

INFORMATION PAPER

SUBJECT: Pit Stop Engineering

1. Purpose. To provide information on Pit Stop Engineering.

2. Facts:

a. What is Pit Stop Engineering? Using professional automotive racing methodology and techniques to design weapon systems to maximize soldier performance and minimize maintenance down-time. When we apply Pit Stop Engineering concepts up front during the design process, we design systems to be easily operable and maintainable by Objective Force soldiers. The systems incorporate “quick connect” components that are “intelligent” because they have on-board prognostics (Built-In-Test/Built-In-Test-Equipment (BIT/BITE) that warn of impending failure and can predict remaining service life. This design approach makes it easy for the sleep-deprived soldier to quickly perform required tasks, with few tools, even while under fire.

b. Benefits.

- Less time to repair/simplified maintenance training – translate into more time to train on Tactics, Techniques and Procedures (TTPs)
- Minimum (or no) tools required
- No “blind” connections (wiring/cabling harness to the front)
- Excellent working space that accommodates soldiers and equipment
- Overall improved system reliability (easy to detect and display system health and status)

c. Design Principles.

- Soldier first
- No tools
- Handles
- Use maximum Time to Repair (TTR) vs. Mean TTR metric
- Minimum training
- One-person lift (42lbs)
- Modularity
- Reduced weight & space
- Simple visual interface
- Minimal down time
- Interoperability with Joint Forces and Allies

d. Design Goals.

- Minimal personnel to use/maintain/support
- Design for full range of personnel
- Design for interoperability
- Easy upgrade path
- Maximum use of COTS/ NDI equipment
- Design for CBRNE environment
- Complete system solution

e. Design Perspective.

- Ease of use
- Minimized weight and space
- Balanced robustness
- User focused
- Requirements are a minimum achievement
- Application of non-traditional technologies
- Improvement of system capabilities and efficiencies with minimal additional components

3. POC: CPT(P) Craig M. Ravenell/DCD-OD/DSN 687-14050/ ravenellc@lee.army.mil / 7 March 03