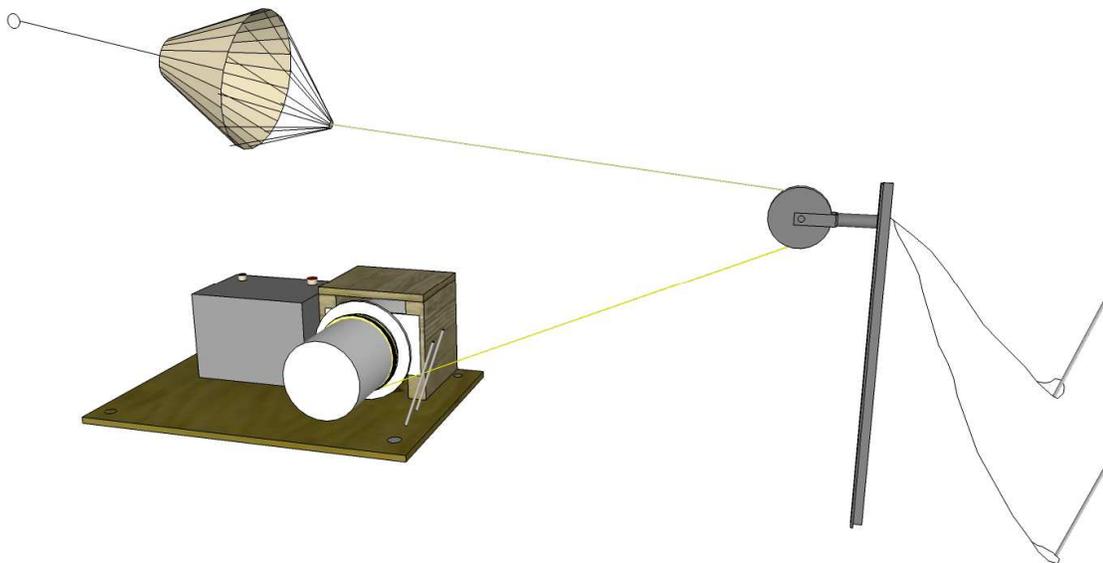


NCRCM Glider Winch - Information



Safety

Don't hold the moving string or try to launch while people are near the sting because it can burn and cut skin pretty badly. Avoid routing the string across the runway or through the pit area if others are flying.

Setting up the winch and return pulley

The return pulley needs to be placed about 300 to 600 feet (or more) from the winch and located so that the wind will not drift the falling parachute into trees, brush or the stream. Square the drum with the pulley and so that string is wound up near the inner edge of the drum. Use two metal stakes to anchor the winch platform and two more to anchor the guy lines on the return pulley. Hand pull the string to the pulley in a straight line. Route the string upwards through the pulley and then back to the winch. Check the voltage of the battery. The battery is close to empty when it goes below 12.0 volts and needs to be charged or jumpered to your car battery. It is 100% fully charged if its voltage settles to 12.6 volts after a short rest.

Load limit

I don't know the safe load limit of the winch. It worked very well with my light 2 meter size glider. I have not yet tested it with anything larger but expect it will handle my 100 inch Spirit glider just fine as well. I do not know if the winch motor will stall before the line breaks or if the drum is so fragile that it will be what gives up first. The no-load line speed is 18 mph. A self resetting circuit breaker should cut power at 40 amps if the motor is overloaded. The string is 20 lb test which may actually break at around 25 to 30 pounds of pull; hopefully before the drum or your glider wing break, but no guarantees. Friction from the return pulley and grass probably account for a pound or two of load. Moving your hook forward will decrease loading but you may then need to hold up-elevator to get a good launch height. Moving your hook back will increase loading for good launch height but you then may need to feed in down-elevator to keep from breaking wings, breaking lines, and stalling the drum. The bend angle in your hook and the size of the chute will affect the airspeed and the attitude angle of your release.

Avoiding problems

The winch will turn in reverse and create a pile of tangled line if the battery connections are reversed. Try to avoid powering the winch while there is slack in the line or when the line has no load attached to it because that can cause the string to jump the pulley. A jumped pulley will fray the line which could result in an early release and crash due to a line break. Winding up unloaded or slack line can also put loose turns on the drum which invites tangles. Check for slack and a jumped pulley before you launch by hand pulling some line and hand turning the drum so you can feel for a normal amount of resistance. Too much resistance indicates the pulley has jumped, too little indicates there is slack in the line. When you wind up the empty string at the end of the day replace the parachute with the skinny white indicator flag. The indicator flag will add a light load and will also help you see what the end of the string is doing as it is speeding along through the grass. If you drag the parachute on the ground its lines will become badly tangled. If the line on the drum becomes badly tangled don't hack at the string with your pocket knife, if you don't have time to untangle it then just wind the rest of the string around the motor box before putting the tangled winch away. If a section of string becomes frayed because of a jumped pulley, cut out the frayed section and then retie the line with a decent knot such as a blood knot. If the drum starts to wobble more than a couple millimeters it may need to be tightened. Gently tighten the four bolts under the can lid with a 10mm socket on a long extension, snug them lightly enough so that the bolts heads don't crush into the wooden disk. The drum is made from a coffee can for lightness in order to prevent line tangles being caused by the flywheel effect of a heavy drum. That lightness also makes the drum vulnerable to denting or crushing during handling, so treat it gently.

Launch procedure checklist

- 1 – Do all the normal RC preflight checks such as testing the elevator and ailerons, checking for proper trims, check radio batteries, warn people you are about to launch, etc.
- 2 – Before hooking up the glider, turn the winch drum a little by hand to remove any slack in the line and test that it still has a normal amount of pull resistance.
- 3 - Hold the glider with about a 45 degree nose up angle. Hold it high or off to one side so that the tail doesn't hit the back of your head.
- 4 – When you press the foot switch button **DON'T LET UP** until you reach an altitude where you can recover from a nose up stall.
- 5 – When the glider has traveled about 2/3rds the distance to the pulley, or when it stops ascending, take your foot off the switch and, if necessary, drop the nose to release the hook.

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