Section Views
Section View

- Shows interior detail of a part
- Used when hidden lines tend to confuse the interior detail of part
Section View Process

- Pass a *cutting plane* through part
- Take viewing direction normal to cutting plane
- Remove that portion of object between viewer and plane
Section View Notes - 1

- Cutting plane seen on edge shows location of section.
- Viewing direction for section view indicated by sight arrows drawn perpendicular to cutting plane.
- Seen on edge, cutting plane represented as thick line with two dashes.
Section View Notes - 2

*Hatching* used to indicate interior parts of the object through which cutting plane passes.
Section View Notes - 3

- Lines that would be visible after making cut are shown on a section view.
- Hidden lines normally not shown on section view.

A. Normal multiview
B. Sectional view (incomplete) visible edges behind cutting plane not shown
C. Sectional view (complete)
Kinds of Section Views

- Full
- Half
- Offset
- Broken Out
- Revolved
- Removed
- Aligned
- Assembly
Full Sections

SECTION B-B

SECTION A-A

SECTION C-C
Half Sections - 1

- With symmetrical objects, not always necessary to pass the cutting plane all the way through part.
- In a *half section* cutting plane passes half way through the part.
Half Sections - 2

- One quarter of part is removed in a half section
- Centerline separates two halves
- External features included on un-sectioned half
- Hidden lines normally omitted in both halves
Offset Sections

- An *offset section* is a full section used when important features do not lie along the same plane.
- Cutting plane offset to pass through important features.
- Change of plane lines not drawn in sectioned view where the cutting plane bends 90 degrees.
Broken Out Section

- *Broken out section* used when only a portion of part needs to be sectioned.
- Break line (jagged, freehand) separates sectioned from un-sectioned portion of drawing.
Revolved Sections

- In a *revolved section*, a cross section is revolved 90 degrees about an axis of revolution.
- Centerline used to indicate axis of revolution.
- Section view superimposed on multiview view.
- Lines adjacent to revolved view drawn broken out or using conventional breaks.
Removed Sections

Similar to revolved section, \( \rightarrow \) pass cutting plane perpendicular to part, revolve cross section 90°

Removed section drawn adjacent to multiview, not on top of it
Multiple Removed Sections
Conventional Practices - Sections

- Ribs, webs and other thin features (e.g., lugs, spokes, gear teeth) are not sectioned when cutting plane is passed parallel to feature.
Thin Feature Justification

Thin feature with section lining

Thin feature without section lining
Aligned Sections

- Used to revolve radial features to make them easier to represent.
- Holes, ribs, lugs, etc., may be “aligned” about a vertical or horizontal center line to give a clearer representation of the geometry.

A. True projection
B. Conventional representation
Off Angle Projections
Assembly Section Views

- In an assembly view, different hatch patterns are applied to different parts.
Assembly Section Conventions

- Thin walled parts (e.g., washers, bushings, gaskets) are not sectioned.
- Certain common features in an assembly are not sectioned. These include: shafts, ribs, bearings, spokes, threaded fasteners, gear teeth, keys, washers, lugs, nuts and bolts, rivets, pins.
Section Views