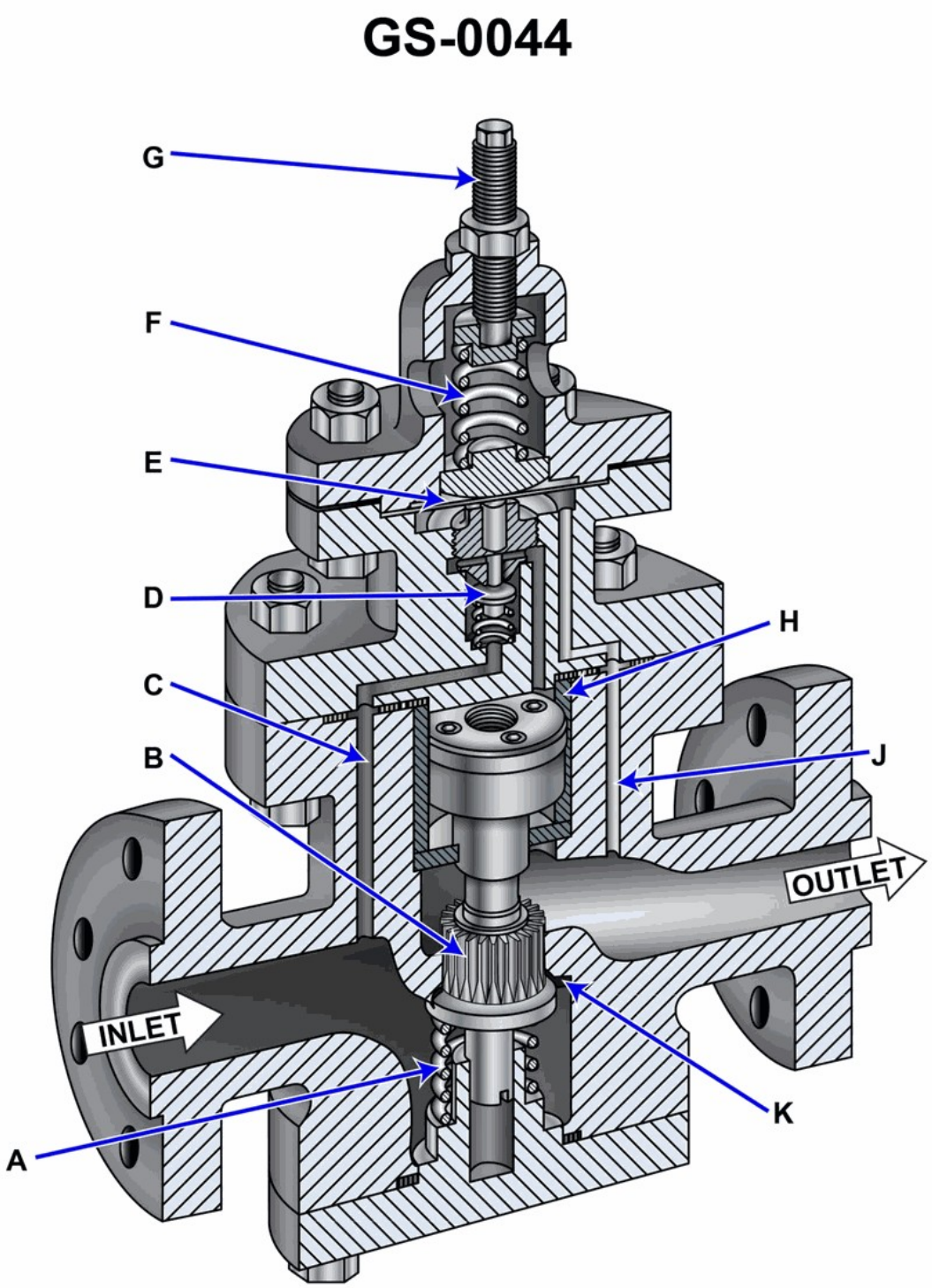

Q613 - General Subjects

1. In the illustrated self-contained, internal-pilot, piston-operated steam pressure-reducing valve, what statement is true concerning the pilot and main valves



- The pilot valve is downward seating and the main valve is upward seating.
- The pilot valve is downward seating and the main valve is downward seating.
- **The pilot valve is upward seating and the main valve is upward seating.**
- The pilot valve is upward seating and the main valve is downward seating.

Note:
Both the pilot and main valves are upward seating because inlet steam acts on the underside of their discs.

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2. For the various sizes of tubing and wall thickness used in a hydraulic system, the inside diameter can be determined if it is remembered that the inside diameter equals the outside diameter less _____.

- the wall thickness
- 1.5 times the wall thickness
- **2 times the wall thickness**
- 2.5 times the wall thickness

Note:
The inside diameter is calculated by subtracting twice the wall thickness from the outside diameter, accounting for the material on both sides of the tubing.

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3. Which of the drill sets listed would commonly be referred to as a “Jobbers Set”?

- A set of numbered size drills from 1 to 60.
- **A set of fractional size drills from 1/16" to 1/2".**
- A set of fractional size drills from 1/2" to 2".
- A set of lettered size drills from A to Z.

Note:
A Jobbers Set is a standard set of fractional-size drill bits, typically ranging from 1/16" to 1/2". This designation refers to the common size range for jobber-length twist drill bits used in general-purpose drilling.

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4. No two drills from differing drill sets are of the exact same size, with the exception of the drills measured as 0.25 inch. These two drills are the 1/4 inch and the _____.

- "A" drill
- **"E" drill**
- No.1 drill
- No.80 drill

Note:
The 1/4 inch and “E” drill are the only drills from different sets with the same size of 0.25 inch.

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5. If the speed of a drill is too great, the drill will _____.

- not cut
- **rapidly dull**
- cut slower
- cut faster

Note:
Excessive drill speed generates heat, which reduces the drill's hardness and causes rapid dulling.

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6. Which material can be drilled at the highest speed?

- Medium cast iron
- High carbon steel
- **Aluminum**
- Copper

Note:
Aluminum can be drilled at the highest speed due to its lower strength and reduced resistance to cutting compared to the other materials listed. Drilling speed is inversely related to material hardness; softer materials permit higher speeds to minimize tool wear and heat generation.

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7. To set the dividers to the proper radius, you should use a _____.

- caliper
- micrometer
- scribing circle
- **steel rule**

Note:
A steel rule is used to measure the desired distance on a chart and set the dividers to that radius; dividers transfer a measured distance and do not measure themselves. Calipers and micrometers are precision tools for metalwork, and a scribing circle is used to draw circles, none of which are appropriate for setting divider radius on a chart.

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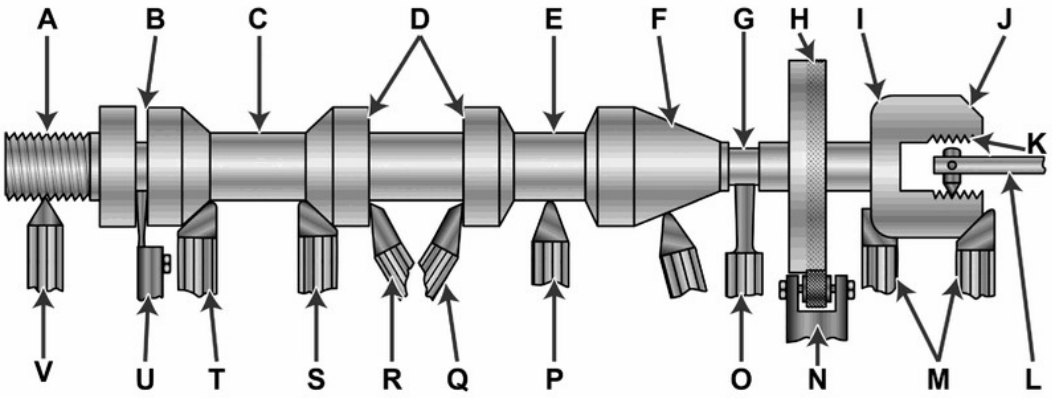
8. The lathe tools shown as figure "M" in the illustration are commonly known as _____

GS-0090



- universal turning tools
- **form tools**
- parting tools
- curvature cutting tools

Note:
The tools in figure M have a shaped cutting edge designed to reproduce a specific profile on the workpiece, which defines form tools. Universal turning tools are general-purpose, parting tools are for cutting, and 'curvature cutting tools' is not a standard term; therefore, form tools is the correct answer.

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9. Which of the metals listed below can be cut with the highest operating lathe speed?

- Soft brass
- Mild steel
- **Aluminum**
- Cast iron

Note:
Aluminum can be cut at the highest lathe speed due to its softness and superior machinability, allowing for higher spindle RPM without excessive tool wear or heat compared to brass, mild steel, or cast iron.

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10. Reheating a hardened component to a temperature lower than the hardening temperature and then cooling it is known as _____.

- annealing
- **tempering**
- low temperature hardening
- case hardening

Note:
Tempering involves reheating a hardened metal to a temperature below its hardening temperature and then cooling it to reduce brittleness and adjust hardness.
