

TIGER TURRET DRIVE

Following Malcolm's advice I thought I would try his suggestion of a large Meccano gear for the turret ring. With 2 on order (I planned to stack 2 together to give me a drive ring of at least 4mm due to the weight of the turret). In the meantime a search on E-Bay came up with a 19 tooth pinion gear for the motor approximately 1" deep. This would give me some alignment leeway with the height measurements from the hull mounting to the ring gear.

Having picked up the two gears after only a couple of weeks it was time to bite the bullet and give it a go. First job was to accurately mount the ring gears to the turret. Using two welding magnets to help slow any movement whilst aligning the gears, 10mm from the edge at each of the 4 holes, they were then clamped down. All holes were then marked and centre popped, drilled, tapped ¼ UNC one at a time. After each successful fitting of an Allen screw & spring washer all the measurements were checked & the clamps repositioned as required. After a bit of work I had one tiger turret & ring gear securely mounted & central.

The hull mount was milled out of an offcut of 60mm X 6mm brass bar with a redundant 12mm X 12mm bracket to hold it to the hull, bar to bracket with 2BA brass screws (Ex BR retirement presents still going strong). The whole held to the hull with ¼ UNC Allen screws again (raiding the Harley spares box which is why there chrome plated!)

The brass motor mount was on the motor when I acquired it and just needed two legs milling off. Re-drilling it closer to the body for strength and turning it upside down to lower the mounting height. It was reattached using small metric Allen screws so as to make removal off the tank easier than ordinary screws. The 19mm gear was then drilled out on the lathe & fitted with 2 grub screws for security.

Now the real challenge of getting the height of the pinion gear & the motor bracket marked up accurately all at once. The tank is residing on the floor of the conservatory at the moment, being now too big to lift onto a work bench on my own. Well! After an hour of gymnastics / yoga trying to get everything positioned & marked, with the only result another 10 ways to drop my ruler / motor into the tank it was time for tea & a rethink.

Back to basics, measure the turret ring depth, the hull bearing thickness & the position on the pinion gear where I wanted it to run. A sit down with pencil & paper, than a transfer to the bracket & two 2BA tapped holes for the holding/adjustment rods. I was now committed not having any more brass bar for another mounting. Well it fitted & lined up as I wanted so my measurement's seemed to be correct?

The motor is mounted so it will slide back for turret removal, my original idea was to install two springs to keep the motor engaged but they seemed to bind up. Next I used two Harley rocker box hard rubbers to cushion the gears but that didn't seem to work so simplest solution tighten down the two wing nuts, back them off so the gear is engaged but not tight. Now grease it all up and apply the power. So how does it work? Well it turns at a nice impressive speed (the original was 6deg / second) which I think looks close to the real thing. Time will tell if my design works but I don't foresee any unsurmountable problems. Fitting the control box for this motor when it arrives & a master relay so the tank can be switched on/off without removing the turret & disturbing the gear drive is all that remains to be completed. A few drives around the yard for the Grandkids after lockdown & I've built one very large door stop!

A bit of history / interest:-

1The pinion gear is old new stock pre-war so is older than the original prototype Tiger 1.

2The wing nuts are what the railway used to terminate the dry cells that powered up block bells, circuits & telephones on the negative leg. Those retirement presents just keep giving!









