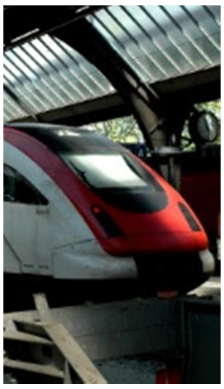
Spares

The LSA effort (and LORA) will determine where (level of maintenance) and how items are repaired. The spares modeling analysis would determine the quantity of spare parts to be held at a given maintenance level and supply depot location. The spares modeling analysis' recommended quantities would be derived to satisfy the customer's requirements. The LORA process determines the location of each type of spare part. This is commonly referred to as the range of spares. An assumption generally made when assessing a system's availability, is that the required resources to implement a maintenance task will be readily available, or on-hand, including the necessary spare parts.



The systems availability (operational availability) should not be confused with a sparing level availability. These two parameters are quite separate.

Careful consideration must be made in determining the spares required to support a system. Depending upon the complexity of the system, its support infrastructure and deployment, a spares model could be relatively simple or a more complex affair. There are two scenarios, which need to be avoided when implementing a sparing philosophy. These include ensuring that a system is not depleted of spares, therefore causing a loss of system availability, or holding a quantity of spares in excess of what is required as this would result in a excessive capital and inventory retention cost. Special attention must be paid on issues such as the item's reliability and vendor repair turn-around-times (logistic pipelines), as these could contribute to a degraded system availability and effectiveness.

Another important issue, which must be given careful thought to, is if a system was suddenly placed under an increased operational stress, will the spares be there to support it? This can be easily demonstrated in a military operational scenario. During peacetime constraints, equipment tends to be less utilized and held in a more central location. Then in the event of an actual military operational scenario, or under wartime constraints, then the equipment's utilization rate will increase, as will various deployment scenarios. This would provide an increase loading on the logistics (supply) support, particularly spare parts. A similar scenario can also be played out in the commercial industry. For example, think about the implications on the spares holding and other logistical resources, if a commercial airline company opens a new overseas route, several thousand kilometers from its normal operations base.

Sparing models can be developed for more complex systems using commercially available software tools. Some of these modeling tools allow for more involved operations in the actual

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spares model, such as optimizing a spares recommendation. The optimization could be made against the final spares cost versus the spares availability target.

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