

# Tuning

## Dismounting and remounting the sail at the tip

A number of tuning procedures require you to dismount the sail at the rear leading edge. This can be most easily accomplished by using a large, flat bladed screw driver to pry the sail mount webbing off of the end of the leading edge. The same technique can be used to reinstall the sail. Take care not to damage the sail mount webbing, and when remounting the sail, be sure to mount the inner webbing in the slot, not the outer handle webbing, and be sure that the webbing seats squarely in the slot.

## CG adjustment

has already been covered in the section of this manual on using your wing tufts. Wills Wing recommends that tuning other than CG adjustment be performed by your Wills Wing dealer.

## Turn trim

Turns are caused by an asymmetry in the glider. If you have a turn, first try to make the glider symmetrical in every way.

## Airframe

Check the leading edges for possible bent tubes. Check that the keel is not bent to one side.

Check for symmetrical twist in the leading edges by checking for symmetry in the alignment of the sail mount plugs.

## Battens

Check the battens for symmetrical shape and batten string tension.

## Sail mount plugs - adjusting sail tension and rotational alignment

The molded plastic sail mount plug fits directly into the rear leading edge. It is secured against rotation by a sliding wedge which is forced out against the inside of the tube as the Allen screw is tightened. The proper installation procedure for this plug is to engage the allen screw three turns into the sliding wedge, install the plug into the rear leading edge, set the desired alignment, and then tighten the allen screw 9 additional turns.

Shims are added to the allen screw type plug by sliding them over the end of the plug before the plug is inserted into the leading edge. The shims are thus visible with the plug installed.

Once the allen screw type plug is installed, the rotational alignment can be changed by loosening the allen screw to relieve the pressure of the wedge against the inside of the leading edge tube until the sail mount plug is free enough that it can be rotated.

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*If you loosen the screw too much, the wedge will fall off inside the leading edge tube, and you will have to dismount the sail to retrieve it.*

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## Sail tension

Check for symmetrical sail tension on the leading edges. In order to check this, remove the sail mount screws at the nose, detension and re-tension the xbar and sight the hem of the sail at the bottom of the leading edge tube relative to the noseplate on each side. Sail tension is adjusted by adding or removing shims in 1/8" or 1/4" increments to or from the sail mount plugs on the rear ends of the leading edges. See the discussion above about the different types of sail mount plugs and how shims are added or removed.

To remove or add shims from either plug, first dismount the sail mount webbing by pulling it free and then to the outside of the leading edge. You can use a flat bladed screwdriver to pry the webbing off, but take care not to damage the webbing. After dismounting the sail, first check and record the rotational alignment by noting the position of the scribe mark on the plug relative to the scale on the leading edge tube. Use the allen wrench provided in your spare parts kit to loosen the allen screw until you can remove the plug. Add or remove shims as necessary, and then reinstall the plug, making sure the alignment is correct. Nine turns of the allen screw after installation of the plug will secure the plug in place.

Make sure to replace the sail mount screws at the nose.

### Twisting a tip

After you have made everything symmetrical, if you still have a turn, you will correct it by rotating one or both sail mount plugs. A left turn is corrected by twisting the left sail plug clockwise (twisting the sail down at the trailing edge) or twisting the right sail plug clockwise (twisting the sail up at the trailing edge) or both. Twist counter clockwise on either or both plugs to correct a right turn.

To rotate the sail plug, use the allen wrench provided in your spare parts kit to loosen the allen screw thus pushing the wedge forward and releasing the plug.

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*If you loosen the screw too much, the wedge will fall off the end of the screw inside the leading edge, and you will have to dismount the sail to retrieve it. Start by loosening the screw ten turns, and then check to see if you can rotate it. If not, loosen it one turn at a time until it can be rotated.*

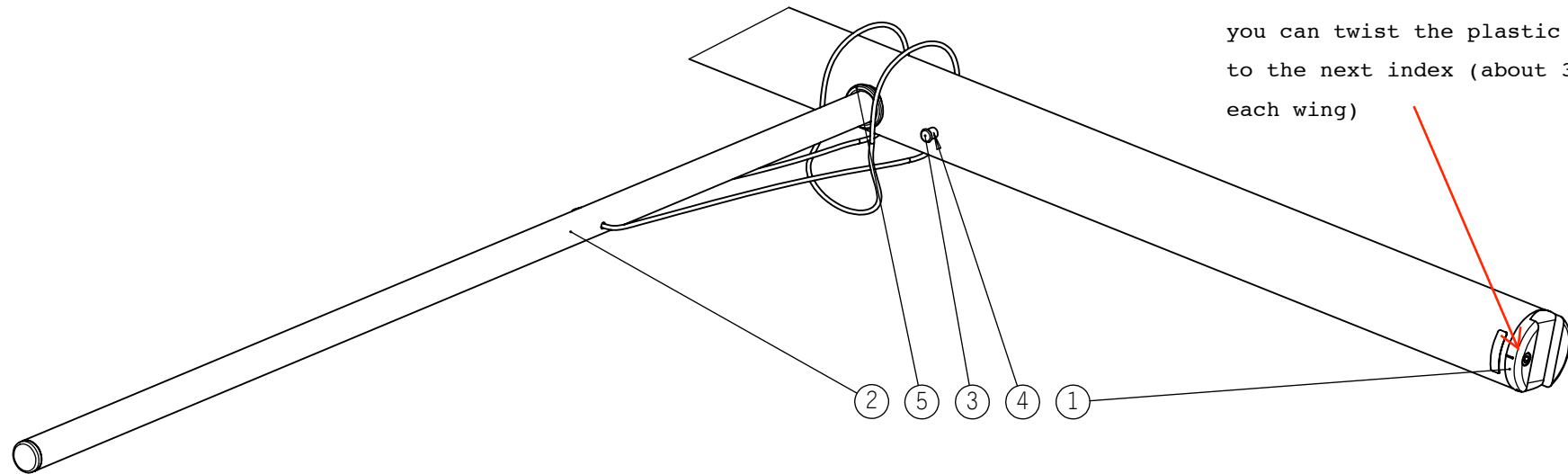
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After rotating the plug in the desired amount in the desired direction, (see above) tighten the screw to secure the plug against rotation. When the screw is properly tightened, there will be a slight bulge (less than the wall thickness of the tube) in the rear leading edge tube adjacent to the screw.

### Adjusting batten tension

The number one and number two tip battens on the Falcon 3 are tensioned by looping the batten string over the notched end of the batten twice. The remainder of the battens are tensioned by the adjustment of the lever tip. The inboard battens should be fairly loose, as described in the batten installation portion of the set up procedure. The outboard battens should be progressively more firm. The number one batten strings should be fairly snug, but not so tight as to slacken the sail mount webbing which mounts the sail at the tip. We have found that if the plug on #1 battens are adjusted too tight it can increase the chance that the glider will enter a mild spin when stalled in a turn. If you experience this tendency, try loosening the number one battens slightly.

ITEM	Part No	Description	QTY.
1			1
	15J-1911	ENDCAP SAIL MOUNT ADJUSTABLE	1
	15J-1912	LOCKING SLIDE ADJUST ENDCAP	1
	10K-2026	SCREW SOCKET CAP 10-32X1.75 SS	1
	10U-1130	WASHER STEEL AN960-10	1
	10S-1101	C-CLIP SAIL ADJUSTER CAP SCREW	1
	70G-4019	PLACARD - SAIL ADJUSTER ALIGN	1
2			1
	40M-1144	WASHOUT TUBE BUNGEE RETAIN	1
	15B-0608	ENDCAP 3/4 MULTIGAUGE	1
	30J-3101	BUNGEE - 1/8	1
3			1
	10G-1710	MS20392-2C71	1
	10P-1100	SAFETY RING AN 9491 SMALL	1
4	10T-1108	SPACER AL .250 X .028 X 0.25	1
5			1
	20G-2411	Washout Tube Receptacle AT Alum	1
	10L-1061	SCREW PAN 3/16 MS35207-263	1
	10N-1130	LOCKNUT LOWPRO 3/16 AN364-3	1



loosen the socket bolt until you can twist the plastic cap to the next index (about 3/16" each wing)

**WILLS WING**

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**Falcon 3 Rear Leading Edge**

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Falcon 3 Rear Leading Edge

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