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SERVICE INFORMATION LETTER

SIL - AR - 04 - IS28M2

(This Service Information Letter contains information for the flight and aircraft safety)
(Aeroclubul Romaniei is the Type Certificate Holder for the IS-28M2 motor gliders)

1. Date: 15.04.2021

2. Subject:

Mandatory

- 2.a** One-time check for the landing gear retraction system
- 2.b** One-time check for the landing gear position warning system
- 2.c** One-time check for the existence of the red label "*CHECK THE GEAR LOCKING*" on the instrument panel (accordingly to the *Flight Manual*).
- 2.d** Repeat works from §2.a; §2.b and §2.c, each 100 hours/1 year of aircraft operation. Aeroclubul Romaniei will issue a service bulletin containing all necessary information for the motor glider *Maintenance Manual* updating.

Recommended

- 2.e** Recommendations regarding the pilots training (see §6.d)

3. Applicability: To be applied on all IS-28M2 types:

- IS28M2-68CP
- IS28M2-80CP
- IS28M2G-80CP
- IS28M2GR-80CP

4. Reasons:


During the after-landing roll, at an IS-28M2 motor glider a landing gear folding had occurred, and the motor glider has stopped "on-belly" on the ground. The incident is presented in *The AIAS's Report No. I-20-03 /03.03.2020*.

At this time, we do not consider necessary to issue an Airworthiness Directive (AD), as per the European Regulation (EU) 748/2012.

5. Reference Documents:

- *Aircraft Flight and Maintenance Manual* for the IS-28M2 (AFMM);
- *Manufacturing documentation* for the IS-28M2;
- *Maintenance General Practices, AC No. 43.13*, current edition;

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6. Description:


6.a The landing gear retraction system functioning check

See *Fig.1 – Gear Command Lever* and the *AFMM*.

Place the motor glider on supports.

- I. The landing gear retraction lever shall be repeatedly placed: on a intermediate position, on the gear-down-locked position and on the gear-retracted-locked position. At these positions, the following checks and adjustments must be performed.
- II. Place the lever on a intermediate position and let it free.
The lateral driving-pins and the lateral indexing-pins must touch simultaneously the ends of the slots in which they slide, in the directions in which they are pressed by the spring.
- III. Keep the lever on the intermediate position. For both, when pulling and when releasing the driving-pins, the movement of the moving parts must be smooth, without getting stuck. The spring must firmly push the pins to the end of the respective lever slot.
- IV. With the lever free on the intermediate position, check out the possibility of notice a correct indexing. The limit of the paint coating on the lever must coincide with the edge of the ring which slides above the lever.
- V. Push the lever forwards until it indexes in the forward-support (gear-up-locked position).
The locking must be complete, the lateral indexing pins of the lever must get into the left and right guides of the forward-support, as far as the guides allow.
- VI. Pull the lever backwards until it indexes in the backward-support (gear-down-locked position).
The locking must be complete, the lateral indexing pins of the lever must get into the left and right guides of the backward-support, as far as the lever slots allow.
In this position, perform a visual check to confirm the correct locking (see §6.a.IV).
- VII. With the command lever on the gear-down-locked position, check the over passing of the dead spot centre during the landing gear extension.
At each landing leg the measurement of $12 \pm 1\text{mm}$ must be obtained (as per *AFMM* page 4.10).

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- VIII. With the command lever on the gear-down-locked position, check the motion clearance between the landing gear retraction system parts, by manually pulling on each landing leg, to the left, to the right, forwards and backwards.

There must be no free-motion detected within the whole control system.

6.b The landing gear position warning system check

See Fig. 2 – Electrical scheme (as per the AFMM).

Connect the general electrical contact to the battery.

- I. Repeatedly move the landing gear command lever on the gear-down-locked position and on the proximity of it.

Calibrate the position of the microswitch mounted on the back-support (for the gear-down position).

The 0÷1,5mm dimension must be obtain (as per the AFMM-rom pages 4.23 ; 4.33).

At this dimension (or at a lower one) the electrical contact must be closing to the Green warning Lamp.

- II. Move the airbrake command lever on the retracted position and on the proximity of it.

Calibrate the drive screw of the micro switch.

The 10±5mm dimension must be obtain (as per the AFMM-rom pages 4.23 ; 4.32), measured at the end where the lever is moved.

At this dimension (or at a bigger one) the electrical contact must be closing to the Red warning Lamp and to the acoustic warning device.

Pressing the test button allows the operator to check the electrical components of the landing gear position warning system. The following situations must be checked:

- III. With the landing gear position lever on the gear-up-locked position and with the airbrake command lever on the retracted position there must be no warning indication.


When the test button is pressed, only the green lamp must light up. (The green lamp is properly working.)

- IV. With the landing gear command lever on gear-up-locked position and with the airbrake command lever on the extended position (or partially extended position) the red lamp must be on and the acoustic device must be heard.

When the test button is pressed, the green lamp must also light up.

(All the components of the gear position warning system are working properly.)

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The following manoeuvres and signals are important for the flight safety and must be checked:

- V. Move the landing gear command lever on the gear-up-locked position and the airbrake command lever on the retracted position.
There must be no warning lamps on and the acoustic warning must not sound.
(This is the normal flight configuration.)
- VI. Keep the landing gear command lever on the gear-up-locked position and move the airbrake command lever on the extended position (or partially extended position).
The red lamp must light up and the acoustical device must ring. The pilot is advised that the landing gear is not down for landing.
(This configuration allows a rapid descend but does not allow to perform a landing.)
- VII. Place the landing gear command lever on the landing gear-down-locked position and the airbrake command lever on the retracted position.
The green lamp must light up. The gear-down-locked position is confirmed.
In this position, perform a visual check to confirm the correct locking (see §6.a.IV).
(This configuration allows to perform a landing.)
- VIII. Keep the landing gear command lever on the gear-down-locked position and move the airbrake command lever to the extended position (or partially extended position).
Only the green lamp must light up. The gear-down-locked position is confirmed.
In this position, perform a visual check to confirm the correct locking (see §6.a.IV).
(This configuration allows to perform a landing.)


WARNING #1

- The green and the red lamps intensity may be adjusted by turning them clockwise or counter-clockwise. If the light intensity is too low, **the pilot may not see the signals.**

WARNING #2

- When the landing gear is extended there is the risk that **the command lever indexing pins do not get completely into the lateral guides of the back-support.** This situation may be identified by the **lack of the green lamp lighting up** and by the **visual confirmation of an incorrect indexing** (see §6.a.IV.). The pilot must repeat the landing gear extension manoeuvre (see *AFMM*). Otherwise, during landing the gear may fold.

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WARNING #3

- By issuing the *Mandatory Service Bulletin IS28M2-CO-04* (approved by DAVC in 1979), the manufacturer (IAR-Bv) updated the landing gear position warning system for all the motor gliders. Nevertheless, it is possible that some aircrafts, with serial number less than 31, still have an older system, operating differently. For necessary clarifications, please contact Aeroclubul Romaniei.

6.c Modification of the motor glider *Maintenance Program*

- The operator shall modify the motor glider *Maintenance Program* as indicated within §2.d.

6.d Pilot training recommendation

The Flight and Maintenance Manual of the motor glider presents all the information and instructions that the pilot must know about the landing gear retraction system and about the gear position warning system.

In order to easily follow this flight safety instructions, it is hardly recommended that the pilot follows a training session on the piloting manoeuvres which were described above, practicing first with the motor glider resting on supports, after that practicing during normal flights conditions.

7. Further actions:

- 7.a** If the checked and calibrated systems are working as per the requirements, the motor glider will be returned to service on flying conditions. A CRS must be issued. A line confirming that the *Gear Retraction System*, the *Gear Position Warning System* and the existence of the label "*Check the Gear locking*" have been checked as per *SIL-AR-04-IS28M2* must be added within the motor glider log book.
- 7.b** If any malfunctions or non-conformities are still found, the motor glider must be grounded until all the issues are fixed.
- 7.c** Should you have any questions please contact Aeroclubul Romaniei at:
camo@aeroclubulromaniei.ro

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Fig. 1 – Gear Command Lever

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