SHALBOURNE SOARING SOCIETY Windsock Mast

When nearly horizontal, the mast is difficult to raise or lower in a controlled manner. Also the mast flexes considerably. Also the two central ground poles that hold the base of the mast are not rigidly fixed in the ground. Lowering and raising are therefore risky activities.

Raising and lowering cannot safely be controlled by people pulling. The best method is using a turfer block fixed by two ground anchors in the field to the north. Alternatively a return pulley could be fixed by two ground anchors in the field to the north and the return hoisting /lowering cable towed by a vehicle in Ringo's field to the south.

To reduce the cable tension to manageable levels, a fulcrum should be created just north of the mast foot. To further reduce the initial tension the mast top should be resting on a steel trestle situated just inside the field to the south. Even better would be to pre-lift the mast top onto a short (2-3 m) ladder but that adds unnecessary complication and risk.

Once the weight is on the turfer winch, the whole arrangement is laterally unstable. The mast top and fulcrum ladder MUST be controlled in east and west directions using two top stays and guy ropes on the aldder top. [The steel stays will have splinters so wear gloves]. The hoisting rope needs to have one turn round the top rung of the ladder to lock it in the north-south direction and some gaffer tape is helpful to lock it before tension is applied.

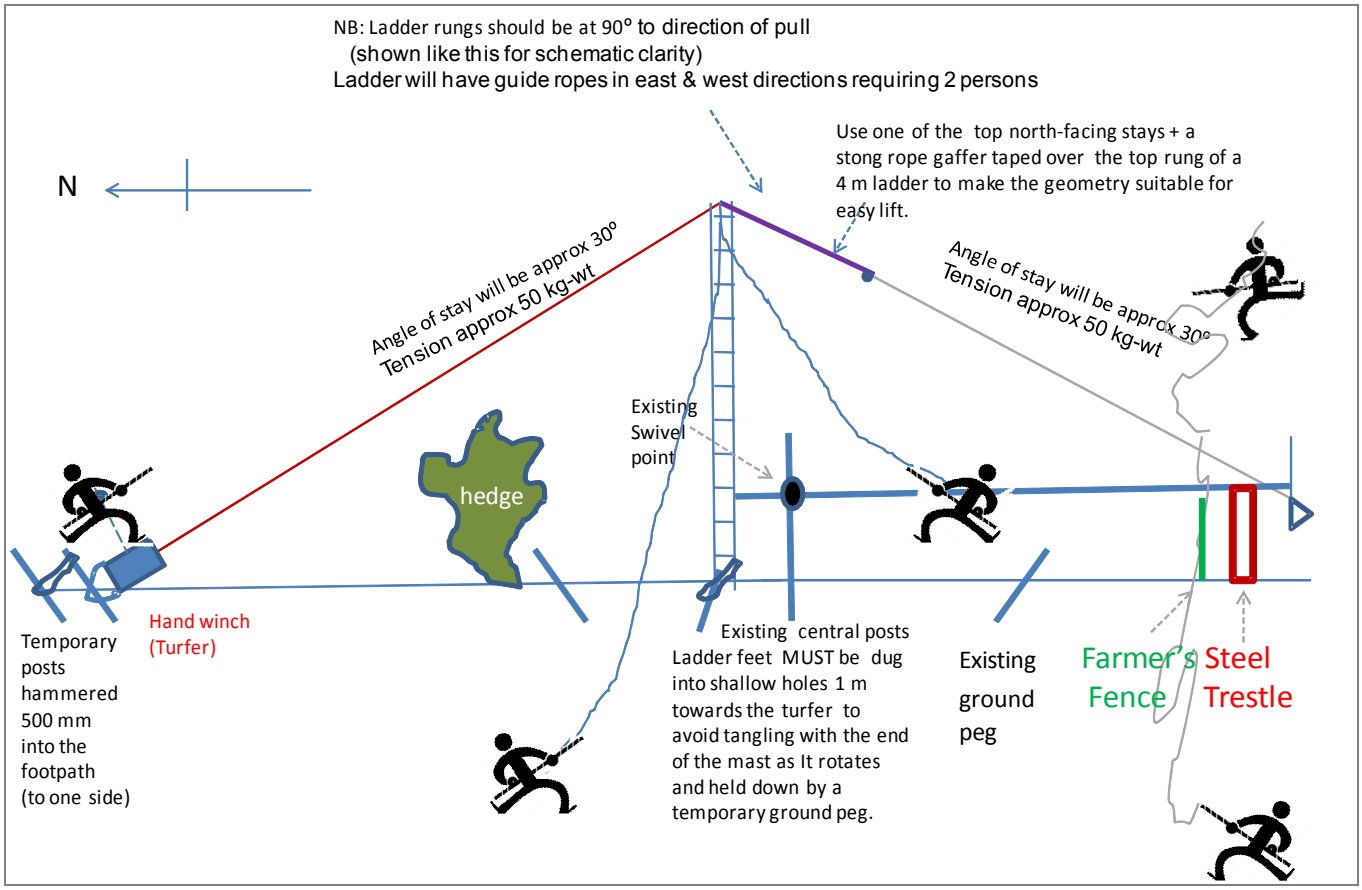
People Numbers: It can be done with three people but for proper lateral control during the lowering and hoist there are useful roles for up to six people.

Time taken: With all equipemnt ready on site the time required to restring is about 1 ½ hrs with six people.

PPE: Gloves, toe-protection boots; + safety helmets to be worn during lowering and raising?

Equipment required:

- ☐ PPE as above
- ☐ One turfer with lashings & 10 m of winch cable: from Peter Ellison or Charles McCallin
- ☐ One 10 m climbing rope or equivalent
- ☐ 2 x Short 1m lengths of rope
- ☐ 2 x 5 m guide ropes
- ☐ 2 x ground screws or steel pegs of 500 mm
- ☐ 1 steel pipe of ½ m length
- ☐ Gaffer tape
- ☐ Sledge hammer
- ☐ Spade or trowel
- ☐ 1.3 m high (steel) trestle capable of holding 50 kg: from hangar
- ☐ 4m ladder to create a fulcrum
- ☐ 8 &10 mm spanner to release the stays
- ☐ Large adjustable or socket to release scaffold clamps
- ☐ Release oil / WD 40.
- ☐ Zinc rish paint for rusty mast top & paint brush, or spray can from red container.



Lowering and Raising the Mast

This method has been used 3 times and is reasonably safe if no short-cuts are taken. Best not attempted on a windy day especially easterly or westerly.

Refer to the diagram for further details

1. Plant the steel trestle alongside the barbed wire fence due south of the mast foot.
2. Hammer two ground anchors into the adjacent field to the north to be in line with the trestle and the mast. Attach the turfer
3. Dig small holes for the fulcrum ladder feet. Hammer in a ground screw between the holes.
4. Place the ladder feet in the holes and ties the bottom rung to the gound screw. Allow the ladder to fall to the north and lie over the hedge.
5. Tie a pair of guide ropes to the top rung of the ladder and lay one out to the east by the NE main stay pole and one in the adjacent field to the west.
6. Remove the lower stays from their ground anchor pipes
7. Attach the hoisting rope to the end of the turfer cable
8. Attach the hoisting to the top rung of the ladder with the ladder lying almost horizontal to the north. The hoisting rope should be reasonably taut and the loose end of the hoisting rope left free off the ladder.

9. Chose one of the north facing top-stays to be the hoisting stay
10. Remove the downwind top stays and the selected north-facing stay from their ground anchor pipes.
11. Attach the loose end of the hoisting rope to the sected hoisting stay. The hoisting rope should be reasonably taut.
12. Take up slack on the turfer
13. Remove the remaining stays from their ground anchor pipes and lay one top stay to the west and another to the east as guide ropes.
14. Remove the scaffold clip from the central posts
15. Position personnel as follows:
    a) Alignment controller in the field to the south beyond the fall of the mast top
    b) Turfer operator ;
    c) Ladder guide rope holder to the east
    d) Ladder guide rope holder in the field to the west
    e) Mast stay holder to the south east
    f) Mast stay holder in the field to the south west

    The alignment controller (a) is now in charge and
16. Calls the mast stay holders to pull on the mast stays and the turfer operator to commence lowering
17. Instructs the ladder rope holders (by name) to tighten up or slacken off as necessry to keep the ladder in line / vertical.
18. Keeping the ladder vertical is difficult but very important, so be ready to instruct the turfer operator to slow down towards the end if necessary.
19. Instructs the mast stay holders (by name) to tighten up or slacken off as necessry to guide the mast onto the steel trestle.

Hoisting is the reverse of the above steps: Same personnel positions and duties.

THE WINDSOCK MAST

The mast comprises about 6.5 m of standard scaffold pole (48 mm od) plus a top section of about 3.5 m length made of thinner (35 mm OD) galvanised steel pole inserted into, and welded to, the main pole.

The mast-head is approximately 10 m AGL. The weight of mast is approx 50 kg. (The main pole is 4.4 kg/m & the top pole is assumed to be about 3 kg/m). Plus allow for the weight of stays and mast head.

There are two central ground fixings – scaffold poles sunk into the ground – between which the mast stands and to which it is fixed at a swivel point approx 1 m AGL and a scaffold clamp higher up. If the clamps and the stays are released, the mast will fall to the south and land on a wire fence.

There are 4 pairs of stays which are aligned approx NE, NW, SE & SW and are therefore at 45º wrt the mast lowering axis. The stays are fixed to 4 scaffold pole sunk into the ground. The top of the stays are crimped using standard cable crimps and the lower ends have adjustable stainless steel cable clamps.

Halyard needs to be 20 metres long. 6 mm halyard rope.

Tasks for next lowering:

- Add pulleys to the two rings on the swivel as below done
- Replace the halyard, feeding it through the pulleys. BUT NOT THE RING ON THE MAST done
- Zinc-rich paint on rusted areas of the mast?
- Cut, file and tape up the sharp edges of the top-end crimps on the stays that are currently catching and ripping the windsock. (Hacksaw, battery drill with mini grind wheel Heat shrink tape) done


SEA
