Raytheon

Understanding Cycle Counting

Facilitator's Guide

Introduction

This document represents an instructional delivery format for use in a Cycle Counting introductory environment. It was developed to provide a conceptual knowledge of Cycle Counting to Raytheon personnel (participants) in all aspects of the Manufacturing process.

The Understanding Cycle Counting program is intended as introductory coursework prior to taking the online training course.

The Facilitator

It is recommended that the Facilitator be knowledgeable in both the <u>Subject</u> of Cycle Counting and the <u>Issues</u> regarding the implementation of such a program. In some situations, the acceptance of a new program will be difficult to achieve. A knowledgeable and savvy Facilitator will have a distinct advantage when facing a difficult and skeptical audience of participants.

The Facilitator should also be well versed in all aspects of Raytheon manufacturing, the MRP-II system, inventory control issues and the job functions of each person in the manufacturing process, from Planners to Assemblers.

Most of all, the Facilitator should be someone that is comfortable in front of an audience. This Cycle Counting Awareness program is driven by participant feedback and participation, and the Facilitator's ability to draw out Participant involvement is paramount to the success of the program.

The Format

This program is designed to follow the online coursework. All documents have been designed with corresponding Slide references. In addition, flipcharts will be used extensively to list participant responses to questions. In most cases, the sheets from the flipchart will be taped on the wall for continued viewing.

The Participant's Guide

This guide, similar to the Facilitator's guide, is provided to the Participants of the program as an aid to the understanding process. This will become the Participant's own copy and they should feel free to make as many notes as needed.

On-Line Review

After completing the Understanding Cycle Counting program, Participants will have available to them an on-line presentation that capsulizes the live program.

Index of Terms

The Participant's guide contains an Index of Terms used throughout the Understanding Cycle Counting program. Participants should understand these terms prior to the implementation of the actual Cycle Counting training.

Program Setup

The Facilitator should coordinate with the Training Department any logistics and preparations necessary for the delivery of the program. These include room scheduling, A/V equipment and enrollment requirements.

Equipment Requirements

The Facilitator will require the following equipment:

- Computer with the Understanding Cycle Counting program loaded onto the hard drive
- Microsoft PowerPoint
- Video projection/display appropriate for room size
- Flipchart on easel
- Tape for the display of the flipchart pages on the wall

How To Use This Guide

This Facilitator's Guide is designed as an outline for the delivery of the subject matter in a pre-determined format. It is not intended as a verbatim script. The Facilitator should be aware of opportunities to elaborate, embellish and improvise on this format, as the situation requires.

Each slide is indicated with a slide number:

{SLIDE 12}

Following each slide number is the headline of the slide and corresponding bullet points:

How To Use This Guide

- **Read Everything**
- **Ask Questions**

The Facilitator should elaborate fully and engage the Participants in the discussion of each bullet point.

Before and/or after each bullet point is a suggested text for the facilitator to read. This is as close to a "script" as this guide will suggest. It is the Facilitator's responsibility to be familiar with this text to allow the smooth delivery of the material. Text appears in the following manner:

This is how the text you will speak to the participants will appear.

Any instruction or considerations directed to the Facilitator are indicated as follows. These are intended as actions to be taken or dialog to extract from the Participants:

☛ *Select a Participant and ask the following question:*

Timing

A suggested time limit has been provided for each slide as a guideline only. The Facilitator will use flexibility in this regard according to the Participant's needs.

When to Trigger the Next Slide

This presentation has been designed to trigger some bullet points in a cascading manner. Not all bullets will appear at the beginning of the slide.

Triggering a bullet to appear and triggering the next slide is accomplished by hitting the MOUSE key or the ARROW keys on the computer's keyboard. Trigger marks appear in the text as shown:

Once this bullet point is completed, trigger the next point to appear. **<<u>NEXT</u>>**

When a slide is completed, a cue appears to trigger the next slide: **<<u>NEXT SLIDE</u>>**

Last Words

Practice, practice, practice! It is critical to the presentation that the facilitator be as familiar with this material as possible. Remember, the audience must believe that you believe in the message being delivered.

The Facilitator should understand that this instructional delivery is designed to move from Basic to Specific. Some concepts are initially introduced in a simplistic manner, and then followed up later in the presentation in a more specific manner.

Should a Participant become difficult, irritable or impatient, calm them down and reassure them that their issues will be heard and discussed.

It is anticipated that the Participants for this program will be highly skeptical regarding their need to be in this program. This is the reason behind the first slide, which is meant to jolt them into a participatory mode.

But mostly, have fun. Cycle Counting works, and it is your job to convince them of that. Encourage participation as much as possible. This will help position you less as an "authority" figure and more as "one of them."

{SLIDE 1}

Raytheon Logo

Understanding Cycle Counting

> ☛ *This slide appears on screen as Participants enter and are seated.*

> ☛ *Once all formalities are accomplished, the presentation begins.*

Before we start, I want to announce our agenda for next week: **<NEXT SLIDE>**

{SLIDE 2}   TIME: 10 Min.

     ☛ *This is meant to be humorous. Make sure to let them off the hook ASAP!*

Customer's Request (DCMA): Annual Physical Inventory   **<NEXT>**

- **Shut Down All Production**

  For 1 week at Raytheon Largo.....................................**<NEXT>**

- **Conduct a Physical Inventory**

  On the entire shop floor ....**<NEXT>**

- **Disruption to Work Flow**

  Missed deadlines/goals .... **<NEXT>**

- **Requires Overtime/Weekends**

  For both the Inventory and your Work in Progress ...... **<NEXT>**

- **Welcome to the World of Annual Physical Inventory**

This is how many industrial companies conduct inventory counting.

But not at Raytheon

However, if we **did** do an API, I want to know <u>how you feel</u>?

       ☛ *List Participant's responses on a flipchart*

       ☛ *Encourage Participant involvement- this DOES NOT COUNT for anything*

       ☛ *This list will be used to demonstrate the benefits of Cycle Counting program*

In short, we <u>don't feel very good</u> about an Annual Physical Inventory

So why do Inventory Counting at all? ....**<NEXT SLIDE>**

{SLIDE 3}   *TIME: 2 Min.*

Why Do We Count Inventory? ....**<NEXT>**

Simply put…

- **To know how many parts we have**

    What is actually in inventory? .... **<NEXT>**

- **How many more we need**

    What do we need to order from suppliers ....**<NEXT>**

- **Determine a Production/Delivery Schedule**

    Use this data to formulate the Business Plan

    The Business Plan drives every aspect of Manufacturing

At Raytheon Largo… ....**<NEXT>**

- **Material Represents 80% of the Cost of Doing Business**

    Raytheon is a manufacturing environment

    Productivity & profitability are dependent on accurate inventory   **<NEXT>**

- **Efficiency = Profitability**

    Raytheon Corporation conceivably looses millions due to inefficiencies caused by inventory inaccuracies.

    Those of you who are shareholders can appreciate profitability.

Q: If a stable and accurate environment is important, what then causes Inaccurate Inventory Counts? .... **<NEXT SLIDE>**

{SLIDE 4}   *TIME: 15 Min.*

What Causes Inaccurate Inventory?

    ☛ *Ask* <u>*what causes inventory inaccuracies*</u> *and how these affect Raytheon.*
    Make a list of the responses on a Flipchart

Here are some other causes…

    ☛ *Discuss each point as they appear*

- **Human Error**..**<<u>NEXT</u>>**
- **Inaccurate Scrap Transactions**................**<<u>NEXT</u>>**
- **Engineering Change Notice** ....**<<u>NEXT</u>>**
- **Improper Work Order Transactions**......**<<u>NEXT</u>>**
- **Kitting Errors**..**<<u>NEXT</u>>**
- **Data Entry Errors**......................................**<<u>NEXT</u>>**
- **Receiving Errors** ....**<<u>NEXT</u>>**
- **Supplier Errors** ....**<<u>NEXT</u>>**
- **Incorrect Unit of Measure**......................**<<u>NEXT</u>>**
- **Theft** ....**<<u>NEXT</u>>**
- **Obsolescence**..**<<u>NEXT</u>>**
- **Mis-identification** ....**<<u>NEXT</u>>**
- **Inadequate Storage** ....**<<u>NEXT</u>>**
- **Locator System problems**........................**<<u>NEXT</u>>**
- **Bill of Material Issues**..............................**<<u>NEXT</u>>**

All have **one thing** in common. Can you tell us?

    ☛ *Solicit Participants answer*

Human Error is most common among the causes of Inventory Inaccuracies.

We're all Human. Errors happen.

What makes us better is our ability to **correct** the problems before they adversely affect the business.

Let's take all this Human Error and go back to our friend the **API**. **<<u>NEXT SLIDE</u>>**

{SLIDE 5}   *TIME: 10 Min.*

The Annual Physical Inventory Conundrum

Does anyone know what a conundrum is?

A Conundrum is a complicated problem, and that's what an API is.

Here are some of the challenges with an API… .... **<NEXT>**

> ☛ *Reference the API Flipchart (slide 1) and discuss each point*

- **Takes Way too Much Time**

  Days, sometimes weeks .... **<NEXT>**

- **Manufacturing Shut Down Completely**

  Requires all employees to participate

  Lost productivity...**<NEXT>**

- **Impacts Customer Service**

  Late shipments, delays, cost overruns ....**<NEXT>**

- **Unfamiliarity With Inventory**

  Incorrect part identification – causes problems throughout the business   **<NEXT>**

- **Untrained Help**

  Some companies have to hire temporary help, magnifying the problem   **<NEXT>**

- **Errors That Cannot be Fixed**

  Lack of time, since the errors are generally huge in an API ....**<NEXT>**

- **Little Increase in Records Accuracy**

  Effort does not correct the problems

  > ☛ *Discuss any other relevant points from the Flip Chart*

What we find is that Inventory Inaccuracies are not always solved with the Annual Physical Inventory process.

An API has very few benefits, and is NOT the way Raytheon does business

Is There an Alternative? I'm glad you asked. **<NEXT SLIDE>**

{SLIDE 6}   *TIME: 5 Min.*

Cycle Counting

The purpose of this session is to provide an understanding of Cycle Counting.

In this discussion, we will: .... **<NEXT>**

- **Understand the Cycle Counting process**.............**<NEXT>**

- **Demonstrate How it Works**.................................**<NEXT>**

- **Outline the Many Benefits**...................................**<NEXT>**

- **Show What's In It for Raytheon**

    And most importantly… ....**<NEXT>**

- **Show What's In It for YOU**

    In a Cycle Count system, YOU are part of the Solution

The goal of a Cycle Counting program is this:...................**<NEXT>**

- **Optimize Business Operations**

    Measure the accuracy of material processes through a physical inventory count on a cyclic schedule

    Perform Root Cause Analysis on identified issues

    Take corrective actions for continual process improvement **<NEXT>**

- **Measuring the Integrity of Inventory**

    ☛ *Ask Participants what this means, and then define it for them*

    <NEXT SLIDE>

{SLIDE 7}   *TIME: 10 Min.*

What is Cycle Counting? <u>**<NEXT>**</u>

- **Counting inventory throughout the year on a scheduled basis**

  Spreading out the bulk of the effort, not lumping it all at one time

  There are surely pre-conceptions regarding Inventory Counting. BUT…

  - ☛ Our system of business NOW requires it
  - ☛ Our survival in a competitive manufacturing industry demands it
  - ☛ It <u>IS</u> the way we are going to do business

  Cycle Counting isn't as difficult a change as you might expect

  Inventory Accuracy is Everyone's concern, not just the Warehouse's. <u>**<NEXT>**</u>

- **Performed by Experienced Personnel**

  ☛ *Select a Participant and ask the following question:*

Name an experienced person regarding the parts or items you deal with every day?

The answer is YOU. You are one of the most qualified persons to count the items you work with every day. .... <u>**<NEXT>**</u>

- **Schedule based on ABC Classification**

  Primary focus is on items that have the highest volume of usage .... <u>**<NEXT>**</u>

- **A   Quarterly   Highest Volume of Usage**
- **B   Bi-Annual   Medium volume of Usage**
- **C   Annual   Lowest volume of Usage   <u>\<NEXT\></u>**

- **Highly Accurate Inventory Data – Critical to MRP**

  Counting <u>High Volume</u> items regularly prevents discrepancies from going Unnoticed for long periods of time

  Counting <u>Low Volume</u> items less regularly eliminates redundancy in labor <u>**<NEXT>**</u>

- **Monitor the Inventory Processor**

  This entire process exists for the purpose of Inventory Accuracy. Why? <u>**<NEXT>**</u>

- **Provides Data for Root Cause and Corrective Actions**

  Understanding how MRP works allows a better understanding for the need for inventory accuracy <u>**<NEXT SLIDE>**</u>

{SLIDE 8}   *TIME: 2 Min.*

What is Class A MRP?

We all know what MRP is and some of you may actually use aspects of the system

MRP is composed of 3 significant words: **<NEXT>**

- **Material**

  Accurate Inventory..........................**<NEXT>**

- **Requirement**

  Accurate MPS and BOM ....**<NEXT>**

- **Planning**

  When, What, Where

  <NEXT SLIDE>

{SLIDE 9}   *TIME: 5 Min.*

MRP

A simple explanation of how MRP works is this: **<NEXT>**

- **MRP Develops an Accurate Time-Phased Material Plan**

  The M, R and P of the project **<NEXT>**

- **Looks at Current Inventory**

  What we have in stock (what we have told the system we have!!) **<NEXT>**

- **Calculates the Actions Required for the Material Plan**

  A high level number crunching that assumes all data you entered is correct

  Delivers a master plan and schedule for the completion of the work

  MRP tells us, for example: **<NEXT>**

  - **When to Open a Purchase Order**   **<NEXT>**

  - **Calculates Time-Phased Delivery of Material**   **<NEXT>**

  - **What Exceptions Need to be Addressed**

  Management by exception (explain this concept)   **<NEXT>**

- **Drives the Business Plan**   **<NEXT>**

- **Accurate Inventory is the Foundation of the
  Time-Phased Material Plan Cycle**

Let's discuss Inventory Accuracy   **<NEXT SLIDE>**

{SLIDE 10}   *TIME: 5 Min.*

MRP   The Backbone of Our Business   <NEXT>

- **MRP Functions According to the Accuracy of the Information Entered**

  People are the integrity of the MRP. This means:

  Bad Information IN, bad information OUT

  This system is only as good as the information we give it

  Many people/departments entering data of all kinds into MRP

  Critical for everyone to be as accurate as possible **<NEXT>**

- **Inventory Is a Major Element in MRP Calculations**

  Inventory is the MRP element YOU control through Cycle Counting

  MRP/Raytheon is dependent on you for the most accurate information possible

  We are ALL part of this solution **<NEXT>**

- **Inventory Inaccuracies Have a Rippling Effect**

  Think about how does Inventory Accuracy affect other departments?

  Think about how Inventory Accuracy affect our customers?

  We will discuss these items later in this session **<NEXT>**

- **MRP Assumes All Data Correct**

  We cannot stress this enough and we can NEVER guess or assume. We must be as accurate as possible.

  <NEXT SLIDE>

{SLIDE 11}   *TIME: 15 Min.*

How Does Inventory Accuracy Affect Us?

We saw how it affects the MRP system. Inaccurate inventory has a much more profound affect on the **entire company**, however.

What are the costs of Inaccurate Inventory Records? There are built-in <u>inefficiencies</u> and <u>hidden costs</u> related to inaccurate records: **<u>\<NEXT\></u>**

        ☛ *Have students participate by giving examples of the following:*

- **Excess Inventory Levels, Obsolete and Surplus**   **<u>\<NEXT\></u>**
- **Insufficient Inventory Levels**   **<u>\<NEXT\></u>**
- **Lower Productivity Efficiency**   **<u>\<NEXT\></u>**
- **Higher Need for Safety Stock**   **<u>\<NEXT\></u>**
- **Invalid Data for Replenishment**   **<u>\<NEXT\></u>**
- **Lack of Faith**   **<u>\<NEXT\></u>**
- **Requires Storage Space**
  - **Parts/Assemblies Sit Idle**
  - **Pulling Work Orders Early**
  - **Staging of Items**   **<u>\<NEXT\></u>**
- **Customer Service Declines**

Inventory accounts for about 80 percent of the cost of doing business

Inventory **accuracy** is an area that allows us the greatest opportunity to positively affect

Inventory accuracy starts in the warehouse and affects the entire manufacturing process. Here is an example…

<u>\<NEXT SLIDE\></u>

{SLIDE 12}   *TIME: 10 Min.*

How Does Inventory Accuracy Affect Us?

95% or Lower

What happens when inventory accuracy is low? 95% or less? **<NEXT>**

- **Warehouse Shortages and Missing Material**

  Surprise and unaccounted-for shortages **<NEXT>**

- **Purchasing Becomes Reactive**

  Inefficiency due to unplanned demands **<NEXT>**

- **Manufacturing Schedules Not Executed**

  Kits not ready, scramble for work to reduce idle time **<NEXT>**

- **Customer Service Declines**

  Internal/external customer is disappointed due to missed commitments

99% or Higher

What happens when inventory accuracy is 99% or better? **<NEXT>**

- **Kits Delivered On Time**   **<NEXT>**

- **Cost Reductions**   **<NEXT>**

- **Schedules Met**   **<NEXT>**

- **Customer Service Improves**

Inventory accuracy is best accomplished with a system that is easy to manage.

Cycle Counting is THAT system. Here is how Cycle Counting works: **<NEXT SLIDE>**

{SLIDE 13}   *TIME: 10 Min.*

The Cycle Counting Process

(Show flow chart from Flex Slide 13)

Here is how the Cycle Count process works:

▤ Analysts first determine the ABC classification for each part

▤ A Cycle Count procedure defines the cycles for counting

▤ The Cycle Count is performed according to the ABC Classification.

▤ Results of the information are determined to be either Within Tolerance or Out of Tolerance

▤ If Within Tolerance, the MRP transaction is complete and data in the MRP system is adjusted to reflect the results of the count if required.

▤ If **Out of Tolerance,** corrective actions are performed (will discuss later)

▤ Fix the Problems = improve the system = more productivity

<NEXT SLIDE>

{SLIDE 14}   *TIME: 5 Min.*

The Cycle Counting Process

Question: Name an inventory item that is NOT counted in a Cycle Counting system?

☛ *Prompt a response from the Participants*

The answer is that ALL inventory items except MRO are counted in a Cycle Counting system.

☛ *Define the following terms with the Participants*

Cycle Counting considers: **<NEXT>**

- **Raw Materials**   **<NEXT>**

- **Work In Progress**   **<NEXT>**

- **Finished Goods**   **<NEXT>**

- **Consigned Stock**   **<NEXT>**

- **Customer-Furnished Materials**   **<NEXT>**

- **Maintenance/Repair & Operating Supplies**

                                                  <NEXT SLIDE>

{SLIDE 15}   *TIME: 10 Min.*

So When Do We Count?   **It's Easy as ABC**

Determining the ABC classification of an item is performed by Inventory Control Analysts. Here is how it works: **\<NEXT\>**

- **Classification Based on Value and Projected Annual Usage**

  Analysts look at the value in dollars of an item and project the annual usage in terms of Total Inventory Dollars **\<NEXT\>**

- **Unit price times 1 yr Historical usage times lead time = Total Inventory Dollars**

  Total inventory dollars for each item in inventory are added together to determine the sum of total inventory dollars. From this number: **\<NEXT\>**

- **Top 80% Receive "A" Classification –Quarterly**

  Items that represent the top 80% of all the Sum of Total Inventory Dollars.

  Highest value items. Represents 15 to 20% of inventory, yet accounts for 80% of the inventory value.

  80/20 rule: 80% of total inventory value is represented by only 20% of inventory items. **\<NEXT\>**

- **Next 15% Receive "B" Classification –Bi-Annually**

  Items that represent the next 15% of the Sum of Total Inventory Dollars.

  Medium value items. Represents 30-40% of inventory and accounts for 15% of inventory value. **\<NEXT\>**

- **Remaining 5% Receive "C" Classification –Annually**

  Items that represent the remaining 5% of the Sum of Total Inventory Dollars.

  Low Value items. Represents 40-50% of the inventory and accounts for 5% of inventory value. **\<NEXT\>**

- **Focus on Items That Are Used More Frequently**

  Here's an example: Which is more important?

  > A $100 part that is used 10 times a month?

  > A $1 part that is used 20,000 times a month?

  ☛ *Prompt a response from the Participants*

  The $1 part would be an "A Classification because it is used more times.

  Here is another example of how this classification works: **\<NEXT SLIDE\>**

{SLIDE 16}   *TIME: 10 Min.*

ABC Tolerances

You need to know how an item is classified to understand the importance of tolerance. **<NEXT>**

- **Variance**

Each ABC classification has an assigned tolerance. Tolerance is simply a percentage value that represents the **variance**, or the difference between what the MRP system **says** we have in inventory, and what we **actually** have according to the Cycle Count.

Example:

- MRP says we have 100 widgets in inventory.

- Cycle Counting shows we have only 95.

- The Variance for this item is –5, meaning we are short by 5 widgets.

- If the Tolerance is 2%, meaning + 2 widgets, this item would be Out of Tolerance and require corrective action.

The Tolerances for ABC items at Raytheon are as follows: **<NEXT>**

- **A**   **$\pm$ 1.0%**

- **B**   **$\pm$ 4.0%**

- **C**   **$\pm$ 15.0%**

After you have completed your Cycle Count, the information is matched against the MRP. If the variance falls within the allowable tolerance, no action is taken.

If the variance falls outside the allowable tolerance, a Root Cause analysis is performed to determine the cause of this variance. **<NEXT>**

- **Larger the Tolerance, the Larger the Flexibility**

As you can see from the percentages listed above, the greater the tolerance, the greater the flexibility allowed in variance. In other words, we can have a greater variance on a "C" item than in an "A" item.

Here is an example of how the Cycle Count and Tolerance process works. **<NEXT SLIDE>**

{SLIDE 17}   *TIME: 10 Min.*

Cycle Counting Tolerance Analysis

(Chart from Flex pg. 38)

Looking at the example on the screen, we see the **Part Number**, the part's **Standard Cost** in dollars, the **System Quantity** (what MRP tells us we have in stock) and the **Physical Count Quantity** (what you told us we have from the Cycle Count), and we have the part's **ABC classification**.

The **Variance** value is achieved simply by subtracting what MRP says we have from what we counted in the Cycle Count activity. (Use the examples to show how a + and – variance is achieved)

The **Tolerance** value is achieved by dividing the Variance by the System Quantity. This tells us by what percent we are actually off from the System.

How much has this Variance cost the company? Multiply the item's Standard Cost by the **Variance Value.** For the first item in the example, we are missing $18.36 in inventory. In the second example, we are ahead $750 in inventory.

Are these parts **In or Out of tolerance**? Using the assigned Tolerance percentages for each ABC classification, a value of "I for in or "O" for out is placed here.

The last column indicates whether a **Cycle Count Worksheet** is required for an item. Should an item fall out of tolerance, action may or may not have to be taken to correct the variance.

What happens when action must be taken?

<NEXT SLIDE>

{SLIDE 18}   *TIME: 10 Min.*

What Happens to Out-Of-Tolerance Items?

When an item is out of tolerance, corrective action must be taken. What exactly is done and how does it affect everyone involved? **<NEXT>**

- **Recount of Items**

  In many cases, will solve the discrepancy

  The solution may require a re-count. Have you ever counted 200,000 items before? Sometimes counting errors happen, and re-counting is one corrective action. Maybe the value in MRP was in error from a previous count. **<NEXT>**

- **Reconciliation**

  Item usage & history examined

  Determine what happened to cause inventory to be off – Human error **<NEXT>**

- **Root Cause Analysis**

  A Root Cause analysis is performed to determine WHY it happened

  Root Cause is a **process** to find an answer.

  - *It is not a Criticism of anyone*
  - *It is not a Trial or Congressional Hearing*
  - *It simply is a process to determine where the problem lies so it may be corrected.*

  Who is the most qualified person to perform this analysis? YOU

  You are part of the solution, and thus perfectly positioned to analyze the situation.

  Root Cause Analysis requires everyone to be **Proactive** with issues. **Participate** in solving the problem. Root Cause allows you to help fix the **problem**, not the **symptom**. **<NEXT>**

- **Corrective Action**

  Corrective action is taken to fix the problem, not the symptom

☞ *Prompt Participants for Break and give break instructions*

When we return from the break, we will demonstrate several real-world scenarios of Cycle Counting using Audience Participation. **<NEXT SLIDE>**

********************* *BREAK* *********************

☞ *The next slide should remain on the screen as Participants exit and re-enter the room for the next part of the session.*

{SLIDE 19}   *TIME: 5 Min.*

What Have We Learned So Far?

☛ *Go through each bullet to refresh the Participants* **<u>\<NEXT\></u>**

- Annual Physical Inventory Is Ineffective

  A conundrum   **<u>\<NEXT\></u>**

- Why Do We Count Inventory

  Maintain integrity of inventory   **<u>\<NEXT\></u>**

- What Causes Inventory Inaccuracy

  Human error   **<u>\<NEXT\></u>**

- What is Cycle Counting

  Counting inventory throughout the year on a scheduled basis   **<u>\<NEXT\></u>**

- How MRP Functions

  According to the accuracy of the information provided   **<u>\<NEXT\></u>**

- Affects of Inventory Inaccuracy

  How do inaccurate records affect Raytheon?   **<u>\<NEXT\></u>**

- The Cycle Counting Process

  Comparing results to MRP   **<u>\<NEXT\></u>**

- ABC Classification

  Counting items that move the fastest and have highest value   **<u>\<NEXT\></u>**

- Variances and Tolerances

  How much an inventory count may be incorrect   **<u>\<NEXT\></u>**

- Root Cause Analysis

  First step to Inventory Integrity

  <u>\<NEXT SLIDE\></u>

{SLIDE 20}   *TIME: 25 Min.*

Why Cycle Counting Matters

You have had a chance to think about what we have discussed.

Let's discuss Why Cycle Counting matters. **<NEXT>**

☞ *Have Participants explain how these reasons for Inventory Inaccuracy can be avoided in a Cycle Counting environment. Use flip chart responses from slide 3 as well.*

☞ *It is important to demonstrate the value of cycle counting here. Sell it strong!*

- **Human Error**...**<NEXT>**
- **Inaccurate Scrap Transactions**................**<NEXT>**
- **Engineering Change Notice** ....**<NEXT>**
- **Improper Work Order Transactions**......**<NEXT>**
- **Kitting Errors**...**<NEXT>**
- **Data Entry Errors**.....................................**<NEXT>**
- **Receiving Errors** ....**<NEXT>**
- **Supplier Errors** ....**<NEXT>**
- **Incorrect Unit of Measure**.......................**<NEXT>**
- **Theft**...**<NEXT>**
- **Obsolescence**...**<NEXT>**
- **Mis-identification**.....................................**<NEXT>**
- **Inadequate Storage** ....**<NEXT>**
- **Locator System problems**........................**<NEXT>**
- **Bill of Material Issues**

     <NEXT SLIDE>

{SLIDE 21}   *TIME: 30 Min.*

How a Cycle Count Works

> *This exercise is a role-play that requires audience participation. 4 volunteers will stand at the front of the room next to 4 flip chart sheets. They will write down the Participant responses.*
> > *Volunteer/chart 1 is titled PLANNER*
> > *Volunteer/chart 2 is titled MPM*
> > *Volunteer/chart 3 is titled BUYER*
> > *Volunteer/chart 4 is titled ASSEMBLER*

Here is the scenario for our theoretical manufacturing environment: **<NEXT>**

- **Order for 50 Widgets**   **<NEXT>**

- **BOM for a Widget is:**

    Part No. 1211598 Qty: 1

    Part No. 3234772 Qty: 1

    Part No. 9117678 Qty: 1

    Do Participants understand what a BOM is?   **<NEXT>**

- **Stored in a POU Location**

    Explain Point of Use   **<NEXT>**

- **MRP: Qty of 50/Each Part**

Let's consider the manufacturing of the Widget from each of our volunteers' point of view and the role they play.

Q: What does the Planner have to consider in the manufacturing of this part?

- *Participants should define and understand what a Planner does*
- *Participants should define how inventory plays a role*
- *Planner volunteer should list responses*

Q: What does the MPM have to consider in the manufacturing of this part?

- *Participants should define and understand what a MPM does*
- *Participants should define how inventory plays a role*
- *MPM volunteer should list responses*

Q: What does the Buyer have to consider in the manufacturing of this part?

- *Participants should define and understand what a Buyer does*
- *Participants should define how inventory plays a role*
- *Buyer volunteer should list responses*

Q: What does the Assembler have to consider in the manufacturing of this part?

- *Participants should define and understand what an Assembler does*
- *Participants should define how inventory plays a role*
- *Assembler volunteer should list responses*

(Slide 21 con't.)

Q: Given what we understand about each job or role and with the information provided, can the 50 widgets be built?

(To the Planner) Can you build the 50 Widgets?

> *Response should be "yes". Ask the Participants if they agree.*

(To the MPM) What do you now expect to happen?

> *Response should be "complete the widgets." Ask the Participants if they agree.*

(To the MPM) What will you tell the customer?

> *Response should be "I will give them a commitment".*

(To the BUYER) Will you have to buy anything?

> *Response should be "No. We have adequate material to complete the 50 Widgets"*

(To the ASSEMBLER) Given this information, what do you do now? What is the next step in this process?

> *Response should be "Build the 50 Widgets"*

In this manufacturing scenario, accurate inventory allows a smooth operation.

> *Get Participant's responses regarding a smooth operation. Have them describe efficiency of manufacturing in this scenario.*

BUT WAIT!! What if we only had 45 of part "A" in stock, even though MRP said we have 50? What happens now to the manufacturing scenario?

> *Ask question to each volunteer first, and then open it to the Participants. List responses*

(To the PLANNER) What are the ramifications for the Planner?

> *(Look for the following responses)*
>
> - *Contact the buyer for 5 pieces ASAP*
> - *Manage the Shop Order shortage*
> - *Manage the WIP until the shortage is received*
> - *Manage the Idle Capacity*

(To the MPM) What are the ramifications for the MPM?

> - *Will not meet commitment to Customer*
> - *Find another Order to complete*
> - *Send assemblers home for lack of work*
> - *Ship late Widgets overnight to customer*

(Slide 21 con't.)

(To the Buyer) What are the ramifications for the Buyer?

- *Purchase 5 missing parts, Ship overnight*

- *Minimum "Buy" quantity means purchasing more than we need*

- *Problems down the road – may not have placed order on time to meet need*

(To the Assembler) What are the ramifications for the Assembler?

- *Can't finish the complete order*

- *Find something else to do*

The overall impact to Raytheon because of an unforeseen shortage in inventory:

☛ *Also refer to the flipchart for Inventory Inaccuracy (Slide 3)*

- Need for more support resources to manage the incomplete Shop Orders and WIP

- Working the shortage may cause us to overlook needed actions in order to efficiently manage other requirements

- Idle capacity – a cost that affects profitability

- Did not meet commitment to Customer – lost intrinsic value

- Overnight delivery expenses – higher traffic costs

- Excess inventory – minimum purchases

- Managing excess inventory – higher holding costs and more resources

Last scenario: If a Cycle Counting procedure had uncovered this shortage and the inventory corrected before the Work Order, how much time would have been saved compared to the scenario we just completed?

Ask the question for each volunteer/job. List any responses

Look for any kind of understanding of the timesavings

We can't actually calculate the unnecessary time or effort expended on the inventory shortage. AND it is impossible to calculate the cost of the shortage.

Inventory inaccuracies affect many departments and people. Can you name any disciplines/jobs associated with the manufacture of a part NOT affected by the inventory shortage?

Attempt to show how the shortage affects everyone involved. Debunk responses.

Why should Raytheon implement a Cycle Counting procedure? What's in it for them?

<NEXT SLIDE>

{SLIDE 22}   *TIME: 15 Min.*

What's In It For Raytheon?

Engage Participants in a discussion of the Benefits of a Cycle Counting system. List responses on a Flipchart.

Look for and list:

- *Solve problem, not symptom*

- *Rectify problems in normal process*

- *Increased productivity/profitability*

- *Ability to correct inventory records*

- *No shutdown of facility*

- *Fewer personnel required for the counting*

- *Better customer service*

- *Overall increase in competitive position in our industry*

Compare the list to the Inventory Inaccuracy list and highlight the benefits

<NEXT SLIDE>

{SLIDE 23}   *TIME: 15 Min.*

What's In It For You?

Engage Participants in a discussion of the personal Benefits of a Cycle Counting system. List responses on a Flipchart.

Look for and list:

- *Pride in work*
- *Complete work on schedule*
- *Less frustration and waiting*
- *Less down/idle time*
- *Less need for overtime*
- *More faith in the system*
- *More faith in each other*

******** END OF PRESENTATION********