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# Design of a bench to allocate accelerometers and gyroscopes on a sailplane

## Technical sheet

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# Technical sheet

The scope of this document is to provide the user a reference in time to install correctly the attachments.

## Installation of the MSR255 wing tip attachment

Here, it is described its correct and secure installation in order to ensure the good performances and the security of the sailplane.

The first step is to ensure that the sailplane used is valid for bringing the device on the wing tip. All of the following points must be complied:

- The glider must have one or more holes on the intrados part to hold a skid.
- The distance from the holes to the aileron must be, at least of 10 cm. It is forbidden to block the aileron at any time.
- The wing must not have a winglet due to the fact that the bench and the sensor may interrupt the airflow.

The guidance for the installation consists in the following steps:

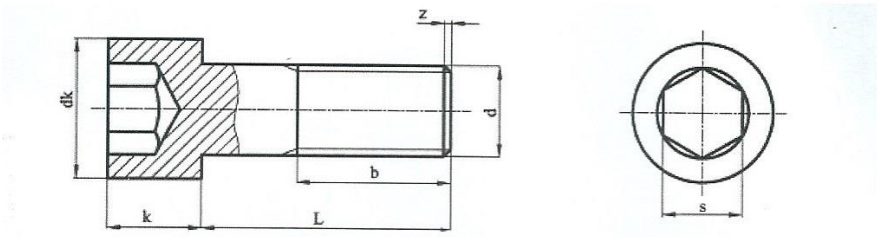
1- In the event of having a skid already below the wing you will remove it.
2- Take 2 meters of a ribbon of 25 mm width (standard dimension).
3- Surround the wing with the ribbon until the two extremes touch, you must cover the holes of the skid. Measure 5 extra centimeters and cut it off from the extra ribbon. Just in case, you should better keep the cut part.
4- Take the buckle part with only one hole for the ribbon, pass the ribbon through that hole and sew it. You can throw away the extra ribbon.
5- Measure 3,5 cm of the sewed ribbon, cut it and keep the other part. You are working now with the ribbon number 1.
6- Sew the other edge of the ribbon number 1 to one of the metal rings of the MSR255 wing tip attachment.
7- Take the ribbon number 2, the one kept since step 5. Pass it through the other part of the buckle (the one with two holes) as seen in picture 1. You must have a maximum of 2 cm of the edged part. This part will be used to stretch the ribbon.

**Figure 1**. Junction of the ribbon and the bucke. The sewed part is also visible on the left.

8- Place the attachment on a suitable zone of the upper part of the wing, the more flat, the better.
9- Surround the wing with the other part of ribbon 2 until arrive to the attachment. Sew it to the metal ring and throw away the extra ribbon. You must consider that the extra part left on the buckle (the one used to stretch) must be between the ribbon and the wing.
10- Check that the attachment and ribbon are placed in the correct place, fasten the ribbon with the buckler and stretch it.
11- Using the holes on the wing as guidance, make them on the ribbon.
12- Place a metal ring on each ribbon to prevent strips but, firstly, ensure that the diameter of the rings enable the skid's screws to pass through them.

When holding the MSR255 with the bench:

- Firstly, you will attach the sensor with four screws M-5, type Allen s/DIN912 or equivalent.




| d | M-3 | M-4 | M-5 | M-6 | M-8 | M-10 | M-12 | M-14 | M-16 | M-18 | M-20 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| z | 0.50 | 0.70 | 0.80 | 1 | 1.25 | 1.5 | 1.75 | 2 | 2 | 2.5 | 2.5 |
| b | 18 | 20 | 22 | 24 | 28 | 32 | 36 | 40 | 44 | 48 | 52 |
| dk | 5.5 | 7 | 8.5 | 10 | 13 | 16 | 18 | 21 | 24 | 27 | 30 |
| s | 2.5 | 3 | 4 | 5 | 6 | 8 | 10 | 12 | 14 | 14 | 17 |
| k | 3 | 4 | 5 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 |

**Figure 2**. (Allen type) s/DIN912

- Secondly, you will fasten the ribbon to the wing tip, adjusting the holes on the ribbon to the holes on the wing.
- Then, you will attach the skid ensuring that the sensor will not be loosen in flight.
- Finally, you will stretch the ribbon until there are not any gap between the bench and the wing.

## Installation of the MSR255 fuselage attachment

The installation of the MSR255 attachment in a sailplane with a non-usual empennage is not allowed since it will fall down. It is considered a usual empennage the ones with a T or ⊥ shape.

The guidance for the installation consists in the following steps:

1- Take 80 cm of a ribbon of 25 mm width (standard dimension).
2- Cut it in two identical parts.
3- Sew the two parts to the metal rings of the MSR255 fuselage attachment.
4- Choose one of the two ribbons and cut it off on a desired distance from the bench.
5- Take a plastic buckle and sew the recent cut ribbon to the one holed part of the buckle.
6- With the other ribbon left in the bench you have to pass it through the two holed part of the buckle, as seen in figure 1.
7- Put the attachment and the ribbons on the upper part of the empennage's fuselage and fasten it.
8- Stretch the system with the extra part left on the buckle. Measure 2 cm from the buckle and cut it off. Notice that this stretchy part has to be between the ribbon and the fuselage.

When holding the MSR255 with the bench:

- Firstly, you will attach the sensor with four screws M-5, type Allen s/DIN912 (figure 2) or equivalent.
- Finally, you will fasten and stretch the ribbon until there are not any gap between the bench and the wing.

## Considerations

The weight of the whole system must be known to ensure a good performance of the aircraft in order to trim it by the pilot.

In case of breakage of the system, the pilot in command must land immediately.

**Whether the installer does not follow strictly the points explained previously, he/she is acting on his/her own responsibility.**