

# Project Deliverables

Dlvbl63o.tex

March 17, 2006

## 1 Time Table

- Work on your final *individual* design graphics project, worth 45% of your final grade, begins on 06-03-15.
- On 06-03-20 please submit, in the slot-box-on-the-wall outside ENGMD 457, *copies* of a set of freehand sketches worked up to help you plan your “design sketch”, the *next* “deliverable”. Examine Fig. 1. This is my rough sketch of the features you must select, plan and sketch. There is quit a lot on this ugly scrap of paper. Study it carefully. You may prefer to do this planning stage using 3D-CAD software (ProE or SolidWorks). I have no objections. Nevertheless I want to see, early on, that you have grasped the essentials of the project. A cardinal rule in the design office is to always keep you original documents. After all you are working on them constantly. Until the final submission, I only want to see evidence that you are progressing smoothly so as to avert serious misunderstanding that leads to disaster in the end. You may use solid modelling links like on my bevel gear catalogue pages (.dxf, .dwg) or those you may find as part of you solid modelling software.
- A few days later on 06-03-24 you will hand in your version of my Fig. 6, p.8, in document **Design Graphics Project '06**. This will be, most probably, a solid model that will be the basis for subsequent detail and assembly drawings. The model will begin by placing
  1. The three shafts,
  2. The four bevel gears,
  3. The six rolling element bearing units,
  4. The two sleeves that hold the input and output shaft bearings, respectively,
  5. The twin housing separating plates that hold the intermediate shaft bearings,
  6. The six external retaining (snap) rings that locate the six bearing units,
  7. The four internal snap rings that axially retain the bearing units in the two sleeves

Pay particular attention to getting all elements, of the seven types listed above, correctly placed and spaced so that details can be correctly dimensioned and, ultimately, toleranced. Use the slot-box for any hard-copy

submissions. As the model “grows”, roughly to the end of the sequence presented above, the housing sleeves, base and top caps, intermediate separating plates and intermediate bearing retaining plates can be designed and added to the extent that time permits. Nevertheless a significant fraction of these parts will have to be developed, if not completed, in order to make a good project presentation at the end.

- On 06-03-29 hand in at least one detail drawing -no fair using my simple retaining disc, do a sleeve that retains a pair of bearings, for example- and a partially complete assembly drawing. These submissions will need borders, materials list, dimensions and a proper title block. Again, in the slot-box. Examples of these submissions are my Figs. 7 and 8, on pp.9-10
- On 06-04-03 show evidence that you’ve done a solid model of at least one detail. A not very nice example is my Fig. 2 on p.3 of the document **Design Graphics Solid Modelling Exercise**. I expect more of your efforts after your training with AutoCAD and Solid Works. Prepare a freehand layout of the “poster” you will present on 06-04-10 Submit these in slot-box.
- On 06-04-10 I will collect, after class, your large, *e.g.*, 1m × 1m square, card mounted, presentation. You may include samples of your project work arranged as you wish. Keep in mind that these will be assessed by a number of people with a variety of attitudes as regards design graphics. Here is where your CAD solid models will have the greatest impact. While I am happy with a set of workman-like, professionally prepared drawings appropriate to and sufficient for manufacture, others are impressed by snappy visuals. These are always necessary when bidding on a design contract. The decision-making principals and superiors are often not engineers, let alone designers. Then when it comes to advertising and selling a project such illustrations are indispensable.

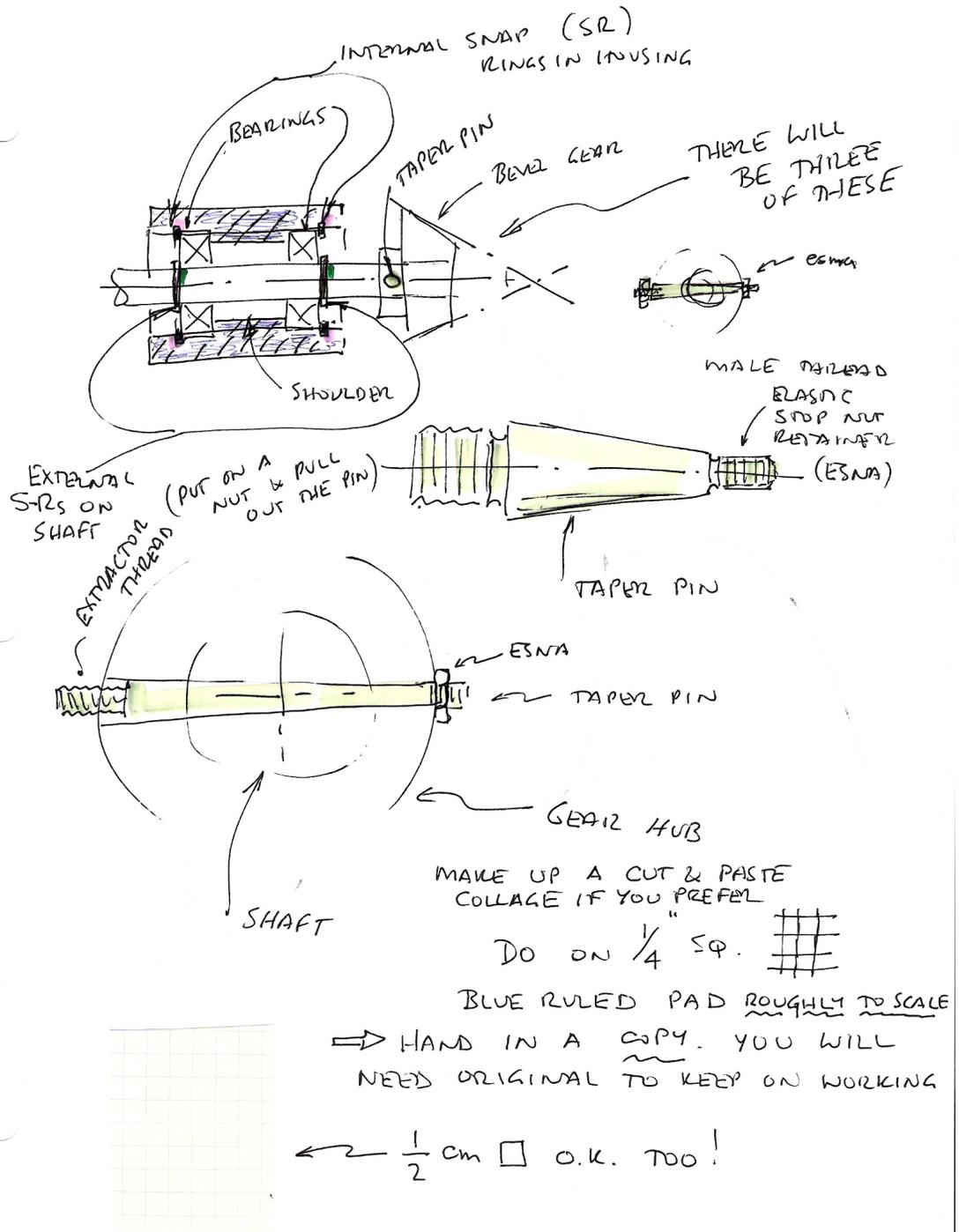


Figure 1: Freehand Planning Your Design Sketch

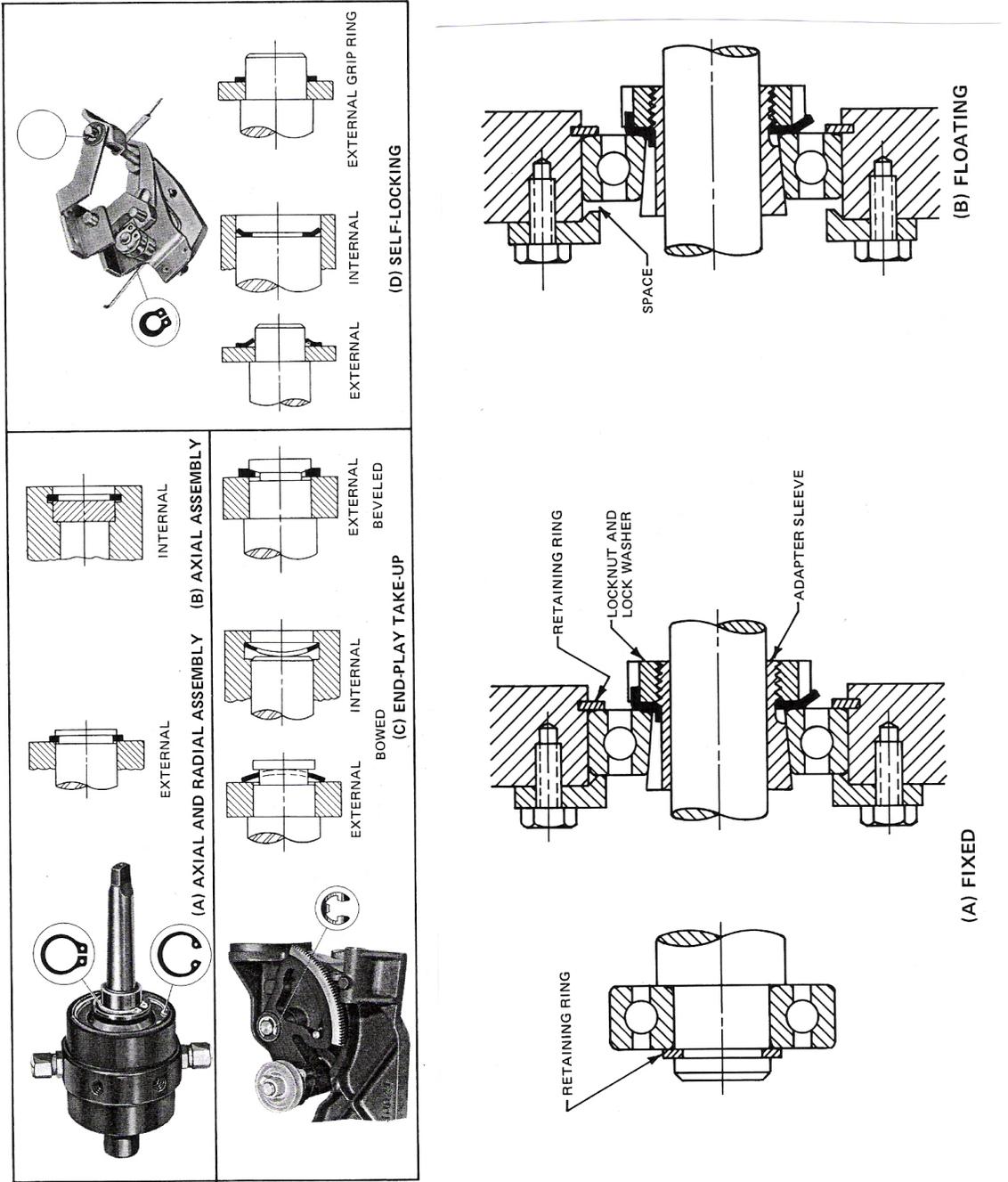


Figure 2: Some Examples of Retaining Ring Placement

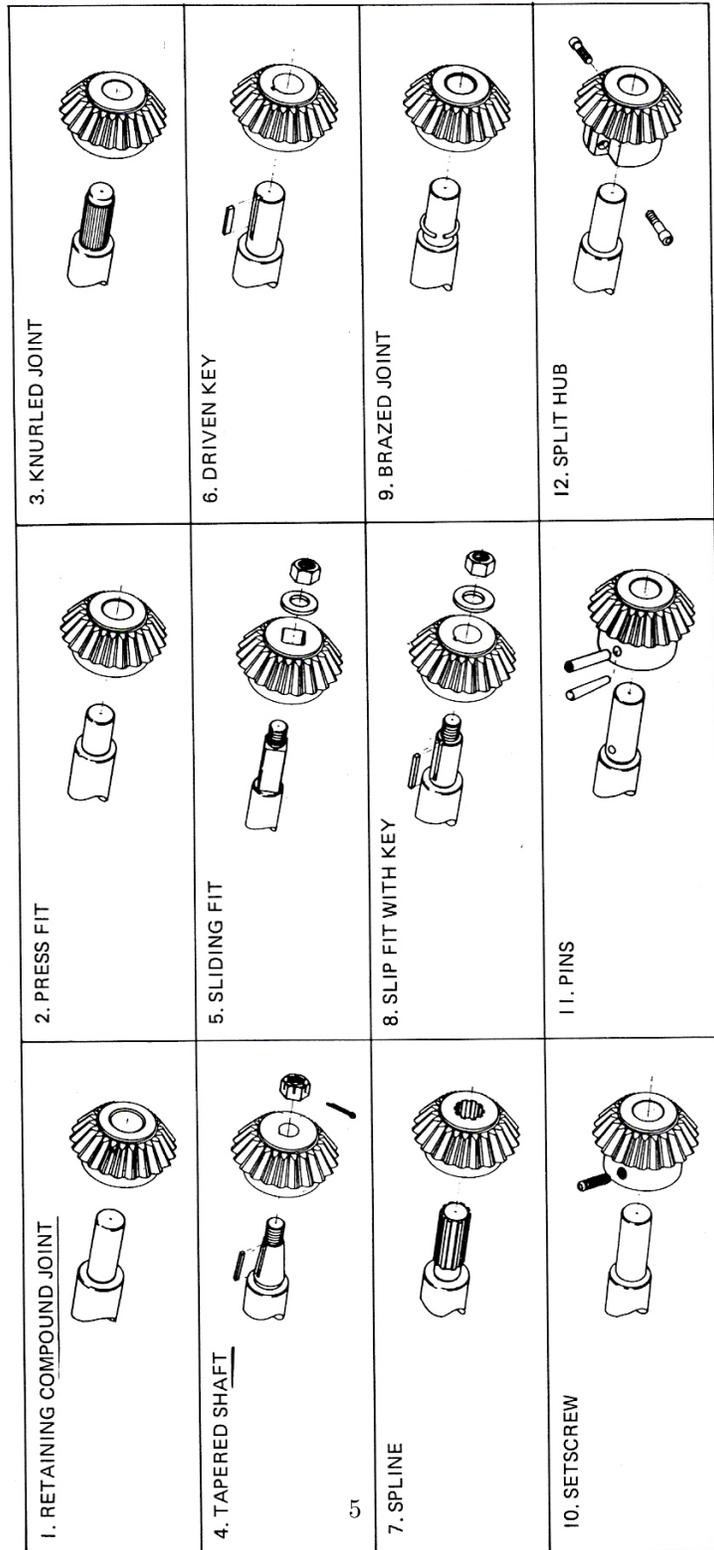


Figure 3: Bevel Gear to Shaft Attachments