

The COFC Winch

Here's some basic instructions on using our winch. This must be read by all members operating or launching from the winch. Let's know if you have anything else to add. Version June 2016

SAFETY FIRST!

Make sure no one is standing anywhere near the winch when the rope is moving. The most dangerous areas are near the rope and behind the drum (should a break occur). Any spare persons should be inside a vehicle.

If fixing a break, treat the rope as "live" at all times. Remain in radio contact with the winch driver and let each other know when the rope is to be moved. Look after those fingers!

Keep a sharp look out for idiots walking across the rope. Take a look at the parachute each launch and untangle strops. Inspect rings and weak links.

Pegging-out

Remember to fully retract the jockey wheel before driving off! Position the winch about 20m to the side of the seal runway (Alex). This allows us to pull out the cable even if a glider is landing and gives more room in case of a swing on takeoff.

Keep winch attached to or truck. In either case remember to bed-in the front angle-iron by dropping and reversing. To prevent the rope dragging in the bottom idler it's necessary to level the winch. Do this by lowering the jockey wheel and relieving some weight from the towbar.

Vary the route of the tow-out "track". We don't want to wear a deep set of ruts – this would make mowing difficult.

Before starting first time

Check engine oil, water and fuel. Use 20/50 oil (confirm it is engine oil!). Use 96 Mogas or Avgas. Transmission fluid really needs checking when warm and idling in neutral. Make certain it's the right fluid if you need to top up and look for the leak!

Keep lid open in summer...this is needed for cooling.

Lay out emergency slasher handy to the front of the winch.

Starting

Insert large red batter key switch. Turn radio on. Foot on brake, box in "N", throttle as required.

If the winch hasn't been used for a few days the fuel will have evaporated from the carburettor.

Crank the engine for 10 seconds to operate the mechanical fuel pump, this puts fuel into the carbie bowl. Exercise the throttle a few times (engine off) to pump some fuel into the carb before starting. The engine should start after some more cranking. Establish a fast idle but don't rev high until engine has warmed. Warm-up will take up to 5 mins.

Cable pull-out

Inspect parachute and rings before use. Remember it's bad to tow an automatic car? It's the same with the winch. Have the winch motor running when pulling out for the first time, this helps circulate the transmission fluid preventing gearbox damage. The pull-out time after a launch is a good cooling period for the motor too so the motor can be left idling if a driver remains on-board.

Before pull-out, put the gearbox in "N", pump brake a couple of times and lower the metal weight onto brake pedal. This slows the drum if the car stops suddenly. Put the strobe light on. Car should be in radio contact and not exceed 40km/h. Car should change smoothly from 1st to 2nd gear. You MUST de/accelerate slowly.

Take up slack

After hearing the radio call: Light on, foot on brake, gearbox lever pulled right back to the fixed stop (allows only first and second gear). With a little throttle (fast idle) smoothly release the brake while watching the drum. Take up the slack.

All Out!

After hearing the radio call: Pull back smoothly on the throttle.... *not too rapidly!* How far and how fast you depends on the bird are launching.

The **Twin** needs a steady increase to full throttle unless windy.

The **other singles** are full throttle in nil wind only.

During the launch

The pilot should call "45" if too slow and "70" if too fast. The driver should respond "you have it all" if they already have full power. To keep the parachute from falling to far to one side the driver should call "water-race" or "club house" to get the pilot to steer in that direction.

Generally all gliders except the Twin should need a gradual decrease in power from about 1/2 way up, especially if there's some wind.

Release

Don't take the glider too high! This is especially important in low wind as the rope will fall close in a vertical heap and tangle. Before the release point close the throttle slowly 3-4 seconds **before** calling "winch reducing power". You should maintain a little throttle and be ready to open immediately the release occurs. The glider should release within 1 or 2 seconds of the call (otherwise completely kill throttle and prepare for back-release).

VERY, VERY important: If you take the glider too high you will likely create a real tangle. This will be the end of gliding for the day, the cable will get eaten up by the sprockets, brake lines will break... so don't do it. Don't go too high, don't go too high, don't go too high ...

If ANYTHING goes wrong at this point close the throttle and slam on the brake. You must not try to wind-in the cable if there is a tangle or loop present. Never.

Winding in

After release a quick blip of power is needed to keep some tension on the cable (the only drag is the 'chute). As the 'chute hits the ground button off the power slowing until all in. Beware the end arrives suddenly!

After Launch

Let the motor cool down for at least 2 mins after a launch. The motor is best left running for part of the rope pull-out (kinder on the gear box). Place the whole 'chute and strop into the boot of the tow car and use the light rope loop to hook over the towbar. Put the winch gearbox in "N", pump brake a couple of times and lower weight onto brake pedal. This slows the drum if the car stops suddenly. Put the strobe light on. Car should be in radio contact and not exceed 40Km/h. Car can change smoothly from 1st to 2nd gear. Should de/accelerate slowly.

Weak Links

Ensure that the weak link matches the glider. Take a look at the list maintained by GNZ/BGA that matches gliders to specific weak link rating. The advisory circular is number AC3-04 and the current version is at:

<http://gliding.co.nz/wp-content/uploads/2014/07/AC-3-04-v3.pdf>

Most of the COFC members' gliders are listed for BLUE (600kg) or RED (750kg). Technically our Twin Astir is RED (750kg). However we have a low-power winch, and practice a gradual/gentle launch procedure. As a result we very seldom break the BLUE link even on the Twin. Thus our practice is to only use BLUE unless a lighter-rated glider requires launching (for example a PW5 which requires WHITE).

Broken rope

Hopefully a thing of the past! However the rope can be joined by splicing thru itself...see book for instructions!.

Hang-ups/emergencies

Prevent the possibility of the cable accidentally snagging the wheel of the glider. This is could occur if a motor stall happens on all-out and the glider then over-runs the cable. The pilot should pull the release and start all over again. The winch driver should abandon launch at any stage a hang-up is suspected.

Should a glider not release then put the gearbox in neutral, grab the razor-slasher and be ready to chop. Beware of the danger of the cable under tension and/or moving.

End of day

Note fuel level for next time. Turn radio off, remove the big red battery key.