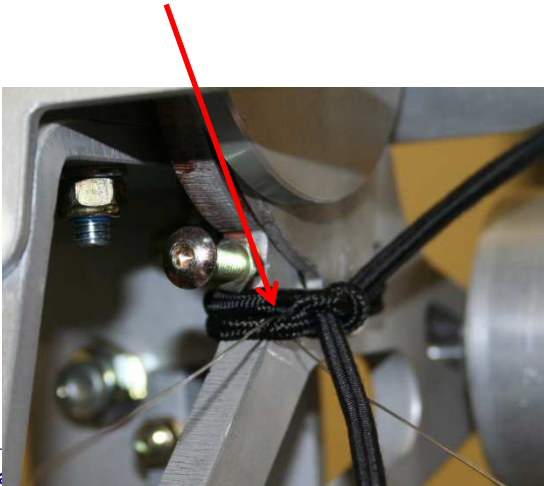
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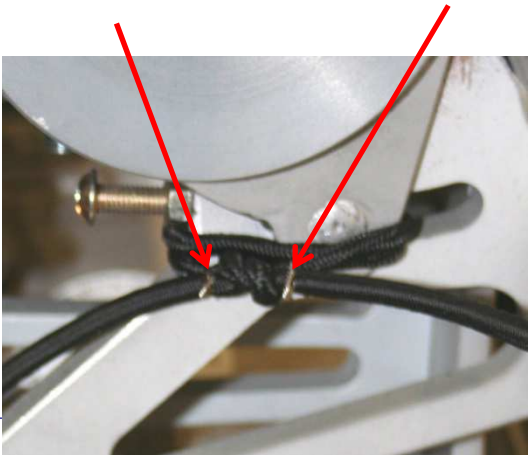
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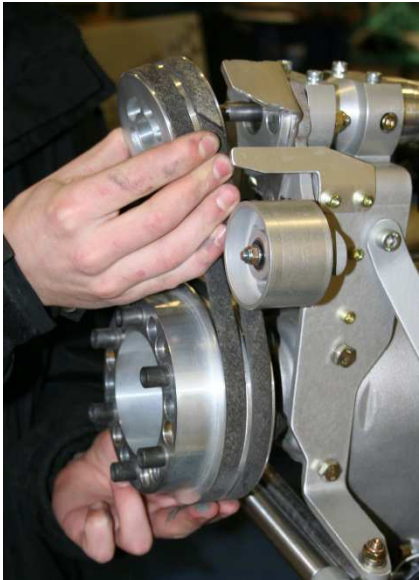
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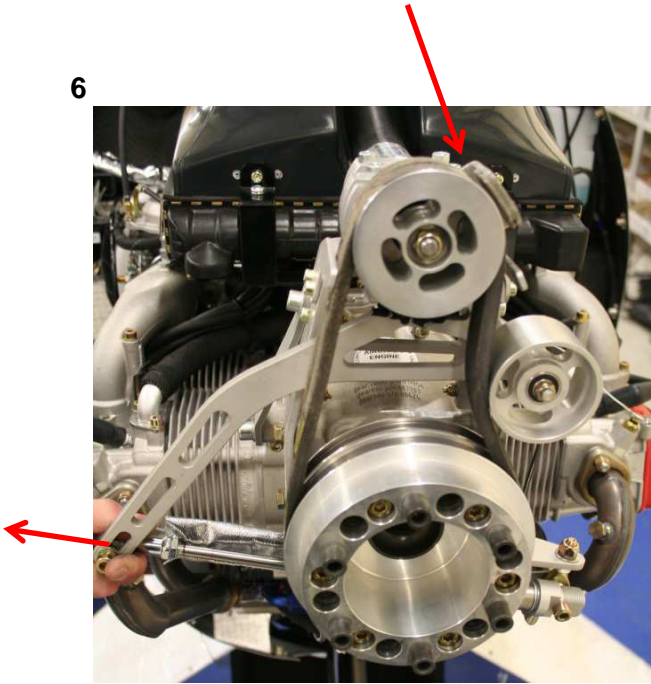
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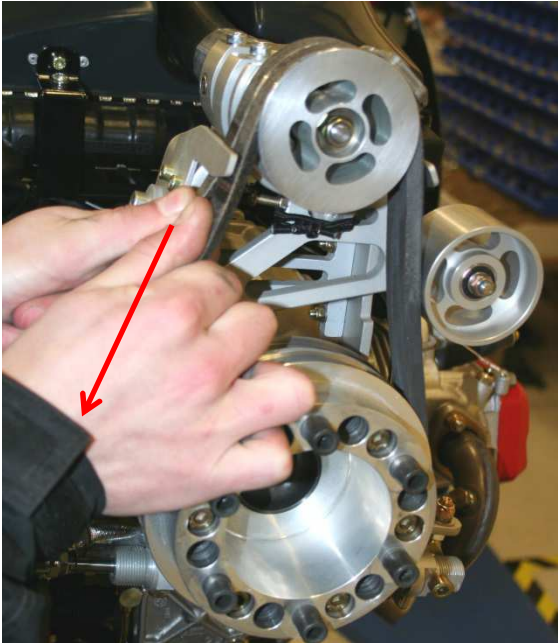
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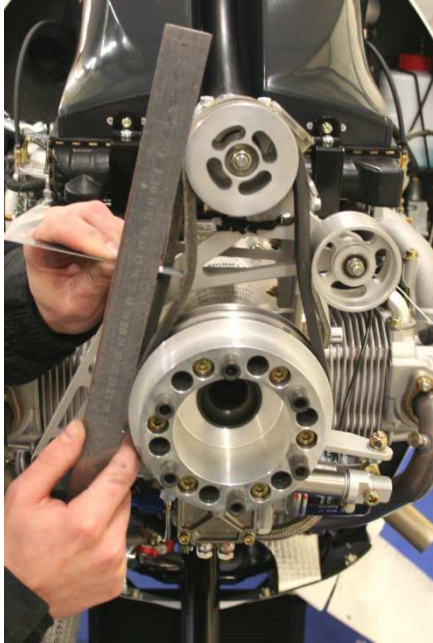
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