



# **OPERATOR'S, INSTALLATION AND MAINTENANCE MANUAL**

## **V 510 PROPELLER**

**P/N 068-8912.7**

**Edition July 30, 1988**

**Civil Aviation Authority CZ approved**

**Revision: March 2001**

**Manufacturer:**

**AVIA Propeller, Ltd.  
P. O. Box: 22, 250 02 Stará Boleslav  
CZECH REPUBLIC**



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## MAINTENANCE MANUAL

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# V 510

## MAINTENANCE MANUAL

### AIRWORTHINESS LIMITATIONS

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#### 1. General

A. This Airworthiness Limitations section is FAA approved and specifies maintenance required under Parts 43.16 and 91.403 of the Federation Aviation Regulations unless an alternative program has been FAA approved.

#### 2. Life-Limited Components

A. The components listed in Table 1 are life-limited. Upon reaching the number of flight hours listed in the table, the components must be removed from service. The flight hours listed represent total time and cannot be extended through the use of any inspections defined in this manual or the overhaul manual.

TABLE 1  
LIFE-LIMITED PROPELLER SYSTEM COMPONENTS

Component	Part Number	Validity by S/N	Service Life [Flight Hours]
Propeller	V 510	All S/N	9000
Propeller Speed Limiter	065-2600	to S/N 941 000 up S/N 941 001	6000 9000
Brush Block Assembly	LUN 7850		6,000
Propeller Speed Governor	LUN 7816	to S/N 941 000 up S/N 941 001	6000 9000
Electro-Hydraulic Actuator	LUN 7880.01		12,000
Auxiliary Pump	LUN 7840		20,000
Pressure Switch	0,8S LUN 1492-04		20,000
Timing Relay	LUN 2601		6,000
Deicer Timer	LUN 3193.1		10,000
Spinner	068-4000		9000



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- B. The life limited components include the complete propeller assembly, components, subcomponents and accessories listed in Table 1.
- C. It is the responsibility of the operator to monitor total flight hours for each component listed in Table 1 and to make sure that no component remains in service beyond its life limit.

### 3. Mandatory Overhaul

- A. The components listed in Table 2 require overhaul to assure continued airworthiness. Upon reaching the number of flight hours listed in the table, the component assemblies must be removed from service and be subjected to the required overhaul. The flight hours listed represent time since new or time since last overhaul.

TABLE 2  
PROPELLER SYSTEM COMPONENTS WITH MANDATORY OVERHAUL

Component	P/N	Validity by S/N	TBO [Flight hours/ years]	Effective since manufactured or overhauled
Propeller	V 510	up 61 068 031	1500/5	up 1. 1. 1986
		up 04 068 1003	2000/5	up 1. 1. 1991
		up 52 068 1226	3000/5	up 30. 6. 1995
Propeller Speed Limiter	065-2600	to 941 000	2000/5	to 31. 12. 1993
		up 941 001	3000/5	up 1. 1. 1994
Propeller Speed Governor	LUN 7816	to 941 000	2000/5	to 31. 12. 1993
		up 941 001	3000/5	up 1. 1. 1994
Electro-Hydraulic Actuator	LUN 7880.01		4,000/6	
Pressure Switch	0,8S LUN 1492-04		5,000(+250)/ 5 y. - 20,000 duty cycles	
Deicer Timer	LUN 3193.1		2,000	



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#### 4. Propeller Parts Replacement

- A. Propeller hub P/N 068-2101 is not replaceable and when eliminated, the complete propeller is removed from service. The movement of components, sub-components, and accessories of propeller to a propeller hub with lower time flown is not permitted. All components of propeller system, except those listed in Table 3, are removed from service when the hub is removed from service.

TABLE 3

Component	Part Number
Electro-Hydraulic Actuator	LUN 7880.01
Auxiliary Pump	LUN 7840
Pressure Switch	0,8S LUN 1492-04



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### AIRWORTHINESS LIMITATIONS

#### VALID FOR CANADA ONLY

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## 1. General

- A. This Airworthiness Limitations section is Transport Canada approved and specifies maintenance required under Parts 43.16 and 91.403 of the FAR and Airworthiness Manual 535.4; AWM 535, Appendix A, Section A535.4.

## 2. Life-Limited Components

- A. The components listed in Table 1 are life-limited. Upon reaching the number of flight hours listed in the table, the components must be removed from service. The flight hours listed represent total time and cannot be extended through the use of any inspections defined in this manual or the overhaul manual.

TABLE 1  
LIFE-LIMITED PROPELLER SYSTEM COMPONENTS

Component	Part Number	Validity by S/N	Service Life [Flight Hours]
Propeller	V 510	All S/N	9000
Propeller Speed Limiter	065-2600	to S/N 941 000 up S/N 941 001	6000 9000
Brush Block Assembly	LUN 7850		6,000
Propeller Speed Governor	LUN 7816	to S/N 941 000 up S/N 941 001	6000 9000
Electro-Hydraulic Actuator	LUN 7880.01		12,000
Auxiliary Pump	LUN 7840		20,000
Pressure Switch	0,8S LUN 1492-04		20,000
Timing Relay	LUN 2601		6,000
Deicer Timer	LUN 3193.1		10,000
Spinner	068-4000		9000



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- B. The life limited components include the complete propeller assembly, components, subcomponents and accessories listed in Table 1.
- C. It is the responsibility of the operator to monitor total flight hours for each component listed in Table 1 and to make sure that no component remains in service beyond its life limit.
- D. The components listed in Table 2 require inspections, replacement, renewal to assure continued airworthiness in their intervals as mandated by regulations. Upon reaching the number of flight hours listed in the table, the component assemblies must be removed from service and be subjected to the required inspection, replacement, renewal by the manufacturer's recommendation in accordance with the applicable Overhaul Manuals, as listed below. The flight hours listed represent time since new or time since last overhaul.

TABLE 2  
PROPELLER SYSTEM COMPONENTS WITH REGULATIONS MANDATED  
OPERATING INTERVALS

Component	P/N	Validity by S/N	Regulations Mandated Operating Intervals [Flight hours/ years] – TBO	Effective since manufactured or overhauled
Propeller	V 510	up 61 068 031	1500/5	up 1. 1. 1986
		up 04 068 1003	2000/5	up 1. 1. 1991
		up 52 068 1226	3000/5	up 30. 6. 1995
Propeller Speed Limiter	065-2600	to 941 000	2000/5	to 31. 12. 1993
		up 941 001	3000/5	up 1. 1. 1994
Propeller Speed Governor	LUN 7816	to 941 000	2000/5	to 31. 12. 1993
		up 941 001	3000/5	up 1. 1. 1994
Electro-Hydraulic Actuator	LUN 7880.01		4,000/6	
Pressure Switch	0,8S LUN 1492-04		5,000(+250)/ 5 y. - 20,000 duty cycles	
Deicer Timer	LUN 3193.1		2,000	

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PART NUMBERS OF THE OVERHAUL MANUALS:

Propeller, P/N V510	Overhaul Manual, P/N 068-8952.7
Propeller Speed Limiter, P/N 065-2600	Overhaul Manual of the Propeller Speed Limiter P/N 065- 2600 (Vendor: Jihostroj, a. s., Budejovická 148, 382 32 Velešín, Czech Republic.)
Propeller Speed Hydraulic Governor P/N LUN 7816	Overhaul Manual of the Propeller Speed Hydraulic Governor P/N LUN 7816 (Vendor: Jihostroj, a. s., Budejovická 148, 382 32 Velešín, Czech Republic.)

3. Propeller Parts Replacement

- A. Propeller hub P/N 068-2101 is not replaceable and when eliminated, the complete propeller is removed from service. The movement of components, sub-components, and accessories of propeller to a propeller hub with lower time flown is not permitted. All components of propeller system, except those listed in Table 3, are removed from service when the hub is removed from service.

TABLE 3

Component	Part Number
Electro-Hydraulic Actuator	LUN 7880.01
Auxiliary Pump	LUN 7840
Pressure Switch	0,8S LUN 1492-04



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#### LIST OF AMENDMENTS

The date of putting-down the amendment into the manual is to be added by manual user.  
Bulletin number has to be written only in case of amendment given in force by the bulletin.

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1	V 510/9b	20. 03. 1998	061-Airworthiness Limits. page 1,2,3,4 061-List of Amendments page 1,2 061-List of Effective Pages page 1,2,3,4,5,6 061-Contents, page 1,2 061.00.10-Contents, page 1 061.00.10-Check on securing, page 302 061.00.10-Adjusting of the end stop of maximum governed propeller speed, page 508 061.00.30-Consumable materials, page 1,2 061.10.00-inspection of propeller after impact, page 605, 606	
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	904	30. 07. 1988		901	30. 07. 1988
	905	30. 07. 1988		905	30. 07. 1988
	907	30. 07. 1988		909	30. 07. 1988
				913	30. 07. 1988
				917	30. 07. 1988

## 061

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**MAINTENANCE MANUAL**  
 SECTION 061  
 PROPELLER

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	061-00-10	PROPELLER UNIT (PROPELLER SYSTEM)
	061-00-20	ASSEMBLING TOOLS
	061-00-30	CONSUMABLE MATERIALS
SUBSECTION	061-10	PROPELLER ASSEMBLY
POINT	061-10-00	PROPELLER ASSEMBLY
SUBSECTION	061-20	PROPELLER CONTROL
POINT	061-20-00	PROPELLER CONTROL
	061-20-01	LUN 7816-8 SPEED GOVERNOR
	061-20-02	LUN 7880.01-8 ELECTRO-HYDRAULIC ACTUATOR



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PROPELLER

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# V 510

## MAINTENANCE MANUAL

### GENERAL

Operator's, Installation and Maintenance Manual of V 510 Propeller, P/N 068-8912.7 is worked out acc. to the GOST 18675-73 standard and ATA 100 standard. It contains technical description and hints concerning the operation and the maintenance of the propeller.

Specified work and period of servicing, time of overhaul and life of instruments are given in the special „Maintenance Requirements Manual“ P/N 068-8942.7.

For L-410 UVP-E and L 420 aeroplanes, specified work and period of servicing, time of overhaul and life of instruments are given in the „Aircraft Maintenance Manual“. This manual, in some cases, also contains references to the „Aircraft Operation Manual“, or of the engine „Maintenance Manual“, and to the „Wiring diagram album of the aeroplane L 410 UVP-E“ or L 420 respectively. The propeller servicing is included in the „Aircraft Operation Manual“.

#### Division of the manual

The manual is divided into subsections and points. This division represented by numerical notation given on the external margin of the page.

Example:                   061 - 10 - 00  
                                   ----- section (propeller)  
                                   ----- subsection (propeller assembly)  
                                   ----- point

Every subsection possesses an independent numbering of pages. The number of a page also contains a coded internal division of every subsection in themes of work to be realized which contributes to easier orientation and also enables to carry out changes.

Block of pages are numbered as follows:

SPECIFICATION AND FUNCTION	1 to 99
TROUBLESHOOTING	100 to 199

#### Technology of servicing

SERVICING IN OPERATION	300 to 399
INSTALLATION - REMOVAL	400 to 499
ADJUSTMENT - TESTING	500 to 599
INSPECTION - CHECKING	600 to 699
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General

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# V 510

## MAINTENANCE MANUAL

### GENERAL

#### Illustrations

The numbering of illustrations is independent in every subsection. In the themes the numbering of illustrations is similar to the numbering of pages i.e.:

SPECIFICATION AND FUNCTION	1 to 99
INSTALLATION - REMOVAL	400 to 499, etc.

#### PRELIMINARY REPAIRS

The user can be informed on the change to be prepared for this Operator`s, Installation and Maintenance Manual in advance, before the edition of replacing sheets, by obtaining a special sheet „Preliminary Repairs“. This sheet is filed by the user opposite to the correspondent sheet of this Operator`s, Installation and Maintenance Manual.

After the new corrected sheet is introduced, the original sheet inclusively the sheet „Preliminary Repairs“ are put out from the manual.

The numbering of „Preliminary Repairs“ is independent in every chapter. For instance, in the chapter 061 - Propeller, the first „Preliminary Repair“ will carry number 061.1.

#### AUTORIZATION TO PERFORM WORK

Work cited in the working procedures of this manual is to be performed only by specialists meeting qualifications according to aviation authority prescriptions (i.e. in Czech Republic prescriptions of the Civil Aviation Authority - CAA are valid) and carrying full responsibility for performing complete work of necessary quality.

- WARNING:**
- 1) BEFORE THE BEGINNING OF THE ORDERED WORK, THE SPECIALIST IS OBLIGED TO BECOME ACQUAINTED WITH THE WORKING PROCEDURE OF THE DESTINED WORK AND FURTHER CONNECTING INSTRUCTIONS, IF CITED IN THE WORKING PROCEDURES OF THIS MANUAL. IT IS NEEDED TO MAKE READY NECESSARY TOOLS AND PRESCRIBED MATERIAL ACCORDING TO ALL PROCEDURES CONCERNING THE WORK.
  - 2) THE COLUMN „WORKING EXPENSES (STANDARD HOURS)“ IS TO BE COMPLETED BY THE USER ACCORDING TO HIS OWN WORKING CONDITIONS AND EXPERIENCES. THE NUMBER OF WORKING HOURS GIVEN ABOVE SHOULD ALSO CONTAIN TIME OF WORK PERFORMED IN THE PROCEDURE IN QUESTION.

- CAUTION**
- 1) LIST THE TITLES AND PART NUMBERS OF THE ADDITIONAL ASSOCIATED PROCEDURES NEEDED TO PERFORM PROPELLER MAINTENANCE - SEE CHAPTER 061, AIRWORTHINESS LIMITATIONS VALID FOR CANADA ONLY, PAGE 2, PARAGRAPH D.

## **061-00-00**

General

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# V 510

## MAINTENANCE MANUAL

### PROPELLER UNIT (PROPELLER SYSTEM)

---

#### CONTENTS

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<b>SPECIFICATION AND FUNCTION</b>	<b>0-i</b>
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- Parts of the propeller unit	2
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- Feathering system - Emergency feathering	107
- De-icing system	108
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- Check of tightness	309
- Visual check of the feedback and compound linkage transferring system	317
- Checking the clearance between carrier slide blocks and the thrust ring	321
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- Adjustment of the stop for maximum controlled propeller speed	507
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602	The hose to the pressure gauge – installation of . . . . .	608



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**SPECIFICATION - FUNCTION**

The following page block provides information about overall layout, parts, basic technological data, description and operating parameters.

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**TROUBLESHOOTING**

The following page block provides information needed to perform troubleshooting of the propeller unit control system and feathering system. Using the tables provided, determine probable causes and remedies for problems encountered.



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**SERVICING IN OPERATION**

The following page block provides information needed when performing the works, which might occur during the operation, e.g. after installation of the propeller unit instruments, always before starting the engines and during the periodical maintenance.

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## ADJUSTMENT - TESTING

The following page block provides information needed when performing the basic adjustment of the adjustable elements of propeller after installation on the engine or in case of propeller replacement, when performing the installation of the new engine or when installing the other instruments of the propeller unit and during the periodical maintenance. There are further here provided the procedures for checking the parameters during the engine test and after previous interventions into the facility, including the instruction for carrying out the checking of the functional properties of the propeller unit in flight.



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L 410 UVP-E MAINTENANCE SCHEDULE	<b>WORK PROCEDURE</b>	On pages 501- 504
REFERENCE No.	For: Adjusting the Speed Governor by Element <span style="border: 1px solid black; padding: 0 2px;">32</span>	Manpower Required /Manhours/
Detail Steps/ Work Items and Technical Requirements /TR/		Work to Perform, if TR are not Met

- 1.0 Working site
  - 1.1 In hangar, in parking area
  
- 2.0 Preparatory work
  - 2.1 Find out the certificate of the governor
  - 2.2 Remove the engine cowls
  
- 4.0 Aim of work and TS
  - 4.1 Setting the minimum flight angle by means of the adjusting element 32 (see Fig. 304) when installing the speed governor on the engine and/or at the propeller replacement.
  
- 5.0 Working procedure
  - 5.1 Make sure that
    - the carrier ring bears on the stop on the propeller hub – blades in feathered position
    - the „Bc“ lever bears on the stop 1, see Fig. 501
    - the mark on the lever comes in the line with the mark on the scale 2, see Fig. 502
  
  - NOTE:                If the propeller is not feathered, set it up in this position according to para 061.00.10, page 801.
  
  - 5.2 Remove the binding wire securing the nuts (left- and right-hand thread) on both ends of the rod – element 32 . Loosen slightly the nuts using the spanner.
  - 5.3 Find out dimension “X” in the certificate of the governor (page 5, upper table).
  - 5.4 Add constant “Z” (see Tab. 501) to the dimension “X”, thus the final dimension will be

$$Y = X + Z \text{ [mm]}$$



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 /PROPELLER SYSTEM/

Detail Steps/Work Items and Technical Requirements /TR/	Work to perform if TR are not Met	
---	-----------------------------------	--

Tab.501 The „Z“ Constant

The Governor Type	Joint Policy Attachment „Sv“ lever type	The „Z“ Constant (For the dimension „Y“ counting)
LUN 7816, LUN 7816.01		0,4
LUN 7816.02		0,8

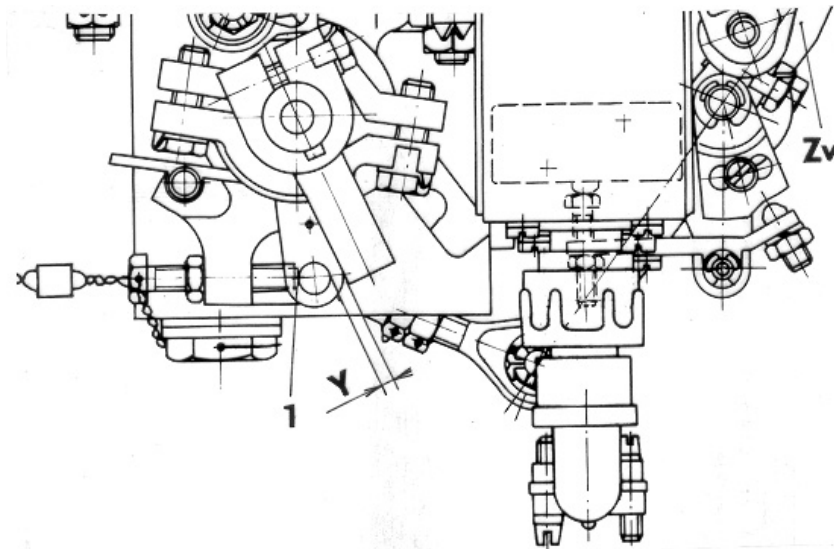


Fig.501 The „Y“ dimension Adjustment

5.5 Adjust the 32 element (length of rod): the clearance between the pin of 28 lever and „Sv“ 33 lever must correspond to the dimension „Y“. Check the clearance using the feeler gauges.

**ATTENTION:** IS NOT PERMITTED TO TAKE DOWN THE ROD-ELEMENT 32, WHICH IS FITTED BY ONE END TO THE FOLLOWING LEVER AND BY THE OTHER END TO THE „Zv“ LEVER.

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Adjustment-Testing

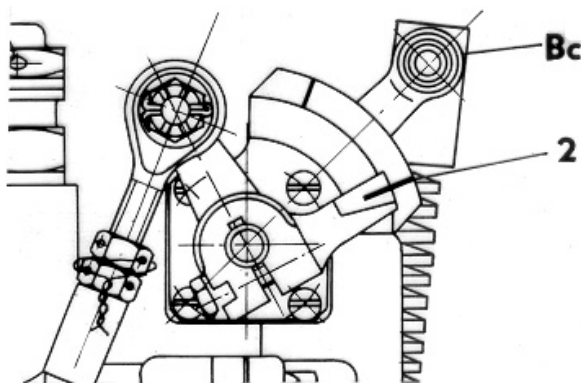
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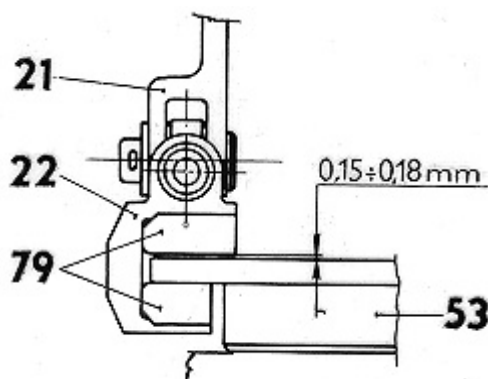


Obr.502 BASIC POSITION OF THE "Bc" LEVER

- 5.6 Adjusting the length of the rod-element 32 take care on uniform distribution of clearance between the thrust ring 53 and slide blocks 79.

Total clearance between the thrust ring 53 and slide blocks 79 should be at least 0.15 to 0.18 mm if a new slide blocks carrier is used (Fig. 503). Maximum permitted clearance after long period of operation is 0.4 mm.

When installing a new speed governor, the clearance has to be checked in the way as follows: press slightly the slide blocks carrier 22 to one side of the thrust ring 53 (see Fig. 503) and check the total clearance by feeler gauges.



Obr.503 MEASUREMENT OF CARRIER SLIDE BLOCKS CLEARANCE



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Detail Steps/Work Items and Technical Requirements /TR/	Work to perform if TR are not Met
---	-----------------------------------

- 5.7 After final adjustment and measurement of the clearance on the slide blocks carrier, tighten both nuts of the rod-element 32 using spanner (see Fig. 501 – left and right hand thread) and secure carefully according to para 061.20.01, page 431.
  
- 6.0 Final operations
  
- 6.1 Install the engine cowls as far as you do not continue installation of a new speed governor according to para 061.20.01, page 411).
  
- 6.2 Test according to para 061.00.10, page 537, 545, 601.
  
- 7.0 Record in documents.
  
- 7.1 Put down a record in the governor certificate.

Feeler gauges  
0,05 to 1,0x100 mm

Side wire nippers  
Flat pliers  
Double-ended wrench 8x10 mm  
Stairs Z 37.9514-00  
or B 097 300 N

Stainless binding wire  
0,5 mm diameter

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**INSPECTION - CHECKING**

The following page block provides information needed for checking on the basic control adjustment and instruments function.



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**CURRENT REPAIRS**

The following page block provides information concerning the performing of the common activities in course of operation, e. g. replacement of the replaceable elements, retightening the sealing elements, renewal of function or repair of minor damage.



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- Checking the position of thrust ring	309
- Checking the spinner attachment	313
- Checking the contact rings	317
- Checking securing of bolted joints	321
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- Checking of securing of all locked joints	333
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- Installing the connecting conductors	433
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- Installing the spinner	445
INSPECTION - CHECKING	600-i
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## MAINTENANCE MANUAL

### PROPELLER ASSEMBLY

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## SPECIFICATION - FUNCTION

The following page block provides information about overall layout, parts, basic technological data, description and operating parameters.

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## TROUBLESHOOTING

The following page block provides information needed to perform troubleshooting of the propeller unit control system and feathering system. Using the tables provided, determine probable causes and remedies for problems encountered.



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## MAINTENANCE MANUAL

### PROPELLER ASSEMBLY

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## SERVICING IN OPERATION

The following page block provides information needed when performing the works, which might occur during the operation, e.g. after installation of the propeller unit instruments, always before starting the engines and during the periodical maintenance.

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# V 510

## MAINTENANCE MANUAL

### PROPELLER ASSEMBLY

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## INSTALLATION - REMOVAL

The following page block provides information needed when performing the installation of the propeller on the engine or of components of the former and removal of the propeller from the engine including the components of the former.



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Installation-Removal  
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## MAINTENANCE MANUAL

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## INSPECTION - CHECKING

The following page block provides information needed for checking on the basic control adjustment and instruments function.



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## MAINTENANCE MANUAL

### PROPELLER ASSEMBLY

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## CLEANING - COATING

The following page block provides information needed for cleaning the propeller components and for renewal of the surface protection by means of painting.

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# V 510

## MAINTENANCE MANUAL

### PROPELLER ASSEMBLY

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## CURRENT REPAIRS

The following page block provides information concerning the performing of the common activities in course of operation, e. g. replacement of the replaceable elements, retightening the sealing elements, renewal of function or repair of minor damage.



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## MAINTENANCE MANUAL PROPELLER ASSEMBLY

L 410 UVP-E MAINTENANCE SCHEDULE REFERENCE No.	<b>WORK PROCEDURE</b>	On pages 841 - 842
	For: Replacement of packing of external ring on the blade root	Manpower Required /Manhours/
Detail Steps/ Work Items and Technical Requirements /TR/		Work to Perform, if TR are not Met

- 1.0 Working site
  - 1.1 In hangar, in parking area
  
- 2.0 Preparatory work
  - 2.1 Remove 20 screws from the surface of the spinner and shift the spinner out.
  
- 5.0 Working procedure
  - 5.1 Remove the connecting conductor from the sleeve according to par.. 061.10.00, page 411 and remove the propeller blade according to par. 061.10.00, page 407.
  - 5.2 Unlock and screw of the nut 11 and pull it out incl. the lock washer across the sleeve and put aside. Using a sharp object, for example a needle, remove the defective packing 44.
  - 5.3 Clean sealed surfaces, lubricate them by oil and put in the new packing.
  - 5.4 Fit on the lock washer 43 and the nut 11. Tighten the nut by torque 150 Nm and further up to the nearest tooth of the lock washer; secure the nut.
  - 5.5 Install the airscrew blade according to par. 061.10.00, page 429 and the connecting conductor on the sleeve according to par. 061.10.00, page 433.



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### PROPELLER ASSEMBLY

Detail Steps/Work Items and Technical Requirements /TR/	Work to perform, if TR are not Met
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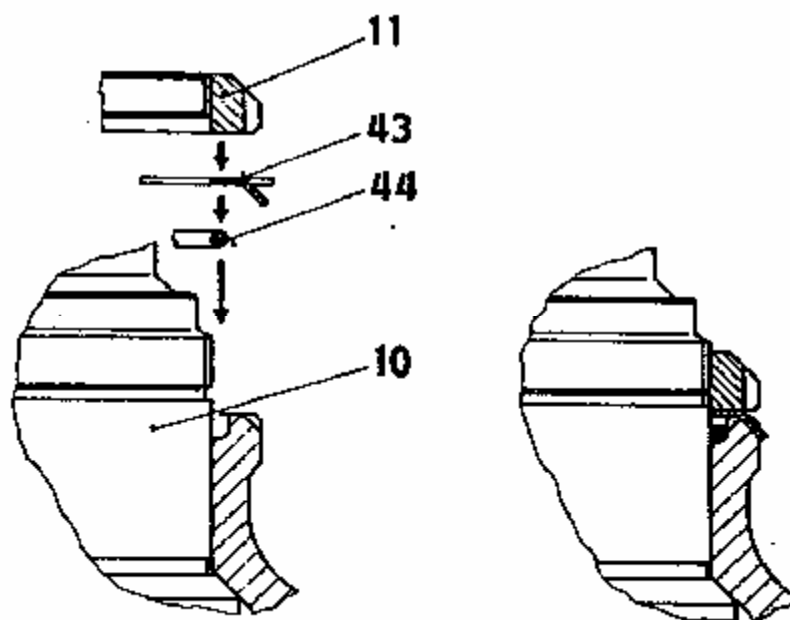


FIG. 810 REPLACEMENT OF EXTERNAL RING PACKING ON BLADE ROOT

- 5.6 Install the propeller spinner according to par. 061.10.00, page 445.
- 7.0 Enter the record in documents.
- 7.1 Record the repair in the propeller register.

	Spanner 068-8330 Lever 068-8110 Adapter 068-8302 Torque wrench UMO 10 Small hammer Screwdriver Stairs Z 37.9514-00 or B 097 300 N	Packing ring 000-6118 Oil from engine lubrication system
Test Equipment	Tools and Fixtures	Consumable Materials

## 061-10-00

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## MAINTENANCE MANUAL PROPELLER ASSEMBLY

Detail Steps/Work Items and Technical Requirements /TR/	Work to perform, if TR are not Met
---	---------------------------------------

- 5.9 Install the propeller blade according to par. 061.10.00, page 429 and the connecting conductor on the sleeve according to par. 061.10.00, page 433,
- 5.10 Install the spinner according to par. 061.10.00, page 445.
  
- 7.0 Enter the record in documents.
- 7.1 Record the repair in the propeller register.

	Sleeve puller 068-8320 Adapter 068-8302 Spanner 068-8301 Lever 068-8110 Torque wrench UMO 10 Stairs Z 37.9514-00 or B 097 300 N	Packing ring 000-6117 Packing collar 000-6115  Oil from engine lubrication system
Test Equipment	Tools and Fixtures	Consumable Materials



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## STORAGE INSTRUCTIONS

The following page block provides information needed for recommended storage and also the information needed for preservation for an appointed period.



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**SPECIFICATION - FUNCTION**

The following page block provides information about overall layout, parts, basic technological data, description and operating parameters.

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## TROUBLESHOOTING

The following page block provides information needed to perform troubleshooting of the propeller unit control system and feathering system. Using the tables provided, determine probable causes and remedies for problems encountered.

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**SERVICING IN OPERATION**

The following page block provides information needed when performing the works, which might occur during the operation, e.g. after installation of the propeller unit instruments, always before starting the engines and during the periodical maintenance.

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## INSTALLATION - REMOVAL

The following page block provides information needed when performing the installation of the propeller on the engine or of components of the former and removal of the propeller from the engine including the components of the former.



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## ADJUSTMENT - TESTING

The following page block provides information needed when performing the basic adjustment of the adjustable elements of propeller after installation on the engine or in case of propeller replacement, when performing the installation of the new engine or when installing the other instruments of the propeller unit and during the periodical maintenance. There are further here provided the procedures for checking the parameters during the engine test and after previous interventions into the facility, including the instruction for carrying out the checking of the functional properties of the propeller unit in flight.



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### PROPELLER SPEED GOVERNOR

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L 410 UVP-E MAINTENANCE SCHEDULE REFERENCE No.	<b>WORK PROCEDURE</b>	On pages 521- 524
	For: Adjustment of micro-switch „V“ on governor by elements <span style="border: 1px solid black; padding: 0 2px;">27</span> , <span style="border: 1px solid black; padding: 0 2px;">38</span> and <span style="border: 1px solid black; padding: 0 2px;">62</span>	Manpower Required /Manhours/
Detail Steps/ Work Items and Technical Requirements /TR/		Work to Perform, if TR are not Met

- 1.0 Working site
- 1.1 Parking area
  
- 2.0 Preparatory work
- 2.1 Final out the governor certificate
- 2.2 Remove the engine cowl
- 2.3 Switch on the low voltage source in the cockpit and the signal panel on the instrument board.

NOTE: During adjustment a second technician must watch the bulb of the beta-control on the signaling panel.

- 5.0 Working procedure
- 5.1 The adjusting element (further only “element”) 38 – bolt on lever 39 – which controls the micro-switch “V” 24 (Fig. 505) is to be set in the following manner.  
The connection of electrical circuit inclusive the beta-control bulb must take place by a motion of lever “Zv” 21 in the instant when the top of pin 40 comes in the position of 0.2 to 0.4 mm under the top surface 41 of the element 27 – cam, state B. For reason of easier adjustment in operation, use the feeler gauge so that the top of pin 40 will come in the distance of 0.8 mm from the foot surface 61 of element 27 when the instant of switching on occurs. It is the same as before because



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Detail Steps/Work Items and Technical Requirements /TR/	Work to perform if TR are not Met
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the top surface 41 is  $1.2 + 0.2$  mm over the foot surface 61 of element 27  $1 (+0.2) - 0.8 = 0.2$  to 0.4 mm.

For lever "Zv" 21 and slide blocks carrier 22 see par. 061.20.01, page 4.

**ATTENTION: IN POSITION WHEN THE PIN 40 IS GLIDING ON THE TOP SURFACE 41, MAKE A FOLLOWING TEST. CHECK SLIGHTLY, BY FINGER, IF IT IS YET POSSIBLE TO PUSH FURTHER THE PRESS BUTTON OF THE MICRO-SWITCH "V" 24 USING LEVER 39 WITH ELEMENT 38. THE MOTION IS IN DIRECTION OF THE ARROW AND THE MECHANICAL STOP MUST BE REACHED. IN OPPOSITE CASE, THE MICRO-SWITCH WOULD BE DAMAGED. SECURE ELEMENT 38 BY A NUT.**

**NOTE.** The switching on or switching off of the electrical circuit by the micro-switch "V" is to be tested either using lever "Zv" after removing the slide blocks carrier 22 or, at best, with help of two technicians, by manual resetting of the blades. Lever AL must be in a suitable position and the slide blocks carrier 22 must be installed.

5.2 Check, when moving back in basic position – state "A" (Fig. 505) e. g. after electrical circuit switched off, whether the top of pin 40 is in minimum distance 0.1 mm from the foot surface 61. If this clearance is smaller adjust it by element 62 – arrest propeller. Then secure it by tightening its nut.

**NOTE.** The lever 39 is leaning against the screw head.

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Detail Steps/Work Items and Technical Requirements /TR/	Work to perform if TR are not Met
---	-----------------------------------

See state „A“ (Fig. 505).

- 5.3 Test again carefully the command of the microswitch and its correct function e.g. state “A” and “B”.

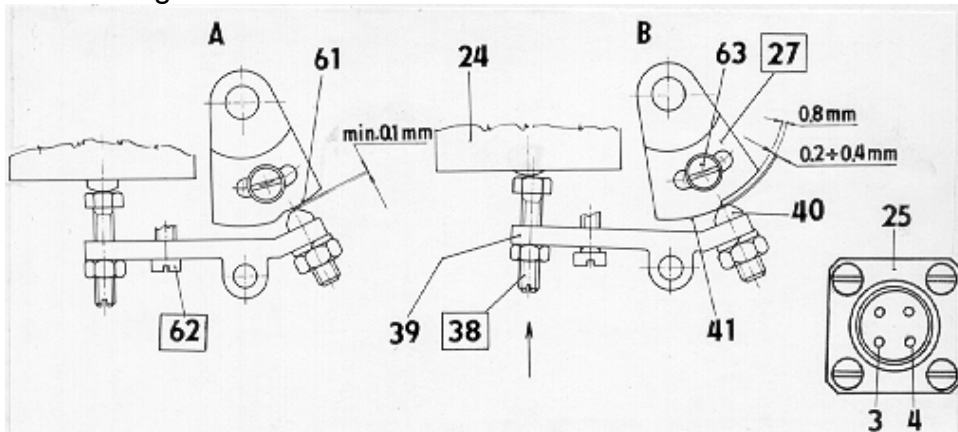


Fig. 505 Adjustment of microswitch “V” by elements 38, 62 A 27 A - electrical circuit switched off B - electrical circuit switched on

- 5.4 Finally, adjust the instant of switching on the electrical circuit depending upon the shift out of the BETA carrier ring. Use the following method: Setting manually the blades at a suitable AL position shift out the BETA carrier ring 53 (Fig. 405) and adjust it to a distance according to Tab. 501 dependable the Propeller Speed Governor version installed. The instant of the switching on the electrical circuit is to be adjusted only by rotating the element 27 (cam) when releasing screw 63 (Fig. 505).

Tab.501 Adjustment of BETA signing connection

The Governor Type	Joint Policy Attachment „Sv“ lever type	Blade setting angle of signing began	Depending upon shift out of the BETA-carrier ring
LUN 7816 LUN 7816.01		7°	13±0,1 mm
LUN 7816.02		4°	15±0,1 mm



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**ATTENTION:** THERE ARE TWO WASHERS UNDER THE SCREW 63 FROM WHICH ONE IS A SPRING WASHER. THE BLADES MUST NOT BE RESET IF HOLDING THEM ON TIPS.

5.5 After adjustment, secure element 27 again by retightening the screw 63.

**NOTE:** It is also possible to test the instant of switching of the electrical circuit by microswitch „V“ when connecting a suitable low voltage source (about 4.5 V) and a lamp to pins 3, 4 of the socket 25 (Fig. 505).

5.6 Secure all screws by which the adjustment has been performed. Use securing lacquer.

6.0 Final operations.

6.1 Install the engine cowls.

6.2 Switch off the low voltage source in the cockpit.

7.0 Record in documents.

7.0 Put down a record in the governor certificate.

Feeler gauges 0,05 to 1,0x100 mm Slide gauge	Double-ended wrench 5,5x7 mm Screwdriver 3,5x50	Securing lacquer C 2121/0844
Test Equipment	Tools and Fixtures	Consumable Materials

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## CURRENT REPAIRS

The following page block provides information concerning the performing of the common activities in course of operation, e. g. replacement of the replaceable elements, retightening the sealing elements, renewal of function or repair of minor damage.

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**STORAGE INSTRUCTIONS**

The following page block provides information needed for recommended storage and also the information needed for preservation for an appointed period.

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**SPECIFICATION - FUNCTION**

The following page block provides information about overall layout, parts, basic technological data, description and operating parameters.

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## TROUBLESHOOTING

The following page block provides information needed to perform troubleshooting of the propeller unit control system and feathering system. Using the tables provided, determine probable causes and remedies for problems encountered.

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**SERVICING IN OPERATION**

The following page block provides information needed when performing the works, which might occur during the operation, e.g. after installation of the propeller unit instruments, always before starting the engines and during the periodical maintenance.

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**INSTALLATION - REMOVAL**

The following page block provides information needed when performing the installation of the propeller on the engine or of components of the former and removal of the propeller from the engine including the components of the former.



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**CURRENT REPAIRS**

The following page block provides information concerning the performing of the common activities in course of operation, e. g. replacement of the replaceable elements, retightening the sealing elements, renewal of function or repair of minor damage.



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