Working Drawings
[Drawing Packages]
Assemblies &
Detail/Component Drawings

Dr. Hodge Jenkins
MAE 205
Drawing types

• **Assembly drawing**
  – First Drawing in package, start from here

• **Sub-assembly drawing**
  – Grouping of assembled parts that makes a unit

• **Component, part, or detail drawing**
  – Lowest level of drawing
  – All information to make a part
Assembly Drawings

- Isometric view of assembly (exploded or not)
- Leaders with balloons showing item number of part or sub-assembly.
- Bill of Materials
  - Drawing/part numbers of custom parts
    - Item number (refer to number in balloon on the leader).
    - Quantity required (in the assembly)
    - Description
    - Drawing number if custom part
  - Purchased parts
  - Sub-assemblies
- Assembly notes
Assembly Drawings

• Are isometric drawings (3-D looking).
• Assembly can be shown as
  – Assembled
  – Exploded
    • With insertion line in phantom
    • Or not
Exploded View: Assembly Drawing
Assembly
### Bill of Materials

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY</th>
<th>DESCRIPTION</th>
<th>PART NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>OPTIONAL AIR CLEANER, 4&quot; NOM, B105006</td>
<td>8535</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>CLAMP, 4&quot; NOMINAL, AC400</td>
<td>8815</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>AIR FILTER, 4&quot; DIA. INLET, CFP59,6E,83,9E FIREPUMP</td>
<td>9606</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>TUBE, AIR CLEANER EXTENSION, FIREPUMP</td>
<td>9516</td>
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<tr>
<td>5</td>
<td>1</td>
<td>COUPLING, RUBBER, 4&quot;, NELSON 889835K</td>
<td>89835K</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>RESTRICTION INDICATOR, 1/8&quot; NPT</td>
<td>RX00-2352</td>
</tr>
</tbody>
</table>

Leaders with Balloons and Item number
Component/Detail Drawings

• Orthographic projection views
• Dimensions
  – Use uniform decimal places x.xxx or x.xx
• Tolerances
  – Add note for general tolerance unless otherwise specified (for example)
    • X.xx +/- 0.010
    • X.xxx +/- 0.001
• Material: Specify the material of the part
• Finishes: plated, painted, sandblasted, etc.
Detail/Part/Component Drawings

• Orthographic projection views
  – Usually 2 or 3 views are needed
• Include auxiliary or section views as needed
• Include dimensions
Examples: Component Drawing

NOTES:
1) MATERIAL: 16 GA. HRS
2) ALL BENDS AT MINIMUM BEND RADIUS
3) REMOVE ALL BURS AND SHARP EDGES
4) PRIME AND PAINT FIRE ENGIN RED