Tiger Barrel Elevation

For this project I had certain requirements & limitations. First all the drive had to be within the turret gun house, this is because I still haven't yet come up with a turret drive design. But if I can keep the hull as clear as possible then it will make that job easier not having to work around equipment fowling the drive train. Second, I wanted the mechanism to be easily removed, both were dependent on the limitations i.e. I could only use what I had in the workshop!

I had 4 geared RS components 12V motor's and selected the 70rpm one for two reasons

1/ I felt the speed would be about right having timed its worm gear travel

2/ I had two of them in case of failure's & I had another similar project lined up for the second motor (more at the end).

Looking threw my dwindling stock I found a nice old brass plate used to mount limit switches, an off-cut that I could just get a crank out of & a heavy brass support with enough clear of holes for my use. So, brass it was with the caveat that there was only enough for one design attempt & one go.

So out with the hacksaw & miller and I soon had the mounting plate held securely with 5/16 UNF Allen bolts (old Haley spares) and the crank/ mounting post 2 BA.

The barrel will drive directly off a pin from the crank via a tilting mounting to compensate for the cranks throw, (S&T training coming in there). This means that removal of the one pin will disconnect the barrel & with the two Allen keys removed the whole power train can be removed. At least one of my aims hopefully met?

The end of the worm drive (old power feed for a model gearbox) was turned down so it had a bearing in the crank mounting post. A 5mm steel rod mounted 16mm below in line with the drive prevents the drive nut twisting. A bearing block was made for the motor end of the rod & the original motor mount turned around to access the screw with out having to keep taking the 3mm motor screws out of the alloy reduction gears cover.

Motor & bearing both held with 6 BA screws tapped into the base plate & lock-nutted underneath. This project started off as an all metric installation but needs must in these extraordinary times.

A steel 2BA screw was mounted on the drive nut to drive the crank via a brass rod & clevis pin. 12 volts was applied via my battery charger and it worked, driving up & down at a realistic speed. A back weight was fitted using 12mm threaded bar & an old gudgeon pin (no idea what off) which gave a barrel heavy weight of about 1/2lb. With the turret back on the hull the limits of depression & elevation were marked & two limit switches recovered from an old test rig fitted. The elevation on the Tiger wasn't excessive but seeing as the 88 shot to point of aim at a mile it wasn't required.

The last picture shows the Tiger back together & yes that's another project behind, Ernst Banksman's Panther 424 when its finished.

Is it me or do other members move their workshop outside when its nice weather? I just find it so much more enjoyable working in the open air.

Pictures below