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Moog Space and Defense Group

Engineering Section Head

Fairleigh Dickinson University

ASME Presentation

MOOG

Personal Background & Education

Originally from Tarpon Springs, Florida

MSME from RPI in 2014

BSME from Carnegie Mellon in 2010

Ohio since 2018

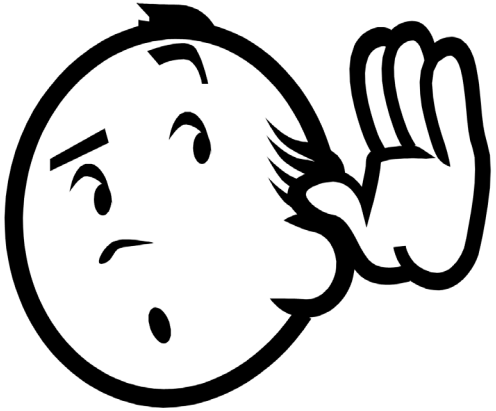
First Job Experience – General Dynamics Electric Boat

- Hydraulic Components Engineer
  - Supported equipment suppliers and construction of VIRGINIA Class submarines
  - Collaborated with vendors to develop and qualify new hydraulic component designs for SEAWOLF and COLUMBIA Class

- Engineering Supervisor
  - Opportunity to move into supervision presented itself after 5 years at EB
  - Managed a team of engineers split between hydraulic component development and other large mechanical system design

First Job Experience – General Dynamics Electric Boat

- What did I learn?
  - Listen…
    - To the old guard, they've been doing the job longer than you have been alive
    - To the experts, everything is more nuanced than you can imagine
    - To the people who touch the product, their input is invaluable

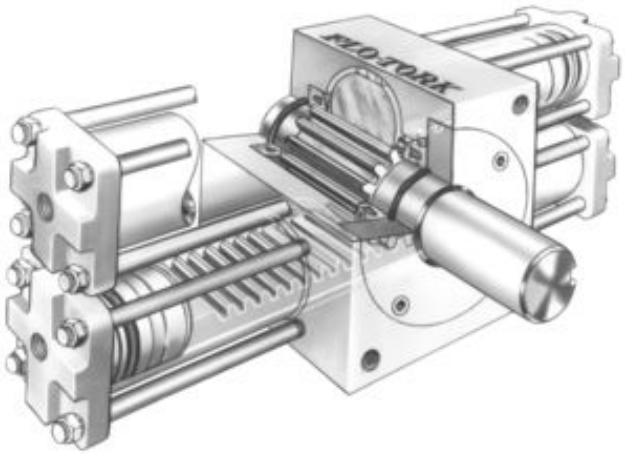


  - Defense contracting is a unique process
    - Adjustment from college timelines to large scale engineering projects can be frustrating, measured in years not days or weeks
    - Dollar values are insane… but you learn why quickly
    - Quality > Schedule > Cost

- Managing people is waaay different job…
  - Not a single technical question during the interview
  - Be ready to get involved in your employees lives
  - Higher highs and lower lows
  - Time management and decision-making skills need to be a personal strength

Current Job at Moog and My Responsibilities

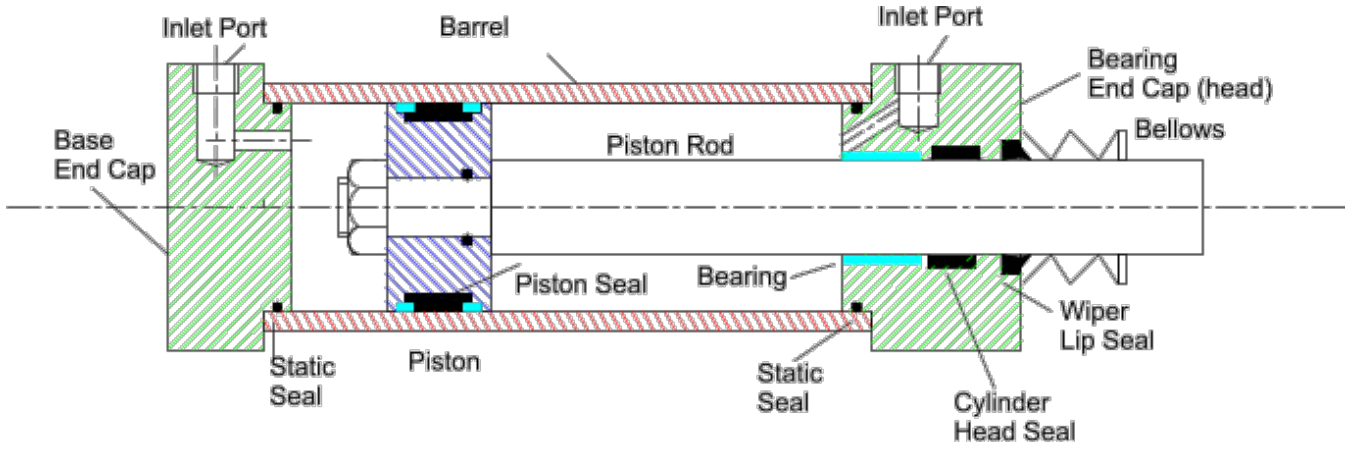
- Engineering Section Head (*Fancy Supervisor*)
  - Manage a team of design development engineers specializing in linear and rotary hydraulic actuators for submarines
    - Very heavy mechanical engineering analysis and understanding required: nuts, bolts, seals, gears, fluid dynamics and vibrations
    - Emphasis on design for manufacture, assembly and test



  - Responsible for successful design development project performance (quality, schedule and cost), quoting and planning new projects, new product pursuits, technical and career development of personnel

What Actuator Design Development Takes…

- 6 – 9 Months: Concept design, detailed calculations, creation of final part and assembly drawings



- 8 – 10 Months: prototype unit manufacture, supporting suppliers, fix drawings and address manufacturing issues
- 4 – 6 Months: Qualification testing for performance, endurance, strength and other application specific requirements

My average day…

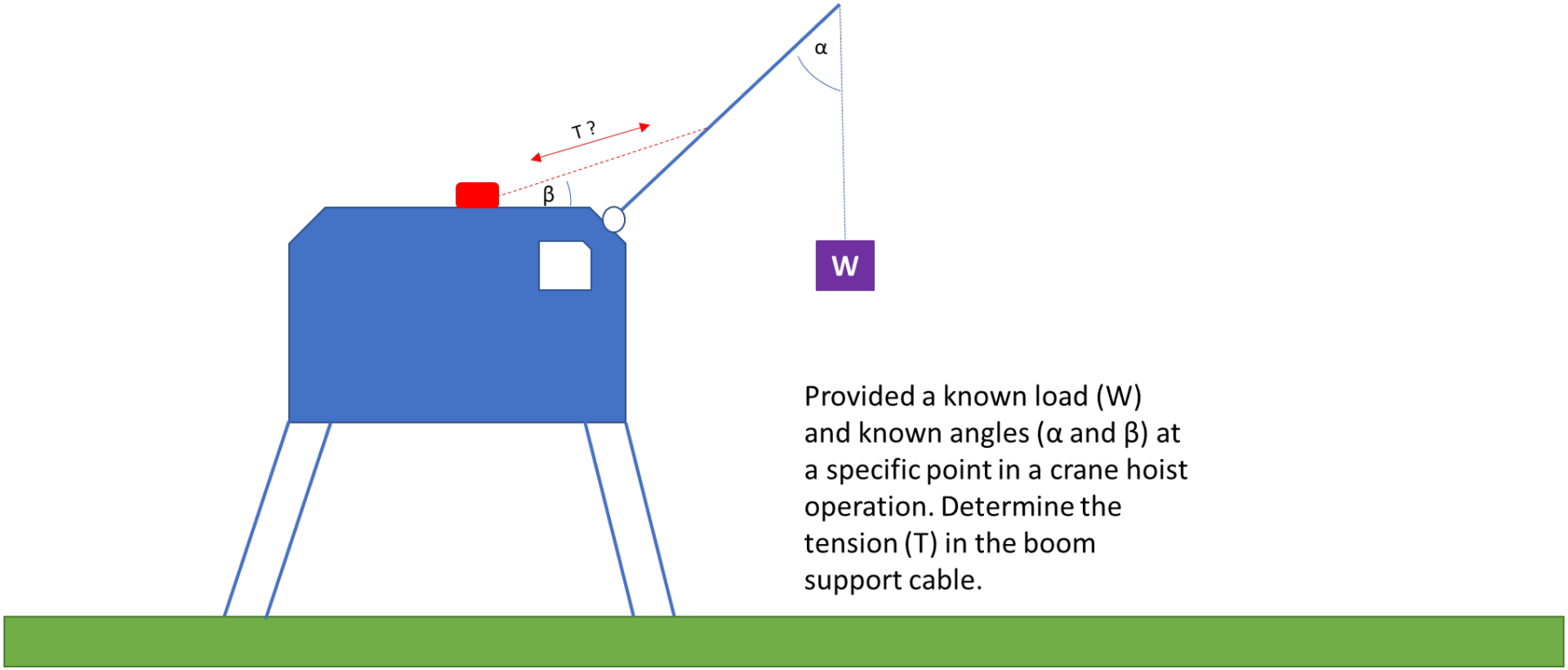
- 8 AM: Morning production status meetings and design group ‘stand-up’ call
- 10 AM: Supervision activities and/or customer interfacing
- 11 AM: Support active project reviews, participate in technical decision making meetings
- 1 PM: Review and approve work from my group, assign new tasks and projects, provide individual direction or guidance as needed
- 4 PM: Creating and/or reviewing project performance metrics, revising plans and schedules
- 5 PM: Check-in with anyone working late

What do I look for new engineers in defense?

- Ownership of Tasks and Projects
  - Do you take full responsibility for the work you do?
  - Are your self motivated and persistent?
- Communication Skills
  - How well can you communicate a technical concept?

- Attitude
  - Are you someone who will mesh well with my team and our business culture?
- Technical Competency
  - Can you demonstrate an understanding of applicable high level engineering concepts?
  - Are grades in key course areas strong?

Sample Interview Technical Question



Provided a known load (W) and known angles (α and β) at a specific point in a crane hoist operation. Determine the tension (T) in the boom support cable.

‘Borrowed’ Questions from Other Presentations

- Is it difficult to balance work and social life in this field?
- What inspired you to go into the mechanical engineering field?
- Are there any current or past projects that you are working on that you are at liberty to discuss?
- What was the process like getting to your current position? Were you hired to that position directly or did you climb through the ranks of the company?
- Do you feel as though the job market for an engineering position in this field is competitive?