

Safe Harbor Statement

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A photograph of a man wearing a white VR headset, looking down at a large industrial fan. The fan is shown with a complex airflow simulation overlay, represented by numerous colored lines (red, orange, yellow, green, blue) emanating from the blades. In the background, a white microscope is visible on the left. The overall scene suggests a high-tech engineering or design environment.

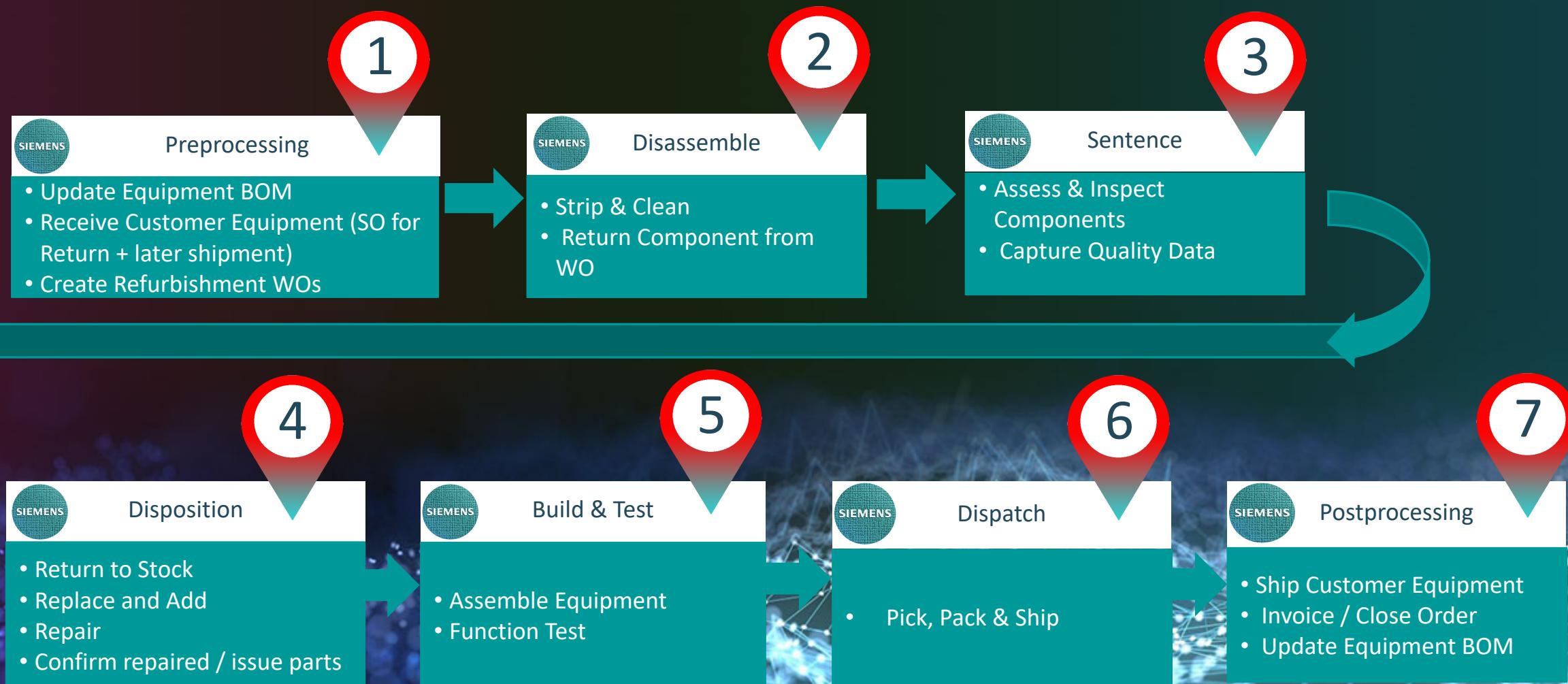
SIEMENS

Agility and Ingenuity Together

Deep Dive 4:
Refurbishment
Dietmar Schraub

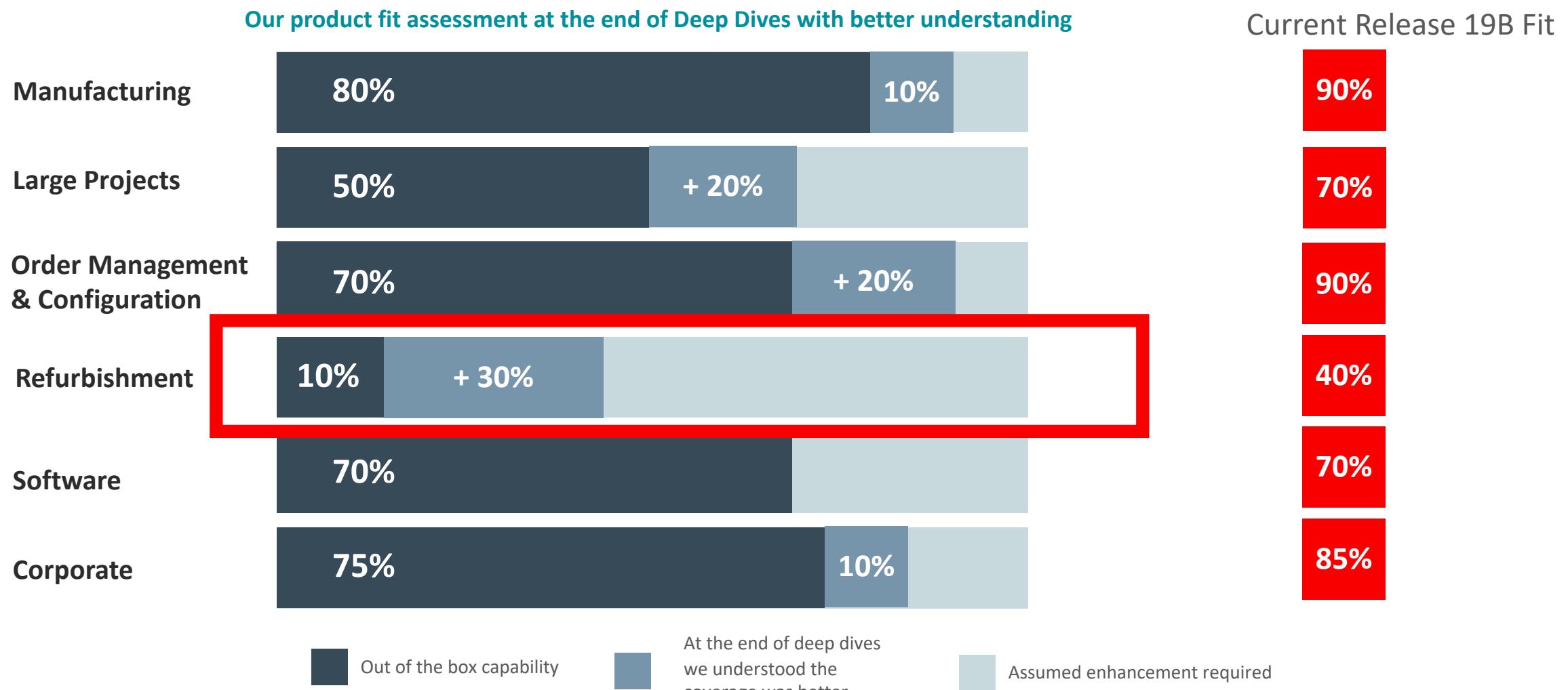
ORACLE®

Refurbishment: Process Flow

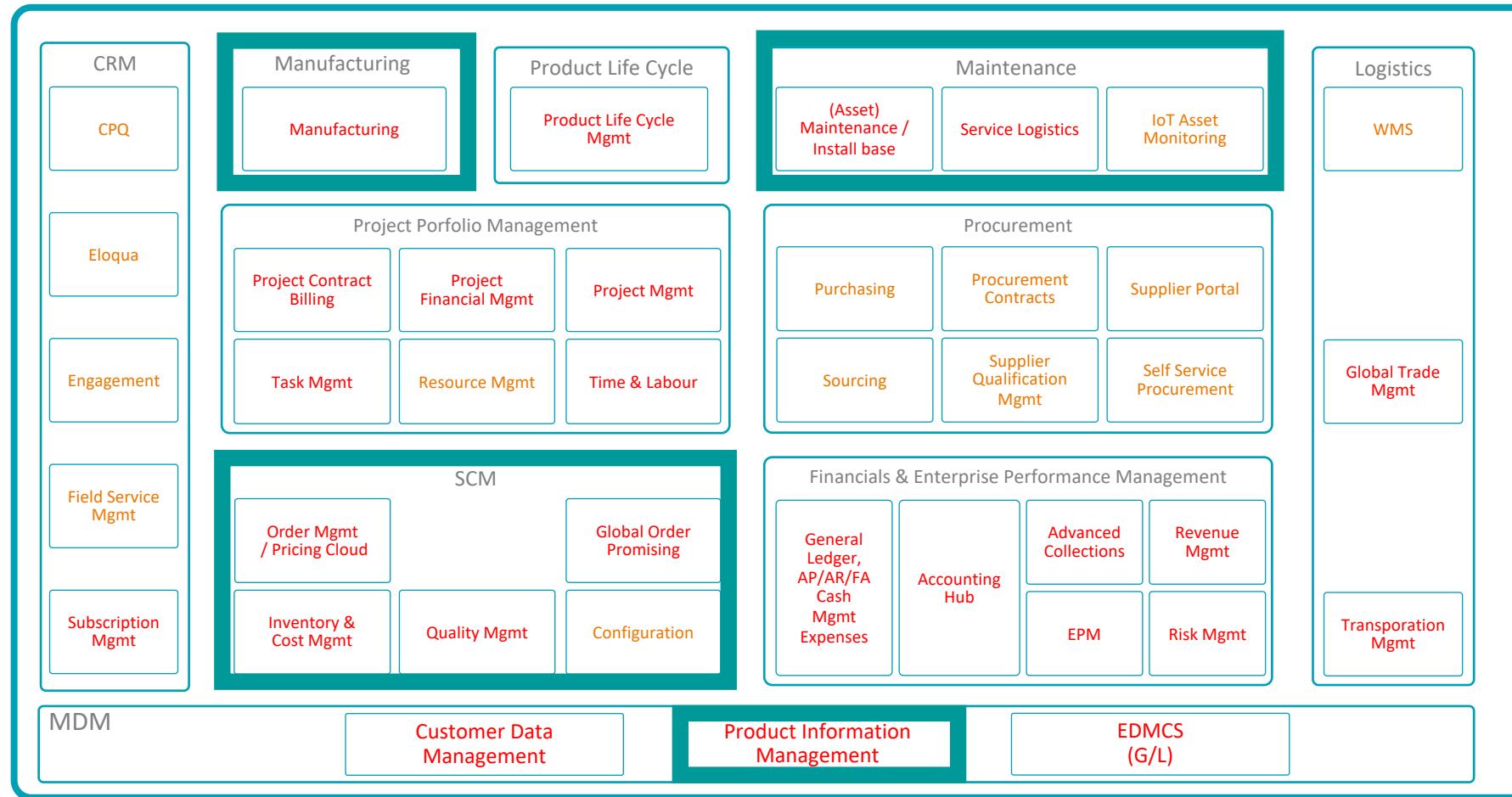


Ingenuity for life

Deep Dive Fit – Current Support (End May '19)



Cloud Services





We need to track the component changes of an asset through the whole lifecycle, regardless of the ownership!

Cloud Solution

- Common Installed Based for own and customer owned assets
- Order-/Inventory Management for Return and Shipment of assets
- Refurbishment Work Order for disassemble and reassembling
- Material Status for controlled usage of returned components
- Automated update of Install Base Record with changed components

Maintenance Organization M001

Change Organization

Social

Save

Save and Close

Cancel

Asset: GT1001-00001: Hierarchy ★

Search

Asset Number

Show logical assets 

GT1001-00001



This Gas Turbine is our own asset and will be maintained in our Maintenance Organization M001



Order: Pinnacle Technologies - 91353 - Processing

Social

Actions ▾

Refresh

Done

Customer Pinnacle Technologies

Source Order Revision 1

Customer Contact Joshua Baker

Customer Registry ID 10080

Source Order Revision Date

Reason for Change Order

Purchase Order

Source Order 91353

Comments

Status Processing

Source Document Type Sales order

Canceled Date

User Request Status

Ordered Date 5/19/19 3:00 PM

Attachments None

On Hold

Processes Assigned Yes

Additional Information 

Source Order System OPS

Message Type

Revision Source Order System

Business Unit US1 Business Unit

Order Lines Fulfillment Lines Returns

Actions ▾ View ▾ Format ▾   Freeze  Detach    Wrap

Fulfillment Line	Orchestration Process Number	Orchestration Process	Locked	Receiving Location	Receiving Location Name	User Request Status	Order	Order Line	Item	Item Description	Expected Return Quantity
1-1	300000181979929	DOO_BillOnlyG...	002	Atlanta		91353	1		GT1001	Gas Turbine	1

Rows Selected 1 Columns Hidden 23

Return Fulfillment Line 91353 - 1-1: Details

General Billing Item Details Receiving Tax Service Details

Expected Return Quantity 1

Delivered Quantity

UOM Ea

Original Order Reference 91352

Receiving Location Name Atlanta

Original Source Order Reference 91352

Receiving Location 002

Original Fulfillment Line Reference 1-1

Expected Receipt Date 5/19/19 3:00 PM



This Gas Turbine is customer owned and will be returned for refurbishment

10 Overview Manage Work Orders x Review Dispatch List x

Product 2 3
Backflush Materials Autotransact Resources

Complete with Details: WO-002-1071-10 (GT1001-00006): Materi...

Item GT1001 Work Order Quantity 1 Ea Work Center Tablet Assembly

+ × Scan Component Done Reset

Status	* Operation Sequence Number	* Component	Component Description	Basis	UOM	Required	* To Transact	Component Lot Number	Com...
▶	✓ 10	GT2001	Rotor	Variable	Ea	1	-1 ▲ ▼	GT2001-00006	
▶	✓ 10	GT3001	Bearing	Variable	Ea	2	-1 ▲ ▼	GT3001-00009	
▶	✓ 10	GT3001	Bearing	Variable	Ea	2	-1 ▲ ▼	GT3001-00010	

From the Installed Base Record the correct Serial-No. will be provided for the disassembly transactions

Installed Base Record

Asset	Product	Serial Number	Quantity
▲ 100000549290726	GT1001	GT1001-00006	1
100000549288671	GT3001	GT3001-00009	1
100000549288673	GT3001	GT3001-00010	1
▲ 100000549290702	GT2001	GT2001-00006	1



Manage Serial Numbers

Advanced Search

** Serial Number Between GT3001-00009 - GT3001-00010

** Item GT3001

Subinventory GT-TB-INSP

Search Reset Sort Add Fields Reorder

Search Results

Actions ▾ View ▾

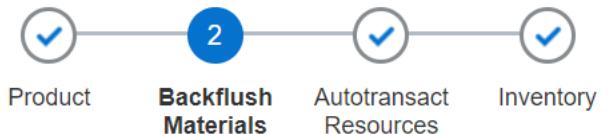
Serial Number	Item	Item Description	Usage	Subinventory	Locator	Material Status	Additional Information
GT3001-00009	GT3001	Bearing	Resides in stores	GT-TB-INSP		GT-Inspection	
GT3001-00010	GT3001	Bearing	Resides in stores	GT-TB-INSP		GT-Inspection	

The returned Bearings get a Material Status of „GT-Inspection“. That is preventing them from being assembled in the turbine before QA-Approval

ship
Rec



Overview Manage Work Orders x Review Dispatch List x



Complete with Details: WO-002-1071-20 (GT1001-00006): Materi...

Item GT1001

Work Order Quantity 1 Ea

Work Center Tablet Assembly

+ x Scan Component Done Reset

Status	* Operation Sequence Number	* Component	Component Description	Basis	UOM	Required	* To Transact	Component Lot Number
▶	20	GT2001	Rotor	Variable	Ea	1	1	
◀	20	GT3001	Bearing	Variable	Ea	2	1	

The Bearings still did not pass QA-Approval. We will replace them.

GT3001-00011
GT3001-00012
GT3001-00013
GT3001-00014
GT3001-00015
GT3001-00016
GT3001-00017
GT3001-00018
GT3001-00019
Search...



20 GT3001

Bearing

Variable

Ea

2

1

GT3001-00010

x Error

Item

Error

GT3001

The serial number GT3001-00010 is invalid for this transaction because it has a current status



Customer Pinnacle Technologies
 Customer Registry ID 10080
 Order 91354
 Process Transaction Value 112,500.00 USD
 Process Standardized Value 112,500.00 USD
 Status Awaiting Billing
 Locked No

Jeopardy Score
 Jeopardy Reason
 Jeopardy Priority
 Message Type
 Actual Start Date 5/19/19 4:25 PM
 Actual Completion Date
 Planned Completion Date

Ordered Date 5/19/19 4:25 PM

The Gas Turbine was shipped after refurbishment assembly. The Installed Base Record was updated.

Orchestration Plan Fulfillment Lines

Task Progress	Task	Status	May 12, '19	May 19, '19	05-18	05-19	05-20	05-21	05-22	05-23	05-24
✓	Schedule	Scheduled									
✓	Reserve	Reserved									
✓	Ship	Shipped									
✓	Asset Management	Asset Interface ...									
	Invoice	Awaiting Billing									

Installed Base Record

Asset	Product	Serial Number	Quantity
▲ 100000549290726	GT1001	GT1001-00006	1
100000549288675	GT3001	GT3001-00011	1
100000549288677	GT3001	GT3001-00012	1
▲ 100000549290702	GT2001	GT2001-00006	1



CMRO - Complex Maintenance, Repair and Overhaul requires the ability of handling complex material transactions for serialized components – otherwise you will become crazy from typing transaction after transaction ...



Cloud Solution

- Product Data Hub and Bill of Material for definition of assemblies and sets
- Refurbishment Work Order for disassemble and reassembling
- Inventory Management with Mass-Transaction capabilities for serialized items

Edit Item Structure: GT1001 - Primary

Item Structure Details

Actions ▾ View ▾ Format ▾



Search



Item

Item Description

Item Sequence

Start Date

End Date

Quantity

Inventory Quantity

Structure Item Type

Enforce Integrity Requirements



Gas Turbine



Rotor

30

15.05.19 11:57

1

1



Blade-Set

30

15.05.19 11:53

1



Blade

30

15.05.19 11:51

5



Shaft

60

15.05.19 11:53

1



M3 x 12mm Vented Cap Head Screw (DIN 912...

90

15.05.19 11:53

5



Bearing

60

15.05.19 11:57

2



FB Air Intake Filter

90

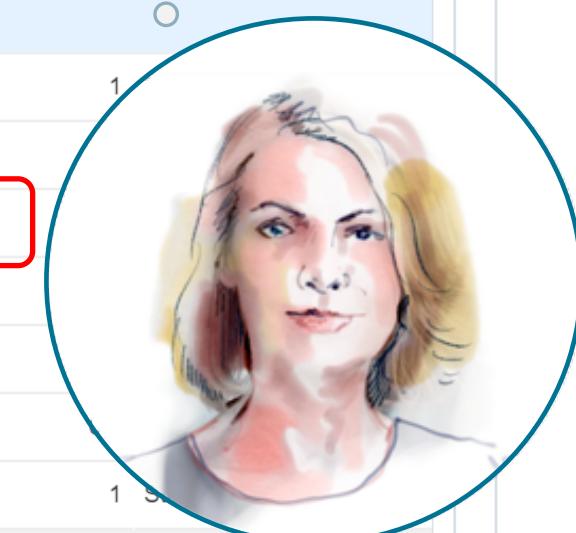
15.05.19 11:57

1

1

Rows Selected 1

The definition of a Blade Set is allowing us to move/issue e.g. 5 or 50 Blades of a Turbine-Row with a single transaction.



Manufacturing Organization 002

Change Organization

Overview Manage Work Orders × Review Dispatch List ×

Complete with Details: WO-002-1068-10: Materials

Item GT2002

Work Order Quantity 1 Ea

+ × Scan Component

Done

Reset



Sooner or later you need to do mass-transactions. Serialized components will be itemized for simplified and lean Serial-No.-Association – just by scanning a bar code or by selection from a drop down list. Never thought that it would be going that simple and fast!

	Status	* Operation Sequence Number	* Component	Component Description	Basis	UOM	Required	* To Transact Number	Component Serial Number
▶		10	GT3005	Blade	Variable	Ea	5	<input type="text" value="1"/>	GT3005-00026
▶		10	GT3005	Blade	Variable	Ea	5	<input type="text" value="1"/>	GT3005-00027
▶		10	GT3005	Blade	Variable	Ea	5	<input type="text" value="1"/>	GT3005-00028
▶		10	GT3005	Blade	Variable	Ea	5	<input type="text" value="1"/>	GT3005-00029
▶		10	GT3005	Blade	Variable	Ea	5	<input type="text" value="1"/>	GT3005-00030



Put Away Line

Organization: 002

Summary

Item GT3002

Item Description FB Air Intake Filter

Line Status Received

Receipt 60052

Revision

* Quantity

Location

Source Packing Unit

Destination Type

Receiving Location

Transfer Packing Unit

Subinventory

Lot and Serial Number Details

Lot

Parent Lot

From Serial Number To Serial Number

It is just a fun to handle serialized inventory transactions. You simply could generate Serial Numbers, you could record them manually or simply record a range of serial numbers.



Inventory Organization All

Actions ▾

Split Line

Remove Line

Generate Single Lot

Generate Lots and Serial Numbers

Show All Distributions

— Consignment line

— Back-to-back order

Benefit potentials

- Common Installed Base for own and customer owned assets (ownership changes)
- Fully tracked component changes throughout the lifecycle (to support „as built“, „as maintained“, etc.)
- Material Status to control material usage based on QA-Approval, supported by integrated Quality Management
- Mass Transaction capabilities for serialized items for Work Order- and Inventory-Management
- Fully integrated Modules of Oracle Fusion Supply Chain Management Cloud Services

All benefit
from
integration



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