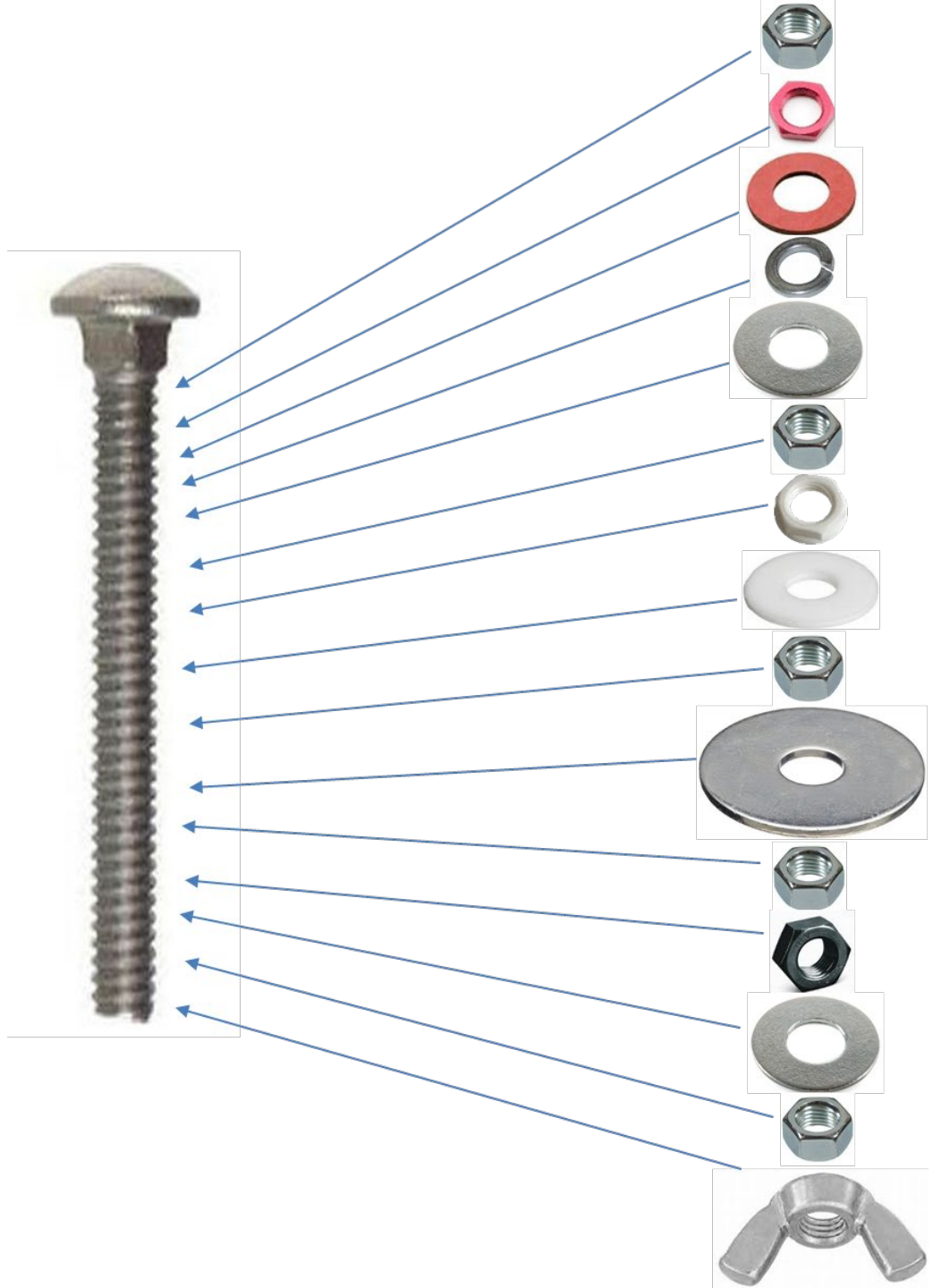
Bolt Widget



Theory to Practice De-Brief
Bolt-Widget

Thoughts?

- ✓Was this an error prone instruction?
- ✓What issues did you see?
- ✓What are some of the error precursors?
- ✓Were there any critical steps?
- ✓What HPI Tools did your team use?

Error Likely situations (Hide this slide)

- Failure to realize last page is missing
- Starting with wrong nut already on the bolt
- Concurrent verification on the page after what needs to be verified as it's being placed
- Color is worn on some components → increased difficulty identifying correct component.
- Extra components
- Time Pressure→ 10 minutes from when the operator touches components

Related discussions

- Repeat backs
- Skill of the Craft → "lock washer", "embossed side away from the bolt head"
- What were the Critical Steps? →Embossed washer placement, concurrent verification- as it is being placed
- Missing page
- Discuss meaning of "ensure" vs. "verify" → starting with the wrong nut closest to the bolt head
- Need for procedures→ without a written procedure, there is a one in 15 factorial (1 in 1,307,674,368,000) chance of correct completion if just told to assemble it without instruction

Event pyramid