Notes for Tug Pilots

Eurofox G-CMLY

3/3/24

Please read the Eurofox 915iS Pilot operating Handbook on club website for full information

Limits

Stall	38Kts flap down. 43Kts flaps up
Va	90kts
Flap limiting	83Kts
Never exceed	135Kts
Max continuous	5500RPM
Max Take off	5800RPM
Fuel	86 litres (85 useable)
Oil capacity	2.1 – 2.6 Litres
Max Take Off weight	560Kg
Load	+4G -1.5G
Max AoB	60Deg
Max Pitch up / down	45Deg

Parking

The aircraft must be parked on the apron when unpacking the hangar, not on the field. If it's windy, the tug should be put back in the hangar. On the airfield the aircraft should be parked substantially into wind. The straps should be routinely used to stop the controls from banging.

General

- Tug pilots are responsible for maintaining their flying recency, licence validity, date of last refresher flight and medical status
- Any tug pilot who has not flown for a reasonable time should fly a standardisation trip before towing.
- Pilots should have a standardisation flight annually with the tugmaster or his deputy to revise general handling and emergency procedures.
- An emergency vehicle must be on the field.
- All flights must be logged and a record kept of engine times.
- The use of the tug for any purpose other than aerotowing or tug pilot recency will need the permission of the CFI or deputy, or the duty instructor in charge. Any flying time is charged at the rate fixed by the committee.
- Tug pilots should be familiar with the BGA Aerotowing Guidance Notes in managing Flying Risks.
- Aero-tow ropes should be kept on the reels. Inspect before use, including the weak links and test the release. The Yellow (400Kg) link goes at the tug end, the Green (300Kg) link at the glider end.
- The pilot must be aware of the towrope, both in the air and taxying on the ground to ensure that there is no risk of the rope endangering people or aircraft.
- Avoid filling above 30 litres per wing tank and turn off fuel taps to prevent fuel overflow from on the slope.

Taxying

- Weave, as visibility over the nose is very poor
- The a/c has a steering tailwheel and effective brakes. Make full use of the steering tailwheel to avoid using power against the brakes.
- Be meticulous about positioning the controls to take account of the crosswind / headwind / tailwind when taxying.
- Always taxi obliquely down the slope to the hangar, never straight down the slope.
- If extreme conditions are unexpectedly encountered – stop and get a wingtip walker.
- The aircraft is light and extreme care is needed not to tip it up and cause a prop strike.

Flying the aircraft

- Check feet off brakes before take-off
- Recommended ½ flap for take-off (no flap if the ground is hard and the grass short).
- The nose is high in the climb, so weave
- Beware of the reduced visibility in turns due to the high wing.
- The controls are very effective.
- Check the slip ball as the rudder is very light and powerful
- Approach at 50-55kts.
- Check feet off the brakes before landing.
- Agent suggested flap setting for landing – Calm conditions, full flap. !0kts wind, ½ flap. Gusty conditions, no flap.
- No aerobatics. No spins.

Towing

- Tow wooden gliders at 60kts, Puchacz at 65Kts, glass at 70 Kts, and a bit faster for heavy gliders. Add 5-10kts for ASI over read in tug. At higher speeds control RPM to 5500 RPM or below.
- Pilots must observe the No Fly Zones.
- Tow and return patterns should vary as far as possible to avoid overflying the same places on the ground
- Aerotows must not be made from the winch launch run due to the danger from the winch rope.
- Keep high to avoid fences and trees. Do not overfly parked aircraft or people with the rope on unless well high and clear. Make sure you allow plenty of room when manoeuvring on the ground. If in doubt, drop the rope – remember the rope can kill
- No aero-towing is allowed before 9:00am or after 7:30pm or sunset, whichever is the earlier.
- For higher tows make sure that the RPM is controlled below 5500 RPM.
- After the glider has released, reduce the power to 3000RPM and descend as fast as is safe and comfortable.
- To avoid Kingston Deverill and to keep it quiet make a base leg close to the trees.
- Between each tow follow the “between tows” check list in the cockpit.

Aerotow retrieves

- Retrieves from other sites need permission as described above.
- Not permitted from fields - only from airfields
- The pilot requesting the retrieve must be able to assure the tug pilot that permission has been obtained from the airfield operator.
- Carry the rope in the aircraft.

- Refuel before departing.

Daily inspection
The airframe is lightly built – inspect visually if possible, use absolute minimal force otherwise**.**

Cockpit
- Master: OFF
- Ignition: OFF
- Fuel valves: Open check quantity
- Instruments: INSPECT
- Seat belts: INSPECT
- Check main L/E bolts attached: INSPECT
- Check Flaperon tie rods: INSPECT
- Control stick: INSPECT free movement
- Rudder pedals: INSPECT free movement
- Brakes: free movement
- Trim: free movement, proper function
- Engine controls: INSPECT free movement
- Loose objects: remove
- Cockpit windows: INSPECT
- Door: INSPECT shut and locked

Main landing gear
- Gear legs and attachment: INSPECT
- Wheels: INSPECT
- Brakes: INSPECT

Wings
- INSPECT wings, struts, hinges, surface

Pitot tube
- INSPECT

Flaperons
- INSPECT hinges, surface, free movement
- Counterweights attached

Rear cockpit cover
- INSPECT secured

Fuselage
- INSPECT

Stabiliser, elevator, hinges
- INSPECT surface, attachment, free movement, condition and attachment of balance tab

Tail wheel
- INSPECT wheel and tow hook plus rope weak links

Propellor
- INSPECT blades, prop hub, locking nuts

Engine
- Remove top cowling and
  INSPECT engine mount
  INSPECT air intake, and controls
  INSPECT exhaust system and fuel lines

INSPECT coolant quantity and leakages
INSPECT fuel system filter
INSPECT electrical system, ignition and cable connectors

Fuel

- Quantity sufficient
- INSPECT draining of water from central tank, sample fuel and inspect fuel type
- INSPECT fuel caps secured and correct vent orientation
- When parking on the slope always use the chocks on both wheels. Do not rely on the brakes to hold it.

Make a note of the tacho open reading on tech log sheet.

Eurofox G-CMLY Checklists

Start

1 Fuel: Taps	ON and cycle main fuel valve
2 Brakes	ON
3 Key to Avionics	ON - Wait for EMSIS to boot up
4 Key to Engine	ON - Check engine green light ON
5 Fuel pump A	ON - Check pressure
6 Lane switches	Both ON - Wait for red lane lights to go out
7 Throttle friction	SET
8 Throttle	SET as required
9 Control stick	BACK
10 Start button	PRESS
11 Oil pressure	CHECK
12 Revs	Gradually up to 2500 to warm engine
13 Check voltage	14V
14 Starter light	Check OFF
15 Avionics	All ON
16 Reserve fuel	PRESS to test - Check light comes ON

Pre take off

1 Throttle	SET 2100 rpm - Hold on brakes
2 T & P's	CHECK all in range - Oil temp min 50°C.
3 Lane check RPM	SET 2500 rpm - Lane check list is below
4 Throttle	SET 2100rpm
5 Fuel pumps	Switch B ON, Switch A OFF, Switch A ON
6 Fuel pumps	CHECK both ON
7 Trim	SET take off
8 Flaps	SET take off - typically half
9 Avionics	All ON – XPDR 0034 for towing
10 Controls	FULL & FREE
11 Fuel	All 3 taps ON and SUFFICIENT
12 Reserve fuel light	CHECK
13 Lights and strobes	ON
14 Doors and Harnesses	CLOSED, LOCKED & SECURE
15 Stowage items	CHECK SECURE
16 Brakes	OFF

After take off

1 At 100-200ft	Set flaps to zero and retrim
2 At 1000ft	Turn one fuel pump OFF if not towing

Before landing

1 Brakes	OFF
2 Flaps and trimmer	SET
3 Landing light	ON
4 Both fuel pumps	ON
5 Instruments T & P's	CHECKED
6 Doors and harnesses	CLOSED, LOCKED & SECURE

Shutdown

1 Hold on brakes
2 If engine hot, allow to cool down: 2 minutes at 2000rpm

3 Strobes and avionics	OFF
4 Throttle	CLOSED
5 Lanes	BOTH OFF
6 Both fuel pumps	BOTH OFF
7 Key to	OFF
8 iPad	SHUT DOWN
9 Wing Fuel taps	CLOSED

Lane Check	
1. Switch Lane A OFF	Check red light A is ON RPM drop/rise 250 max Confirm B light is OFF
2. Switch Lane A ON	Check light out in 3-5 seconds Wait further 3 seconds
3. Switch Lane B OFF	Check red light B is ON RPM drop/rise 250 max Confirm light A is OFF
4. Switch Lane B ON	Check light out in 3-5 seconds Wait further 3 seconds

Emergency Procedures

Engine failure during ground run

Towrope	RELEASE
Throttle	REDUCE TO IDLE
Brakes	AS REQUIRED GRADUALLY
Lanes	OFF
Fuel pumps	OFF
Ignition	OFF

Engine failure during take-off

Airspeed	60-65 Kts
Towrope	RELEASE
Up to 500ft land ahead	Above 500ft choose suitable site
Ignition	OFF
Main fuel valve	SHUT
Tank fuel valves	SHUT
Flaps	EXTEND AS NEEDED
Safety belts	TIGHTEN

After touchdown:

Brakes	AS REQUIRED

Engine failure in-flight

Airspeed	55-60 Kts
Towrope	RELEASE
Landing site selection	SELECT
Transmit	MAYDAY & XPDR 7700 if time permits
Check:	
Ignition switch	ON
Fuel pumps	BOTH ON
Lanes	BOTH ON AND RED LIGHTS OFF
Throttle	SET 40%
Main fuel valve	ON
Wing fuel valves	ON TO THE ONE WITH MOST FUEL
Starter	START ENGINE

If engine fails to start follow In failure during take-off procedure above

Electrical system malfunctions

Lane light flashing red or on

Turn the lane OFF and then reset back ON
Consider landing ASAP

Both lane lights on

If engine has stopped

Lanes & Ignition	OFF
Standby power	ON
Ignition	ON
Fuel pumps & Lanes	ALL ON AND RED LIGHTS OFF
Starter	START ENGINE

If engine did not stop. Just switch Standby Power to ON
Reduce electrical load to minimum and consider landing ASAP

In-flight engine starting

Airspeed	65Kts
Landing site selection	Select
Main fuel valve	ON
Wing Fuel valves	ON TANK WITH MOST FUEL
Ignition switch	ON
Lanes	BOTH ON and RED LIGHTS OFF
Fuel pumps	BOTH ON
Throttle	SET 40%
Starter	START ENGINE

Fires

Follow these procedures when fire or smoke is detected in the cockpit or engine compartment

Engine fire on the ground

Main fuel valve	SHUT
Tank fuel valves	SHUT
Brakes	APPLY
Throttle	FULL
Lanes	OFF
Electric fuel pumps	OFF
Ignition	SWITCH OFF WHEN ENGINE STOPPED

Abandon the aircraft and extinguish fire (if possible)

Fire damage	INSPECT

Cockpit or electrical fire

Electrical fires are usually signalled by the odour of burning insulation.

Cockpit door	OPEN to remove smoke from the cockpit
Avionics and switches	OFF EXCEPT FUEL PUMPS AND LANES

Land at the nearest suitable landing site. Consider shutting down the engine (and master switch) once the suitable landing site is reached. Extinguish fire as soon as possible

Engine fire during take-off

Towrope	RELEASE
Throttle	IDLE
Tank fuel valves	SHUT
Main Fuel valve	SHUT
Electric fuel pumps	OFF
Airspeed	60-65Kts
Lanes	OFF
Ignition	OFF

Abandon aircraft and extinguish fire if possible once stopped

Engine fire in flight

Towrope	RELEASE
Main fuel valve	SHUT
Tank fuel valves	SHUT
Fuel pumps	OFF
Throttle	FULL
Airspeed	INCREASE & TRY TO EXTINGUISH
Landing site selection	SELECT FIELD
Lanes	OFF
Ignition	OFF
Airspeed	55-60Kts
Wing flaps	AS NEEDED
Seat belts	TIGHTEN

Perform emergency landing

Abandon aircraft and extinguish fire if possible once stopped

Gliding

Glide ratio	9:1
Best glide speed	55Kts
Rate of descent	700fpm

Precautionary Landing

Choose suitable landing site - evaluate wind direction and speed, surface and obstacles - WiSSO

Perform fly-over at 60-70Kts at 150ft & follow normal landing check list

Lanes	BOTH OFF
Fuel pumps	BOTH OFF
Ignition	OFF
Fuel valves	SHUT
Brakes	AS REQUIRED

Blown-Out Tyre Landing

Carry out normal approach-to-land
When flaring at landing keep the damaged wheel above ground as long as possible using ailerons
Maintain landing roll run with rudder

Damaged Landing Gear Landing

Carry out a normal approach-to-land
Perform landing at lowest possible speed and maintain landing direction with rudder

Vibrations or other engine problem

If any forced vibrations appear in the aircraft, it is necessary:
To set engine speed to such power rating where the vibrations are the lowest
To land on the nearest airfield, or to perform a precautionary landing off-airfield
If the vibrations are increasing carry out an emergency landing off-airfield
If the oil pressure reduces during flight an engine failure if probable. Reduce engine power and execute a nearest airfield or precautionary landing before the engine fails

Extreme turbulence encountered

Airspeed	REDUCE TO VA
Safety belts	TIGHTEN
Loose objects	SECURE

Inadvertent Stall and spin recovery

Spins should not occur during normal operation, and they are prohibited.
Before spin occurs:
Lower the nose by pushing the stick gradually forward & increase power
If a spin occurs:

Throttle	IDLE
Rudder	NEUTRAL
Control stick	NEUTRAL

When spinning stopped establish level flight