Task 2 – Production

You must:

a) prepare the work area
b) produce the bearing assembly components using both manual and pre-programmed computer numerical control (CNC) machinery to specification
c) apply a suitable surface treatment to the finished components
d) reinstate the work area following the production of the bearing assembly.

Conditions of assessment:

- the time allocated for this task is **18 hours**
- you must carry out the task on your own, under **controlled conditions** while being observed.

Controlled conditions:

- you must only work on the tasks in the allocated times
- assessment evidence must be handed in at the end of each session for secure storage which cannot be accessed
- all practical work areas and any evidence produced must be kept secure and only accessible by the assessor
- you must not share or discuss your work with other candidates
- you are not permitted to bring any materials into the assessment session.

What must be produced for marking:

- bearing assembly consisting of:
  - bearing housing
  - top hat bearing
  - shoulder shaft.

Additional evidence for this task:

- assessor observation to include:
  - set up and use of manual and pre-programmed CNC workshop machinery
  - the production of the individual bearing assembly components
  - tool skills, application and usage
  - application of hand skills
  - checks carried out before, during and after production
  - work area prior to, during and on completion of tasks.

To support the comments made within the Practical Observation the assessor must capture the following photographs that must be submitted as supporting evidence for each candidate.

Photographic evidence which shows:

- the construction of the bearing assembly, with consideration of
    - the prepared work area
    - marking out of materials
    - setting up and application of machinery to remove material
    - final finish removal of material and result of tool section for accuracy and the finish of the component parts
    - application of the surface treatment to component parts
- completed bearing assembly.

Resources:

- access to a conventional/manual milling machine
- access to the associated tooling required to produce the components
- access to manual and CNC centre lathes
- access to the associated tooling/holding devices required to aid with the production of the components
- measuring equipment (with calibration certificate (if applicable) (e.g. callipers, go-no-go gauges, DTI clock gauge, rules, tape)
- anti-corrosion surface treatment (e.g. degreaser, lubricant, rust protection spray, light tool oil)
- appropriate Personal Protective Equipment (PPE) (as per resources list)
- technical drawings
- copies of completed documentation from Task 1.

Materials:

- low carbon mild steel billet with appropriate diameter to the shoulder shaft
- low carbon mild steel billet at appropriate dimensions to allow machining of bearing housing
- nylon rod billet with appropriate diameter to allow machining of top hat bearing.