

# MRO Critical Spares Optimisation

Preventing excessive downtime, minimising lead time and boosting your competitive advantage in the most cost effective way

Stamford Plaza Brisbane

16th & 17th August 2010

**“Productivity is never an accident. It is always the result of a commitment to excellence, intelligent planning, and focused effort.”**

Paul J. Meyer

Millions of dollars can be spent on materials to support maintenance activities. Improving and optimising your MRO spares management has become critical to control operational cost and remain your competitiveness.



## Your renowned course leader:

**Carter McNabb Partner  
GRA Australia**

Carter is a founding partner of GRA, an expert consulting firm specialising in demand, inventory and supply chain optimisation. Carter has consulted extensively in the United States, Latin America, Asia and Australia to manufacturing, distribution, retailing and aftermarket organisations. He also authors and runs the 'Managing Supply Chain Inventory' and 'Network Modelling' courses within Monash University's Supply Chain & Logistics Masters Program and delivers courses in Forecasting and Inventory Management.

## Some organisations Carter has provided training and consulting services for:

- The Australian Defence Forces
- Toyota
- Cummins Engine
- The Super Cheap Auto Group
- Wesfarmers Industrial & Safety
- Cadbury Schweppes
- Honeywell
- QANTAS
- Amcor Fibre Packaging
- Honda Australia
- OneSteel
- Nestlé Australia
- Australia Post
- Repco

## Course approach:

This course aims to provide audiences with

- A clear methodology applicable to all relevant organisations
- Industry standard terminology and content
- Methodology and tools that are consistent with the entire business case

## Pre-course questionnaire

To ensure that you gain maximum benefit from this event, a detailed questionnaire will be sent to you to establish exactly what your training needs are. The completed forms will be analysed by the course trainer. As a result, we ensure the course is delivered at an appropriate level and that relevant issues will be addressed. The comprehensive course material will enable you to digest the subject matter in your own time.

## \*Early Bird & Group Discounts

Ask about our savings

## Key benefits and learning outcomes:

- **Exploring** the best demand planning strategies to minimise downtime and loss of production
- **Tackling** the issues with procuring spares from overseas
- **Improving** your lead time management
- **Optimising** inventory management and minimising hidden costs
- **Handling** obsolete and surplus stock

## Testimonial from one of Carter's clients:

*"We saved \$14m in six months. We're used to being promised these kinds of numbers; we are just not used to having them delivered."*

Wing Commander

**Royal Australian Airforce (RAAF)**

## Testimonials from March training course in Melbourne:

*"Course provided great insight into inventory control/management. Carter was very good presenter."*

Category Manager – Procurement

**Don KRC**

*"Exceptional presenter, wealth of knowledge and well communicated"*

Spare Equipment Officer

**SP AusNet**

*"Understanding of the 'real world'"*

Electrical Reliability Engineer

**BHP Billiton**

*"I believe Carter is a great speaker and knows his subject exceptionally well."*

Purchasing Officer

**Macarthur Coal**

**marcusevans training courses are thoroughly researched and structured to provide intense and intimate practical training to your organisation. Our format:**

- Pre-course questionnaires
- An in-depth tailored programme to address market concerns
- Diverse real life case examples
- Comprehensive course documentation
- Interactive roundtable discussion and breakout sessions

# Monday 16th August 2010

## Session One

### Gaining practical insights into MRO inventory management

- The critical success factors for managing inventory, cost and service
- Key concepts in the planning process
- Demand forecasting
- Inventory management
- Supply planning

## Session Two

### Learning how to segment MRO inventories and assign appropriate management techniques

- Consider demand profiles, risk, criticality, service and cost to create inventory segments
- Assign appropriate management policies, methodologies and techniques to each segment
- Define review frequencies for each inventory segment
- Develop an inventory management matrix based on the above

## Session Three

### Advanced inventory management approaches

In this session, concepts underpinning various inventory management approaches will be introduced, providing participants with an understanding of the techniques available and where they might be successfully employed within an MRO organisation.

- ABC analysis cycle counting
- JIT (Just-In-Time)
- Min/Max
- Reorder Point / Reorder Quantity (ROP/ROP)
- Dual re-order points
- Economic order quantity
- Two-bin method
- Time Phase Replenishment Planning (TPRP)
- Distribution Requirements Planning (DRP)
- Forward exchange practices
- Vendor Managed inventory
- Consignment stock from the OEM

## Session Four

### Exploring advanced spares management methodologies

An ineffective spares management process will result in at least 15% - 35% of asset down time, often due to the lack of necessary parts and materials to perform repairs correctly and quickly the first time. To help participants successfully address these challenges, a range of different maintenance philosophies and strategies will be explored

- Utilise Operational Equipment Effectiveness (OEE) disciplines to benchmark your current performance
- Employ Level of Repair Analysis (LORA) to determine what to do in-house and what should be outsourced
- Evaluate your 'maintain' and 'replace' strategies via Life Cycle Costing (LCC) methodologies
- Employ Mean Time Between Failure (MTBF) and Mean Time To Repair (MTTR) data to determine whether you should overhaul the item to 'as new' or wait until failure and then respond very quickly
- Determine your approach in terms of your maintenance philosophies. For example, if you have a 'preventive' maintenance approach, is it based on inspection and/or condition monitoring, or is it based on time or duty cycle overhauls?
- Once these maintenance philosophies and strategies have been explored, specific management methodologies and techniques will be discussed in the following sessions

## Session Five

### Determining the range and quantities of rotables/repairables and spares initial provisioning

- Identifying and differentiating provisioning strategies for critical, non-critical and consumable spares
- Building your spares management on consumption rate and procurement lead time via Re-order Level (ROL)
- Establishing Proper Order Quantities for slow-moving and normal spares
- Understand the difference between item-based sparing and system-based sparing techniques in multi-echelon environments

## Spares demand planning

The best practices in demand planning will be presented. Participants will gain an understanding of the business case for demand planning, particularly in the MRO environment, and the framework required to create forecasts and a business demand plan for MRO critical spares.

## Session Six

### Predicting demand to minimise asset downtime and loss of operational availability

- Exploring innovative forecasting techniques and tools
- Connecting spares management with your maintenance practices and requirements
- Too much vs. not enough inventory

## Session Seven

### Strategies to manage accurate spares demand planning and forecasting

Long lead times, unpredictable demand spikes, ever-changing prices and low usage rates, thus making them difficult to secure in a timely manner, have often influenced spares.

- Planning projected delivery dates properly to prevent critical maintenance need for spares
- Calculating and managing demand variability

## Who must attend

**Presidents, Senior Vice Presidents, Vice Presidents, Directors, Assistant Directors, General Managers, Senior Managers, Managers, Heads of Departments, Supervisors, Engineers and Executives from the following job areas:**

- Supply Chain
- Spares Management
- Material Planning
- Purchasing / Procurement
- System Engineer
- Quality Control
- Finance
- Commercial
- Maintenance
- Warehousing / Inventory
- Industrial Engineering
- Operations / Plant Manager
- Store Manager

### From the following industries:

- Oil and Gas
- Energy and Utilities
- Telecom
- Steel
- Aluminium
- Electrical and Electronics
- Heavy Industries
- Airlines
- Defence
- Chemicals and Petrochemicals
- Mining
- Food & Beverages
- Cement
- Automotive
- Pharmaceutical / Medical
- Heavy Manufacturing
- Transport & Logistics

## Programme schedule

### Day one & day two

0830	Registration & coffee
0900	Morning session begins
1030	Morning refreshments and networking breaks
1100	Training resumes
1300	Networking luncheon
1400	Afternoon session begins
1530	Afternoon refreshments and networking breaks
1600	Training resumes
1730	Course concludes

## Why you cannot miss this event

In the increasingly competitive market environment, today's organisations are striving to boost their productivity while reducing cost. Spare parts optimisation is one of the most common, but complex and expensive problems in many organisations. Poor MRO spares management can result in expensive downtime, and potentially hazardous operations.

It is very common that for every spare used, five or more parts are held in stores, which perhaps may not be used. At the same time, ordering more than needed (for 'just-in-case' scenarios) have been occurring problems for them, mainly due to improper or lack of confidence in forecasting its spares requirements. It is not unusual to see an average of 20-30% of maintenance people's time to be used for finding parts and material. Many have found that due to improper planning, 60% to 80% of their maintenance expenditures are accounted by spare parts consumption yearly.

This course will provide an excellent opportunity to gain strategic insights into the proven methodologies and in-depth processes for establishing effective and sustainable spares management within your organisation.

**marcus evans** would like to thank everyone who has helped with the research and organisation of this event, particularly the trainer, who has kindly committed and supported the event.

# Tuesday 17th August 2010

## MRO Inventory Optimisation

Participants will gain an understanding of how inventory optimisation methodologies work and will learn in detail the best practices in inventory, service and cost optimisation. The topic will cover repairable, rotatable and consumable items.

### Session One

#### Spares inventory optimisation

- Ensuring the replenishment of spares in inventory maintains the targeted availability level
- Applying algorithms to calculate critical stock levels
- Preventing overstocking and deficiency
- Minimising individual spares inventory problems using multi replenishing schedules
- Finding the required spares more quickly and easily from storage

### Session Two

#### Gaining practical insights into the true inventory costing

The costs of holding spares must be accounted as part of the decision-making operating process, as the true carrying cost can be as high as 30% - 40% of the purchase cost per item per year.

- Identifying and calculating the hidden inventory costs
- Exploring the best practice methods to reduce inventory cost

### Session Three

#### Simulation and Modeling

In this session, supply chain modeling will be introduced as a way to provide results with which to make management decisions. Modeling opportunities, applications and techniques - and their associated pros and cons - will be covered.

Participants will be provided with a modeling tool for use during the remainder of the course and for simple modeling back in their workplace. This session will be used to develop familiarity with the modeling tools and its capabilities.

### Session Four

#### Evaluating cost saving considerations to reduce inventory expenditure wastage

To reduce these growing costs, spares inventories must be kept low while accommodating cost saving considerations that are up to standard service level and low stockouts. Here, we look into what other efforts can be made to curb or control unnecessary costs of spares inventories

- Standardising plant equipment within plants so that spares can be shared between the warehouses
- Locating your spares warehouses at key areas to easy accessibility
- Consolidating spares and suppliers to keep the number of your suppliers low and gain better prices and service
- Scheduling consignment arrangements to occur at the same time

## MRO Supply Planning

This topic covers the different supply techniques and applications used to meet supply requirements including MRP, MRP II, DRP/DRP II, TPRP, and JIT. The purchasing function and the importance of vendor management will also be addressed focusing on the aspect of supplier / repairer Planning and Control for rotatables, repairables and critical MRO spares.

### Session Five

#### Replenishment Planning

- Proactively identifying understocks and overstocks
- Creating forward supply forecasts for all stocking locations
- Collaborative planning with suppliers
- Creating an exception-based replenishment planning process

### Session Six

#### Strategic MRO Procurement

- Actively managing your spares inventory levels
- Key areas to consider when sourcing spares from overseas
- Lead time analysis: To stock or not to stock?
- Examining the factors that are lengthening lead times
- Purchasing portfolio matrix
- Creating a responsive chain

## Performance Management & the Financial Link

### Session Seven

#### Perceiving the importance of performance management

- Providing an introduction to the principles behind performance management
- Illustrating how integrated operations planning can be used in an MRO environment to link and constrain activities within an MRO business
- Understanding the characteristics or a good set of performance measures and the practical roles and responsibilities within an MRO organisation practicing integrated operations planning

### Session Eight

#### Relationship between financial performance and operations management

Participants will be provided with an understanding of how to build a business case to support improvement initiatives within an MRO organisation. Case studies will be provided.

### Session Nine

#### Handling obsolete and surplus stock to release much needed space and capital in your spares inventory

Over time, stores accumulate spares that are no longer needed. Whether managers realise this or not, keeping unnecessary spares is costly. Spares overhead is probably the highest cost, as it becomes dead capital for the business. This session explores the need for spares managers to look at recuperating their non-moving (excess, slow-moving, dead, obsolete etc.) stock

- Evaluating total cost of holding spares in storage to ascertain lost capital
- Identifying and retrieving your obsolete and surplus spares to dispose and save money at least once a year
- Recouping your initial capital expenditure by returning to vendors for credit
- Organising a periodic disposal plan to release obsolete and surplus stock in inventory

## MRO Planning Systems

### Session Ten

#### The use, selection and implementation of forecasting and replenishment systems in an MRO organisation

The topic will include the capabilities to look for, how a selection process might be structured and what to consider when implementing, will be explored in this topic.

## About your course leader:

**Carter McNabb** Partner  
**GRA Australia**

Carter McNabb is a founding partner of GRA, an expert consulting firm specialising in supply chain strategy, planning & execution. With a 12-year history and a team of 40 professionals, GRA is Australia's premier supply chain consultancy and services clients throughout the Asia Pacific region.

#### GRA's clients include:

- |                                  |                         |
|----------------------------------|-------------------------|
| • The Australian Defence Forces  | • QANTAS                |
| • Toyota Australia               | • Amcor Fibre Packaging |
| • Cummins Engine                 | • Honda Australia       |
| • The Super Cheap Auto Group     | • OneSteel              |
| • Wesfarmers Industrial & Safety | • Nestle Australia      |
| • Cadbury Schweppes              | • Australia Post        |
| • Honeywell                      | • Repco                 |

For the last 20 years, Carter has helped Maintenance, Repair & Overhaul (MRO) organisations in North America, Asia and Australia deliver rapid and sustained inventory reductions, service level improvements and supply chain cost reductions through the practical application of advanced forecasting, inventory and supply chain optimisation processes, techniques and systems.

He has worked within Retail, Distribution, Manufacturing and Service / Repair organisations in industries ranging from Fast Moving Consumer Goods (FMCG) to Auto Parts to Defence at both the strategic and operational levels, and his focus areas include:

- Service Parts & Rotable / Repairable Item Management
- Maintenance, Repair & Overhaul (MRO) Supply Chain Management
- Demand Management
- Production
- Inventory
- Strategy, Planning & Execution
- Sourcing & Procurement
- Warehousing & Distribution
- Transportation

In addition to his extensive industry experience, Carter also authors and delivers Masters courses entitled "Managing Supply Chain Inventory" and "Supply Chain Network Optimisation" within Monash University's Logistics & Supply Chain Management Post Graduate Program. He presents in Melbourne University's Annual Logistics & Supply Chain Management Executive Development Program, as well.

With a series of published articles and white papers, press quotes and frequent speaking engagements; Carter is a recognised expert in the field. Importantly, he brings a healthy blend of theory and practical, proven experience to the subject of demand, inventory and supply chain optimisation.