PARAGLIDER
Inspection Instructions

VERY IMPORTANT !

Please read the following instructions carefully before you carry out your own inspections and/or repairs to your glider. They contain information on the conditions and requirements for you to carry out your own 2-year inspection.

Under the new DHV / OeAeC* regulations, the customer (paraglider owner) may carry out his/her own 2-year inspection of the glider, following these instructions and using any documents and equipment necessary. The paraglider does not need to be returned to the manufacturer.

The 2-year inspection may only be carried out by the paraglider owner him/herself, provided that he/she meets the requirements below, or by the manufacturer and its authorised inspectors. The manufacturer can tell you who the authorised inspectors are.

The paraglider owner must be aware of the responsibility he/she is taking on by carrying out his/her own 2-year inspection of the glider. Such an inspection will only have legal effect if, after the inspection, it is certified with date, name (in block letters) and signature on or next to the DHV certification label.

You should find out from your insurance company in good time whether there are any advantages or disadvantages under insurance law in carrying out your own 2-year inspection.

An inspection is only valid if the inspection report has been completed in full. You should also find out from the manufacturer before the inspection if any changes have been made to the inspection instructions.

Important: Certain documents and equipment are necessary for the inspection. If the costs entailed are too high for the paraglider owner, the glider should be sent to the manufacturer for inspection.

Swing GmbH assumes no liability for and does not provide any warranty for any 2-year inspection which it did not carry out itself.

Instructions as at 27.07.2006

*German Hang-gliding and Paragliding Association/Austrian Aero Club

Manual Version from 15.12.2011

PROCEDURE:

What must be inspected and when

Regular inspections under aircraft inspection regulations for paragliders.
The following table shows the inspection periods which must be observed. Ground handling hours should be doubled when calculating the number of flight hours.

The manufacturer should be notified immediately if there is any abnormal flight behaviour and, if necessary, the glider must be returned for inspection.

check intervals paraglider type	every year or every 100 flight hours*	every 2 years or every 150 flight hours*
light weight glider / Mini-Wings	-	yes
acro glider / Speedrider	yes	-
solo glider (DHV 1 to 3)	-	yes
motorglider (ppg)	-	yes
tandem glider for private use	-	yes
tandem glider for commercial use	yes	-
school glider (used for instruction)	yes	-
competition glider	yes	-
ground handling hours	yes (x factor 2)	yes (x factor 2)

* what applies first

Who can carry out the inspection?

Apart from the manufacturer or an inspection centre or person authorised by the manufacturer, only the owner of the paraglider may carry out the 2-year inspection. The owner must meet the requirements below.

Requirements for the inspection

Requirements for the inspection of solo paragliders which are **exclusively for personal use**:

1. A current unrestricted licence for paragliders/hang-gliders or other equivalent licence.
2. Adequate relevant instruction by the manufacturer or importer.
3. Note: if a glider is inspected solely for personal use, then it may not be used by any other third person.

Requirements for the inspection of tandem gliders and gliders which are used by third persons:

1. Appropriate training to carry out an inspection.
2. Two years' professional experience in the manufacture or maintenance of paragliders and hang-gliders or a technically similar activity. Of that time, 6 months within the last 2 years must have been with a manufacturer of aviation equipment.
3. Adequate relevant instruction for at least two weeks by the manufacturer or importer.
4. Relevant introduction to each type of equipment – this must be renewed every year.

Documents and equipment necessary:

- gauge, preferably Kretschmer, and operating instructions,
- Bettsometer (tear resistance tester) and operating instructions,
- the manufacturer's maintenance instructions,
- airworthiness instructions for the particular piece of equipment,
- aviation equipment reference sheet (see operating instructions),
- table showing line lengths (see operating instructions),
- previous inspection reports (if available),
- inspection report (copy) for the records.

The following procedure should be followed for the inspection:

Identify the equipment:

Canopy: inspect the top surface, bottom surface and seams for holes, tears, worn areas, any stretches and porosity. Inspect the ribs

Connections: inspect the risers and quick links

Lines: check the line breaking strength, line lengths and line fastenings

Visual inspection of trim and adjustment: check the brake lines

Description of material and technical information

Other

Inspections carried out: record results in the inspection report (see attachment) and sign the paraglider

1. Identify the equipment:

Identify the equipment from the DHV certification label and the labelling on the paraglider and using the manufacturer's documentation.

Do you have the paraglider details and DHV certification and are they legible and correct?

If not, contact the manufacturer or dealer.

2. Canopy:

Inspect the top surface, bottom surface and seams for:

2.1. Porosity

2.2. Tear resistance

2.3. Holes / tears

2.4. Worn areas and any stretches

2.5. Inspect the ribs

2.1. Measuring the porosity of the canopy:

The porosity of the following parts of the canopy must be read and the results recorded in the inspection report. Note which measuring instrument is used (and follow the instructions). The measuring instruments must be re-calibrated annually by the manufacturer.

The air permeability should be higher than the readings in the chart, at each of the areas where measurements are taken (see below). The paraglider must be returned to the manufacturer if the readings are poor (e.g. less than 8 on the JDC).

Areas where measurements should be taken:

Carry out the inspections on both the **top surface and bottom surface** of the glider:

1) Middle cell, approx. 20 - 30 cm from the leading edge
2) Fifth cell to the left/right, approx. 20 – 30 cm from the leading edge
3) Tenth cell to the left/right, approx. 20 – 30 cm from the leading edge.

Record the readings in the inspection report.

The following readings apply to Swing gliders:

Instrument				
measured time				
Kretschmer			**JDC**	
LD 100 (1s)	LD 100 (1/10s)	LD 150 (1/10s)	**1s**	**condition**
> 250	> 2.500	> 10000	**> 100**	**new**
200 - 250	2000 - 2500	7500 - 10000	**75 - 100**	**like new**
150 - 200	1500 - 2000	5.000 - 7500	**50 - 75**	**used - in very good condition**
100 - 150	1.000 - 1500	2.000 - 5000	**25 - 50**	**used - in good condition**
50 - 100	500 - 1000	500 - 2000	**8 - 25**	**hard used - good condition**
10 - 50	100 - 500	150 - 500	**2 - 8**	**hard used - Material check in short intervals necessary**
0 - 10	**0 - 100**	**0 - 150**	**0 - 2**	**NOT flyable - NOT airworthy**

Caution: Gliders with less than 8 secs. on the JDC porosimeter should be inspected after use. If the reading is less than 2 secs., the glider should be declared no longer airworthy.

2.2. Check the tear resistance:

The Bettsometer (B.M.A.A. approved Patent Nr. GB 2270768 Clive Betts Sales) is used for this. See the instructions for how to carry out the inspection:

Make a needle hole on the top surface and the bottom surface, where the A-line attachment points are, and test the tear resistance. The limit for the measurement is 500g and a tear of < 5 mm in length.

The reading given is recorded in the inspection report.

2.3. Holes / tears

A thorough visual check of the top surface and the bottom surface, panel by panel, from the leading edge to the trailing edge must be carried out, checking the following points:

1. **Are there any holes, small holes or larger tears, worn areas or stretches?**
2. **Can you see any defects in the coating?**
3. **Can you see anything else conspicuous e.g. areas which have already been repaired?**

If the answer to 1) or 2) is 'yes', then the glider must be returned to the manufacturer.

2.4. Worn areas and stretches

After the visual inspection:

If there are any large or major areas of wear or any stretches, then the panel must be replaced by the manufacturer.

2.5. Checking the ribs

Working from one side of the glider to the other, from the leading edge to the trailing edge, check whether the inside seams, cell walls and reinforcement are in good condition i.e. free from tears, stretches, worn areas, damage to the coating.

The glider must be returned to the manufacturer or authorised inspector if any ribs are torn or if any inside stitching is weak, loose or missing. Record the result in the inspection report.

3. Connections:

Inspect the risers and quick links

- **Are there any worn areas, kinks, tears, signs of heavy wear and tear?**
- **Is all the stitching firm?**
- **Can the speed bar move and is it intact?**
- **Are the brake handles still sewed on firmly?**
- **Are the quick links free from rust and can the threads be loosened and tightened?**
- **Do the A, B, C, and D riser lengths and the acceleration distance correspond?**

Take the measurements using a weight of 5 daN (deca-Newtons). The values given should be compared with the details in the DHV certificate and recorded in the inspection report. Permissible variations (tolerance) can be found in the manufacturer's instructions (inspection and service record).

If the riser or any part of it is defective, order an original part from the manufacturer and replace it.

4. Lines

4.1 Inspect the line strength

Select the line: Select a centre A, B, C and D-main line and check it for its breaking strength. To further inspect line breaking strength, brake an A, B and C line from the middle and upper cascade lines.

Stroke speed of the cylinder: v = 30 cm/min.

Breaking strength values: These values vary according to the model of paraglider and size. The correct values are given in the glider's inspection and service record. Higher values have applied with Swing since 22.04.2004. For A and B lines, 10g and 8g are used, and for C and D lines, 8g and 6g are used. The lines are acceptable if the values are above the upper limit (10g). The glider should be inspected soon if between the upper limits (10g or 8g) and the lower limits (8g or 6g). If the braking values are lower than the lower limits, the cascade in question must be replaced. In any event, all lines must hold at least 25kg irrespective of the "g" load.
If the lines tested do not pass these tests, they must be replaced with new original lines. All lines replaced are marked with a black pen near the attachment (seam) and recorded in the test log with the date they were replaced and the glider's flight hours. At the next inspection, an original neighbouring line is used to test the line strength. The values given are recorded in the inspection report.

4.2. Inspect the line lengths and line attachments

Starting at the middle and working towards the outside, visually inspect the main lines, cascade lines and brake lines for damage to the sheath, kinks and worn areas. Start with the A-lines, then the B-lines etc.

- **Are all the lines adequately sewn into the line attachments and suitable for use?**
- **Are the line sheaths in good condition?**
- **Are all loops, knots and stitching in good condition?**
- **Are the quick links done up tightly?**
- **Are there any worn areas?**

Record the results in the inspection report.

Measure the line lengths:

Measuring the line lengths is part of the regular check.

The lines must be measured with a 5 kg weight so that the results are comparable. You will find the corresponding line lengths under "Inspection and service record". The DHV-method is used for taking the measurement, i.e. from the line loop to the canopy. The DHV line numbering starts from the stabiliser and goes to the middle. To measure the opposite side of the wing, a symmetrical comparison can be made, following the same procedure.

The result is recorded in the inspection report and compared with the target line lengths in the DHV certificate. The tolerance for the line lengths differs from one line to the next - see attachment.

If a line is faulty it must be replaced immediately. Find the description of the line in the line plan, order it from the manufacturer and then replace the old line.

5. Visual inspection of trim and adjustment:

Lay out and inflate the glider. Carry out a visual inspection of the canopy and lines before the test flight. In particular, check the length of the brake lines on an inflated glider. A test flight should not be carried out until there are no concerns about whether the brake lines have been correctly set up.

6. Description of material and technical information:

See inspection and service record.

7. Other

Full details of all measurements taken and repairs to the paraglider must be recorded in the inspection report. The inspection report and/or record of measurements must be signed and dated (and the place given). They must be kept for 4 years.

8. Inspections carried out:

The following must be completed:

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Paraglider Model Size Serial number

Date of inspection:	**Name of inspector** (in block letters)	**Signature**

Inspection report (please make a copy before completing)

Manufacturer: Swing GmbH, An der Leiten 4, 82290 Landsberied, Germany

Type of equipment:	**Serial-No.**
DHV certification:	**No.** **Year:**
Customer's full name:	**Customer's Post code/Town/Tel. No.:**

Inspections carried out

	+	**-**	**Description of fault**	**Recommendation**
Visual check (see below, canopy fabric, lines, connection points etc)				
Machine-assisted check of permeability				
Name of the measuring equipment (air permeability)				
Measurement of all line lengths				
Machine-assisted check of line strength				
Machine-assisted check of canopy strength				
Visual check of trim and adjustment				

Canopy fabric (tears, worn areas, stretches, coating, etc.)

Top surface				
Bottom surface				
Leading edge				
Internal walls				
Seams				

Lines (damage, kinks, worn areas, splicing etc.)

Lines				
Brake lines				
Upper lines				
Stitching, knots				

Connecting parts (tears, worn areas, stiffness, completeness etc.)

Risers				
Quick links				
DHV/DAEV/SHV certification				
Paraglider details				

	As new
	Used, very good condition
	Used, good condition
	Clearly a used glider, good condition
	Heavily used, currently DHV-compliant, materials should be inspected shortly
	Used excessively, no longer DHV-compliant, costs of repair higher than current value

Repair carried out **Yes** O **No** O

Inspection stamp given **Yes** O **No** O until: _____

Place, Date: ..... Signature:.....

Company:..... Name of inspector:.....

Notes

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