

# Designing for Maintainability



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- **Analyze Customer Needs**
- **Get Management buy in on the importance of Maintainability in the design**
- **Establish top system level requirements for Maintainability**
- **Define the Missions/ Operations**
- **Establish a data system that will be used to collect data for the maintenance design**



- **Specify and Design in Features**
  - *Design to requirements*
  - *Lessons Learned*
- **Minimize Levels of Maintenance**
  - *Organization, Intermediate (Back Shop), Depot*
  - *Eliminate levels of maintenance if possible*
  - *Reduce Levels of access to any individual item*
- **Reduced Manpower and Skill Levels**



- **Identify the parameters that will/can be measured.**
- **Establish metrics for the identified parameters.**
  - ***Examples:***
    - Mean Time to Repair (MTTR)
    - Mean Time Between Maintenance (MTBM)
    - Essential System Repair Time (ESRT)
    - Direct Maintenance Man Hours (DMMH)



- **Human Factors**
- **System Safety**
- **Reliability**
- **Technical Publications**
- **Supply Support**
- **Diagnostics and Health Management**
- **Support Equipment**
- **Training**
- **Suppliers**

# OPTIMIZE THE DESIGN



- **Evaluate alternatives**
- **Assess the technical risks**
- **Perform trade studies**
- **Optimize the performance parameters**
- **Verify and validate the system**

# MAINTAINABILITY IS A REQUIREMENT



- **Maintainability is a requirement from your customer for any product. It may be explicitly identified or just understood.**
- **No product will be successful if it can not be maintained.**
- **Your customer will ultimately determine the success of your product and your company.**