Ramco Aviation Solution

Version 5.7

User Guide

Hangar Maintenance

DISCLAIMER

Improvements and changes to this text necessitated by typographical errors, inaccuracies of current information or improvements to software programs and/or equipment, may be made by Ramco Systems Limited, at any time and without notice. Such changes will, however, be incorporated into new editions of this document. Any hard copies of this document are to be regarded as temporary reference copies only. The screen captures contained in this document may be dissimilar due to style sheet changes in the Ramco product.

The documentation has been provided for the entire Aviation solution, although only a part of the entire solution may be deployed at the customer site, in accordance with the license agreement between the customer and Ramco Systems Limited. Therefore, the documentation made available to the customer may refer to features that are not present in the solution purchased / deployed at the customer site.

About this manual

This manual briefly describes the basic processes and functions in Ramco Aviation Solution.

Who Should Read This Manual

This manual is intended for users who are managing the Aviation industry processes and are new to Ramco Aviation Solution.

This manual assumes that the user is familiar with the Aviation Industry nomenclatures and systems based software.

How To Use This Manual

Ramco Aviation Solution provides extensive Online Help that contains detailed instructions on how to use the application. Users are suggested to use this manual for specific references, along with the Online Help. This manual contains enough information to help the users perform the basic tasks and points toward the Online Help for more detailed information.

How This Manual is organized

The User Guide is divided into 3 chapters and index. Given below is a brief run-through of what each chapter consists of.

Chapter 1 provides an overview of the entire **Hangar Maintenance** business process. The sub processes are explained in the remaining chapters.

Chapter 2 focuses on the **Hangar Work Order** sub process.

Chapter 3 dwells on the **Hangar Work Reporting** sub process.

The **Index** offers a quick reference to selected words used in the manual.

Document Conventions

- The data entry has been explained taking into account the "Create" business activity. Specific references (if any) to any other business activity such as "Modify" and "View" are given as "Note" at the appropriate places.
- **Boldface** is used to denote commands and user interface labels.
  Example: Enter **Company Code** and click the **Get Details** pushbutton.
- *Italics* used for references.
  Example: *See Figure 1.1.*
- The ✐ icon is used for Notes, to convey additional information.

Reference Documentation

This User Guide is part of the documentation set that comes with Ramco Aviation Solution.

The documentation is generally provided in two forms:

- The Documentation CD in Adobe® Systems' Portable Document Format (PDF).
- Context-sensitive Online Help information accessible from the application screens.

Whom To Contact For Queries

Please locate the nearest office for your geographical area from www.ramco.com for assistance.

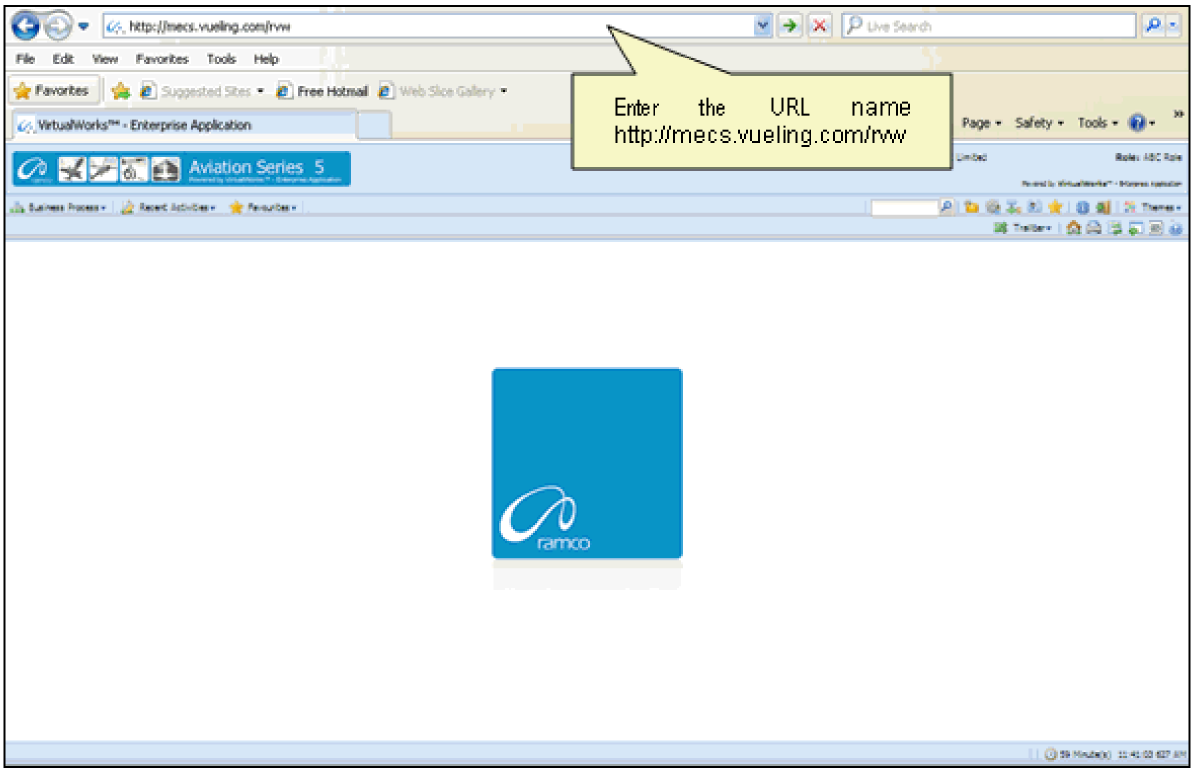
Table of Contents

Using Ramco Aviation Solution

This section explains the basics of using a Ramco Aviation Solution web page. At the end of this section, you will be familiar with the concepts based on which Ramco Aviation Solution works, and also understand how to navigate around Ramco Aviation Solution.

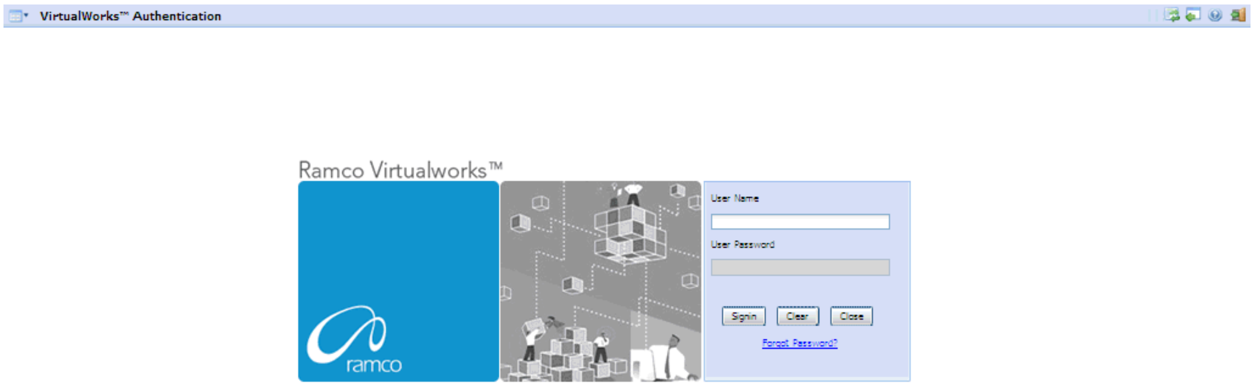
Logging into Ramco Aviation Solution for the first time

Enter the URL of the Ramco Aviation Solution in the Internet Explorer window. For example, URL: http://mecs.vueling.com/rvw.

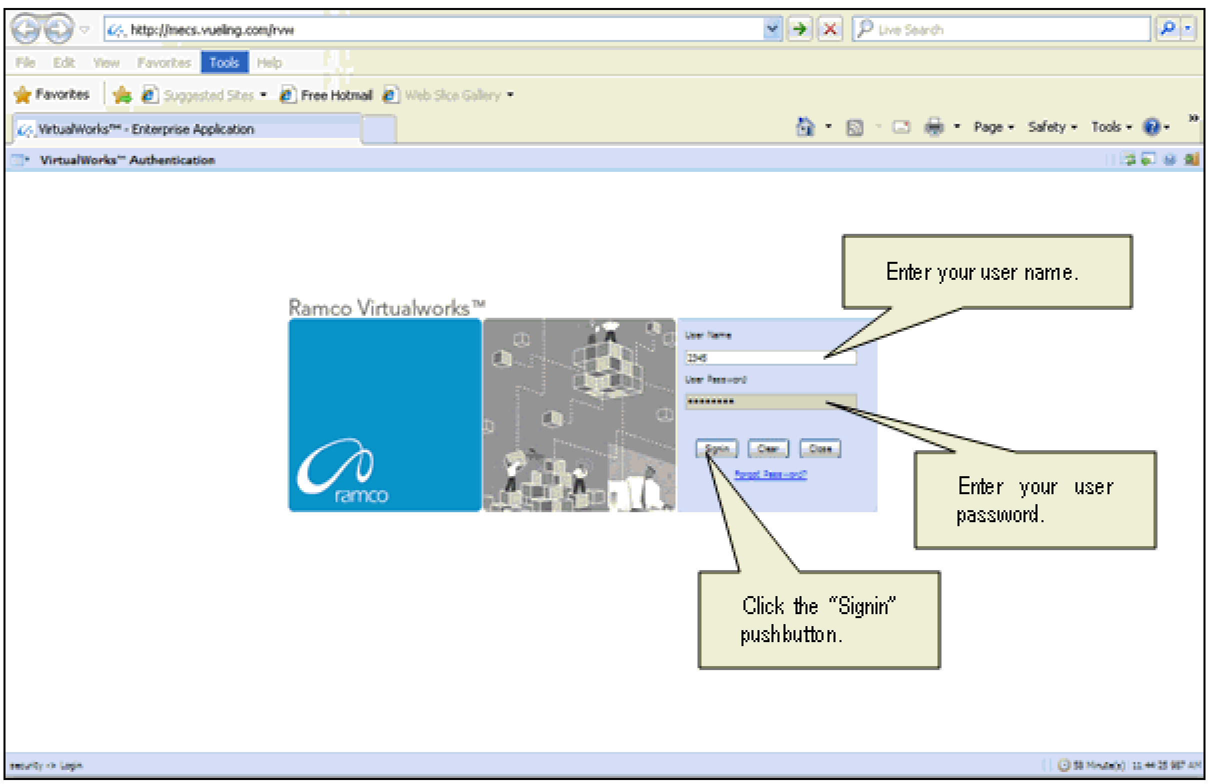


Note: The recommended browser platform for Ramco Aviation Solution is IE8.

The Login page appears.



Enter your **User Name** and **User Password** in the Login page, which have been provided by the System Administrator. Refer to the figure below.



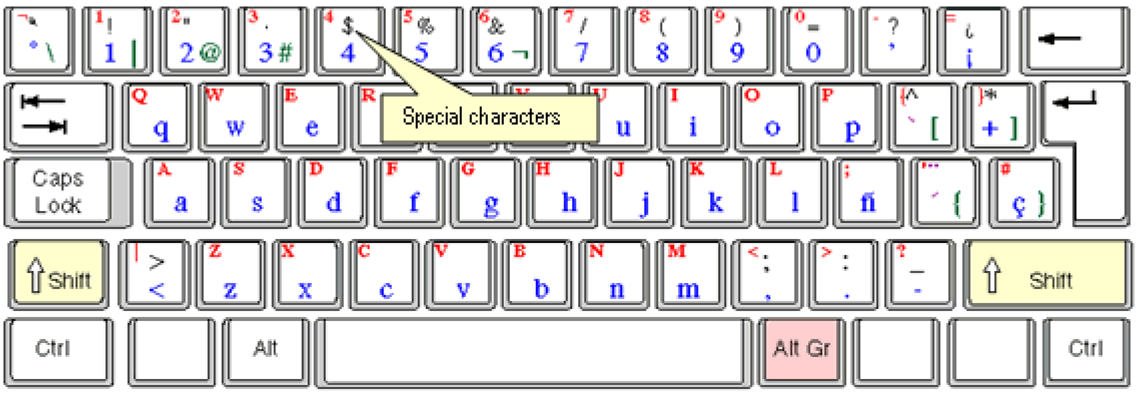
User Name: A unique identifier name or code for logging into Ramco Aviation Solution.

Password: A sequence of characters which, when combined with the user name, ensures that only the user with this password and user name can access Ramco Aviation Solution, where Ramco Aviation Solution offers the user a predefined set of business processes and components.

Passwords must be difficult to guess, and kept secret by the user.

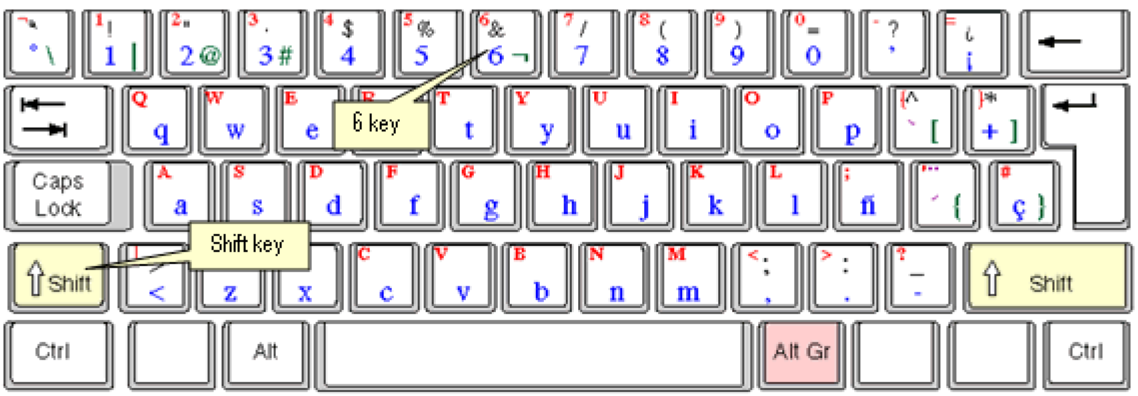
What is a Special Character?

A special character is a non-numeric character (not in the a-z alphabet and 0-9 numbers). Common examples are “!”, “@”, “#”, “$”, “%”, ^“”, “&”, “*”.



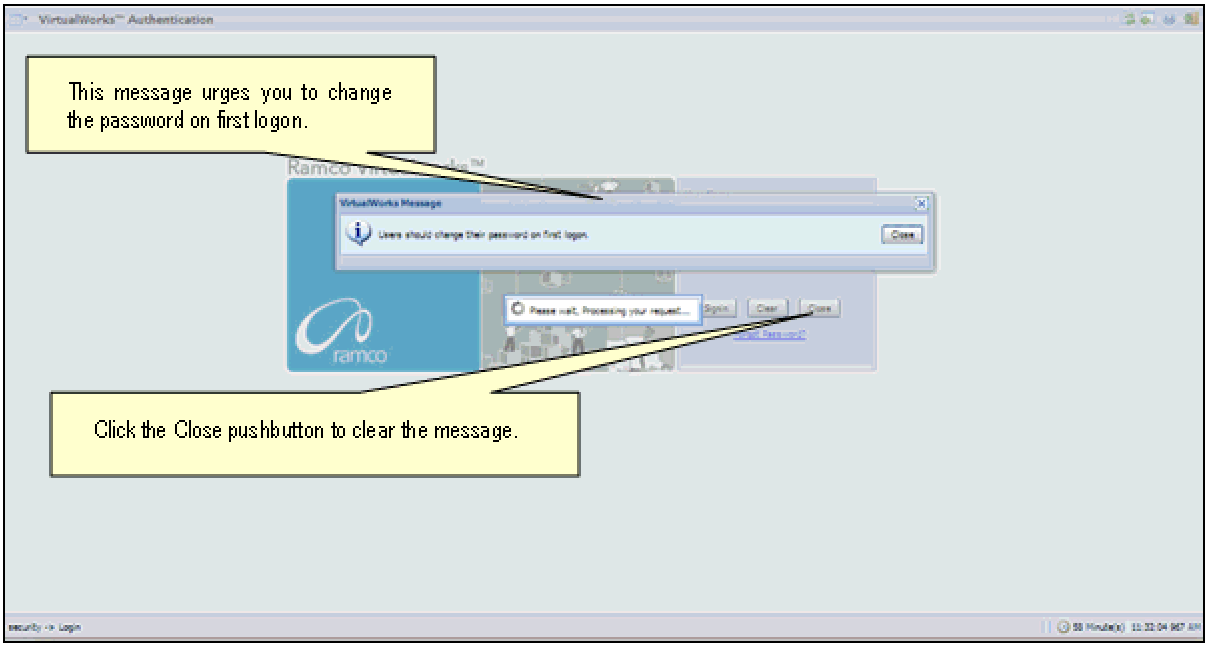
You can type the special characters by pressing Shift + the required character key.

Example: If you want to type “&” as the special character, then press Shift button + 6 Key.



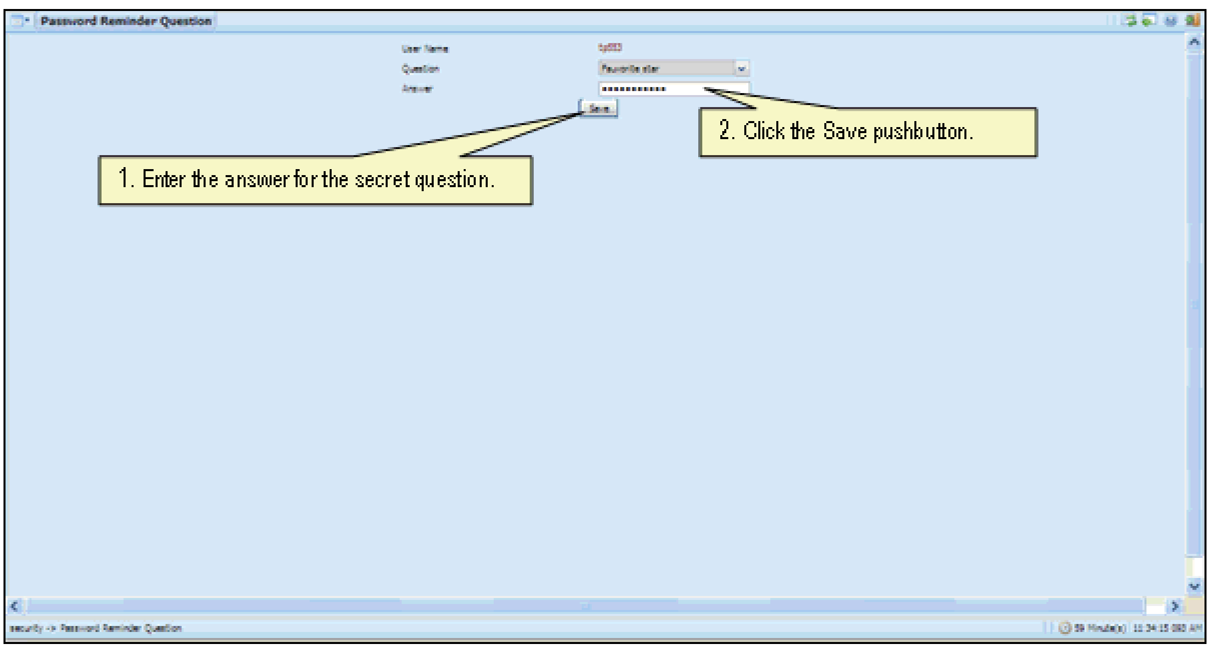
After entering the User Name and Password, click the **Login** pushbutton.

The system will prompt you to change the password, because it is your first login. Refer to the following figure.



Close the window by clicking the **Close** pushbutton.

The **Password Reminder Question** screen appears. The system prompts you to provide an answer to the question.

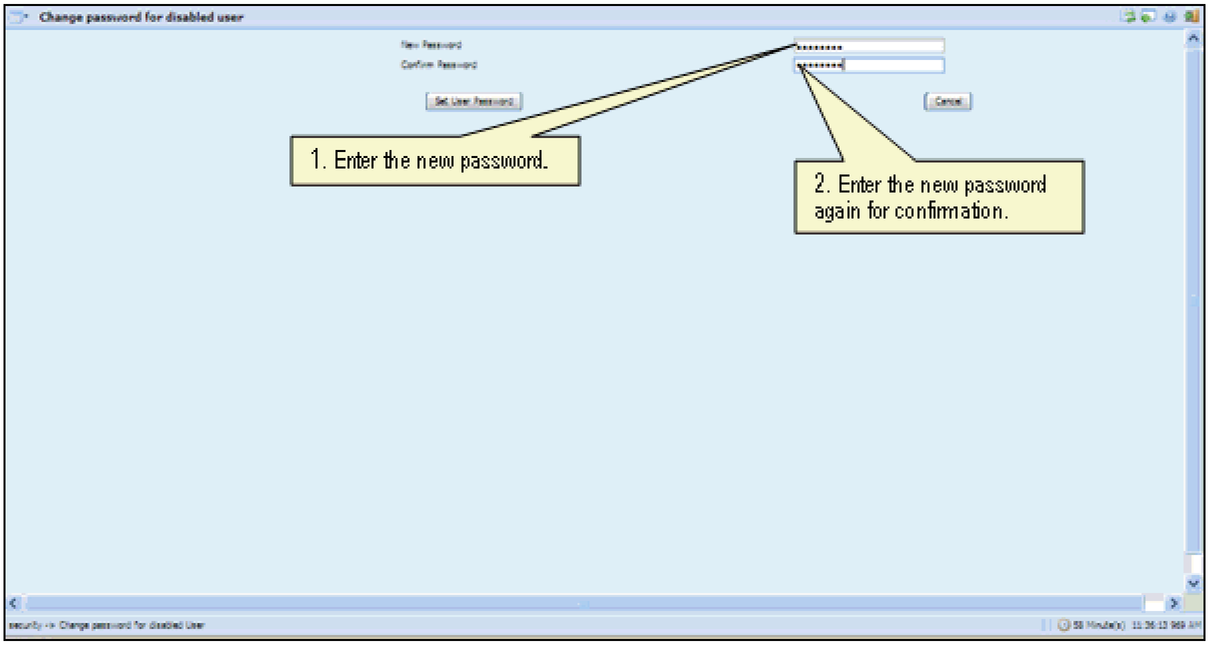


Enter the **answer**.

Click the **Save** pushbutton to save the answer.

Note: The answer provided here will be used for changing the password if you forget your password.

The “Change Password” screen appears.

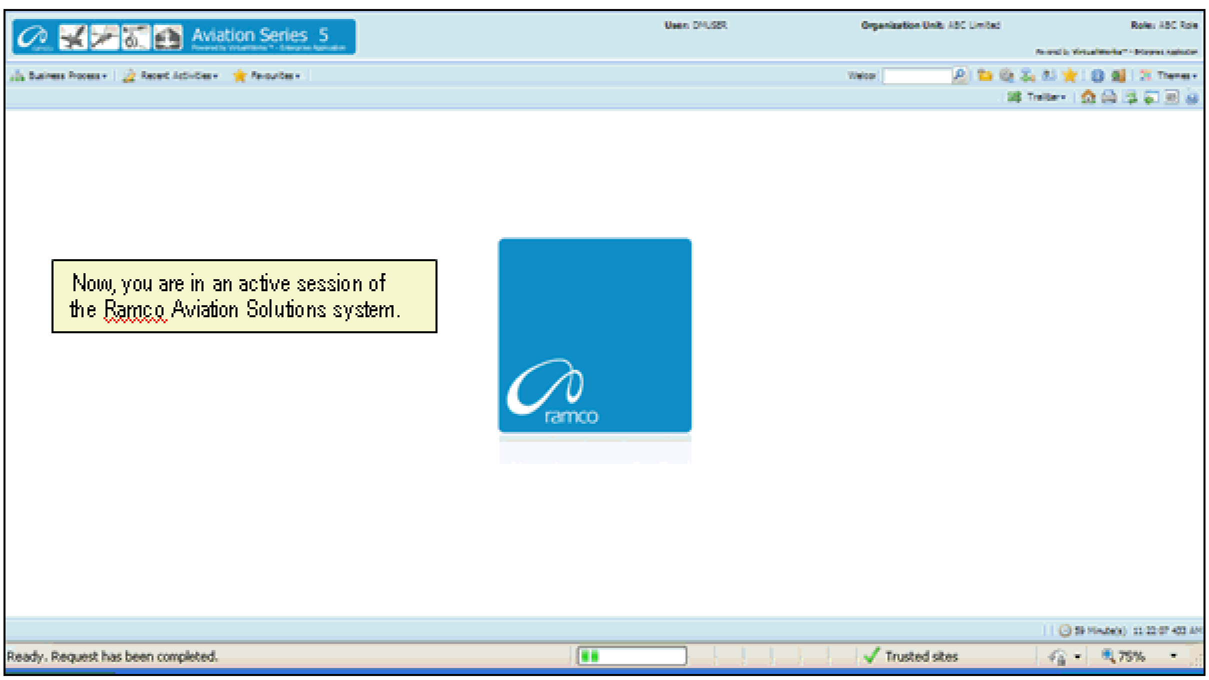


Enter a password of your choice. Ensure that the new password comprises a minimum of six characters and a maximum of 15 characters and includes a special character as well.

Example of passwords: abcd&, abcd*, abc@best

Click the **Set User Password** pushbutton, to save the password.

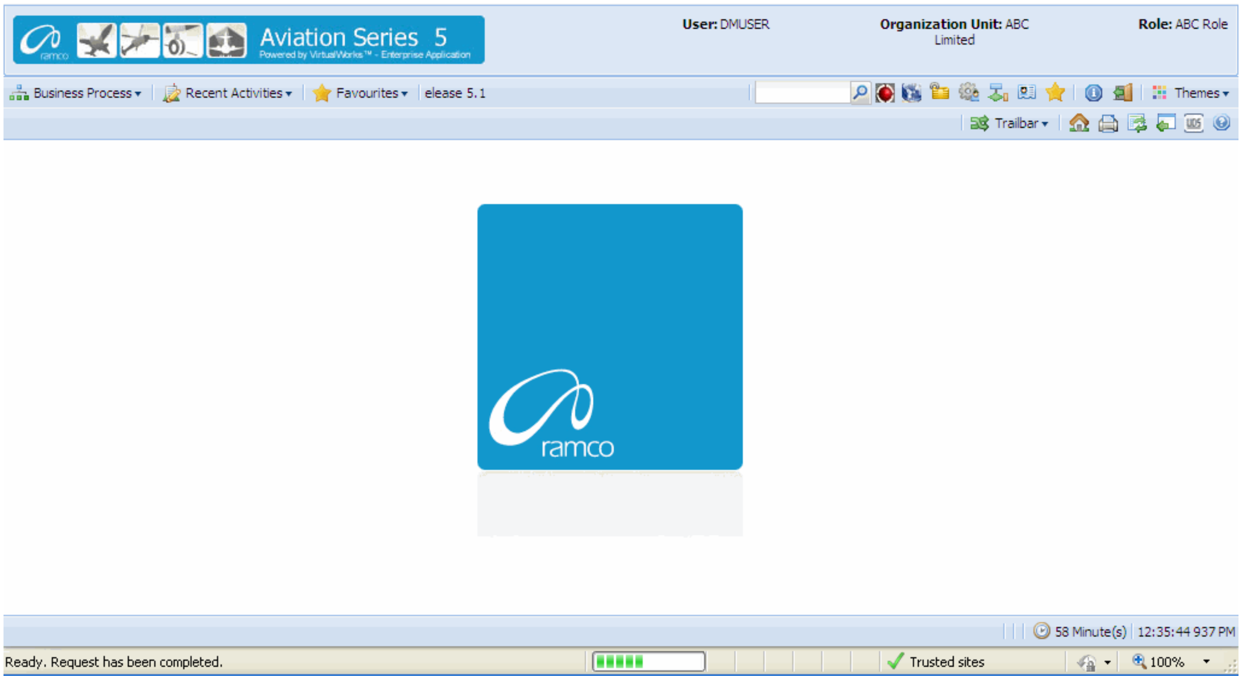
The home page of Ramco Aviation Solution appears. You can now access the activities for which you have permission, from this page.



Ramco Aviation Solution Home page

Welcome to Ramco Aviation Solutions!

You are now in the Ramco Aviation Solutions Home page. This is the first page you encounter, after successfully logging into the application.



From now on, your user name, organization unit and role are displayed on the top right of every Ramco Web page.

Default login details

This section, which occupies the area immediately below the address bar and to the right, side, shows:

- Your user name
- The default role to which your user name is mapped
- The organization unit mapped to the default role

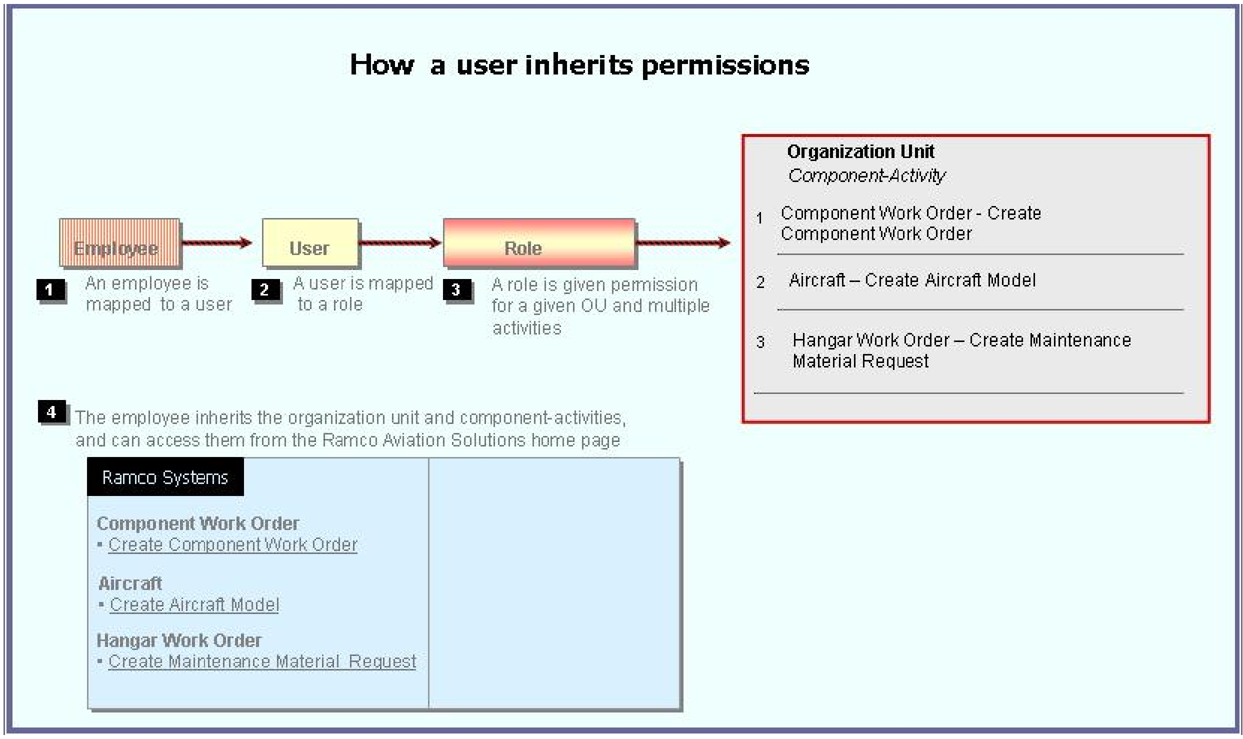
How a user inherits permissions

During deployment, each user name can be mapped or linked to multiple role-organization unit combinations. Shown below are a few examples.

User Name	Role	Organization Unit
John	Configuration Administrator	Tech Records-Indianapolis
John	Engineering Manager	Engineering-New York
John	HR User	Engineering-New York
Andrea	Stores Clerk	Central Warehouse-Los Angeles
Andrea	Shift In charge	Line Station-Chicago
Daniel	Shop Maintenance Manager	Maintenance Shop-Memphis
Daniel	Project Engineer	Head office-New York

For each user name-role-organization unit combination, permission is given to a set of activities. These activities could be across the components deployed in the organization unit. Each user name-role-organization unit combination, therefore, refers to access to (i) a specific organization unit and (ii) one or more activities.

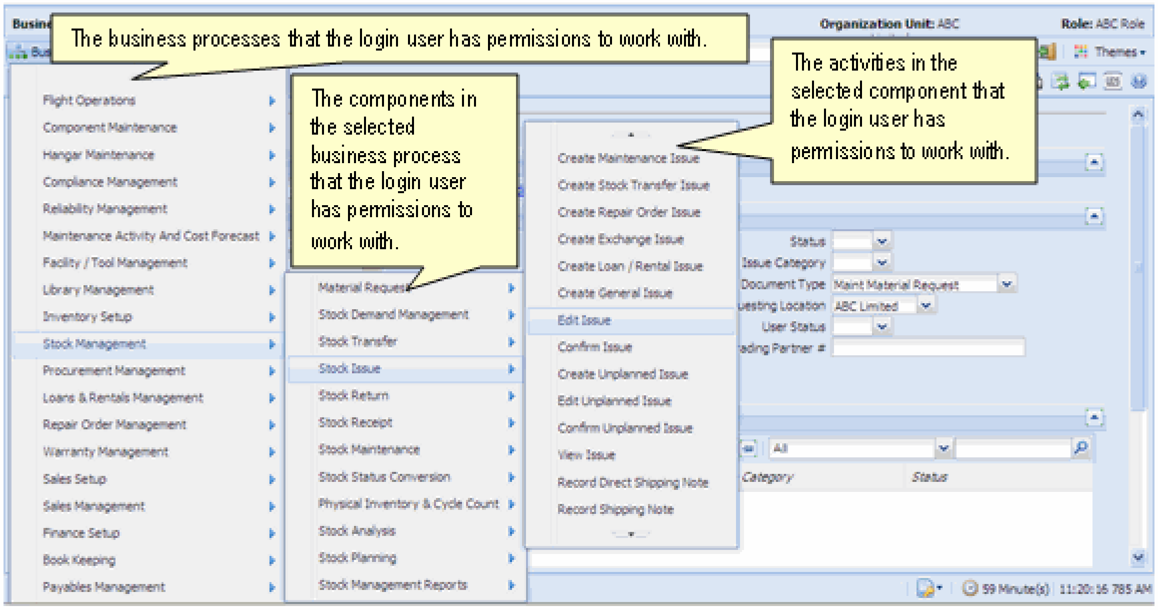
Although a user name can be mapped to multiple role-organization units, the user is assigned a default role-organization unit. This is accomplished through the Setup Defaults icon on the Web toolbar. Therefore, when you login with a given user name, the system retrieves the default role-organization unit and displays it to the right of the page.



Note that there is no separate permission to be obtained for a business process or a component. When you log into a permitted organization unit, the system displays all the business processes and components whose activities your role is permitted to access.

For example, your role may be given permission to two activities under the **Component Work Order** component, and one activity under the **Aircraft** component. When you log in, the system will show the following business processes: **Component Work Order** and **Aircraft**.

- Under the **Component Work Order** business process, the **Create Component Work Order** and **Edit Component Work Order** activities for which you have permission are displayed.
- Under the **Aircraft** business process, the **Create Aircraft Record** activity for which you have permission is displayed.



Business Processes and Activities

Immediately below your user name, the system displays two rows of icons in the Web page toolbar.

On the left half of the first row, there will be three adjacent tabs: they are labeled Business Processes, Recent Activities and Favorites.

Business Process	Those business processes to which your role-organization unit has been entitled permission. Click this icon at the left top of the Web page to find the business process list.
Recent Activities	The most recent list of business activities that you have visited. These activities could be across components and even business processes Click any link, to directly launch the recently visited page.
Favourites	This list, represented by the third icon from the left in the Web toolbar, shows those activities already earmarked as your favorites, using the Favorite icon on the Web toolbar. They will be activities to which your user name-role has been entitled permission. An activity under Favorites provides you a short cut to directly select it after you log into Ramco Aviation Solution, without having to search for the business process and component under which it is logically arranged. Pull down the Favorites menu and select the required activity. The activity is instantly invoked and the first page of the activity appears. This saves users time and effort of traversing to a Web page from the business process, the component and then the activity.

To start an activity under the Recent Activities or Favorites tabs

Select an activity listed under the Recent Activities or Favorites tab.

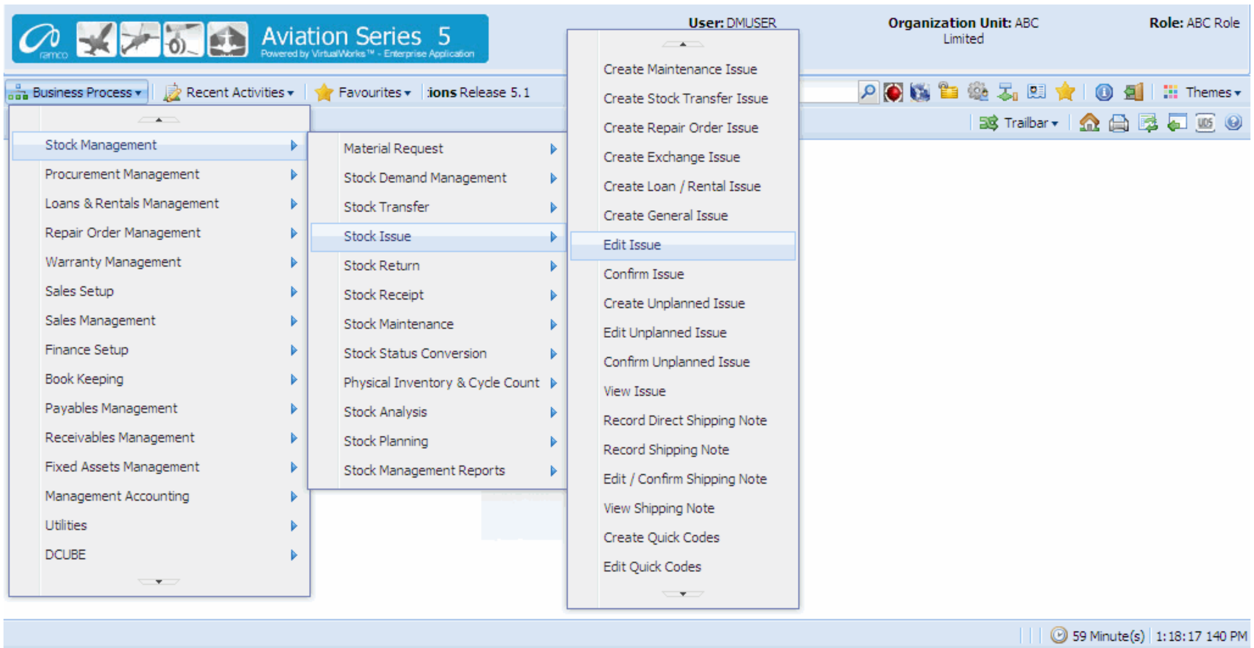
The system displays the first page of the selected activity.

For instance, if the activity Create Component Work Order is listed under the Favorites tab and you select it, the system will display the Select Component page.

To start a business process under the Business Process tab

Select any business process listed under the Business Process tab.

The system displays the components of the selected business process, in the submenu to the right of the selected business process.



Before using a Ramco Aviation Solution Web page

Components, activities and tasks

Before you get started on the Ramco Aviation Solution Web page, you need to know a few concepts based on which Ramco Aviation Solution works. These can be summed up in the few key words that follow.

- Business process
- Business component
- Activity
- Web page or user interface

A business process is a collection of interrelated components that pertain to a specific business domain/department, such as Book Keeping, Hangar Maintenance, Stock management, Human Resources Management, etc.

A business component refers to a set of logical actions or transactions that happen during the course of a business process. For example, components Stock Issue, Stock Return and Stock Receipt components are classified under the Stock Management BPC. Likewise, Journal Voucher, Currency Revaluation and Bank Reconciliation components are grouped under the Book Keeping BPC.

An activity refers to any task/transaction under a business component. For example, Create Maintenance Issue, Confirm Issue and Record Shipping Note activities under the

Stock Issue component enable users to perform specific functions of the Stock Issue process.

Business Component	Stock Management Stock Management	Click the arrow of any business process to display the list of components. Alternatively, click this icon to display the list of components for the previously selected business process.
Activity	Stock Management Edit Issue	Click the right arrow for any component to view the list of activities. Click the activity to view the first page of the activity. You can click links in this page to view more pages in the activity.

Essentially, clicking an Activity opens the **Web page** with which you work. When you are working with a Web page, you would be performing a task in an activity. However, it may or may not be necessary to perform all the tasks in an activity at one go. You may revisit the activity and perform some other tasks that are not mandatory at a later point of time. Hence, it may be concluded that you may have worked with as many **Web pages** as the number of tasks you have performed.

Note that there are several instances when a single Web page is used to carry out the activity straight away. Many of the activities comprise of a single Web page by which the user can both search for a specific record and perform the relevant task on the record.

Correlating tasks to web pages

Given below is an example of the Web pages under an activity, and the task correlating to each Web page.

Go to page…	…To carry out task
Select Issue to Edit	Selecting the stock issue for modification
Edit Issue	Editing the stock issue details
Confirm Issue	Confirming stock issue
Generate MMD Report	Generating MMD for the stock issue
Generate Part Barcode Label	Generate part barcode label for the stock issue

The second page is a hyperlink from the first page. The remaining pages are hyperlinks from the first page or other pages.

More about Search Criteria and the Select web page

You normally encounter a Select page before recording, editing or viewing a record. The "Select Issue Document" is an example of a select page. From this page, you can search for stock issue document you want to edit/view in the following way:

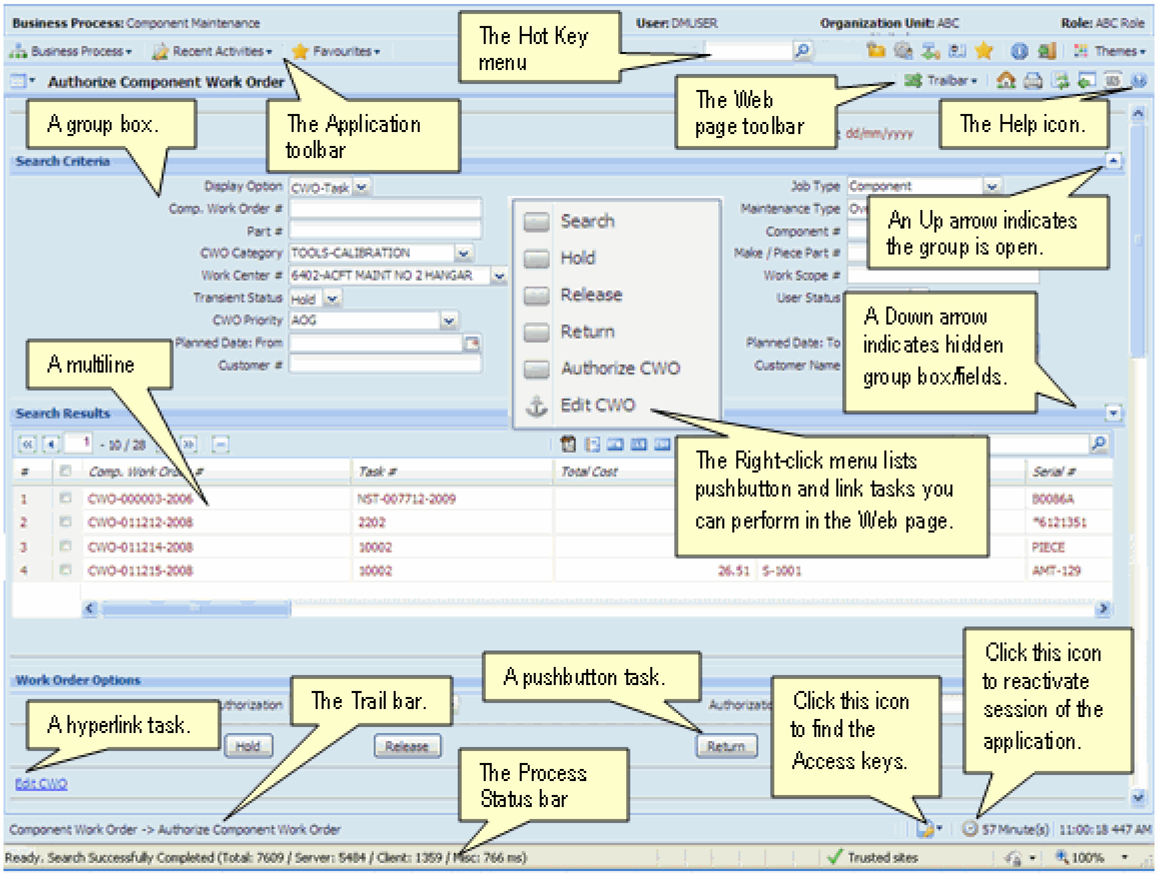
- Select search criteria such as Issue #, Warehouse #, Issue Type or Issue Category.
- You may also specify attributes of a stock issue such as, Ref. Document Type, Ref. Document #, Part # and/or Aircraft Reg. Type.

- The system displays all the stock issue records that satisfy the search criteria, in a multiline.
- From the multiline, select the specific issue record whose details are to be viewed or edited.
- From the Select page, click the link that takes you to the Edit page, Record Page or the View page. Alternatively, one of the fields in the multiline employee records will be hyperlinked, in the Select page. Select the hyperlinked field, to enter the Edit, Record or View page.

A typical Ramco Aviation Solution Web Page

Select a Web page by clicking on the activity on the left pane of the application.

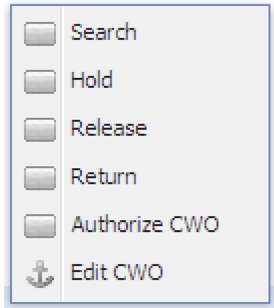
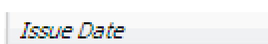
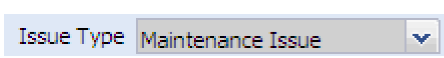
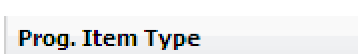
The web page appears.

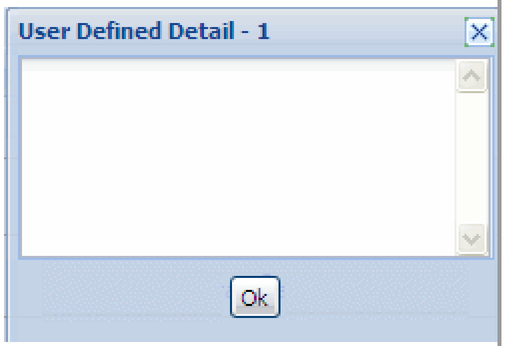
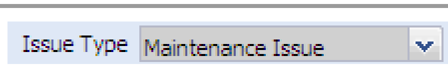


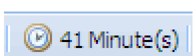
Knowing what a Web page consists of

A web page constitutes the entire document that you view online, which you use to either type in information or view information. All other elements described below, except the Menu button, will be inside the Web page.

While using a Web page, here are the basic elements you will be working with.

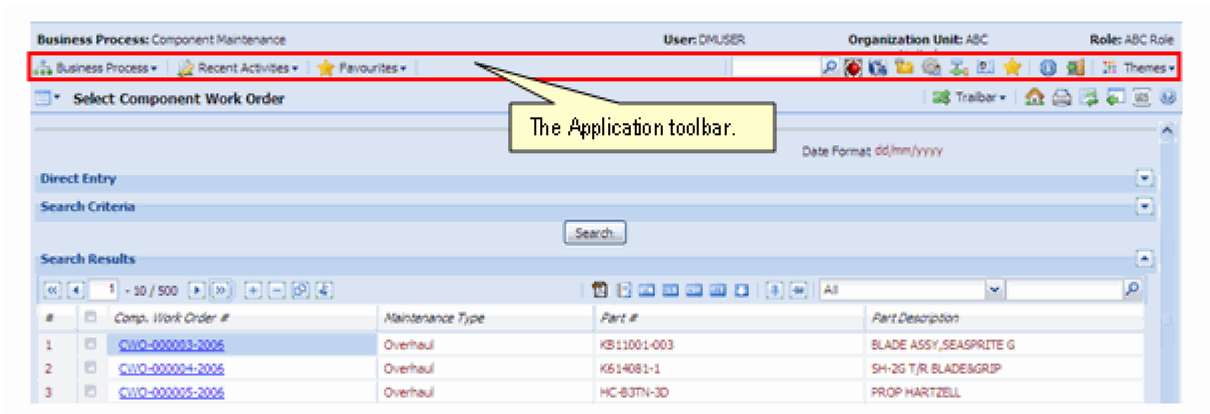
Element	Icon	Description
List of Tasks in Web Page		Right-click anywhere on the Web page to display a drop-down menu that lists the tasks you can perform in the Web page. The tasks include pushbuttons and links.
Record		A record refers to a collection of fields that represent attributes of an entity, such as aircraft, aircraft model, component or part. A record is uniquely identified by a key field, such as an identification number.
Multiline		A table, consisting of multiple rows and columns. Each row contains a single record. Each attribute of the record appears under a column with the field as the header in the multiline.
Field	   	Each data element in a page, which is either displayed automatically or which you enter/ type in, is a field. A display field appears in an Italic Regular font. An input field may be a text box or a drop-down list box. You may provide a valid input value. A drop-down list box displays a list of values from which you may select the required value. An input field appearing in Bold format implies data entry is mandatory for the field.

Field Input Window		Place your cursor inside an input field in any Web page and click the F2 key to open the input window. You can now type the required information, and click the Ok pushbutton to close the window. This proves convenient for data entry as you can type in text continuously without scrolling as well as view the typed text in its entirety.
Link		A hyperlink when selected opens up another Web page.
Data Hyperlink		Any data in a field when selected, takes you to another Web page.
Search Criteria		Refers to a group of fields you can specify, such as "From Date" and "To Date". It enables the system to retrieve those records that have the same attributes as you have specified. Essentially, fields in the Search Criteria group box are filters to enable the system to retrieve specific and precise records. After you specify filters for retrieving records from the database, you must click the Search pushbutton to display records in the "Search Results" multiline. The number of records to be retrieved for each user interface is decided by the system administrator. Contact your system administrator for more details. The Search Criteria group box most commonly appears in Select pages; though it is not uncommon to find them in other pages as well.
Drop-down List Box		This refers to the list box that appears when you click inside a field containing a downward arrow. The list box shows a list of items, each of which represent an action you can choose.

Lens		The icon positioned next to fields where code search facility is available. Click this icon to search for a code or number. For example, Help on Employee Code.
Pushbutton		A rectangular button that performs an action when clicked. For example, clicking the "Add Employee" pushbutton saves the employee details entered in the page.
Up Arrow		Click this icon appearing at the top of certain drop-down menus to view the hidden list above.
Down Arrow		Click this icon appearing at the bottom of certain drop-down menus to view the hidden list below.
Show Group Box		Select this button to show/ expand a group box.
Hide Group Box		Select this button to hide a group box.
Reactivate Session		Click this icon to reactivate the current instance of the application. The timer next to the icon at the right bottom of the screen displays the time remaining for the end of the session.
Access Keys		Click this icon located at the bottom right of a Web page to view the short cut keys currently available for pushbuttons in the Web page.

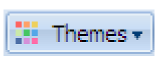
System Error Message		Click this icon located at the bottom right of any Web page to view error messages generated by the application whenever erroneous data is input. Note that this icon appears only when an error occurs.

Application Toolbar



You will find the following elements in the Application Toolbar.

Element	**Icon**	**Description**
Hot Key Menu		Use this text box to type in the menu code and then click the icon for directly launching an activity page. Through the menu code you can open any activity page straightway by avoiding traversal across business components or business processes. Contact your System Administrator for more information.
Change Password		Use this icon on the Web page toolbar to change the password settings for the currently logged in user.
Setup Preferences		Use this icon to set the style and format for numeric, date and time displays.

Change User Context		Use this icon to switch across organization units or roles.
Setup Defaults		Use this icon to select the organization unit to which you will be logged in, by default.
Define Favorites		Use this icon to list down all the activities defined in the favorites. i) Click this icon to open the Organize Favorites window. ii) Specify the activities that must be set as favorites. iii) Click the Save user favorites pushbutton.
About VirtualWorks		Click this icon to know more about Ramco Aviation Solution.
Signout		Click this icon to log out of the current session of the Ramco Aviation Solution.
Themes		Use this drop-down list box to set the theme for the user interface (UI). Theme defines the color scheme, style and appearance of the user interface.

Note: Some more icons may appear in the Application toolbar, which may not be useful to end-users.

After the page appears, you may view it and then exit by clicking the Exit button on the Web page toolbar, after viewing the contents of the page.

When you complete selecting / viewing / entering data in all the required fields in the page, you can either:

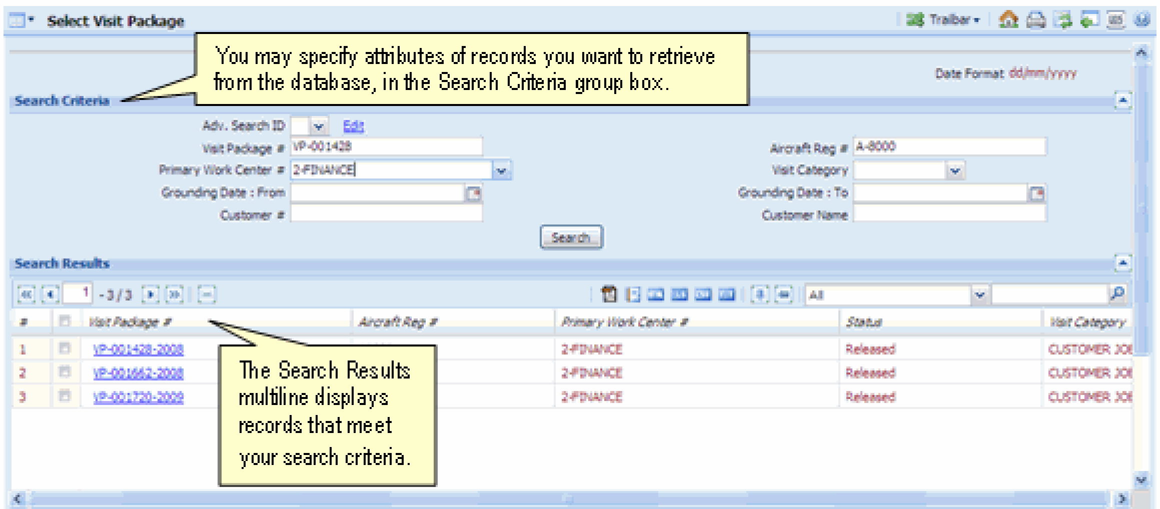
- Save the details you entered in the current Web page, by clicking the relevant pushbutton.
- Select or choose a row in the multiline, by checking the box that appears as the first field of the row. Traverse to the next page, by selecting a link in the current page. In the next page, you can enter additional details that pertain to the multiline row. (A row in a multiline represents a record.)
- Exit the Web page without effecting any action that you might have carried out in the Web page.

Adding a record

You can add a new record in a web page. You are to enter a unique code to identify the record, along with other details of the record such as description, type, etc. This unique code of the record

- Can identify it from other records
- Cannot be edited
- Can be used to retrieve the record for edit and delete tasks
- Selecting a record

For certain other actions such as edit, delete, authorize or report generation, at the onset you need to find and choose a record in a **Select** page.



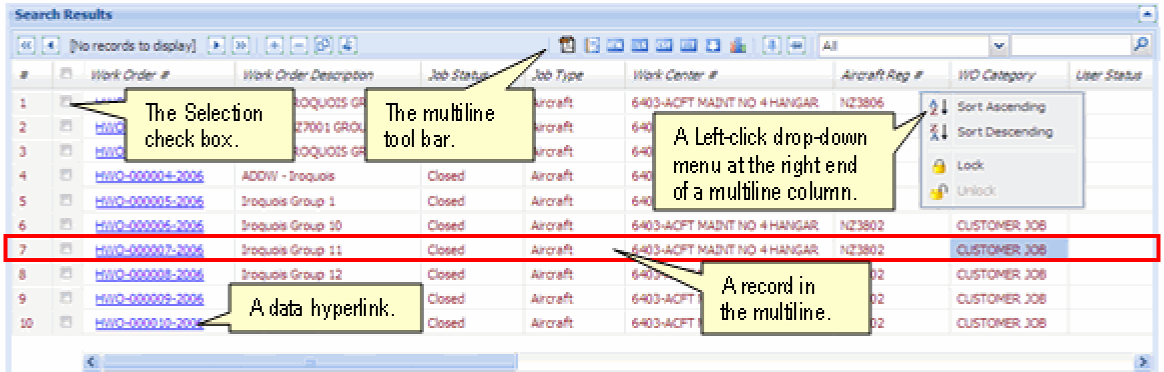
The Select page provides a **Search** facility to find a record based on the search criteria that you can specify. The application retrieves and displays records that match the search criteria in a multiline. You may then proceed to do the following,

- Select or choose a record in the multiline, by checking the box that appears in the second column of the multiline. (The first column displays the sequence number of the record, which depicts the order in the multiline.)
- Click the link for the required action/event at the bottom of the page.

The page for the chosen action/event appears, displaying all the details of the record you selected in the multiline of the previous page. You may now edit, delete, authorize or carry out any other valid action on the record.

However, some Select pages facilitate deletion, authorization or release of records in addition to the search and find feature.

Using the multiline



Adding a multiline row

A multiline row can be added, using the toolbar icons above the multiline. It can be either inserted between two existing multiline rows, or added to the end of the last row. You are to

- Position the cursor in the multiline row above which the row must appear.
- Click the icon on the toolbar above the multiline.

Deleting a multiline row

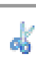
A multiline row can be deleted, using the toolbar icons above the multiline. The item to be deleted must not have been used in any transaction, so far. You are to

- Check the Selection check box for the record that appears in the second column of the multiline.
- Click the icon on the toolbar above the multiline.

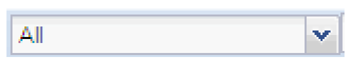
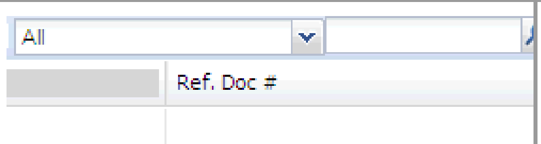
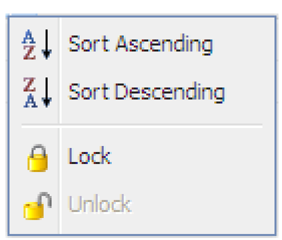
Multiline toolbar

The icons in the multiline toolbar are explained below.

Element	Icon	Description
Selection check box		A check box normally occurring as the second column of every multiline row. It precedes the record in the row. Check the Selection box to mark the record for copy and append, cut and append or deletion. You must also check this box to perform any pushbutton task or hyperlink task available in a Web page. Use the check box in the same row as the multiline header, to simultaneously select all the displayed records in the multiline.

First Record		Click this button, to view the first set of multiline records.
Previous Row Set		Click this button, to view the set of multiline records immediately preceding the currently displayed set of multiline records.
Next Row Set		Click this button, to view the next set of multiline records. However, this is applicable only if the number of retrieved records cannot be accommodated in the current set of multiline rows, and the rest need to be displayed in the next set of multiline rows.
Last Record		Click this button, to view the last set of multiline records.
Insert Record		Click this button on the toolbar above the multiline, to insert a record in the multiline.
Delete Record		Click this button on the toolbar above the multiline, to delete the selected record in the multiline.
Copy and Append Record		Click this button on the toolbar above the multiline, to copy a selected record and insert it at the end of the multiline.
Cut and Append Record		Click this button on the toolbar above the multiline, to remove a selected record and insert it at the end of the multiline.
Export to Excel		Click this button on the toolbar above the multiline, to export the multiline contents to Microsoft Excel.

Show PDF		Click this button to view all the multiline records in PDF format. All those records the system cannot accommodate in the current set of multiline rows can also be viewed in PDF.
Show report		Click this button to view the entire report including the header and the records in a pop-up window. All those records that the system cannot accommodate in the current set of multiline rows can also be viewed by maximizing the window. You can also (i) hide a column in the report and/or' (ii) group and view a report by any of the columns in the report.
Show Html		Click this button to view the multiline records in a browser. All those records that the system cannot accommodate in the current set of multiline rows are also displayed in the browser.
Export to Excel		Click this button to view the multiline records in an Excel worksheet in the XML format. All those records that the system cannot accommodate in the current set of multiline rows are also displayed in the worksheet.
Export to csv		Click this button to view the multiline records in an Excel worksheet in the CSV format. All those records that the system cannot accommodate in the current set of multiline rows are also displayed in the worksheet.
Export to text		Click this button to view the multiline records in the Text format. All those records that the system cannot accommodate in the current set of multiline rows can be viewed in Notepad.
Show chart		Click this button for generating charts based on numeric columns.

Import data		Select this button to import data from a CSV or an XML file.
Save Personalize		Use this button to save any change in the size or order of the columns in the multiline that you have made. Once saved, the changed settings will appear when the page is launched again.
Remove Personalize		Select this button to remove the personalization that you previously made.
List of columns in the multiline		Use the first drop-down list box at the top right of a multiline for a complete list of columns in the multiline.
Find specific record from among the retrieved records		Select the required column from the first drop-down list box on the top right of a multiline. Specify a search value for that column in the input box alongside. Thereafter, click the icon to pass the control to the first instance of the value in the selected column in the multiline.
Sort/lock multiline columns		You can use this menu to (i) sort rows in the multiline in ascending/descending order. (ii) lock columns in the multiline.

Editing a record

You can edit most records through an Edit page. Although the rules governing the fields to be edited will differ between record types, most records do not allow an edit of the unique code identifying the record. Example, an employee record can allow most of the fields to be edited except the Employee Code field.

You can edit a record, provided the record has not been authorized or mapped to any other record. In short, the record must not have been used by any other transaction. You are to

- Select the Edit activity option on the left pane. The Select page appears.
- Select the record to be edited, from the Select page.
- Select the "Edit" link from the Select page. The Edit page appears, showing the details of the selected record.
- Edit the fields that the system permits you to edit. After completion, save the page. The edited details are updated in the database.

Authorizing a record

A record is authorized by any employee who has been given supervisory rights. The rules governing the authorization of records will differ between record types.

Keeping two web pages open simultaneously

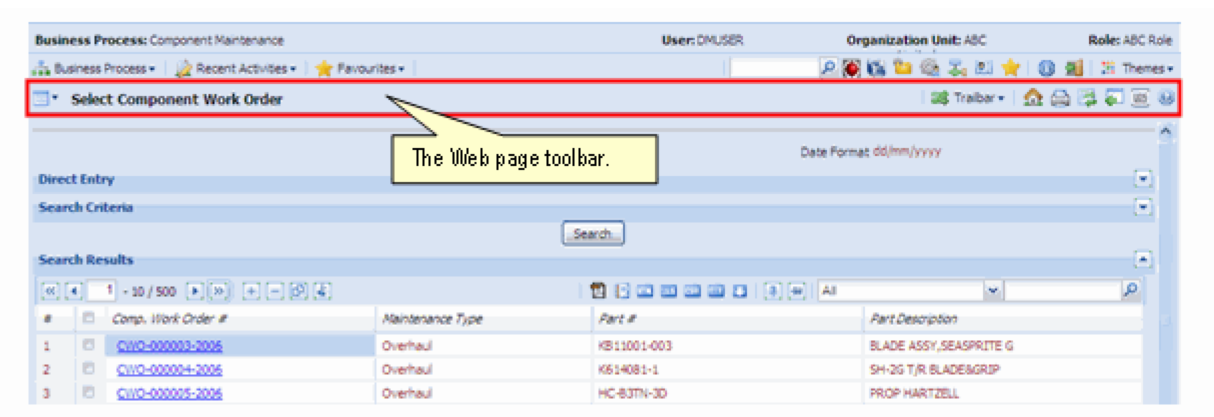
To keep two pages open at the same time, you are to open the browser twice. This implies that you login separately each time, and select the required activity and page.

IE8 is the recommended browser platform for Ramco Aviation Solution.

What is the bare minimum to enter?

In a typical Ramco Aviation Solutions Web page, certain fields crucial for identification of a record appear in **Bold** font. This implies they are mandatory and you must specify a value for the field. Conversely, any field that appears in the Regular font is not mandatory and hence the user need not provide any value for the field. However, certain mandatory fields are set to default values for easy usage, which you may modify, if required.

Web Page / User Interface Toolbar



Here are the elements you will be working with, in the Webpage Toolbar.

Element	Icon	Description
Trailbar		The Trailbar drop-down list box displays all the Web pages traversed to reach the current Web page.
Go to Home page		An icon you select to go to the Home page.
Print screen		Use this icon to obtain a hard copy of the Web page.
Refresh Screen		A button that you select on the Web Page toolbar to enable the system to fetch the most recently updated data from the database. When you select this button in a Create page, the fields are made empty.
Go Back		Click this icon to traverse to the previous page.
Launch UDS		Click this icon to launch the user-defined screens.
Show Help		Click this icon to open the online context -sensitive help for a Web page. Alternatively, click the F1 key to open the Help page. However, to access online Help for a tab page, position the cursor on the tab page and then click the F1 key.

Chapter 1/ Introduction

Operating assets in aviation are subjected to periodic scheduled maintenance to fulfill increased reliability requirements. The prime objective for an airline operation is to achieve lowest possible operation cost per available flying hour, at acceptable reliability levels. A structured preventive maintenance program with a predictable maintenance execution frequency contributes towards achieving this business objective.

The hangar maintenance execution process is triggered by the allocation of the aircraft “visit package” by the central production planner to the respective execution facility. The visit planner at the execution center does the high level scheduling of the work scope (firms up the work scope), plans material and resources and releases work orders to all the work centers which are involved in the execution of the maintenance activities on the aircraft for the visit. Integration with ‘Project Management Tool’ (PMT) can also be done to arrive at the schedule date. The visit planner performs the opportunity maintenance and also processes the deferred discrepancies.

The planners/supervisors for the respective work center undertake detailed execution planning for the allocated work orders. Discrepancies (non-routines) reported during the course of work execution are processed into corrective work orders. Even the work unit that has reference to a discrepancy or maintenance report is processed into corrective work orders. The discrepancies or maintenance reports that are included in the visit package are also processed into corrective work orders.

Work reporting serves as the critical feedback mechanism for the planner to monitor the progress of the work. Deviations from the plan are detected and corrective measures are initiated based on the deviations. Besides progress monitoring and control, work reporting also establishes a historical record of the maintenance activities performed on the operating asset. It also aids in actual cost calculations and updation of maintenance program for compliance. This forms an important input in analysis, which includes work-study, failure analysis, trending etc. Once the maintenance activity on the aircraft is completed, Certificate of Maintenance (if required) is released and the aircraft is ready to fly.

Chapter 2/Hangar Work Order

Aircraft, which is the primary entity of the airline, has to be serviced to operate with maximum efficiency and to comply with the safety standards set by the regulatory authorities. Various types of routine maintenance of the aircraft are done as per the pre-defined maintenance schedules, which are compiled based on the manufacturer’s recommendation and the operator’s experience. Non-routine maintenance of the aircraft is done when defects are observed either during the normal operation or during the course of standard maintenance execution.

The discrepancy list for the aircraft is verified, pending (deferred) discrepancies, if any, are added to the work scope. The scheduled execution dates for the activities are firmed up and the material planning process is also initiated. The visit planner releases the visit package for execution, during which work orders are propagated to the respective work centers. Consequent to this, the system generates work orders for the visit package based on the parameters set by users. The tasks belonging to specific work centers are clubbed together and consolidated into a single work order for each work center. The visit package is closed, upon completion of all the associated work orders.

The scheduled maintenance is structured into two basic categories namely, light maintenance and heavy maintenance. Light maintenance activities do not require prolonged grounding and can be carried out during normal halts of the aircraft; these are performed at the line stations. Heavy maintenance activities are extensive, requiring prolonged grounding of the aircraft. These are less frequent as compared to the line activities, and are typically executed in “Hangars”, where the requisite facilities are available.

Work Order

Work order represents the permission to execute the stated maintenance activity on the aircraft or component. The work order document carries all information pertaining to the maintenance activity(s) to be executed and it also acts as a communication by the planner to the execution personnel. A work order is typically associated with a work center that is responsible for its execution.

The hangar maintenance execution process is triggered by the allocation of the aircraft visit package by the central production planner to the respective execution facility.

The planners for the respective work centers undertake detailed execution planning and the material requirements are communicated through “material requisitions”. Employees, work group and facilities are identified and maintenance jobs are allocated. Non–routine discrepancies reported during the course of work execution are processed into corrective work orders.

Processing work order

Hangar work order acts as a communication between the planner / supervisor and the execution personnel. A hangar work order contains the following information:

- Maintenance object details: The details of the object on which the maintenance activities need to be executed.
- Maintenance activity: The activity(s) that must be executed. Besides describing the various steps involved, the tasks typically carry the point of execution as ATA, Zone etc. The system sequences the opening and closing access panel tasks and establishes the dependencies. Depending upon the level of urgency, you can assign priority to both work order and tasks.
- Resource requirements: The resources (workgroup, material and facilities) to be expended for accomplishment of the stated activities.
- Material requirements are communicated through "Maintenance Material Request".
- Schedule details: The expected start and completion dates for the maintenance activity(s).

On release of the visit package by the visit planner to the work center, the *Scheduled work order* is generated. The *Unscheduled work orders* are created directly.

Types of work orders

Based on the maintenance object and the nature of the maintenance activity, work orders can be classified as:

- Aircraft Work Orders: Work orders created for executing different maintenance activities on the aircraft.
- On-Wing Component Work Order: Work orders created for performing the maintenance activities on the components that are attached to the aircraft.
- Component Replacement Work Orders: Work orders that are created for performing the component replacements.

Setting option for work order generation in visit package

You can set default options for the work order generation.

1. Select **Set Work Order Generation Options** under the **Visit Package** business component. The **Set Work Order Generation Options** page appears. *See Figure 2. 1.*

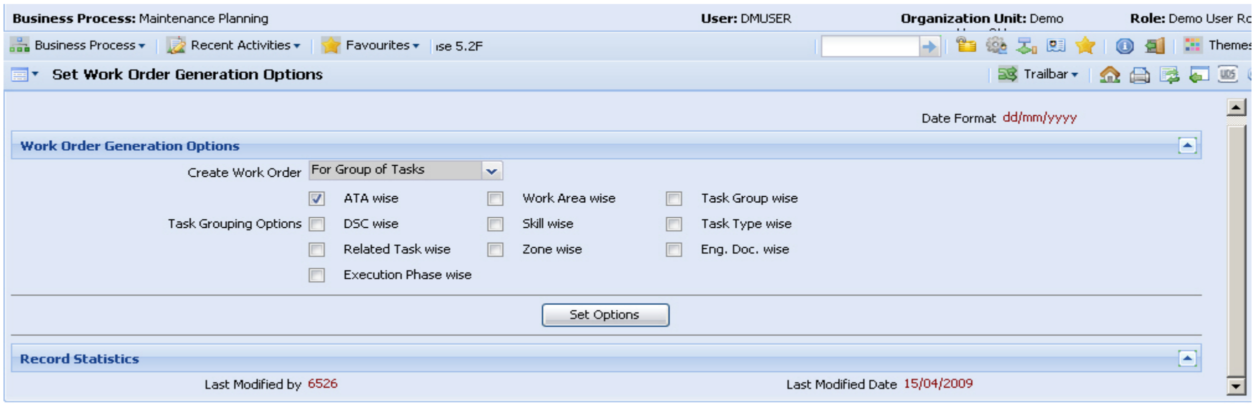


Figure 2. 1 Setting option for work order generation in visit package

You can specify whether the work order must be created for every task or for a group of tasks. The system performs the following while generating the work order based on the criteria selected:

Note: The controls in the Task Grouping Options are enabled when the option "For Group of Tasks" is selected in the "Create Work Order" combo. The controls in the Task Grouping Options are disabled when the option "For Each Task" is selected.

2. If **Create Work Order** field is set as "For Each Task", one work order is generated for each task included in the visit package.

3. If **Create Work Order** field is set as "For Group of Task", the work order is generated based on the option selected in the **Task Grouping Options** field.

   - "ATA Wise" box is checked, to group the tasks based on the ATA chapter.
   - "DSC Wise" box is checked, to group the tasks based on dependent system condition.
   - "Related Task Wise" box is checked, to group the tasks based on their relationship.
   - "Execution Phase Wise" box is checked, to group the tasks based on execution phase.
   - "Work Area Wise" box is checked, to group the tasks based on work area.
   - "Skill Wise" box is checked, to group the tasks based on skill.
   - "Zone Wise" box is checked, to group the tasks based on zone.

- "Task Group Wise" box is checked, to group the tasks based on task group.
- "Task Type Wise" box is checked, to group the tasks based on task type.
- "Eng. Doc Wise" box is checked, to group the tasks based on the engineering document reference

4. Click the **Set Options** pushbutton to update the options.

Setting options for recording work order

You can define the various system parameters for hangar work order. You can also set options for automatic generation of material request and work deferment.

1. Select **Set Options** under **Hangar Work Order** business component. The **Set options** page appears. *See Figure 2. 2.*
2. In the **Authorization Options** field,
   - Check **Non Routine WO** box, if you wish to enable authorization for non-routine work orders.
   - Check **Corrective WO** box, if you wish to enable authorization for corrective work orders.
   - Check **Sub WO** box, if you wish to enable authorization for sub-work orders.
3. In the **Modification of WO** field, set the option as
   - "Allowed", to allow modification of a work order.
   - "Not Allowed after Scheduling", to prevent modification after scheduling.
   - "Only New Tasks can be added", to allow only addition of new tasks to the existing work order.
   - "Requires Re-Authorization", if authorization is required after the modification of the work order.
4. Set the **Re-Scheduling Beyond Compliance Date** as "Allowed" or "Not Allowed" to specify if the re-scheduling of work orders beyond the compliance date is allowed or not.
5. Set the **WO Assignments Prior to Scheduling** as "Allowed" or "Not Allowed" to specify if the assignments to the work orders prior to the scheduling of the work order, is allowed or not.

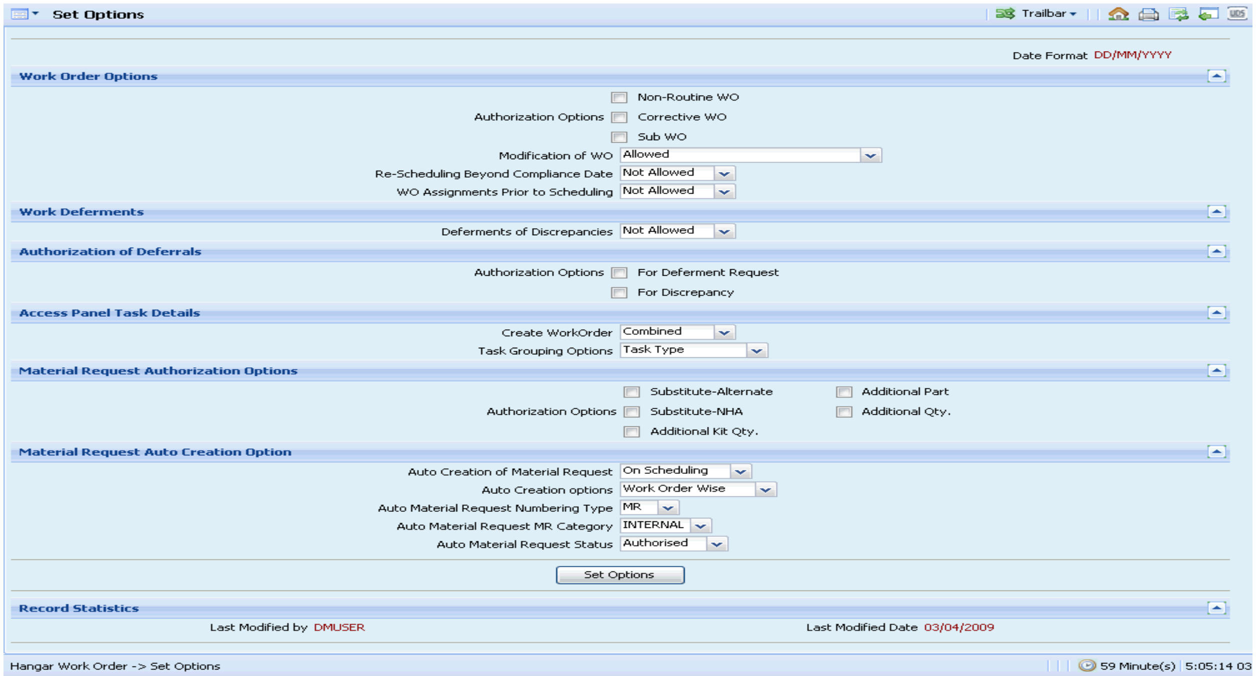


Figure 2. 2Setting options for recording work order

In the **Work Deferments** group box,

6. Select the **Deferments of Discrepancies** as “Allowed” or “Not Allowed” to specify whether deferment of non-routine discrepancies, are allowed or not.

7. In the **Authorization of Escalations** group box,

    - Check the **For Short Term Escalation** box if you wish to enable authorization for the short term escalation raised.

    - Check the **For Discrepancy** box if you wish to enable authorization for deferring discrepancy.

In the **Access Panel Task Details** group box,

8. Select the **Create Work Order** as “Independent” or “Combined” to specify whether you can create independent or combined work order for different task types or main work orders.

9. Select the **Task Group Options** as “Task Type” to combine different types of task in a work order or “Main Order” to combine different main work orders into one work order.

Note: If independent is selected then all access panel tasks are created into independent work orders. If combined is selected then open and close access panel tasks are grouped either based on the Main Work Order or based on open and close access panel tasks.

10. In the **Material Request Authorization Options** field,

    - Check the **Substitute-Alternate** box, if authorization is required for requesting alternate parts in the material request.
    - Check the **Substitute-NHA** box, if authorization is required for requesting NHA (Next Higher Assembly) part in the material request.
    - Check the **Additional Kit Quantity** box, if authorization is required for requesting additional kit quantity in the material request.
    - Check the **Additional Part** box, if authorization is required for requesting additional parts in the material request.
    - Check the **Additional Qty.** box, if authorization is required for requesting additional quantities of parts in the material request.

In the **Auto Creation of Material Request** group box,

11. Set **Material Request Auto Creation** field as “On Scheduling” to automatically create a material request on scheduling the work order. Select “Not Allowed” otherwise.
12. In the **Auto Creation Options**,

    - Select “Work center wise”, if you wish to create a material request for every work center.
    - Select “Work order wise”, if you wish to create a material request for every work order.
    - Select “Task wise”, if you wish to create a material request for every task.

13. Select the numbering type for automatic material request in the **Auto Material Request Numbering Type** field.
14. Select the default category for the automatic material request in the **Auto Material Request MR Category** field.
15. Select the default status for the automatic material request in the **Auto Material Request Status** field.
16. Click the **Set Options** pushbutton to record the hangar work order options.

Recording unscheduled work order details

1. Select **Create Work Order** under **Hangar Work Order** business component. The **Select Visit Package** page appears.

2. Enter the **Search Criteria** to search for the visit package and click **Search** pushbutton.

3. Select the hyperlinked visit package number in the multiline, to create a work order for the selected visit package. The **Create Work Order page** appears. *See Figure 2. 3.*

4. Select the **Numbering Type** for generating the work order number automatically.

Note: For details on creating numbering types, refer to the section "Defining numbering types for transactions" in the "Inventory Setup" User Guide.

5. Select the **Work Order Category**.

6. Specify the **Job Type** of the work order as “Aircraft”, “On-Wing” or “Component Removal”.

7. Use the drop-down list box to specify the **Expense Type** of the work package. The system provides the options “Revenue” and “Capital”.

Note: This field must be set to “Capital”, if the ownership of the aircraft is set as “Owned” or “Leased Out” in the “Aircraft” business component.

8. Enter the capital expense proposal number applicable to the work unit, in the **CAPEX Proposal #** field.

Note: The CAPEX Proposal number specified in the HWO must have an asset class that is same as the asset class to which the Asset Tag and Asset No. are mapped for the aircraft. The system performs this check only when the expense type is “Capital” and the “Enforce Object to Asset Mapping For” field is set as “Aircraft” in the “Set Option” activity of the “Account Group” business component.

9. Enter the **Work Order Description.**

To copy details from an existing work order,

10. Enter the **Work Order #**, from which you wish to copy the details.

Note: You cannot copy details from a “Cancelled” work order.

11. Enter the standard procedure that you wish to attach to the work order, in the **Std. Procedure #** field.

12. Check one or more of the following boxes, to specify the copy options:

    - **All -** To copy all the details of the work order.
    - **Notes -** To copy only the additional notes from the work order.
    - **Tasks -** To copy only the task details of the work order.
    - **References -** To copy only the references of the work order.

13. Click the **Get** pushbutton, to retrieve the details.

The system displays the following details:

- *The system retrieves all the related tasks with the Parents Tasks in the "Parent Task #" column and the relationship between the Task # and Parent Task # in the Relationship Type" column.*
- *The details of the work order, if you have specified the work order number in the "Copy Details" group box.*

In the **Reference Document Details** group box,

14. Set the **Ref. Document Type** field to one of the following:

- Project work order – If the reference document is a component work order of job type "Project".
- Component work order – If the reference document is a component work order of job type other than "Project".
- Others – If the reference document is any other document such as transaction slip, receipt, etc

Note: You cannot leave this field blank, if you enter the "Ref. Document #" field.

15. Enter the reference document number in the **Ref. Document #** field.

Note: Ensure that the reference document entered here is a valid component work order of status other than "Fresh" or "Cancelled", if the reference document type is "Project work order" or "Component work order". Also, the component work order must be of job type "Project", if the reference document type is "Project work order".

16. Enter the **ATA #**, under which the aircraft is listed, in the **Aircraft Details** group box.

17. Click the hyperlinked **Customer Order #** field to view the customer order details.

The system displays the customer details, if applicable.

18. Enter the **Part#**, **Component #** and **Serial #** in the **Component Details** group box.

Note: Entry in the above fields is mandatory, if the job type is "On-Wing" or "Component Removal".

19. Enter the **Position Code.**

Note: Entry in this field is mandatory, if the engagement type of the aircraft is "Full Maintenance", or if the job type is "On-Wing" or "Component Removal".

20. Enter the **Zone #** of the part.

Note: Entry in this field is mandatory, if the engagement type of the aircraft is "On-Request".

21. Select the **Maintenance Type**(for on-wing jobs)**,** that must be performed on the aircraft.

22. Set the **Replacement Type** to "Replacement", "Restoration", "Remove Only" or "Attach Only".

23. Select the **WO Priority** and **Work Center #** in the **WO Execution Details** group box.

24. Select "Yes" or "No" in the **Interruptable** field, to indicate whether the work order can be executed with interruptions or not.

25. Enter the name of the employee who can be approached in case of any clarification, in the **Contact Person** field.

26. Enter the total man-hours estimated to complete the work order, in the **Est. Man Hrs.** field.

27. Select the **Work Center #**, which is responsible for the execution of the work order.

28. Enter the time estimated to complete the execution of the work order, in the **Est. Elapsed Time** field and specify the unit of measurement for the time as "Hours", "Minutes" and "Days" in the drop-down list box provided alongside.

29. Enter the date and time at which the work order execution is scheduled to be started, in the **Sch. Start Date & Time** field.

30. Enter the date and time at which the work order execution is scheduled to be completed, in the **Sch. End Date & Time** field.

31. Enter the latest date by which the work order must be executed, in the **WO Compliance Date** field.

In the **Work Order Options** group box,

32. Specify whether authorization is required or not for the work order in the **Authorization** field.

The system provides the following options, if the hangar work order has a reference to the customer order:

- If the "Authorization Options" is selected as "Non-Routine WO" in the "Set Options" activity of the current business component, and if a value is selected in the "Approval of Additional Work Scope" field in the "Customer Order" business component, the system provides “Required” as the only option and defaults the same.

- If the “Authorization Options” is not selected for non-routine work order and if the “Approval of Additional Work Scope” field is set as “Not Required”, the system provides the options “Not Required” and “Required”, and defaults the option “Not Required”.
- If the “Authorization Options” is set other than “Non-Routine WO”, and if the “Approval of Additional Work Scope” field is set as “Required” or “As Required” in the “Customer Order” business component, then the system provides the options “Required”, “Not Required” and “Customer Authorization Required”, and defaults the option “Customer Authorization Required”.

Note: For work orders that are not customer based, the system:

a. Provides “Required” as the only option and defaults the same in the above mentioned field, if the “Authorization Options” field is set as “Non-Routine WO” in the “Set Options” activity of the current business component.

b. Provides the options “Required and “Non Required” if no value is selected in the “Authorization Options” field, and defaults the option “Not Required”.

Note: If “Authorization” is set as “Not Required”, the system assigns this status to as “Not Required”. If “Authorization” is set as “Required”, the system assigns the status “Pending Authorization” to the newly added task s and the work order, and if the “Authorization” is set as “Customer Authorization required”, the system assigns the status “Pending Cust. Auth.”.

33. Specify whether access panels tasks are required or not, in the **Access Panel Tasks** field. The system displays the options “Required” and “Not Required”.

    - If the “Create Work Order” option in the “Set Options” activity is set as “Combined”, the system displays the open access panel tasks before the first task that needs this access panel to be accessed. The system sets the close access panel tasks after the last task that needs this access panel to be accessed.
    - If the “Create Work Order” option in the “Set Options” activity is set as “Independent” and the “Task Grouping Options” as “Main WO”, the system combines all the open and close access panels for a single work order. If the “Task Grouping Options” is set as “Task Type”, the system generates separate work orders for open access panels and close access panel tasks.

34. Enter the **Task#** and **Task Description**, identifying the task that must be performed for work order execution.

Note: If the task description is entered and the “Task #” field is left blank, then ensure that the “ATA #” field is not left blank.

You can add only those tasks for which the first two characters of the ATA chapter mapped in the "Maintenance Task" business component are the same as the first two characters of the ATA chapter entered in the "Aircraft Details" group box.

35. Enter the **Task Priority**.

36. Enter the time estimated to complete the task, in the **Est. Elapsed Time** field.

37. Enter the total man hours estimated to complete the task, in the **Est. Man Hrs.** field.

38. Enter the date on which the maintenance task is planned to be started, in the **Sch. Start Date** field.

39. Enter the time at which the maintenance task is planned to be started, in the **Start Time** field.

40. Enter the date on which the maintenance task is planned to be completed, in the **Sch. End Date** field. Ensure that the date is not earlier than the **Sch. Start Date**

41. Enter the time at which the maintenance task is planned to be completed, in the **End Time** field.

42. Enter the latest date by which the task must be completed, in the **Compliance Date** field.

43. Select the **Expense Type** of the work package as "Revenue" or "Capital".

44. Enter the capital expense proposal number applicable to the work unit in the **CAPEX Proposal #** field.

Note: Ensure that this field is left blank, if the expense type is set to "Revenue".

Note: The CAPEX Proposal number specified against the work unit must have an asset class that is same as the asset class to which the Asset Tag and Asset No. are mapped for the aircraft. The system performs this check only when the expense type is "Capital" and the "Enforce Object to Asset Mapping For" field is set as "Aircraft" in the "Set Option" activity of the "Account Group" business component.

If the work order is raised for EO,

*Enter the number identifying the engineering advice note (EAN) generated by the engineering cell, in the **Engg Advice Note #** field.*

The system displays the total estimated costs of executing the work order.

*Enter the extra cost that will be incurred on the work order, in the **Misc. Cost** field.*

45. Click the **Create Work Order** pushbutton to create the work order.

Note: The system reserves the required parts whose planning type is "Disposition".

Note: For work orders that has reference to the customer order, if any work units under "Pending Cust". Auth" status are newly added in the "Work Unit Details" multiline, the system updates the newly added work units as the unplanned work units in the "Customer Order" business component.

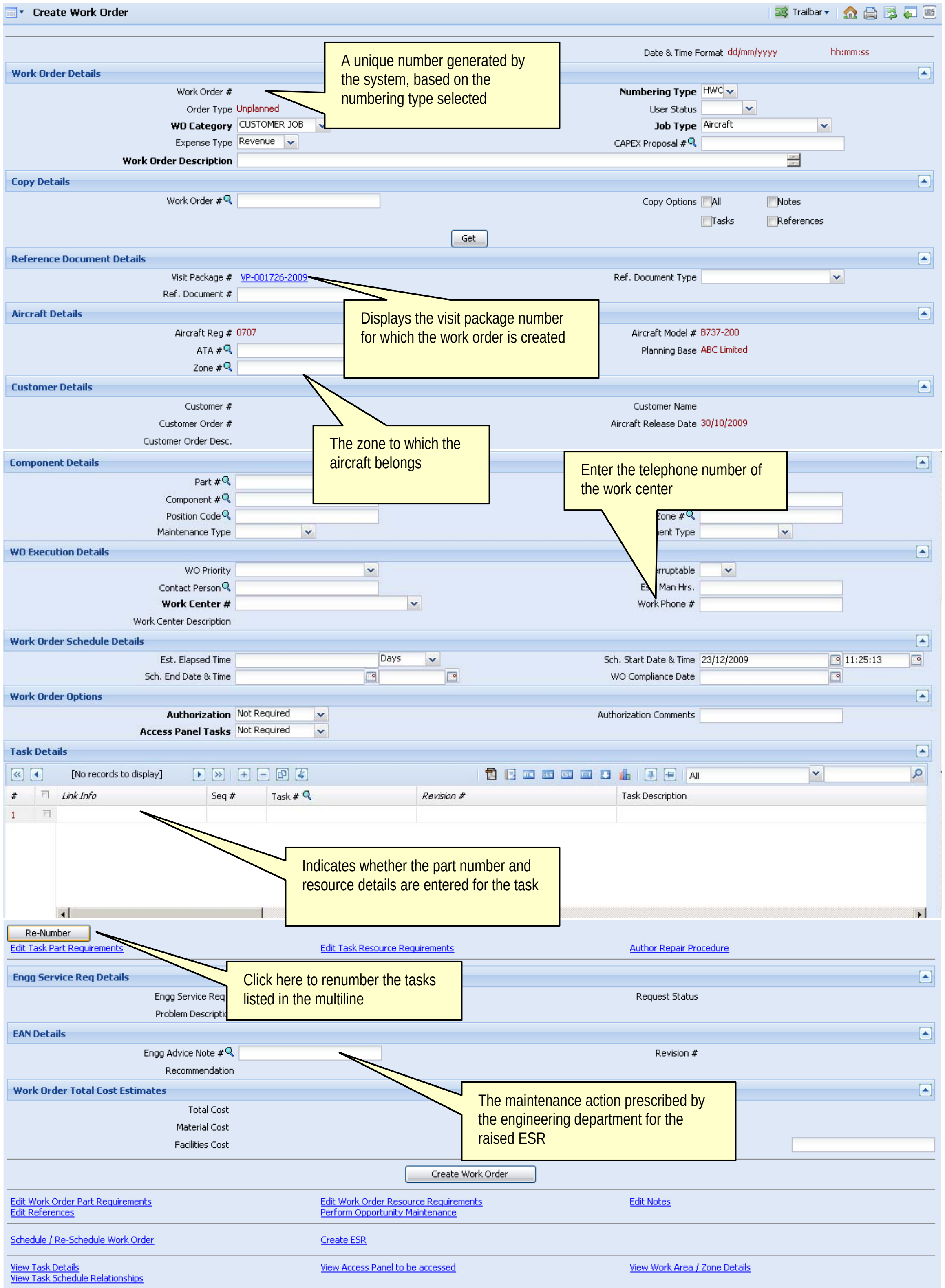


Figure 2. 3 Recording unscheduled work order details

To provide further details,

- Select the **Edit Work Order Part Requirements** link to specify the parts required for the work order execution.
- Select the **Edit Work Order Resource Requirements** link to specify the resources required for the work order execution.
- Select the **Author Repair Procedure** link to modify details of the non-standard task pertinent to the work order.
- Select the **Edit Notes** link to record additional notes for work order.
- Select **Edit References** link to record the references document information.
- Select the **Perform Opportunity Maintenance** link to perform opportunity maintenance in a visit package.
- Select the **Schedule / Re-Schedule Work Order** link to schedule or re-schedule the work order.

Note: Refer to the topic "Scheduling work order" for more details.

- Select the **Create ESR** link to create an engineering service request for the maintenance activity.

Note: Refer to the "Engineering Change Management" User Guide for more details on creating engineering service requests.

To view further details,

- Select the **View Access Panel to be accessed** link to view the access panel to be accessed to perform the work order execution.
- Select the **View Work Area / Zone Details** link to view the work area or zone details for the work order.
- Select the **View Task Schedule Relationships** link to view the task schedule relationships for the work order.

Creating sub work order

While executing a work order, you may come across defects, which were not reported earlier. These defects are known as discrepancies or non-routines. Maintenance activity needs to be performed for these discrepancies. If the scope / work content of these non-routines are relatively high, you can create a sub-work order for these non-routines which is created on a main work order.

A sub-work order is similar to a normal work order. The sub-work order maintains the reference of the parent work order. In addition to managing non-routines, a sub-work order can also be used to split an existing work order and move a set of tasks from the parent work order to the new sub-work orders.

1. Select **Create Sub - Work Order** under **Hangar Work Order** business component. The **Select Work Order** page appears.

2. Enter the work order number directly or enter search criteria to search for work orders.

3. Select the **Create Sub-WO** link, to create a sub work order.

4. Select the **Split Work Order** link, to split the work order by moving tasks to another work order.

Note: You cannot split the work order that is in "In-Progress", "Completed", "Deferred", "Preclosed", "Closed" or "Cancelled" status.

Note: You cannot move the tasks from a work order for which material request already exists in "Fresh" or "Authorized" status.

Entering part requirements of a work order

You can enter the details of the parts required for carrying out the work order as well as for the tasks associated to the work order.

1. Select the **Edit Work Order Parts Requirements** link in the **Create Work Order** or **Edit Work Order** page. Alternately, select the **Edit Work Order Level/Task Level Part Requirements** link in the **Select Work Order** page of the **Create Maintenance Material Request** activity. The **Edit Part Requirements** page appears. *See Figure 2. 4.*

2. Select the **Task#** for which you need to modify the part requirements.

   - If "Modification of Wo" is set as "Allowed" or "Requires Re- Authorization" in "Set Options" activity of Hangar Work Order business component, the system lists all the tasks except those which are in the "Cancelled", "Preclosed", "Closed" or "Completed" status.

   - If "Modification of Wo" is set as "Not Allowed after Scheduling" or "Only New Tasks can be added" in "Set Options" activity of Hangar Work Order business component, the system lists only those tasks that are in the "Fresh" status.

Note: If this page is invoked from the "Select Work Order" page of the "Create Maintenance Material Request" activity, the system performs the following:

a) If multiple tasks are selected in the "Select Work Order" page, the system lists all the selected tasks in this field.

b) If a work order is selected in the "Select Work Order" page, the system leaves the field blank without listing any task numbers.

3. Click the **Get Details** pushbutton, to retrieve the part details for the selected task.

In the **Part Details** multiline,

4. Enter the **Part#** that is required for carrying out the task.

5. Enter the number of parts required for carrying out the maintenance task on the component, in the **Reqd. Quantity** field.

6. Enter the **Need Frequency** to specify the frequency of requirement of the part.

7. If the required part is not available, then enter the **Substitute Part #**.

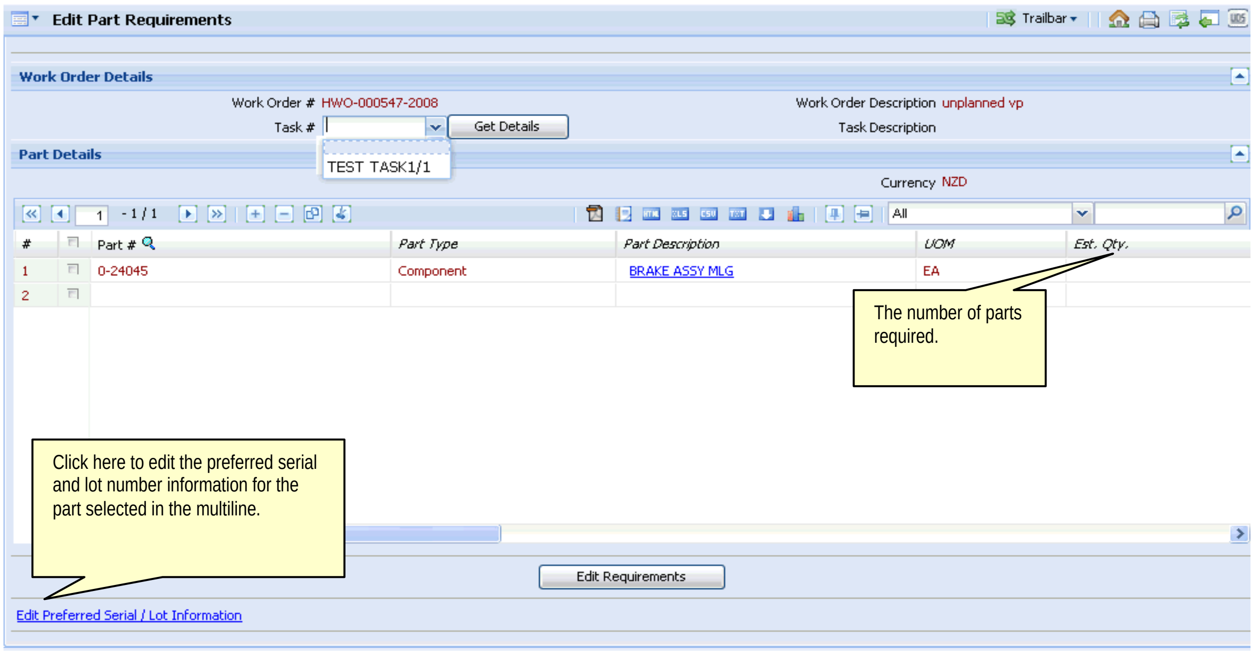


Figure 2. 4 Entering part requirements of a work order

8. Select the **Substitute Type** as "NHA", "Specific Alternates" or "Not Allowed".

Note: If the "NHA" or "Specific Alternates" option is selected, ensure that the "Substitute Part #" field is not left blank.

Note: If the "Specific Alternates" option is selected in the "Substitute Type" field, the system ensures that the value entered in the "Substitute Part #" field is:

a. A valid alternate part number as identified in the "Create Part Main Information" activity of the "Part Administration" business component, for work orders based on customer order.

b. A position-based alternate as identified in the "Build Aircraft Configuration" activity of the "Configuration" business component, for work orders that does not have any reference to customer order.

9. Select the **Stock Status** of the part.

10. Click the **Edit Requirements** pushbutton to update the part requirements details for the task.

The system does the following:

- If the part is already reserved, the system updates the posting in the "Stock Planning" business component. For new parts added, the system posts a firm demand or a plan demand (for work orders in "Fresh" status and authorization status marked as 'Not Required') in the "Stock Planning" business component.

You can proceed to do the following,

▼ Edit preferred serial and lot number information for the work order.

Note: This page can be invoked only if the part selected in the multiline is of part control type "Lot Controlled", "Serial Controlled" or "Lot & Serial Controlled".

Editing preferred serial and lot number information for the work order

You can select the part specified for the work order and enter the details of the serial and lot number information against it.

1. Select the **Edit Preferred Serial/Lot Information** link in **Edit Part Requirements** page. The **Edit Preferred Serial #/Lot # Information** page appears. *See Figure 2. 5*

Note: This page can be invoked only if the part selected in the previous page is of part control type "Lot Controlled", "Serial Controlled" or "Lot & Serial Controlled".

2. Select the **Part #** in the **Work Order Details** group box.

3. Click the **Get Details** push button to retrieve the preferred serial and lot information of the part selected.

4. Enter the **Serial #** and **Lot #** of the part, in the **Preferred Serial/Lot Details** multiline.

Note: Ensure that the serial number is not repeated in the multiline, if the part is "Serial Controlled".

Ensure that the lot number is not repeated in the multiline, if the part is "Lot Controlled".

Also ensure that the serial number and lot number combination is not repeated in the multiline, if the part is "Lot & Serial Controlled".

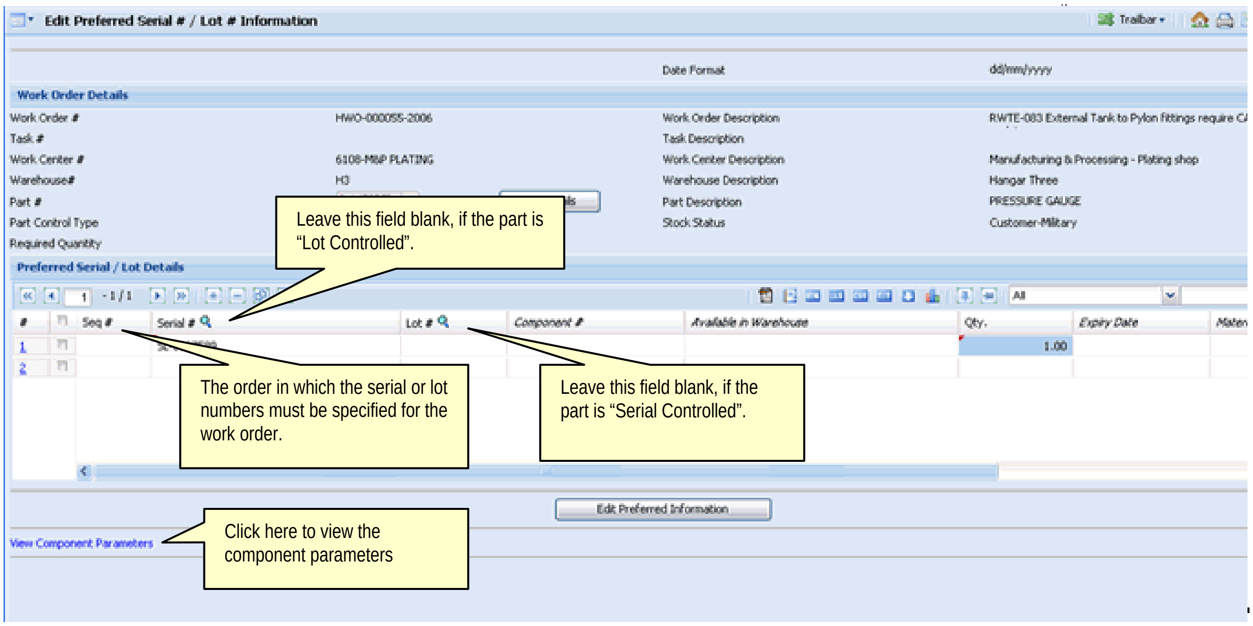


Figure 2. 5 Editing preferred serial and lot number information

5. Enter the **Quantity** of parts required.

6. Click the **Edit Preferred Information** pushbutton to update the serial and lot number information of the part specified for the work order.

Entering resource requirements of a work order

You can enter the details of the resources required for carrying out the work order as well as for the tasks associated to the work order.

1. Select the **Edit Work Order Resource Requirements** link in the **Create Work Order** or **Edit Work Order** page. The **Edit Resource Requirements** page appears. *See Figure 2. 6.*

2. Select the **Task#** for which you need modify the resource requirements.

    - If "Modification of Woo" is set as "Allowed" or "Requires Re-Authorization" in the "Set Options" activity of Hangar Work Order business component, the system lists all the tasks except those which are in the "Cancelled", "Preclosed", "Closed" or "Completed" status.

    - If "Modification of Wo" is set as "Not Allowed after Scheduling" or "Only New Tasks can be added" in the "Set Options" activity of Hangar Work Order business component, the system lists only those tasks that are in the "Fresh" status.

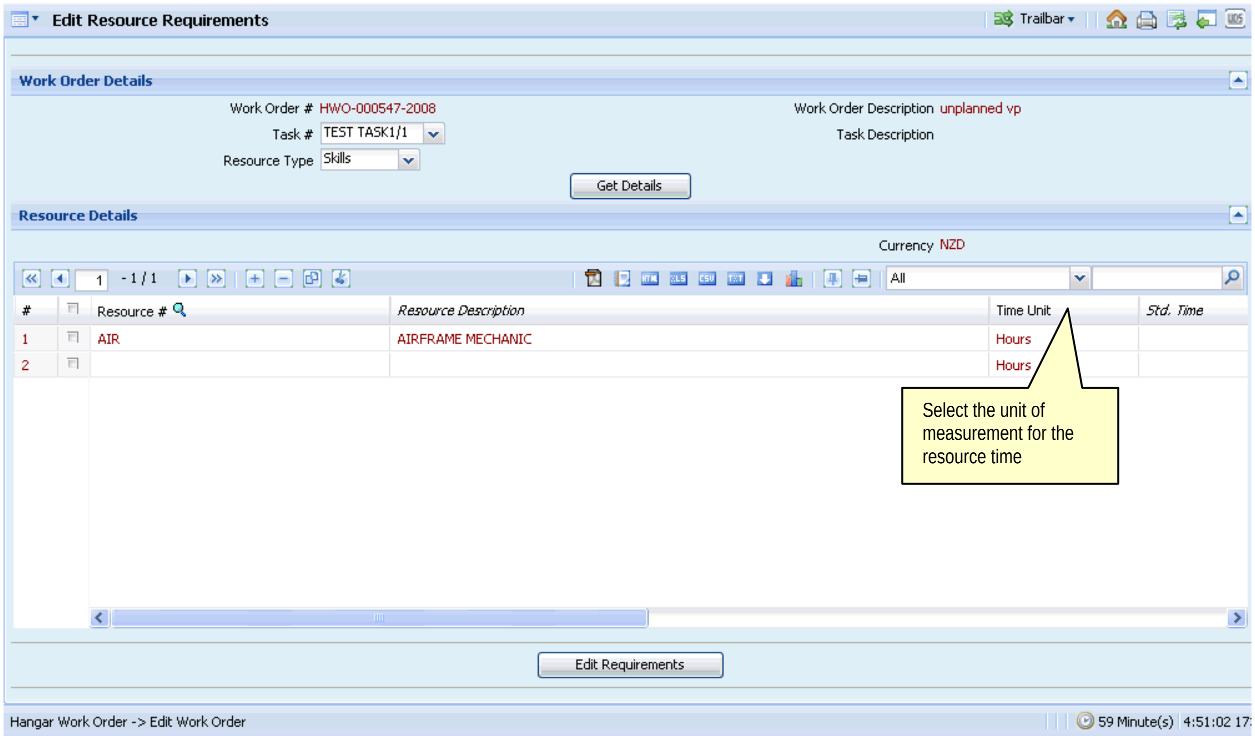


Figure 2. 6 Entering resource requirements of a work order

3. Select the **Resource Type** as “Skill”, “Equipments”, “Tools” or “Others”.

4. Click the **Get Details** pushbutton, to retrieve the resource details for the selected task.

In the **Resource Details** multiline,

5. Enter the **Resource#** that is required for carrying out the task.

6. Enter the number of hours, minutes or days for which the resource is required to complete the task in the **Est. Time** field.

7. Enter the number of resources required for carrying out the maintenance task, in the **Est. Nos** field.

8. Set the **Approval Reqd. ?** field to “Yes”, to indicate that an approval is required from the concerned authority before utilizing the resource. Select “No”, if approval is not required.

Note: If the Approval Required is set as “Yes”, then, the person signing off the task needs to have a valid license number.

9. Set the **Sign Off ?** field to “Yes”, to indicate that a sign off is required by the resource for recording the completion of the job. Select “No” otherwise.

Note: This field is applicable only for “Skill” type of resources.

10. Click the **Edit Requirements** pushbutton to update the resource requirements details for the task.

Entering additional notes for a work order

1. Select the **Edit Notes** link in the **Create Work Order** or **Edit Work Order** page. The **Edit Notes** page appears. *See Figure 2. 7.*

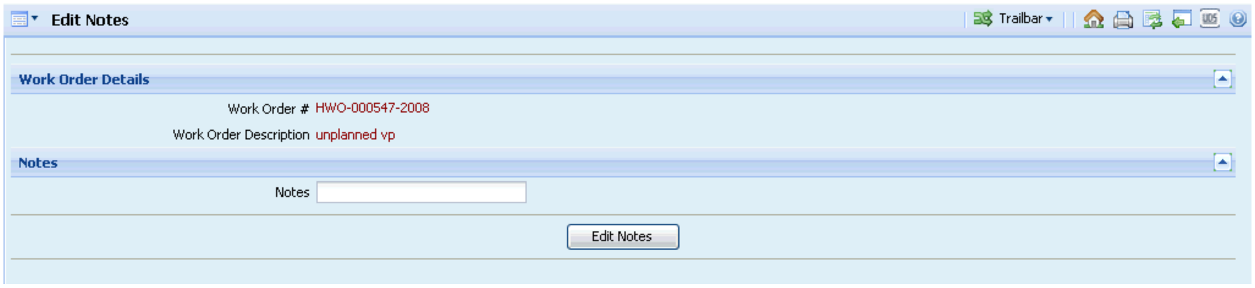


Figure 2. 7 Entering additional notes for a work order

2. Enter the additional information pertaining to the work order in the **Notes** field.

3. Click the **Edit Notes** pushbutton, to update the notes.

Assigning employees to the work order

You can assign employees to the work order.

1. Select **Plan Work Order** under **Hangar Work Order** business component. The **Select Work Order** page appears.

2. Enter the **Search Criteria** to search for the work order and click **Search** pushbutton.

3. Check the box in the multiline and select **Assign Crew / Employee** link to assign employee to the selected work order. The **Assign Work Group / Employee(s)** page appears. *See Figure 2. 8*

4. The system displays the details of the work order in the **Work Order Details** group box.

5. Select the **Task #**, for which the resources are to be assigned and click the **Get Details** pushbutton. The system displays the details of the employees as estimated earlier.

To assign a work group,

6. Enter **Work Group #** that you need to assign.

7. Enter **Assign: From Date & Time**, from which the work group or employee is assigned to the selected work order.

8. Enter **Assign: To Date & Time**, till which the work group or employee is assigned to the selected work order.

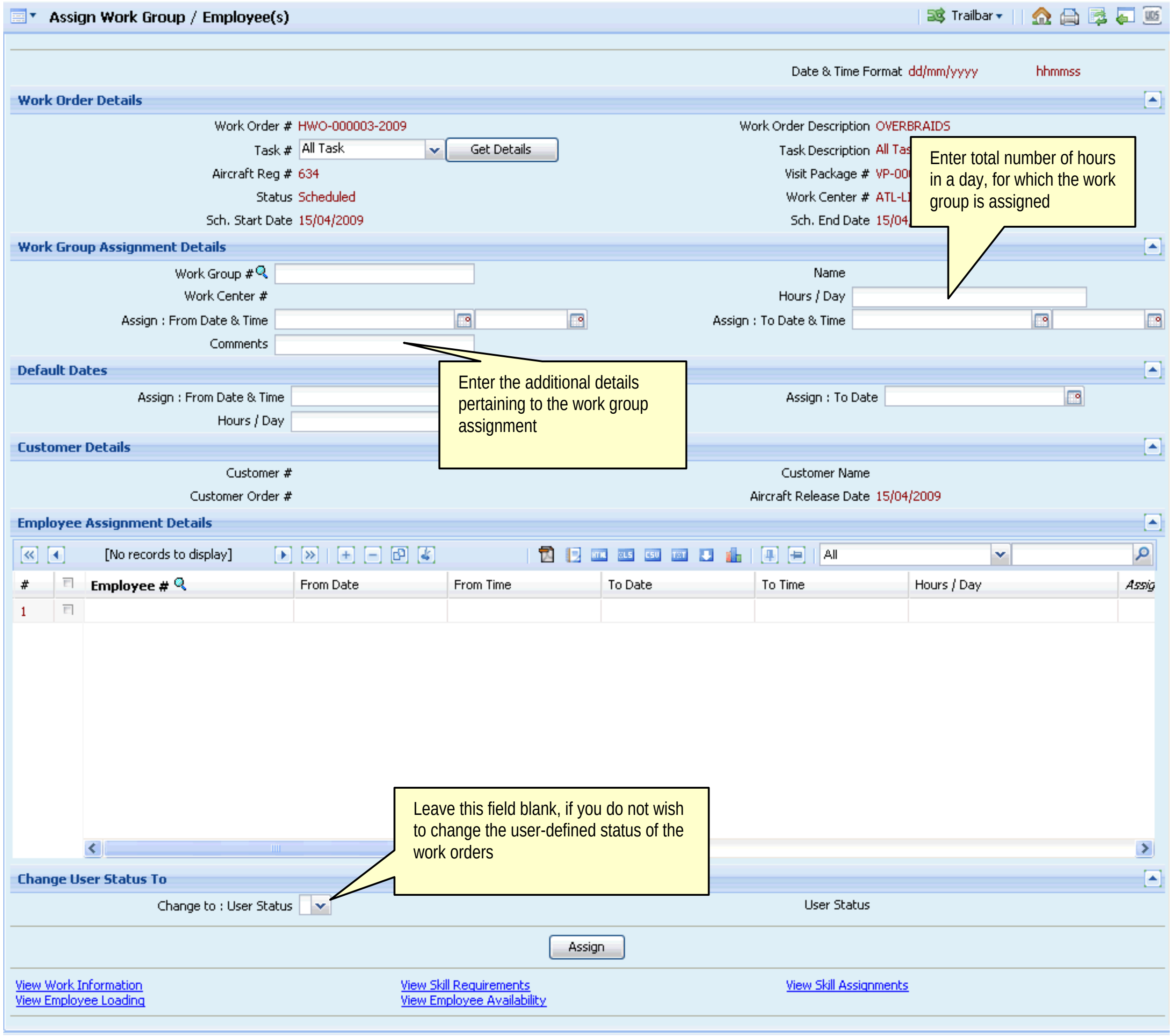


Figure 2. 8 Assigning employees/work group to a work order

9. Modify the details, if required, in the Employee Assignment Details multiline.

10. Click the **Assign** pushbutton, to assign the employees to the work order.

Note: The system assigns the work group or employee to the work order, only if there is no leave approved for any time duration or date falling within the specified date and time range allocated for the execution of the work order.

Selecting discrepancies to create corrective work order

1. Select **Process Discrepancies** under **Hangar Work Order** business component. The **Select Visit Package** page appears.

2. Enter **Search Criteria** to search for the visit package and click the **Search** pushbutton.

3. Select the visit package in the **Search Criteria** multiline and click the **Process Discrepancies** link. The **Process Discrepancies** page appears. *See Figure 2. 9.*

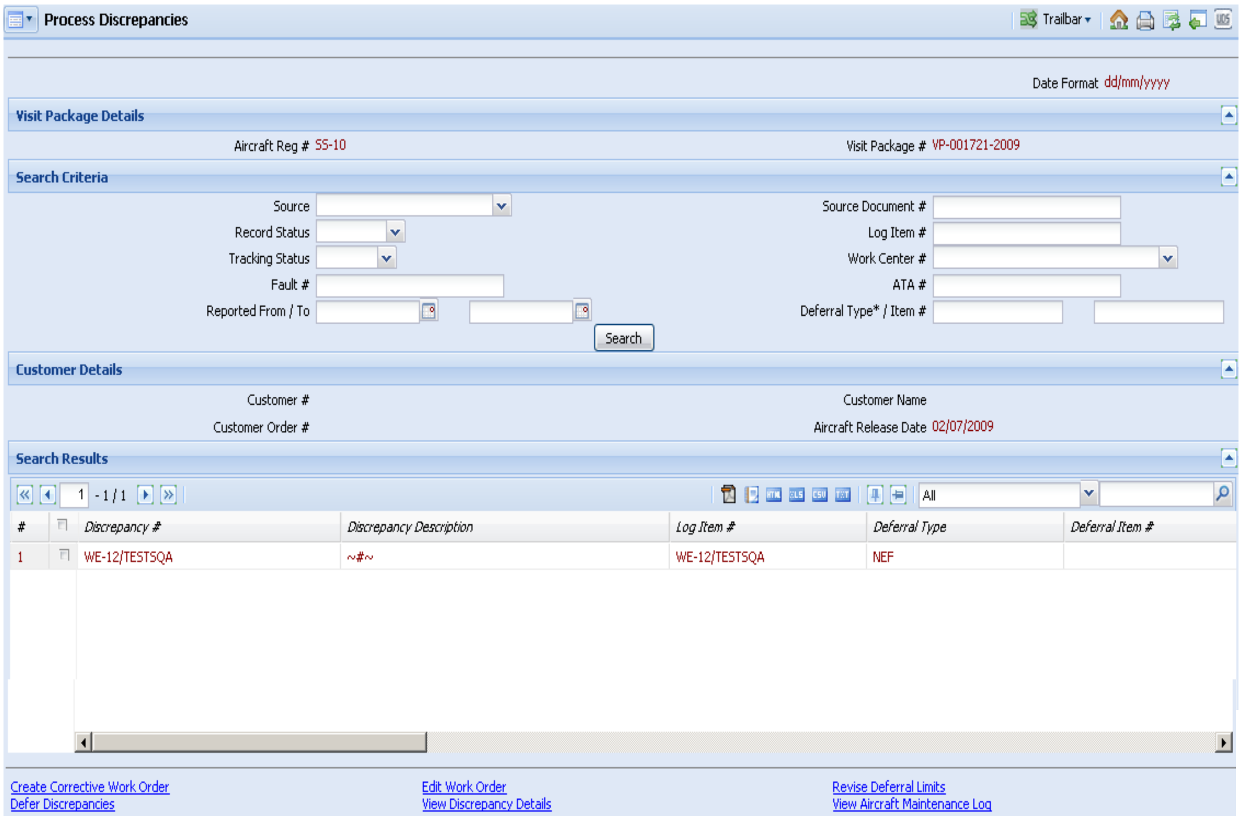


Figure 2. 9 Selecting discrepancies to create work order

4. Enter the **Search Criteria** to search for discrepancies and click the **Search** pushbutton.

5. The system displays the details of the discrepancies in the **Search Results** multiline.

6. Check the box in the **Select** column of the multiline to select the discrepancy.

You can proceed to do the following:

▼ Select the **Create Corrective Work Order** link to create the work order.

Follow the steps listed in the “Recording unscheduled work order details” topic.

Note: You can create a corrective work order for only those discrepancies or discrepancy, for which the record status is “Pending” or “Deferred”.

If multiple discrepancies are selected for creating a corrective work order, ensure that the first two characters of the ATA number are the same for the selected discrepancies.

- Select the **Edit Work Order** link to select a work order for associating the selected discrepancies.
- Select **Revise Deferral Limits** link at the bottom of the page, to modify the deferral details of a discrepancy.
- Select the **Defer Discrepancies** link to create a discrepancy deferral report.
- Select the **View Discrepancy Details** link to view details about the selected discrepancies.
- Select the **View Aircraft Maintenance Log** link to view the aircraft maintenance log details.

Authorizing a work order

The work order is checked for the availability of the spare parts and resources required. After checking, the work order is authorized. A work order can be scheduled only after authorization.

1. Select **Authorize Work Order** under **Hangar Work Order** business component. The **Authorize Work Order** page appears. *See Figure 2. 10*
2. Enter the **Search Criteria** and click the **Search** pushbutton to retrieve the work orders.

Enter the following in the **Work Order Options** group box:

3. Select the “Customer Authorization Required” option in the **Authorization** field, if the authorization of the customer is required for the work order.
4. Enter any additional comments pertaining to the authorization of work order in the **Def. Auth. Comments** field.
5. Select the work order(s) in the multiline and click the **Authorize** pushbutton to authorize the selected work order(s). The work order attains the “Authorized” status.

Note: If the “Authorization comments” for any of the rows in the multiline is left blank, the system updates the authorization comments with the value available in the “Def. Auth. Comments” field.

Note: Select the Edit Work Order link at the bottom of the page, to modify the work order before authorizing. Once authorized, the work order cannot be modified.

The system ensures that:

a. *For the Work Order (s) with customer order reference, the authorization value is set as "Pending Customer Authorization" if "Approval of Additional Work scope" is identified as "Required" in the Customer Order.*

b. *For the selected Work Order (s) with Customer Order reference, the Authorization values is selected as "Not Required" if Approval of Additional Work scope is identified as " Not Required" in the Customer Order.*

Note: For the selected Work Order (s) with Customer Order reference, if "Approval of Additional Work scope" is identified as " As Required" in the Customer Order, then the Authorizer can select any value in the Authorization drop-down list box.

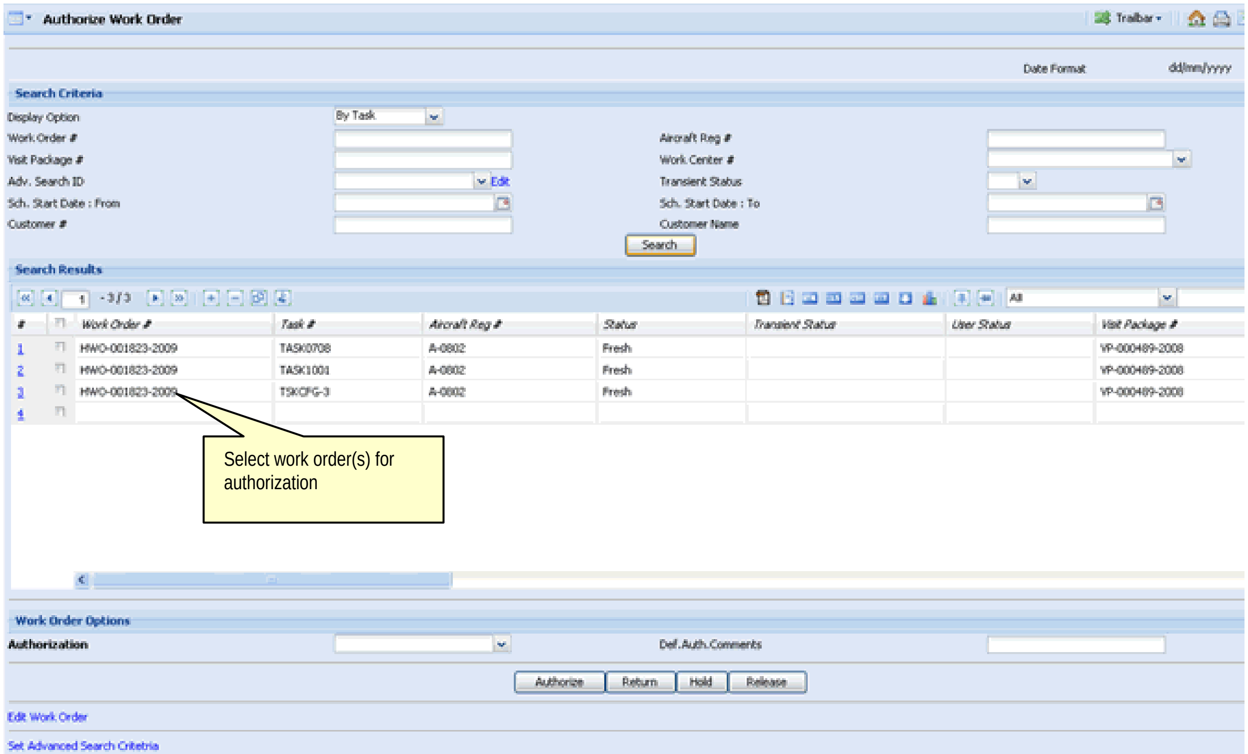


Figure 2. 10 Authorizing a work order

6. Click the **Return** pushbutton to return the work order. The status of the work order is set as "Returned".

7. Click the **Hold** pushbutton to put the work order on hold.

8. Click the **Release** pushbutton to release the work orders in the "Hold" status.

Note: The released work orders are then available for authorization.

Planning the execution of a work order

The work orders that are created and authorized are planned for execution. In this stage, the resources required to carry out the work and the manpower required is assigned. The material requirement is also planned.

1. Select **Plan Work Order** under the **Hangar Work Order** business component. The **Select Work Order** page appears.
2. Enter the **Search Criteria** to search for the work order and select the **Work Order #** in the multiline, for planning.

You can proceed to do the following:

- Plan material requirement
- Plan resources
- Assign resources
- Assign crew/employee

Planning material requirement for the work order

1. Select the **Plan Material** link at the bottom of the **Select Work Order** page. The **Plan Material** page appears. *See Figure 2. 11.*
2. Select the **Display Option**. The system displays the details of the materials required, if the material has already been planned. If material planning is not yet done, the system displays the details of parts estimated for the task.
   a. Use the **Search On** drop-down list box to select entity that will be the basis for the search. The drop-down list box displays the following: Package #, Package Type, Task #, Task Desc., Requested Part #, A/c Reg # and Work Center #. Enter the name of the entity that you have selected in the input box alongside.
3. The start and end dates of the period for which you want the search to retrieve records.
4. The system retrieves part requirements of tasks with planned / scheduled start-date during the period between the From and To dates.
5. Click the **Get Details** pushbutton.

The system displays the details of the materials required, if the material has already been planned. If material planning is not yet done, the system displays the details of parts estimated for the task.

6. In the “Schedule Details”, enter the Sch. Start Date & Time of the work order task or the work order.

7. Enter the Sch. End Date & Time of the work order task or the work order.

You cannot change the schedule start date and time, if the status of the work order is in “In-Progress”.

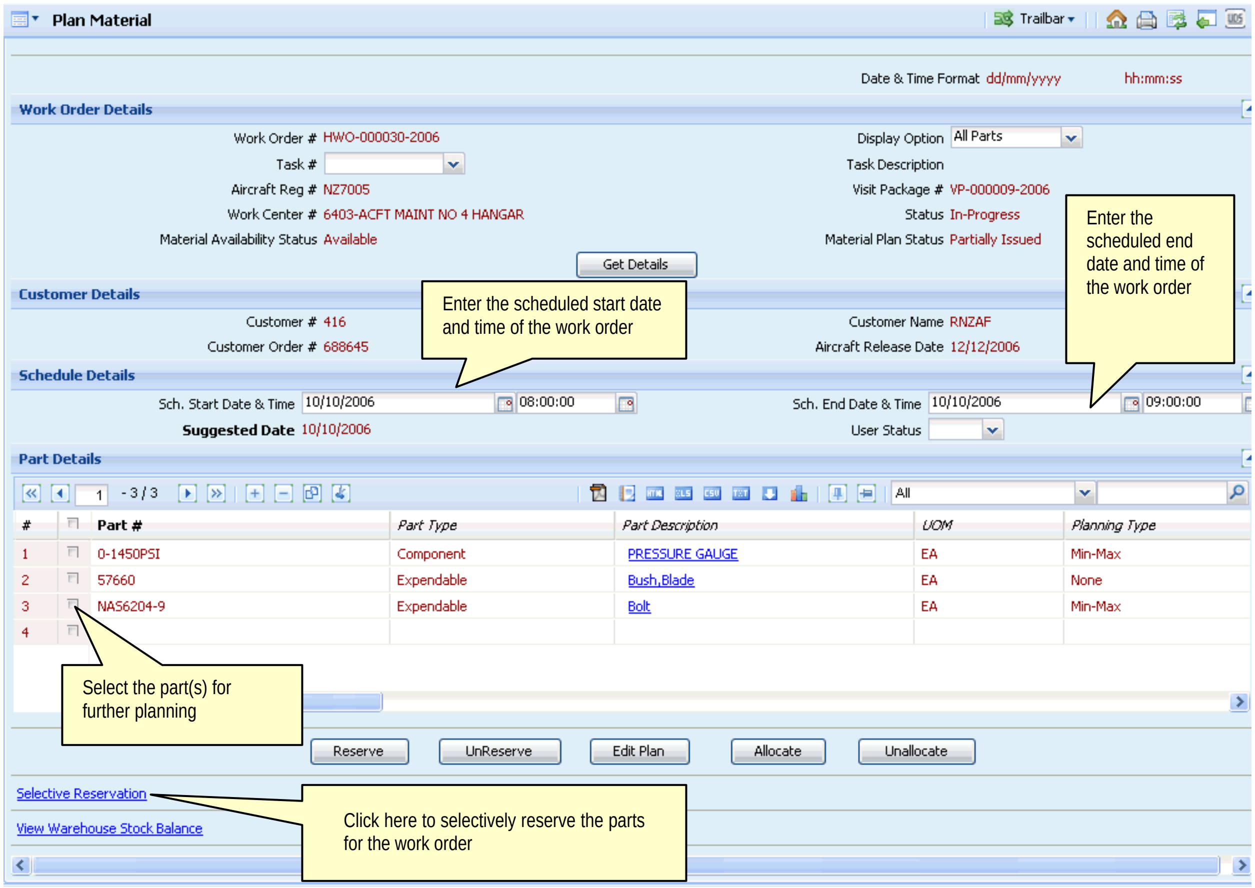


Figure 2. 11 Planning material requirements for the work order

Modify the part details, if required.

8. If the required part is not available, enter the **Substitute Part** # and **Substitute Type**.

Note: Ensure that a value is selected in the “Substitute Type”, if the substitute part number is entered.

Note: If the “Specific Alternates” option is selected in the “Substitute Type” field, the system ensures that:

a. the value entered in the “Substitute Part #” field is a valid alternate part number as identified in the “Create Part Main Information” activity of the “Part Administration” business component, for work orders based on customer order.

b. the value entered in the "Substitute Part #" field is a position-based alternate as identified in the "Build Aircraft Configuration" activity of the "Configuration" business component, for work orders that does not have any reference to customer order.

9. Click **Reserve** pushbutton to reserve the selected parts.

10. Click **UnReserve** pushbutton to cancel the reservation of the selected parts.

11. Click **Edit Plan** pushbutton to modify the material requirements for the work order.

12. Click **Allocate** pushbutton to allocate parts for the work order or task.

13. Click **Unallocate** pushbutton to cancel the parts allocated to the work order or task.

Planning resource requirement for the work order

1. Select the **Plan Resources** link at the bottom of the **Select Work Order** page. The **Plan Resources** page appears. *See Figure 2. 12.*

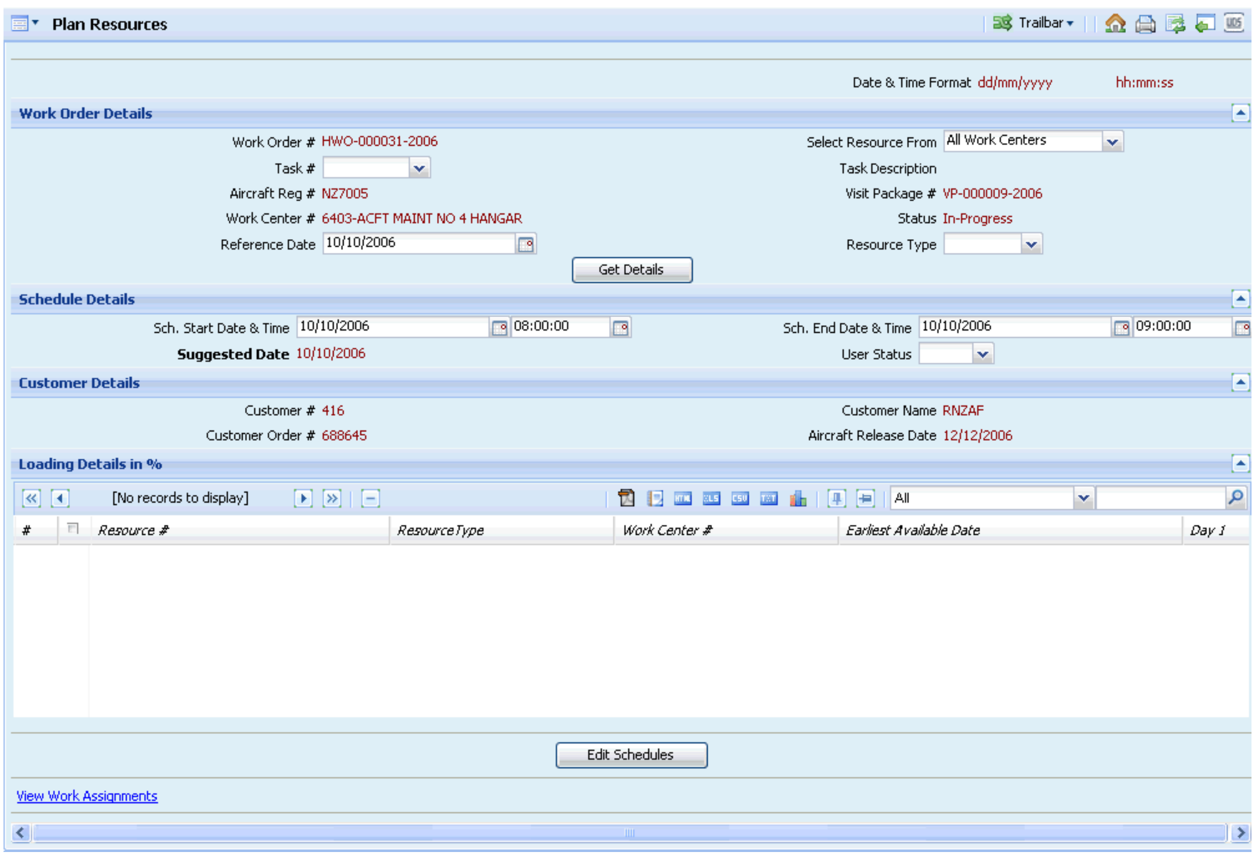


Figure 2. 12 Planning resource requirement for the work order

2. Select the work center from which you wish to assign resources, in the **Select Resource From** field. The system displays the options “All Work Centers” and “Current Work Center”.

3. Select the **Task #**, for which the resources are to be assigned.

4. Enter the starting date from which you wish to view the loading details for the resource in the **Reference Date** field.

5. Select the **Resource Type** that you wish to assign to the work order task or the work order. The system lists the options, “Skill”, “Equipment”, “Tools” and “Others”.

6. Click the **Get Details** pushbutton.

The system displays the details of the resources required, if the resource has already been planned. If resource planning is not yet done, the system displays the details of resources estimated for the task.

7. Enter the **Sch. Start Date & Time** and **Sch. End Date & Time** of the work order task or the work order.

Note: If the starting and ending schedule dates are the same, ensure the ending time is greater than the starting time.

Modify the resource details, if required.

8. Click the **Edit Schedules** pushbutton to update the resource assignments for the work order task or work order.

Assigning resources to the work order

1. Select the **Assign Resources** link in the bottom of the **Select Work Order** page. The **Assign Resources** page appears.

2. Select the **Task #**, for which the resources are to be assigned and click the **Get Details** pushbutton. The system displays the details of the resources as estimated earlier.

3. Modify the details, if required, and click the **Assign Resources** pushbutton to assign the resources to the work order.

Assigning employees to the work order

Follow the steps listed in the topic “Assigning employees to the work order”.

Scheduling work order

Work order scheduling refers to the scheduling of work orders in a particular period based on the requirement and availability of resources, priority of the work order and the compliance date. Hangar work orders are scheduled after planning the resources and materials. Scheduling essentially involves confirming the expected start date and time, and expected finish date and time, for each task or for each work order. The work order is released for execution through the process of scheduling.

1. Select **Schedule / Re-schedule Work Order(s)** under the **Hangar Work Order** business component. The **Schedule / Re-schedule Work Orders** page appears. *See Figure 2. 13.*

2. Enter the search criteria in the **Work Order Selection** group box to search for the work orders and click the **Search** pushbutton.

The system displays all the work orders matching the search criteria that are in “Fresh”, “Authorized”, ”Scheduled” or “In Progress” status.

3. Enter the schedule details in the **Schedule Options** group box to schedule the work orders in bulk.

In the **Default Changes Options** group-box:

4. Change the user-defined status of the selected work order, in the **Change to: User Status** field.

5. Change the category of the selected work order, in the **Change WO Category to** field.

Note: You cannot modify the work order category under the following circumstances:

- *If a material request has already been generated for the work order.*
- *If the status of the work order is “In-Progress”.*

6. Click the **Schedule** pushbutton to record the schedule of the work order.

The system does the following:

- *For a “Fresh” and “Authorized” work order, the system sets the status as “Scheduled” and the re-schedule count as “0”.*
- *Updates the status of the work order tasks as “Scheduled” and generates the Material Request (MR) for the scheduled tasks. For example, if there are four work order tasks T1, T2, T3 and T4 and if the first two tasks of the work order are scheduled, MR will be generated for the tasks T1 and T2 and assignment of resources will be done only for the scheduled tasks.*

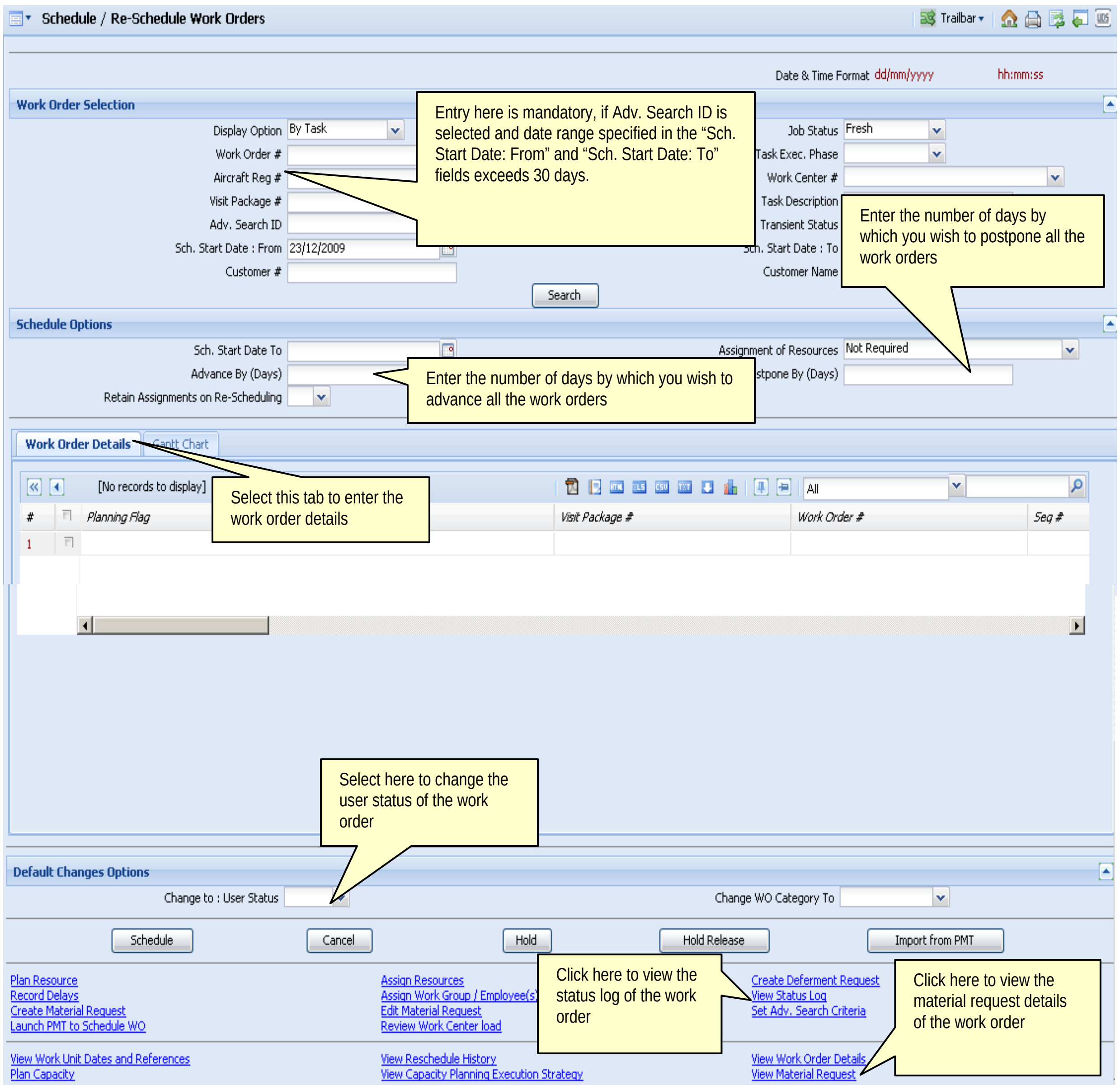


Figure 2. 13 Scheduling/rescheduling work orders

- *For a "Scheduled" and "In-Progress" work order, the system retains the status and increments the existing re-schedule count by 1.*
- *If the "Retain Assignments on Re-Scheduling" option is set as 'Yes', the system moves all the assignments to the newly scheduled dates. For example, if the work orders are postponed by 5 days, the system postpones all the assignments by 5 days. If the work orders are advanced by 5 days, the system advances the assignments by 5 days. If the "Retain Assignments on Re-Scheduling" option is set as "No", then the system removes all the assignments.*
- *If the option of reserving the material for work order during scheduling is set to "Automatic", then the system automatically reserves the parts of planning type "Disposition" for the selected work order or task.*

- *The task identified along with related tasks which attain 'Schedule' status and which has part requirement defined as "Always required", if the “Auto Creation of Material Request” is set as “On Scheduling”, the system generates the Material Request (MR), automatically.*

Note: For a part with consumption mode set as “Backflushable”, the system will not generate the material request (MR) automatically, even if the “Auto Creation of Material Request” is set as “On Scheduling”.

- *On auto-generation of MR, the system performs the following if the hangar work order is based on the customer order:*

  a. *updates the “Request For” field as “Customer”, “Internal” or “Internal and Customer” in the “Material Request” business component based on the value set in the “Spares Supplied By” field in the “Customer Order” business component.*

  b. *updates the “Request For” field as “Internal” in the Material Request” business component, if the ownership of the aircraft identified in the work order is “Owned” or “Leased Out”. Else, the system updates the value “Internal and Customer” in the “Request For” field.*

  c. *updates the warehouse for the part from the “Storage Administration“ business component.*

Note: For work orders that are not customer based, the system updates the warehouse for the part from the “Work Center” business component.

  d. *updates the stock status for all the requested parts based on the Preferred Stock Status identified for the reference Customer Order in “Customer Order” business component. Else, updates the preferred stock status identified for the Aircraft Reg # from the “Aircraft” business component.*

7. Click the **Cancel** pushbutton to cancel the work order.

Note: If material has been issued, you cannot cancel the work order or task.

Note: You cannot cancel the work order,

  a. *if the “Display Option” field is set as “By Work Order” and the selected work order is based on the customer order with planning status as “Planned”.*

  b. *If the “Display Option” field is set as “By Task”, and if for the selected task the work order is based on the customer order with planning status as “Planned”.*

The system does the following:

- Changes the status of the work order or task to “Cancelled”. However, you cannot cancel a work order, which is in the “Hold” or “In progress” status.
- Cancels the corresponding access panel tasks, which are not referred by any other task or visit package.

- If all the tasks in a work order are cancelled, the system changes the status of the work order to “Cancelled”.
- Updates the status of the material request associated to the work order to one of the following:

  a) Cancelled – If the material request is in “Draft” or “Fresh” status.

  b) Short Closed – If the material request is in “Authorized” status.

Note: If there are issue documents in “Fresh” or “Draft” status for the short closed material request, the system updates the status of those documents to “Cancelled”.

- Cancels all the assignments for the cancelled work orders.

8. Click the **Hold** pushbutton to put the work order on “Hold”.
9. Click the **Hold Release** pushbutton to release the work orders that are in “Hold” status.
10. Click the **Import From PMT** pushbutton to import the work order schedules from the Project Management Software.

You can proceed to do the following:

- Select the **Work Order Details** tab to update the work order details.
- Select the **Gantt Chart** tab to view the progress of the work order and tasks, in the form of a Gantt chart.
- When a work order is scheduled for execution later than its planned execution date, then the work order is delayed. Select the **Record Delays** link to record the details for the delay in execution of the work order or task.

Follow the steps described under the topic “Recording delay information”.

- Select the **Create Material Request** link to create material request through which the need for material (required for the execution of the work order) on a specific date is communicated to the warehouses.
- Select the **Launch PMT to schedule WO** link to export the selected details into the project management software, for scheduling the work order.

Entering the work order details

1. Select the **Work Order Details** tab in the **Schedule/Re-Schedule Work Orders** page to update the work order details. *See Figure 2. 13.*
2. To schedule individual work orders, enter the scheduling details in the **Work Order Details** multiline.

3. The system displays the following in the **Planning Flag**:

   - Delay Reported: When delay details exist for the work order.
   - Assignments: When assignment details exist for the work order.
   - Material Status: The system also displays the status of the material plan in this column, which could be "Partially Reserved", "Reserved", Partially Requested", "Requested", "Partially Hard Allocated", "Hard Allocated", "Partially Issued", "Issued" or "Material Not Available".

4. Enter the **Sch.Start Date**, **From Time**, **Sch.End Date** and **To Time** in the multiline.

5. Enter the **Comments** if you wish to cancel the work order.

You can proceed to do the following:

▼ Select the **Gantt Chart Tab** to view the progress of the work order and tasks, in the form of a Gantt chart.

Viewing the progress of the work order and tasks

1. Select the **Gantt Chart** tab, to view the progress of the work order and tasks, in the form of a Gantt chart. *See Figure 2. 14.*

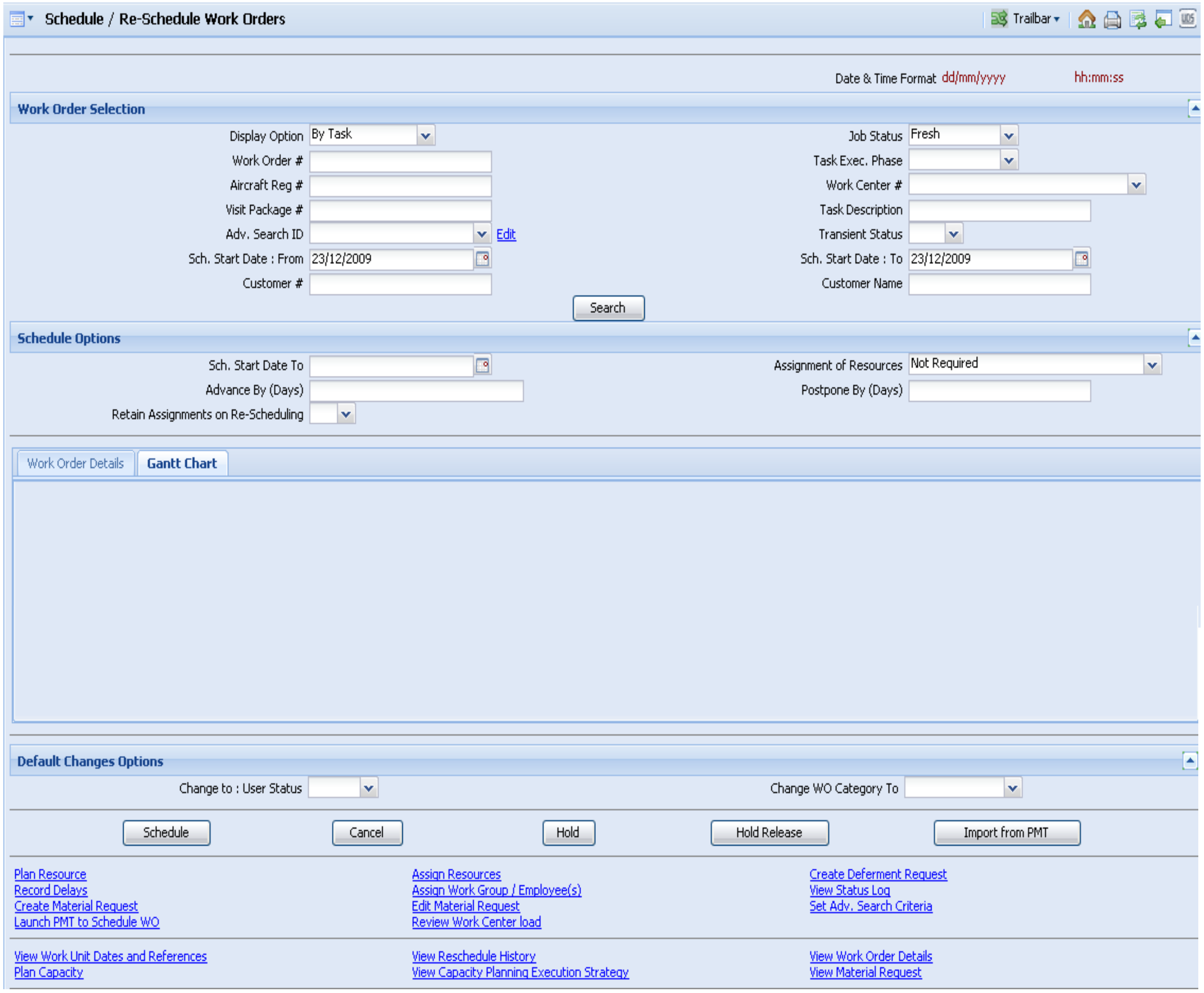


Figure 2. 14 Viewing the progress of the work order and tasks

For the work center, aircraft and visit package combination, you can view the graphical representation of the progress of the work orders and tasks based on the schedules computed. The system displays the time period in days, indicating the actual start date and end date of the work order or task. The system displays the schedules dates in red color, if the schedules computed for the work order or task are earlier than the current date and the work order or task is not yet started as per the schedule.

You can proceed to do the following:

▼ Select the **Work Order Details** tab to update the work order details.

Creating maintenance material request

Material Request (MR) is a document through which a user department communicates the need for material (required for the execution of the work order) on a specific date, to the warehouses. For planned maintenance activities, the planning or execution documents like visit package have the complete list of material requirements but different materials may be required at different instances. Hence material request can be generated for different time frames to indicate to the stores clerk when a particular set of materials must be issued. Material request is propagated to the warehouse for the issue of material.

The relevant parts are issued from the warehouse as per the material request document. In the event of non-availability of material, the request can serve as a trigger to the material planner to initiate a purchase activity or a stock transfer from another warehouse.

Material requests can be generated automatically when a visit package is released or when the work order is “scheduled”.

1. Select **Create Maintenance Material Request** under **Hangar Work Order** business component. The **Select Work Order** page appears.

2. Enter the work order number directly and select the **Create Material Request** link provided alongside. Or, use the **Search Criteria** to search for the work order and click the **Search** pushbutton.

3. Check the box in the multiline to select the work order.

4. Specify the part type for which you need to create the maintenance material request in the **Part Type** drop-down list box and select the **Create Material Request** link at the bottom of the page.

5. The **Create Maintenance Material Request** page appears. *See Figure 2. 15.*

6. Select the **Numbering type** for generating the material request number automatically.

Note: For details on creating numbering types, refer to the section "Defining numbering types for transactions" in the "Inventory Setup" User Guide.

7. Select the warehouse from where you wish to collect the required part, in the **Warehouse #** field.

Note: If the hangar work order has reference to the warehouse, ensure that the selected warehouse is mapped to a valid customer.

8. Enter the date on which the parts will be consumed or needed, in the **Need Date** field.

9. Select **MR Priority** as “Normal” or “AOG”.

    - Normal – If the MR is raised for parts that pertain to the usual requirement of an aircraft.

- AOG – If the MR is raised on the aircraft on ground. This is the situation where the parts are required immediately since the aircraft has been grounded. MR of this type must be assigned the highest priority.

Note: If the "AOG" option is selected, ensure the need date entered is the date next to the current server date or earlier.

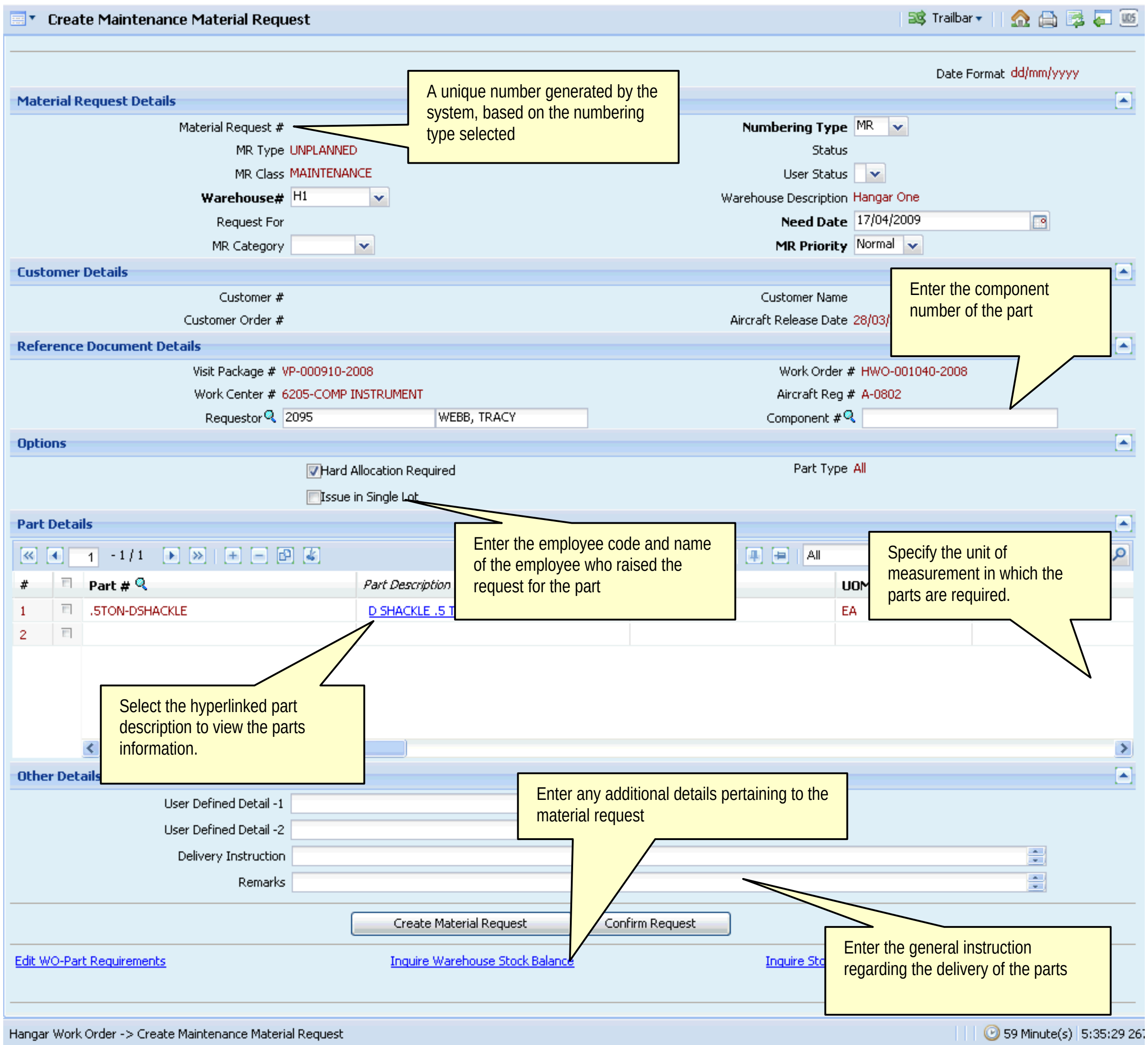


Figure 2. 15 Creating material request

10. Check the box in the **Hard Allocation Required** field to indicate whether 'reserved' or 'hard allocation' is required for 'non-disposition' kind of part.

11. Check **Issue in Single Lot** to indicate that the part has to be issued in a single lot.

In the **Part Details** multiline,

12. Enter the **Part #** and **Qty. Required**.

13. Enter the **Substitute Part #** and **Substitute Type,** if the required part is not available.

14. Select the **Stock Status** in which the part is required.

15. Specify the condition in which the part of type "Component" is required in the **Preferred Condition** field.

16. Enter the date on which the part is to be returned, in the **Exp. Date Of Return** field.

Note: Data entry in this field is mandatory if the "Issue Basis" is "Returnable".

17. Click the **Create Material Request** pushbutton, to create the material request.

Note: Only one material request can be generated for the work order at a time.

The system creates the maintenance material request and sets the status as "Draft".

18. Click the **Confirm Request** pushbutton, to confirm the material request.

Note: If the "Material Request Authorization" is set as "Required", the system changes the status to "Fresh". Otherwise, the system changes the status to "Authorized".

The system updates the "Request For" field as "Internal and Customer" in the "Material Request" business component, if the work order has no reference to the customer order.

Short closing material request

You can short-close a material request if the requested material is no longer required for the execution of the work order or task. You can short-close material requests that are in "Fresh" or "Authorized" status and for which some quantity of parts is yet to be issued. Short closing of material request stops further issues against the document. When you short-close a material request, unutilized reservation of the material will get cancelled.

1. Select the **Short - Close Material Request** under Hangar Work Order business component. The **Short –Close Maintenance Material Request** page appears. *See Figure 2. 16.*

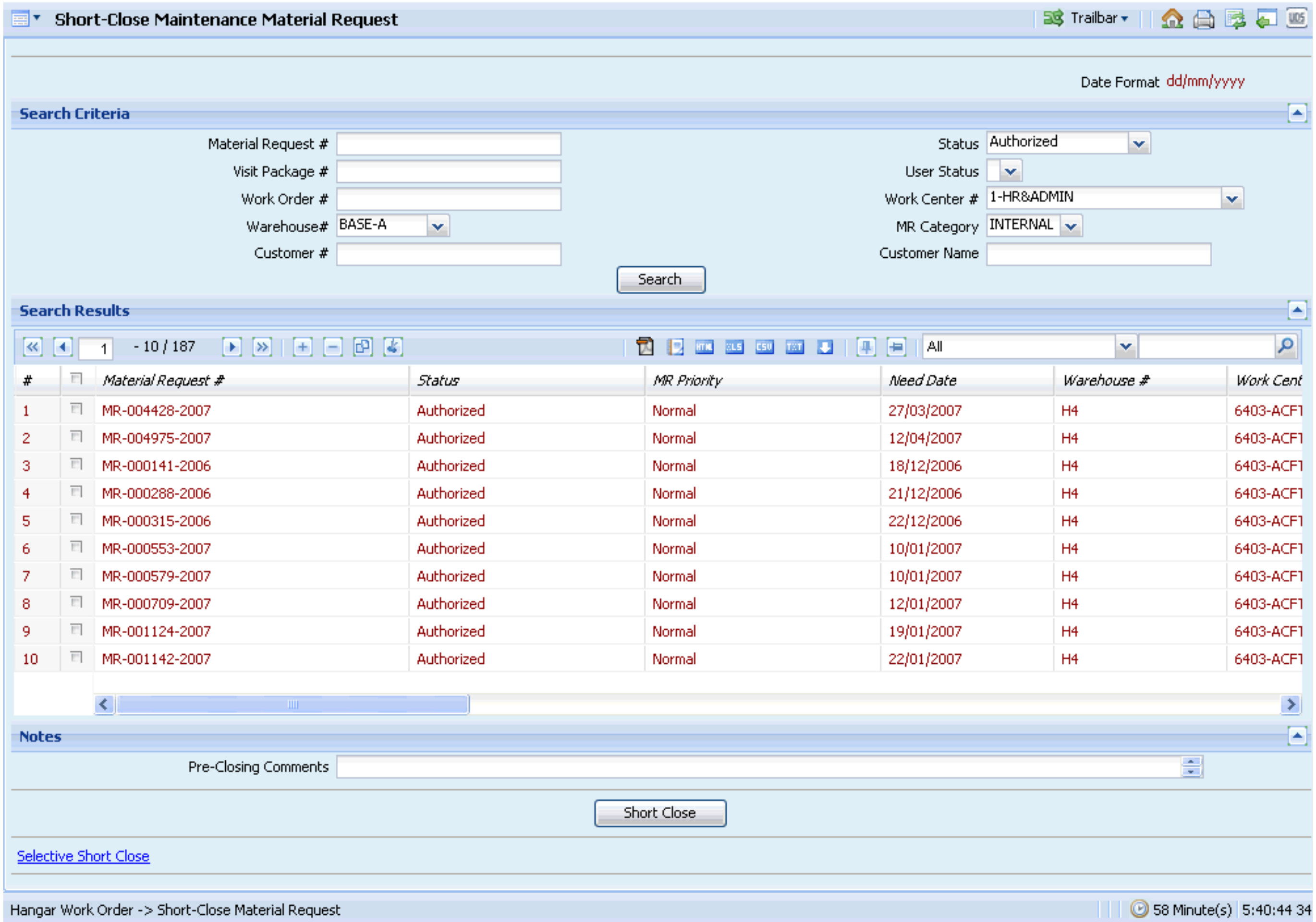


Figure 2. 16 Short closing material request

2. Search for the maintenance material request for short closing and click **Search** pushbutton.

3. Enter the **Pre-closing Comments** to specify the reason for short closing of the material request.

4. Select the material request to be shortclosed and click the **Short-close** pushbutton.

Note: The system updates the status of the material request to “Short Closed”. If there are issue documents in “Fresh” or “Draft” status for the short closed material request, the system updates the status of those documents to “Cancelled”.

Assigning resources

Depending on the resources required, the work center planner could assign facility objects and employees, to work orders. The assignments are made on the basis of the current and planned workload on the employee or resource, on a daily basis or for a range of dates. Assignments can also be effected at a "crew" level. Any changes in crew composition will automatically get reflected in all the work orders assigned.

Assigning work orders to the employee

1. Select **Assign Employee to Work Order(s)** under **Hangar Work Order** business component. The **Select Employee** page appears.
2. Enter the **Search Criteria** to search for the employee and click the **Search** pushbutton. Select **Assign Work Order /Task(s)** link to assign the work order or tasks to the selected employee.
3. The **Assign Work Order /Task(s)** page appears. *See Figure 2. 17.*
4. In the **Employee Details** group box, enter the **From Date** and **To Date** and click the **Get Details** pushbutton to retrieve the work orders and tasks assigned to the selected employee. The system displays the work orders and tasks that are already assigned to the employee. You can modify the details, if required.

To assign the work order to the selected employee,

5. Enter **Work Order #** that you need to assign, in the **Work Order / Task Details** multiline.

Note: You cannot assign a work order, which is in the "Cancelled", "Completed", "Pre-Closed" or "Closed" status.

6. Enter the **Task #**.

Note: You cannot assign a work order of job status "Fresh", if the "'WO Assignments Prior to Scheduling" field is set as" Not Allowed" in the "Set Options" activity of the "Hangar Work Order" business component.

7. Enter **From Date** and **From Time** from which the work order is assigned to the employee.
8. Enter the **To Date**, till which the work order is assigned to the employee.
9. Enter the **To Time** if the **To Date** is entered.
10. Enter the total number of hours per day the work order is assigned to the employee, in the **Hours / Day** field.

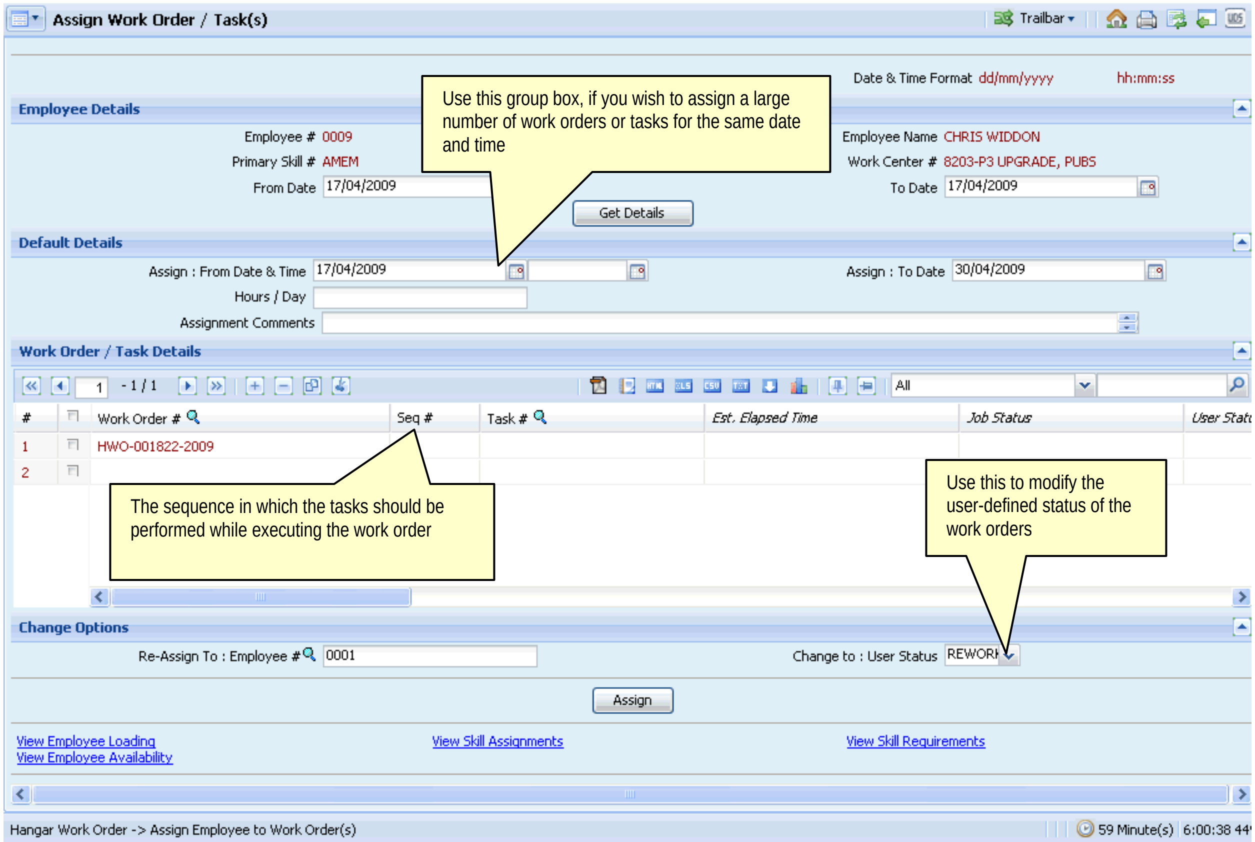


Figure 2. 17 Assigning work orders to the employee

11. Enter the **Assignment Comments** pertaining to the employee work assignment.

12. If you wish to re-assign the work orders in the multiline to an employee other than the selected employee, enter the **Re-Assign To: Employee #** field.

13. Click the **Assign** pushbutton to assign the work orders to the employee.

Assigning work orders or WO tasks to resource

You can assign a resource such as a tool, facility or equipment, to work orders. You can assign the resource to one work order or multiple work orders simultaneously or to a master work order with child work orders.

The visit planner assigns resources on a daily basis or for a range of dates. The loading patterns for the various resources are evaluated and constraints are resolved, before assigning the resources. If a constraint cannot be solved, you can reschedule the work order or task.

1. Select **Assign Resource to Work Order(s)** under the **Hangar Work Order** business component. The **Select Resources** page appears.

2. Enter the **Search Criteria** and click the **Search** pushbutton to search for the resource that is required for carrying out the maintenance task.

3. Select the **Assign Work Order/Task(s)** link to assign the work order or tasks to the selected resource. The **Assign Work Order / Task (s)** page appears. *See Figure 2. 18.*

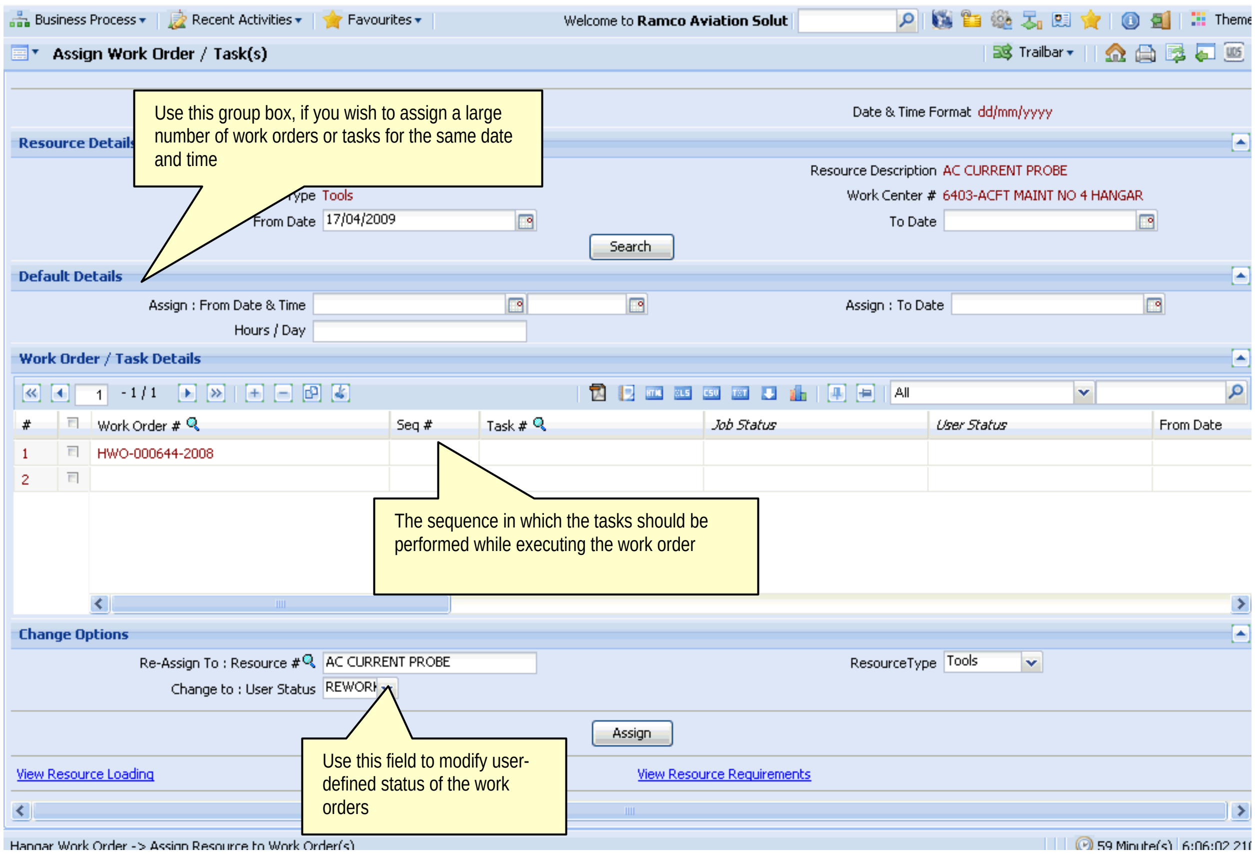


Figure 2. 18 Assigning work orders or WO tasks to resource

4. In the **Resource Details** group box, enter **From Date** and **To Date** and click the **Get Details** pushbutton to retrieve the work orders and tasks assigned to the selected resource. The system displays the work orders and tasks that are already assigned to the resource. You can modify the details, if required.

To assign the work order to the selected resource,

5. Enter **Work Order #** that you need to assign, in the **Work Order / Task Details** multiline.

Note: You cannot assign a work order, which is in the "Cancelled", "Completed" or "Closed" status.

6. Enter the **Task #**.

Note: You cannot assign a work order of job status “Fresh”, if the “‘WO Assignments Prior to Scheduling” field is set as ”Not Allowed” in the “Set Options” activity of the “Hangar Work Order” business component.

7. Enter **From Date** and **From Time** from which the work order is assigned to the resource.

8. Enter the **To Date**, till which the work order is assigned to the resource.

9. Enter the total number of hours per day the work order is assigned to the resource, in the **Hours / Day** field.

10. If you wish to re-assign the work orders in the multiline to a resource other than the selected resource, enter the **Re-Assign To: Resource** # field.

Note: If a value is entered in the above field, ensure that no leave is approved for the employee for any time duration or date falling within the date and time range assigned for executing the work unit.

11. Select the **Resource Type** as “Equipment”, “Tools”, “Skills” or “Others”.

Note: You must select the resource type, if you are re-assigning the work orders to a different resource.

12. Click the **Assign** pushbutton to assign the work orders to the employee.

Assigning work group

Creating work group

A work group is a collection of employees who are responsible for executing a maintenance task. The composition of a crew is mostly dependent on the nature of the activity and organizational needs and the size typically varies between 5 to 7 multi skilled personnel with a group leader identified.

Work groups execute maintenance activities, which demand multi-skill requirements. Work group helps to accomplish complex tasks with work specialization and team synergy.

1. Select **Create Work Group** under **Hangar Work Order** business component. The **Create Work Group** page appears. *See Figure 2. 19.*

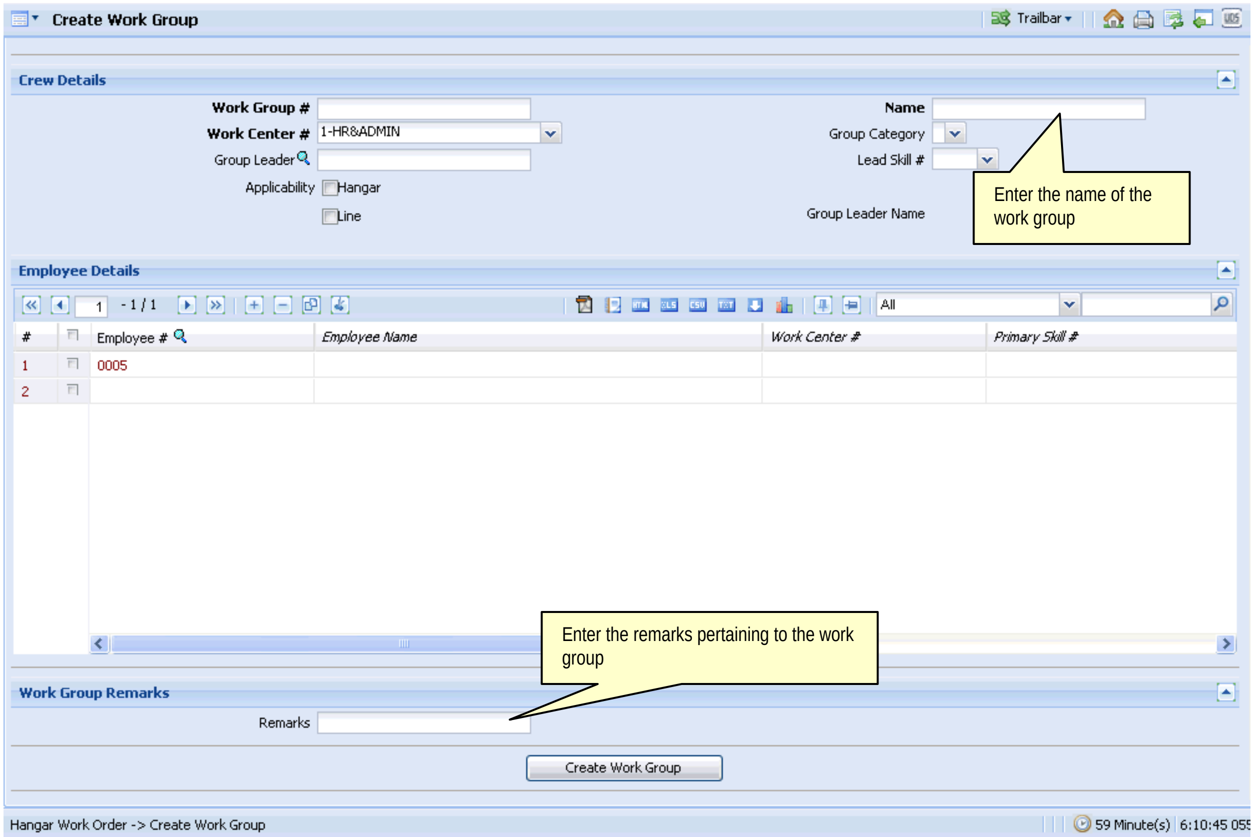


Figure 2. 19 Creating work group

2. Enter the unique identifier for the work group in the **Work Group #** field.

3. Select the **Work Center #** to which the work group is attached.

4. Select the **Group Category**.

5. Enter the code identifying the leader of the work group, in the **Group Leader** field.

6. Select the number identifying the lead skill of the work group, in the **Lead Skill** # field.

7. Check the **Line** option to indicate if the work group is created for line maintenance activities. Check the **Hangar** option to indicate if the work group is created for line maintenance activities.

8. Enter the **Employee #** who is part of the work group, in the **Employee Details** multiline.

9. Click the **Create Work Group** pushbutton to create the work group.

Note: The system creates the work group in the “Active” status.

Assigning work orders or WO tasks to a work group

You can assign work groups to work orders.

1. Select **Assign Work Group to Work Order(s)** under **Hangar Work Order** business component. The **Select Work Group** page appears.
2. Enter the **Search Criteria** to search for the work group and click the **Search** pushbutton. Select the hyperlinked **Work Group #** in the multiline, to assign the work order or tasks to the selected work group.
3. The **Assign Work Order /Task(s)** page appears. *See Figure 2. 20.*

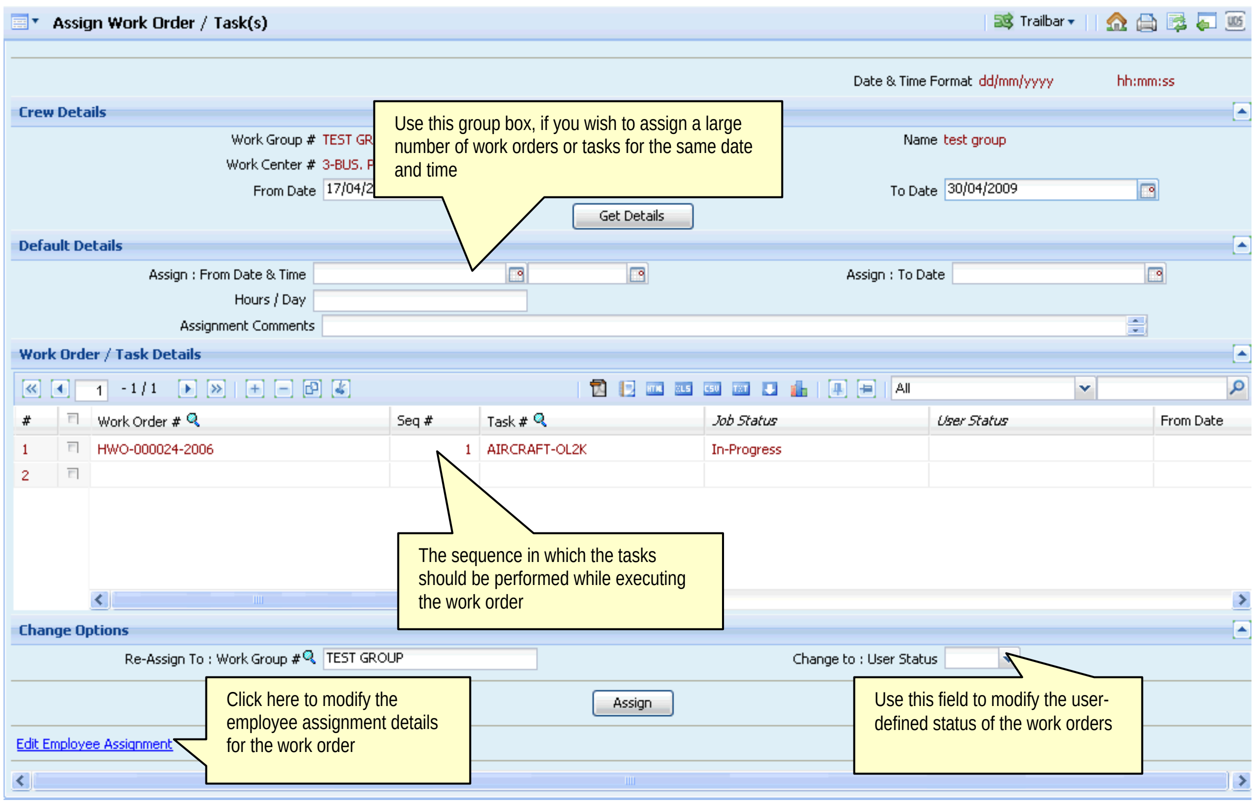


Figure 2. 20 Assigning work orders to a work group

4. In the **Crew Details** group box, enter **From Date** and **To Date**, and click the **Get Details** pushbutton to retrieve the work orders and tasks assigned to the work group. The system displays the work orders and tasks that are already assigned to the work group. You can modify the details, if required.

To assign the work order to the selected workgroup,

5. Enter **Work Order #** that you need to assign, in the **Work Order / Task Details** multiline.

Note: You cannot assign a work order, which is in the “Cancelled”, “Completed” or “Closed” status.

6. Enter the **Task #**.

Note: You cannot a assign work order of job status "Fresh", if the "'WO Assignments Prior to Scheduling" field is set as "Not Allowed" in the "Set Options" activity of the "Hangar Work Order" business component.

7. Enter **From Date** and **From Time** from which the work order is assigned to the work group.

8. Enter the **To Date**, till which the work order is assigned to the work group.

9. Enter the total number of hours per day the work order is assigned to the work group, in the **Hours / Day** field.

10. Enter the **Assignment Comments** pertaining to the work group assignment.

11. If you wish to re-assign the work orders in the multiline to a work group other than the selected work group, enter the **Re-Assign To: Work Group #** field.

Note: If a value is entered in the above field, ensure that there is no approved leave for the employee for any time duration or date falling within the date and time range assigned for executing the work order.

Note: Ensure that the work group to which the work orders must be re-assigned, has the applicability as "Hangar" or "Line & Hangar".

12. Click the **Assign** pushbutton to assign the work orders to the work group.

Note: The work order can be assigned to the work group, even if there exists atleast one employee belonging to the work group who doesnot have approved leave for any time duration or date falling within the date or time duration assigned for executing the work order.

Executing a work order

The aircraft for which the maintenance activities are planned is taxied into the hangar and the preliminary inspection is carried out on the aircraft and it's systems.

Recording preliminary inspection details

1. Select **Report Inspection Findings** under **Hangar Work Reporting** business component. The **Select Visit Package** page appears.

2. Enter the **Visit Package #** directly and select the **Record Preliminary Inspection Findings** link provided alongside. Or, enter the **Search Criteria** and click the **Search** pushbutton. Click the hyperlinked **Visit Package #**, for which the inspection details are to be reported, in the multiline.

3. The **Record Preliminary Inspection Findings** page appears. *See Figure 2. 21*.

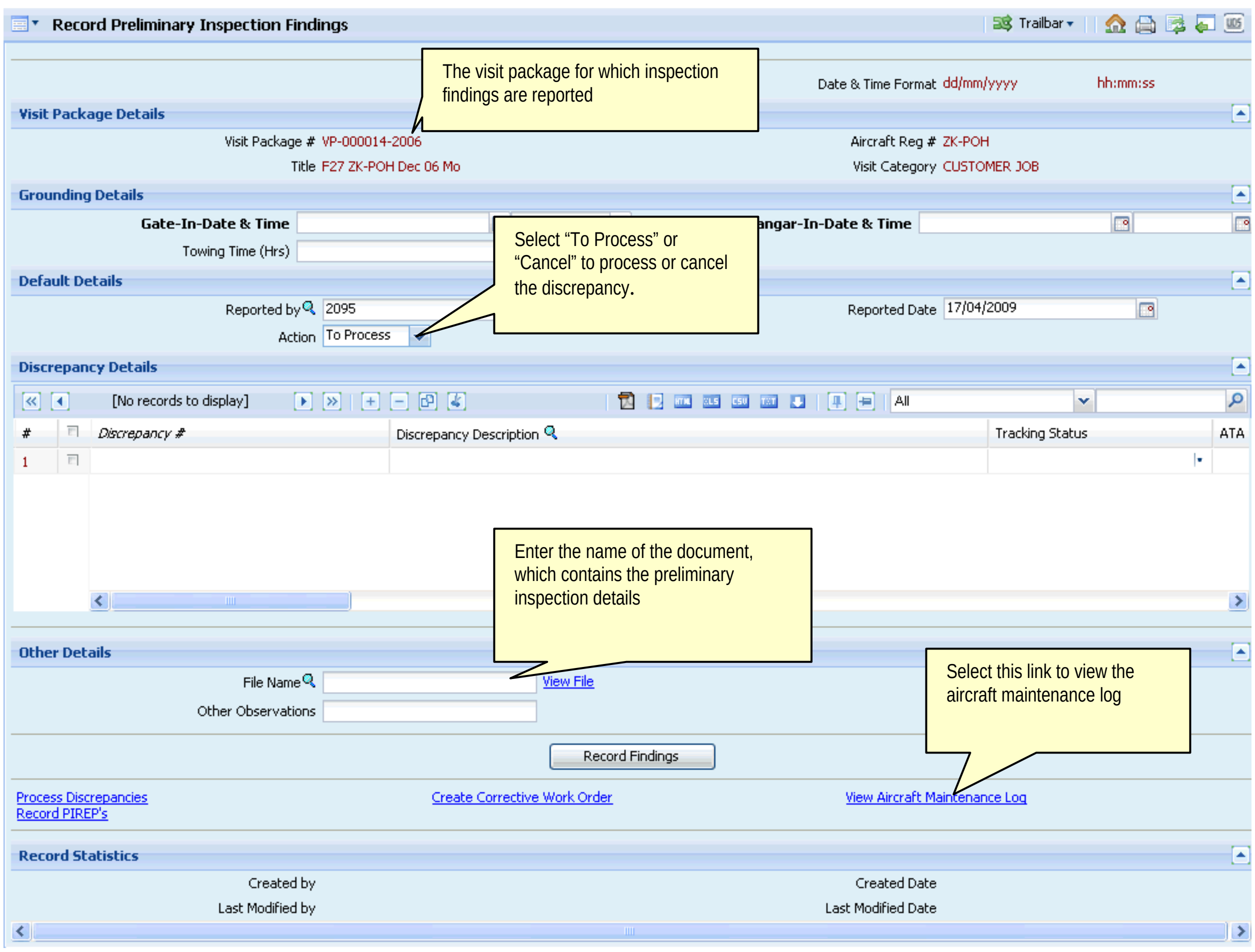


Figure 2. 21 Recording preliminary inspection findings

In the **Grounding Details** group box,

4. Enter the date on which the aircraft is grounded or the last docking date, in the **Gate-In-Date** field.

5. Enter the date on which the aircraft is taxied to the hangar for carrying out the maintenance job, in the **Hangar-In-Date & Time** field.

6. Enter the time taken to tow the aircraft from the gate to the hangar, in the **Towing Time (Hrs)** field.

In the **Discrepancy Details** multiline,

7. Enter the **Discrepancy t #**.

8. Enter the **Discrepancy Description** and **Log Item #** of the discrepancy.

9. Enter **ATA #** on which discrepancy is created.

10. Enter the **Fault #** and **Cause #** of the discrepancy.

11. Select the **Corrective Action** to be performed on the discrepancy.

12. Select the Source and specify the Source # of the discrepancy.

13. Select the **Discrepancy Category**, **Reported Date** and **Reported Time** of the discrepancy.

14. Click the **Record Findings** pushbutton to register the inspection findings.

You can proceed to do the following:

▼ Select the discrepancy with the status as "Pending" in the multiline and select the **Corrective Work Corrective Order** link to create the work order for resolving the discrepancy.

Note: If multiple discrepancies are selected for creating a corrective work order, ensure that the first two characters of the ATA number are the same for the selected discrepancies.

Chapter 3/Hangar Work Reporting

The details of the maintenance activities executed on an aircraft need to be recorded for tracking the maintenance done and for accounting the labor, material and other facilities used. **Hangar Work Reporting** business component facilitates the recording of the work executed, in terms of tasks, for the major maintenance of the aircraft.

Recording of the work details spans the entire work execution phase, starting from recording of the aircraft grounding details, preliminary inspection report, resource consumption, part consumption to closing of the work order.

Reporting execution details

The **Hangar Work Reporting** business component primarily facilitates all aspects of work reporting, beginning with reporting of work progress in terms of elapsed time to reporting of resources expended on a work order. Work reporting finally leads to the release of grounded aircraft from the work center, after the execution of the maintenance task(s).

Once a work order is reported with the execution details of any category, the work order is automatically converted to “In Progress” status.

The execution details reported are of the following categories:

- Recording employee time sheet
- Reporting resource consumption
- Reporting material consumption
- Reporting component replacement details
- Reporting work delay information
- Reporting discrepancies
- Recording parameter reading/conditional evaluation details
- Signing off a task
- Issuing certificate of maintenance
- Closing work order

Defining quick codes for work reporting

What are quick codes?

Quick Codes are user-defined values, used to categorize a set of details of identified behavior. These quick codes are later used in the process of retrieving or addressing the details by referring to the attached quick code.

Quick codes act as additional qualifiers for a business entity or document. Quick codes can assume user-provided values, which can be used to categorize/group an entity/document record to satisfy specific needs in a user organization’s internal processes, especially with respect to unique reporting requirements.

The quick code type “Delay Category” is predefined in the system. Values can be defined for this quick code type. For example, the quick code type “Delay Category” can contain the quick code “Material Not Available”.

1. Select **Create Quick Codes** under **Hangar Work Reporting** business component. The **Create Quick Code Information** page appears. *See Figure 3. 1*

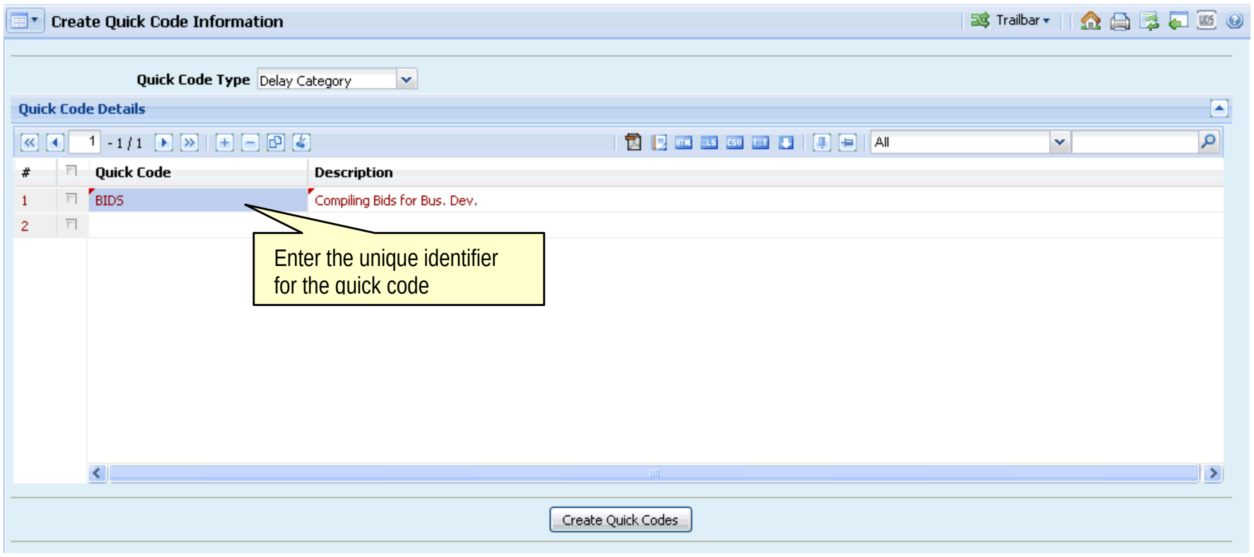


Figure 3. 1 Defining quick codes

2. Select the **Quick Code Type**, for which quick codes have to be created.

3. Enter the **Description** for the quick code.

4. Click the **Create Quick Codes** pushbutton.

Note: The system assigns the "Active" status to the quick codes entered in the multiline.

Setting options for work reporting

You can define the various system parameters for work reporting.

1. Select **Set Options** under **Hangar Work Reporting** business component. The **Option Setting Information** page appears. *See Figure 3. 2*

2. Select the numbering type for generating the discrepancy number automatically, in the **Numbering Type Discrepancy#** field.

3. Select the numbering type for generating the component replacement transaction number automatically, in the **Numbering Type -CR #** field.

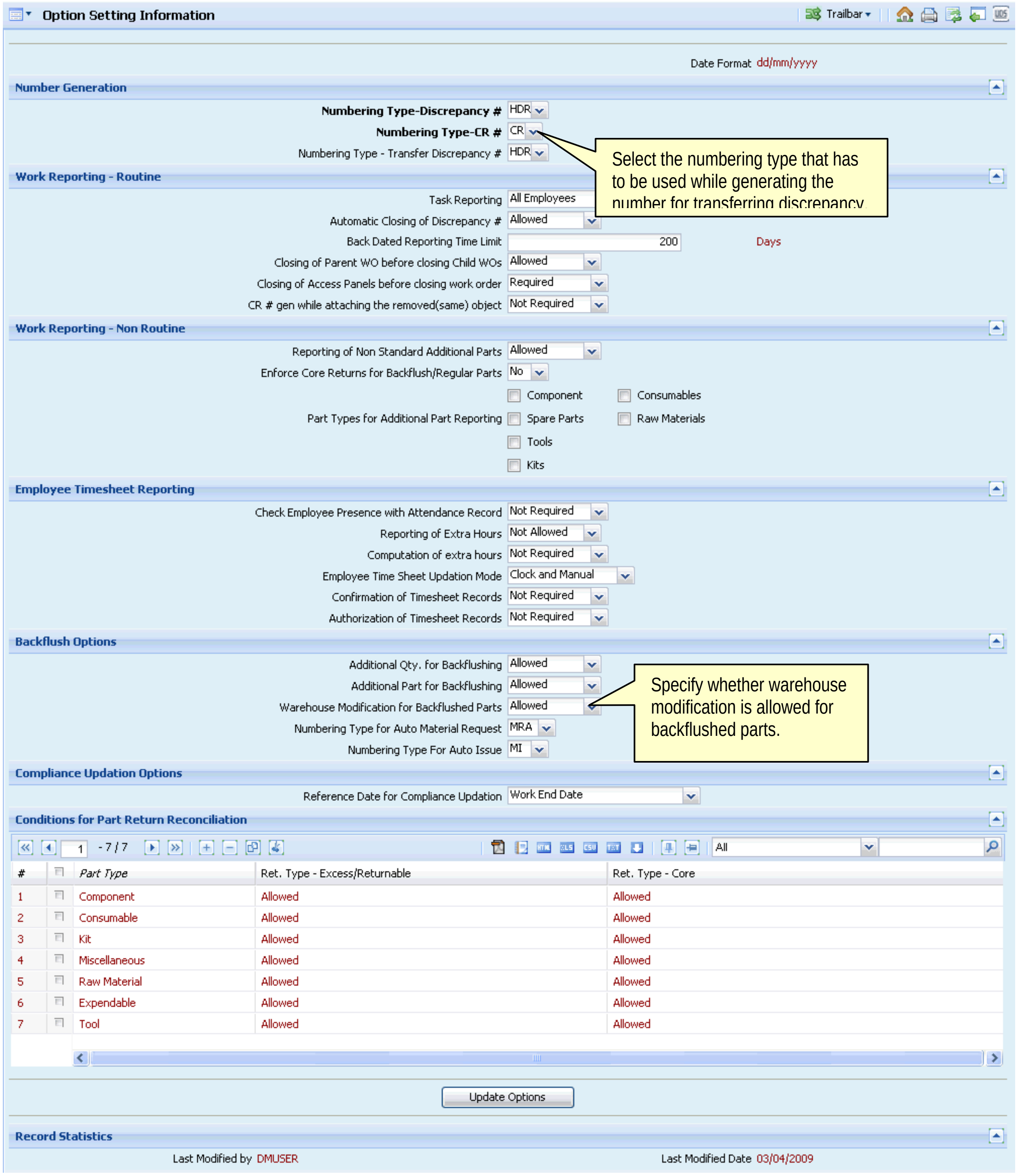


Figure 3. 2 Setting options for work reporting

In the **Work Reporting – Routine** group box,

4. Set the **Task Reporting** as "All Employees" to indicate that any employee can report the task execution details against a task, irrespective of whether the work

is assigned to him or not. Select “Assigned Employees” if only the employee to whom the task is assigned can report the execution details.

5. Select the option “Allowed” in the **Automatic Closure of Discrepancy** field, to automatically close all the discrepancies reported on closing the work order. Select “Not Allowed” to manually close, cancel or defer the discrepancies.

6. Enter the time limit until which the actuals can be reported for the work order, in the **Back Dated Reporting Time Limit** field.

7. Select the option “Required” in the **Closing of Access Panels before closing work order** field, to ensure that access panel is closed before closing the work order. Select “Not Required” otherwise.

8. Set “Required” in the **CR # gen while attaching the removed (same) object** field, to generate a component replacement number while attaching the same removed component to the aircraft. Select “Not Required” otherwise.

In the **Work Reporting –Non Routine** group box,

9. Select “Allowed” in the **Reporting of Non Standard Additional** field, to allow the reporting of non-standard parts used in the work order execution. Select “Not Allowed” otherwise.

10. Set the **Enforce Core Returns for Backflush/Regular Parts** field to “Yes” to enforce return of core for backflushed or regular parts. Select “No” otherwise.

11. Check the appropriate boxes under **Part Types for Additional Part Reporting**, to indicate the type of non-standard part that can be reported.

In the **Employee Timesheet Reporting** group box,

12. Set **Check Employee Presence with Attendance Record** as “Required” or “Not Required”.

Note: If the option is set as “Required”, then the system checks for the presence of the employee in the organisation for the time reported in the work center.

13. Select “Allowed” in the **Reporting of Extra Hours** field, to allow the reporting of extra hours by the employee. Select “Not Allowed” otherwise.

14. Set the option as “Required” in the **Computation of extra Hours** field, to compute the cost of extra hours reported by the employee. Select “Not Required” otherwise.

15. Set the **Employee Time Sheet Updation Mode** to "Clock" to update employee time sheet using a clock, or "Manual" to update the employee time sheet manually.

16. Set the **Confirmation of Timesheet Records** as “Required” or “Not Required”.

17. Set the **Authorization of Timesheet Records** as “Required” or “Not Required”.

Note: If the “Confirmation of Timesheet Records” is set to “Not Required”, the “Authorization of Timesheet Records” must be set to “Required

18. Use the **Reference Date for Compliance Updation drop-down list box to** specify the reference date to be considered while updating the compliance details.

    - Work Start Date – Select this option if the starting date of the work must be considered as the reference date, while updating the compliance details.
    - Work End Date - Select this option if the completion date of the work must be considered as the reference date, while updating the compliance details.
    - Test Flight COM Issue Date - Select this option if the date of issue of the certificate of maintenance for the test-flight activities must be considered as the reference date, while updating the compliance details.
    - Regular COM Issue Date - Select this option if the date of issue of the certificate of maintenance for regular flight activities must be considered as the reference date, while updating the compliance details.

In the **Conditions For Part Return Reconciliation** multiline, specify whether the reconciliation of return quantity is allowed for the part types "Raw Material”, “Component”, “Expendable”, “Tool”, “Consumable” and “Kit”.

19. Select the **Ret. Type – Excess / Returnable** as “Allowed” to allow the modification of the part return quantity for excess returns or returnable parts. Select “Not Allowed” otherwise.

20. In the **Ret. Type – Core** field, select “Allowed” to allow the modification of the part return quantity only for core returns. Select “Not Allowed” otherwise.

21. Click the **Update Options** pushbutton to update the option settings.

Recording employee time sheet for hangar work order or task

Employees can report their time sheet on a daily basis. Time sheet reporting involves the following:

- Time spent by the employee on various work orders/tasks on a given date.
- If an employee works in different time slots having differential rates (such as Overtime, Holiday work etc.), the time spent in each of the time slots can be recorded.

1. Select **Record Timesheet for Hangar Work Orders** under **Hangar Work Reporting** business component. The **Record Employee Timesheet for Hangar Work Orders** page appears. *See Figure 3. 3.*
2. Specify the date for which you are recording the time sheet, in the **Worked Date** field and click the **Get Details** pushbutton provided alongside.
3. Select the **Update Mode** as "Clock" or "Manual".

Note: You can record the timings manually by selecting the option "Manual".

4. Click the **Confirm Booking** pushbutton to confirm the timesheet booking details.

On clicking the "Confirm Booking" pushbutton, the system

- *updates the status of the timesheet records from "Fresh" to "Confirmed" if the "Conformation of Timesheet records" is set as "Required" in the "Set Options" activity of the current business component.*
- *updates the status of the timesheet records from "Fresh" to "Authorized", if the "Authorization of Timesheet records" is set as "Not Required" in the "Set Options" activity of the current business component.*

If you are recording the time sheet for a date different from the current date,

5. Enter the **Work Order #** and **Task#** in the **Work Details** multiline.
6. Enter the **Employee Comments**.
7. Set the **Execution Status** of the task to "In-Progress" or "Completed".

Note: You cannot set the execution status to "Completed", if sign-off is pending for the work order/task or if any other employee has reported for the same work order/task and his work reporting is not yet complete.

8. Enter the **Start Time**, **Start Date** and **End Time, End Date** for the selected work order or task.

Note: You cannot modify the Start Date & Time and End Date & Time, if the update mode is set to "Clock".

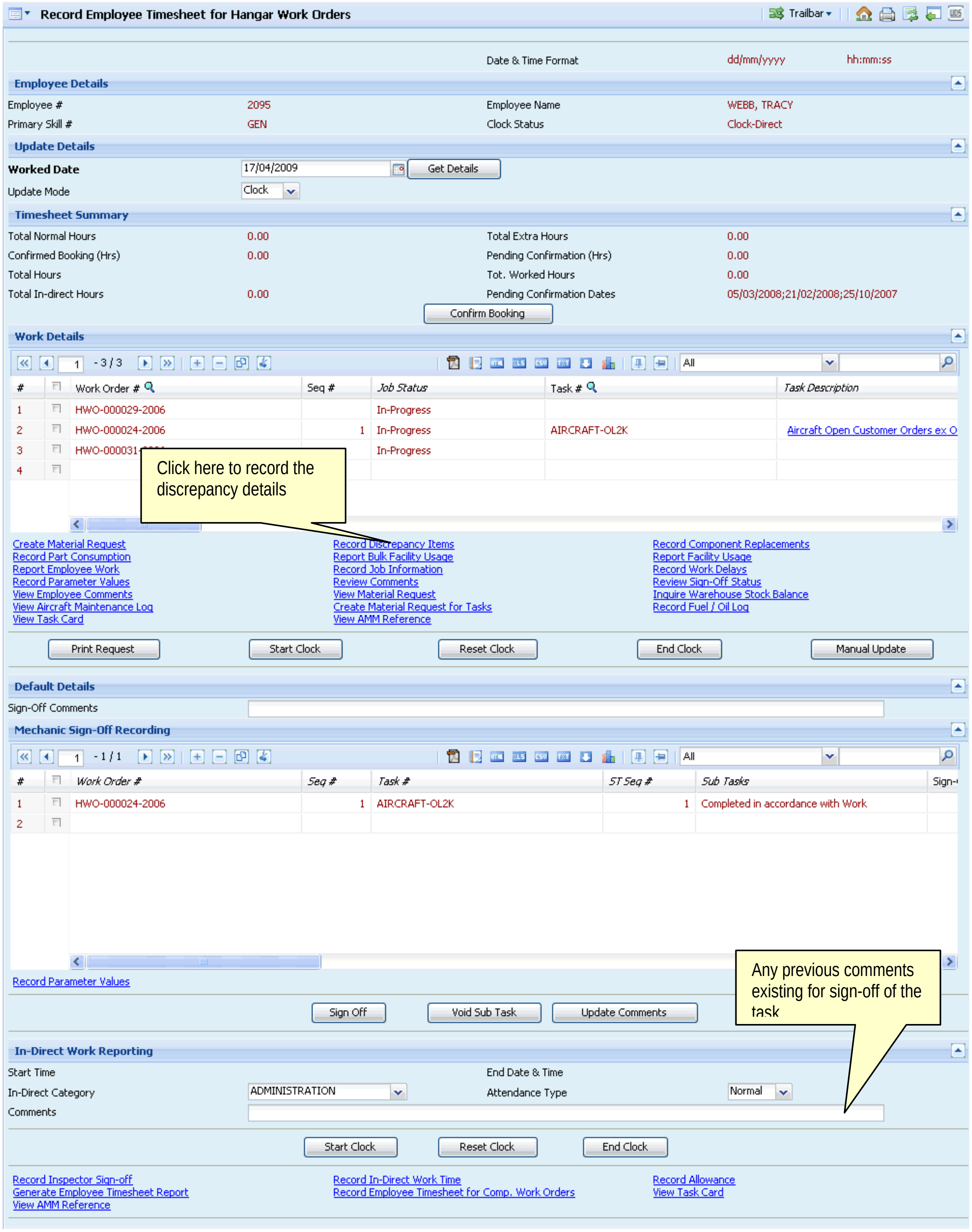


Figure 3. 3 Recording employee time sheet

9. Select the **Attendance Type** for the employee, as “Normal” or from the quick codes identified for the “Attendance Type” in the “Work Center” business component**.**

10. Click the **Start Clock** pushbutton to record the start time of the selected work orders or tasks.

11. Click the **Reset Clock** pushbutton, to remove the starting time.

12. Click the **End Clock** pushbutton to record the end time for the tasks or work orders for which the clock was started.

Note: Ensure that the “Employee Comments” field is not left blank, for those tasks which are pending for sign-off by the resource group “Mechanic”.

If the “Worked Date” is different from the current server date, the “End Time” should be specified manually.

On clicking the “End Clock” pushbutton, the system changes the status of the work order to “Completed”, if the status of the last task in the work order is changed to “Completed” and all the other tasks of the work order are already completed.

13. Click the **Manual Update** pushbutton to update the time sheet details for the employee.

Note: On clicking the “Manual Update” pushbutton, the system changes the status of the work order to “Completed”, if the status of the last task in the work order is changed to “Completed” and all the other tasks of the work order are already completed.

In the **Mechanic Sign-Off Recording** multiline,

14. Enter the **Sign-Off Comments.**

15. Set the **Discrepancy Rep.?** field to “Yes” or “No”, to specify whether any discrepancy has been reported for the work order/task.

16. Click the **Sign-Off** pushbutton to sign-off the task selected in the multiline.

Note: On clicking the “Sign-Off” pushbutton, the “User Authentication Web Dialog” screen appears. Refer to the topic “Signing-off using Electronic Signature” for more details.

On successful sign-off

The system performs the following:

- Updates the sign-off status to “Yes” for the selected task.
- When the last task of the work order is signed off, the system updates the status of the work order to “Completed” and completion level to “100%”.

17. Click the **Void Sub Task** pushbutton to void the sign-off of the task selected in the multiline.

Note: On clicking the "Void Sub Task" pushbutton, the "User Authentication Web Dialog" screen appears. Refer to the topic "Signing-off using Electronic Signature" for more details.

On successful sign-off

The system performs the following:

- Updates the sign-off status as "Void", for the selected task.
- When the last task of the work order is signed off, the system updates the status of the work order to "Completed" and completion level to "100%".

18. Click the **Update Comments** pushbutton to update the sign-off comments for the work order/task selected in the multiline.

19. In the **In-Direct Work Reporting group-box** select the **In-Direct Category** and enter the **Comments** pertaining to the indirect work reporting.

20. Click the **Start Clock** pushbutton to record start time for the indirect work hours reported for the employee.

Note: You cannot start the clock once again if the in-direct work reporting has already started.

21. Click the **Reset Clock** pushbutton to reset the start time for the employee.

22. Click the **End Clock** pushbutton to record the end time for the indirect work hours reported for the employee.

You can proceed to do the following,

- Create a maintenance material request.
- Record discrepancies.
- Record component replacement information.
- Record part consumption details.
- Record facility usage information.
- Record employee work information.
- Record Parameter Values and Conditional Evaluation Details.
- Record job information.
- Record the work delay details.
- Record the indirect work hour details for the employees.

- Review comments for hangar work order.
- Review sign-off information.
- View employee comments.
- View maintenance material request.
- Record inspector sign-off information

Signing-off using electronic signature

The following are the prerequisites for using Electronic Signature in this activity:

1. The Smart Card Interface Client installation must have been completed and configured on this computer.
2. A Smart Card Reader must be connected to this computer and configured.
3. Electronic signature authentication must have been enabled for this business component or function in the "Smart Card Interface" business component.
4. The person who will be using the Electronic signature feature must have been enrolled as a smart card user and issued a card in the "Smart Card Interface" business component. The card must be active and valid for the current date.

When the "Sign-Off" pushbutton is clicked, the "User Authentication Web Page Dialog" screen appears. *See Figure 3. 4*

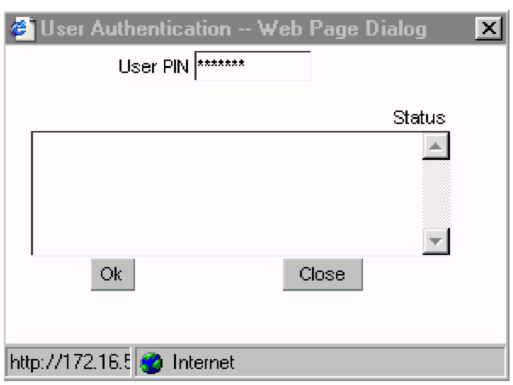


Figure 3. 4 Authenticating user for signing off using Electronic Signature

5. Insert the smart card into the smart card reader and enter your Personal Identification Number (PIN) in the **User PIN** field.
6. Click the **OK** pushbutton.

The system authenticates the entered PIN value against the user's PIN value stored in the smart card.

On successful authentication, the system displays the message “Sign-Off Recorded successfully”.

If an invalid PIN is entered, the system displays the error message “Incorrect Secret Code Submission” and the Electronic Signature cannot be completed.

Note: The smart card will get into "Locked" status, if the number of continuous invalid PIN entries exceeds the maximum number of invalid PIN entries defined in the “Smart Card Configuration” activity of the "Smart Card Interface" business component. Contact the administrator for unlocking the card and to use the smart card again for Electronic signature.

Recording delay information

Deviations from the planned dates can occur due to various reasons, such as non-availability of essential resources, the dependent preceding job not being completed as planned etc. You can enter the delays so that an analysis can be performed on the reasons and suitable action can be taken.

Defining work delay codes

You can create delay codes to report the reasons for the delay in work. You can attach these delay codes to the work order or task, if it is delayed.

1. Select **Create Work Delay Codes** under the **Hangar Work Reporting** business component. The **Create Work Delay Code Information** page appears. *See Figure 3. 5*.

2. Enter the **Delay #**, **Delay Description** and **Delay Category**. The system lists all the quick codes of type “Delay Category” which are in “Active” status.

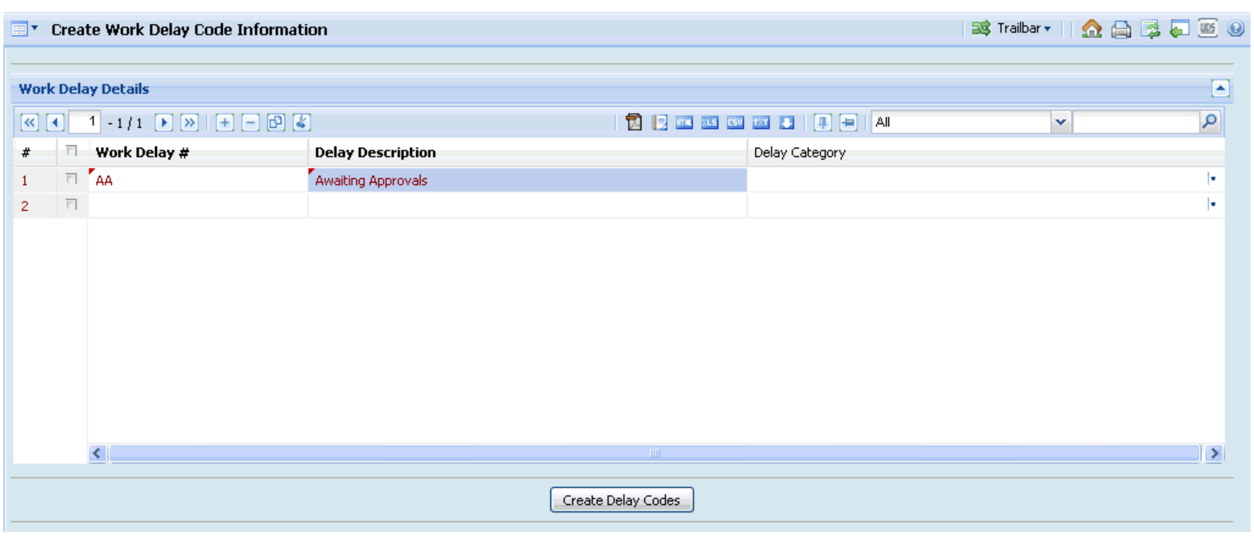


Figure 3. 5 Defining work delay codes

3. Click **Create Delay Codes** to record the delay codes.

Reporting work delays

1. Select the **Record Work Delays** link in the **Record Employee Timesheet for Hangar Work Orders** page. The **Record Work Delay Information** page appears. *See Figure 3. 6*.

2. Select a task from the **Task #** drop down list box to identify the task for which the delay details are recorded.

3. Click the **Get Details** pushbutton. The system displays the previous delay details, if any recorded for the task, in the **Delay Duration Details** multiline.

4. Enter the number identifying the delay in the **Work Delay #** field.

5. Enter other delay details such as **From Date**, **From Time**, **To Date** and **To Time**. Enter the duration of the delay in **Duration** field and any additional information pertaining to the delay, in the **Delay Comments** field.

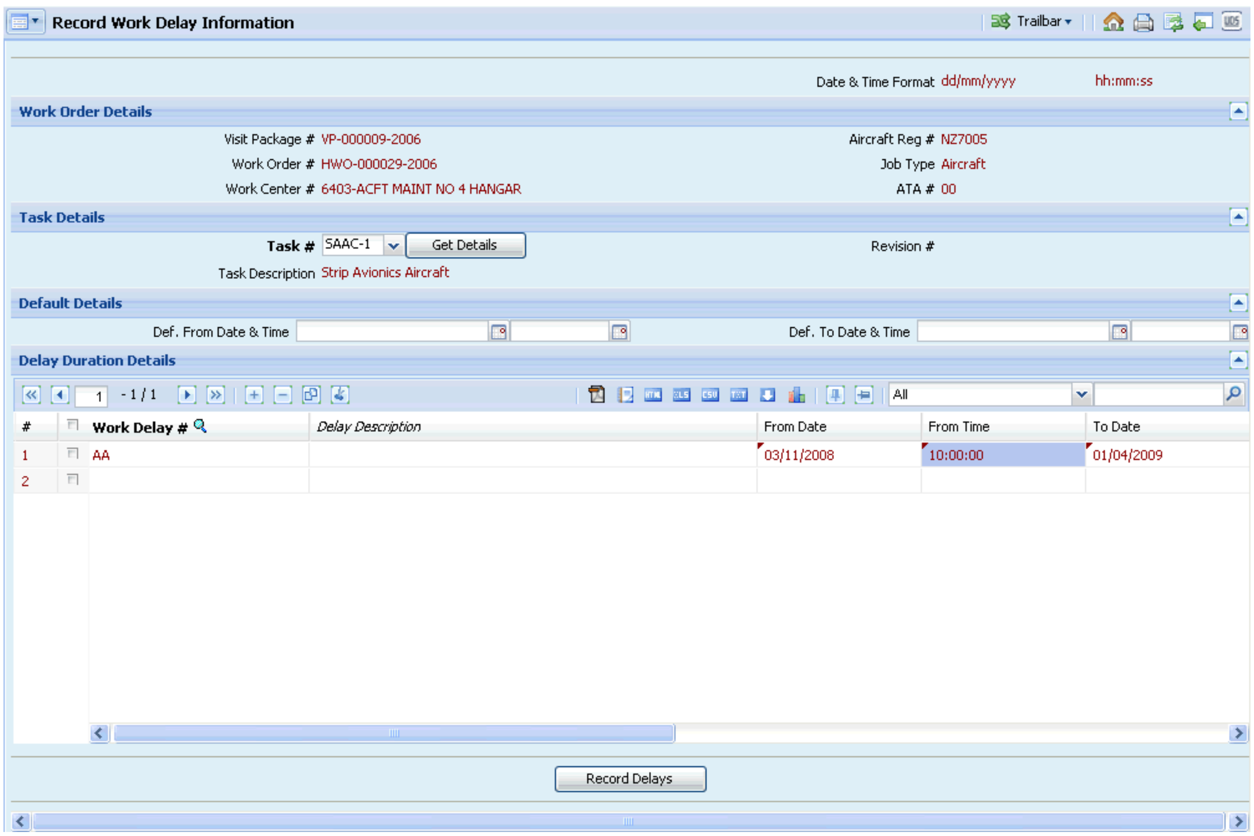


Figure 3. 6 Reporting work delays

6. Click the **Record Delays** pushbutton to record the delay details.

Recording indirect work hours for an employee

You can specify the break duration of the employee by specifying the break starting and the ending time.

1. Select the **Record In-Direct Work Hours** link in the **Record Time Sheet** page. The **Record In-Direct Work Time** page appears.

2. Enter the date for which the employee is entering the indirect work hours in the **Worked Date** field and click the **Get Details** pushbutton.

3. Enter the total break hours or indirect work hours of the employee in the **Break Duration (Hrs)** field.

4. Enter the **Employee Comments** and select the **In-Direct Category**.

5. Select the **Attendance Type** for the employee, as “Normal” or from the quick codes identified for the “Attendance Type” in the “Work Center” business component**.**

6. Click the **Record In-Direct Hours** pushbutton to update the indirect work hours for the employee.

Recording indirect working hour details for the employees in the work center.

You can record the time spent on ad hoc work such as training, meeting or discussion. You can record the indirect working hour details for the employees only if the “Employee Time Sheet Updation Mode” field is set to “Manual” in the “Set Options” activity.

1. Select the **Record In-Direct Work Hours for Employee** link in the **Report & Close Work Order** page. The **Record In-Direct Work Hours for Employees** page appears.

2. Enter the **Search Criteria** and click the **Search** pushbutton to search for indirect work hour details based on the search criteria entered.

   In the **In-Direct Working Hours Details** multiline,

3. Enter the employee number for whom you need to report the work hour details, in the **Employee #** field.

4. Enter the **From Date**, **From Time**, **To Date** and **To Time**.

5. Enter the total time for which the employee is utilized for the indirect work, in the **Duration Hours** field.

6. Select the **In-Direct Category** and enter the **Comments** pertaining to the indirect work reporting.

7. Select the **Attendance Type** for the employee, as “Normal” or from the quick codes identified for the “Attendance Type” in the “Work Center” business component**.**

8. Click the **Record In-Direct Working Hours** pushbutton to update indirect work hour details.

On clicking the “Record In-Direct Working Hours” pushbutton, the system:

- *updates the timesheet status for the newly added records as “Fresh”, if the “Confirmation of Timesheet Records” and “Authorization of Timesheet Records” are set as “Required” in the “Set Options” activity of the current business component.*
- *updates the timesheet status for the newly added records as “Fresh”, if the “Confirmation of Timesheet Records” and “Authorization of Timesheet Records” are set as “Required” in the “Set Options” activity of the current business component.*
- *updates the timesheet status as “Not Required”, if the “Confirmation of Timesheet Records” and “Authorization of Timesheet Records” are set to “Not Required” in the “Set Options” activity.*

Reporting employee work details

1. Select **Report Employee Work** under the **Hangar Work Reporting** business component. The **Employee Work Information** page appears. See Figure 3. 7.

2. Enter the **Search Criteria** to search for the work order and click the **Search** pushbutton.

Note: The system retrieves the work order or task based on the option selected in the Task Reporting field in the “Set Options” activity. If “All Employees” is selected, the work orders or tasks of all the employees are retrieved. If “Assigned Employee” is selected, the work orders or tasks, which have been assigned to the login user, are retrieved

If the employee has already reported the actuals for the work order or task, then the system displays the first date and time at which the actuals were reported, in the **Work Start Date** and **Work Start Time** fields.

*Check the box in the **Select** column of the multiline to select the word order(s) for further processing.*

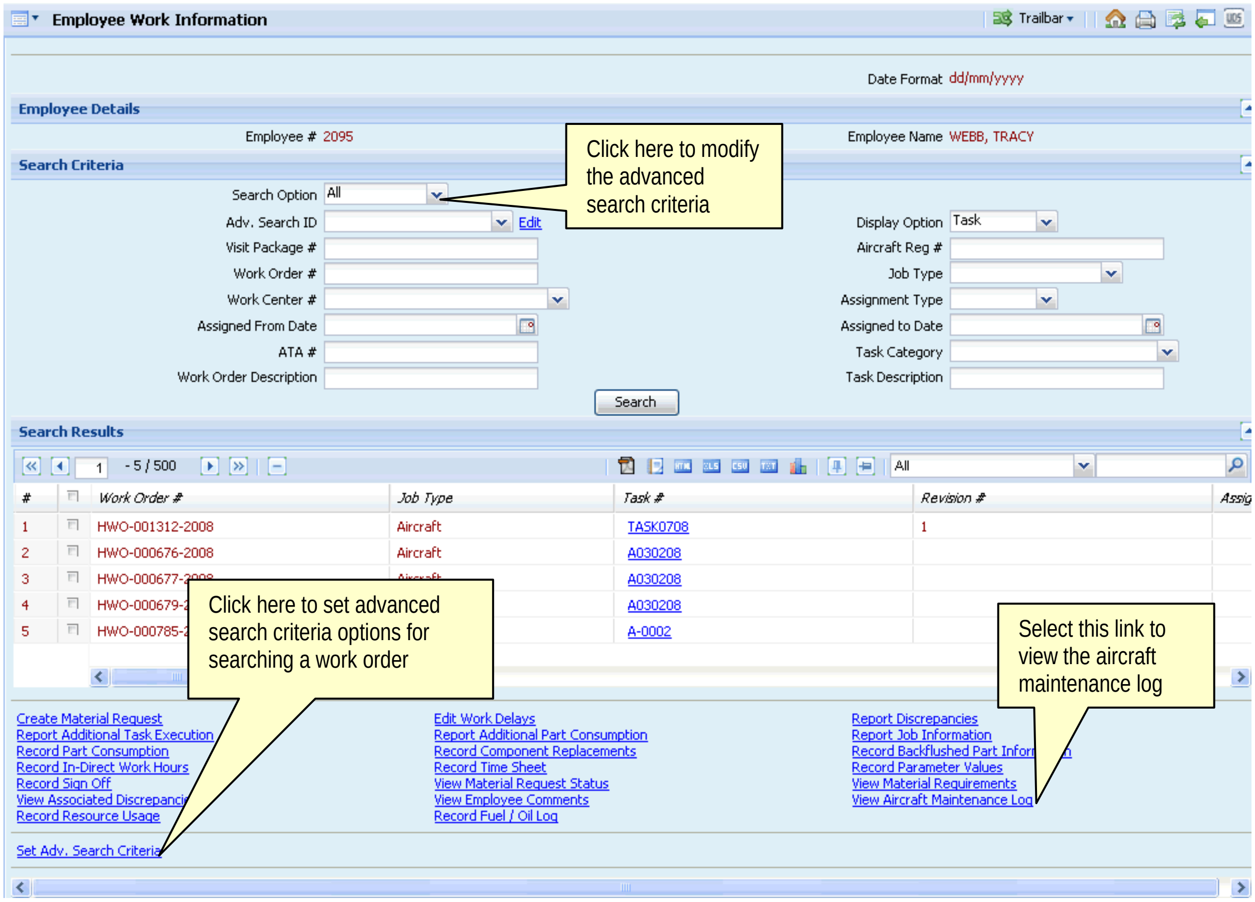


Figure 3. 7 Reporting employee work details

You can proceed to do the following:

- Select the **Record Time Sheet** link to record the time sheet details for the employee.
- Select the **Record Part Consumption** link to specify the actuals for the part utilized for the work order or task.
- Select the **Record Job Information** link to report the job execution details for the wok order or task.
- Select the **Report Discrepancies** link to report the discrepancy for the wok order or task.
- Select the **Record In-Direct Work Hours** link to report indirect work hours for an employee.
- Select the **Record Component Replacements** link to record the component replacement detail.
- Select the Record Parameter Values and Conditional Evaluation Details link to record the parameter values.

- Select the **Report Additional Part Consumption** link to report the additional part utilized for the work order or task.
- Select the **Report Additional Task Execution** link to report the additional task executed.
- Select the **Record Backflushed Part Information** link to record backflushed part consumption details.

To provide further details,

- Select the **Edit Work Delays** link to modify the delay code details.
- Select the **Record Sign Off** link to sign of the task and the sub tasks.
- Select the **Create Material Request** link to select a work order or task for creating a material request document for the part required for the work order or task.

Refer to the topic "Creating material request" under "Scheduling work order", for details on creating material request.

To view further details,

- Select the **View Material Requirements** link to view the material required for the work order or task.
- Select the **View Employee Comments** link to view the comments specified by the employee.
- Select the **View Material Request Status** link to view the status of the material request.
- Select the **View Related Discrepancy** link to view the discrepancy associated to the work order.

Recording time sheet for an employee

3. Select the **Record Time Sheet** link in the **Employee Work Information** page. The **Record Time Sheet** page appears. *See Figure 3. 8.*
4. Select the task for which the execution details must be entered, in the **Task #** drop-down list box and click the **Get Details** pushbutton.
5. Enter the starting date and time of the task in the **From Date** and **From Time** fields.

6. Enter the task execution completed date and time in the **To Date** and **To Time** fields.

Note: Ensure that the date range specified by the From Date and To Date fields, do not overlap with the indirect work hours reported for the same employee.

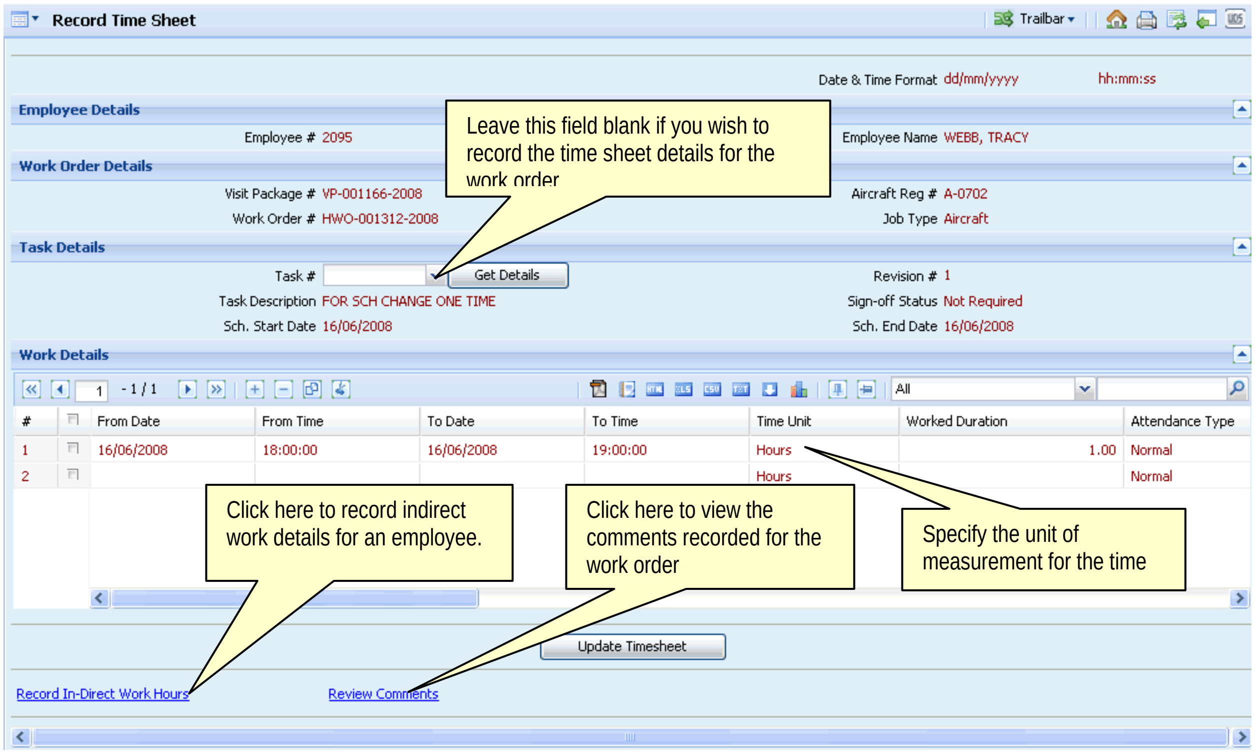


Figure 3. 8 Recording time sheet for an employee

7. Enter the actual time spent on the work order or task by the employee in the **Worked Duration** field.

8. Select the **Attendance Type** for the employee, as “Normal” or from the quick codes identified for the “Attendance Type” in the “Work Center” business component**.**

9. Enter the comments or remarks regarding the work order or task execution in the **Employee Comments** field.

10. Click **Update Time Sheet** pushbutton to update the time sheet details for the employee.

Note: On clicking the Update Timesheet pushbutton, the system:

- *updates the timesheet status for the newly added records as "Fresh", if the "Confirmation of Timesheet Records" and "Authorization of Timesheet Records" are set as "Required" in the "Set Options" activity of the current business component.*
- *updates the timesheet status for the newly added records as "Confirmed", if the "Confirmation of Timesheet Records" is set as "Not Required" and if the "Authorization of Timesheet Records" is set as "Required" in the "Set Options" activity.*
- *updates the timesheet status as "Not Required", if the "Confirmation of Timesheet Records" and "Authorization of Timesheet Records" are set to "Not Required" in the "Set Options" activity.*

Execute a visit package

You can select the visit package and record the work execution details for the work order in the visit package.

1. Select **Execute Visit Package** under **Hangar Work Reporting** business component. The **Select Visit Package page** appears. *See Figure 3. 9.*

2. Search for the visit package and click **Search** pushbutton.

The system displays the visit package details in the **Search Results** multiline.

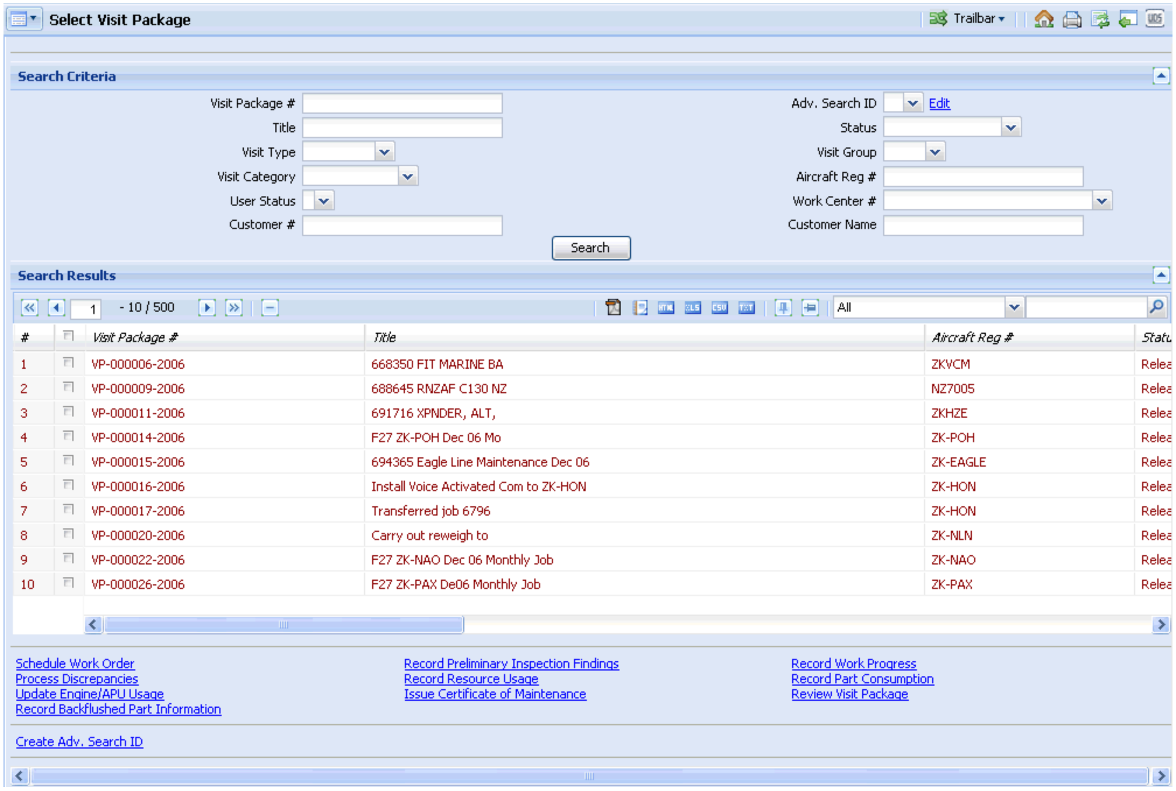


Figure 3. 9 Executing visit package(s)

3. Check the box in the **Select** column of the multiline to select the visit package and select the appropriate link given below for further processing.

Recording part consumption details

1. Select **Record Part Consumption** under the **Hangar Work Reporting** business component. The **Select Work Order** page appears.

2. Select a work order and select the **Record Parts Consumption** link at the bottom of the page. The **Record Parts Consumption Information** page appears. *See Figure 3. 10.*

3. Select the task number for which parts consumption must be reported, in the **Task #** drop down list box and click the **Get Details** pushbutton.

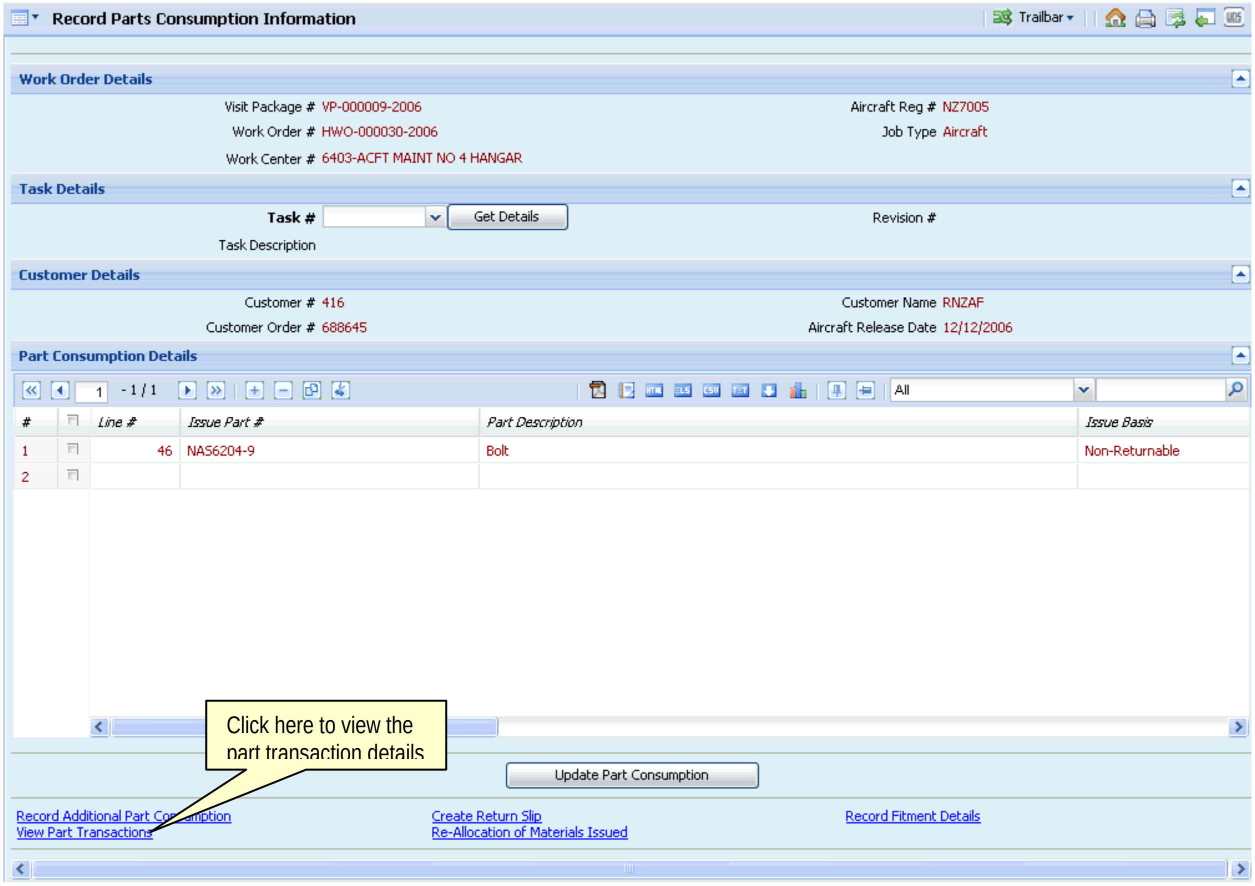


Figure 3. 10 Recording parts consumption

4. Enter the quantity of the parts consumed, in the **Used Qty.** field in the **Part Consumption Details** multiline. Click the **Update Part Consumption** pushbutton to record the details.

Note: The system displays an error message if any other concurrent user attempts to simultaneously modify the part consumption details for the work order.

You can proceed to do the following:

- Select the **Create Return Slip** link, to create a return slip to return unused or unserviceable parts.

  Refer to the topic “Creating a material return slip to return excess or unserviceable parts” for more details.

- Select the **Re-Allocation of Materials Issued** link to reallocate materials issued.

  Refer to the topic “Reallocating materials issued” for more details.

Reporting spare part fitment

You can record the quantity of spare part consumed while executing a task or work order for a part.

Note: You can record the spare part fitment details for only those parts, which are serial-controlled and/or lot-controlled.

1. Select **Record Fitment Details** link in the **Record Parts Consumption Information** page. The **Record Spare Parts Fitment Information** page appears. *See Figure 3. 11.*

2. Select the **Position Number** and enter the **Date Of Attachment** of the part in the **Part Fitment Details** multiline.

3. Enter remarks regarding the attachment of the part in specified position code, in the **Fitment Comments** field.

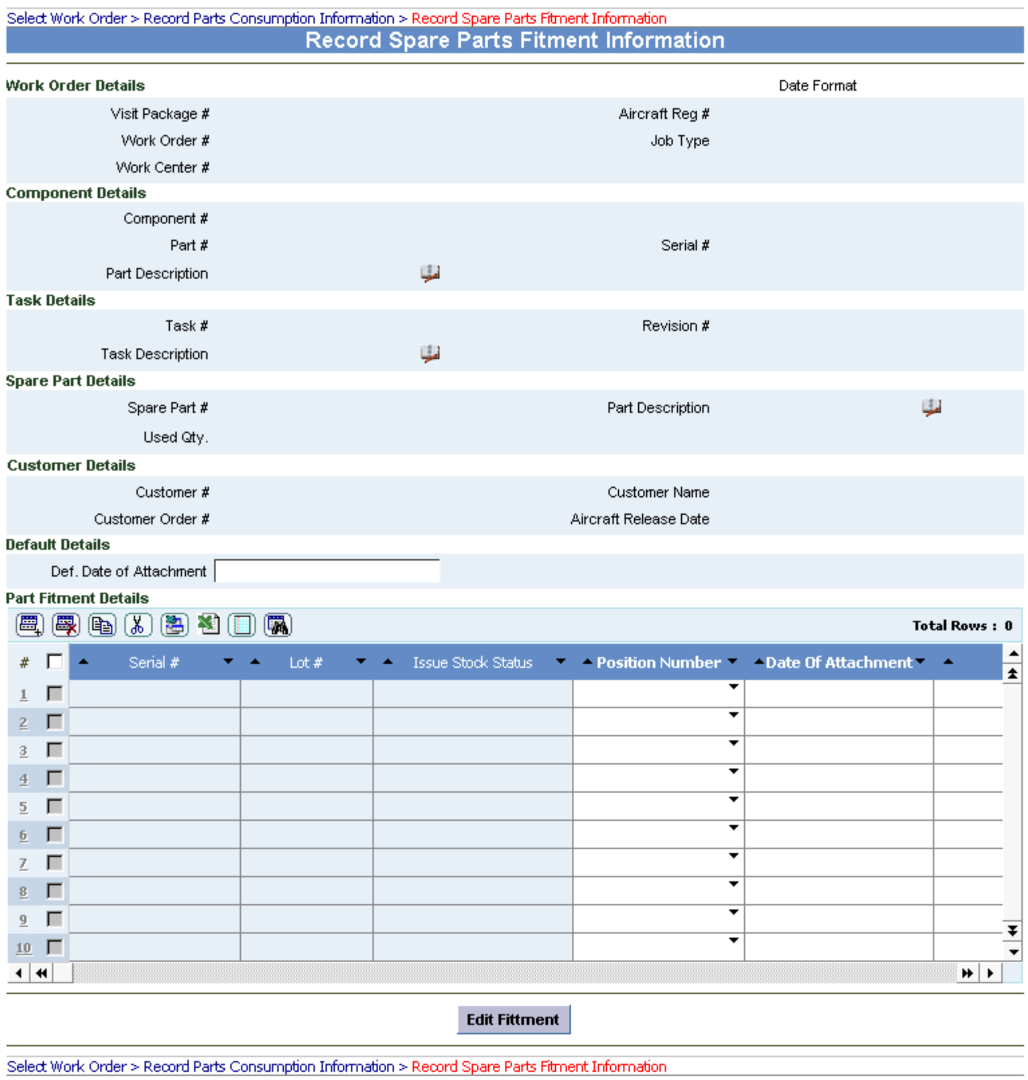


Figure 3. 11 Recording spare part fitment information

4. Click the **Edit Fitment** pushbutton to record the fitment details.

   - *The system updates the new position code details, date of attachment, comments and the work order number, for the aircraft or component in the "Configuration" business component.*

Recording backflushed part information

You can report the consumption details of backflushed parts issued from the inventory, which have been utilized for work order execution.

This page can be invoked from the following activities:

- Record Part Consumption
- Execute Visit Package
- Report Employee Work
- Report and Close Work Order

1. Select the **Record Backflushed Part Information** link in the main page. The **Record Backflushed Part Information** page appears. *See Figure 3. 12.*

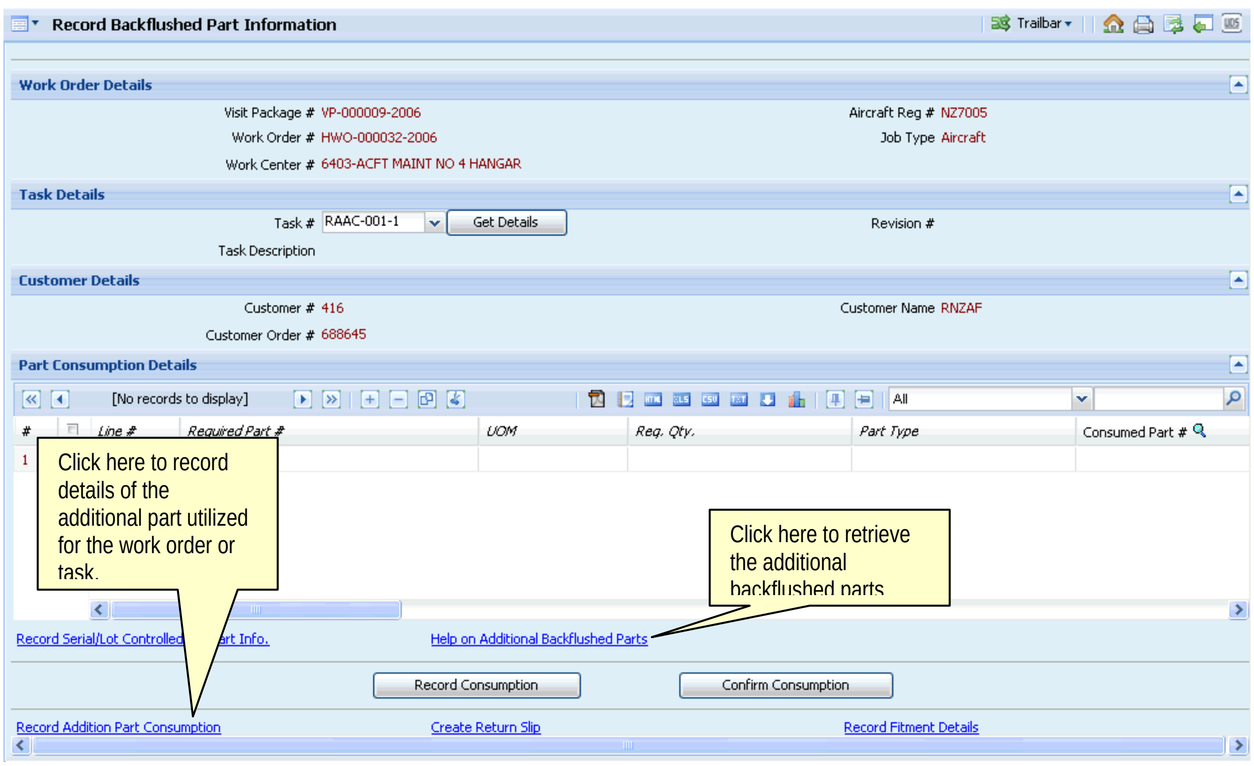


Figure 3. 12 Recording backflushed part information

2. Select the **Task #** in the **Task Details** group-box and click the **Get Details** push button to retrieve task details and backflushed part details reported for the work order-task combination.

3. Select the **Warehouse #** and **Stock Status** in the **Part Consumption Details** multiline.

4. Click the **Record Consumption** push button to record the backflushed part consumption details.

Note: For the work center to which the warehouse is associated, the system ensures that the "Allow Backflushing" field is checked in the "Warehouse Settings" group box in the "Create Warehouse Information" activity of the "Storage Administration" business component.

5. Click the **Confirm Consumption** push button to confirm the backflushed part consumption details.

You can proceed to do the following,

- Select the **Record Serial/Lot Controlled B/F Part Info.** link to record serial/lot details for the backflushed parts.
- Select the **Create Return Slip** link to create the return slip for the unused or excess parts.
- Select the **Record Additional Part Consumption** link to record details of the additional part utilized for the work order or task.

Recording serial number and lot number details for backflushed parts

You can record the serial/lot number details and consumption details of backflushed parts that are "Serial Controlled" or "Lot Controlled".

1. Select the **Record Serial / Lot Controlled B/F Part Info.** link in the **Record Backflushed Part Information** page. The **Record Serial / Lot Controlled B/F Part Info** page appears. *See Figure 3. 13.*

2. Select the **Line #** associated to the serial-controlled or lot-controlled backflushed part, in the **Line Details** group-box.

3. Click the **Get Details** push button to retrieve the serial-controlled and lot-controlled backflushed part details that are reported for the work order-task combination.

4. In the **Serial/Lot Details** multiline, enter the **Serial #**, **Lot #**, **Warehouse-Zone #** and **Bin #** associated to the backflushed part.

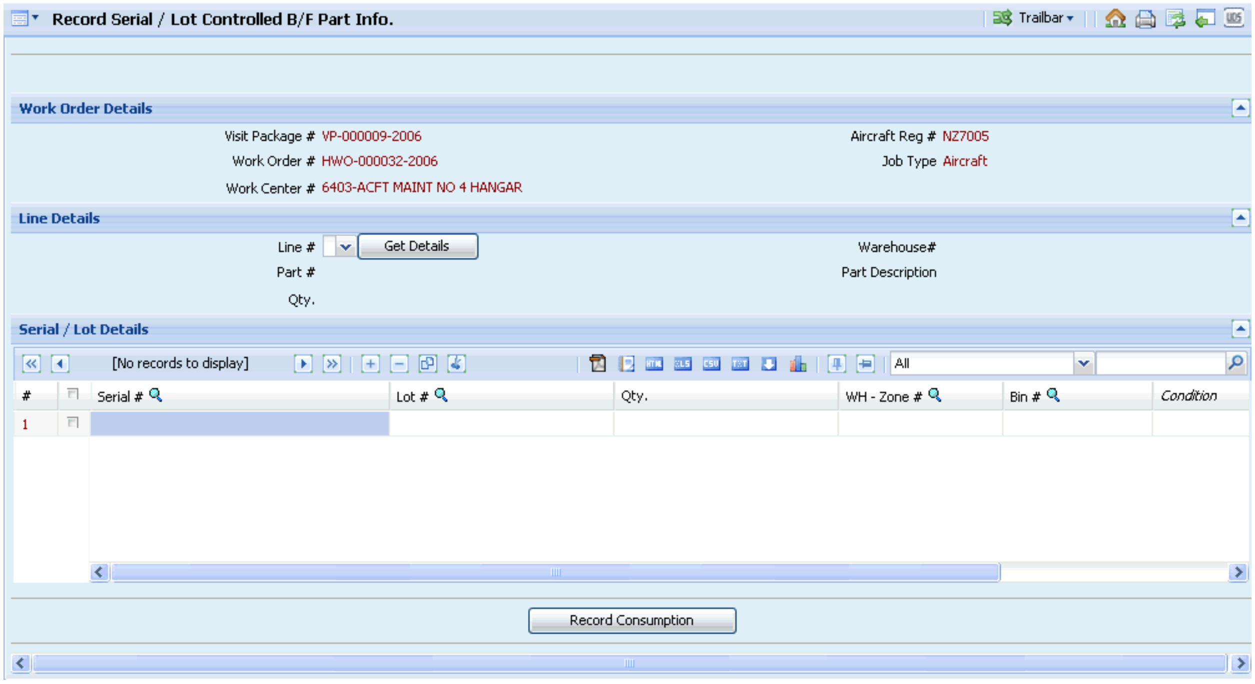


Figure 3. 13 Recording Serial/Lot controlled backflushed part information

5. Click the **Record Consumption** push button to update the serial and lot details entered in the multiline.

Note: Once recorded, the serial or lot details cannot be modified.

Reallocating materials issued

You can record the material issue details for the parts that have been utilized for the work order execution.

1. Select the **Reallocation of Materials Issued** link in the **Record Parts Consumption Information** page. The **Reallocation of Materials Issued** page appears. *See Figure 3. 14.*

2. In the **Material Request Details** group-box, select the **Material Request #** that has already been issued for the part across work orders/tasks belonging to the same visit package.

3. Click the **Get Details** push button to retrieve the issue details corresponding to the material request selected.

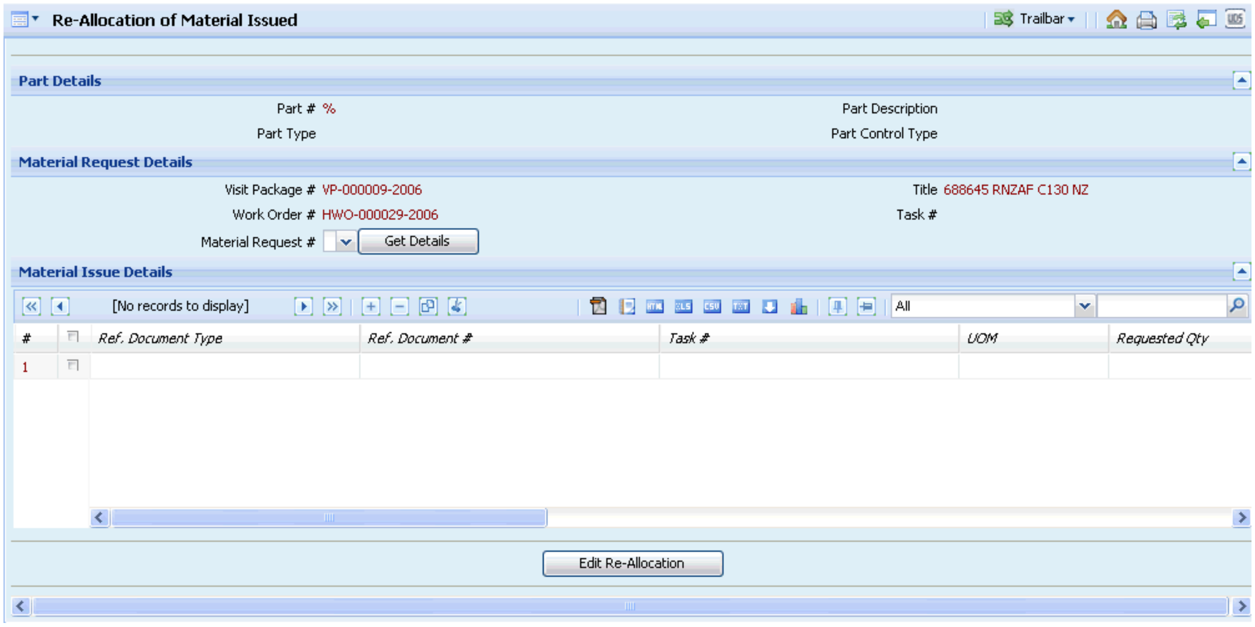


Figure 3. 14 Reallocating materials issued.

4. Enter the **Additional Quantity** and **Remove Quantity** in the **Material Issue Details** multiline.

5. Click the **Edit Reallocation** push button to update the material issue details.

Record additional part consumption details

You can enter the non-standard parts that are utilized for a task or work order.

You can report the non-standard part (the part number that does not exist in the "Part Administration" business component), only if the "Reporting of Non Standard Additional Parts" field is set as "Allowed" in the "Set Options" activity. The part must be of valid part type as selected in the "Part Types for Additional Part Reporting" field in the "Set Options" activity.

1. Select the **Report Additional Part Consumption** link in the **Employee Work Information** page. The **Record Additional Part Consumption** page appears. *See Figure 3. 15.*

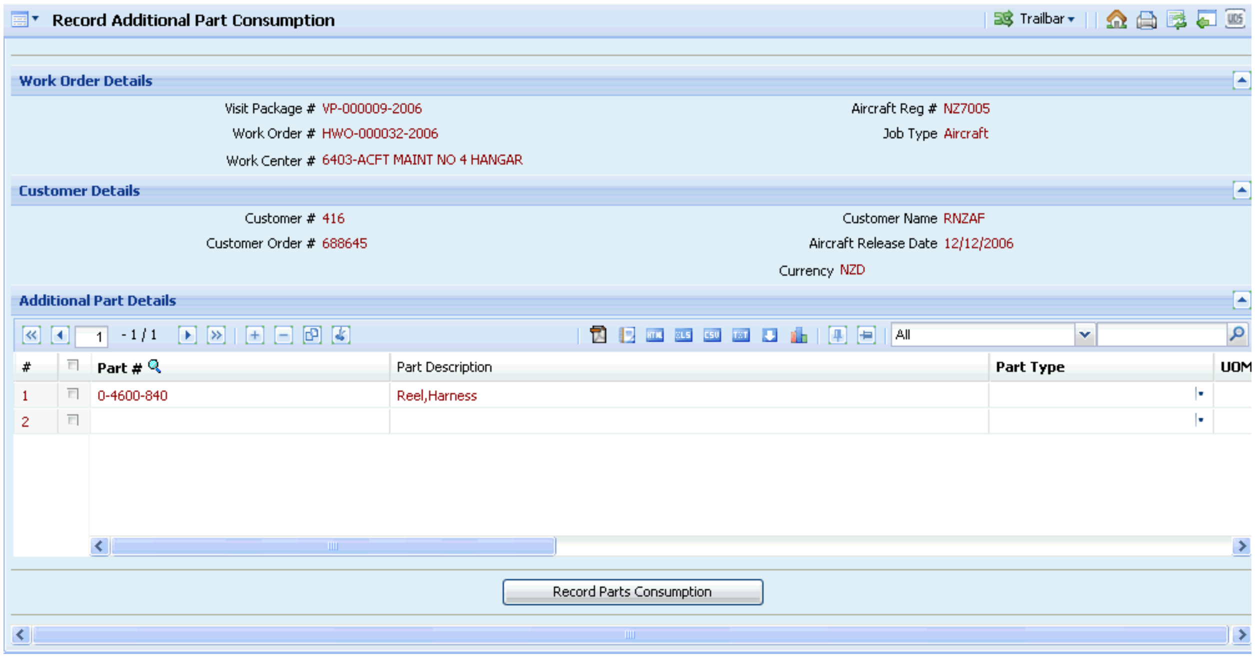


Figure 3. 15 Record additional part consumption

The system displays the **Work Order Details** in the group box.

2. Enter the details of additional parts used, in the **Additional Part Details** multiline.

3. Click the **Record Parts Consumption** pushbutton to record the details of additional parts used.

Recording additional task execution details

You can record the details of any unplanned task performed while executing the work order.

1. Select the **Report Additional Task Execution** link in the **Employee Work Information** page. The **Record Additional Task Execution** page appears. *See Figure 3. 16.*

The system displays the **Work Order Details** in the group box.

2. Enter the task details in the **Task Details** multiline.

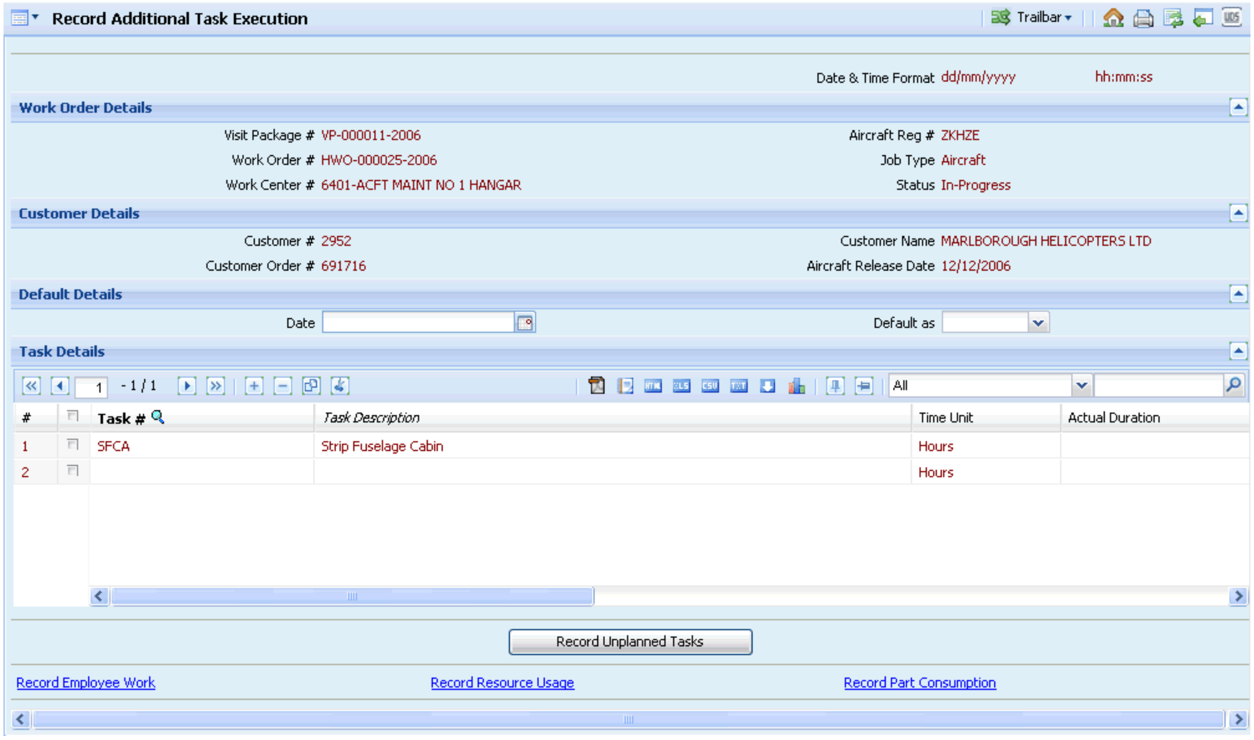


Figure 3. 16 Recording additional task execution details

3. Click the **Record Unplanned Tasks** pushbutton to record the details of the unplanned tasks performed.

Recording component replacement details

1. Select the **Record Component Replacements** link in the **Employee Work Information** page. The **Record Component Replacement Information** page appears. *See Figure 3. 17.*

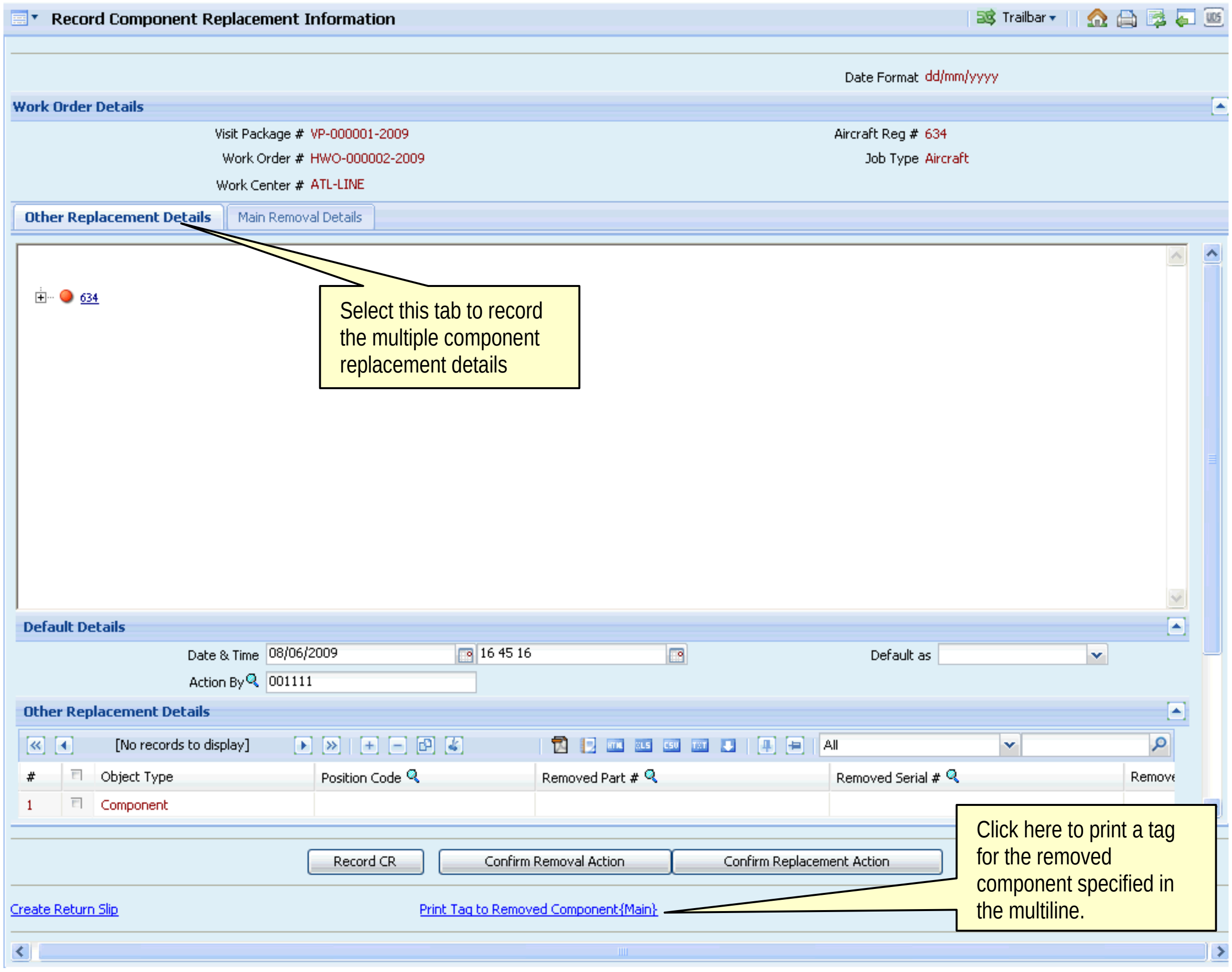


Figure 3. 17 Recording component replacement details

The system retrieves the component replacement transactions that are already recorded for the work order along with the Aircraft configuration tree structure. On launching the page, the system displays the current aircraft configuration along with the position codes, in the form of a tree structure. Details such as Aircraft #, Component#, Position Codes, Part#, Part Description, Serial #, and Component # are displayed in the tree structure. The system refreshes the tree structure whenever a replacement, removal or attachment transaction is recorded for the component.

To proceed, carry out the following

- Select the **Other Replacement Details** tab to record multiple component replacements.
- Select the **Main Removal Details** tab to record the main component removal, attachment or replacement details.

Recording multiple replacement details

1. Select the **Other Replacement Details** tab in the **Record Component Replacement Information** page, to record the multiple component replacement details. *See Figure 3. 17.*

In the Other Replacement Details multiline,

2. Set the **Object Type** to “Component” or “Others”.

Note: You cannot modify the object type for the records already exiting in the multiline.

3. Enter the **Position Code** and Removed **Part #**.

Note: If the object type is “Others”, ensure that the control type of the removed part specified here is “Serial Controlled” or “Lot & Serial Controlled”.

4. Enter the **Removed Serial #, Removed Lot #** and set the **Serial # / Lot # Type** to “New” or “Existing”.

Note: If multiple records with object type “Component” are selected for the component replacement transaction, ensure that the removed part number and serial number combination is different for the selected records.

5. Select the Component Condition as "Serviceable", “"Unserviceable" or ““Phased Out”.

Note: The component condition can be set as “Phased Out” only if the “Work Center #” allows the phasing out of the part.

6. Enter **Installed Part #** and **Installed Serial #**.

Note: If the object type is “Others”, ensure that the control type of the part specified here is “Serial Controlled” or “Lot & Serial Controlled”.

7. Enter the **Removal Date**, **Removal Time**, **Attachment Date** and **Attachment Time**.

8. Set the **Action** field to “Removal” to indicate that the component has been removed or to “Attachment” to indicate that the component has been attached.

9. Enter the **Manufacturer Serial #** and the **Manufacturer Lot #.**

10. Enter the Removed **Component #** identifying the installed component.

Note: Ensure that the number entered here is different from the component number specified in the "Main Removal Details" group box.

To Record CR

11. Click the **Record CR** pushbutton to update the component replacement details.

The system displays an error message if any other concurrent user attempts to simultaneously modify the component replacement details for the work order.

Sets the status of the generated component replacement numbers to "Fresh".

Updates the status of the work order to "In-Progress".

Note: If multiple records with object type "Component" are selected for the component replacement transaction, ensure that the removed part number and serial number combination is different for the selected records.

For the installed part with serial number type "New", the system generates a new component number.

The system generates a new lot number for the specified part number based on the Numbering Type defined in the "Document Numbering Class" business component, only if :

- *the "Object Type" is set to "Others".*
- *the "Serial # / Lot # Type" is set to "New".*
- *the "Manufacturer Lot #" is specified.*

Generates a purchase request for the outgoing component, if:

- *The "Aircraft Ownership" and "Component Ownership" is set as "Owned".*
- *The "Component Condition" is set as "Phased Out"*
- *The "Action on Phase-Out" is set as "Generate Purchase Request"*
- *The "Work Center #" of Hangar Work Order has "Phase-Out" policy*

Updates the condition of the outgoing component to "Phased-Out".

To Confirm Replacement Action

12. Click the **Confirm Replacement Action** pushbutton to confirm the replacement details after creating the component replacement transaction.

Note: If multiple records are selected in the multiline, ensure that the removed part number and serial number combination is different for the selected records.

Note: The system ensures the following:

- *The object type must be set as "Component".*

- *The removal date and time of the removed component must be later than the initialization date and time of the parameter value of the removed component as available in the parameter value history, in the "Aircraft" business component.*
- *The attachment date and time of the installed component must be later than the initialization date and time of the parameter value of the installed component as available in the parameter value history.*

Note: You cannot confirm the replacement details before confirming component removal, if the replacement type is set to "Restoration", "Replacement" or "Remove Only".

The system does the following:

- *Sets the status of the component replacement transaction to "Replaced".*
- *Changes the status of the work order to "In-Progress".*
- *Updates the "Configuration" business component with the installed part and the serial number for the position code.*

For the parts being phased out, the system updates the component condition to "Phased Out" in the "Aircraft" business component. Updates the pending return quantity for the phased part as "0" in the "Record Parts Consumption Information" page.

Generates purchase request for the phased out part, if:

- *The "Aircraft Ownership" and "Component Ownership" is set as "Owned"*
- *The "Action On Phase Out" for the part is set to "Generate Purchase Request".*
- *The "Work Center #" of Hangar Work Order has "Phase-Out" policy.*

To Confirm Removal Action

13. Click the **Confirm Removal Action** pushbutton to confirm the component removal details after creating the component replacement transaction.

Note: If multiple records are selected in the multiline, ensure that the removed part number and serial number combination is different for the selected records.

Note: Ensure that the object type is "Component" and replacement type is other than "Attachment Only".

The system ensures that the removal date and time of the moved component is later than the initialization date and time of the parameter value of the removed component as available in the parameter value history, in the "Aircraft" business component.

The system does the following:

- *Sets the status of the component replacement transaction to "Removed".*
- *Changes the status of the work order to "In-Progress".*

- *Updates the "Configuration" business component with the removed part and the serial number for the position code.*

✐ *For the parts being phased out, the system updates the component condition to "Phased Out" in the "Aircraft" business component. Updates the pending return quantity for the phased out part as "0" in the "Record Parts Consumption Information" page.*

✐ *Generates purchase request for the phased out part, if:*

- *The "Aircraft Ownership" and "Component Ownership" is set as "Owned"*
- *The "Action On Phase Out" for the part is set to "Generate Purchase Request".*
- *The "Work Center #" of Hangar Work Order has "Phase-Out" policy.*

✐ *The system will not update the removal details in the "Configuration" business component, if the position's current attachment status is "Unknown" in the "Build Component Configuration" activity of the "Configuration" business component. On confirming the removal, the system updates the position's attachment status to "Removed".*

To proceed, carry out the following

▼ Select the **Main Removal Details** tab to record the main component removal, attachment or replacement details.

Recording main removal details

1. Select the **Main Removal Details** tab in the **Record Component Replacement Information** page. *See Figure 3. 18.*

In the **Main Removal Details** group box,

2. Enter the **Position Code** where the component is fitted in the aircraft.

✐ *Note: You cannot leave this field blank, if the Replacement Type is set to "Attachment Only".*

3. Enter the tag number to be attached to the component after its removal from the aircraft, in the **Tag #** field.
4. Enter the reason for removing the component from the position code, in the **Reason #** field.
5. Enter the date and time at which the component is removed from the position code, in the **Removal Date & Time**.
6. Enter the code identifying the employee who removed the component, in the **Removed By** field.

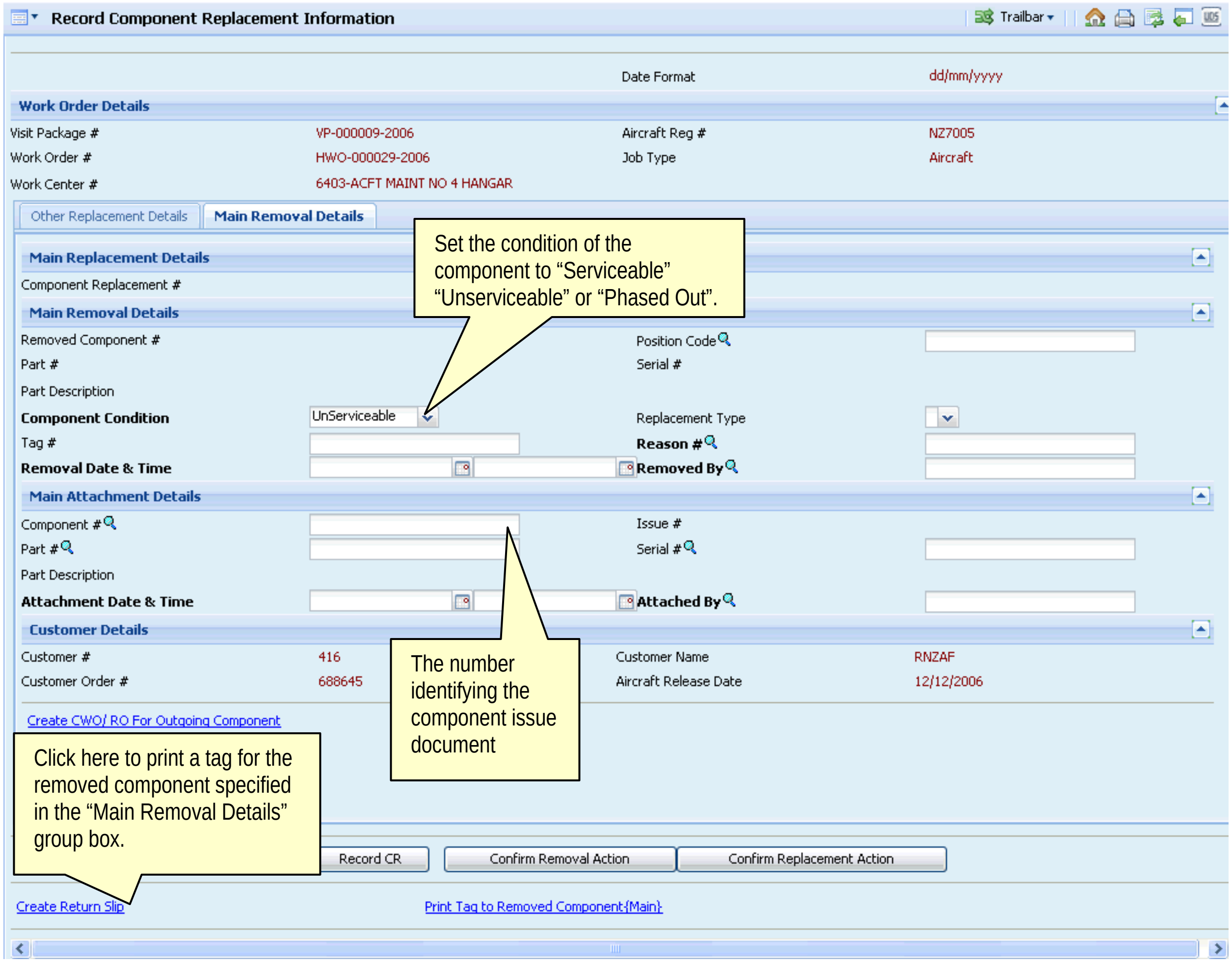


Figure 3. 18 Recording main removal details

In the **Main Attachment Details** group box,

7. Enter the component to be installed in place of the removed component in the **Component #** field.

8. Enter the **Part #** and **Serial #.**

9. Enter the date and time at which the component is attached to the aircraft in the **Attachment Date & Time** field.

10. Enter the code identifying the employee who attached the component, in the **Attached By** field.

11. Click the **Record CR** pushbutton to update the component replacement details.

The system updates the component replacement details on clicking the “Record CR” pushbutton. For more details refer to the topic "To Record CR" in the "Recording multiple replacement details".

12. Click the **Confirm Removal Action** pushbutton, to confirm the component removal details after creating the component replacement transaction.

The system confirms the component removal details on clicking the “Confirm Removal Action” pushbutton. For more details refer to the topic " To Confirm Removal Action" in the "Recording multiple replacement details".

13. Click the **Confirm Replacement Action** pushbutton, to confirm the replacement details after creating the component replacement transaction.

The system confirms the component replacement details on clicking the “Confirm Replacement Action” pushbutton. For more details refer to the topic " To Confirm Replacement Action" in the "Recording multiple replacement details".

To proceed, carry out the following

- Select the **Other Replacement Details** tab to record multiple component replacements.

Recording job execution

You can record the execution details for the work order or for the task associated to the work order.

1. Select the **Report Job Information** link in the **Employee Work Information** page. The **Job Report Information** page appears. *See Figure 3. 19.*

2. Select the **Task #** in the **Task Details** group box to specify the task for which the execution details must be entered, and click the **Get Details** pushbutton.

Note: If the option setting for the Task Reporting field is set to “Assigned Employees”, then the system lists only those tasks in the work order, which have been currently assigned to the logged in user.

The system retrieves the work order execution details and the discrepancy details.

3. Enter the percentage of work completed, in the **% Completed** field.

4. Select the **Job Status** of the task as “Scheduled”, “In-Progress” or “Completed”.

Note: You have to set this field to “Completed” if the end date and time is entered.

You cannot set the status to “Completed”, if any employee has logged on to a particular task.

5. Enter the **Start Date & Time** of the work order or task.

Note: The starting date and time need to be entered for all those work orders or tasks for which the job status is set to “In-Progress” or “Completed”.

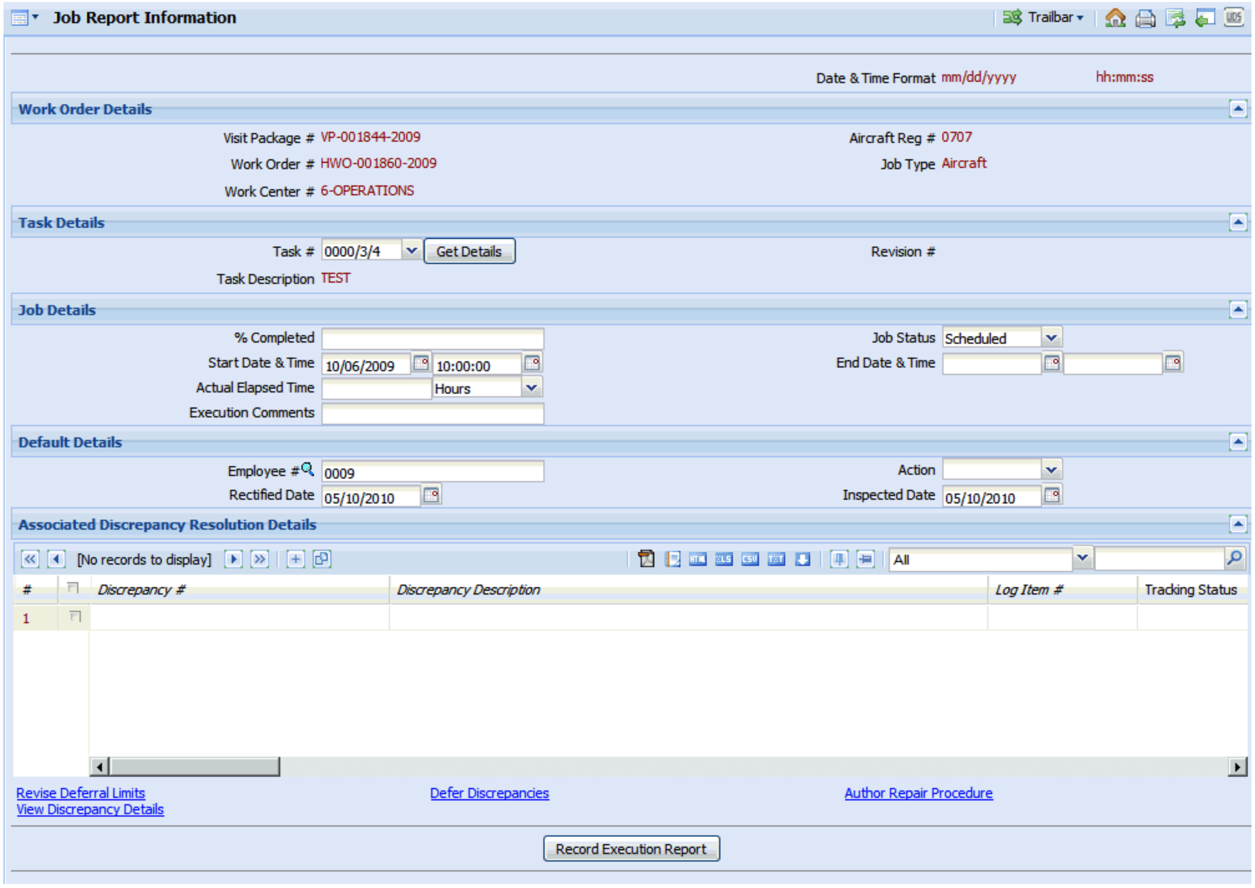


Figure 3. 19 Recording job execution

6. Enter the **End Date & Time** to specify the actual ending date and time of the work order or the task.

Note: The ending date and time need to be entered for all the work orders or tasks for which the job status is set to "Completed".

7. Enter the **Actual Elapsed Time** on the task or work order.

8. Enter the **Execution Comments** to specify any additional remarks or comments regarding the execution of the task or work order.

In the **Default Details** group-box,

9. Select the **Action** performed on the discrepancy. Set the field to "Transferred", "No Fault", "Closed" or "Cancelled".

10. Enter the dates on which the discrepancy was rectified and inspected, in the **Rectified Date** and **Inspected Date** fields, respectively.

In the **Discrepancy Resolution Details** multiline,

11. Select the **Tracking Status** of the discrepancy.

12. Enter the **Corrective Action** for resolving the discrepancy

13. Enter the **Transfer To: Part #** and **Transfer To: Serial #** to specify the part number and serial number of the part to which the discrepancy is to be transferred.

14. Click the **Record Execution Report** pushbutton to update the execution details.

Note: The system updates the job status of the task as "Scheduled" if the job status is set to "In-Progress".

Recording work order discrepancies

You can record the discrepancies for a work order or task. The mechanic or inspector can record the discrepancies for a work order or task.

If the discrepancy has been successfully resolved, you can "close" the discrepancy or set the status of the discrepancy to "Pending" and resolve them later. All pending discrepancies will be automatically routed to the respective planner for initiating further action. You can also enter the remedial action that was performed for resolving the discrepancy, remarks about the discrepancy and the document name, which contains the details of the discrepancy.

1. Select the **Report Discrepancies** link in the **Employee Work Information** page. The **Record Discrepancies** page appears. *See Figure 3. 20.*

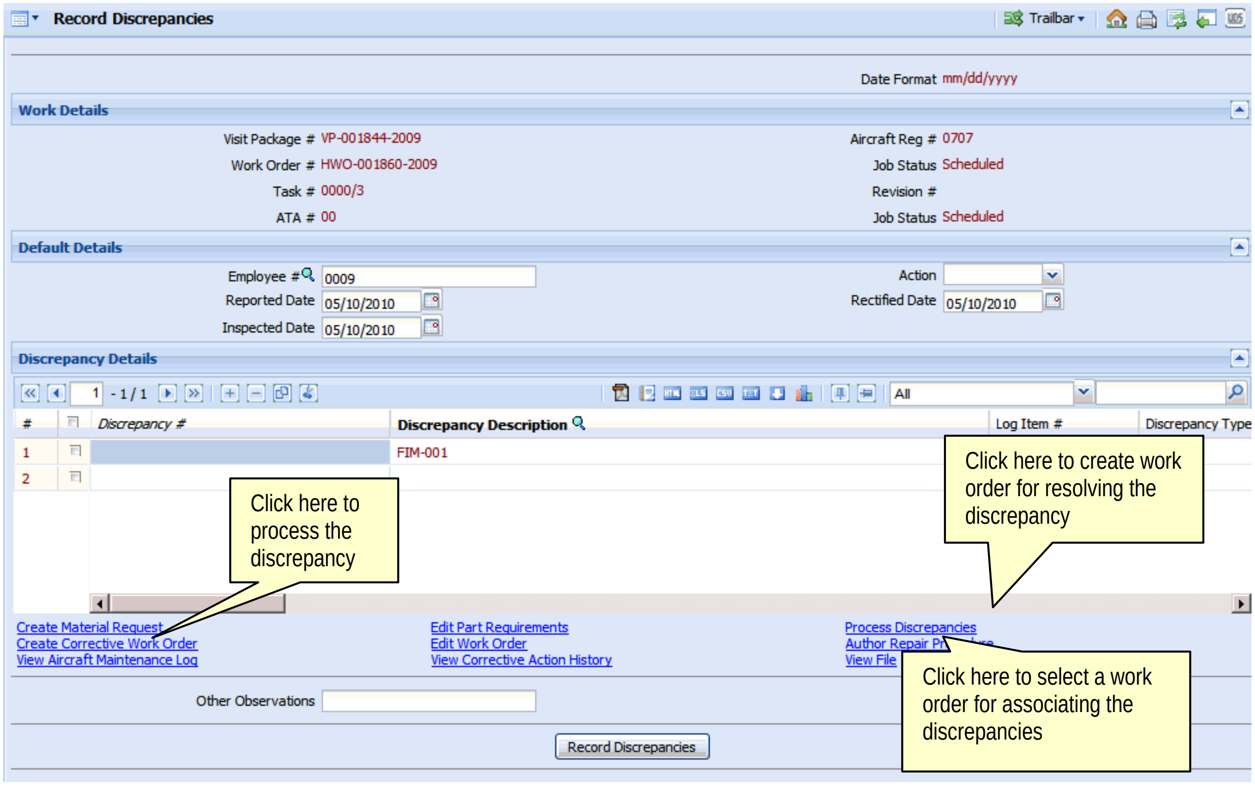


Figure 3. 20 Recording discrepancies

In the **Default Details** group-box,

2. Enter the **Reported Date** to specify the date for which the discrepancies report must be retrieved.

3. Enter the dates on which the discrepancy was inspected and rectified in the **Inspected Date** and **Rectified Date** fields.

4. Select the **Action** to be performed on the discrepancy. Set the field to “To Process”, “Cancel” or “Close”.

In the **Discrepancy Details** multiline,

5. Enter the **Discrepancy Description**.

6. Enter the **Log Item #**.

7. Enter the **Discrepancy Type**.

8. Select the **ATA #** to specify the ATA chapter on which the discrepancy is reported.

9. Enter the **Fault #** and **Cause #** to specify the fault in the aircraft and the cause for the fault.

10. Select the next logical **Action** to be performed on the discrepancy.

11. Enter the **Corrective Action** for resolving the discrepancy.
12. Enter the **Source** and the **Source #**.
13. The estimated time since the discrepancy was reported in the **Est. Elapse Time** field
14. Use the **UOM** drop-down list box to select the unit of measurement for the estimated elapsed time. The system displays the following: "Minutes", "Hours", and "Days".
15. Select the **Tracking Status** of the discrepancy.
16. Select the **Discrepancy Category** and the **Task Category**.
17. Enter the **File Name** to specify the document that contains the details of the discrepancy.
18. Enter **Other Observations** to specify any other observation reported while recording the discrepancy.
19. Click the **Record Discrepancies** pushbutton to update the discrepancies.

Recording Parameter details and conditional evaluation details for the task

Engineering Change Management is a very critical and essential part of Aircraft Maintenance. Most of the engineering changes are very complex in nature and often needs lot of evaluation and follow-up. Consequentially, it is vital that the information systems employed, guide other related functions viz., Maintenance Planning & Production control, through various steps they need to take for effective completion of engineering change initiated, thus ensuring seamless information flow for effective decision making.

Some of the maintenance inspections trigger multiple tasks based on set of conditions defined as part of the task card definition and authoring process. During execution of the main task, mechanic performs the inspection and fills up the evaluation form. Based on the evaluation, another set of task has to be triggered. The planner has to manually review the post compliance follow-up instructions and execution details, to arrive at the next set of action.

The set of post conditional triggers can be captured in this screen. Based on the post-compliance value provided during execution, system can automatically perform the needed post compliance triggering action without manual intervention for analyzing the execution comments and deriving the post compliance action needed.

1. Select the Record Parameter Reading / Cond. Eval. Form link from any of the following business components:

   - Work Monitoring and Control: “Review Work” tab of the “Manage Work Assignments and Reporting” activity.
   - Aircraft Maintenance Execution: “Record Aircraft Maintenance Execution Details” activity.
   - Hangar Work Reporting:
     - “Report & Close Work Order” activity.
     - “Employee Work Information” activity.
     - “Record Timesheet for Hangar Work Orders” activity.
     - “Record Inspector Sign-Off” activity.
   - Shop Work Order:
     - “Record Shop Execution Details” activity.

The **Record Parameter Reading / Cond. Eval. Form** page appears. *See Figure 3.21*

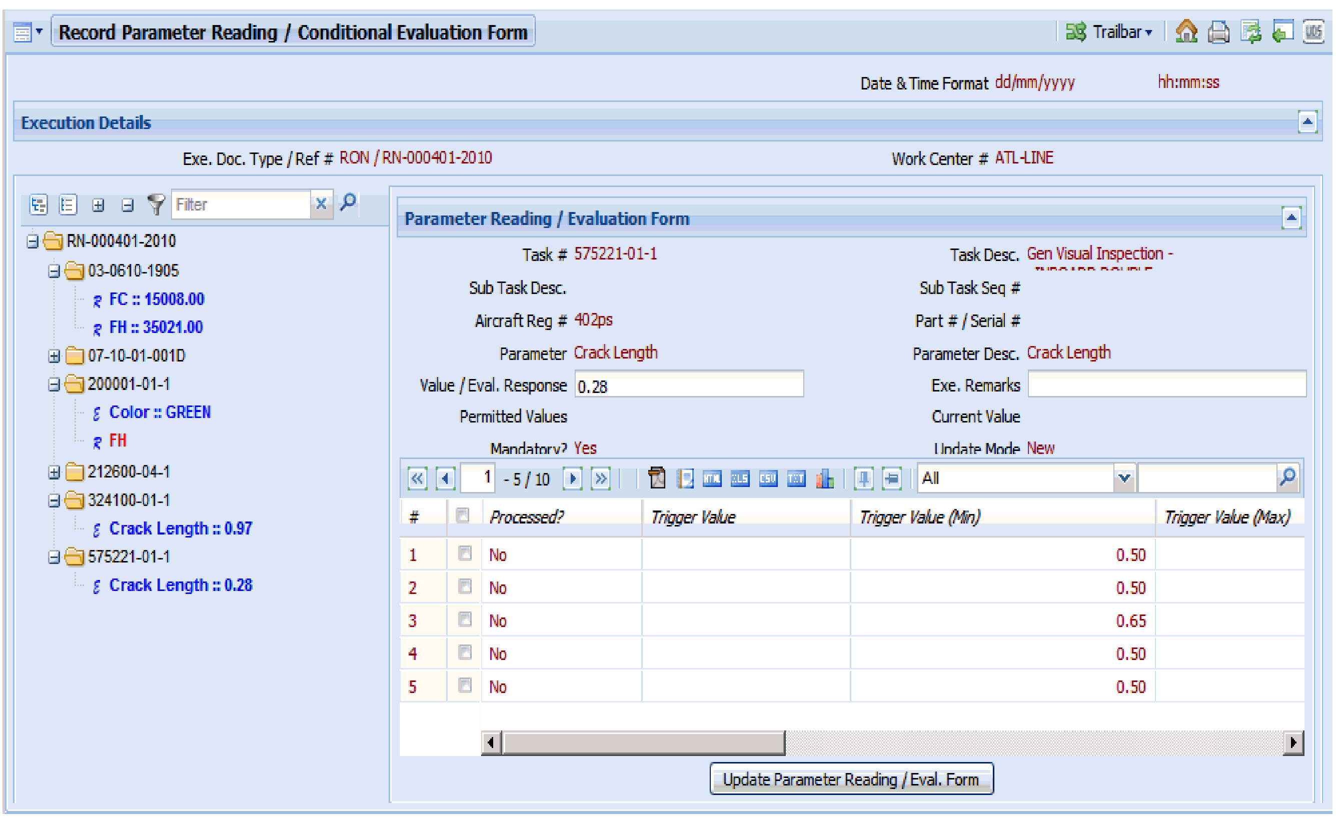


Figure 3. 21 Recording parameter details and conditional evaluation details

The system displays the **Exe. Doc. Type / Ref #** and the **Work Center #** in the **Execution Details** group box.

Tree Structure

The system displays a tree structure in the left pane. The tree will have the 'Execution Doc. #' as the parent node (level). All the nodes of the tree are displayed in an exploded form. The various nodes displayed in the tree are as follows:

First (Parent) node: Execution Doc. #**:** The package, shop work order or the hangar work order against which the tasks are performed on an aircraft / engine.

Second node: Task # which have parameter requirements defined at task and / or at sub-task levels.

Third node:

- Parameter(s) mapped for the task (Parameters are listed in the same order as defined for the task in the "Edit Parameter Reading / Eval. Form' page of the "Maintenance Task'" business component).
- Sub Task Description which has parameter requirements. This is displayed in an order as per the Sub Task Seq #.

Fourth Node: Parameter mapped at each of the sub task level (Parameters are listed in the same order as defined for the task in the "Edit Parameter Reading / Eval. Form" page of the "Maintenance Task" business component).

For the parameter with and without conditional evaluation requirements, the nodes are represented with different symbols as shown below:

 **-** Indicates that the parameter has evaluation details defined for the task or sub tasks in the "Maintenance Task" business component.

 **-** Indicates that the parameter does not have evaluation details defined for the task or sub tasks in the "Maintenance Task" business component.

<u>*Parameter Node with and without Value / Eval. Response:*</u>

When the parameter information is displayed in the tree interface, if the 'Value/ Eval. Response' is already defined for that parameter, the saved 'Value / Eval. Response' value is displayed along with the parameter, concatenated by "::", in 'Bold Blue' font. If the 'Value/ Eval. Response' is not defined for the parameter, the parameter node is displayed in 'Bold Red' font.

<u>**Example:**</u>

If the 'Exec. Doc #' is HVY-003482-2010, 'Task #' is 53A0051-HFEC, 'Sub Task Desc.' is "Inspection of Crack Length" and 'Parameter' is "Length". The tree structure is displayed as follows:

Without Value / Eval. Response:

HVY-003482-2010

|

53A0051-HFEC

|

Inspection of Crack Length

|

Length

With Value / Eval. Response:

HVY-003482-2010

|

53A0051-HFEC

|

Inspection of Crack Length

|

Length :: 5mm

Parameter reading / conditional evaluation details:

2. On clicking the “Task #” and “Sub Task #” nodes in the tree interface, the system displays the details in the Parameter Reading / Evaluation Form” group box and in the “Conditional Maintenance Evaluation” multiline, in the right pane.

3. The system displays the following fields in the **Parameter Reading / Evaluation Form** group box:

    - **Task #**
    - **Task Desc.**
    - **Sub Task Desc.**
    - **Sub Task Seq #**
    - **Aircraft Reg #**
    - **Part # / Serial #**

- **Parameter**
- **Parameter Desc.**
- **Permitted Values** defined for the 'Task # - Sub Task Seq # - Parameter' combination
- **Current Value** of the parameter
- **“Mandatory?”** which Indicates whether the Value / Eval. Response recording is mandatory or not for the parameter.
- **Update Mode** of the parameter

4. Enter the date and time at which the parameter details are updated in the **“Update Date & Time”** field.

5. Enter the employee code of the login user who updated the parameter details in the **Updated by** field.

6. In the **Conditional Maintenance Evaluation** multiline, the system displays the **Processed?, Trigger Value, Trigger Value (Min), Trigger Value (Max), Follow-up Action, Follow-up Task #, Records Follow-up Instructions** and **Evaluation Remarks.**

7. Click the **Update Parameter Reading / Eval. Form** pushbutton to update the parameter reading details and conditional evaluation details for the task.

Recording facility usage

You can record and update the facilities that are utilized during the execution of a task or a hangar work order. Different types of facilities such as “Equipment” and “Tool” are used to execute a task. These facilities are updated once the task execution starts. You can update facilities usage at a task level or at a hangar work order level.

Note: The facility usage can be updated only for those work orders, which are in status other than “Hold” and “Pending Deferral”.

1. Select **Record Facility Usage** under **Hangar Work Reporting** business component. The **Select Facility** page appears.

2. Enter the **Facility #** in the **Direct Entry** group box and select the **Facility Type** as “Equipment”, “Tools” or “Others”.

3. Select the **Record Facility Usage** link provided along side, to record the facility usage details.

Or

4. Enter the **Search Criteria** and click the **Search** pushbutton. Select the **Facility #** in the **Search Results** multiline. The **Record Facility Usage Information** page appears. *See Figure 3. 22.*

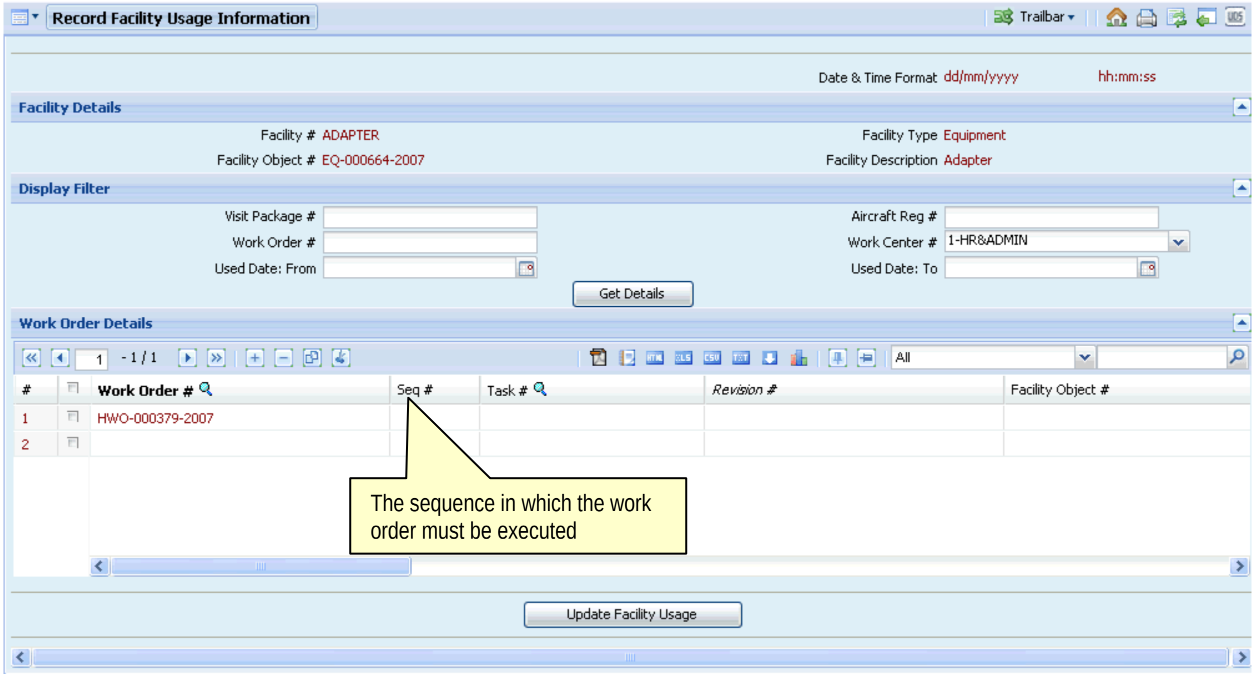


Figure 3. 22 Recording facility usage information

5. Enter the **Display Filter** and click the **Get Details** pushbutton to retrieve the work order and task details, for which the facilities used during the execution must be recorder and updated.

In the **Work Order Details** multiline,

6. Enter the **Work Order #** for which the facility is used.
7. Enter the **Task #** for which the facility is used.
8. Enter the **Facility Object Code** identifying the facility.
9. Select the **Time Unit** as “Minutes”, “Hours” or “Days”, to specify the unit of measurement for the time.
10. Enter the total number of hours for which the facility has been used by the work order or task, in the **Used Duration** field.

Note: The used duration must be equal to the difference between the “From Date” and “From Time” and “To Date” and “To Time”.

11. Enter the **From Date** and **From Time** to specify the actual date and time from when the facility has been utilized by the work order or task.
12. Enter the **To Date** and **To Time** to specify the actual date and time until which the facility has been utilized by the work order or task.
13. Enter the **Facility Usg.** Comments on the usage of the facility for the work order or task.

14. Click the **Update Facility Usage** pushbutton, to update the facility usage details for the work order or task.

Creating a material return slip to return excess or unserviceable parts

During the course of work execution or on work completion, the unused (excess) material that was originally issued, as well as the defective (unserviceable) parts or components removed from the aircraft, must be returned to the respective warehouses. The return process is initiated through the creation of a “Return slip”.

A return slip represents an advice by the execution personnel (mechanic/supervisor) to the warehouse in-charge to accept the listed material in the prescribed quantity, back to the warehouse.

1. Select **Create Return Slip** under **Hangar Work Reporting** business component. The **Select Work Order** page appears.

2. Enter the **Search Criteria** and click the **Search** pushbutton.

3. Check the box in the **Select** column of the multiline to select the work order for creating the return slip and select the link **Create Return Slip**.

4. The **Create Return Slip** page appears. *See Figure 3. 23.*

5. Select the **Numbering Type** for the generating the return slip number automatically.

Note: For details on creating numbering types, refer to the section “Defining numbering types for transactions” in the “Inventory Setup” User Guide.

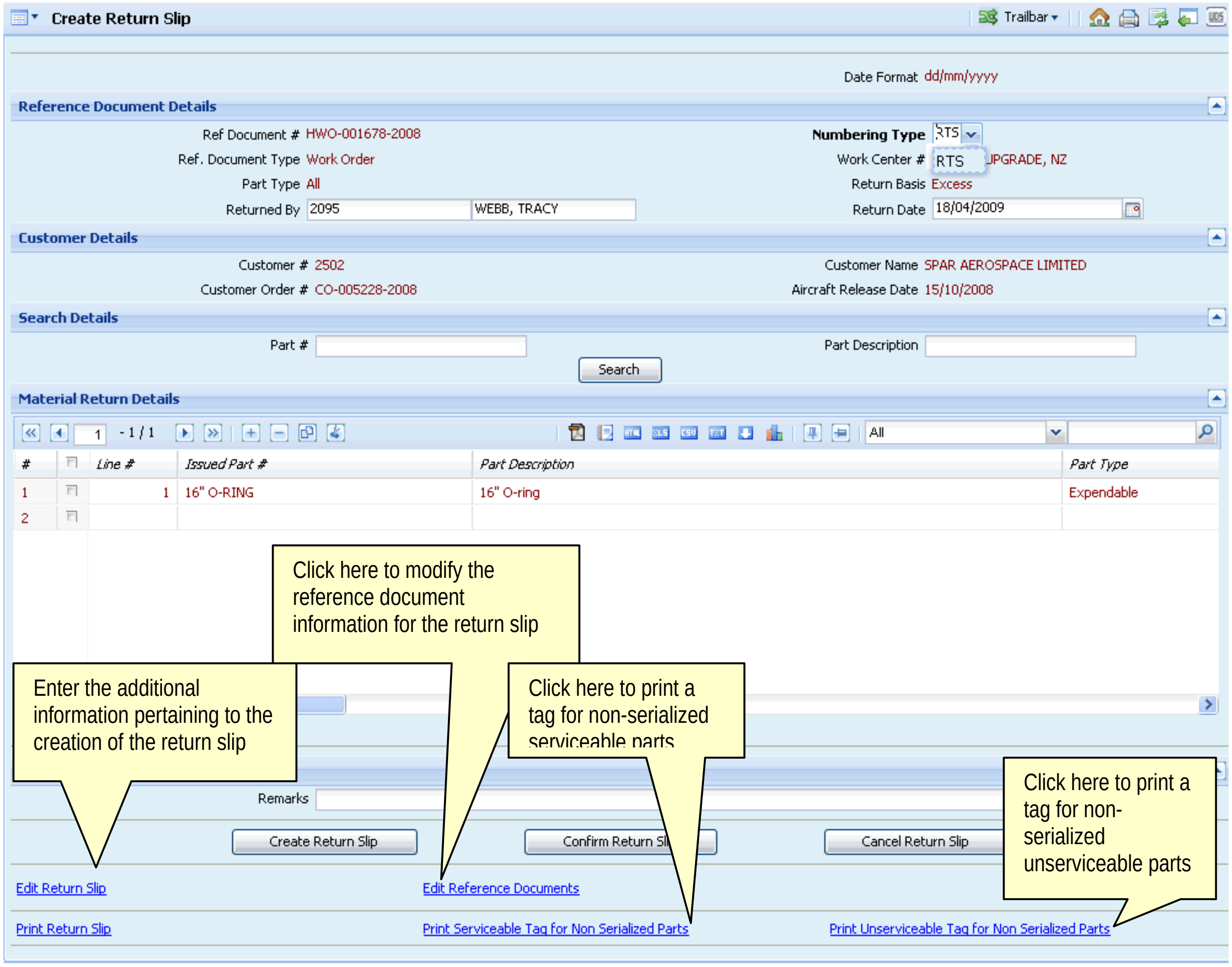


Figure 3. 23 Creating a return slip

6. Enter the employee code and the name of the employee, who returns the material in the **Returned By** field.

7. Enter the **Return Date**.

To search for the part,

8. Enter the **Part#**, **Part Description** and click **Search** pushbutton.

The system retrieves the issued part details in the multiline.

9. In the **Material Return Details** multiline, enter the **Return Part#** to identify the part that is returned.

10. Enter the **Return Quantity**.

Note: If additional parts, which have no issue document reference, are being returned, then, a valid part number and quantity of the part must be entered in the "Return Part #" and "Return Quantity" field.

11. Enter the **Return Classification**.

Note: For parts with Part Control Type “None Controlled”, you must not specify any value in the Return Classification field for a part if; a) the “Return Valuation Based On Return Classification” is set to “Yes” in the “Set Options” activity of the Stock Maintenance component and, b) the Return Basis is “Returnable”.

Note: For parts with Part Control Type “None Controlled”, the Valuation Method must be defined in the “Set Options” activity of the Stock Maintenance component for a Return Classification, Return Basis and Expense Basis combination for parts with Issue Basis other than “Returnable” and Material Type other than “Main Core”.

12. Enter the **Account Usage** and **Costing Usage**.

13. Specify the stock status in which the parts are being returned in the **Return Stock Status** field.

Note: You cannot modify the return stock status, if the return basis of the part is “Excess” or the default stock status is “PBH”.

14. Specify the warehouse, to which the parts are being returned, in the **Return Warehouse #** field.

Note: The warehouse selected here should allow storage of the parts of status selected in the “Return Stock Status” field.

Note: If the part being returned is a “Component”, then the system allows the storage of the component in the return warehouse, only if the condition of the returned part is specified as “Allowable Component Condition” for the warehouse in the “Edit Warehouse –Stock Status / Condition allowed” page of the “Storage Area Administration” business component.

15. Click the **Create Return Slip** push button to store the details entered.

Note: The system displays an error message if any other concurrent user attempts to simultaneously create a return slip for the same part number selected in the multiline, for the work order.

On creation of the return slip, the return quantity details corresponding to the part number are updated against the work order in the “Record Parts Consumption” page.

16. Click the **Confirm Return Slip** pushbutton to confirm the return slip.

Note: On creating or confirming return slip, the system validates if the Part Classification of the parts specified in the multiline is allowed in the return slip warehouse, based on the Part Classification mapped to the warehouse in the “Storage Administration” business component.

Note: If the Part Classification is set as “None” or not defined in the “Part Administration” business component, then the part is classified as Non-Repairable.

17. Click the **Cancel Return Slip** pushbutton to cancel the return slip.

Note: On cancellation of the return slip, the return quantity updated against the part number in the corresponding work order, is reverted to the previous value.

To provide further details,

- Select **Edit Serial No/Lot No Information** link, to enter the serial number and lot number details for the returned part.

Note: You can traverse to this page, only if the return slip contains parts that are "Lot Controlled", "Serial Controlled" or "Lot & Serial Controlled".

Entering serial number and lot number details in a return slip

1. Select **Edit Serial No/Lot No Information** link in the **Create Return Slip** or **Edit Return Slip** page. The **Edit Serial Number & Lot Number Information** page appears. *See Figure 3. 24.*

2. Select the **Line #** of the return slip for which the serial number and lot number details must be entered and click the **Get Details** pushbutton.

3. Enter the **Return Serial #**(if the part is serial number controlled) and **Return Lot#** (if the part is lot number controlled)of the part to be returned.

Note: Ensure that the serial number is not repeated in the multiline, if the part is "Serial Controlled".

Ensure that the lot number is not repeated in the multiline, if the part is "Lot Controlled".

Also ensure that the serial number and lot number combination is not repeated in the multiline, if the part is "Lot & Serial Controlled".

4. Enter the quantity of the part returned to the warehouse, in the **Return Qty**. field.

Note: Ensure that the return quantity is "1", if the returned part is of part control type "Serial Controlled" or "Lot & Serial Controlled". Also ensure that the return quantity is greater than zero, if the returned part is of part control type "Lot Controlled".

If the returned part is of part control type "Lot Controlled", then the system ensures that the returned quantity is not greater than the issued quantity.

Note: You cannot modify the serial number, lot number and return quantity that are automatically retrieved for the returned parts, from the "Create Return Slip" page or from the "Record Component Replacement Information" page of the "Hangar Work Reporting" business component

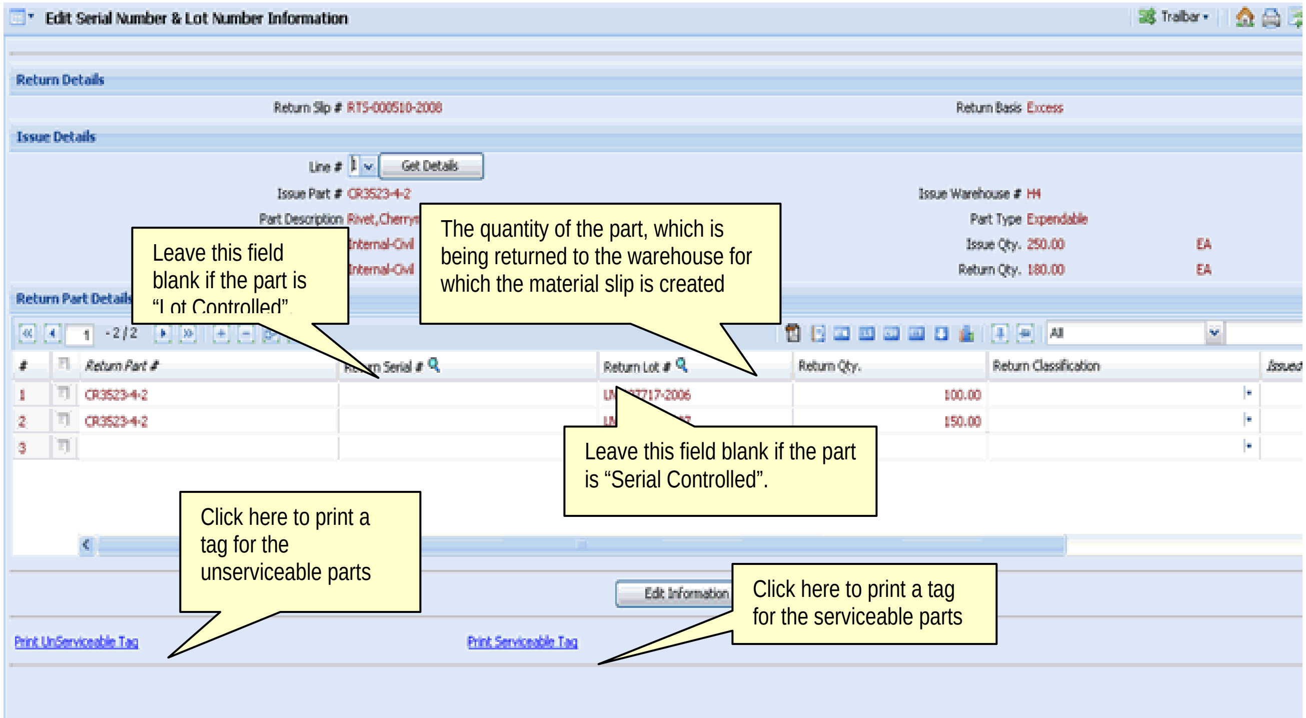


Figure 3. 24 Entering serial and lot number information

5. Enter the **Return Classification**.

Note: For parts with Part Control Type "None Controlled", you must not specify any value in the Return Classification field for a part if; a) the "Return Valuation Based On Return Classification" is set to "Yes" in the "Set Options" activity of the Stock Maintenance component and, b) the Return Basis is "Returnable".

Note: For parts with Part Control Type "None Controlled", the Valuation Method must be defined in the "Set Options" activity of the Stock Maintenance component for a Return Classification, Return Basis and Expense Basis combination for parts with Issue Basis other than "Returnable" and Material Type other than "Main Core".

6. Click the **Edit Information** pushbutton to store the serial number and lot number details.

Note: The system displays an error message, if any other concurrent user attempts to simultaneously modify the serial/lot number details of the return slip.

Signing off information

Signing off task is the confirmation for the task completion. Sign-off represents a formal certification by an authorized mechanic or inspector indicating that the task(s) prescribed by the work order has been accomplished. Sign-off also acts as a form of reporting job completion.

1. Select **Record Inspector Sign-off** under the **Hangar Work Reporting** business component. The **Record Inspector Sign-off** page appears. *See Figure 3. 25.*

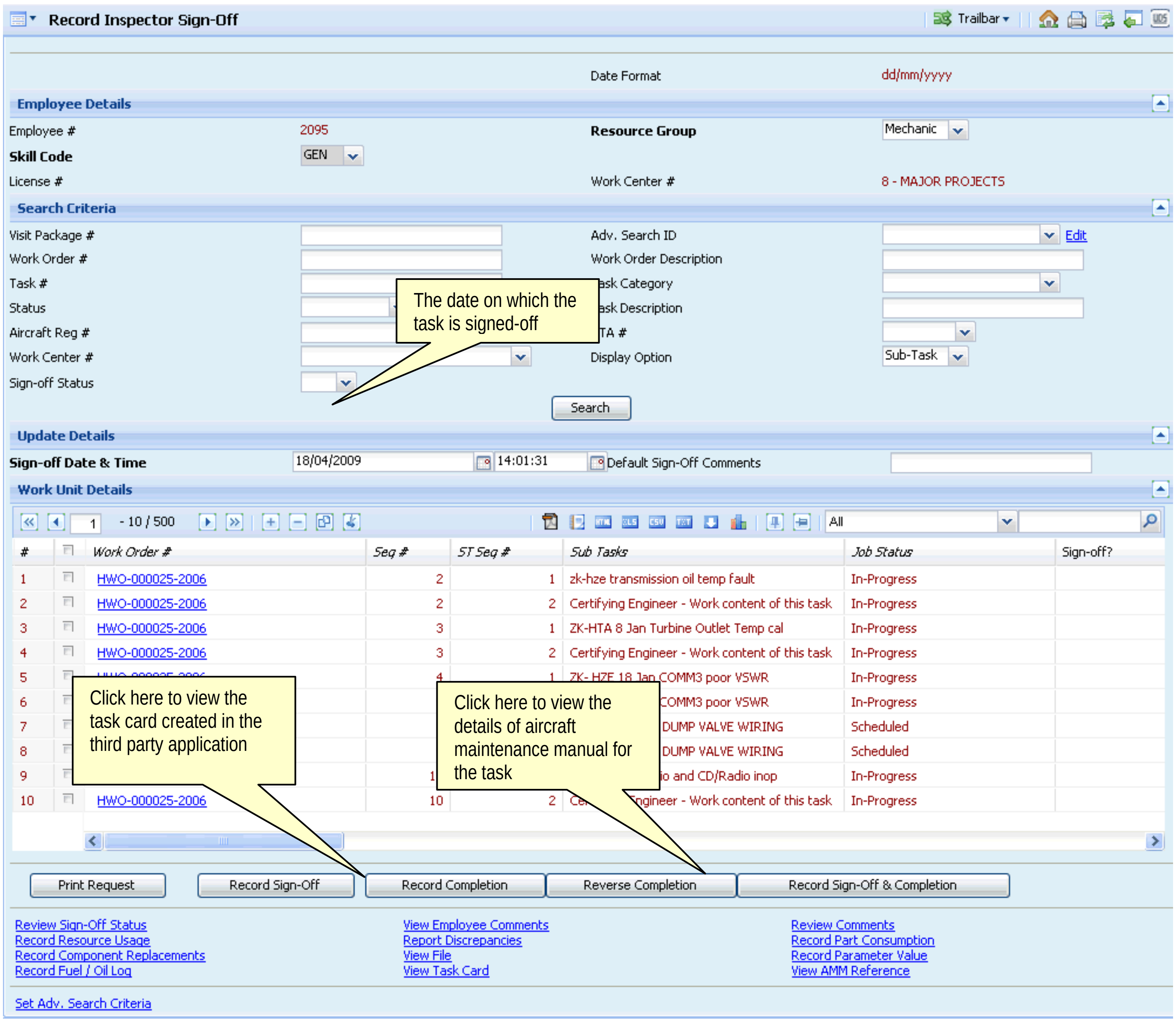


Figure 3. 25 Signing off information

2. Enter **Search Criteria** to search for a visit package for signing off, and click the Search pushbutton. The system displays the details of the visit package in the **Work Unit Details** multiline.

3. Select “Yes” in the **Sign-Off?** field, if sign-off is to be done for the work order task or sub task. Select “Void” is you wish to void the task sign-off. Select “No” otherwise.

4. Enter the date on which the task is signed off, in the **Sign-Off Date** field.

5. Enter the time at which the task is signed off, in the **Sign-Off Time** field.

6. Enter the **Sign-Off Comments** to specify any additional remarks pertaining to the sign-off of the task.

7. Enter the **File Name** to indicate the document or sheet which contains the details of the sign-off.

8. Click the **Print Request** pushbutton to print the inspector sign-off details for the selected task.

9. Click the **Record Sign-Off** pushbutton to update the sign-off details of the selected tasks.

Note: The selected task will be signed off, even if the “Sign-Off?” field is left blank for the task. The task for which the “Sign-Off?” field is set as “No” will not be signed off, even if the task is selected for sign-off.

Ensure that the task selected has not been signed off earlier.

The current employee should have a valid certificate or license, to sign-off the selected task and skill, if “Approval Required” flag set as “Yes” in the “Maintenance Task” business component.

On clicking the “Record Sign-Off” pushbutton, the “User Authentication Web Dialog” screen appears. Refer to the topic “Signing-off using Electronic Signature”, for more details.

If the “Job Status” of a task is set as “Completed”, the system ensures that no employee is assigned to that task.

Ensure the following before clicking “Record Completion” pushbutton.

- *The selected task has not been completed earlier.*
- *Sign-off requirement is completed for the selected task*
- *Access panel is closed before the task is completed, if it has only this task as reference and the “Closing of Access Panel before closing Work Order” is set as “Required”.*

10. Click the **Record Completion** pushbutton to update the completion details of the selected tasks.

Note: The system does not permit the "Status" to be set as "Completed", if the selected work unit has "Job Status" as "Cancelled" or "Transient Status" as "Deferred"

Note: If the "Job Status" of a task is set as "Completed", the system ensures that no employee is assigned to that task.

Note: If all the other tasks of the work order are already completed and if the status of the last task in the work order is also changed to "Completed" then the system changes the status of the work order to "Completed".

11. Click the **Reverse Completion** pushbutton to reverse the completion details of the selected tasks.

Note: Only tasks that are in the "Completed" status can be selected for "Reverse Completion". Tasks associated to an EO-based work order cannot be considered for reversal.

The resource group "Mechanic" cannot reverse the completion, if the task selected is already completed by the resource group "Inspector".

Note: If the task and sub-task statuses are successfully reverted, the status of the work order for the respective tasks will be changed from "Completed" to "In-progress". The status log is also updated with the status of the work order.

12. Click the **Record Sign-Off & Completion** pushbutton to record the sign-off and the completion details of the selected tasks.

Note: Ensure that the task selected is neither signed-off nor completed earlier.

The system updates the sign-off information and updates the status as "Completed".

If the "Job Status" of a task is set as "Completed", the system ensures that no employee is assigned to that task.

The system changes the status of the work order to "Completed", if the status of the last task in the work order is changed to "Completed" and all the other tasks of the work order are already completed.

The system does not permit the "Status" to be set as "Completed", if the selected work unit has "Job Status" as "Cancelled" or "Transient Status" as "Deferred.

On clicking the "Record Sign-Off & Completion" pushbutton, the "User Authentication Web Dialog" screen appears. Refer to the topic "Signing-Off using Electronic Signature" for more details.

You can proceed to do the following:

- Select the **Review Sign-Off Status** link to view sign-off information for the tasks in the work order.

- Select the **View Employee Comments** link to review the employee comments.
- Select the **Review Comments** link to view the comments for the work order.
- Select the **Record Resource Usage** link to record resource usage information.
- Select the **Report Discrepancies** link to record discrepancy details.
- Select the **Record Part Consumption** link to record parts consumption information.
- Select the **Record Component Replacements** link to record component replacement information.
- Select the **View File** link to view the file containing the discrepancy details.
- Select the Record Parameter Values and Conditional Evaluation Details link to record parameter values for the work order.

Note: You cannot traverse to this page, if the work order selected in the multiline is in "Closed", "Pre-Closed", "Cancelled" or "Returned" status.

- Select the **Record Fuel / Oil Log** link to update fuel and oil consumption details for an aircraft.
- Select the **View Task Card** link to view the task card created in the third party application.
- Select the **View AMM Reference** link to view the details of aircraft maintenance manual for the task.
- Select the **Set Adv. Search Criteria** link to set criteria for advanced search.

Issuing certificate of maintenance

The completion of execution of a maintenance activity might warrant a certification by a competent authority declaring that the equipment is deemed fit to resume normal operation. Certificate of Maintenance (CoM) is issued in this regard; it represents an undertaking (by the identified maintenance lead for the visit), that the maintenance activities have been executed as per the prescribed guidelines and the aircraft is fit for productive usage at the rated efficiency and reliability.

1. Select **Issue Certificate of Maintenance** under **Hangar Work Reporting** business component. The **Select Aircraft** page appears.

2. Enter the **Visit Package #** directly and select the **Issue COM** link provided alongside. Or, enter **Search Criteria** and click the **Search** pushbutton. Click the hyperlinked **Visit Package #** in the **Search Results** multiline. The **Issue Certificate of Maintenance** page appears. *See Figure 3.* 26.

Note: You cannot issue a CoM to the visit package under the following circumstances:

   a) If sign-off is pending for the work units in the work orders of status other than "Cancelled" or "Pre-Closed".

   b) If any pending work unit with next schedule date earlier than the current server date, exists for the aircraft or the component that is attached to the aircraft selected in the multiline.

3. Select the **Numbering Type** for generating the certificate of maintenance number automatically.

Note: For details on creating numbering types, refer to the section "Defining numbering types for transactions" in the "Inventory Setup" User Guide.

The system does not consider overdue work units or work units with source as "Deferred"

4. Select the **CoM Type** as "Regular" if the CoM is to be issued for the aircraft after completion of all maintenance activities and the flight is fit for normal operations or as "Test Flight" if the CoM is to be issued for the aircraft after partial completion of maintenance activities and the flight is fit for test flight.

5. Enter the certificate reference document number in the **Certificate Ref #** field, and select the **Certificate Type**.

6. Select the **Certificate Under to** specify the regulatory authority under which the certificate is issued.

7. Enter the remarks pertaining to the issue of certificate of maintenance, in the **Certifying Remarks** field.

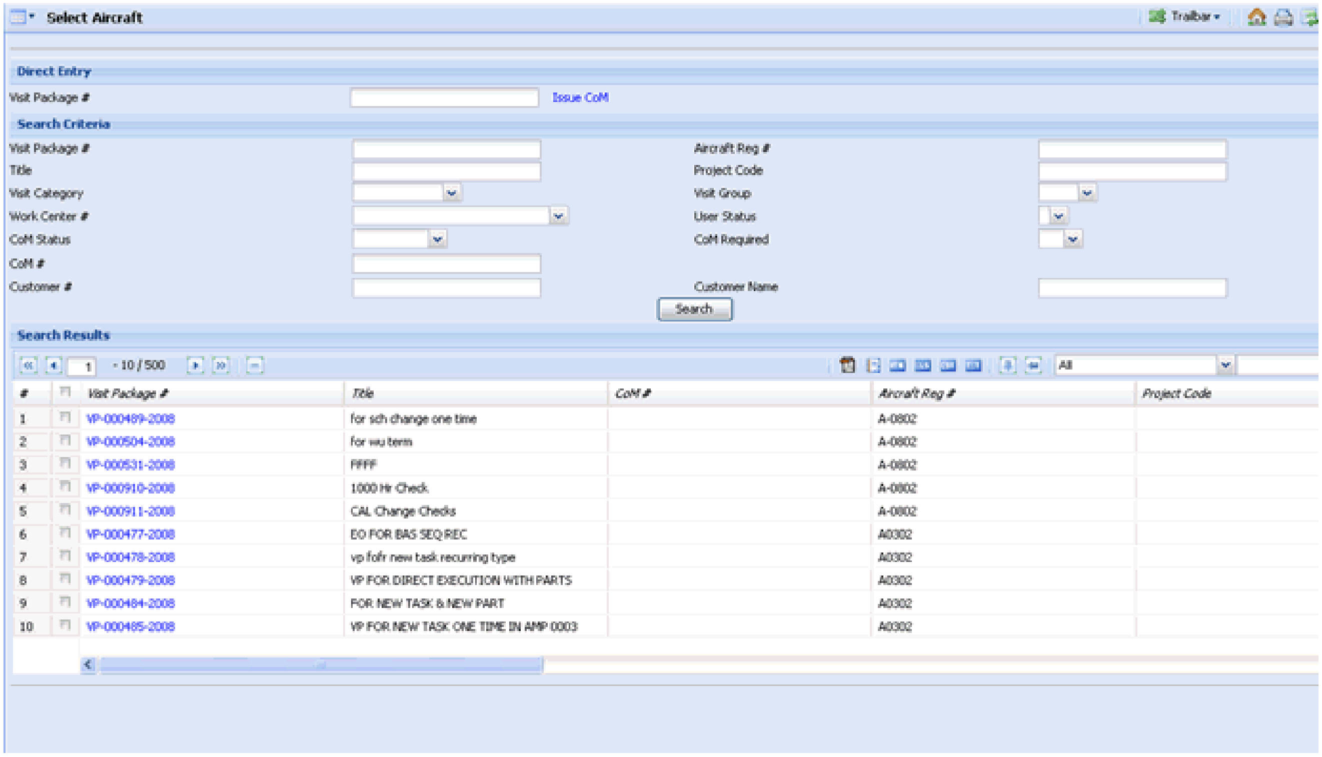


Figure 3. 26 Issuing certificate of maintenance

In the **Inspector Details** multiline,

8. Enter the **Skill Code** associated to the employee who signed the task or subtask (that is performed as part of the visit package).

9. Enter the **Employee #.**

10. Enter the **License #** of the employee.

11. Enter the **Remarks** if any, pertaining to the employee who signed off the task or subtask.

In the **Key Person Details** group box,

12. Enter the **Date & Time** on which the CoM is issued, modified, authorized or canceled.

13. Enter the **Comments** pertaining to the CoM.

14. Click the **Create/Edit CoM** pushbutton to create/edit the CoM.

Note: The system displays an error message, if any other concurrent user attempts to simultaneously modify the details in this page.

Note: If the CoM type is selected as "Test Flight", then all the tasks with execution phase as "Regular" or "Preparatory" must be signed-off and the job status must be "Completed".

If the CoM type is selected as "Regular", then all the tasks with execution phase as "Regular", "Post Flight" or "Preparatory" must be signed-off and the job status must be "Completed".

Issuing CoM using Electronic Signature

On clicking the **Create/Edit CoM** pushbutton, the **User Authentication Web Dialog** screen appears. Follow the instructions listed under the topic "Signing-off using Electronic Signature", for issuing the CoM.

Note: On creating the CoM, the system sets the CoM status as "Fresh".

15. Click the **Confirm CoM** pushbutton to confirm the CoM.

Note: The system ensures that the login ID of the employee, who confirms the CoM, is different from the login ID of the employee who created the CoM.

On clicking the **Confirm CoM** pushbutton, the **User Authentication Web Dialog** screen appears. Follow the instructions listed under the topic "Signing-off using Electronic Signature", for confirming the CoM.

Note: The system sets the CoM status as "Confirmed".

Note: The discrepancies associated to the visit package or reported as part of the visit, should have been processed before the CoM is released.

If the "CoM Required" field is set as "Yes" for the visit package, the system updates the condition of the aircraft that is associated to the visit package as "Operational" from "Under Maintenance," and sets the "AOG Status?" field to "No" in the "Aircraft" business component.

If the CoM Type is "Test Flight" and the "Reference Date for Compliance Updation" is set as "Test Flight" or if CoM Type is "Regular" and the "Reference Date for Compliance Updation" is set as "Regular CoM Issue Date", then the system updates the "Last Compliance Date" as the "Issue Date" of the earliest of all CoMs issued, and updates the same in the Compliance History.

16. Click the **Cancel CoM** pushbutton to cancel the CoM.

The system sets the CoM status as "Cancelled".

Closing of work order

Closure of a work order denotes that all the scheduled work detailed in the work order are signed off or deferred, with due approval. It also signifies the end of the reporting phase.

1. Select the **Report & Close Work Order** under **Hangar Work Reporting** business component. The **Report & Close Work Order** page appears. *See Figure 3. 27.*

2. Enter the **Search Criteria** to search for the work order and click the **Search** pushbutton.

To report and close the work order,

3. Modify the status of the work order in the **Change Status To** drop-down list box. The system displays the options “Scheduled”, “In-Progress”, “Completed”, “Cancelled”, “Pre-Closed” and “Closed”.

Note: You cannot modify the status to “Completed”, “Closed” or “Preclosed”, if an employee is assigned to a particular task in the work order.

Ensure that the timesheet status for the work reported against the tasks in the work order is “Authorized” or “Not Required”, if the “Change Status To” is set to “Closed” or “Pre-Closed”.

Note: If the “Change Status To” field is set other than “Cancelled” or “Pre-Closed”, the system ensures the following:

a) For the aircraft, if the engagement mode is set to “Full Maintenance” and the replacement type is set to “Remove Only”, then all the component removal transactions associated to the work order must be in “Confirmed Removal” status.

b) Similarly, for the aircraft, if the engagement mode is set to “Full Maintenance” and the replacement type is set to “Replacement”, “Restoration” or “Attach Only”, then all the component removal transactions associated to the work order must be in “Confirmed Replacement” status.

The user cannot cancel the Hanger Work Order, if (i) the Hanger Work Order # have reference in the “Reference Document #” in a Purchase Order, (ii) the Purchase Order Type is “Adhoc” or “Service” and (iii) the line item status is not “Short Closed” or “Cancelled”.

The user cannot cancel the Task, if (i) the Hanger Work Order, Task and Sequence have reference in the “Reference Document #”, Task and Sequence in a Purchase Order, (ii) the Purchase Order Type is “Adhoc” or “Service” and (iii) the line item status is not “Short Closed” or “Cancelled”.

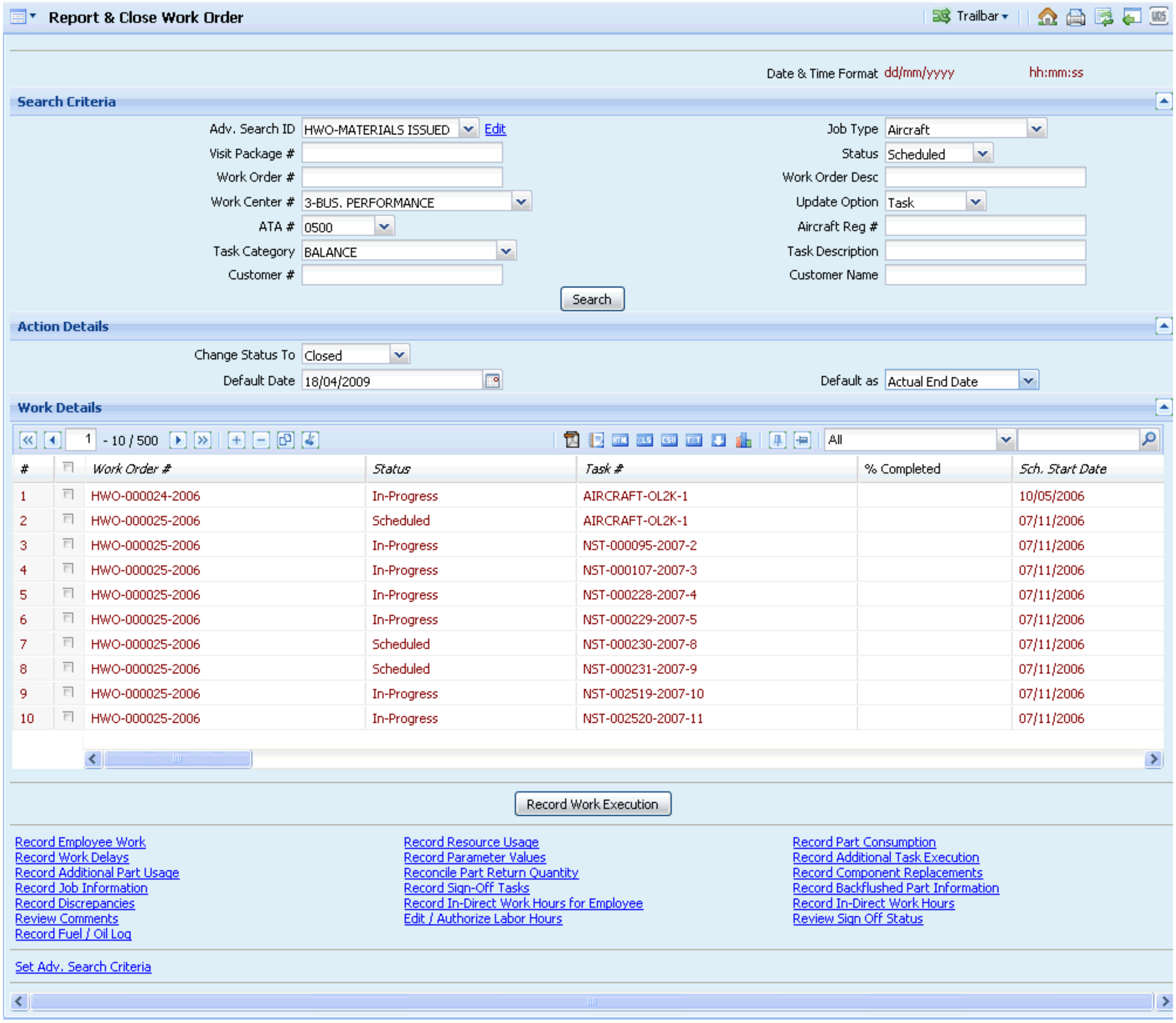


Figure 3. 27 Reporting and closing work order

4. Enter the work execution details of a task or a work order, in the **Work Details** multiline.

5. Click **Record Work Execution** pushbutton to update the actual details for the work order or task.

To close work order(s),

6. Set the status of the work order as “Closed” in the **Change Status To** drop-down list box.

7. Enter the **Execution Comments** in the Work Details multiline.

8. Click the **Record Work Execution** pushbutton to close the work order.

Note: If all the tasks associated to the work order are set to "Completed" status, the system automatically updates the work order status to "Completed".

On closure of the work order, the system does the following:

- *Updates the engineering order compliance details and the effectivity details of the EO number corresponding to the Aircraft on which the HWO is raised, in the "EO business component, if the Aircraft Reg # is not already available in the list of effective object list of the EO.*
- *Updates the aircraft or component configuration details.*
- *Updates the compliance details of EO-related work units in the maintenance program.*
- *Splits the time sheet records into time slabs and computes the skill price as defined in the roster code of the service price list, if the work order is based on a customer order attached to a service price list, that has the Pricing Method set to "Roster Code".*
- *If the job type is "Aircraft", the configuration change details are updated in the configuration revision history for the aircraft registration number. If the job type is "Component", the configuration change details are updated in the configuration revision history for the component.*
- *On recording the work execution, if the "Change Status To" field is set to "Closed", then based on the "Reference Date for Compliance Updation" set in the "Set Options" activity of the current business component, the system updates the compliance date in the compliance history of the maintenance program. If the "Reference Date for Compliance Updation" is set as*

    a. *"Work Start Date", then the system updates the starting date of the work as the compliance date in the compliance history of the maintenance program.*

    b. *"Work End Date", then the system updates the ending date of the work as the compliance date in the compliance history of the maintenance program.*

    c. *"Test Flight COM Issue Date" or "Regular COM Issue Date", then the system updates the issue date of the certificate of maintenance as the compliance date in the compliance history of the maintenance program*

Note: The compliance and schedule details are updated even for un-forecasted work units that are associated to "Active" aircraft/component maintenance programs.

- *For the work order, the system retrieves the associated discrepancy and updates the discrepancy details.*

- *Updates the job status of the tasks and the standard procedure associated to the work order, as "Closed".*
- *The firm and the planned demands associated to the work order are removed.*
- *Updates the status of the material request associated to the work order to one of the following:*

  a) Cancelled – If the material request is in "Draft" or "Fresh" status.

  b) Short Closed – If the material request is in "Authorized" status.

Note: If there are issue documents in "Fresh" or "Draft" status for the short closed material request, the system updates the status of those documents to "Cancelled".

- *Calculates the material cost, resource cost, employee cost and miscellaneous cost for the work order.*
- *If the work order is based on a customer order and any internal part was issued against the hangar work order, the stock status of the internal parts that were issued will be changed to "Customer".*

Reversal of work order

Events such as data entry errors, unreported resource actuals etc. might require a closed work order to be re-opened for modification.

A “closed” work order can be “reversed” for selective modification. While details such as the employee actuals, resource details, miscellaneous cost can be modified, important execution information such as the date of completion of the task and components replaced cannot be modified.

Reversal of work orders is permitted till the closure of the associated visit package.

1. Select **Reverse Work Order** under **Hangar Work Reporting** business component. The **Select Work Order** page appears. *See **Figure 3. 28**.*

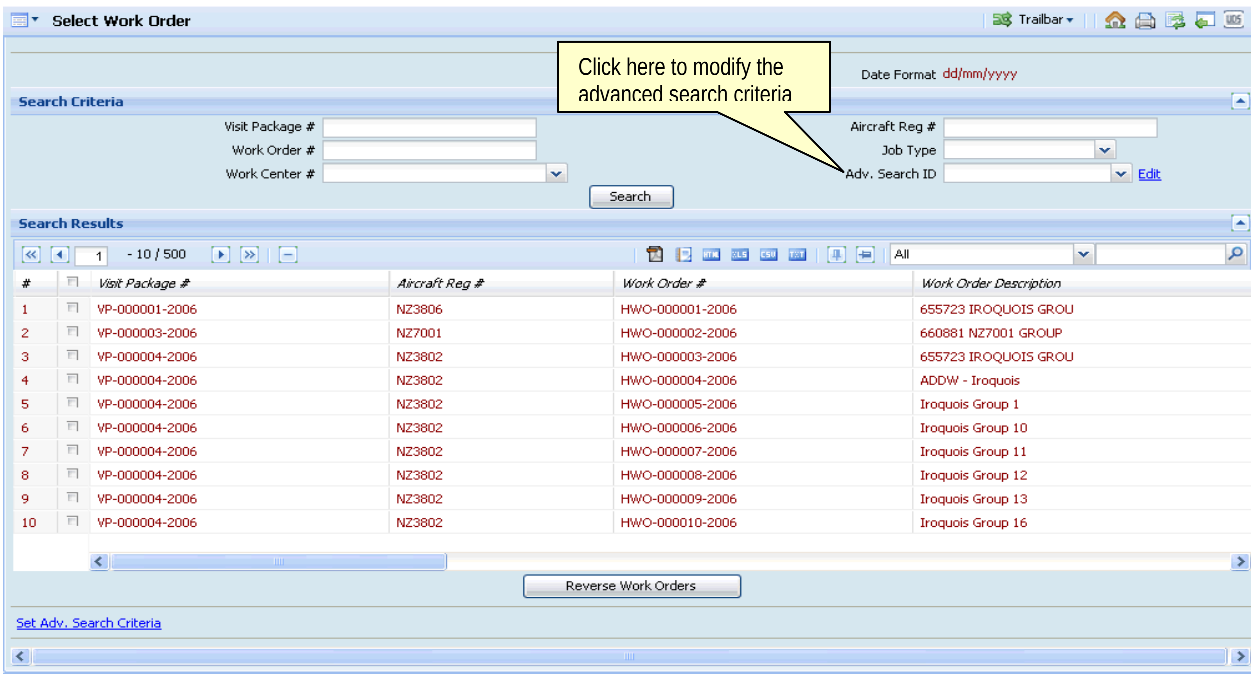


Figure 3. 28 Reversing work order

2. Enter **Search Criteria** to search for ‘closed’ work orders and click the **Search** pushbutton.

The system retrieves work orders in ‘Closed’ status, in the multiline.

3. Select the work order to be reversed and click the **Reverse Work Orders** pushbutton.

On reversing the work order, the system sets the work order to “Reversed” status.

Note: The closed status of the work order cannot be changed to 'Reversed' once the Certificate of Maintenance is issued for the visit package.

4. Use the links at the bottom of the page, to modify the work order details

Index

ramco

Corporate Office and R&D Center

Ramco Systems Limited,
64, Sardar Patel Road, Taramani,
Chennai – 600 113, India
Office + 91 44 2235 4510 / 3090 4000
Fax +91 44 2235 2884
Website - www.ramco.com