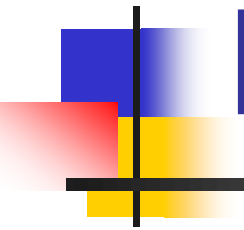


Drawing Section Views

What is a “Section View” ?

- A section view is a view used on a drawing to show an area or hidden part of an object by cutting away or removing some of that object.
- The cut line is called a “cutting plane”, and can be done in several ways.
- The following slides will help show the several methods or types of “section views”

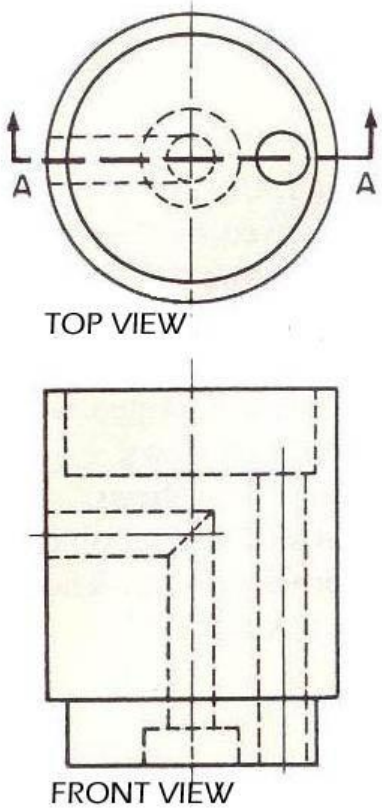
Visualizing the Cutting Plane

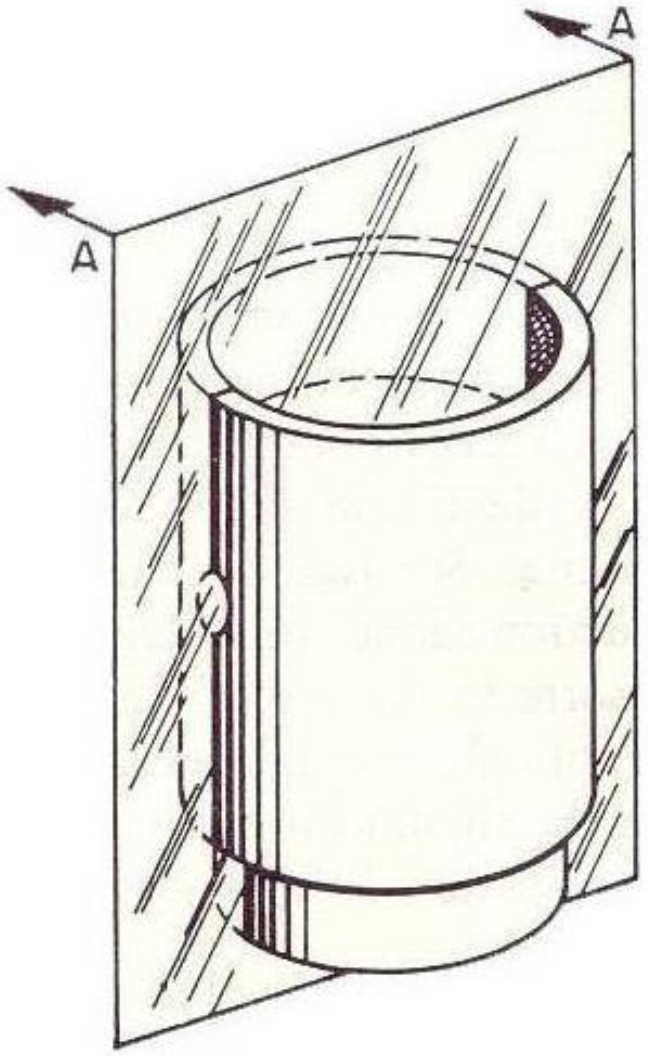
- It is very important to Visualize what the part will look like after it is cut open.
- Choosing the type of section and location of the cutting plane.
- Making the cut and drawing the view in the proper location.

Full Section

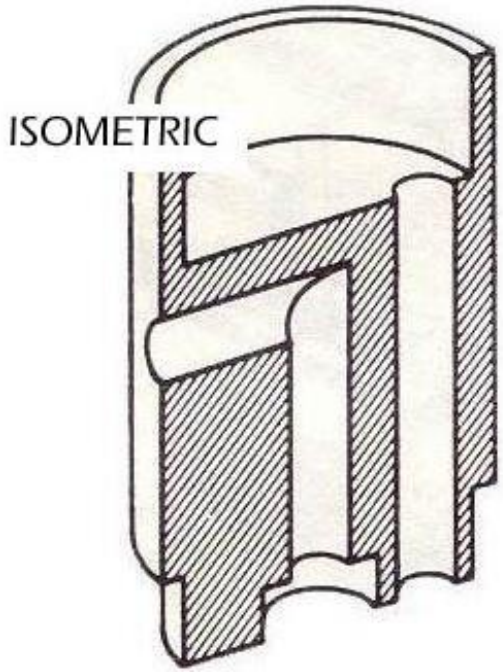
- In a full section, the cutting plane line passes fully through the part.
- Normally a view is replaced with the full section view.
- The section-lined areas are those portions that have been in actual contact with the cutting-plane.

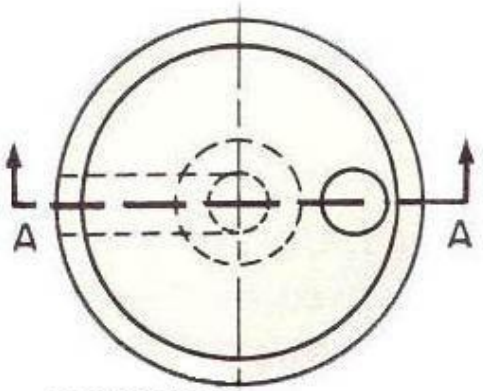
Full Section

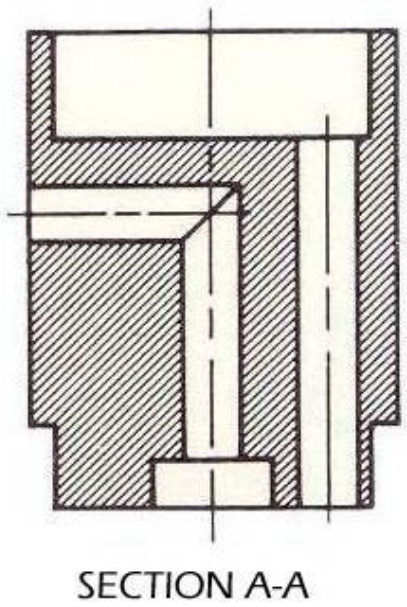




Replacing the view



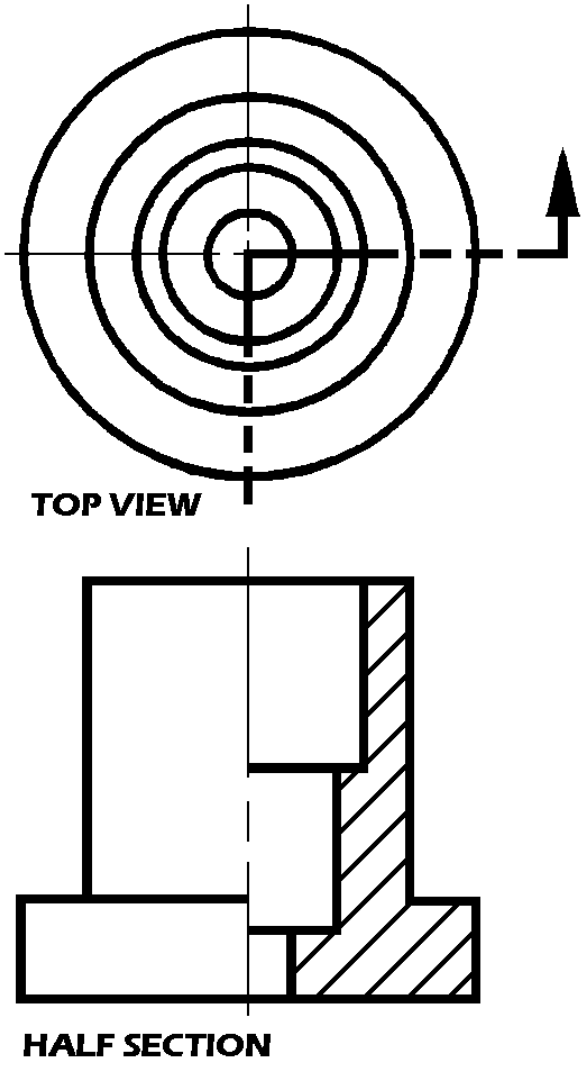




Half Section

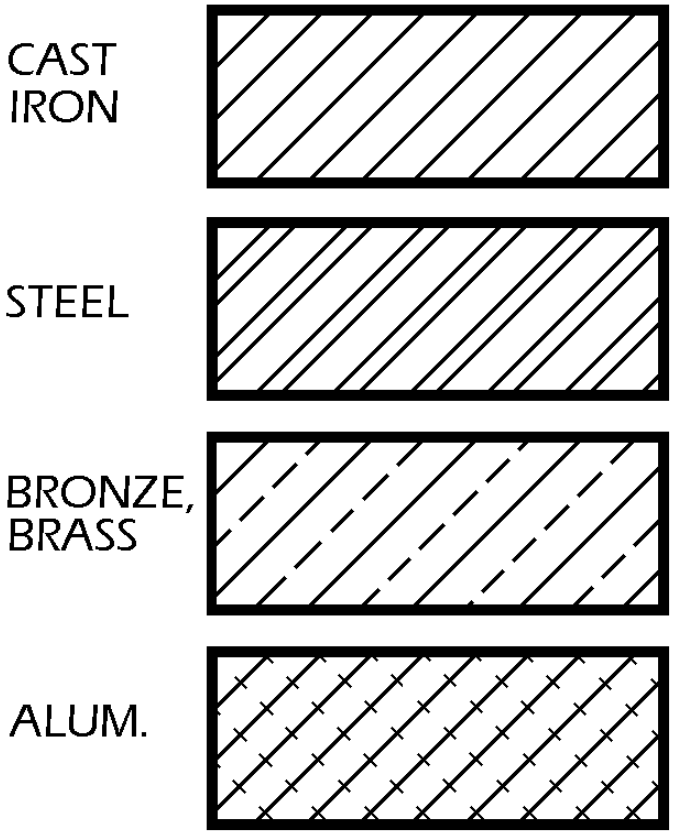
- Half Section is used to the exterior and interior of the part in the same view.
- The cutting-plane line cuts halfway through the part and removes one quarter of the material.
- The line that separates the different types (interior and exterior) may be a centerline or a visible line.

Half Section



Section Lining

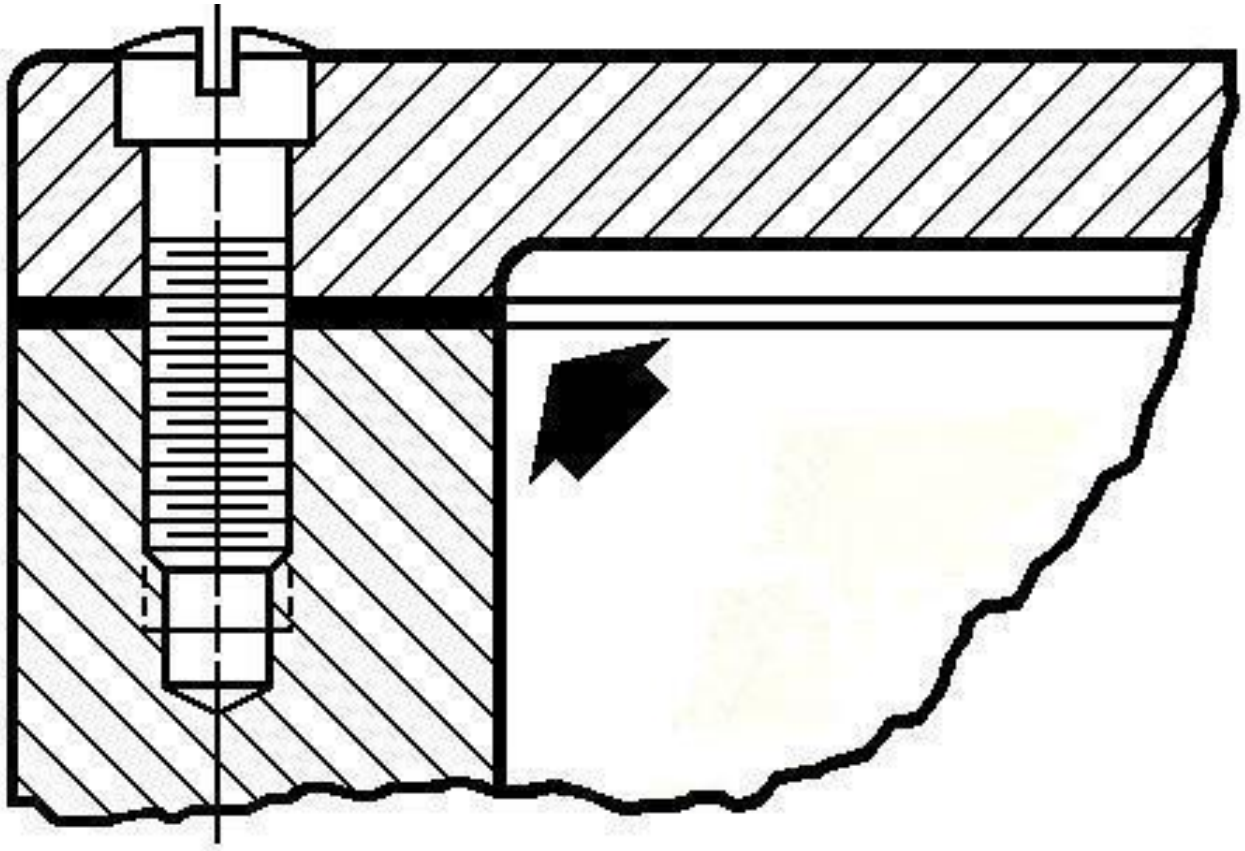
- Materials – Common materials
- The symbol for cast iron can be used for most section views.
- Refer to any common drafting text for additional symbols.



Section Lining

- 45 degree angle lines should be used.
- 1/8” between lines.
- All lines should be uniformly spaced
- Thin sections may be blackened in completely
- Spacing lines by eye increases speed

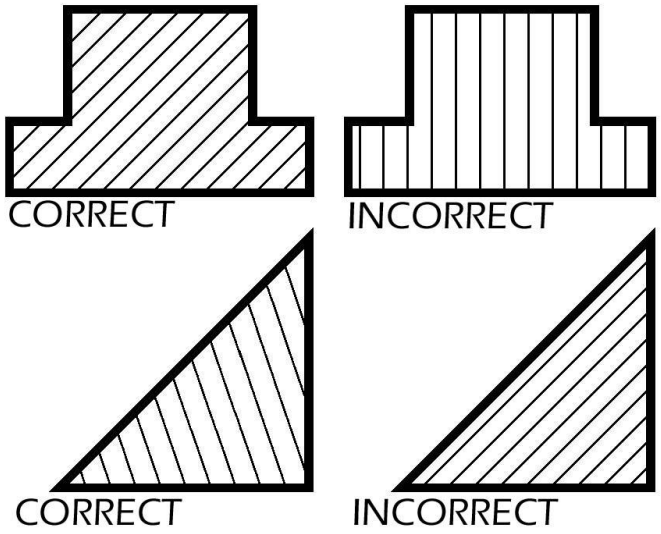
Section Lining

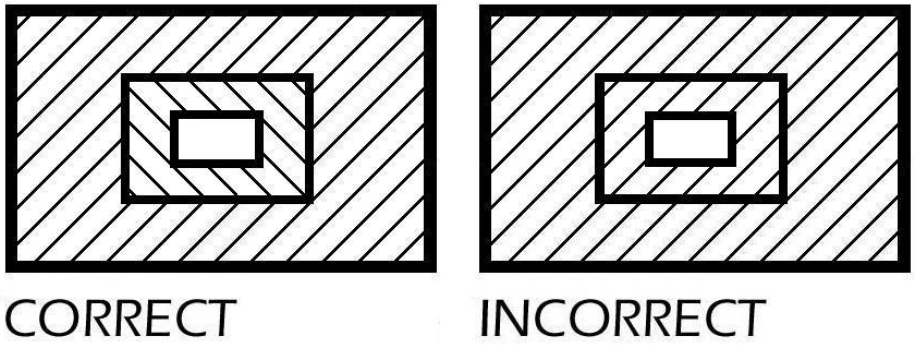


Section Lining – Line Placement

- Lines should never be parallel or perpendicular to the object lines.
- If the outline of the object has 45 degree lines, 30 or 60 degree lines should be used.
- Assemblies with several parts should be lined with varying angle section lines.

Section Lining – Line Placement

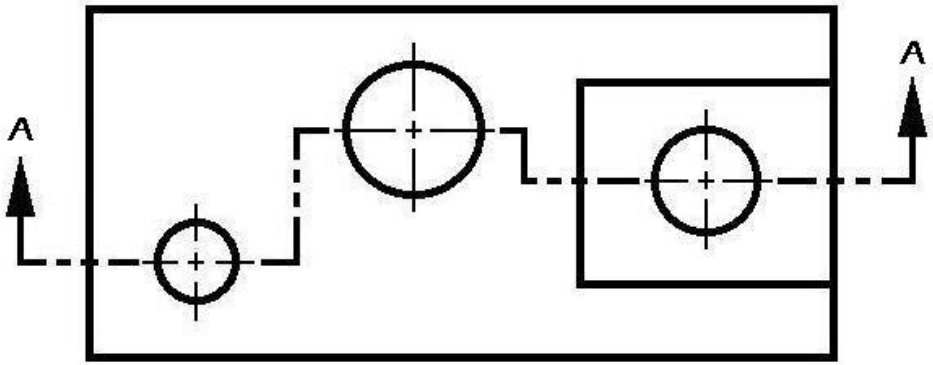




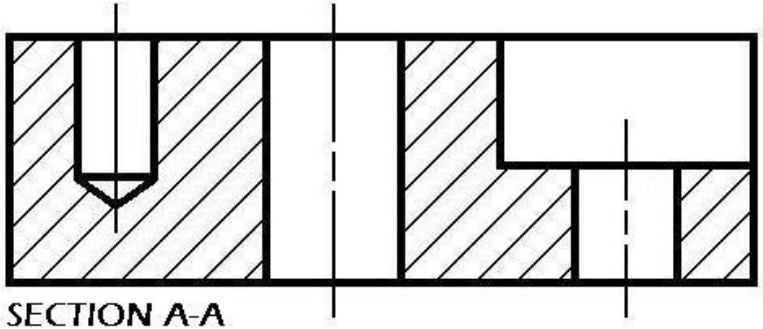
Offset Sections

- Used to show parts and features that do not line up with each other.
- Cutting-plane line does not travel in a straight line.
- The offsets or bends in the cutting-plane line do not show in the section.
- The versatility of this section makes it very useful.

Offset Sections



OFFSET SECTION LINE

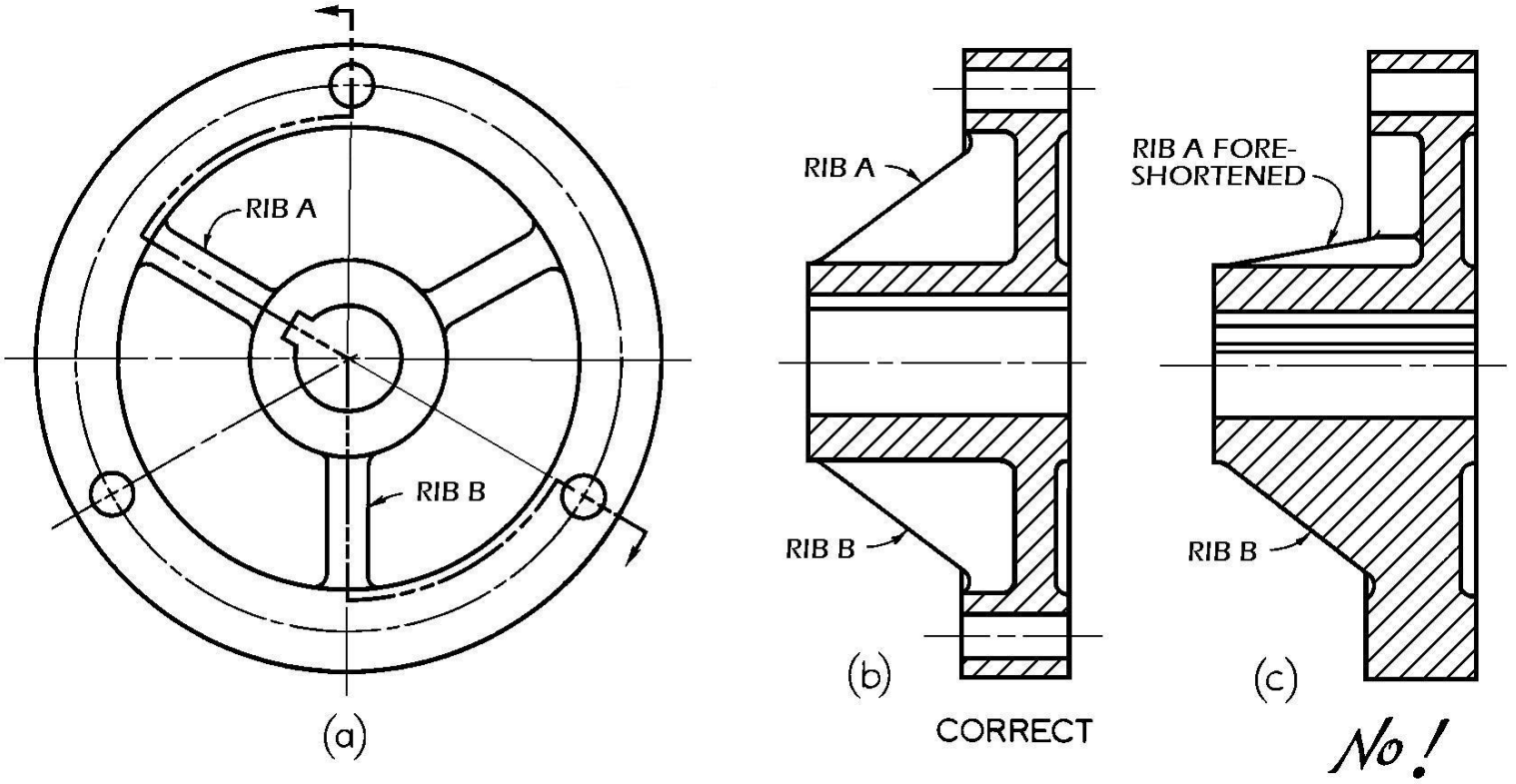


SECTION A-A

Aligned Sections

- Usually used on symmetrical circular parts.
- Place the cutting-plane line to show the most detail.
- All parts and details are rotated into the section view.
- Ribs and spokes can be left un-lined for better clarity in the section view.

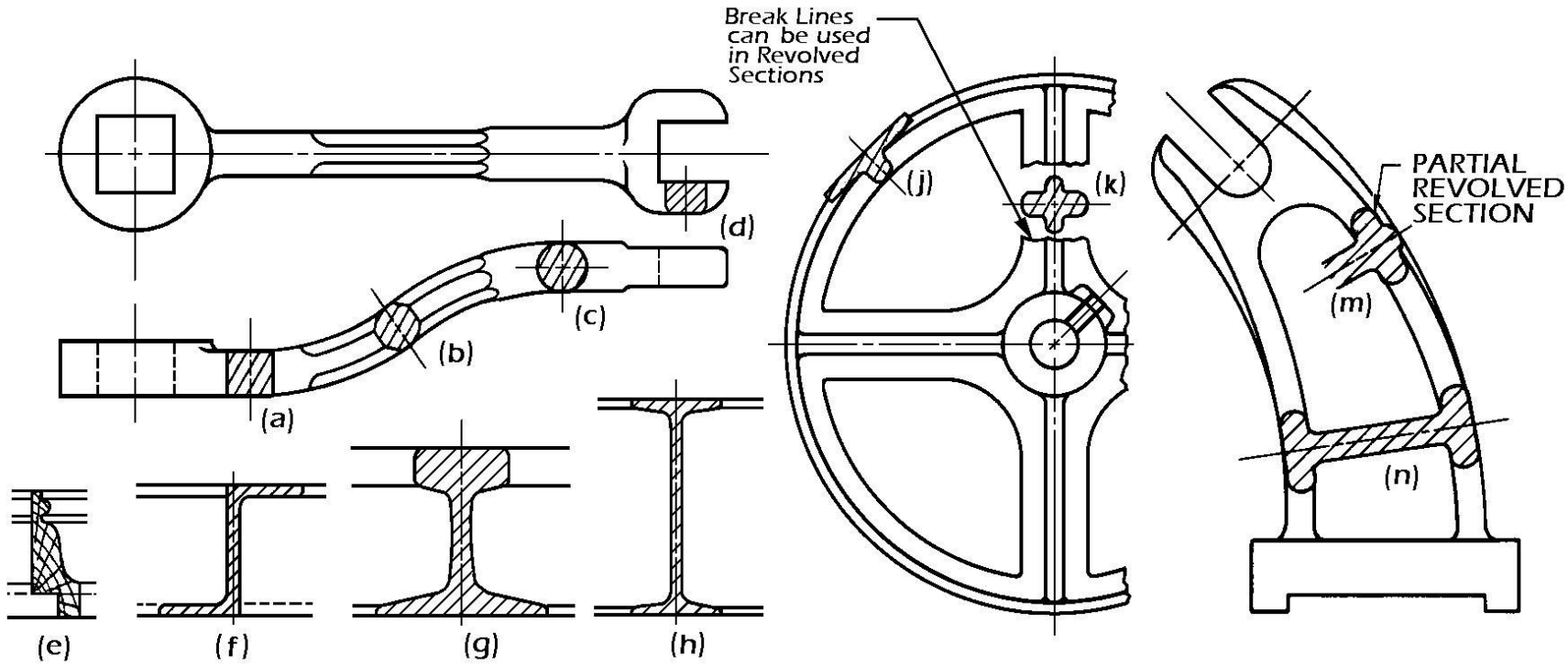
Aligned Section



Revolved Sections

- Used to show a small portion of a drawing.
- Show a cross-section of an area turned 90 degrees or perpendicular to the object.
- Put into a drawing to show an area not normally shown.

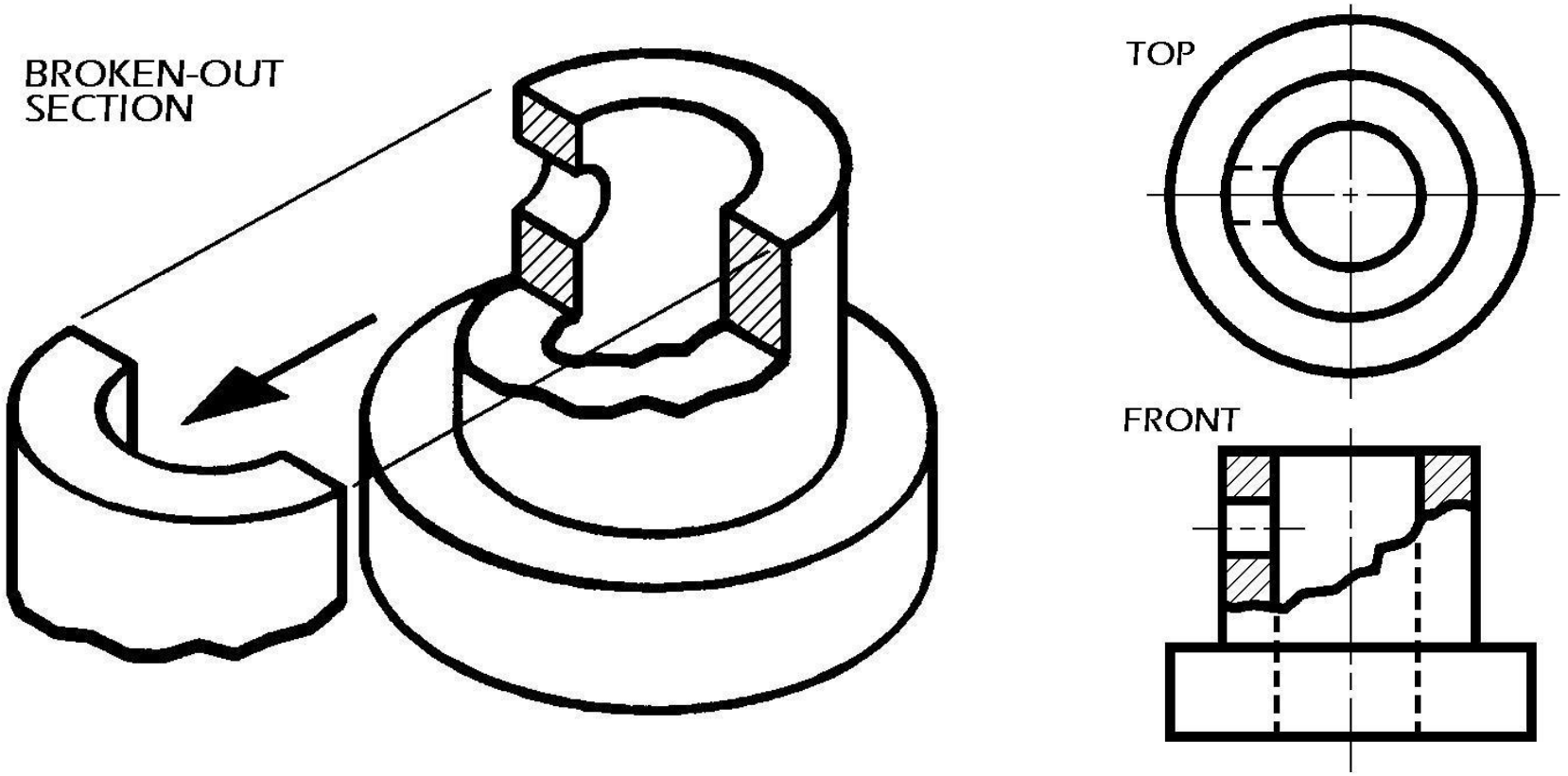
Revolved Sections



Broken-out Sections

- Used to generate a section for a small area without using a cutting-plane line.
- Removes a small amount of material to show the interior details.
- Always used in an orthographic view.
- Used to enhance the orthographic view by giving the viewer a better look at key interior details.

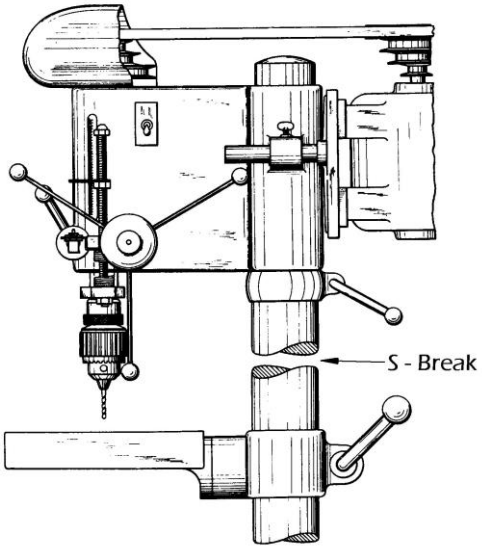
Broken-out Sections

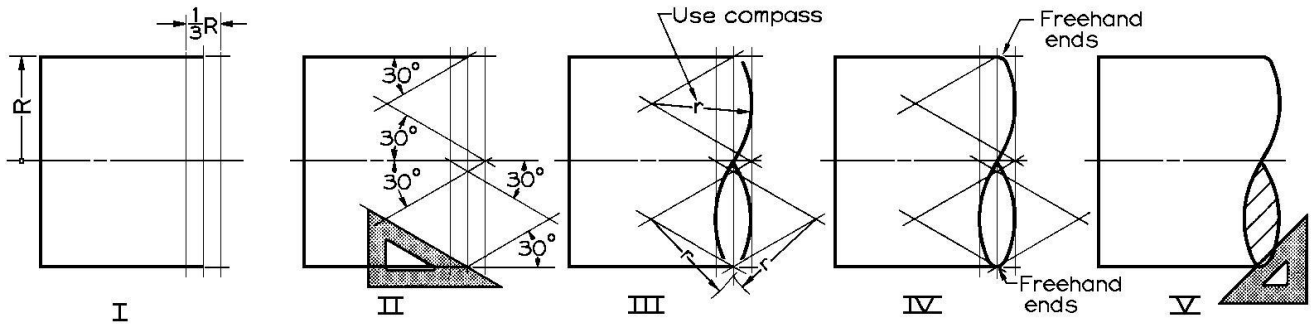


Sectioning Shafts

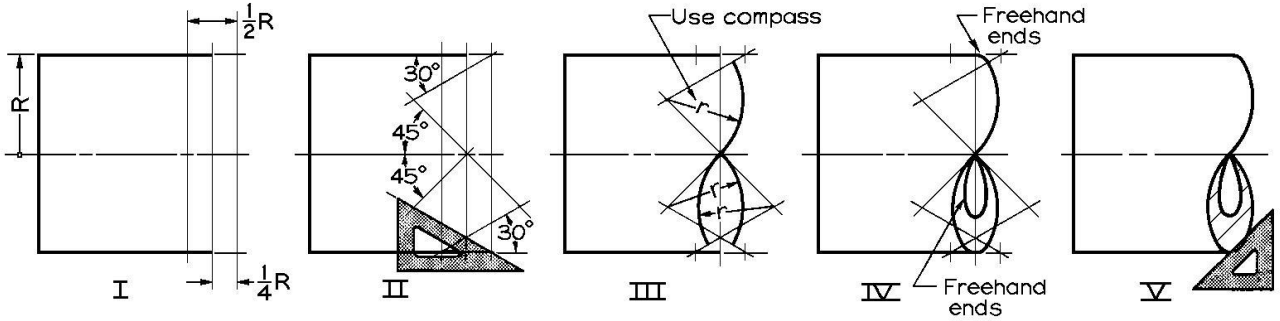
- Used to show a break in a longer part allowing better used of drawing surface.
- Gives the impression of a 3-D break on the shaft.
- Adds a touch of flair to the drawing.

Sectioning Shafts





Steps in Drawing S-Breaks for Solid Shaft.

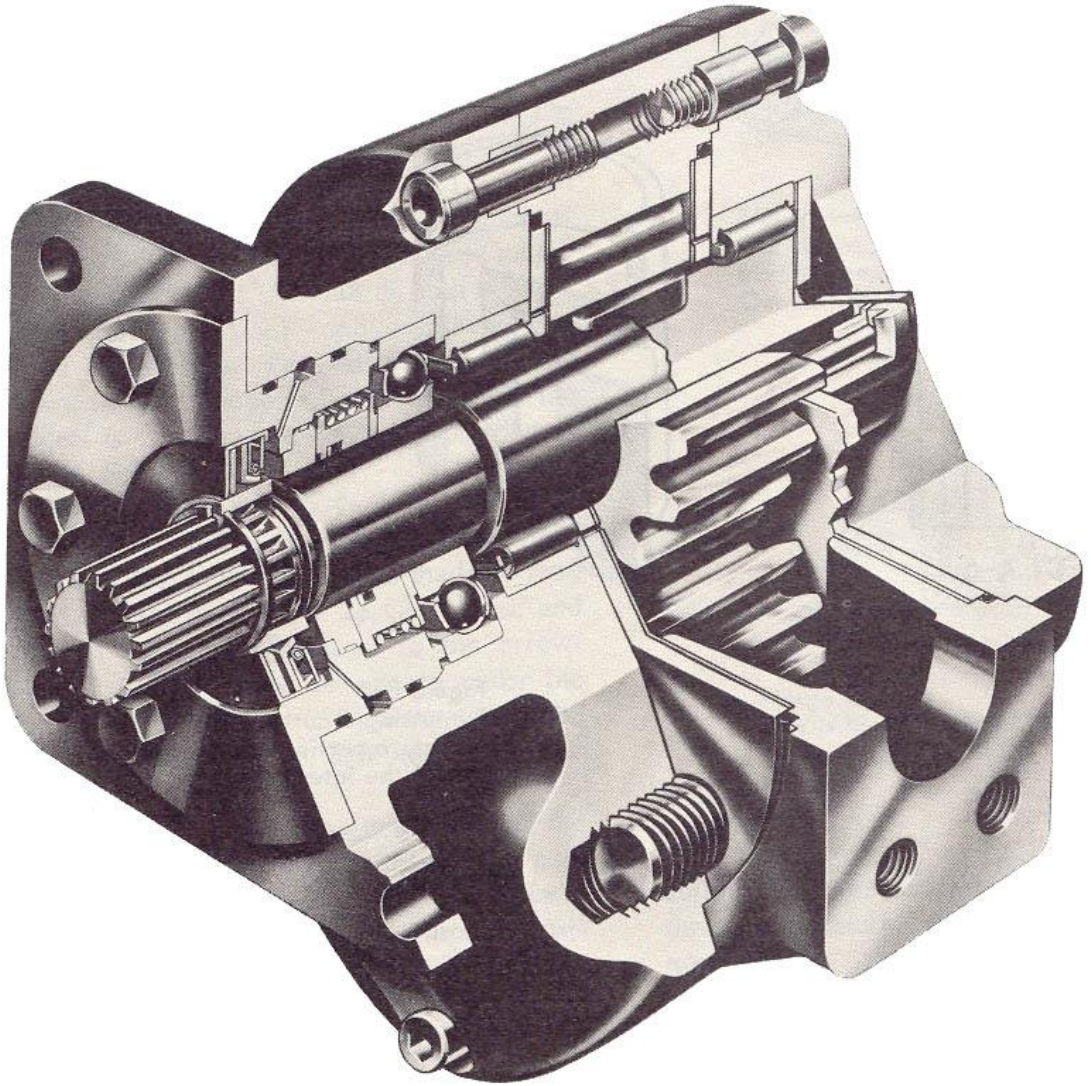


Steps in Drawing S-Breaks for Tubing.

Assembly Sections

- Shows how parts fit together
- Allows better clarity with a complicated assembly of parts.
- Shows how parts not only fit together, but allows for a visual view of how they function.

Assemblies



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- Engineering-Technical Drafting and Graphics; J.W. Giachino, Henry J. Beukema; American Technical Society, Chicago, Illinois - Second Edition

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