



Pilot Handling Guide

Astir Jeans VH- KYT



These notes are a conversion guide only and not a substitute for the Manufacturer's Flight Manual.

General notes on conversions	.2
Basic overview	.2
External features	.2
Limitations	.2
Cockpit features	.3
Trim ballast	.3
Daily inspection notes	.4
Glider accessories and Storage	.5
Flight characteristics	.5
Before flight	.5
Aerotow takeoff	.5
Glide performance	.5
Stalling	.5
Spinning	.5
Approach and landing	.6
The flight	.6
Aerobatics	.6
Pilot responsibilities	.6
Supplementary Notes – (PIOs)	.7

General Notes on Conversions

1. Your conversion to a new type must be authorized by an instructor who has flown the aircraft type.
2. He/she must outline the important features of the aircraft.
3. You should not do your first conversion in crosswind or gusty conditions.
4. Spend some time getting comfortable with the cockpit layout.
5. Get someone to lift the tail to show the takeoff and landing nose attitudes.

Basic Overview

The Grob Jeans is a single seat, 15m sailplane constructed of fibreglass and manufactured by Grob, Germany. If this is your first single seater new features from previous two seaters are:

- Light controls
- More responsive.

It differs from the Puch and the Grob in that it is tail-heavy rather than nose-heavy (for takeoff and landing). Minimum requirements to fly the Jeans is holding an "A" certificate.

External Features

Main Wheel & Tail Wheel Configuration	Tail-heavy
Airbrakes	Effective
Flaps	Not fitted
Wings	15m
Undercarriage	Fixed
Tailplane	T-tail
Dolly wheel	Castoring wheel which fits into a hole in the bottom of the fuselage in front of the tail wheel

Limitations

V_{ne}	Max permitted speed	135 kts
V_a	Max speed for manoeuvring	135 kts
V_{ra}	Max speed rough air	92 kts
V_t	Max speed on aerotow	92 kts
V_w	Max speed on winch / auto launch	64 kts
Max All Up Weight (MAUW)		380 kg
Min cockpit weight, including parachute		75 kg
Max cockpit weight, including parachute		107 kg
Release Weak Link		500 kg

Cockpit Features

Canopy mechanism & jettison	Side opening with red operating knob on left side. To jettison pull red knob on right side of cockpit as well. <u>At no stage must the canopy itself or clear view side window be held to lift or close canopy.</u> Only hold levers or canopy frame when opening or closing canopy. Always close and lock Canopy when leaving or ground handling glider.	
Ballast	Ballast box on both sides of instrument panel. Do you need ballast? See ballast section.	
Instruments	Radio Vario Flarm Navigation Logger	Becker AR4201 Borgelt B40 Yes N/A Colibri
Seat adjustment	None	
Control column	Standard	
Ventilation	Black knob on top right of instrument panel	
Trim	Green lever on left	
Wheel brake	On control stick	
Tow Release	Nose hook, conventional yellow handle	
Water Ballast lever	N/A	
Retractable undercarriage	N/A.	
Airbrake Lever	Blue lever on left	
Rudder pedal adjustment	Black knob on top left of instrument panel	
Battery	Standard club battery located behind seat in compartment.	



Trim Ballast

There are 6 ballast weights specific to the aircraft and are fitted in the compartments either side of the instrument panel, just in front of the seat. Be sure to remove the trim weights from the glider and replace in the pie cart when finished with the glider.

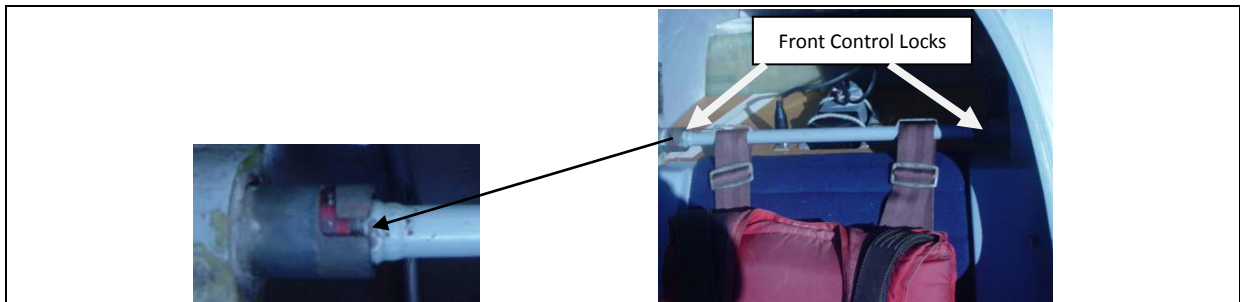
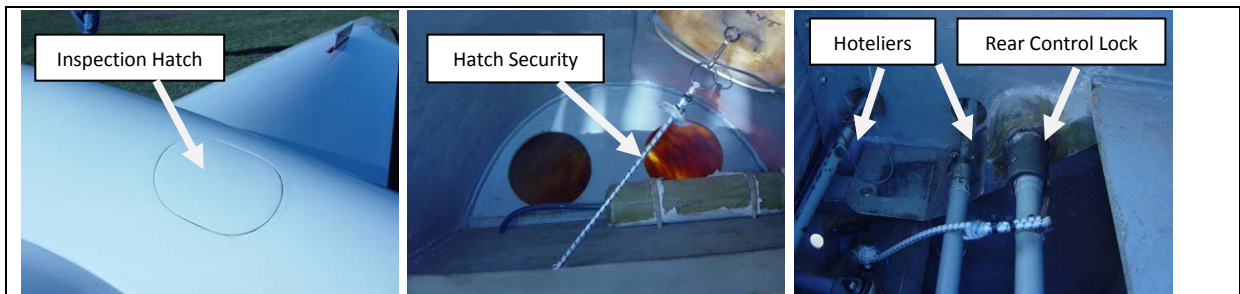


Min Pilot Weight (no ballast)	75 kg
Max Pilot Weight inc chute	107 kg
For Pilot & chute 70-75kg	2 ballast wts
For Pilot & chute 65-70kg	4 ballast wts
For Pilot & chute 60-65kg	6 ballast wts

Daily Inspection Notes

In addition to the daily inspection routine:

- **Tyre Pressures:** Main wheel: 36 psi
Tail wheel: 28 psi
- Check condition of strap holding canopy open.
- Always remove inspection hatch behind cockpit and check for security of hotelier fittings and rear control locks. Tape hatch up when finished. Check front control locks as well.
- Inspect the hotelier on the tailplane
- Always check TE probe, Pitot tube and Static Ports for blockages from wasp nests.
- Check undercarriage for signs of heavy landings.
- Check the belly of the glider for scrape marks. These can happen during the landing ground run and the pilot allows to nose to rotate over and slide along the ground.



Glider Accessories and Storage

Jeans KYT has a canopy cover. The cover must be installed when the glider is not in use and make sure to attach the straps underneath also. When the glider is being flown store the cover in the baggage compartment behind the pilots head in the cockpit. Care must taken to ensure cover is kept clean as any dirt will scratch the canopy when cover is installed.



Always store the glider with the canopy cover on, side window closed and airbrakes unlocked to reduce wear on the over-centre lock. If stored



with one wing down place some protective carpet and a wing weight on the lowered wingtip and remove the tail dolly to prevent the glider shifting in windy conditions. Always install the pitot cover during storage to prevent blockage from insects such as mud wasps.

Flight characteristics

Before the flight

- Get organized and be ready to fly when you want to without rushing
- Pick favourable conditions – avoid crosswinds, strong winds, low cloud, poor visibility etc.
- Check you have a good, competent wing runner who knows it's one of your first flights on type
- Get out on the grid, get comfortably strapped in and set for the launch
- Check again you can reach and operate all controls and instruments comfortably

Aerotow takeoff

Set the trim to forward. Note the trim is a spring trim and may move with the stick on takeoff. Max towing speed is 92 kts.

Glide performance

The glide is approximately 35:1

All control movements require only very low operating forces (it is light on the stick).

It is quite stable.

Stalling

The glider stalls in the conventional manner. It is a gentle stall preceded by gentle pre-stall buffeting. Recovery is progressive forward movement of the stick until unstalled.

Stall speed is 32-35 kts.

Stall speed (brakes open) is slightly more than this.

Spinning

The Jeans has typical spin characteristics and recovers easily with the standard spin recovery technique.

Approach and landing

- Plan a normal circuit.
- Be sure to have good speed control throughout the circuit.
- Use an approach speed of 48kts (no wind) minimum cockpit load
52knts (no wind) maximum cockpit load
- The brakes are effective.
- Set up the approach for ½ brake. Avoid putting the brakes away in the latter part of the approach.
- Keep your approach speed constant
- Don't try to "land the glider" before it is ready
- On ground roll when below stall speed, hold tail wheel on the ground by applying back stick. This will help with directional control and help to prevent the glider nosing over and scraping the belly. Remember that this aircraft does not have a nose wheel so damage will result if the nose is allowed to drop too far.

The Flight

- Takeoff and tow to 2000+ft **AGL** to allow time to get familiar with the glider's handling characteristics
- Do not plan a long flight (max ½ hr). Aim to land in the same conditions as you took off in.
- Do some normal and steep turns; check the rate of roll and rudder required while reversing direction
- Think of what you expect the symptoms of the approach to the stall and the stall itself will be then try slow flight and then a clean stall. Note the handling on recovery. Then set up flight at an appropriate approach speed and then extend the brakes. Note the attitude and trim changes and the manoeuvrability in the landing configuration.
- Check the handling characteristics during stalls when turning, clean and in the landing configuration (brake out). Pay particular attention to the symptoms of the stall onset.
- Try flying at higher speeds; note the attitude changes and handling at other flap settings for faster flight. Note that once trimmed for thermalling flight, no additional trim change is required for high speed flight. Join the circuit with time to assess conditions, perform pre-landing checks and fly a normal circuit for a normal final approach. Fly the approach to an aiming point set a little into the field to cater for any unintentional undershoot.
- On later flights, explore out of position towing by boxing the tow plane's slipstream.
- Try flying at V_A and if it is smooth, at V_{NE} . Note the handling and performance at these speeds.

Aerobatics

The aircraft is approved for loops, spins, stall turns and lazy eights.

Pilot Responsibilities

- Understand how to DI the glider
- Understand how to operate the glider (including limitations)
- Understand how to Rig / De-Rig the glider
- Make yourself familiar with the Jeans trailer

Enjoy your flying in the Jeans

Supplementary Notes – Pilot Induced Oscillations (PIOs)

In an aircraft like the jeans, a PIO can occur when the glider touches down on the main-wheel and bounces back into the air. The pilot pitches the nose down and the glider strikes the ground, resulting in the nose pitching up rapidly.

What happens next is that the nose pitching up causes the tail to pitch down, striking the ground. After the tail strikes the ground, the glider pitches nose down again, striking the wheel even harder. This process continues in a divergent oscillation which increases until something else occurs - usually, and all too often, structural failure just ahead of the fin unless the pilot takes action to correct the oscillation.

To remedy the problem is simple - neutralize the controls after the first bounce - the glider will level out above the ground. Do not force the nose back down on or towards the ground. If the glider has bounced or climbed just a few feet, it will sink at a relatively gentle rate, and safely back to the ground of its own volition. If it is a BIG bounce, gently lower the nose and this time flare at the correct height. If the airbrakes are more than one-half open, gently closing them a little will allow additional time to flare correctly. Remember that lowering the nose decreases both angle of attack and lift, causing the glider to sink quite rapidly. Consequently, any forward stick movement must be gentle.

The idea is to damp out the oscillation motion - i.e. pitch down gently (stick moving forward) as the nose comes up, and vice versa. When the oscillation stops, centralize the controls and let the glider land itself (as in Case One). DO NOT FORCE the nose back onto the ground. If for any reason the glider continues to oscillate (if your timing is bad and you aggravate the oscillation), neutralize the controls and apply full airbrake. This will quickly reduce energy and stop the glider from flying, even if in a rather unpleasant and abrupt manner. It is less likely to cause damage than permitting the oscillation to continue unchecked.

The undignified and possibly expensive method of arrival can be avoided by:

1. Establishing the landing approach at the correct airspeed for the conditions. The greater the airspeed, the greater the pitch sensitivity.
2. Establishing the landing approach with **half or more airbrake** (the more the airbrakes are closed, the less pitch stability the Grob will have, making a PIO more likely if otherwise mishandled).
3. Flare at the correct height. Don't fly the glider into or force it onto the ground. Aim to arrive with low energy, touching down with the main-wheel and tail-wheel simultaneously.

It should be noted that a correct approach (i.e. preparation for the flare and touchdown) is important in preventing this problem. Fly the correct approach speed (not too fast or too slow) using at least one-half airbrake, thus eliminating the pitch instability. These simple steps will greatly reduce the problem and risks of pilot induced oscillations.

¹ Taken from Soaring Safety Foundation, USA, Dean Carswell.