The 2E0KPO DIY Scaffold Mast

Due to the lack of second hand masts at the right price and close enough to my QTH to collect I decided to build my own mast.

You build this system taking your own risk and the author takes no responsibility for any damage or injury caused to property or persons

Guide to parts needed. (This is a guide but you will see there are some parts you cannot do without for this system to work)

2 x 6m Scaffold poles (Steel in my case) - £12 each
1 x 2m Scaffold Pole (Steel in my case) - free
3 x 2”x2” cross over plates (Barenco BE611) - £12 aprox each
1 x Tilt over base or support. (I used a Barenco Mast support BE201) - £30 aprox
1 x Winch and Wire line – £9.99 local hardware store
2 x Heavy duty pulleys 400kg - £8 aprox each
3 x Shackles - £2 each
1 x T& K Bracket
Some extra 2” U-bolts and lots of extra nuts matching the U-bolt thread

First of all check you do not require planning permission for this project, I did. Then read how I built the mast and then plan how you intend to do your mast as the way I have constructed mine may not be suitable for you, you may need to adapt the idea.

1, Start by re-drilling new holes for the U bolts in the 2”x2” cross over plates so that the poles can go back to back rather than cross over. ***Fig 1***

Fig 1

2, Locate a position for the mast. Then mount the base however the instructions require. ***Fig 2*** In my case I have bolted the Barenco tilt over support base to a metal frame that is fixed to the house at ground level. You could use a tilt over mast base, £100+ or even a spiked tilt over base £40 and concrete it in, what ever you do make sure it has a good fixing as there will be a lot of leverage on this point when you tilt over the mast. **IMPORTANT** the position is very important, as you need to know how far away from the wall the base will need to be so the T&K bracket lines up

vertically with the tilt over fixing to allow the mast to be vertical when clamped in position.

F*ig 2*

3, Using a plumb line locate the position for the top supporting T&K bracket in relation to the position of the tilt over support, so when the mast is fitted it is vertical. Mount the T&K bracket. **IMPORTANT**. Use a good solid area of brickwork and good fixing bolts. Do not cut corners here; this will also act as a support for the lowering of the mast. Mount the T&K as high as possible as this will control the height the mast when raised. ***Fig 3***

Fig 3

4, Now fit the first scaffold pole into the socket and support against the T&K Bracket and bolt into position to check that its vertical.

5, Mount the winch support pole. Do not mount the winch onto the main mast pole or you will have problems when you lower the mast. I used a T&K bracket and a fixing on the base metalwork that supports the main mast. You could use a wall mounted winch plate if you want or any other way you see fit. Then mount the winch. ***Fig 4***

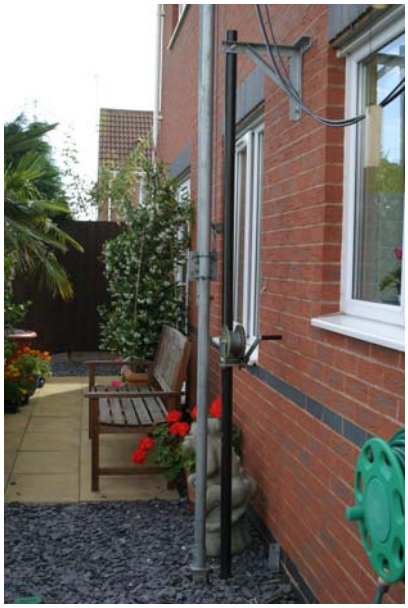

Fig 4

6, Now its time to add the modified cross over plates to the top section of the mast. You can either do this with a ladder or lower the main support scaffold pole down. Locate a position UNDER the top T&K bracket, this is where you will clamp the lower cross over plate and this is the maximum position the sliding mast can rise to. (**You will see that in *fig 6***) Clamp it to the mast as you see in ***Fig 3*** so it faces away from the T&K bracket. Now mount the top one ABOVE and 6" or so down from the top of the main scaffold pole. Make sure they are vertical to each other. ***See Fig 3*** Now the U-Bolts on the other side need extra nuts adding so you can control the tightness of the U-Bolt on the second scaffold pole so that will slide up an down the main pole. ***Fig 5***

Fig 5. *This is the bottom cross over plate in the image above the top plates are reversed. I.e. The U-Bolts on the right are clamped tight and the ones on the left are left so the pole will slide up and down. Use the nut facing the pole to restrict the amount the U-Bolt can pull in on the pole and the one on the back to tighten it in. You need to allow the second pole to freely slide but not wobble.*

7, Mount the lower cross over plate 6" from the bottom. As described above but remember you are clamping to the second pole and allowing ***See above Fig 5*** the U-

Bolts to slide up the main pole this time. If you have done it right you should be able to slide the second pole up the main pole. ***Fig 6***

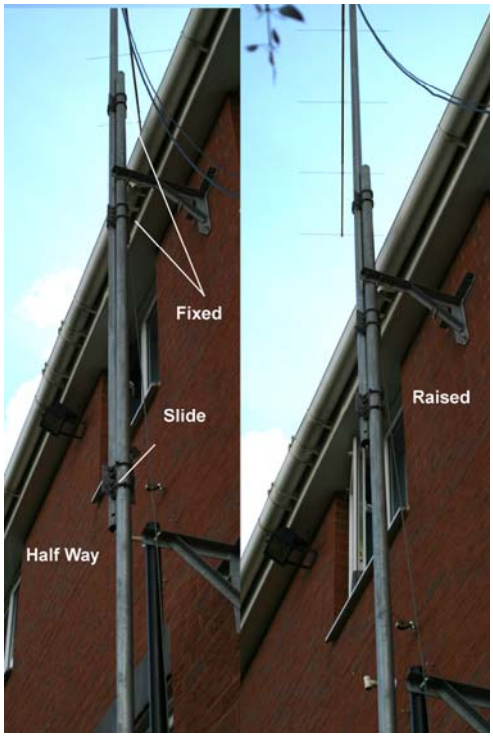

Fig 6

8, Now fit the winch wire with the pulleys to the plates. I had to remove the wire from the drum to fit one of the pulleys and thread the system this pulley is rarely used but is needed if you plan to tilt the mast over. ***Fig 7***
Start by attaching the wire to the bottom cross over plate then thread the wire through the first pulley and leave by the bottom plate loose, ***see Fig 8*** now take the wire up to the lower top plate and fix the pulley with a shackle to one of the holes as in ***fig 7*** use a lower hole now bring the wire back to the drum and wind up the excess. ***Fig 9 shows the wire runs.***

You should now be able to raise and lower your mast…. Top off with a nice rotator and a few antennas and your away…….

Fig 7

Fig 8

TILTING OVER THE MAST.

There are no photographs for this, as I will do them next time I lower the mast, so a simple drawing will do for the moment.

I have used the same winch to tilt over the mast, and no fancy quick release mounts. To tilt over my mast I have to undo the top pulley and bottom pulley and re-arrange the wire. ***Fig 9 shows the wire runs.***
Then I remove the U-Bolt on the top T&K bracket and tilt over the mast.

LOWER THE TOP MAST FIRST!

MAKE SURE NOTHING IS IN THE WAY AND NO ONE IS UNDER THE MAST WHN YOU ARE TILTING IT!

This is just my idea and has worked well for me, you can easily add to the design. I now have a locking bolt at the base that when the mast is in the down position it can't be raised without removing the bolt.

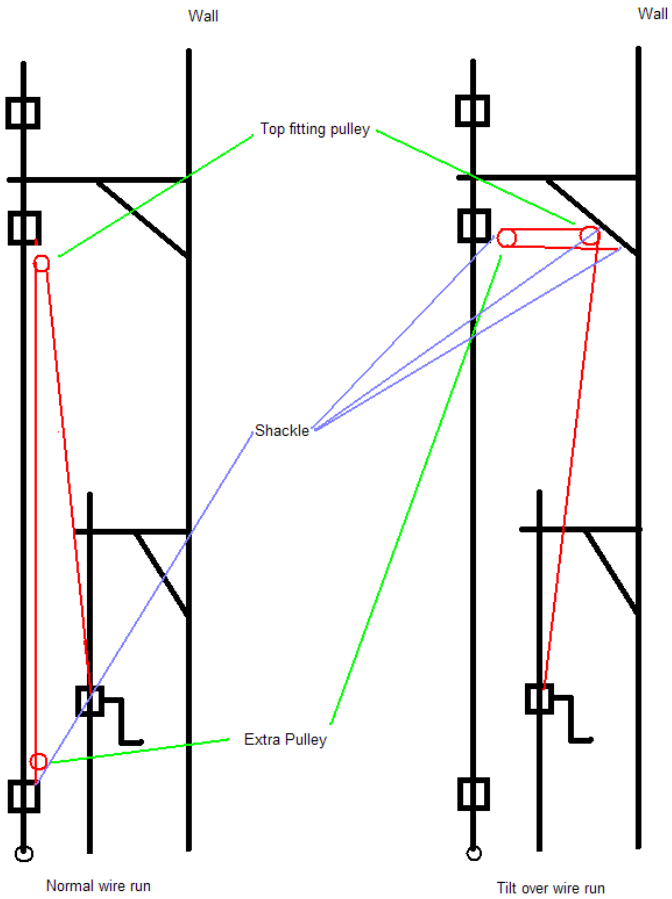
Wall
Wall
Top fitting pulley
Shackle
Extra Pulley
Normal wire run
Tilt over wire run

Fig 9