| **Title: Heater Upgrade II.1** | | |
|---|---|---|
| **AG-SB-2023-05-B-ENR1** | **Effective Date: 01.12.2023** | **Compliance Category:**<br><br>~~**A - MANDATORY**~~<br>**B – RECOMMENDED**<br>~~**C - OPTIONAL**~~ |
| **Applicability** | | |
| **Aircraft type & model:**<br><br>**Cavalon** | **Affected Serial number(s):**<br><br>**built after 05/2022 and before 10/2023** | |
| The maintenance manual to be referenced is this stated or subsequent issue. | | As per AutoGyro website |

This form is the response from AutoGyro GmbH either against a problem found in the product in service requiring a containment or rectification action, or as service information for aircraft modification incorporation. For help, contact airworthiness@auto-gyro.com.

## Documentation (Service Bulletin Completion action)

The accomplishment of this Service Bulletin, or the decision of its rejection, must be properly documented within the aircraft records, in line with the requirements of the responsible aviation Regulatory Authority.

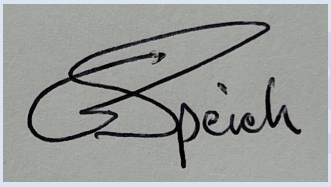
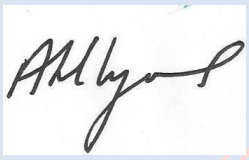
A worksheet may be attached to this bulletin to aid correct embodiment of this SB. This should be completed and retained with the aircraft records.

| **List of Revisions** | | | | |
|---|---|---|---|---|
| **Rev.** | **Page** | **Paragraph** | **Reason for revision** | **Date** |
| 1 | 9 | List of components | Part number corrected: old part number: 49063, new part number: 49147 | 25.01.2024 |

## Category Codes

| | |
|---|---|
| A – Mandatory | – failure to comply result in a significant reduction of flight safety, injury or death |
| B – Recommended | – failure to comply may result in reduced safety margin, injury and/or equipment damage |
| C - Optional | – improves operating behavior, reliability and/or maintainability |

**Document approval signatures**

| **Head of Engineering** | **Head of Airworthiness** |
|---|---|
|  Gerald Speich 30-Jan-24 |  Digitally signed by Andrew Lyons Date: 2024.01.31 14:18:59 Z |

The technical content of this document is approved under the authority of the UK CAA Design Organisation Approval Ref: DAI/9917/06

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## Reason and overview of the Service Bulletin (cause of problem if known)

A number of early generation heater-valve units were found to be defective and started to leak. This early generation is now superseded by a new design, shown in service to be more reliable.

It is recommended to replace the old version.

This Service Bulletin gives the instruction on how to replace it.

Reason for revision: Part number for assembly corrected.

## Manpower estimates

The task may only be performed by an organization or individual entitled and trained to carry out the relevant level of maintenance on AutoGyro aircraft.

A max. of 2 hrs are estimated to replace the heater-valve unit.

Part and labor costs will be covered by AutoGyro.

**The service bulletin reference AG-SB-2023-05-B-EN and gyro serial number is to be quoted on all parts orders related to this SB.**

## Compliance

There are no compliance requirements associated with this SB.

## Customer Support

Can be contacted for questions.

## Tooling required

Standard tools

## Weight and Balance Effects

Nil

## Manuals affected

POH & AMM are not effected

## Previous Modifications that affect the SB

None

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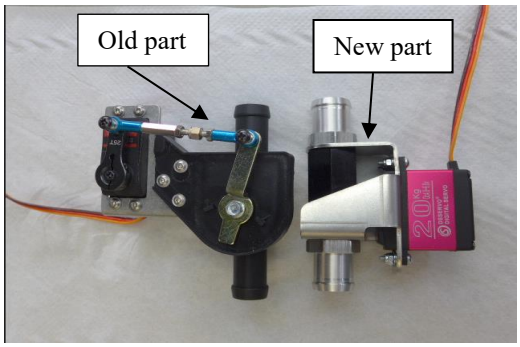
## Accomplishment instructions (Action required to implement this bulletin):




Procedure for the electrical part of the retro-fit:

1.) Remove the cap of the rotary control by pulling it off.



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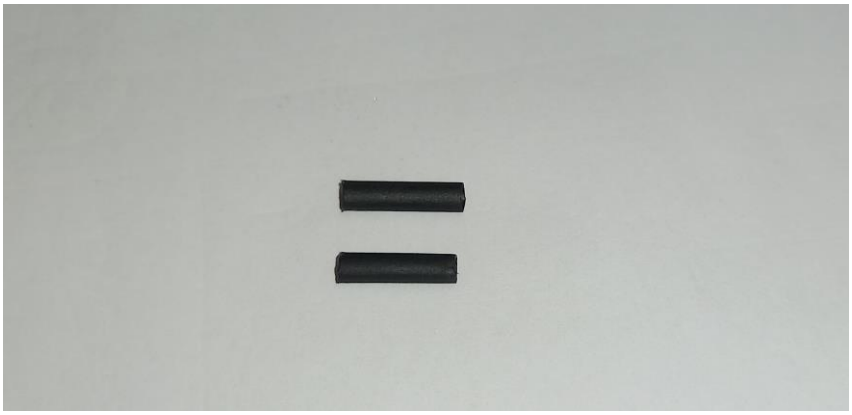
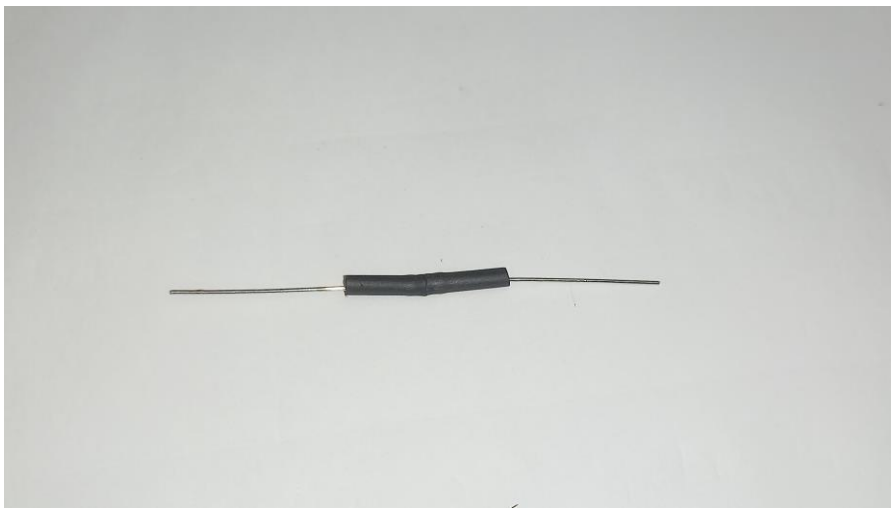
2.) Loose the nut and remove the potentiometer to the backside of the panel.


3.) Cut two pieces of shrink sleeve to 10mm and put in on both sides of the electrical resistor.





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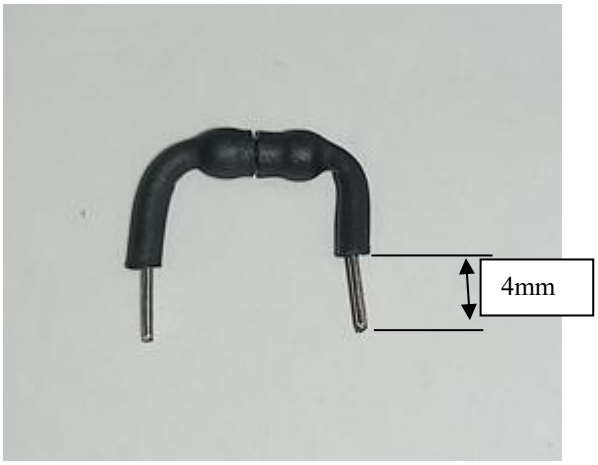
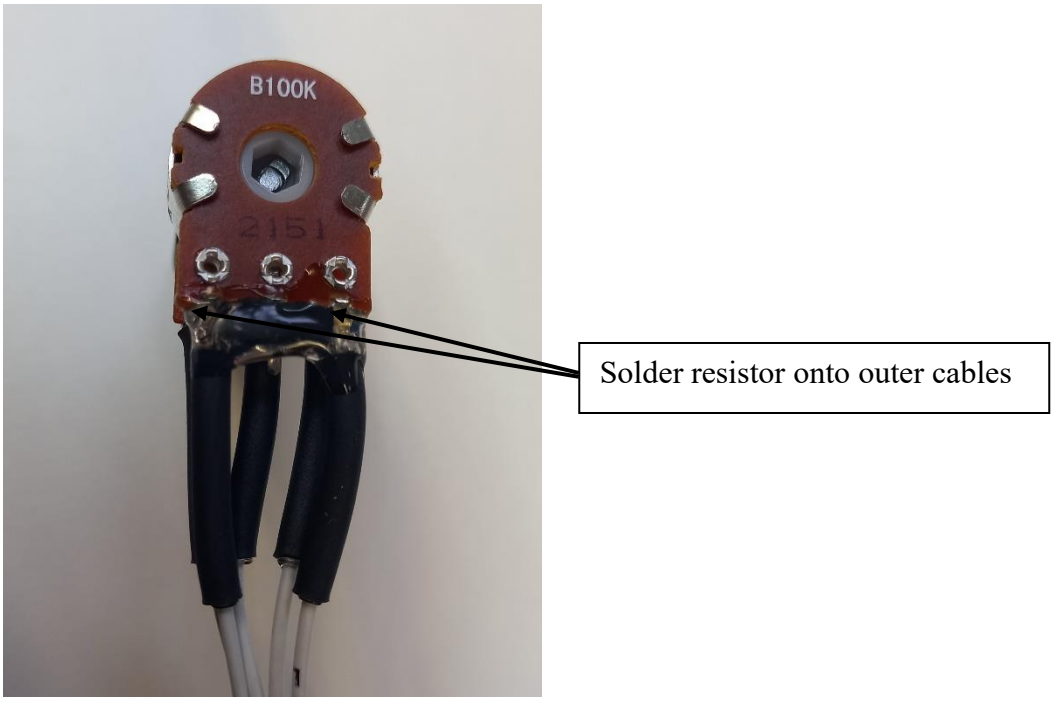
4.) Shrink the sleeve and cut both ends of the resistance to approximately 4mm.




5.) Install the resistance onto the potentiometer (be careful to cover the potentiometer against Solder) – check afterwards for secure connection.




6.) Secure solder joints with hot glue (such as hot melt adhesive 202 from Würth), be sure that the shaft of the potentiometer is not getting in contact with hot glue.

7.) Re-install potentiometer, tighten the nut and put on the cap

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Procedure for the mechanical part of the retro-fit:

1) Remove the upper engine cowling according to 52-00-00 4-1 in the Maintenance Manual.

2) Block the coolant hose from the overflow bottle with a clamp. Drain the coolant by removing the screw at the bottom of the radiator and loosening the lid of the coolant tank.


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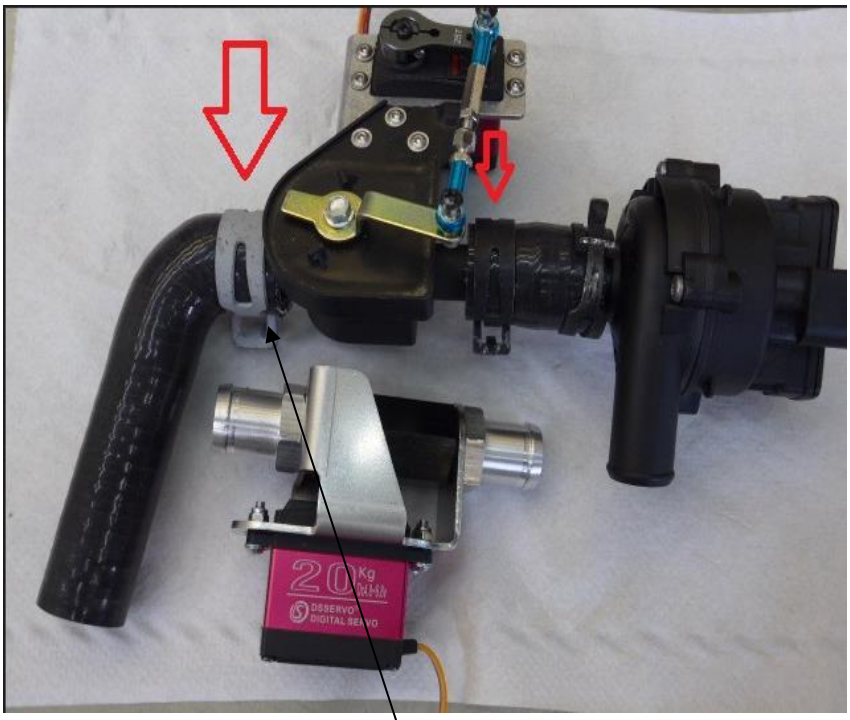
3) Remove the carpet in the foot well, cover the parts there with rags to absorb the coolant and protect them.

4) Remove the hose clamps from the valve unit and the plug where the servo is attached.



Clamp removed, hose removed from old valve unit, here to see on the left side, same on the other side with the clamp

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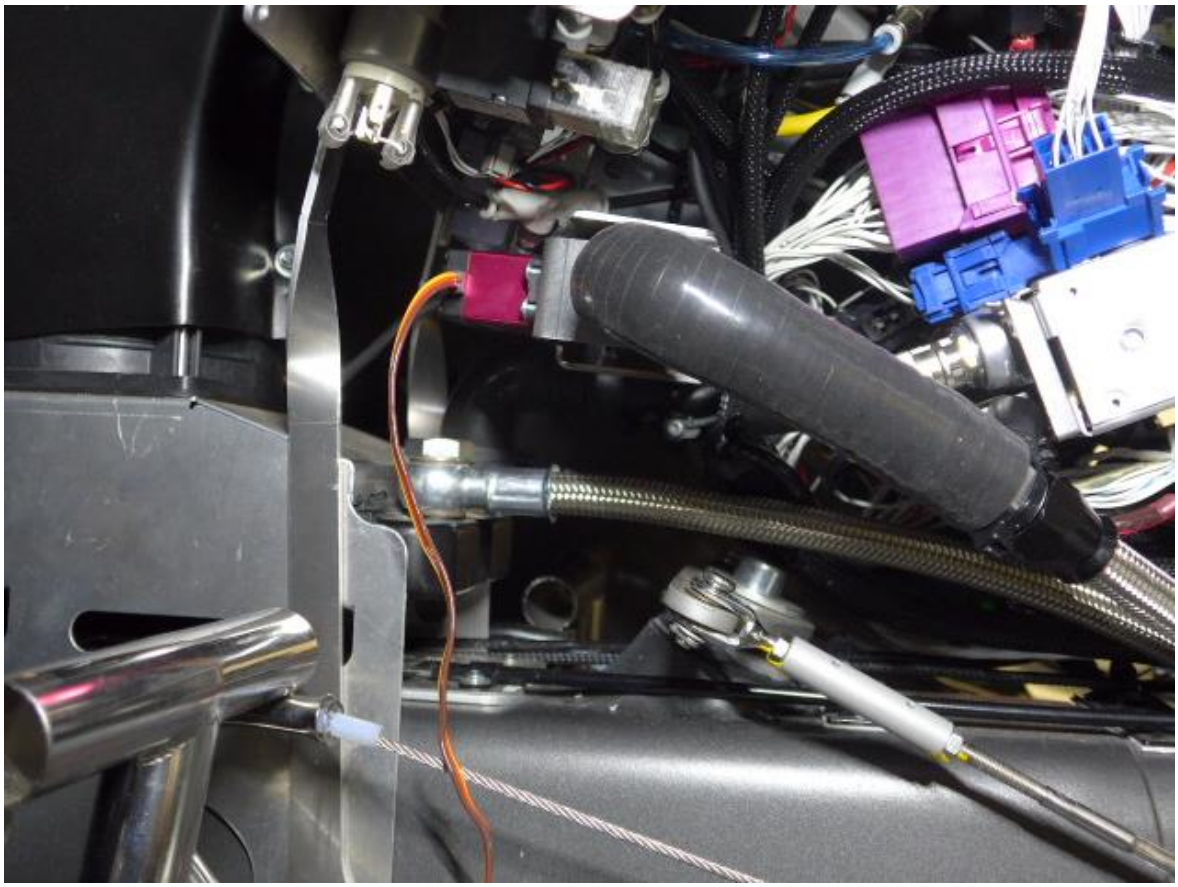
5) Replace the old with the new valve unit and reconnect the Servo. Before re-installing the unit a functional check of potentiometer and valve has to be performed.
6) Connect the new valve unit electrical cable. Turn the key switch on, ensure that the valve opens and closes proportionally to the amount that the 'Temp' rotary knob rotates
7) Fully rotated left; the valve should be closed. Fully rotated right, the valve should be fully open. Look down the end of the valve to see this
8) Turn the key switch off if satisfactory
9) Fit the new valve unit, making sure the hose clamps are properly positioned. See photos below



10) Dry the radiator drain screw and re-install the crew on the radiator with Loctite 243.

11) Refill coolant system via header tank on top of the engine. Ensure no air locks.

12) Turn on the key switch and rotate the "Temp" and "Flow" rotary knobs to the right. This will drive coolant through the heat exchanger.

13) Recheck the header tank coolant level. Ensure no coolant leaks in the footwall.

14) Turn of the key switch

15) Fit the header tank cap. Remove the clamp on the overflow hose.

16) Secure the aircraft in a safe place for engine run-up.

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17) Start the engine and allow coolant to reach 90 degC. Ensure no leaks in the footwell. Ensure warm/hot air is exiting the heater vents and that the fan is running.

18) Let the aircraft cool down, install the clamp again and open the header tank, re-fill coolant if necessary and check the coolant level in the overflow reservoir located in the mast air intake. Refit the header tank cap and remove the clamp

19) Re-install upper cowling, clean the footwells, remove all rags and tools

20) Complete the documentation

**Any life-limit changes must be recorded within the aircraft documentation, in line with the requirements of the country of operation.**

**Material information (Parts required to be made to implement this service bulletin):**

**List of components (with purchasable part numbers)**

PN 49147, Heater valve unit II.1
PN 31195, coolant
PN 30483, Loctite 243
Hot melt adhesive 202 from Würth or equivalent

**Interchangeability**

Not affected

**Parts disposition**

a) Disposal requirements –
b) Environmental hazards of parts containing hazardous materials –
c) Scrap requirements (e.g. mutilate scrapped items beyond use) –

| Aircraft serial no.<br><br>Registration: | **Service Repair Implementation Worksheet** | Date raised:<br><br>Raised by: |
|---|---|---|
| Purpose – record service repair implementation actions taken, then to inspect aircraft and return to service. | | Document reference: AG-SB-2023-05-B-EN |
| Maintenance manual referred to and issue level/date: | AMM_CV_915_EN_2029-09 REPRINTED | |
| Note; attach any secondary sheets to this document | | |

| **Task** | **Notes** | **Eng'r check/date** | **Inspector check/date** |
|---|---|---|---|
| Electrical resistor installed | | | |
| Upper cowling removed | | | |
| Clamp on overflow hose installed | | | |
| Screw on radiator removed and system cleared | | | |
| Carpet in foot well removed and surrounding parts and area covered | | | |
| Old unit removed and replaced by new valve unit | | | |
| Re-connect electrical connection and perform a functional test of the valve and the potentiometer | | | |
| Re-connect hoses if functional test is ok | | | |
| System filled up with ignition on and heater to full power | | | |
| Ground run, functional test and leak test performed | | | |
| Clamp installed again, checked coolant level in the header tank, filed up if necessary | | | |
| Coolant level in Overflow tank checked | | | |
| FOD check | | | |
| Re-install cowling | | | |
| Documents done | | | |

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| Aircraft serial no.<br><br>Registration: | **Service Repair Implementation Worksheet** | Date raised:<br><br>Raised by: |
|---|---|---|

**Permit Maintenance Release: The work recorded above has been completed to my satisfaction and in that respect the aircraft is considered fit for flight.**

| Engineer/Inspector signature<br><br>Name:<br>Inspector Authorisation code if applicable: | Date of work<br><br>Location where work completed:<br><br>Hildesheim |
|---|---|
| Welder signature<br><br>Name:<br>Welder Authorisation code if applicable: | |