EUROFOX AVIATION, The hangar,
Wanshurstgreen Farm,
Battle lane, Marden, Kent,
TN12 9DF

Pilot operating handbook Appendix 1

EuroFOX Aviation

EuroFOX

EuroFOX Aviation Approved Microlight at 560 Kg MAUW

All performance figures in this POH are based on 560 kg MAUW.

Appendix 1 **Towing Gliders**

This appendix contain information for towing gliders and complements the main EuroFOX POH specification which is important for maintenance flight performance of the Eurofox.

General

The EuroFOX is permitted to Aerotow gliders.

Caution	Rope release is orange or yellow colour and is located in the centre of instrument panel below the throttle.

Flight limit

Towing gliders is permitted according to data in this table:

- Maximal Take Off weight of glider…… …… 790 kg

- The MAUW of the Eurofox is limited to 560 kgs (take off weight)
It is recomended that when there are 2 POB in the Eurofox, the glider on tow does not exceed 600kgs, although there is no formal limit set by the manufacturer. Operators should use their judgment based on occupant experience and daily conditions.

- **Towing rope must have at least one weaklink fitted**:
- Maximum Breaking load for weaklink …… 3 000 N (300 kg)
- Aero tow cable length …… 50 m

Note: The TOST 22 Tow Release has life limitations ad maintenance requirements. The release mechanism requires an overhaul after "2000starts/10000 activations or 4 years whichever comes first"

Operating limits

1. Crosswind limits……tail wheel 12 Kts……..nosewheel 15kts
2. Tail wind limit…… 4kts
3. The maximum towing speed of the glider on tow before flight must be at least 55kt
4. Maximum aerotow speed 90kt
5. Minimum speed of tug/glider must not be lower than 1.3 times the stall speed of the glider on tow. Minimum aerotow speed 50kt with ½ flap
6. Important: Before towing, the pilot of the towing aircraft and the pilot of the glider must agree on the towing speed.
7. Pilots must assess the effects of take off performance on long grass, in rain or any contamination on wing (leading edge) as appropriate.

NORMAL PROCEDURES for towing gliders

Before Take Off

- Brake	set the brake
- Electric fuel pumps	Switch On
- RPM	3500 rpm, check Lanes
- Pitch propeller	fixed, should be the approved towing propeller
- Trim	functional check, set half way
- Wing flaps	Set as appropriate - generally 1/2 flap
- Master switch	On
- Ignition	On
- Other switches	On as necessary
- Main fuel tap	On

- Wing tank fuel taps	open, fuel quantity check and that the panel low fuel light warning light is not illuminated (check bulb)
- Instruments	check temperatures and QFE or QNH setting as needed
- doors	secure at both closing points. Check seat belts or anything else is hanging out of the closed doors
- Check runway	Check there is no traffic on the runway or on approach
- Check towing rope	When advised by ground crew, take up slack in tow rope or winch and check in the mirror
- Ready to Take Off	When given signal by ground crew

Take off:

- take off roll	Push throttle fully forward and raise the tail off the ground (if a tail wheel aircraft) and maintain max power (generally 5500rpm or less)
- speed	When airbourne at approx 45 kts, hold aircraft in ground effect at 5 feet above runway and build up speed to minimum glider tow speed and then climb out
- Flaps	Return to zero as soon as airbourne
- airspeed in climb	Is dependant of type of glider on tow, but normally 50kts - 80kts IAS
- engine instruments	Check within limits throughout the climb

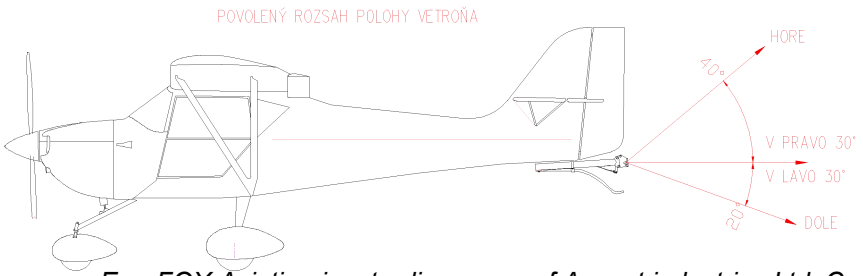
Caution	During Take Off roll and climb check attitude of glider with the mirror.

Climbing:

- Maintain full throttle and speed in range 50kts-80kts depending on the type of glider
- Check RPM less than 5500 rpm continuous in the climb rpm. At height if more than 5500rpm is seen, reduce throttle setting so that 5500 is indicated
- Check attitude and the glider in the mirror
- Check engine settings are within limits throughout the climb
- Maintain airspeed if tug pilot decides to make any gentle turns

Warning	Maintain airspeed during climb in required glider range

- Cruising speed in accordance with the glider requirements but not less than 50kts
- Descend after releasing the glider, maintain 3000 rpm at least
- Before landing make sure tow rope will not catch any trees or high objects. If Winch is fitted, ensure the rope is fully retracted before landing. Retract speed 65-70kts
- Approach and landing according to the main POH



Placarding

- The tow release handle should be coloured yellow or orange and be clearly placarded “Tow release”
- Within sight of the pilot, there must be a placard noting the maximum weight of any glider thatis allowed to be towed by the Eurofox.

Example of typical glider towing performance figures

Note: Ground roll distances shown on the table below were measured on a slightly rising tarmac surface with a 10kt crosswind, add approx 30% for wet grass. A 10kt headwind will shorten these figures by approx 15%

All tows providing this data was at 5500rpm or less.

Maximun glider on tow weight of 790kgs may not be possible at very short airfields (less than 500 metres) or with airfields with high trees. The owner/operator is advised to make their own gradual incremental testing with their glider fleet.

However as a guide and if you already operate a high power Pawnee, the limits you set on this aircraft will be suitable for the 915 EuroFOX.

Reference number	Eurofox 915iS take off weight	Glider type	Ground roll distance on tarmac	Time to 2000 feet from “all out” and start of ground roll	Best rate of climb towing speed	Distance to clear 15m obstacle
1	550kgs	Oly 2b Vintage One POB	170m	2.14 Mins	50 kts @ 1/2 flap	60m
2	540kgs	K13 2 POB	190m	2.43 Mins	60kts	70m
3	560kgs 2 POB	K21 2 POB	220m	3.05 Mins	60kts	75m
4	530kgs	Duo Discuss 2 POB	205m	3.16 Mins	65-70kts	80m
5	530 kgs	Ash 25 2 POB self launcher	220m	3.43 Mins	70-75kts	90m
6	525kg	Discuss single POB	170	2.35 Mins to 2500ft	60kt	60m

Operating notes and advice on aerotowing with EuroFOX nose and tail wheel version aircraft.

- The powerful Rotax engine will require a reasonable amount of right rudder to compensate for the initial thrust. Be ready and quick to react to rudder input requirements For those pilots who are not 'au fait' with flying this type of light aircraft, the following should be taken into consideration.
- The EuroFOX is a delight to fly possessing light powerful controls, needing coordinated rudder and aileron to maintain the ball in the middle. Sloppy handling, coupled with an iron grip on the stick to shove the stick to all four points of the compass, will not get the best from the EuroFOX.
- The EuroFOX sideslips beautifully and easily and is well coordinated when doing so. This more than compensates for the fact that when the flapperons are drooped in flap mode, you don't get a large amount of drag. You will get a very nice nose down pitch enabling an excellent view over the nose for landing.

Take off

If your EuroFOX is the nose wheel version, it pays to get the nose wheel just off as early as possible at the start of the tow, then balance the aircraft on its mains with the nose wheel just clear of the ground. Acceleration will then be enhanced and in all probability you will find lift-off will occur before the glider! The EuroFOX tug needs to be kept low (3-6ft) to pick up the necessary speed (for the glider on tow) before climbing away, therefore avoiding compromising the glider.

With the tail dragger version of EuroFOX, it is recomended to use half flap for take-off, raise the tail quickly off the surface, running on the main wheels during ground roll, the EuroFOX rudder is very powerful. As soon as airborne, fairly smartly retract the flap.

On short hard grass surfaces or tarmac/concrete, we would not use any flap. With both versions of the EuroFOX, we would suggest that tug masters form their own opinion by "experimenting" with the use of flap for take-off to suit your own site. W

What does need to be recognized for both types, is that they can be classed as low kinetic energy aircraft, meaning in reality that lift-off can be fairly quick, and often before the glider. The EuroFOX must be held down at just above the runway to pick up the necessary speed before climbing out satisfactorily with the glider behind. Conversely on landing, the speed will decay more rapidly than a much heavier aircraft.

It has been demonstrated with an experiened pilot that the Eurofox is able to with crosswinds up to 20kts, however, the POH maximum figure should be used.

During the tow

During the tow and when 'boxing the tow' the EuroFOX has proven to be well capable of contending with all the out of balance towing forces with its powerful controls. Once off tow, particularly if very close to the launch point, the throttle can be closed to a min of 3000rpm and the aircraft accelerated downwards at 100 knots if the air is smooth.

Summary and other points

Other benefits of the EuroFOX tug, is that it has a superb towing mirror which doesn't vibrate at any engine rpm. It is very easy to take up slack in the rope to the point of all out, just by use of the mirror alone.

We set the propeller so that at the higher towing speed of 70-75kts, 5,500 rpm shows on the gauge. This may mean that at slower speeds the rpm seen may be 5300-5400, but there is ample power to tow all gliders. If at towing speeds over 70kts, the rpm may go above 5500, this is permitted for a short time, but the best approach is to reduce power so that 5500 rpm is indicated. There is ample power during this stage of the tow.