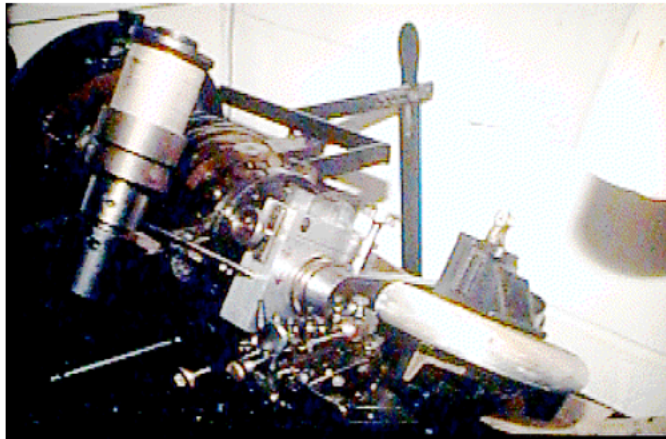


7. ***Enamelling and Recessing with Engine Turning***

3D Recessing: a Mudguard Shaped Clock Body

This shape is basically treated geometrically as an outside segment of a torus or circular doughnut ring. The object is to recess the whole surface leaving a 5mm border all round, and then prepare the surface and cut flutes in the recess. As with the trumpet shaped base, some of the work with the workpiece will be set very far off-centre relative to the main spindle, so for that counter-weights are needed to balance the spindle so that rotation for cutting is smooth and easy. A great deal of the skill of engine turning lies in feeling the resistance of the metal to the tool as it cuts, through the hands controlling the machine, so getting the balance right is essential for producing accurate work.

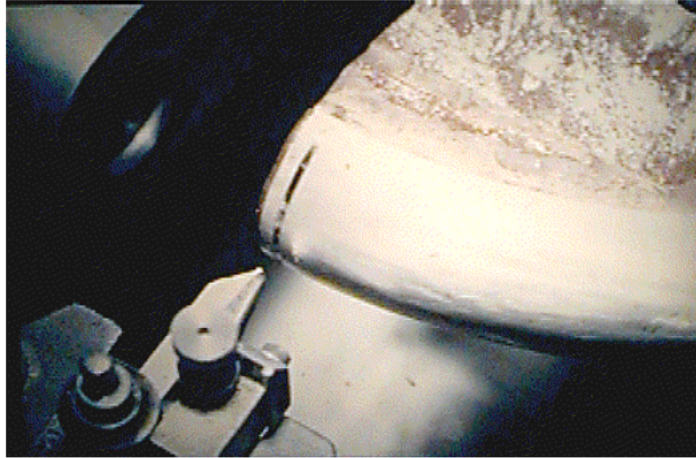
To begin with: the piece is carefully filled with wax to hold it and blocks of wood are embedded in the wax to take account of the various ways the piece will need to be held for the different cutting setups. It is marked for the recess 5mm in from the edge all round with dividers.



The set up to trim around the ends. The large counterweight can be seen in the top left corner. The work is centred to rotate about its end. This involves offsetting it a fair distance using a radial arm in conjunction with a double eccentric chuck for fine centring, hence the need for a counterweight on the other side to allow the work to rotate freely and under control.



A second shot showing the movement direction and the centre of rotation The counter weight only just fitted down the well of the machine, as did the workpiece in the previous shot Any larger and the job would have had to be recessed using a larger machine This was a 7 inch Plant, slightly enhanced with the headstock and sliderest raised an extra 2 inches from the bed It is important to know the limits of individual machines

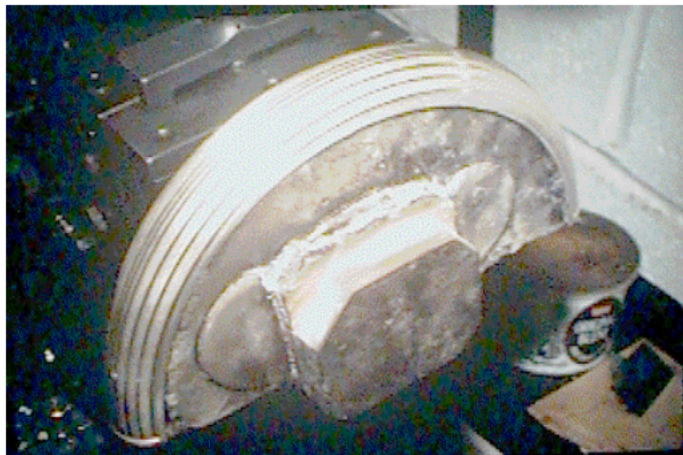


Close up showing the first sunk line which will form the end of the recess Ending the cuts in exactly the right places required great skill, so that the corners of the recess, visible in the picture below, would be clean and sharp



The finished recessed body, Scraped, Stoned and prepared for engine turning The square wooden block on the front has a counterpart on the back to allow the piece to be removed and held from each side As one can imagine, this involved very careful setting up in order that both sides matched to form a parallel recess around the shape

To cut the recess, we worked from the middle towards the long edges, one half at a time held in the wood block embedded in the wax on each side. The set up was similar to the fluting below.



Cutting flutes or spoon cuts in the smooth prepared recess To divide such a difficult shape evenly, the flutes were cut in a split order There was considerable deviation from geometrical accuracy in this difficult to produce hand made shape, and the challenge is to make it look perfect