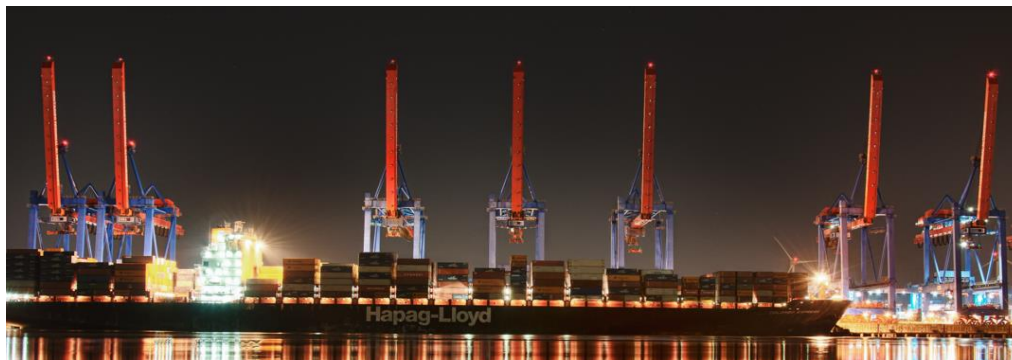


## MATERIALS / SPARES / INVENTORY MANAGEMENT



### MRO Inventory Audit Services

**Do you really know how well you are managing your MRO Inventory? In our experience, from carrying many audits and training courses in MRO management, most companies manage spares very badly, resulting in many duplicates, lack of converting from OEM to OPM parts, and consequently, excess stocking levels and costs.**

Poor MRO management and over-stocking can also increase equipment downtime resulting in production losses. To manage this effectively, M2K have developed a comprehensive MRO Inventory Audit process. There are six levels of review:

1. Level 1 - review catalogue data (part descriptions, P/Ns, material group codes, duplicate analysis).
2. Level 2 - review stock balance, and inventory control parameters.
3. Level 3 - review BOMs.
4. Level 4 - Comparison Analysis (a check for common items between different warehouses).
5. Level 5 - a gap analysis of your management practices and provide a qualitative assessment.
6. Level 6 - review in detail any written procedures in place.

#### Level 1 Cataloguing Data Review

Poor cataloguing results in:

- Inability to find the right spare in a timely manner.
- High number of duplicates.
- Excess stock holding value.
- Additional loss of production while trying to find the right spare.
- Emergency purchases when the right spare cannot be found.

The review will include the following as a minimum.

- Checks for leading spares.
- Check spare part descriptions for consistent noun/qualifiers.
- Check for attributes.
- Check consistent use of Manufacturers' Part Numbers.
- Check for consistency of P/Ns for Manufacturers using dual P/N schemes.
- Check material class consistency.
- Check for vendors & manufactures consistency.
- Check for duplicates based on the Manufacturers' P/N.
- Check for UoM consistency.
- Check the use of the ABC classification.
- Check for part criticality.
- Checks for missing data.

Deliverables will include the "as received" versus the "standardised short part descriptions", for around 100-line items.

#### Typical Findings:

- No standards defined to achieve consistent cataloguing.
- Many duplicates, but not all duplicates can be identified due to poor P/N population.
- Up to 10-line items with the same P/N, but the items description is not the same, i.e., they are not true duplicates.
- No separate field for the MFr & MFr's P/N.
- No rules for parts with dual part numbers.
- Inconsistent use of non-alpha numeric characters in the P/Ns.
- Part Numbers are a mix of vendor, OEM & OPM P/Ns.
- Lack of attributes.
- Due to poor population, unable to filter parts by manufacturer for improved purchasing.

### M2K UNDERSTAND:

- That companies are always looking for improved efficiencies while maintaining productivity. Our MRO Inventory Audit offers the potential for substantial and sustainable cost savings due to over-stocking.
- M2K can carry out a full audit or a specific area of interest to suit specific requirements.
- Based on experience, most companies are poor at managing MRO spare parts, and we can identify how well you are doing and almost certainly identify major savings.
- If you would like an independent review of what you have/do not have, related to MRO spare parts, don't hesitate to contact us, or if you require any other information.

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## Level 2 Inventory Data Review

Level 2 is subdivided into two phases.

### Phase 1 Issue and Demand Analysis

Issue and demand data analysis is carried out mainly to support the inventory control review. From an issue data download we determine the following:

- First and last Issue date.
- Total quantity used between these two dates.
- Average Annual Demand Rate.
- Convert issue data to a year-by-year total using a specialised SQL query.
- Possible obsolescence (items with issues and then no issues for several years).
- Percentage of items with movement in past 1, 2, 5, 10 years.
- Percentage of items with no movement.

### Typical Findings

- 70% of the inventory has had no movement in the past 5 years.

### Phase 2 Inventory Data Analysis

The purpose of this review is to identify potential over or understocking and hence excess costs. The review will include:

- Excess stock based where the Quantity on Hand \$ Value (QOHV) is greater than the MaxV (Max Stock Value).
- Ranked list of the top line items with the greatest Number of Years of Stock.
- Ranked list of line items with the highest K values (Safety Stock Factor).
- Depending on the replenishment strategy we will prepare a ranked list by either the Differential Max Stock \$ Values (this is used for Min-Max Controlled Items) or the Differential Average Stock level \$ Value for ROP controlled items.

M2K recently analysed a data set for a Chinese Chemical Company, the top 10 ranked items offered a conservative savings of USD500,000.

### Typical Findings

- The QOH of many line items are above the Max stock.
- Number of years of stock based on average demand rates varies between 1 and 500 years.
- Many line items have missing key parameters hence no optimum values can be determined.
- Safety stock levels are too high.
- Existing stock levels are too high resulting in excess stocking.
- Stock level have been set up based on peak demands and no consideration of the maintenance strategy.
- ABC values are used incorrectly.

### Level 3 BOM Review

BOMs do not impact stocking costs as much as the other areas, but poor or lack of BOMs impact the ability to find spares in a timely manner. To carry out a BOM analysis we need BOM data download and the asset list.

The main purpose of the BOM analysis is to identify:

- Spare parts not linked to BOMs, but they should be.
- Equipment with no BOM created
- If possible, identify spares booked to a BOM that should not be.
- Identify similar BOMs but with different number of line items assigned.

### Typical Findings

- Many equipment spares are not assigned to BOMs.
- BOMs for many key equipment have not been developed.
- The number of spares assigned to the same equipment are inconsistent.

### Level 4 Comparison Analysis

Comparison analysis is carried out for companies with multiple storage locations and perhaps managed by a different stock number.

The purpose of the Comparison Analysis is to identify:

- The duplicates at each storage location.
- Total number of unique spares over all storage locations
- The number of common spares held in more than one location.

### Typical Findings

- Because of a lack of Manufacturers' P/N then all common items between the two warehouses could not be identified, only 13% of the line items are common. Better data is required.

### Level 5 Management Practices – Gap Analysis

M2K utilise a technique to evaluate warehouse, inventory and purchasing best practices, that has been around for many years. The audit follows the structure of ISO55000 i.e. from project phase to end of life, and includes risk, systems, and human resources. The audit is designed to identify strengths and weaknesses with inventory management practices and can provide a road map to improved management practices and cost reduction. This audit has most value when coupled with the inventory data audits.

### Lead Consultant

David Thompson has spent all his working life in Maintenance, Reliability & Spares.

Since 2002, David has specialised in the management of spares parts, cost reduction and optimisation. He has conducted over 80 training courses, carried out many data audits and cleansing projects. David has developed several MS Access tools to support these consultancy projects.

David has carried out several Inventory and Warehouse Best Practice audits including both on-site and recently via MS Teams.

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