

# Oracle® Maintenance, Repair and Overhaul

Master Configuration WorkBench User's Guide

Release 1.2 for Windows

January 1999

Part No. A61237-03

---

Oracle Maintenance, Repair and Overhaul Master Configuration WorkBench User's Guide, Release 1.2 for Windows.

Part No. A61237-03

Release 1.2

Copyright © 1998, 1999 Oracle Corporation. All rights reserved.

Primary Author: Scott Eldredge

Contributors: John Chachere, Mary Gertas, Erik Graversen, Jim Greenwood, Jim Guthrie, Stefan Petry, Greg Stachnick, Ruth Wallace

This Program contains proprietary information of Oracle Corporation; it is provided under a license agreement containing restrictions on use and disclosure and is also protected by copyright, patent and other intellectual property law. Reverse engineering of the software is prohibited.

The information contained in this document is subject to change without notice. If you find any problems in the documentation, please report them to us in writing. Oracle Corporation does not warrant that this document is error free.

If this Program is delivered to a U.S. Government Agency of the Department of Defense, then it is delivered with Restricted Rights and the following legend is applicable:

**Restricted Rights Legend** Programs delivered subject to the DOD FAR Supplement are "commercial computer software" and use, duplication and disclosure of the Programs shall be subject to the licensing restrictions set forth in the applicable Oracle license agreement. Otherwise, Programs delivered subject to the Federal Acquisition Regulations are "restricted computer software" and use, duplication and disclosure of the Programs shall be subject to the restrictions in FAR 52.227-14, Rights in Data -- General, including Alternate III (June 1987). Oracle Corporation, 500 Oracle Parkway, Redwood City, CA 94065.

Oracle and the Oracle logo are registered trademarks of Oracle Corporation.

Oracle7 Server is a trademark of Oracle Corporation.

FrameMaker is a registered trademark of Adobe Systems Incorporated. OpenVMS is a trademark of Digital Equipment Corporation.

All other company or product names mentioned are used for identification purposes only and may be trademarks of their respective owners.

---

---

# Contents

<b>Send Us Your Comments .....</b>	<b>xi</b>
<b>Preface.....</b>	<b>xiii</b>
Audience .....	xiv
How this User's Guide Is Organized .....	xiv
Document Conventions .....	xv
Typographical Conventions.....	xvi
Other Sources of Information .....	xvii
<b>1 Overview</b>	
<b>Oracle MRO Overview.....</b>	<b>1-2</b>
IPC-Based Configuration Management .....	1-3
The Oracle MRO Solution.....	1-3
Oracle MRO WorkBenches .....	1-3
Extensions to Oracle Applications .....	1-5
Oracle MRO Processes.....	1-7
<b>Master Configuration WorkBench Overview .....</b>	<b>1-10</b>
Creating a Master Configuration .....	1-11
<b>2 Getting Started</b>	
<b>Logging In .....</b>	<b>2-2</b>
<b>Timing Out .....</b>	<b>2-4</b>

### 3 Preparing the Data

<b>Introduction</b> .....	3-2
<b>Creating the Files Required for a Master Configuration</b> .....	3-2
Creating the IPC ASCII File .....	3-3
Text Scanning .....	3-3
Reviewing the IPC and Checking Compatibility .....	3-5
Updating the IPC ASCII File .....	3-6
Creating the Kits ASCII File .....	3-8
Creating the IPC Format File .....	3-8
Creating the Sets File .....	3-11
<b>Defining Racks</b> .....	3-13
<b>Creating Figure Image Files</b> .....	3-14

### 4 Parsing, Building, and Figure Mapping

<b>Introduction</b> .....	4-2
<b>Using the Database Builder</b> .....	4-3
<b>Preparsing</b> .....	4-5
<b>Parsing</b> .....	4-6
Status Files Produced by the Parser .....	4-7
Engine File .....	4-8
Kits File .....	4-8
<b>Adding Rack Definitions to the Figure File</b> .....	4-9
Figure File Keyword Definitions .....	4-9
Editing the Figure File .....	4-10
Auxiliary Racks .....	4-14
<b>Building the Engine and Figure Database</b> .....	4-14
Status Files Produced by the Database Builder .....	4-15
<b>Using the Picture Book</b> .....	4-15
<b>Using the Tree Browser</b> .....	4-18
<b>Mapping Figures</b> .....	4-21
<b>Creating and Editing Hotspots</b> .....	4-23
Creating Hotspots .....	4-24
<b>Material Requirements for 100% Replaceable Parts</b> .....	4-25
Editing Hotspots .....	4-28
Moving a Hotspot .....	4-28

Deleting a Hotspot.....	4-28
Editing Hotspot Specifications.....	4-28
Editing Part Information.....	4-29
Saving Hotspot Information .....	4-33
Restoring Hotspot Information.....	4-34

## **5 Verifying the Database**

Introduction.....	5-2
Verifying the Master Configuration Database .....	5-2
Comparing the Master Configuration to the Item Master .....	5-5

## **6 Linking Index Numbers with Routes**

Introduction.....	6-2
Linking Index Numbers with Routes .....	6-3
Saving and Restoring Linked-Route Information .....	6-8

## **7 Searching and Navigating**

Introduction.....	7-2
Searching and Navigating a Master Configuration.....	7-2

## **8 Creating New Master Configurations**

Introduction.....	8-2
Creating Versions of a Master Configuration .....	8-2
Dealing with Changes to a Master Configuration .....	8-3
Procedure References .....	8-5

## **Glossary**

## **Index**



## List of Figures

1-1	Oracle MRO Solution Footprint .....	1-4
1-2	Oracle MRO Processes.....	1-8
1-3	Master and Unit Configurations .....	1-11
2-1	Master Configuration WorkBench Login Window .....	2-3
3-1	Creating a Master Configuration .....	3-4
3-2	IPC Format File .....	3-10
3-3	IPC File Designation for CF34 Engine Models.....	3-12
3-4	Sets File and Result in Unit Configuration WorkBench .....	3-12
4-1	Master Configuration WorkBench Window .....	4-3
4-2	Master Configuration Database Builder .....	4-3
4-3	Engine File (Partial).....	4-8
4-4	Figure File Before Rack Definitions Are Added .....	4-12
4-5	Figure File After Rack Definitions Are Added .....	4-13
4-6	Master Configuration Picture Book.....	4-16
4-7	Tree Browser .....	4-20
4-8	IPC Flat File Made from Tree Browser (Partial) .....	4-21
4-9	Figure Mapper .....	4-22
4-10	Hotspot Specifier Window.....	4-26
4-11	Hotspot Specifications Window.....	4-30
4-12	Edit Part Information Window .....	4-33
4-13	Restore Hotspots and Figure Maps Window .....	4-36
5-1	Verify Catalog Window.....	5-4
5-2	Compare the Dump Files Window.....	5-7
6-1	Link Routes Window .....	6-4
6-2	Route View Window.....	6-6
7-1	IPC Search Criteria Window.....	7-3
7-2	IPC Search Results Window .....	7-5



## List of Tables

2-1	Master Configuration WorkBench Login Window Description .....	2-3
3-1	Files Required to Create a Master Configuration .....	3-3
3-2	IPC Format File Keywords.....	3-8
3-3	Sets File Keywords .....	3-11
4-1	Master Configuration Database Builder Menus .....	4-4
4-2	Figure File Keywords.....	4-9
4-3	Picture Book Description.....	4-17
4-4	Picture Book Shortcut Menu.....	4-18
4-5	Tree Browser Menu.....	4-20
4-6	Figure Mapper Window Description .....	4-23
4-7	Hotspot Specifier Window Description .....	4-27
4-8	Hotspot Specifications Window Description .....	4-31
4-9	Edit Part Information Window Description.....	4-33
4-10	Restore Hotspots and Figure Maps Window Description .....	4-36
5-1	Verify Catalog Window Description .....	5-4
5-2	Compare the Dump Files Window Description .....	5-8
6-1	Link Routes Window Description .....	6-4
6-2	Route View Window Description.....	6-7
7-1	IPC Search Criteria Window Description.....	7-4
7-2	IPC Search Results Window Menu Commands .....	7-6
8-1	Creating a New Master Configuration.....	8-3



---

---

# Send Us Your Comments

## **Oracle Maintenance, Repair and Overhaul Master Configuration WorkBench User's Guide, Release 1.2 for Windows**

**Part No. A61237-03**

Oracle Corporation welcomes your comments and suggestions on the quality and usefulness of this publication. Your input is an important part of the information used for revision.

- Did you find any errors?
- Is the information clearly presented?
- Do you need more information? If so, where?
- What features did you like most about this manual?

If you find any errors or have any other suggestions for improvement, please indicate the chapter, section, and page number (if available). You can send comments to us in the following ways:

- Electronic mail - [mro@us.oracle.com](mailto:mro@us.oracle.com)
- FAX - 650-654-6216 Attn: Oracle MRO Documentation
- Postal service:  
Oracle Corporation  
Oracle MRO  
500 Oracle Parkway  
Redwood Shores, California 94065  
USA

If you would like a reply, please give your name, address, and telephone number below.

---

---

---

If you have problems with the software, please contact your local Oracle World Wide Support Center.



---

---

# Preface

This preface introduces you to the *Oracle Maintenance, Repair and Overhaul Master Configuration WorkBench User's Guide*.

This preface provides information on the following topics:

- [Audience](#)
- [How this User's Guide Is Organized](#)
- [Document Conventions](#)
- [Typographical Conventions](#)
- [Other Sources of Information](#)

## Audience

This guide is an important source of information about the Master Configuration WorkBench. It provides useful information to:

- Engineering staff

## How this User's Guide Is Organized

### **Chapter 1: Overview**

This chapter provides an overview of Oracle MRO and the Master Configuration WorkBench.

### **Chapter 2: Getting Started**

This chapter explains how to log on to the Master Configuration WorkBench.

### **Chapter 3: Preparing the Data**

This chapter explains how to create the files needed to build a master configuration.

### **Chapter 4: Parsing, Database Building, and Figure Mapping**

This chapter describes the process of parsing the configuration files, building the master configuration database, mapping figures, and creating hotspots.

### **Chapter 5: Verifying the Database**

This chapter describes the process of visually verifying the database and comparing the master configuration database with the item master database.

### **Chapter 6: Linking Routes**

This chapter describes how to link routes with index numbers on images.

### **Chapter 7: Creating a New Master Configuration**

This chapter describes how to create versions of a master configuration based on the same IPC.

# Document Conventions

The following document conventions are used in this user's guide.

## Notes

Notes provide extra information about a procedure that needs to be highlighted or would break up the procedural flow if included within the steps. Such information might include hints or advice, the system response to the previous step, or the reasoning behind an action.

---

---

**Note:** This is a note used to call attention to some feature or fact related to the previous paragraph.

---

---

## Caution

Cautions are used to highlight information that you need to know to prevent an Oracle MRO application from losing data or processing incorrectly. A Caution precedes the step to which it applies.

---

---

**Caution:** This is a caution to call attention to information that you need to know to prevent an Oracle MRO application from losing data or processing incorrectly.

---

---

## Warning

A warning draws attention to a situation that could result in personal injury or equipment damage.

---

---

**WARNING:** This is a warning to call attention to some feature or fact that could result in possible personal injury or equipment damage.

---

---

## Additional Information

The Oracle MRO documentation alerts you to additional or related information that you may want to review. This information may be in a form description, report, topical essay, appendix, or other Oracle or partner manuals.

**Additional Information:** This is to call attention to additional or related information that you may want to review.

# Typographical Conventions

The following typographical conventions are used in this user guide:

## Menus

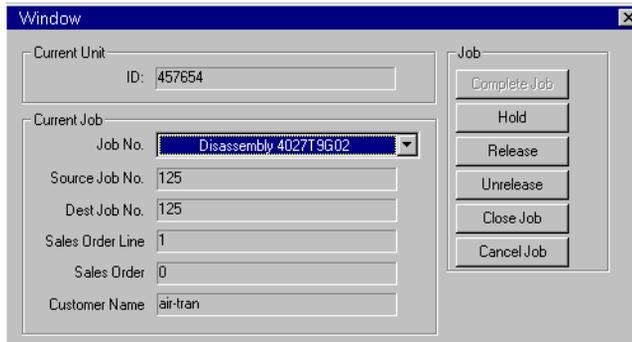
Menus and menu commands appear in boldface type. Menu actions are described in the following style:

Choose **File** -> **Quit** means choose the **Quit** command from the **File** menu.

## Windows

Within some windows are areas labeled to describe the type of information contained in the area. These areas are defined by graphic lines and are referred to as *regions* in procedures and in the tables that describe a window.

### Window Regions



## Window Buttons

Buttons that appear in windows are referred to by name in boldface type in the following styles, depending if the button is labeled with a name, as shown in the figure above, or a picture, as shown below.

Click **Hold** to put the job on hold.

Click the **Map** button on the toolbar. The Figure Mapper appears.



## Other Sources of Information

### **Oracle Financials Manuals**

You can choose from many sources of information, including documentation, training, and support services, to increase your knowledge and understanding of Oracle MRO.

These Oracle Applications manuals provide information about a number of topics related to Oracle MRO.

#### **General Ledger:**

*Oracle General Ledger Reference Manual*

*Oracle General Ledger User's Guide*

*Oracle General Ledger Technical Reference Manual*

*Oracle General Ledger Applications Technical Reference Manual Update*

*Overview of Average Balance Processing in Oracle General Ledger*

#### **Accounts Payable**

*Oracle Payables Reference Manual*

*Oracle Payables Applications Technical Reference Manual*

*Oracle Payables Applications Technical Reference Manual Update*

*Oracle Payables User's Guide*

*Oracle Cash Management Technical Reference Manual Update*

*Oracle Cash Management User's Guide*

*Oracle Cost Management User's Guide*

#### **Accounts Receivable**

*Oracle Receivables Tax Manual*

*Oracle Receivables Applications Technical Reference Manual*

*Oracle Receivables Applications Technical Reference Manual Update*

*Oracle Receivables User's Guide*

*Oracle Receivables Reference Manual*

## **Purchasing**

*Oracle Purchasing Reference Manual*

*Oracle Purchasing Technical Reference Manual*

*Oracle Purchasing Technical Reference Manual Update*

## **Additional Financial Manuals**

*Oracle Training Administration User's Guide*

*Oracle Applications User Interface Standards*

*Oracle Applications System Administration Guide*

## **Oracle Maintenance, Repair and Overhaul User's Guides**

The following user's guides provide information about Oracle MRO.

*Oracle MRO Access Control WorkBench User's Guide*

*Oracle MRO Applications Extensions User's Guide*

*Oracle MRO Implementation Guide*

*Oracle MRO Inspection/Assembly WorkBenches User's Guide*

*Oracle MRO Installation Guide*

*Oracle MRO Master Configuration WorkBench User's Guide*

*Oracle MRO Route Management WorkBench User's Guide*

*Oracle MRO Unit Configuration WorkBench User's Guide*

# 1

---

---

## Overview

This chapter provides information about the following topics:

- [Oracle MRO Overview](#)
- [Master Configuration WorkBench Overview](#)

## Oracle MRO Overview

Oracle MRO is an integrated suite of enterprise applications specifically designed to meet the needs of servicing complex equipment such as jet engines, airframes, locomotives, and semiconductor manufacturing equipment. Oracle MRO is the Oracle solution for providers of maintenance, repair, and overhaul services. Oracle MRO addresses the processes that are unique to the aftermarket service industry and the challenges inherent in maintaining complex equipment.

The maintenance, repair, and overhaul industry is fundamentally different from manufacturing. In the manufacturing environment, the product is owned by the manufacturer, and a purchase agreement relates to the physical item. In a service environment, that physical item belongs to the customer, and the purchase agreement relates to services to be performed on the item.

The service environment requires more inventory management. When a part is replaced, for example, the replacement part may come from the inventory of the service provider, a third party, or the customer; or the replacement part may be obtained by redirecting a part being repaired for another job. In addition, replacement parts must be verified against the part requirements specified in the Illustrated Parts Catalog (IPC) sales order, scope of work, and industry regulations.

MRO shop floor procedures are more complex and dynamic than manufacturing procedures. The scope of work is often unknown until disassembly is under way, and floating shop floor bottlenecks can further complicate procedures. Oracle MRO manages such key MRO processes as receiving a unit for service; disassembling, cleaning, and inspecting it; and dispositioning the parts. The system automates such tasks as creating and modifying repair routes and scheduling repair procedures. All costs associated with jobs are collected throughout the repair cycle and are automatically sent to the integrated Oracle financial applications.

Typically, in the Oracle MRO environment, the following processes occur:

1. A contract or sales agreement is negotiated for services to a customer's product.
2. The customer ships the item.
3. The item is received. It may then be attached to a job, if a job exists, or assigned to an inventory until a job is created.
4. The item is disassembled for service. The parts are dispositioned and reused, repaired, and/or replaced. Parts to be serviced by an outside vendor are shipped to the vendor, serviced, and received back.
5. All the parts destined for reassembly are accumulated at assembly locations.
6. The product is assembled and tested and shipped back to the customer.

## IPC-Based Configuration Management

One of the key requirements of the MRO industry is configuration management. Oracle MRO provides automated configuration management. This reduces turnaround time and increases capacity by providing faster access to key information and by providing decision-making support.

A service business needs to have parts available not only for all models currently in production but also for models in service but no longer in production. Such models have usually been modified and upgraded many times.

Oracle MRO configuration management is based on a product's IPC. Oracle MRO uses a decision graph to model product configurations. Using a decision graph allows the representation of all possible Bills of Material (BOM). Each unit has an as-maintained configuration that is updated to account for both depot and field service. Part dependencies, part alternates, and part effectivity can be tracked as well as part history (times and cycles). Manufacturer's service bulletins can be integrated into the configuration.

The ability to create and manage the as-maintained BOM for individual units leads to efficient parts logistics and resource use, and to automatic and verifiable compliance with customer and regulatory requirements.

Another aspect of configuration management is inventory management. Oracle MRO provides complete visibility into inventory, allowing the consideration of all alternate parts for each produced configuration.

## The Oracle MRO Solution

The primary process in MRO is job execution, and the shop floor is the center of this activity. The activities of the shop floor are reflected in inventory, labor, and cost transactions. Shop floor decision making, such as selecting replacement parts, is guided by such things as the as-maintained BOM, the contract, inventory, costing, and scheduling. The Oracle MRO solution consists of Oracle Applications with extended MRO functionality and new application called *workbenches* specifically designed for the MRO environment. [Figure 1-1](#) shows the Oracle MRO solution footprint.

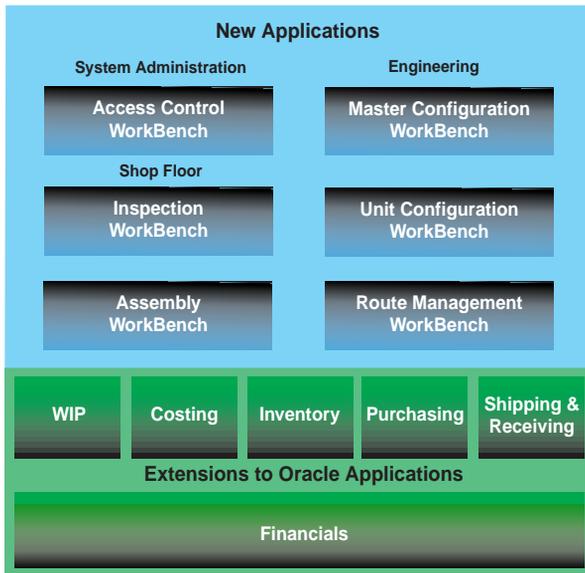
### Oracle MRO WorkBenches

Oracle MRO contains these workbenches to support core MRO processes:

- Master and Unit Configuration WorkBenches
- Route Management WorkBench
- Inspection WorkBench

- Assembly WorkBench
- Access Control WorkBench

**Figure 1–1 Oracle MRO Solution Footprint**



**Master and Unit Configuration WorkBenches** Configuration management is handled with two workbenches: the Master Configuration WorkBench and the Unit Configuration WorkBench.

The Master Configuration WorkBench is used to create a master configuration, IPC-based database representation of an item’s assembly model. This assembly model defines the part, alternate part, reference information, and figures for each all possible configurations. Assemblies, subassemblies, and parts shown in online figures are electronically linked to the relevant information in the database and also to the proper service procedures. From this database, information can be quickly extracted to precisely define the configuration of any individual unit received for service. This level of configuration is called a *unit configuration* and is created from the master configuration with the Unit Configuration Workbench.

The unit configuration provides the structure that guides the inspection and disposition process, including looking up parts and parts ordering. During the inspection and disposition process, the IPC information in the unit configuration is augmented to include such information as the disposition, times and cycles,

individual part serial numbers, and service bulletins applied. The unit configuration also stores the unit's disassembly and reassembly configurations.

**Route Management WorkBench** The Route Management WorkBench is used to manage shop floor procedures. It provides tools for developing and maintaining validated service procedures. Route management functionality allows for versions, updates, and effectivity. Routes can be classified in different ways. For example, routes can be grouped by level of service, such as major and minor overhaul, or by type, such as disassembly, cleaning, inspection, repair, assembly, and testing.

**Inspection WorkBench** The Inspection WorkBench is used on the shop floor to inspect and disposition parts. This workbench is used to record findings and part conditions and also to initiate job creation. The Inspection WorkBench allows inventory look-up and parts ordering. Repair routes can be selected and modified. It provides part, scrap, and NCR tracking. Inspection functions are handled in real time on the shop floor. Part condition, disposition, and job status information is recorded in the unit configuration.

The Inspection WorkBench provides immediate access to critical information such as the required tolerances for making repair/reuse decisions. The user can view on-hand inventory, including allowable part substitutions.

**Assembly WorkBench** The Assembly WorkBench guides the assembly process. It includes much of the same functionality as the Inspection WorkBench with some additions such as checking accumulation status, job/part exchange, validation, and the recording of installed part and serial numbers. It also provides for system-guided testing and the creation of a records package.

**Access Control WorkBench** The Access Control WorkBench is a system administrator's tool for controlling workbench access. With it you control a set of capabilities that are based on functions that can be performed with the workbenches. Through these capabilities, users are given access to as much or as little of a workbench as necessary for their jobs. The Access Control Workbench is also used to set certain system default values such as job and route types.

## Extensions to Oracle Applications

A number of Oracle Applications have extended functionality to account for the increased complexity of the service environment. This new functionality includes some screens and processes that the standard Oracle Applications do not.

The following applications have extended functionality:

- Bills of Material (BOM)
- Contract Information
- Costing
- Inventory
- Order Entry
- Purchasing
- Receiving
- Shipping
- Work in Process (WIP)

**Bills of Material (BOM)** BOM has been modified to accept routes from workbenches (Unit Configuration, Inspection, Assembly). At job creation, routes are passed from a workbench through BOM to WIP.

**Contract Information** The Oracle MRO contract information functionality incorporates information flowdown. Contract information for specific services is automatically extracted and attached to WIP jobs and outside purchase orders. Contract information is made available to subcontractors and sister organizations. Examples include permissions for rotatable inventories, configuration changes, scrap approvals, approval level, and minimum build goals.

**Costing** Oracle MRO Costing supports subinventory-level costing. Different subinventories can have different general ledger accounts set up. Jobs are costed by actual cost collection, including the addition of outside processing costs. The total job cost is rolled up by hierarchy to the top job and associated sales order.

**Inventory** The Oracle MRO Materials Management application identifies life-limited items and customer time-tracked items. For tracked items, times and cycles can be recorded. Job picklists are generated automatically. Picking rules can be determined by the customer, contract, or product. Remarks can be attached automatically based on rules. Materials Management allows for scrap, rotatable, and nonconformance part management. Inventory information is provided to the workbenches.

**Order Entry** Oracle MRO Order Entry allows a purchased item to be associated with a service. It also provides the Unit Configuration WorkBench with the information required to begin generating a unit configuration. Order Entry allows the recording of purchased items received for service and the shipping of them after service.

**Purchasing** Oracle MRO Purchasing incorporates contract flowdown and allows for blanket repair agreements and automated remarks.

**Receiving** Oracle MRO Receiving allows receiving against a purchase order and receiving against a sales order. In addition, Receiving lets you record information such as times and cycles for a received item. If the item was received from a vendor, the services performed on the item can be indicated, and the job associated with the item can be moved to the next operation. Receiving also has "problem lot" functionality, which notifies buyers of early receipts and over receipts.

**Shipping** Oracle MRO Shipping allows shipping to an outside vendor for service without a purchase order. An item can be shipped to a customer from WIP. Item and serial numbers can be identified after service if necessary. Shipping documents include more information. In general, MRO Shipping is more flexible than standard shipping.

**Work in Process (WIP)** Oracle MRO WIP is the application that represents and executes the operational plans of the MRO facility. It communicates directly with the Inspection and Assembly WorkBenches, BOM, Inventory, Costing, and Purchasing. WIP indirectly relies on the Route Management, Master Configuration, and Unit Configuration WorkBenches.

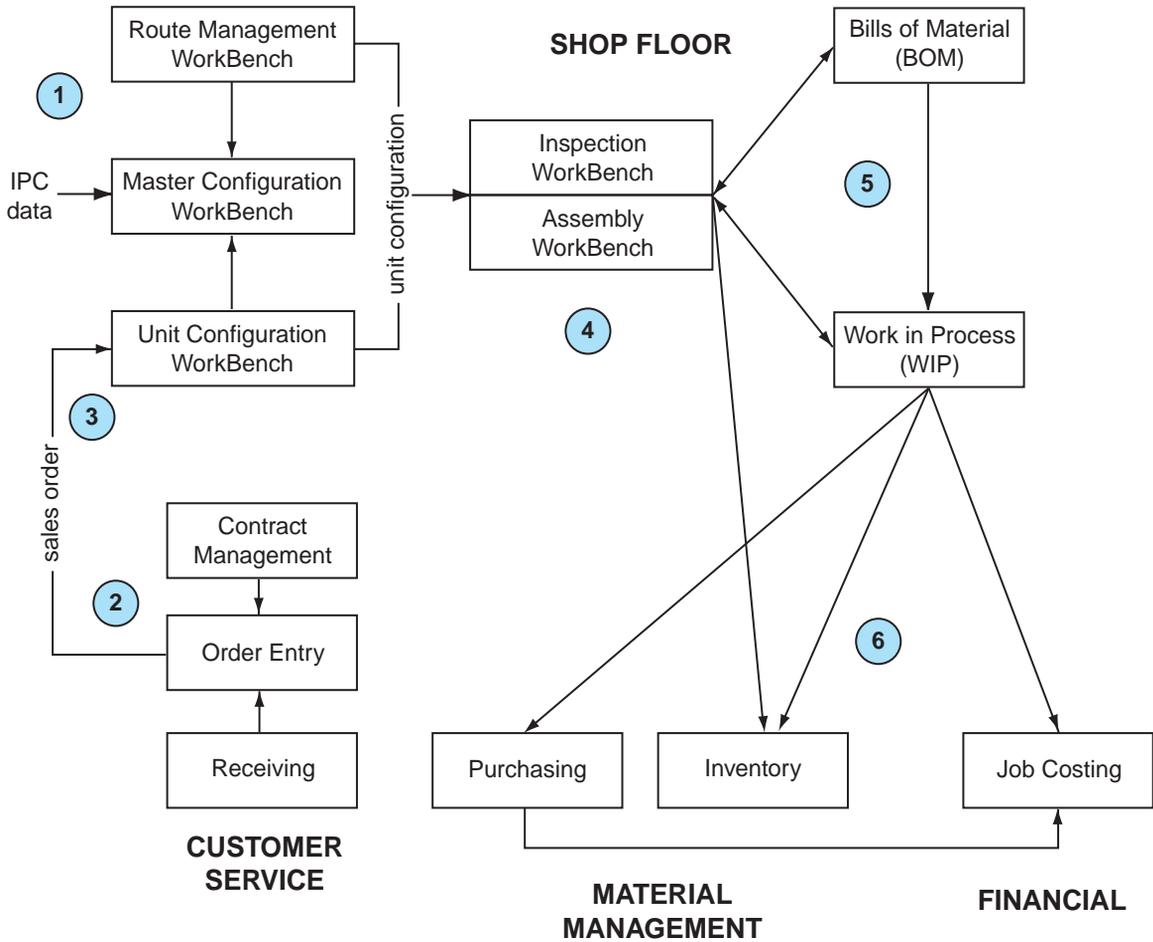
MRO WIP departs from normal WIP practices in that the actual job execution is input from the Inspection and Assembly WorkBenches. Routes are generally created in the Route Management WorkBench, and can be modified in the shop floor workbenches. Changes to support functional enhancements include job hierarchies, out-of-sequence processing, outside processing improvements, the tracking of part/serial numbers, and multiple part/serial numbers in jobs.

## Oracle MRO Processes

The shop floor applications are supported by the rest of the Oracle MRO applications. [Figure 1-2](#) shows how the Oracle MRO processes relate to one another. The paragraphs following the figure provide explanations keyed to the circled numbers on [Figure 1-2](#).

Figure 1-2 Oracle MRO Processes

**ENGINEERING**



- 1.** The Master Configuration WorkBench is used to convert the IPC information into an online master configuration that records all possible configurations of a product. The customer's established and approved repair procedures are loaded as routes into the Route Management WorkBench. Index numbers on each online figure may be linked to one or more routes. Routes are sent to BOM for validating and archiving.
- 2.** Within customer service functionality, Order Entry maintains contract data that may include picking rules and scrap management parameters. The picking rules determine which inventory parts are viewable from the Inspection and Assembly WorkBenches. The contract, sales order, and receiving functions establish the scope of work.
- 3.** Creating a unit configuration begins with the retrieval of sales order information. The unit configuration records the as-received status of the unit, including times and cycles. (This may also be referred to as the *as maintained* status.) The unit configuration also stores the unit's disassembly and reassembly configurations.
- 4.** The Inspection and Assembly Workbenches share much functionality and are shown together for simplicity. The Inspection WorkBench is used to record part and subassembly conditions, which become the basis for assigning a part to a repair job or selecting a replacement part. The Assembly WorkBench focuses on parts accumulation and rollout, part swapping, and assembly and test jobs. The unit configuration, route, and customer service information determines the appropriate tasks and operations on the shop floor. Information generated in the Inspection and Assembly WorkBenches becomes part of the unit configuration.
- 5.** Most jobs are created and executed from the workbenches. These jobs are dispatched to the Bills of Material and Work in Process applications to verify and archive the routes and job details. When required, parts are shipped for outside processing directly from WIP, as executed from the workbenches.
- 6.** The workbenches are integrated with Inventory. Alternate part validity (according to IPC and customer picking rules) and stock on hand and on order may be checked from the workbenches. As the job and operation statuses are updated, inventory is relieved and costs are generated. For outside processing operations, WIP automatically creates purchase requisitions.

Oracle MRO uses actual costs from the shop floor activities.

## Master Configuration WorkBench Overview

A complex product, such as a jet engine, typically includes a number of models. If the engine has been in production for a period of time, the models will have successive engine design generations with configuration differences but still be part of the same IPC for that engine. Each engine can also have installed options and upgrades.

The master configuration for an item is the Oracle MRO representation of the assembly model. The master configuration defines all of the part, alternate part, reference information, and figure images for all possible configurations as defined in the IPC. As new part information and service bulletins are applied to the IPC, new master configurations can be built, or existing master configurations may be updated.

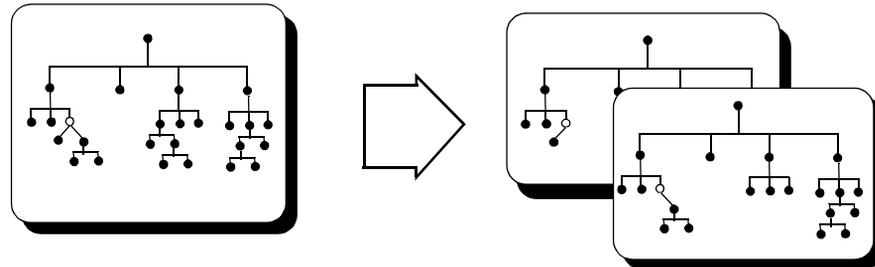
A master configuration is created with information from multiple sources:

- Illustrated Parts Catalog electronic files. Text and images on disks or CDs from the manufacturer.
- Illustrated Parts Catalog printed manuals. Text and images scanned from hardcopy IPCs.
- Workbooks created from IPCs to describe particular engine models and configurations.
- Repair manuals from repair and overhaul (R&O) facilities.

The master configuration is the foundation for looking up parts and parts ordering.

The master configuration contains the assembly definitions, referred to as *racks*, that define how the product is disassembled for service. Racks are used to define unit configurations. For each serialized unit, the unit configuration records the installed assemblies and components, maintenance status, times and cycles, and service bulletins applied. The unit configuration also stores the unit's disassembly and reassembly configurations.

**Figure 1-3 Master and Unit Configurations**



**Master Configuration**

Assembly model  
Part alternates and dependencies

**Unit Configurations**

Unit-specific information such as part and serial numbers, times and cycles, and service bulletins applied.

## Creating a Master Configuration

Creating a master configuration involves the following basic steps:

1. **Prepare the data.** Gather, format, and validate the information needed to create the master configuration. Create the configuration files and rack definitions.
2. **Parse the data.** Preparse and parse the configuration files and correct errors.
3. **Add rack definitions.** Add rack definitions to the figure information created by the parser.
4. **Construct the database.** Convert the input data into a database.
5. **Map images and create hotspots.** Associate image files with the corresponding figure references in the database. For each image, on each index number that requires it, create a hotspot linked to the information that defines the indicated component or the image of the indicated assembly.
6. **Verify the database.** Verify the database and figure mapping to confirm that the inputs are correctly encoded.
7. **Link routes.** Link routes with the index numbers on the figures.

Where appropriate, third-party commercial software packages may also be used for ancillary processes such as scanning and editing images.

This manual uses as examples an aircraft engine.



# 2

---

---

## Getting Started

The following subjects are covered in this chapter:

- [Logging In](#)
- [Timing Out](#)

## Logging In

The Oracle MRO workbenches require a user login sequence. This enables the permissions associated with the user logging in. Users and their associated workgroups and roles are created in the Access Control WorkBench.

Perform these steps to log in to the Oracle MRO Master Configuration WorkBench:

1. From the Windows Start menu, choose **Start** -> **Programs** -> **SRP WorkBench** -> **Master Configuration WorkBench**. A login dialog box appears (Figure 2-1).

---

---

**Note:** Your Windows system may have desktop or Start menu shortcuts to the Oracle MRO applications. Run the program according to your setup. Check with your System Administrator if necessary.

---

---

2. Type your user login name and password.
3. Select a workgroup from the list.
4. Select a role from the list.
5. Optionally, click **Change** to change your password. A dialog box appears, asking you to enter the new password twice.
6. Click **Login**. The main workbench window appears.

**Figure 2–1 Master Configuration WorkBench Login Window**
**Table 2–1 Master Configuration WorkBench Login Window Description**

Field	Type	Feature	Description
Login	Required	Button	Starts the login process.
Cancel	Optional	Button	Aborts the login and exits the window.
Change	Optional	Button	Changes user password. New password updates automatically in the Access Control WorkBench.
User Login Name	Required	Field	Login name as defined in Access Control WorkBench.
Password	Required	Field	Password as defined in Access Control WorkBench.
WorkGroup	Required	Drop-down list	Of workgroups assigned to user, the workgroup the user wishes to log in to.
Roles	Required	Drop-down list	Of roles assigned to user, the role under which user wishes to log in.
Messages	Display only	Field	Message field.

## Timing Out

The login process is timed to prevent partially started applications from being on the network. If you do not complete the login procedure and leave the login window displayed, the login process automatically terminates after 7 minutes of inactivity. This value can be changed by the system administrator. Once the application is fully running, the timeout is disabled.

Thus, if you begin to log in to an application, walk away, and then come back and don't see the login window, it is because the timeout terminated the login.

---

---

## Preparing the Data

Data preparation is the first step in creating a master configuration database. This chapter discusses the following topics related to data preparation:

- [Introduction](#)
- [Creating the Files Required for a Master Configuration](#)
- [Defining Racks](#)
- [Creating Figure Image Files](#)

## Introduction

Collecting and preparing data is the first step in creating a master configuration.

The input data consists of IPC text, figures, and workbooks. The IPC is annotated with corrections, comments, and unit configuration specifications and becomes the official log of the construction process. It is edited to include the latest manufacturer and local repair shop revisions. It must also be annotated with workbook rack definitions. This IPC text must be obtained in or converted to ASCII format and validated. Each IPC figure must be obtained in electronic form or scanned and saved as an electronic image file.

The annotated IPC and workbooks, electronic ASCII file, and image files are the records from which a master configuration can be recreated if necessary.

Data preparation involves three primary steps:

1. Create the files needed for parsing and database construction. These include the IPC ASCII file and configuration files that describe the format of the IPC.
2. Create rack definitions. Group assemblies according to the most efficient way for disassembly and servicing.
3. Scan, edit, and save the IPC figures with an appropriate naming convention.

This data is used to create a database. Each index on each figure referenced in this database is then electronically associated with the appropriate image file and a repair route. Validation and release complete the master configuration, which can then be used to create the unit configurations used by the Inspection Workbench.

## Creating the Files Required for a Master Configuration

The files required to create a master configuration are all simple text files. They can be created and edited with any word processor or text editor. [Table 3-1](#) describes these files.

[Figure 3-1](#) shows how the files are used in the process of creating a master configuration.

**Table 3–1 Files Required to Create a Master Configuration**

File Name	File Format	Description
IPC ASCII	<sup>1</sup> <root>eng.asc	IPC manual in electronic ASCII format.
IPC Format	<name>.ipc	Defines the column format and keywords used in the IPC manual.
Sets	<root>sets.iff	Defines engine model and options.
Kits ASCII	<root>kits.asc	Kit information from IPC manual in electronic ASCII format.
The following files are generated automatically by the Master Configuration WorkBench during the parsing process and are used to create the database. The Figure file is manually edited to include rack definitions before the database is built. This is discussed in Chapter 4.		
Figure	<root>figs.iff	Contains figure information organized by component. This file is used to map figures to components according to how the components are disassembled for service.
Engine	<root>eng.iff	Includes component figure/index and part information in structured format that can be read easily by the database builder.
Kits	<root>kits.iff	Defines figure/index and part information for kits.

<sup>1</sup> <root> refers to a prefix defined with the keyword FILENAME\_ROOT, described in [Table 3–2](#).

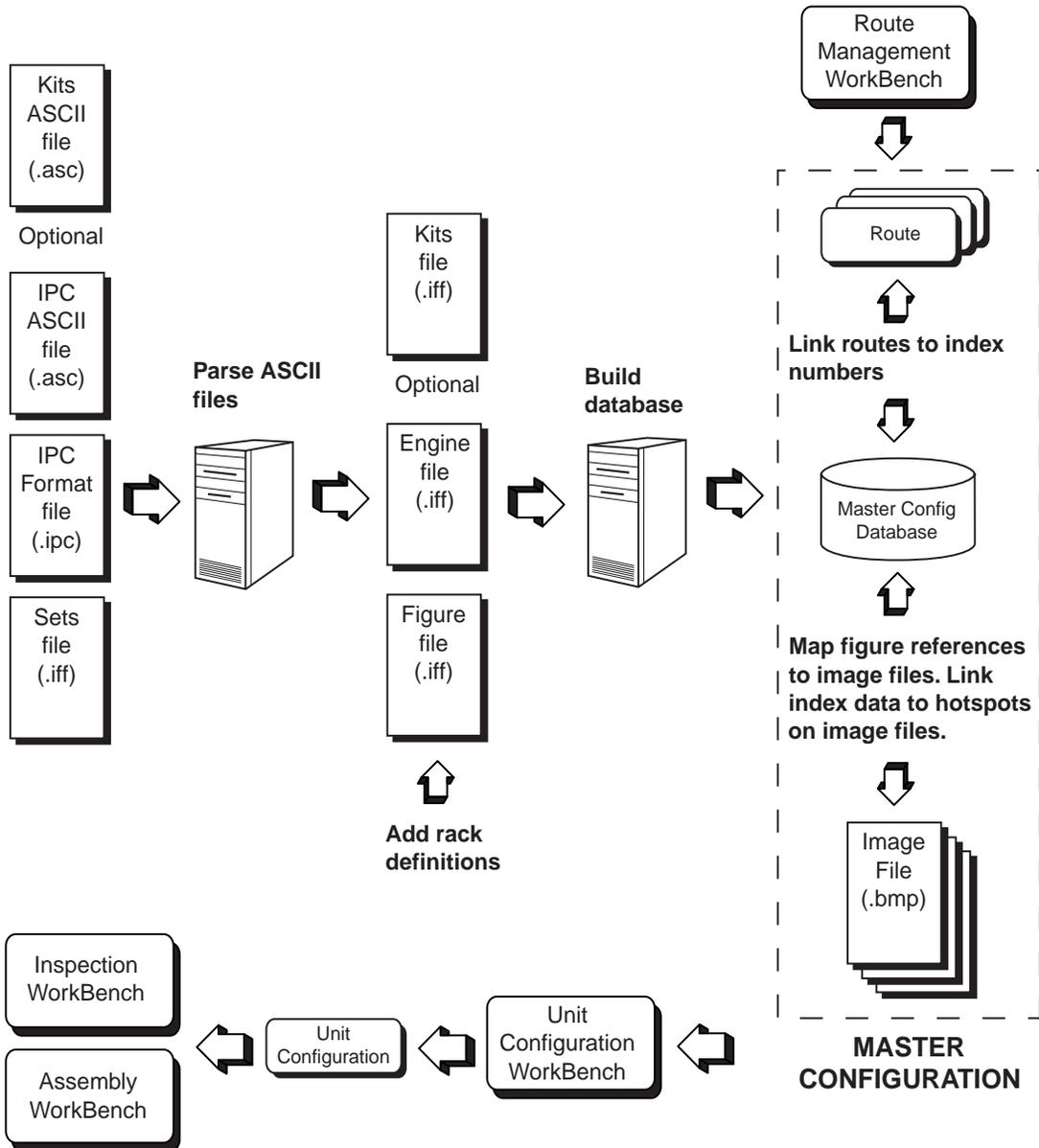
## Creating the IPC ASCII File

The master configuration Database Builder application requires as input a validated, properly indented ASCII format version of the IPC text. Even if the entire IPC is available as ASCII text, some text entry and/or scanning is likely to be required to update the file to match the most current version of the IPC. ASCII data can be edited in nearly any text editor that can save a file as plain text.

### Text Scanning

Small amounts of text missing from the IPC can be entered manually. If you have large amounts of text to be entered, or if the entire IPC is available only as a printed manual, scan the text pages and convert the scanned pages to electronic text using an optical character recognition (OCR) program.

Figure 3-1 Creating a Master Configuration



This scan and OCR task can be performed using any third-party commercial software packages. Note that OCR systems are not 100% accurate, so scanned text must be checked for errors. Scanning and converting text is less desirable than obtaining electronic text directly.

### Reviewing the IPC and Checking Compatibility

Regardless of how the ASCII text is obtained, validate it to ensure that all revisions have been applied to the IPC.

---

---

**WARNING: Changes to part and alternate part information should be made only with proper authorization. Do not add or remove information from the IPC unless the change has been approved. Annotate all changes to indicate the nature of the change and who made the change.**

---

---

As the IPC ASCII files is parsed, the program constructs a Bill of Materials (BOM) for each engine models in the IPC. To construct the BOM structure, the parser must understand the complete set of assembly-subassembly relationships for the entire engine. These relationships are automatically extracted from the manual by using the indentation system, the forward references, next-higher-assembly references, and attaching parts.

For parts described in a single figure, the subassembly relationships are indicated by the Aviation Transportation Association (ATA) indentation conventions. The parser identifies these breakdowns and attaches the parts to the correct parents in the BOM assembly hierarchy. However, some assembly breakdowns are spread across multiple figures or are in different sections or even different chapters. An assembly may have alternate lists duplicated in different parts of the manual. During parsing, such subcomponents are collected under the proper parent assembly in the BOM structure.

Reviewing involves inspecting the text for consistency of these engine assembly-to-subassembly definitions. This is accomplished by checking the level of indenture indicated by the dots preceding the nomenclature in the parts listing.

When a part has a note explaining that the detailed breakdown is provided in a subsequent figure, consistency of part numbers must be checked in the subsequent description.

## Updating the IPC ASCII File

The IPC ASCII file must be reviewed to determine if the latest manufacturer and local repair shop revisions are included. As a general rule, a printed IPC may be taken as the authoritative reference. Any ambiguities must be resolved by Engineering and QA staff, or possibly by manufacturer representatives.

Three types of inconsistencies may occur with IPC information:

- Information is in the ASCII file but not in the manual.
- Information is in the manual but not in the ASCII file.
- Information in the ASCII file is in error.

**Information in File But Not Manual** If there is information in the file but not the manual, and the manual is determined to be correct, comment out (disable) the information in the file in such a way as to leave a record of the modification, while ensuring that the data is not included in the database.

1. Comment out the desired lines by inserting the keyword `COMMENT:` at the beginning of each line to be excluded from the database.

---

---

**Note:** The keyword `COMMENT:` can be changed to any word you desire for this purpose. Use the `GARBAGE_KEY` keyword in the IPC Format file. See "[Creating the IPC Format File](#)" on page 3-8.

---

---

2. Insert an additional line or lines before the commented-out lines to describe:
  - What part information was deleted
  - When it was deleted
  - By whom the information was deleted

Refer to the example below.

```
COMMENT: The next 2 lines of information were removed 10/5/93 L SANDERS
COMMENT: 8-12 6749115-428 .NUT, SLFLKG HEX, THIN, 1/4-28, 550øF ..... ALT R
COMMENT: (SCE CONT FROM 52828 PT NO. JL6S428B)
```

**Information in Manual But Not File** Perform the following steps if the information is in the manual but not in the IPC ASCII file:

1. Type the missing part data into the file, making sure that figure/index references, part number, descriptions, etc. begin in the proper columns.

2. Insert an additional line or lines before the new information to describe:
  - Exactly what part information was added
  - When it was added
  - By whom the information was added

Refer to the example below.

```
COMMENT: The next 1 line of part data was added 10/5/93 L SANDERS
2-1 6809618 NOZZLE ASSY, FUEL SPRAY (SCE CONT FROM.....6
```

**Information in File Is in Error** Use the following procedure if the IPC ASCII file contains incorrect information:

1. Comment out the desired lines by inserting the keyword COMMENT: at the beginning of each line to be excluded from the database.
2. Insert an additional line or lines before the commented-out lines to describe:
  - Exactly what part information was deleted
  - When it was deleted
  - By whom the information was deleted
3. Insert an additional line or lines before the new information to describe:
  - Exactly what part information was added
  - When it was added
  - By whom the information was added
4. Insert the new information.

---



---

**Note:** If enough new information is added that the end of the new information might not be immediately clear, indicate the end with a line such as "COMMENT: End of new part information."

---



---

If the modification is associated with a temporary change or service bulletin, include a note that identifies the reference. The example below shows incorrect information removed and new information added.

```
COMMENT: The next 2 lines of part information were removed 10/5/93 L SANDERS
COMMENT: 8-12 6749115-428 .NUT, SLFLKG HEX, THIN, 1/4-28, 550oF....ALT Y R
COMMENT: (SCE CONT FROM 52828 PT NO. JL6S428B)
```

```
COMMENT: The next 1 line of information was added as a result of
COMMENT: O.S. 2J-T56-44S-95 2/9/93
      8-12      6749115-428      .NUT, SLFLKG HEX, THIN, 1 / 4 - 28, 550oF ..ALT
```

## Creating the Kits ASCII File

The Kits ASCII file is created in exactly the same way as the IPC ASCII file. The only difference is that it contains only the information relating to kits.

## Creating the IPC Format File

Many of the entries in the IPC Format file define which columns of the IPC manual contain which information. The IPC Format file identifies the syntax of the IPC manual. It specifies the range of columns in which various data items appear. [Table 3-2](#) describes the keywords used in the IPC Format file.

**Table 3-2** *IPC Format File Keywords*

Keyword	Description
( )	Indicates beginning and end of information to be considered by the parser.
PRODUCT:	Describes the product defined by the Illustrated Parts Catalog. The value for this keyword is what appears in the Engine field drop-down list used in the Master Configuration, Unit Configuration, Inspection, and Assembly WorkBenches. The values for PRODUCT, IPC MANUAL, IPC REVISION, and VERSION become the names the folders created by the parser in the main master configuration folder.
FORMAT:	Tells the parser in what format the ASCII file is written.
FILENAME_ROOT:	Root of the parser file names, four characters maximum.
IPC MANUAL:	Identifies the document number of the IPC manual. The values for PRODUCT, IPC MANUAL, IPC REVISION, and VERSION become the names the folders created by the parser in the main master configuration folder.
IPC REVISION:	Identifies the number of the IPC manual revision (a certain revision date). The values for PRODUCT, IPC MANUAL, IPC REVISION, and VERSION become the names the folders created by the parser in the main master configuration folder.

**Table 3–2 (Continued) IPC Format File Keywords**

<b>Keyword</b>	<b>Description</b>				
VERSION:	Distinguishes between multiple master configuration database builds based on the same IPC manual revision. The values for PRODUCT, IPC MANUAL, IPC REVISION, and VERSION become the names the folders created by the parser in the main master configuration folder.				
CHAP_SEC_START:	Column in which chapter/section/unit indication begins.				
CHAP_SEC_END:	Column in which chapter/section/unit indication ends.				
REV_START:	Column in which revision indication begins.				
REV_END:	Column in which revision indication ends.				
FIG_INX_START:	Column in which figure/index data begins.				
FIG_INX_END:	Column in which figure/index data ends.				
NUM_START:	Column in which part number begins.				
NUM_END:	Column in which part number ends.				
NOM_START:	Column in which nomenclature begins.				
NOM_END:	Column in which nomenclature ends.				
UPA_START:	Column in which units per assembly begins.				
UPA_END:	Column in which units per assembly ends.				
UON_START:	Column in which use-on code begins.				
UON_END:	Column in which use-on code ends.				
CONT_FILL:	Column in which a part data continuation line begins.				
GARBAGE_KEYS:	Number of GARBAGE_KEY phrases defined. Words preceded by GARAE are ignored when determining IPC information.				
GARBAGE_KEY:	Phrase to be ignored by parser. Line containing word specified with this keyword should not be used to deduce IPC information. Prevents parser from reading information such as header and footer lines, comments, and deleted material.				
MANUALS:	Number of MANUAL_ATTACH phrases defined.				
MANUAL_ATTACH:	A MANUAL_ATTACH phrase tells the parser to create a parent-child relationship between two IPC indexes, as follows: <div style="text-align: center;"> <table> <tr> <td>Parent</td> <td>Child</td> </tr> <tr> <td>MANUAL_ATTACH: Ch-SecUnit-Fig-Index;</td> <td>Ch-SecUnit-Fig-Index</td> </tr> </table> </div>	Parent	Child	MANUAL_ATTACH: Ch-SecUnit-Fig-Index;	Ch-SecUnit-Fig-Index
Parent	Child				
MANUAL_ATTACH: Ch-SecUnit-Fig-Index;	Ch-SecUnit-Fig-Index				

**Figure 3-2** shows an example of an IPC file. Column positions for these definitions are given in spaces from the left margin and begin with 0. Note that the keyword COMMENT is defined with the GARBAGE\_KEY keyword. Also note the use of MANUAL\_ATTACH phrases.

**Figure 3-2 IPC Format File**

```
(
PRODUCT: CF34-BJ
FORMAT: GE
FILENAME_ROOT: CF34
IPC MANUAL: SEI779
IPC REVISION: 1
VERSION: 1
CHAP_SEC_START: 70
CHAP_SEC_END: 78
REV_START: 0
REV_END: 1
FIG_INX_START: 2
FIG_INX_END: 11
NUM_START: 12
NUM_END: 28
NOM_START: 29
NOM_END: 68
UCN_START: 69
UCN_END: 76
UPA_START: 77
UPA_END: 80
CONT_FILL: 32
GARBAGE_KEYS: 6
    GARBAGE_KEY: COMMENT:
    GARBAGE_KEY: ILLUSTRATED
    GARBAGE_KEY: FIGURE
    GARBAGE_KEY: Fig.
    GARBAGE_KEY: Mar
    GARBAGE_KEY: Page
MANUALS: 2
    MANUAL_ATTACH: 72-00-1-1;72-22-1-1
    MANUAL_ATTACH: 72-00-1--10;72-23-1-1
)
```

Perform the following steps to create the IPC Format file:

1. Use a word processor or text editor to create a new file.

---



---

**Note:** If you are using a word processor, select a monospace font such as Courier so that the words align properly.

---



---

2. Enter the contents of the file according to the keyword definitions (Table 3-2) following a sample such as Figure 3-2. You may also copy text from an existing IPC Format file or edit a copy of an existing file.
3. Save the file as a text file but with the extension *.ipc* instead of *.txt*.

---



---

**Note:** If you are using a word processor that can save files in a number of formats, you should select "Text" for the document type when you save. The program may want to assign a file extension of *.txt*. If this happens, just reenter the extension as *.ipc*.

---



---

## Creating the Sets File

The Sets file is used to map the model definitions to the values of the use-on codes in the IPC. Table 3-3 describes the keywords used in the Sets file.

**Table 3-3** Sets File Keywords

Keyword	Description
( )	Beginning and end of information to be considered by the parser
NAME:	Describes what is being defined.
PAIRS:	Number of INDEX and VALUE pairs in file.
INDEX:	Character or number assigned to use on code in IPC.
VALUE:	Value of INDEX, as defined in IPC. Appears as a selection in fields of the Oracle MRO workbenches.

Figure 3-3 shows part of the IPC file for the General Electric CF34 engine, which has two models. In the IPC, the use-on codes A and B are assigned to these engine models. These same index values are used in the Sets file (Figure 3-4). The values specified for these indexes become the options available in the Model drop-down list when creating a unit configuration.

**Figure 3–3 IPC File Designation for CF34 Engine Models**

ILLUSTRATED PARTS CATALOG					72-00-00	
FIG	ITEM	PART NUMBER	DESCRIPTION	UOC	QTY	
1	1	6078T27G01	ENGINE ASSEMBLY-CF34-3A1	<b>A</b>	1	
	-	1A 6089T11G01	ENGINE ASSEMBLY-CF34-3B1	<b>B</b>	1	

**Figure 3–4 Sets File and Result in Unit Configuration WorkBench**

```
(
NAME: ENGINE MODEL
PAIRS: 2
INDEX: A
VALUE: CF34-3A1
INDEX: B
VALUE: CF34-3B
)
```



Perform the following steps to create the Sets file:

1. Use a word processor or text editor to create a new file.

---

**Note:** If you are using a word processor, select a monospace font such as Courier so that the words align properly.

---

2. Enter the contents of the file according to the keyword definitions (Table 3–3) following a sample such as Figure 3–4. You may also copy text from an existing Sets file or edit a copy of an existing file.
3. Save the file as a text file but with the extension *.iff* instead of *.txt* and the name in this format:

<FILENAME\_ROOT>sets.iff

where <FILENAME\_ROOT> is the value for that keyword.

---

---

**Note:** If you are using a word processor that can save files in a number of formats, you should select "Text" for the document type when you save. The program may want to assign a file extension of *.txt*. If this happens, just reenter the extension as *.iff*.

---

---

## Defining Racks

The most efficient disassembly and assembly procedures often require that parts shown in a single engineering figure be separated into different groups. These groups are called *racks*, which is a reference to the large carts often used to transport assemblies and subassemblies to repair areas.

Because repair shops work with different engines and have different resources available, they divide their operations differently. For example, one shop might have areas for welding, heating, and cleaning that service all engine components. Another shop might organize areas by assembly, not by operation. The shop might have areas for compressors, fans, and gearboxes. Because of this diversity, Oracle MRO lets you create different rack definitions from the same IPC data.

In the Oracle MRO system, a rack is defined by a set of figures and index numbers. The manner in which parts are serviced in a shop is indicated by the way figures are assigned to racks in the master configuration.

A figure may be included in multiple racks, as happens with the higher level components such as the turbine and compressor. For example, some parts in a figure are inspected as part of the compressor, and others are inspected as part of the turbine. Some are not inspected at all. A figure may be included in more than one rack, but each index number on a figure is included in only one rack. When you are reviewing figures to create rack definitions, you must determine which parts are to be inspected as part of which rack.

Parts that are not inspected are assigned to *auxiliary racks*. An auxiliary rack is a rack used to account for unused figures or uninspected parts. For example, any indexes in the COMPRESSOR section of the IPC that are not inspected can be assigned to a rack with a name such as UNINSPECTED COMPRESSOR PARTS. Auxiliary racks are discussed in detail in "[Adding Rack Definitions to the Figure File](#)" in [Chapter 4](#).

Perform these steps to create rack definitions:

1. For each workbook, compare the figures with the latest IPC figures. Annotate each IPC figure to reference the appropriate workbook. The index numbers on each figure must be identified as included for inspection in the current workbook or in some other workbook.

2. If figures are included in multiple places, add all workbook names to each copy of the figure. This allows information to be cross-checked across workbooks.
3. Compile a list of definitions as each of the workbook figures is reviewed. Record the following information for each figure:
  - IPC figure name
  - Full IPC figure number (chapter, section, unit, figure)
  - Rack name: an assembly name such as turbine or compressor, or an auxiliary rack name
  - Figure indexes to be inspected as part of each rack

This information is integrated into the Figure file after the parsing stage. When the Master Configuration Database Builder reads the Figure file, it extracts the rack information and builds the rack definitions into the database.

To change the rack definitions, you must change how racks are defined in the Figure file, and then build another master configuration database.

The Master Configuration Database Builder is discussed in [Chapter 4](#).

## Creating Figure Image Files

Figures that exist only in a printed IPC must be scanned to create an electronic image file for incorporation into the master configuration. You must have an image scanner to scan the figures. You must also have a graphics application to receive the image data from the scanner, edit the image as necessary, and save it as a standard bitmap image file with the extension *.bmp*.

There are many suitable scanners and graphics packages available. Image quality is important. You'll need to experiment some with scanning parameters such as brightness and contrast to obtain the sharpest images.

Perform the following steps to create scanned image files:

1. Scan each page containing a figure you want to include.
2. Perform any necessary image cleanup or editing:
  - a. Using a graphics application, remove the figure number and title. They are not necessary on the figure itself because they will appear in the title bar of the workbench windows.
  - b. Remove other extra marks such as marks where binder holes were punched, the page was folded, and notes were written.

---

---

**Note:** The final image cannot be larger than 620 x 620 pixels.

---

---

3. Save the image file in the *.bmp* image format. Use a file naming convention that makes it easy to associate an image file with its IPC figure reference. That is, the image file name should indicate, for example, the chapter, section, unit, figure, and sheet number.



---

---

# Parsing, Building, and Figure Mapping

Once the input data has been prepared and validated, the next step is to construct the database and map figures. This chapter discusses the following topics:

- [Introduction](#)
- [Using the Database Builder](#)
- [Preparsing](#)
- [Parsing](#)
- [Adding Rack Definitions to the Figure File](#)
- [Building the Engine and Figure Database](#)
- [Using the Picture Book](#)
- [Using the Picture Book](#)
- [Using the Tree Browser](#)
- [Mapping Figures](#)
- [Creating and Editing Hotspots](#)

## Introduction

The IPC and Kits ASCII files are prepared to quickly check for simple errors. They are then parsed to produce the Engine file (<root>eng.iff), Kits file (<root>kits.iff), and Figure file (<root>figs.iff). Parsing also produces some status files.

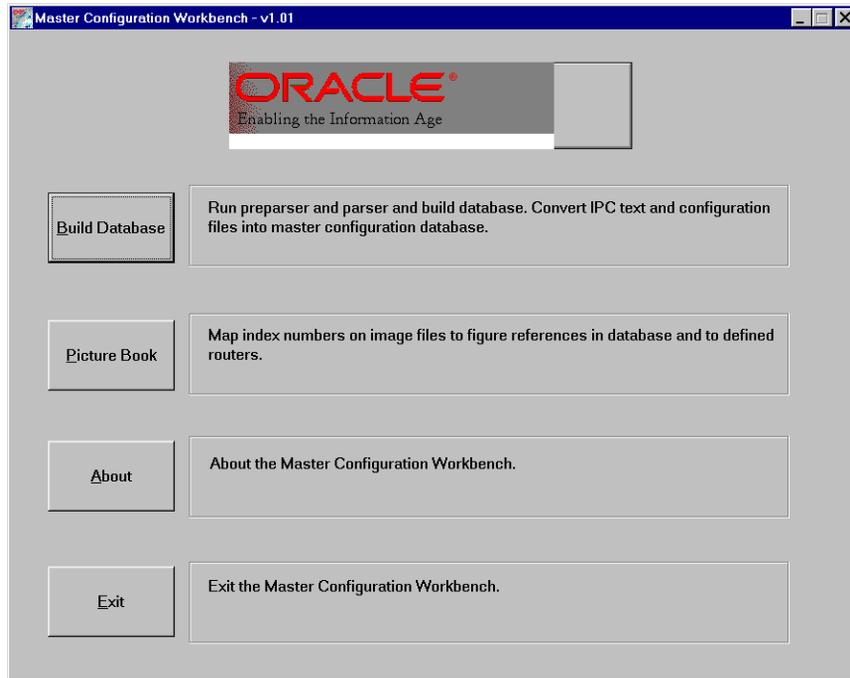
The parser automatically detects the endpoints of all the assembly-to-subassembly relationships and writes them into the Engine and Kits files. Also included is alternativity data for each figure/index accompanied by the notes, restrictions, and service bulletin references for each part.

The parser writes the figure information into the Figure file. Rack definitions are inserted into this file to associate the figure references with the scanned image files.

The Master Configuration WorkBench uses the Figure and Engine files to build a database. Selectable links are created between the index numbers on figures and the relevant part information in the database, which may be specific part information or a link to another figure.

The Master Configuration WorkBench consists of two primary programs, accessed with the buttons on the main Master Configuration WorkBench window (Figure 4-1):

- The Database Builder is used to preparse, parse, and build the database.
- The Picture Book is used to link the figure references and part data in the database with the appropriate image files and figure index numbers on those images. It is also used to link index numbers to routes.

**Figure 4–1 Master Configuration WorkBench Window**

## Using the Database Builder

To preparse, parse, and build the database, use the Database Builder program (Figure 4–2). Table 4–1 describes the menus and menu items available in this window.

**Figure 4–2 Master Configuration Database Builder**

**Table 4–1 Master Configuration Database Builder Menus**

<b>Menu</b>	<b>Submenu/Command</b>	<b>Description</b>
File	Open	Displays dialog box used to choose the IPC Format file.
	Exit	Exits the Database Builder application back to main Master Configuration WorkBench window.
IPC	Preparse	Starts preparse of IPC ASCII file that checks for basic errors and incorrect indentation dot sequence (for example, 1 dot to 3 dots in consecutive lines).
	Parse	Parses the ASCII text file. Produces the Figure file, Engine file, and Kits file (optional). The Figure file must be edited to include rack definitions.
	Build Assy	Builds the database from the Figure, Engine, and Kits files.
	Check Assy	Checks the database for errors. If <b>Status-&gt;File</b> is chosen, information is written to a file called <root>assy.txt.
	Rebuild	<i>Not implemented.</i>
	Settings	Displays the IPC manual, IPC revision, and version of the master configuration. This information is used by the Database Builder to create the file structure in which the master configuration data is stored. These parameters, recorded in the IPC Format file, become part of the name of the master configuration.
Options	Module >	Includes or excludes an engine and/or kits from the parse or build.
	Engine	Includes engine in preparse, parse, and build.
	Kits	Includes kits in preparse, parse, and build.
	Status	Information about the status of the preparse, parse or build is displayed in a window or recorded in a file created in the same directory as the IPC Format file. The prefix <root> in the file names below is defined by FILENAME_ROOT keyword statement in the IPC Format file.
	Window	Shows status information and error messages in the program window.

**Table 4–1 (Continued) Master Configuration Database Builder Menus**

Menu	Submenu/Command	Description
	File	Writes status information and error messages to a file created in the same directory as the IPC Format file. The prefix <root> in the file names below is defined by FILENAME_ROOT keyword statement in the IPC Format file.  For a parse, the file created is <root>parse.txt. For a build, the file created is <root>build.txt. For an assembly check, the file created is <root>assy.txt.
	Off	Status information is not recorded or displayed.
	Preparse >	Defines the checks performed by the preparse function.
	Attaching Parts	Checks attaching parts for beginning and end tags: ATTACHING PARTS and ***.
	Partial Breakdown	<i>Not implemented.</i>
	Open Nodes	<i>Not implemented.</i>
	Parens	Checks for missing parentheses. Parentheses must occur in pairs in the form (text).
	Sub Level	Checks for indenture consistency. For example, a line preceded with 3 dots cannot follow a line preceded by 1 dot.
	Units Per Assy	Checks that there is an entry in the units per assembly column.

## Preparsing

Preparsing quickly scans the text of the IPC and Kits ASCII files to identify simple problems such as typographical errors and problems with the beginning or end of attaching parts listings. The IPC parser executes the preparsing process in a few minutes and generates error messages. The information is displayed on the screen or saved to a log file, depending on the option selected.

Perform the following steps to preparse the master configuration files:

1. Choose **File->Open** to display the open dialog box and choose an IPC Format file to open.

---



---

**Note:** Valid IPC Format files have the file name extension *.ipc*. Once a file is open, the name appears in the window header and the menu commands become active.

---



---

2. From the Options menu, define the parameters for the preparse and status tracking functions. See [Table 4-1](#) for a description of the menu items.
3. Choose **IPC->Preparse**.
  - a. If no errors are found, the preparse process is complete.
  - b. If errors are found, messages appear in the window or are written to the <root>prep.txt file.

---



---

**Note:** Attaching parts should begin with a line containing only the phrase ATTACHING PARTS. The set is terminated by a line containing the string \*\*\*. If either of these tags is missing, the preparser does not know where the list begins or ends, depending on the error. The preparser detects when either tag is missing and identifies the region of the file.

---



---

4. Correct errors as necessary in the IPC ASCII and/or Kits ASCII files. When you are finished, choose **IPC->Preparse** again. Repeat until the preparse completes successfully.

## Parsing

The parsing process generates structured files of part and figure data: the Engine, Kits, and Figure files. Status files are also produced.

Parsing takes several minutes, depending on the size of the files and speed of the computer. The parser reads the IPC ASCII and Kits files and constructs the part hierarchy. During this process some validation occurs that was not possible in the preparsing stage.

Perform these steps to parse the master configuration files:

1. On the main Master Configuration window, click **Build Database**.
2. Choose **File->Open** to display the open dialog and choose an IPC Format file to open.

---

---

**Note:** Valid IPC Format files have the file name extension *.ipc*. Once a file is open, the name appears in the window header, and the menu items become active.

---

---

3. From the Options menu, choose the items that apply. See [Table 4-1](#) for a description of the menu items.
4. Choose **IPC->Parse**.

---

---

**Note:** If parsing has been performed previously, an Engine and Figure file already exist. In this case, you are asked if you want to keep the existing files. If the existing Figure file contains rack definitions that you want to keep, click **Yes** and back up your Figure file before overwriting it.

---

---

- a. If the process completes without errors, parsing is complete.
- b. If errors are found, messages appear in the program window or are logged to files created by the parser.

The information in the log files is useful to determine why a parse did not complete successfully. See "[Status Files Produced by the Parser](#)" for information about these files.

5. Correct errors as necessary in the IPC ASCII, IPC Format, Sets, or Kits ASCII files.
6. When you are finished, choose **IPC->Parse** again. Repeat until the parse completes successfully.

## Status Files Produced by the Parser

The parser creates status files and writes information to them during the parse. The information in these files is useful for troubleshooting the parse process.

The status files are created in the directory that contains the IPC ASCII, Kits ASCII, IPC Format, and Sets files. Two files always produced: <root>misc.txt and <root>garb.txt. The <root>parse.txt file is produced if **Options->Status->File** is chosen. The prefix <root> in the file names is defined by the FILENAME\_ROOT keyword statement in the IPC Format file.

Lines that cannot be parsed are copied into the <root>misc.txt file.

Lines that were not parsed because of the use of the GARBAGE\_KEY keyword are copied to <root>garb.txt file.

Status and error messages generated during the process are written to the <root>parse.txt file.

## Engine File

Parsing restructures the IPC information to create a file that is easy for the Database Builder to work with. The Engine file contains all the assembly-to-subassembly relationships and alternativity data for each figure/index, accompanied by the notes, restrictions, and service bulletin references for each part relative to the engine component. [Figure 4-3](#) shows part of an Engine file.

---

---

**Note:** The section and unit information in the IPC ASCII file are combined into the section information in the Engine file.

---

---

**Figure 4-3 Engine File (Partial)**

```
(
    chapter: 72
    section: 00
    figure: 1
    index: 1
    part_num: 6078T27G01
    nomenclature: ENGINE ASSEMBLY-CF34
    num_notes: 0
    units_per: 1
    on_code: A
    sub_level: 0
    sub_dots:
    attach_p: 0
    revised_p: 0
    att_indices: (A, B)
)
```

## Kits File

The Kits file contains all the information on any manufacturer's repair kits that apply to the engine. It is structured the same as the Engine file.

## Adding Rack Definitions to the Figure File

The Figure file is generated automatically during the parsing process. Before the Master Configuration database is built, the Figure file must be manually edited to include the rack definitions. Each index must be included in one, and only one, rack.

### Figure File Keyword Definitions

The following keywords may be used to define a figure. The first six keywords are generated by the parser. The last two can be added manually to further define racks.

**Table 4–2 Figure File Keywords**

Keyword	Description
( )	Defines the beginning and end of the specification of a figure reference.
CHAPTER:	Two-digit chapter number. (Use 00 if the IPC manual is not ATA standard format.) This keyword is generated automatically by the parser.
SECTION:	Two-digit section number. (Use 00 if the IPC manual is not ATA standard format.) This keyword is generated automatically by the parser. Includes unit information.
FIGURE:	Figure number as indicated in the IPC (for example, 25, 35A). This keyword is generated automatically by the parser.
NAME:	Exact figure title from the IPC (single line). This keyword is generated automatically by the parser.
ATT_INDICES:	Attribute indices. Identify the engine models or component options applicable to this figure, as defined in the Sets file. This keyword is generated automatically by the parser.
MAIN_COMPONENT:	Names a component and indicates that <i>all</i> indexes for the figure are to be included for inspection. By default, MAIN_COMPONENT: ENGINE is assigned to each figure reference during parsing. This keyword is generated automatically by the parser.

**Table 4–2 (Continued) Figure File Keywords**

Keyword	Description
SUB_COMPONENT:	Names a component and indexes to be inspected as part of a rack other than the one specified with MAIN_COMPONENT: for that figure. See <a href="#">Figure 4–5</a> for an example. A figure may have more than one SUB_COMPONENT: statement.  This keyword is added manually by editing the Figure file.
COMPONENT:	Names components and index ranges in sheets beyond first one when a figure spans multiple sheets. See <a href="#">Figure 4–5</a> for an example. A figure may have more than one COMPONENT: statement.  If no indexes or range is indicated, the default is all indexes.  This keyword is added manually by editing the Figure file.

## Editing the Figure File

Use the following procedure to add rack definitions to the Figure file:

1. Open the Figure file in a word processor or text editor.
2. For each figure, indicate the rack to which it belongs by editing the MAIN\_COMPONENT: keyword statement.

---



---

**Note:** When creating the Figure file, the parser assigns the keyword statement MAIN\_COMPONENT: ENGINE to each figure. Change ENGINE to the appropriate rack.

---



---

3. If the figure includes indexes that should be inspected as part of another rack, specify the rack and indexes with a SUB\_COMPONENT: statement. A figure may have more than one SUB\_COMPONENT: statement. Specifying multiple components for a figure includes the figure in multiple racks.
4. If the figure includes components and/or indexes that are not inspected, assign them to an auxiliary rack. See "[Auxiliary Racks](#)" on page 4-14.
5. If a figure spans multiple sheets:
  - a. Specify the rack on sheet 1 with a MAIN\_COMPONENT: statement.
  - b. Use the COMPONENT: keyword to assign subsequent sheets to racks. the same rack as sheet 1.

---

---

**Note:** A figure may have more than one COMPONENT: statement. Specifying multiple components for a figure includes the figure in multiple racks. Additional racks to which the figure is assigned must be defined somewhere in the Figure file with a MAIN\_COMPONENT: statement.

---

---

- c. Specify subsequent sheets of the figure as a different rack by using the MAIN\_COMPONENT: keyword again with a different name.
6. Repeat steps 1 through 5 for each figure in the Figure file.
7. When you are finished, save the file as a text file.
8. Create a backup of the Figure file.

---

---

**Caution:** If you run the parser again, a new Figure file is created that overwrites the existing one and its rack definitions. You lose all your definitions. It is important to keep a backup of your Figure file with rack definitions.

---

---

Figure 4-4 shows part of a Figure file as created by the parser, before rack definitions are added. Figure 4-5 shows the same part of the Figure file after rack definitions are added. (The rack definitions are in bold for clarity.) Each figure is mapped to one or more engine components, or racks. Engine component names are preceded by the keyword MAIN\_COMPONENT:, SUB\_COMPONENT:, or COMPONENT:. Using these keywords to specify a component includes the figure in the rack definition for that component name. Specifying multiple components for a figure includes the figure in multiple racks. In Figure 4-5, Figure 5 is a member of two racks (compressor and turbine).

The component names appearing in the Figure file become the racks that can be selected in the Unit Configuration, Inspection, and Assembly WorkBenches. Although any names can be used for components, it is recommended that standard rack definitions be used for all master configurations.

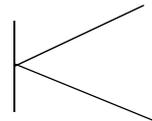
**Figure 4-4 Figure File Before Rack Definitions Are Added**

```
SECTION: 00
  FIGURE: 1
    NAME: FIGURE 1. ENGINE
    ATT_INDICES: (A, B, C, D)
    MAIN_COMPONENT: ENGINE
  )
  (
    CHAPTER: 72
    SECTION: 1
    FIGURE: 1
      NAME: FIGURE 1. ENGINE ASSEMBLY
      ATT_INDICES: (A, B, C,D)
      MAIN_COMPONENT: ENGINE
    )
    (
      CHAPTER: 72
      SECTION: 1
      FIGURE: 2
        NAME: FIGURE 2. POWER UNIT ASSY
        ATT_INDICES: (A, B, C,D)
        MAIN_COMPONENT: ENGINE
      )
    )
    (
      CHAPTER: 72
      SECTION: 1
      FIGURE: 3
        NAME: FIGURE 3. TURBOPROP POWER SECTION ASSY (ACCESSORY DRIVE HOUSING & EXTERNAL OIL PUMP)
        ATT_INDICES: (A, B, C,D)
        MAIN_COMPONENT: ENGINE
      )
    )
    (
      CHAPTER: 72
      SECTION: 1
      FIGURE: 4
        NAME: FIGURE 4. TURBOPROP POWER SECTION ASSY (TURBINE SCAVENGE PUMP & COMPRESSOR TIE BOLT)
        ATT_INDICES: (A, B, C,D)
        MAIN_COMPONENT: ENGINE
      )
    )
    (
      CHAPTER: 72
      SECTION: 1
      FIGURE: 5
        NAME: FIGURE 5. TURBOPROP POWER SECTION ASSY (EXTERNAL OIL PIPING) (501-D22) (SHEET 1 OF 3)
        ATT_INDICES: (A, B, C,D)
        MAIN_COMPONENT: ENGINE
      )
    )
    (
      CHAPTER: 72
      SECTION: 1
      FIGURE: 5
        NAME: FIGURE 5. TURBOPROP POWER SECTION ASSY (EXTERNAL OIL PIPING) (501-D22) (SHEET 2 OF 3)
        ATT_INDICES: (A, B, C,D)
        MAIN_COMPONENT: ENGINE
      )
    )
  )
)
```

By default, each figure is assigned to the engine rack. Each figure must have a main component to which all indexes are assigned.

The values assigned to engine models in the Sets file appear here as the values for the ATT\_INDICES: keyword.

When a figure is spread across multiple sheets, a Figure file entry is created for each sheet.



**Figure 4-5 Figure File After Rack Definitions Are Added**

```

(
  CHAPTER: 00
  SECTION: 00
  FIGURE: 1
  NAME: FIGURE 1. ENGINE
  ATT_INDICES: (A, B, C,D)
  MAIN_COMPONENT: ENGINE
)
(
  CHAPTER: 72
  SECTION: 1
  FIGURE: 1
  NAME: FIGURE 1. ENGINE ASSEMBLY
  ATT_INDICES: (A, B, C,D)
  MAIN_COMPONENT: COMPRESSOR
  SUB_COMPONENT: UNINSPECTED ENGINE PARTS, 1:2,
)
(
  CHAPTER: 72
  SECTION: 1
  FIGURE: 2
  NAME: FIGURE 2. POWER UNIT ASSY
  ATT_INDICES: (A, B, C,D)
  MAIN_COMPONENT: UNINSPECTED ENGINE PARTS
)
(
  CHAPTER: 72
  SECTION: 1
  FIGURE: 3
  NAME: FIGURE 3. TURBOPROP POWER SECTION ASSY (ACCESSORY DRIVE HOUSING & EXTERNAL OIL PUMP)
  ATT_INDICES: (A, B, C,D)
  MAIN_COMPONENT: COMPRESSOR
)
(
  CHAPTER: 72
  SECTION: 1
  FIGURE: 4
  NAME: FIGURE 4. TURBOPROP POWER SECTION ASSY (TURBINE SCAVENGE PUMP & COMPRESSOR TIE BOLT)
  ATT_INDICES: (A, B, C,D)
  MAIN_COMPONENT: TURBINE
  SUB_COMPONENT: UNINSPECTED ENGINE PARTS, 31, 33:34,
)
(
  CHAPTER: 72
  SECTION: 1
  FIGURE: 5
  NAME: FIGURE 5. TURBOPROP POWER SECTION ASSY (EXTERNAL OIL PIPING) (501-D22) (SHEET 1 OF 3)
  ATT_INDICES: (A, B, C,D)
  MAIN_COMPONENT: COMPRESSOR
  SUB_COMPONENT: TURBINE, 41, 49:50, 52,
)
(
  CHAPTER: 72
  SECTION: 1
  FIGURE: 5
  NAME: FIGURE 5. TURBOPROP POWER SECTION ASSY (EXTERNAL OIL PIPING) (501-D22) (SHEET 2 OF 3)
  ATT_INDICES: (A, B, C,D)
  COMPONENT: COMPRESSOR
  COMPONENT: TURBINE
)

```

If chapter and section do not apply, use the value 00.

Assign indexes for items not inspected as part of this main component to an auxiliary rack. An auxiliary rack is one to which unused figures and uninspected parts are assigned.

Figure 2 is not inspected, so it is assigned to the UNINSPECTED ENGINE PARTS auxiliary rack.

Indexes can be indicated singly or as a range.

Figures can continue over multiple sheets with multiple components.

## Auxiliary Racks

The number of racks defined in the Figure file may not account for all of the figures in the IPC, because some figures are not used in the inspection workbooks. In addition, some figures have parts that do not require inspection. To account for these situations, create *auxiliary racks* to which unused figures or uninspected parts can be assigned.

Derive the name of an auxiliary rack from the IPC section name in which the figure is found. However, do not use the same name as one of the primary racks. Modify the existing rack name so the auxiliary rack has a name that is similar to the primary rack and indicates the purpose of the auxiliary rack; for example, UNINSPECTED ENGINE PARTS for ENGINE. Any figures in the ENGINE section of the IPC that are not required in the engine rack can be assigned to UNINSPECTED ENGINE PARTS. The same can be done for specific index numbers within a figure. In [Figure 4-5](#) in the second CHAPTER block, indexes 1 and 2 are assigned to the auxiliary rack UNINSPECTED ENGINE PARTS. When the Inspection WorkBench displays this figure as part of the compressor rack, no hotspots appear for index numbers 1 and 2. These index numbers are not inspectable as part of the compressor.

Some parts have entries in a figure section of the manual, but have no index number. If such a part falls between parts in a component range already specified in the Figure file, it is placed with the same component. If it needs to be included in a different component, edit the IPC text. Insert the COMPONENT: keyword after the part along with the value of the desired component.

## Building the Engine and Figure Database

After the rack definitions have been added to the Figure file, the database can be built.

Perform the following steps to build the master configuration database file:

1. Choose **File** -> **Open** and choose an IPC Format file to open. Valid IPC files have the file name extension *.ipc*. Once you've opened a file, the file name appears in the screen header area, and the IPC menu items become active.

---

---

**Note:** If the IPC Format file was previously opened for preparsing or parsing and has not changed, you do not need to open it again.

---

---

2. Choose **Options->Module->Engine** and/or **Options->Module->Kits**. See [Table 4-1](#) for a description of the menu items.
3. Choose **Options->Status** and **Window, File, or Off**.
4. Choose **IPC->Build Assy**.
  - If the process completes without errors, the database build is complete.
  - If errors are found, messages are written to the window or to the <root>debug.iff file.
5. Correct errors as necessary in the IPC ASCII, Engine, Kits, or Figure file.
6. When you are finished, choose **IPC->Build Assy**.
7. Choose **File->Exit** to return to the main workbench window.
8. Use the Tree Browser to verify the structure of the IPC database. See "[Using the Tree Browser](#)" on page 4-18.

## Status Files Produced by the Database Builder

The Database Builder creates status files and writes information to them during the build. The information in these files is useful for troubleshooting the build process.

The status files are created in the directory that contains the IPC ASCII, Kits ASCII, IPC Format, and Sets files. One file is always produced: <root>debug.iff. The <root>build.txt file is produced if **Options->Status->File** is chosen.

Status messages regarding how the build is handling figure references written to the <root>debug.iff file.

Status messages generated part by part regarding the build process are written to the <root>build.txt file.

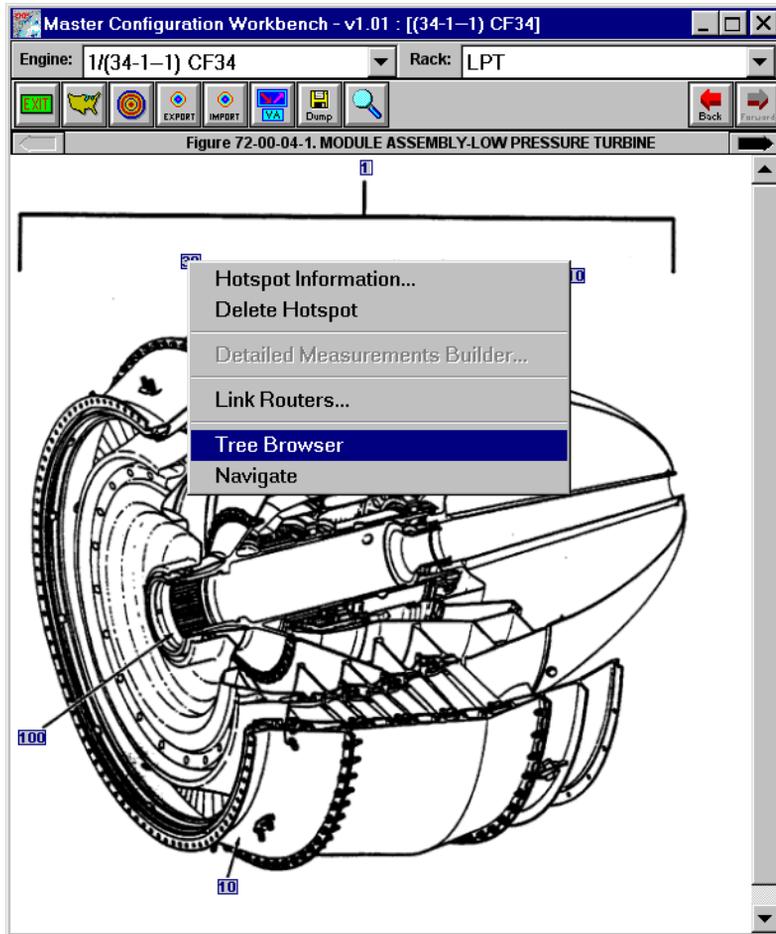
The prefix <root> in the file names is defined by the FILENAME\_ROOT keyword statement in the IPC Format file.

## Using the Picture Book

The Picture Book is used to link the figure references and part data in the database with the appropriate image files and figure indexes. It is also used to verify the master configuration and link index hotspots with routes.

On the Master Configuration window, click **Picture Book** to start the Picture Book (Figure 4-6). All of the Picture Book functions are available from the fields and buttons on the toolbar. Table 4-3 describes the elements in this window.

**Figure 4-6 Master Configuration Picture Book**



**Table 4–3** *Picture Book Description*

Field Name	Type	Feature	Description
Engine	Optional	Drop-down list	Selects the master configuration to be worked on.
Rack	Optional	Drop-down-list	Selects the rack to be defined.
	Optional	Button	<b>Exit.</b> Exits the Picture Book application and returns to main MCWB window.
	Optional	Button	<b>Figure Mapper.</b> Used to create associations between figure image files and the figure references in the database.
	Optional	Button	<b>Hotspot.</b> Used to define and move figure hotspots.
	Optional	Button	<b>Export.</b> Creates a backup file of the hotspot definitions, including screen location, default disposition, serial numbers, and route associations.
	Optional	Button	<b>Import.</b> Restores hotspots from a backup file to a rebuilt database.
	Optional	Button	<b>Verify.</b> Verifies that the figure, hotspot, part, and alternate part information in the master configuration database is correctly encoded. Steps sequentially through each figure for systematic verification of data. Also verifies master configuration parts against parts in the item master used by Oracle applications.
	Optional	Button	<b>Dump.</b> Exports a text file of IPC information to be used for verification.
	Optional	Button	<b>Search.</b> Allows searching and navigating of the master configuration on part number, ATA reference, IIN, and router ID and type.

**Table 4–3 (Continued) Picture Book Description**

Field Name	Type	Feature	Description
	Optional	Buttons	<b>Back and Forward.</b> Displays images in the order they were viewed. For example, if you from an image to a linked image and then another, Back takes you back through the same images
	Optional	Buttons	<b>Next Image and Previous Image.</b> Displays image files sequentially, like paging through a book.

Once a part displayed in the window has a hotspot defined, you can right-click it to display a shortcut menu (Figure 4–6). A number of functions can be initiated from a hotspot. Table 4–4 describes the shortcut menu commands.

**Table 4–4 Picture Book Shortcut Menu**

Menu Command	Description
Hotspot Information	Displays Hotspot Specifications window.
Delete Hotspot	Deletes hotspot.
Detailed Measurements Builder	<i>Not implemented.</i>
Link Routes	Displays Link Routes window, which used to associate routes with a hotspot. Linking routes is discussed in <a href="#">Chapter 6</a> .
Tree Browser	Displays the IPC information in a hierarchical tree structure.
Navigate	Displays figure linked to the figure displayed. presence of linked figure is indicated by boxed hotspot.

## Using the Tree Browser

The tree browser allows you to display the master configuration IPC database in a hierarchical directory structure that can be expanded and collapsed for convenient viewing. This can be useful for verifying that the parser and Database Builder correctly interpreted the IPC ASCII file. Items whose proper place could not be determined from the IPC are placed at the top level, making them easy to find in the Tree Browser. Once the proper location of items is determined, specify it with a

MANUAL\_ATTACH phrase in the IPC Format file. See "[Creating the IPC Format File](#)" on page 3-8.

Perform the following steps to use the Tree Browser:

1. Right-click a hotspot and choose **Tree Browser** from the shortcut menu. The Tree Browser appears ([Figure 4-7](#)). Initially, the window is empty.
2. Choose **View->Whole Tree** to view the entire IPC hierarchy, or choose **View->Current Sub Tree** to view the IPC at and below the level of the hotspot from which the Tree Browser was launched.

---

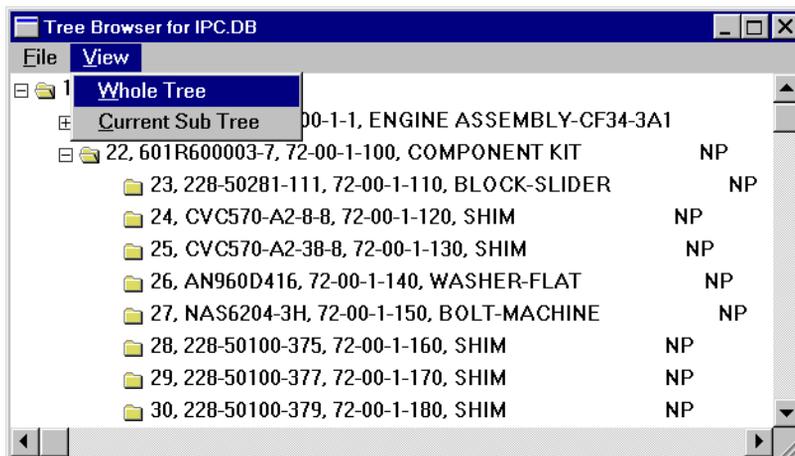
---

**Note:** In the Tree Browser, the number that precedes the part number is a reference number assigned by the system when it reads IPC structure.

---

---

3. To expand a level, click on the + next to a folder. Once a folder is expanded, the + changes to a -.
4. To contract a list, click on the - next to a folder. The - changes to a +.
5. Choose **File->Save** to save an ASCII text flat file of the IPC ([Figure 4-8](#)). When you name the file, include an extension that allows you to open the file easily in the text processor you will use to view the file.
6. Choose **File->Close** to exit the window.

**Figure 4–7 Tree Browser****Table 4–5 Tree Browser Menu**

Menu Command	Description
<b>File</b>	
Save	Saves all Tree Browser IPC information in a flat file format. Use the <i>.txt</i> extension with file name.
Close	Closes the Tree Browser.
<b>View</b>	
Whole Tree	Displays entire IPC information in a hierarchical directory structure.
Current Sub Tree	Displays the IPC information at and below the level of the hotspot from which the tree browser was launched.

**Figure 4–8 IPC Flat File Made from Tree Browser (Partial)**

```

UNIT: 1, (34-1--1) CF34
level=1: currNodeId=12, parentNodeId=1, 6078T27G01, 72-00-1-1, ENGINE ASSEMBLY-CF34-3A1
level=2: currNodeId=13, parentNodeId=12, 6087T08G01, 72-00-1-10, MODULE ASSEMBLY-FAN
level=3: currNodeId=45, parentNodeId=13, 1023T04P01, 72-0001-1-5, PLATE-ID-MODULE
level=3: currNodeId=46, parentNodeId=13, 3020T52P04, 72-0001-1-10, RING-RETAINING
level=3: currNodeId=47, parentNodeId=13, 3022T18G01, 72-0001-1-15, WASHER-KEY
level=3: currNodeId=49, parentNodeId=13, AS3217-223, 72-0001-1-25, RING-RETAINING
level=3: currNodeId=50, parentNodeId=13, 4096T34P01, 72-0001-1-30, WASHER-NO.1 BEARING KEY
level=3: currNodeId=51, parentNodeId=13, 5071T37P01, 72-0001-1-35, LOCKNUT-NO.1 BEARING
level=3: currNodeId=52, parentNodeId=13, 6078T35P02, 72-0001-1-40, BEARING-NO.1 BALL
level=3: currNodeId=53, parentNodeId=13, 5071T33P01, 72-0001-1-45, RUNNER-NO.1 SEAL
level=3: currNodeId=54, parentNodeId=13, 6078T83G01, 72-21-5-1, ROTOR ASSEMBLY-FAN
level=4: currNodeId=586, parentNodeId=54, 4029T51P04, 72-21-5-10, .NUT-SELF-LOCKING

```

## Mapping Figures

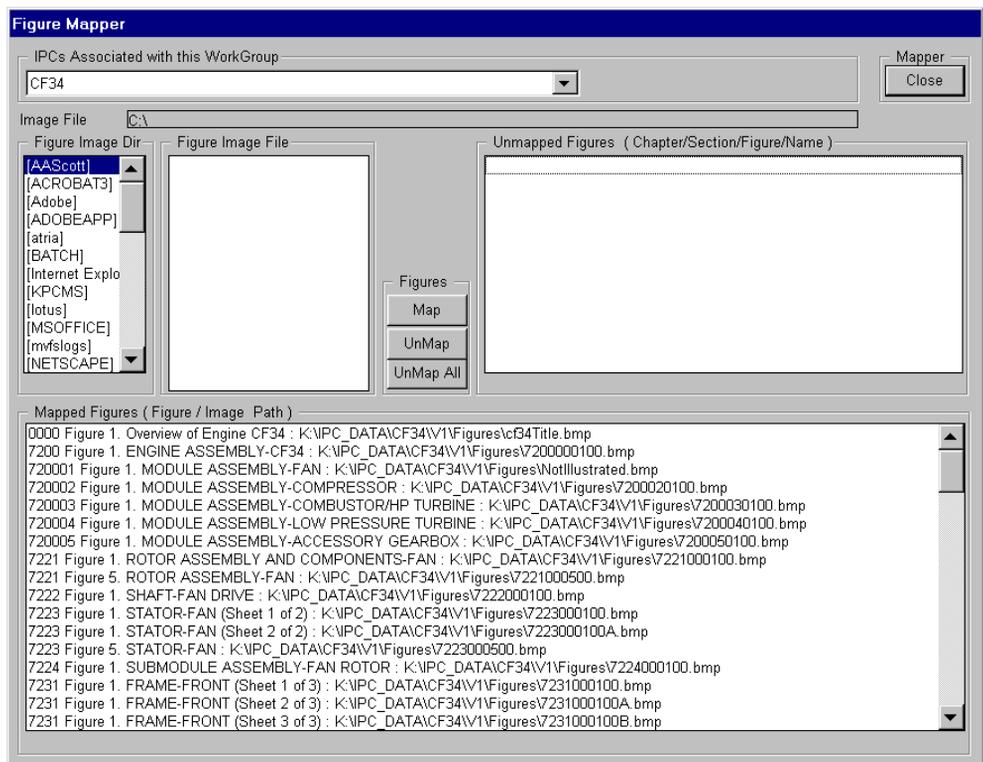
Use the Figure Mapper to map figure references and define, save, and restore hotspots. Figure image files must be associated (mapped) to the figure references before hotspots can be defined or the routes can be linked. If a figure spans multiple sheets, each sheet is considered a figure reference that must be mapped

Perform the following steps to map image files to figure references:

1. From the main Master Configuration window, click **Picture Book**.
2. Click the **Map** button on the toolbar. The Figure Mapper appears ([Figure 4-9](#)). See [Table 4-6](#) for a description of the fields in the window.
3. In the IPCs Associated with this Workgroup field, choose the master configuration for which you want to map figures.
4. Use the Figure Image Directory list to locate the directory of the IPC image files. When you do, the image files appear in the Figure Image File list.
5. Map an image file to its figure reference:
  - a. Choose a figure name in the Figure Image File list.
  - b. Choose a figure reference name in the Unmapped Figures list.
  - c. Click **Map**. The figure reference is deleted from the list. The figure reference and image file name appear together as a new line in the Mapped Figures list. Note that the Mapped Figures list shows the complete name of the figure and the complete path to the image file.

6. To correct an incorrectly mapped figure, choose the figure in the Mapped Figures list and click **UnMap**. The figure reference reappears in the Unmapped Figures list.
7. Choose the figure name in the Unmapped Figures list, and then choose the proper image file.
8. Continue this process until no figure names remain in the Unmapped Figures list.

**Figure 4–9** Figure Mapper



**Table 4–6 Figure Mapper Window Description**

Field Name	Type	Feature	Description
IPCs Associated with this WorkGroup	Optional	Drop-down list	Master configurations available for use with the Figure Mapper.
Mapper/Close	Optional	Button	Accepts changes and exits window.
Image File Path	Display only	Field	Path to image files as selected in Figure Image Dir list.
Figure Image Dir	Optional	List	Directory containing figure image files.
Figure Image File		List	Image files.
Unmapped Figures		List	Figure references in the database that have not been mapped to an image file.
Mapped Figures		List	Figure references and image files to which they are mapped.
<b>Figures Region Buttons</b>			
Map	Optional	Button	Associates selected image file with the selected figure reference.
UnMap	Optional	Button	Removes association of selected image file with the selected figure reference.
UnMap All	Optional	Button	Unmaps all image file-figure reference associations.

## Creating and Editing Hotspots

After figure images and references are mapped, create hotspots. This process creates a link between an index number on the screen and the data associated with the index number in the database. This data includes information such as the part, alternate parts, notes, restrictions, service bulletins, serial numbers, and use-on codes.

---



---

**Note:** Hotspots are assigned to a unit configuration at the time the unit configuration is derived from the master configuration. Changes to a hotspot cannot be applied to previously existing unit configurations.

---



---

## Creating Hotspots

Perform the following steps to create a hotspot:

1. On the main Master Configuration window, click **Picture Book**. The Master Configuration window appears (Figure 4-6).
2. Choose a master configuration from the Engine field.
3. Choose a rack from the Rack field.
4. Use the Next Image and Previous Image arrows to locate the figure on which you want to create hotspots.
5. Click the **Hotspot** button. The cursor changes to a pointer with crosshair.
6. Click an index number in the image, or wherever a hotspot is desired. The Hotspot Specifier appears (Figure 4-10). See Table 4-7 for a description of the fields in the window.
7. Enter the index number of the referenced part (usually the one just clicked).
8. Select or clear the Visible on Screen check box.

---

---

**Note:** If Visible on Screen is not selected, the hotspot does not appear, but the information associated with the hotspot can still be accessed with the search function. See Chapter 7.

---

---

9. Enter the industry index number (optional).
10. Enter the billing code (optional).
11. Choose an inspection type. The inspection type is used when making a disposition on the part in the Inspection WorkBench.
12. Indicate if the part is 100% replaceable.

---

---

**Note:** Parts that are designated 100% replaceable are scrapped automatically when the Inspection WorkBench is used during the disposition and inspection process. You cannot change this disposition in the Inspection WorkBench.

---

---

13. Indicate if the part is serialized and time tracked. If Serialized and Time-Tracked are selected here, when the part is dispositioned, the inspector is prompted to enter the appropriate data before a job is created.

14. Click **OK** when you are finished, and the following events occur:
  - The hotspot is registered into the database and linked to the data for this figure-index number combination.
  - If **Visible on Screen** is selected, the program places the index number specified over the number in the original image. If the component being registered is itself a subassembly, the index number is enclosed in a box, and a hyperlink is constructed to the subassembly figure.
  - If the Master Configuration WorkBench finds no matching index number in the database, a dialog box appears that states the hotspot was not created.
15. Click the **Hotspot** button again to exit the Hotspot Specifier. The crosshair cursor is replaced by the pointer, indicating you have exited the Hotspot Specifier.

## Material Requirements for 100% Replaceable Parts

Material requirements for accumulation jobs are created from parts dispositioned during the inspection, repair, and assembly process; and from parts designated in the master configuration as being 100% replaceable.

Parts that are designated 100% replaceable are assigned a scrap disposition automatically in the Inspection WorkBench, which is used during the disposition, inspection, and repair processes. You cannot change this disposition in the Inspection WorkBench.

To create a materials requirement for these parts, a Bill of Materials must be created in Oracle Applications for each accumulation route linked to an assembly that contains 100% replaceable parts. When the accumulation job is created, the 100% replaceable parts automatically become material requirements for the accumulation job. If the 100% replaceable items are not to be accumulated, then attach the BOM to the assembly route.

**Figure 4–10 Hotspot Specifier Window**

**Hotspot Specifier**

Hotspot Index  
  Visible On Screen

Industry Index Number (IIN)

Billing Code

Inspection Type  
 Standard Replace Floor Stock  
 Standard Replace From Inventory  
 Replace From Kit  
 Visual Inspection Only  
 Detailed Measurements Requirement

Inspection Option  
 100% Replaceable

Parts Properties  
 Unknown  
 Non-Serialized  
 Serialized  Time-Tracked

**Table 4-7 Hotspot Specifier Window Description**

<b>Field Name</b>	<b>Type</b>	<b>Feature</b>	<b>Description</b>
Hotspot Index	Required	Field	Index number that was selected to bring up the Hotspot Specifier.
Visible on Screen	Optional	Check box	Determines whether or not a hotspot is visible on screen. Information associated with a hotspot that is not visible is available through the IPC search function.
Industry Index Number	Optional	Field	Standard industry number assigned to life-limited and time-tracked parts that the FAA dictates must be tracked.
Billing Code	Optional	Field	Billing code number for hierarchical cost rollup scheme.
<b>Inspection Type Region</b>			
Standard Replace From Floor Stock	Optional	Radio button	<i>Not implemented.</i>
Standard Replace From Inventory	Optional	Radio button	<i>Not implemented.</i>
Standard Replace From Kit	Optional	Radio button	<i>Not implemented.</i>
Visual Inspection Only	Optional	Radio button	<i>Not implemented.</i>
Detailed Measurement Requirement	Optional	Radio button	<i>Not implemented.</i>
<b>Inspection Option Region</b>			
100% Replaceable	Optional	Check box	Part is always replaced, regardless of condition. Selecting 100% replaceable prevents the part from being assigned another disposition in the Inspection WorkBench.
<b>Part Properties Region</b>			
Unknown	Optional	Radio button	Not known if part is serialized or not serialized.
Non-Serialized	Optional	Radio button	Part is not serialized.
Serialized	Optional	Radio button	Part is serialized.
Time-Tracked	Optional	Check box	Part is serialized and time in service is also also tracked.

**Table 4–7 (Continued) Hotspot Specifier Window Description**

Field Name	Type	Feature	Description
OK	Optional	Button	Accepts input and exits window.
Cancel	Optional	Button	Rejects input and exits window.

## Editing Hotspots

Once a hotspot is defined, whenever the pointer is placed over this hotspot, the cursor changes to a hand symbol to indicate that you are in the active region. You can now move the hotspot with the left button or display a menu with the right button.

### Moving a Hotspot

Perform these steps to move a hotspot:

1. Put the cursor on the hotspot to be moved. The pointer changes to a hand.
2. Press and hold the left button, and drag the hotspot to a new location. Release the button.

### Deleting a Hotspot

Perform these steps to delete a hotspot:

1. Put the cursor over a hotspot. The pointer changes to a hand. Right-click to display the menu.
2. Choose **Delete Hotspot** from the menu.

### Editing Hotspot Specifications

Perform these steps to edit hotspot information:

1. Put the cursor over a hotspot. The pointer changes to a hand. Right-click to display the menu.
2. Choose **Hotspot Information** from the menu to bring up the Hotspot Specifications window (Figure 4–11). Table 4–8 describes the fields in the window.
3. Edit the part properties, inspection type, and inspection option as required.
4. Click **OK** to exit the window.

### Editing Part Information

Perform these steps to add or delete parts to a master configuration or edit part information:

1. Put the cursor over a hotspot. The pointer changes to a hand. Right-click to display the menu,
2. Choose **Hotspot Information** from the menu to bring up the Hotspot Specifications window.

#### To delete a part from the Part Alternates list:

3. Choose the part in the list and click the **Delete Part** button.

#### To edit the information of a part in the Part Alternates list:

4. Double-click the part in the list. The Edit Part Information window appears (Figure 4-12). Table 4-9 describes the fields in the window.
5. Edit the part information as required and click **OK** to return to the Hotspot Specifications window.

#### To add a new part to the Part Alternates list:

6. Click the **New Part** button. The Edit Part Information window appears (Figure 4-12).
7. Enter the part information as required and click **OK** to return to the Hotspot Specifications window.
8. On the Hotspot Specifications window, click **OK** to exit the window.

**Figure 4–11 Hotspot Specifications Window**

**Hotspot Specifications**

Hotspot Information

Ch.  Sec.  Unit  Fig.  Item

Industry Index Number (IIN):

Billing Code:

Navigable  Visible

Assembly Information

Assembly Index:

Assembly Name:

Number of Alts.:

Parts Properties

Unknown

Non-Serialized

Serialized  Time-Tracked

Inspection Type

Standard Replace Floor Stock  Replace From Kit

Standard Replace From Inventory  Visual Inspection Only

Detailed Measurements Requirement

Inspection Option

100% Replaceable

Part Alternates

Part Number	Part Name
3020T33G02	CONNECTOR-SEAL

OK Cancel

**Table 4–8 Hotspot Specifications Window Description**

<b>Field Name</b>	<b>Type</b>	<b>Feature</b>	<b>Description</b>
<b>Hotspot Information Region</b>			
Chapter	Display only	Field	Chapter number.
Section	Display only	Field	Section and unit number.
Figure	Display only	Field	Figure number.
Item	Display only	Field	Index number.
Industry Index Number (IIN)	Optional	Field	Industry number that indicates the part type.
Billing Code	Required	Field	Billing code number for hierarchical cost rollup scheme.
Navigatable	Display only	Check box	Indicates if the hotspot can be navigated
Visible	Optional	Check box	
<b>Assembly Information Region</b>			
Assembly Index	Display only	Field	Reference number assigned by tree browser when building the IPC structure.
Assembly Name	Display only	Field	IPC nomenclature.
Number of Alts	Display only	Field	Number of valid alternate parts.
<b>Parts Properties Region</b>			
Unknown	Optional	Radio button	Not known if part is serialized or not serialized.
Non-Serialized	Optional	Radio button	Part is not serialized.
Serialized	Optional	Radio button	Part is serialized.
Time-Tracked	Optional	Check box	Part is serialized and time in service is also also tracked.
<b>Inspection Type Region</b>			
Standard Replace From Floor Stock	Optional	Radio button	<i>Not implemented.</i>
Standard Replace From Inventory	Optional	Radio button	<i>Not implemented.</i>
Standard Replace From Kit	Optional	Radio button	<i>Not implemented.</i>
Visual Inspection Only	Optional	Radio button	<i>Not implemented.</i>

**Table 4–8 (Continued) Hotspot Specifications Window Description**

<b>Field Name</b>	<b>Type</b>	<b>Feature</b>	<b>Description</b>
Detailed Measurements Requirement	Optional	Radio button	<i>Not implemented.</i>
<b>Inspection Option Region</b>			
100% Replaceable	Optional	Check box	Part is always replaced, regardless of condition. Selecting 100% replaceable prevents the part from being assigned another disposition in the Inspection or Assembly WorkBenches.
<b>Part Alternates Region</b>			
Part Number/Part name	Display only	List	Acceptable alternate parts or assemblies for the component indicated with the index number.
Add Part	Optional	Button	Displays the Edit Part Information window, which is used to make changes to the part information or to add a new part.
Delete Part	Optional	Button	Deletes the selected part from the list of parts associated with the index.
OK	Optional	Button	Accepts input and exits window.
Cancel	Optional	Button	Rejects input and exits window.

**Figure 4–12 Edit Part Information Window**
**Table 4–9 Edit Part Information Window Description**

Field Name	Type	Feature	Description
Part Number	Required	Field	IPC part number.
Part Name	Required	Field	IPC part name.
Use On Code	Optional	Field	IPC use-on code (UOC). Both global (capital letters) and local (lowercase letters) use-on codes are recognized.
Units Per Assembly	Required	Field	IPC units per assembly (UPA). May also indicate that the part is an alternate (ALT) or that the information can be obtained from a reference (REF).
Notes	Required	Field	Notes relating to part being edited or added.
OK	Optional	Button	Accepts input and exits window.
Cancel	Optional	Button	Rejects input and exits window.

## Saving Hotspot Information

It is common to rebuild a master configuration database to correct errors. For this reason, hotspot information can be saved into a separate file, so it is not lost should

the database be rebuilt. This allows mapped-figure and linked-route associations to be restored without having to redo the work.

Perform the following steps to save hotspot information:

1. Click the **Save Hotspot** button.
2. Click **OK** in the dialog box that appears. The Select Hotspot Dump File window appears. This is a standard Windows file dialog box. Specify the directory and file name for the file to which the figure mapping and route information is written.
3. Click **Open**. A summary of the data to be saved appears.
4. If this meets with your approval, click **OK**. The information is saved to the file you specified. When the backup is complete the hotspot saver reports back the counts of figures and hotspots.
5. Click **OK** to return to the main window.
6. Make a backup copy of the saved hotspot file.

## Restoring Hotspot Information

Master configuration files may need to be reparsed to correct errors or to incorporate updates. Rebuilding the database creates a new IPC part database that does not include the figure mapping and route information. The figure mapping and route information can be restored from the backup file.

---

---

**Note:** If figures are restored with the wrong path, you must remap all the figures. See "[Mapping Figures](#)" on page 4-21.

---

---

Perform the following steps to restore hotspot information:

1. On the main Picture Book window, click the **Restore** button. The Restore Hotspots and Figure Maps window appears ([Figure 4-13](#)). [Table 4-10](#) describes the fields in the window.
2. In the IPCs Associated with this Workgroup field, choose the master configuration for which you want to perform a restore.
3. Use the Hotspot Directory and Hotspot File windows to locate the hotspot save file.
4. In the Restore field, choose one or both of the options:

- Choose **Restore Bitmap Paths** to restore the figure mappings from the preceding saved hotspots.
  - Choose **Restore Hotspots and Routes** to restore the hotspot and route information.
5. Click **Start Restore**. The hotspot file is read, and the information is added to the database. The Status field shows the progress as the database is updated.

If Restore Bitmap Paths is selected, the Mapped Figures window shows the restored figure mappings as progress is made in the mapping.

If the database contains new figures, they are not mapped or recorded in the hotspot file. Unmapped figures appear in the Unmapped Figures list. Map these figures to the new image files and define hotspots for them. See "[Mapping Figures](#)" on page 4-21.

---

---

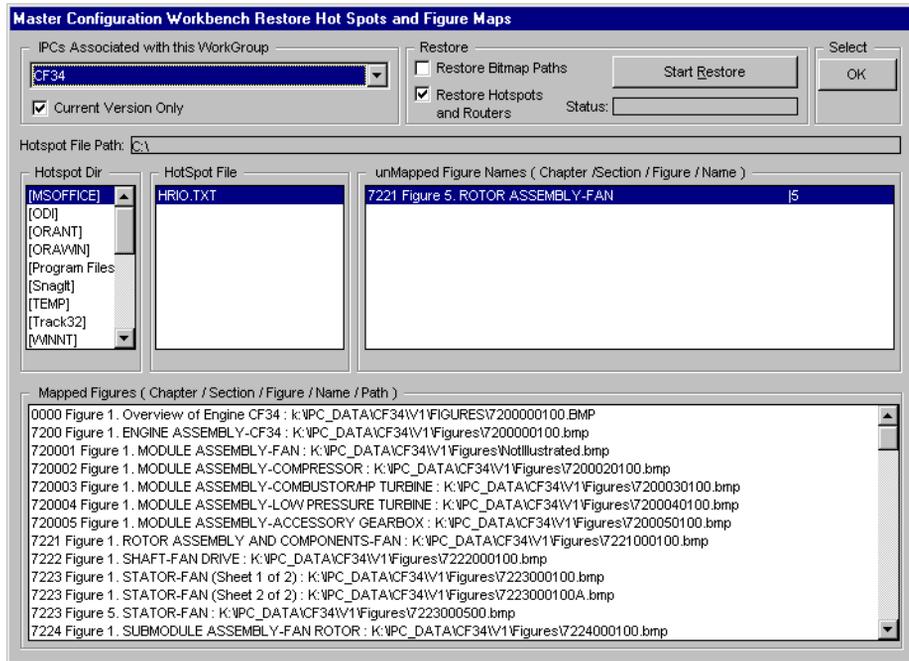
**Note:** After certain changes to the database, errors may be encountered when hotspots are restored. For example, an index may have been deleted, making the hotspot information invalid. A status message alerts you to the location of the problem.

---

---

6. Click **OK** to exit the window.

**Figure 4–13 Restore Hotspots and Figure Maps Window**



**Table 4–10 Restore Hotspots and Figure Maps Window Description**

Field Name	Type	Feature	Description
IPCs Associated with this WorkGroup	Optional	Drop-down list	Master configuration to have hotspots restored.
Current Version Only	Optional	Check box	Inactive.
<b>Restore Region</b>			
Restore Bitmap Paths	Optional	Check box	Restores associations between locations of the image files and hotspots.
Restore Hotspots and Routes	Optional	Check box	Restores hotspot information, including window location and association with routers.
Start Restore	Optional	Button	Starts the restore process.

**Table 4–10 (Continued) Restore Hotspots and Figure Maps Window Description**

<b>Field Name</b>	<b>Type</b>	<b>Feature</b>	<b>Description</b>
Status	Display only	Field	Shows status of restore process as it progresses.
OK	Optional	Button	Accepts changes and exits window.
Hotspot File	Display only	Field	Shows path to hotspot file once it has been located with the Hotspot Dir and Hotspot File fields.
Hotspot Dir	Optional	List	Used to navigate to directory containing the hotspot file.
Hotspot File	Selectable	List	List of files.
Unmapped Figure Names	Selectable	List	List of figure references in the database that are not been mapped to an image file.
Mapped Figures	Selectable	List	List of figure references and image files to which they are mapped.



---

---

## Verifying the Database

This chapter provides information on the following topics:

- [Introduction](#)
- [Verifying the Master Configuration Database](#)
- [Comparing the Master Configuration to the Item Master](#)

## Introduction

A final phase of generating the master configuration is verifying the database information to ensure that it has been properly encoded. This verification phase requires an understanding of the engine and IPC structure.

The task involves visually checking that parts, alternates, notes, and references are properly associated with the correct engine components. Figure images must be validated against the database figure references, and hotspots must be checked against the figure index data. When verification is complete, routes are mapped, and the working database is copied to the designated database server for release to the floor.

A further verification is to compare the IPC information in the master configuration with the item master database in Oracle Applications.

## Verifying the Master Configuration Database

The Verify function incrementally steps through the entire database, starting with Figure 1, index 1 of the first chapter. You designate each line as OK or BAD, and a log is generated that captures the verification results. After validation is complete, you can review the log file to see what mistakes were found.

Perform the following steps to verify the master configuration database:

1. On the main Master Configuration WorkBench window, click **Picture Book**.
2. In the Engine field, select the engine whose IPC you want to validate.
3. Click the **Verify** button on the toolbar. The Verify Catalog window appears (Figure 5-1). See Table 5-1 for a description of the fields in the window.
4. In the Log File region of the screen, click **New Verify Log** to begin the validation process, or click **Open Verify Log** to continue a validation that was stopped before completion. A standard Windows file dialog box appears in which you can specify the name and location of the log file.
5. Name or select the log file. Note that a log file should have the extension *.log*. Click **Open**. The Verify Catalog window shows the complete log file path and the chapter, section, figure and index number of the first figure in the database.

---

---

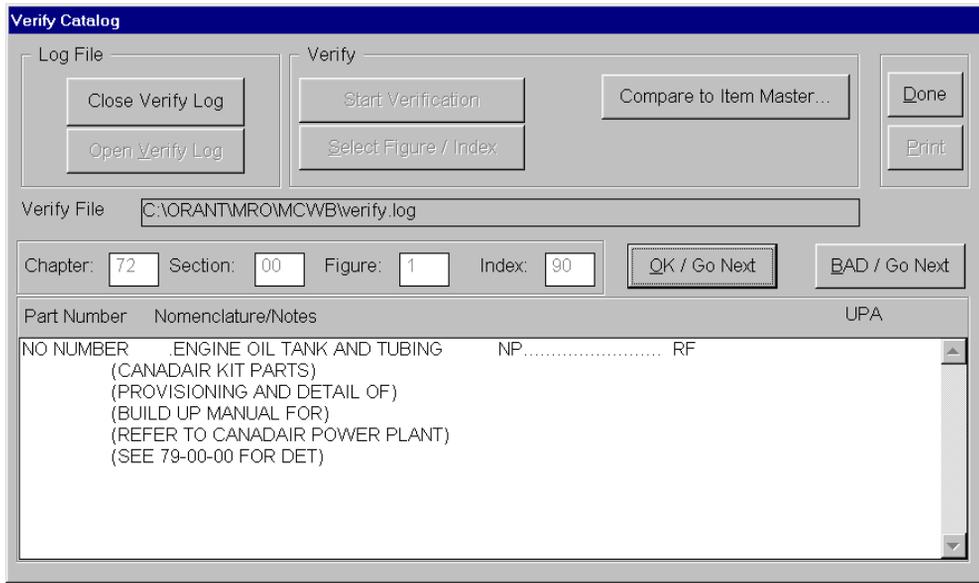
**Note:** The Master Configuration WorkBench combines IPC unit number with the section number. Section numbers appear with extra digits to show this. A section number of four digits such as 2011, for example, indicates section 20, unit 11.

---

---

6. Click **Start Verification** or **Restart**. The Verify Catalog screen shows the chapter, section, figure, and index from the database. The part information list now shows the part name, nomenclature, notes, units per assembly, and use on codes for the displayed index.
7. Verify if the information is correct.
  - a. If the information is correct, click **OK/Go Next**, and the next line appears.
  - b. If the information is incorrect, click **BAD/Go Next**, and the next line appears.
8. When you are finished, or want to stop and resume later, click **Close Verify Log**. The verify log is saved. You can continue from this point at a later time by opening the file and clicking **Restart**.
9. Click **Done** to exit the window.

**Figure 5–1 Verify Catalog Window**



**Table 5–1 Verify Catalog Window Description**

Field Name	Type	Feature	Description
<b>Log File Region</b>			
Close Verify Log	Optional	Button	Closes the verification log file.
Open Verify Log	Optional	Button	Opens the verification log file.
<b>Verify Region</b>			
Start Verification	Optional	Button	Retrieves the database information and displays the first line below.
Select Figure/Index	Optional	Button	<i>Not implemented.</i>
Compare to Item Master	Optional	Button	Compares the item master dump file with the master configuration dump file.
Done	Required	Button	Exits the window.
Print	Optional	Button	<i>Not implemented.</i>

**Table 5–1 (Continued) Verify Catalog Window Description**

Field Name	Type	Feature	Description
<b>File Information Region</b>			
Verify File	Display only	Field	Path to and name of the verification file.
Chapter/Section /Figure/Index	Display only	Fields	Database information for the displayed part.
OK/Go Next	Optional	Button	Displays next line in database.
BAD/Go next	Optional	Button	In the verify log, flags the line as having an error by placing the word BAD by it.
<b>Database Information Region</b>			
Part Number	Display only	List	Part number.
Nomenclature	Display only	List	Part name.
UPA	Display only	List	Units per assembly.

## Comparing the Master Configuration to the Item Master

The inventory item master in Oracle Applications can be saved as a flat file. This information can be compared with a flat file of the information in the master configuration database.

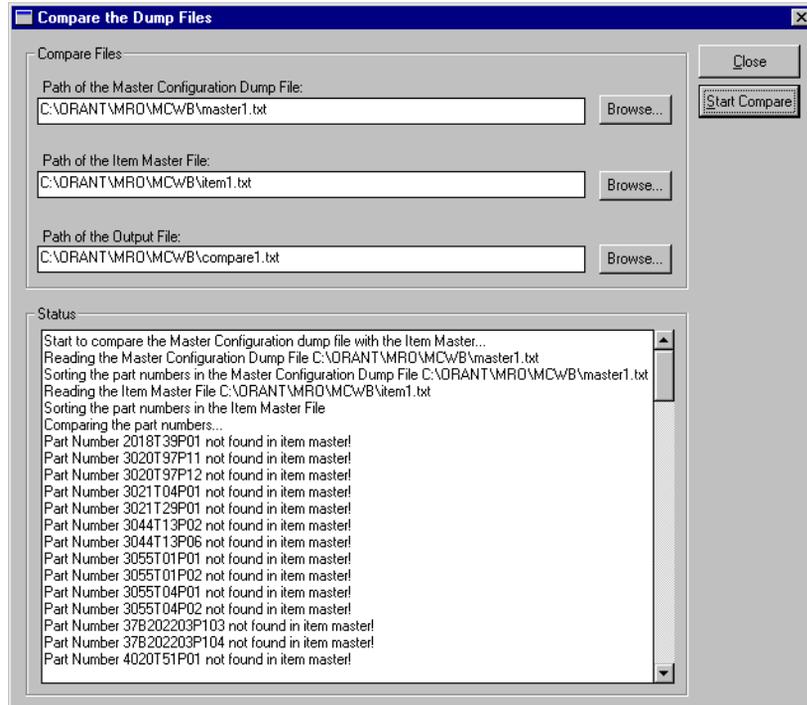
Perform the following steps to compare the part numbers in the master configuration database with the item master database:

1. Create an item master flat file:
  - a. Log onto the database containing the item master.
  - b. Enter the following SQL code statements:

```
$ sqlplus inv/inv@mydb
SQL> setpagesize 0
SQL> set linesize 20
SQL> spool itemmaster.txt
SQL> select segment1 from mtl_system_items order by 1 ;
....
SQL> spool off
SQL> exit
$
```

A text file named *itemmaster.txt* is created in the current directory.

2. Create a Master Configuration Database flat file:
  - a. On the main Master Configuration WorkBench window, click **Picture Book**.
  - b. In the Engine drop-down list, select the master configuration you wish to verify against the item master.
  - c. Click the **Dump** button. Specify a file name and path for the flat file.
  - d. Click **Save** to create the file, or write into an existing file.
3. Click the **Verify** button on the toolbar. The Verify Catalog window appears.
4. Click **Compare to Item Master**. The Compare the Dump Files window appears (Figure 5-2). Table 5-2 describes the fields in the window.
5. Enter, or browse to, the master configuration dump file, item master file, and the output file that will contain the results of the comparison. Note that these are text files.
6. Click **Start Compare** to begin the comparison. All the part numbers in the master configuration that were not found in the item master appear in the Status region of the window.
7. When the process has completed, you can open and review the output file.

**Figure 5–2 Compare the Dump Files Window**

**Table 5–2 Compare the Dump Files Window Description**

<b>Field Name</b>	<b>Type</b>	<b>Feature</b>	<b>Description</b>
Path of the Master Configuration Dump File	Optional	Field	Path to and name of the local dump file.
Path of the Item Master File	Optional	Field	Path to and name of the item master dump file.
Path of the Output File	Optional	Field	Path to and name of the comparison file that is generated.
Browse	Optional	Button	Displays standard Windows file dialog used to locate files.
Status	Display only	Report	Shows the results of the file comparison.
Start Compare	Optional	Button	Starts the comparison process.
Close	Required	Button	Exits the window.

---

---

# Linking Index Numbers with Routes

This chapter contains information on the following topics:

- [Introduction](#)
- [Linking Index Numbers with Routes](#)
- [Saving and Restoring Linked-Route Information](#)

## Introduction

The Route Management WorkBench creates and manages *routes*, the procedures used to disassemble, clean, inspect, repair, and test the assemblies of a product. Routes contain not only procedures but also information about such things as the level of service and type of task. A route also identifies the department and resources required to perform the procedure and the alternate parts that can be used.

Routes are associated with a product by linking them to the product's master configuration at the figure index number where the route applies. This association allows the Unit Configuration WorkBench access to all the required information to create a complete plan with resource and material requirements for a specified level of service.

Accumulation routes are linked to the master configuration at all figure indexes where accumulation takes place. For example, if parts accumulation is to occur for the compressor, then in the master configuration, an accumulation route is linked to the figure index at the highest level for the compressor. More than one accumulation route may be linked to an index. An assembly route should be linked to each index that has an accumulation route linked to it. This is because accumulation and assembly jobs must be created at the same level in the unit.

Different accumulation configurations can be setup by using the service types with the routes. For example, one set of accumulation routes may be created with a minor overhaul service type and linked to various indexes in the master configuration. Another set of accumulation routes may be created with a major overhaul service type and linked to different indexes.

A Bill of Material should be created for each accumulation route for an assembly that contains 100% replaceable parts. The requirements for these parts comes from the BOM associated with the accumulation route. When the accumulation job is created, the 100% replaceable parts automatically become material requirements for the accumulation job. If the 100% replaceable items are not to be accumulated, then the BOM is attached to the assembly job.

Associating index numbers with routes is done with the Picture Book program in the Master Configuration WorkBench.

## Linking Index Numbers with Routes

Perform the following steps to link an index number with a route or routes:

1. From the main Master Configuration window, click **Picture Book**. The Master Configuration Picture Book appears.
2. Choose a master configuration.
3. Choose a rack.
4. Use the **Next Image** and **Previous Image** arrows to locate the figure on which you want to link routes.
5. Right-click a hotspot and choose **Link Routes**. The Link Routes window appears (Figure 6-1). See Table 6-1 for a description of all the fields on this window.
6. Click **Show Routes** to expand the screen to show the Filter region and available routes.
7. Filter the routes shown by making selections in the Product, Lable1, Lable2, Route Type, and Service Type fields. As choices are made, the list of routes is reduced to those that meet all the filter conditions.
8. Choose a route or routes, and then click **Link Selected Routes** to associate the routes with the index number (chapter, section/unit, figure, index reference). The routes immediately appear in the Linked Route region.

---

---

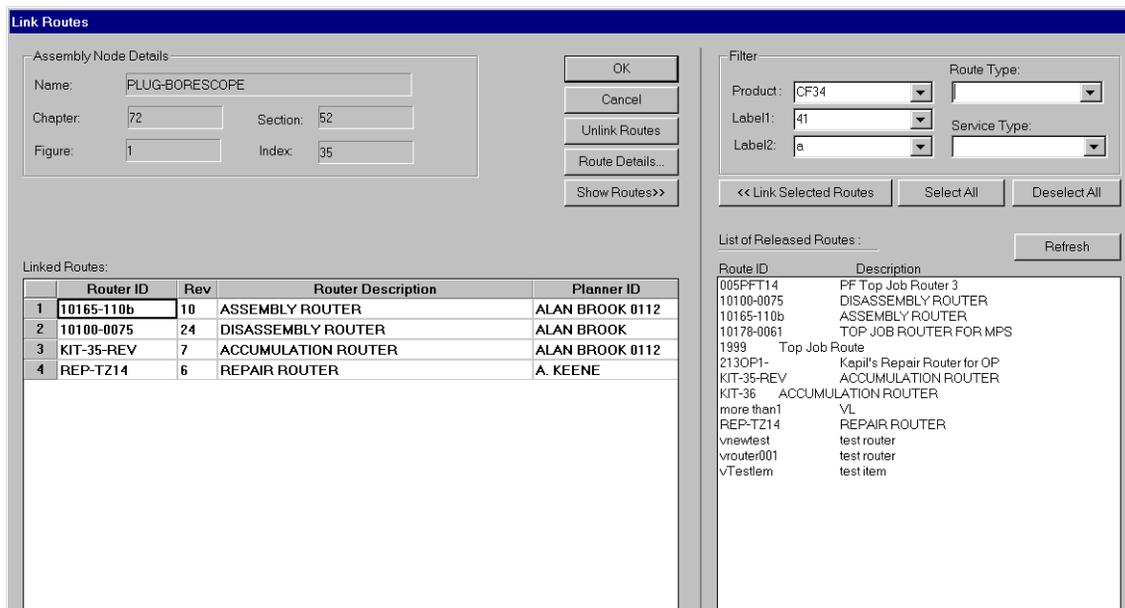
**Note:** In the Picture Book, indexes to which routes are linked appear gray.

---

---

9. To view the details of a route in the Linked Route region, choose the route and click **Route Details**. The Route View window appears (Figure ). Table 6-2 describes the fields in the window. Click **Close** to exit the window.
10. To disassociate a route or routes with the index number, choose the route in the Linked Routes region and click **Unlink Routes**.

**Figure 6–1 Link Routes Window**



**Table 6–1 Link Routes Window Description**

Field Name	Type	Feature	Description
<b>Assembly Node Details Region</b>			
Name	Display only	Field	IPC nomenclature of indexed part.
Chapter	Display only	Field	Chapter from IPC manual.
Figure	Display only	Field	Figure from IPC manual.
Section	Display only	Field	Section and unit from IPC manual.
Index	Display only	Field	Index number from which <b>Link Routes</b> was selected.
OK	Optional	Button	Accepts window as defined and exits.
Cancel			Rejects any changes and exits window.
Unlink Routes	Optional	Button	Unlinks route selected in Linked Routes region.
Route Details	Optional	Button	Shows route Details window.

**Table 6–1 (Continued) Link Routes Window Description**

<b>Field Name</b>	<b>Type</b>	<b>Feature</b>	<b>Description</b>
Show Routes	Optional	Button	Expands window to show Filter region and available routes.
<b>Linked Routes Region</b>			
Route ID	Display only	Selectable	Route number.
Rev	Display only	Field	Route revision level.
Route Description	Display only	Field	Route description.
Planner ID	Display only	List	Name of person who defined route.
Service Type	Display only	List	Type of service.
<b>Filter Region</b>			
Product	Optional	Drop-down list	Product.
Lable1	Optional	Drop-down list	Additional product identifier.
Lable2	Optional	Drop-down list	Additional product identifier.
Route Type	Optional	Drop-down list	Route type as specified in the Topic Group file.
Service Type	Optional	Drop-down list	Service types as defined in Route Management WorkBench.
Link Selected Routes	Optional	Button	Links route selected under Filters region to assembly shown. Route name moves to Linked Routes region.
Select All	Optional	Button	Selects all routes.
Deselect All	Optional	Button	Deselects all routes.
Refresh	Optional	Button	Checks route database and refreshes display of released routes.
List of Released Routes	Display only	List	Released routes that meet the filter conditions.

**Figure 6–2 Route View Window**

Route ID: 10165-110b Print Close

Description: ASSEMBLY ROUTER

Item ID: CF34\_ROUTINGS Product: CF34

Planner ID: ALAN BROOK 0112 Label1: 41

Org Code: EST Label2:

Route Type: ASSEMBLE Revision: 10 Effective Date: 10/05/00

Service Type: 10,000 HOUR SERVICE Status: Released Inactive Date: 12/31/03

Operations:

Seq.	Description	Department	Auth.Required	Mandatory
0010	ASSEMBLY ROUTER	0604	None	YES
	10.0 Prep engine for assembly, validate material from...			
0020	ASSEMBLY ROUTER	0604	None	YES
	20.0 Assemble engine per 8679 and the assembly router, verify all QA buys and validate all serial numb...			
0030	ASSEMBLY ROUTER	0604	None	YES
	30.0 Close all routers upon completion of assembly.			
0040	ASSEMBLY ROUTER	0604	None	YES
	40.0 Complete final inspection and verify as-built data.			
0050	ASSEMBLY ROUTER	0604	None	YES
	50.0 Prep for shipment upon validation of unit config...			

**Table 6–2 Route View Window Description**

<b>Field Name</b>	<b>Type</b>	<b>Feature</b>	<b>Description</b>
Route ID	Display only	Field	Route identification number.
Description	Display only	Field	Name of route.
Item ID	Display only	Field	Inventory to which route is tied.
Planner ID	Display only	Field	Name of person who defined route.
Org Code	Display only	Field	Organization code.
Route Type	Display only	Field	Type of route.
Service Type	Display only	Field	Type of service.
Revision	Display only	Field	Revision level of route.
Status	Display only	Field	Route status.
Product	Display only	Field	Product.
Label1	Display only	Field	Additional product identifier.
Label2	Display only	Field	Additional product identifier.
Effective date	Display only	Field	Date route became effective.
Inactive Date	Display only	Field	Date route become inactive.
<b>Operations Region</b>			
Seq.	Display only	Field	Order in which step is performed.
Description	Display only	Field	Operation name and steps.
Department	Display only	List	Department responsible for performing the operation.
Auth Required	Display only	List	Indicates if and by whom authorization is required.
Mandatory	Display only	List	Indicates if the operation is mandatory.
Close	Required	Button	Exits window.

## Saving and Restoring Linked-Route Information

The information associated with a hotspot can be saved into a separate file so that it is not lost should the database be rebuilt. This allows hotspot information, figure mapping, and route linking data to be restored without having to redo the work. Figure numbers, hotspots, and routes are saved together, but may be restored separately.

To save and restore index-route linking information, refer to these procedures:

["Saving Hotspot Information"](#) on page 4-33 in [Chapter 4](#).

["Restoring Hotspot Information"](#) on page 4-34 in [Chapter 4](#).

---

---

# Searching and Navigating

This chapter provides information on the following topics:

- [Introduction](#)
- [Searching and Navigating a Master Configuration](#)

## Introduction

The search function lets you quickly locate master configuration information. You can navigate to the figure containing the index linked to an ATA reference. From the search results list, you can display and select commands from the same shortcut menu that is available from a hotspot on a figure.

Searches may be done based on the following criteria:

- ATA reference (chapter, section, unit, figure, index)
- Nomenclature
- Rack
- Part number
- INN (industry index number)
- Route ID and/or route type

## Searching and Navigating a Master Configuration

Perform the following steps to search and navigate in a master configuration:

1. From the main Master Configuration window, click **Picture Book**.
2. Click the **Search** button on the toolbar. The IPC Search Criteria window appears ([Figure 7-1](#)). See [Table 7-1](#) for a description of the fields in the window.
3. Enter your search criteria. Note that a search returns results even if you do not enter complete information.
4. Click **Find**. A status message appears saying the database is being queried. When the search is done, the IPC Search Results window appears ([Figure 7-2](#)). See [Table 7-2](#) for a description of the menus in this window.
5. From the View menu choose view and sort commands to arrange your data according to your needs.
6. In the all-items view, you can take action on the hotspot associated with a line by selecting the line, right-clicking, and choosing a command from the shortcut menu. This is the same menu that appears in the Picture Book.

---

---

**Note:** In the all-items view, indexes for which hotspots are defined appear in bold type. Indexes that do not have a hotspot appear in regular type.

---

---

7. In the IPC Search Criteria window, click **Clear** to remove your search criteria and perform another search. Click **Cancel** to close the window.

**Figure 7-1** IPC Search Criteria Window

ATA Reference

Chapter	Section	Unit	Figure	Item
<input type="text"/>				

Nomenclature:

Buttons: Find... Clear Cancel

Rack:

Part No.:

IIN No.:

Route:  ID  Type

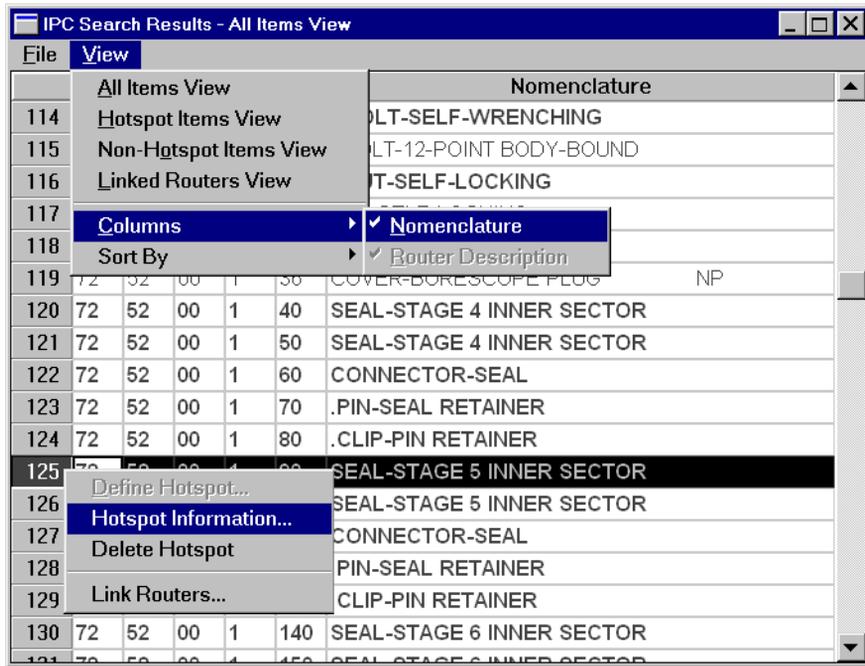
Job:  ID

Status bar: 8:04 PM

**Table 7-1 IPC Search Criteria Window Description**

<b>Field Name</b>	<b>Type</b>	<b>Feature</b>	<b>Description</b>
<b>ATA Reference Region</b>			
Chapter	Optional	Field	Chapter from IPC manual.
Section	Optional	Field	Section from IPC manual.
Unit	Optional	Field	Unit from IPC manual.
Figure	Optional	Field	Figure number from IPC manual.
Item	Optional	Field	Index number on figure.
Nomenclature	Optional	Field	Nomenclature from IPC.
Rack	Optional	Field	Rack in unit configuration.
Part number	Optional	Field	IPC part number.
Route ID	Optional	Field	Route ID.
Route Type	Optional	Drop-down list	Route type.
Job ID and Type	Optional	Drop-down list	Inactive in Master Configuration WorkBench. Applies only to Inspection and Assembly WorkBenches.
Find	Optional	Button	Begins database query.
Clear	Optional	Button	Clears all fields of the IPC Search Criteria window.
Cancel	Optional	Button	Closes the window.

Figure 7-2 IPC Search Results Window



**Table 7-2 IPC Search Results Window Menu Commands**

<b>Menu Command</b>	<b>Description</b>
<b>File Menu</b>	
Save	<i>Inactive.</i>
Print	<i>Inactive.</i>
Exit	Closes the window.
<b>View Menu</b>	
All Items View	Displays all IPC items.
Hotspot Items View	Displays only IPC items for which hotspots are defined.
Non-Hotspot Items View	Displays only IPC items for which hotspots are not defined.
Linked Routes View	Displays only IPC items with hotspots to which routes are linked and displays information about the routes (route type, ID, status, description, planner).
Columns	Toggles on and off the display of the Nomenclature column and Route Description column.
Sort By	Sorts displayed data by ATA reference, nomenclature, or route type, ID, status, description, or planner.
<b>Shortcut Menu</b>	
Define Hotspot	Displays Picture Book with the Hotspot function active. Click where you want to define a hotspot.
Hotspot Information	Displays the Hotspot Specifications window for the selected index.
Delete Hotspot	Deletes the hotspot for the selected index.
Link Routes	Displays the Link Routes window, which is used to associate route with hotspot. Linking routes is discussed in <a href="#">Chapter 6</a> .

---

---

# Creating New Master Configurations

This chapter provides information on the following topics:

- [Introduction](#)
- [Creating Versions of a Master Configuration](#)
- [Dealing with Changes to a Master Configuration](#)

## Introduction

New master configurations must be created to account for changes to figure references, rack definitions, and some part data. Some types of changes may require you to reparse and rebuild the database. Other changes may require only updating with the Picture Book program. However, some changes to an existing master configuration should not be made because they invalidate all unit configurations based on the master configuration. To deal with these changes, you must create a new master configuration. Subsequent unit configuration are created from the new master configuration.

The only master configuration changes that are accessible to existing unit configurations are changes to the route or routes linked to an index number and changes to part information, including associating a new part number with an existing index number.

## Creating Versions of a Master Configuration

If the new master configuration is based on the same IPC revision, simply create a new version of the master configuration. If the new master configuration is to be built on a new revision of the IPC, you must edit the attribute that defines the IPC revision in the IPC Format file. To account for other types of changes, refer to [Table 8-1](#). See the references at the end of this chapter for detailed procedures covering the actions in the general steps that follow.

Perform these steps to build another master configuration from the same IPC data:

1. Create a new folder in the folder that contains the files used to build a master configuration. Name this folder to indicate the version of the master configuration.
2. Into this folder place copies of the IPC ASCII, IPC format, IPC Sets, and Hotspot files. If you want to preserve all or most of the existing rack definitions, also copy the Engine and Figure files.
3. In the IPC Format file, change the attributes as necessary for PRODUCT:, IPC MANUAL:, IPC REVISION:, and VERSION:.
4. Edit the Figure file if necessary to change rack definitions.
5. Rebuild the database.
6. Restore the hotspots, figure mapping, and linked-route information from the Hotspot file.
7. Edit the hotspots if necessary.

## Dealing with Changes to a Master Configuration

How much of the procedure for creating a master configuration needs to be done depends on the changes being made. In [Table 8–1](#), find the change you want to make in the first column, and then read across the row to see what steps you need to take to create a new master configuration.

---



---

**WARNING:** Changes to part and alternate part information should be made only with proper authorization. Do not add or remove information from the IPC unless the change has been approved. Annotate all changes to indicate the nature of the change and who made the change.

---



---

**Table 8–1** *Creating a New Master Configuration*

STEP	1	2	3	4	5	6	7	8
<b>MASTER CONFIG. CHANGE</b>	<b>Edit IPC ASCII file</b>	<b>Parse</b>	<b>Edit Figure file</b>	<b>Build/verify</b>	<b>Map figures</b>	<b>Edit/save hotspots</b>	<b>Restore hotspots</b>	<b>Link routes</b>
<b>Add figure to IPC*</b> *Must also add new image file.	Yes. Indicate changes with comments.	Yes. Save existing Figure file.	Yes. Add figure to rack.	Yes	Yes. Map new figure to image file.	Yes. Create hotspots for new figure. Save hotspots.	Yes. Restore hotspots, image paths, and routers.	Yes. Link index numbers on new figure to routes.
<b>Remove figure from IPC*</b> *Do steps in this order: 6, 5 1, 2, 3, 4, 7	Yes. Indicate changes with comments.	Yes. Save existing Figure file.	Yes. Remove references to removed figure.	Yes	Yes. Unmap figure to be removed.	Yes. Delete hotspots on image of removed figure. Save hotspots.	Yes	No
<b>Add figure index to IPC</b>	Yes. Indicate changes with comments.	Yes. Save existing Figure file.	Use backup Figure file. Edit only if index is assigned to rack different from rest of figure.	Yes	Yes, if new image file added. No if not.	Yes. Create hotspot for new index. Save hotspots.	Yes	Yes. Link new index to route.
<b>Remove figure index from IPC*</b> *Do steps in this order: 6, 1, 2, 3, 4, 5, 7	Yes. Indicate changes with comments.	Yes. Save existing Figure file.	Use backup Figure file. Edit only if index was assigned to rack different from rest of figure.	Yes	No	Yes. Remove hotspot for deleted index. Save hotspots.	Yes	No

**Table 8–1 (Continued) Creating a New Master Configuration**

STEP	1	2	3	4	5	6	7	8
<b>MASTER CONFIG. CHANGE</b>	<b>Edit IPC ASCII file</b>	<b>Parse</b>	<b>Edit Figure file</b>	<b>Build/verify</b>	<b>Map figures</b>	<b>Edit/save hotspots</b>	<b>Restore hotspots</b>	<b>Link routes</b>
<b>Update image file*</b> *New file has same name. No other changes.	No	No	No	No	No	Yes. Reposition hotspots if necessary.	No	No
<b>Modify hotspot information*</b> *Change INN number or assembly type.	No	No	No	No	No	Yes. Save hotspots.	No	No
<b>Link index to new route</b>	No	No	No	No	No	Yes. Link index to route. Save hotspots.	No	Yes
<b>Add rack definitions to a master configuration</b>	No	No	Yes. Add changes to Figure file and change.	Yes	No	No	Yes. Restore hotspots, image paths, and routers.	No
<b>Remove rack definition</b>	No	No	Yes. Edit Figure file to account for changes.	Yes	No	No	Yes. Restore hotspots, image paths, and routers.	No
<b>Change rack contents*</b> *Change which figure indexes are linked to which racks.	No	No	Yes. Add changes to Figure file.	Yes	No	No	Yes. Restore hotspots, image paths, and routers.	No
<b>Change part data*</b> *Change part number, nomenclature, notes, UPA, UOC, not figure data.	No	No	No	No	No	No	No	No
<b>Add new part to existing hotspot</b>	No	No	No	No	No	No	No	No
<b>Create a master configuration version with different rack definitions</b>	No	No	Yes. Add changes to new Figure file and change version in IPC settings.	Yes	No. Restore figure mapping from previous hotspot file.	Yes	No	No

## Procedure References

Detailed procedures for the steps indicated in the table can be found at the following locations in this user guide:

["Creating the IPC ASCII File"](#) on page 3-3

["Parsing"](#) on page 4-6

["Adding Rack Definitions to the Figure File"](#) on page 4-9

["Building the Engine and Figure Database"](#) on page 4-14

["Mapping Figures"](#) on page 4-21

["Creating and Editing Hotspots"](#) on page 4-23

["Saving Hotspot Information"](#) on page 4-33

["Verifying the Master Configuration Database"](#) on page 5-2

["Linking Index Numbers with Routes"](#) on page 6-3



---

---

# Glossary

## **8130**

International serviceability tag.

## **Access Control System (ACS)**

The system that controls access of Oracle MRO users to workbenches.

## **accumulation**

The process of collecting the parts of a product that has been disassembled for service at a staging area for reassembly. Also called *marshalling*.

## **agreement**

The understanding between a customer and an organization that defines the terms and conditions of services or repairs.

## **alternate item**

A part of equal fit, form, and function used in place of the original part. Valid alternates are specified in the Illustrated Parts Catalog.

## **ATA**

Aviation Transportation Association.

## **auxiliary rack**

Rack to which unused figures and uninspected parts are assigned.

## **blanket agreement**

See *blanket order*.

**blanket order**

Typical agreement between an organization and vendor or supplier for products or services to be provided by the vendor or supplier based on a continuum and restricted by quantity, price or date.

**build goal**

The end result in terms of serviceability desired for a particular item, assembly, or product undergoing service. For example, the build goal might be a minimum time before the next overhaul of 6000 hours. All parts used in the current service must meet that requirement.

**capability**

Part of the Access Control System. Capabilities control user access to workbenches and functions within workbenches. Capabilities are assigned to roles, and roles are assigned to workgroups.

See also *role, user, workgroup*.

**contract**

In Oracle MRO, *contract* refers to the common data that is found on all customer contracts/agreements that drives a service provider's business.

**cost source ID**

A unique system-generated identifier for a quantity of one or more of an item that has an individual unit cost.

**CSN**

Cycles since new.

**CSO**

Cycles since overhaul.

**CSR**

Cycles since repair.

**department**

An area of particular knowledge or responsibility.

**dump file**

A text format file produced to record complex database information in a simplified format. Dump files can be read with basic text editors.

**Engine file (*rooteng.iff*)**

File produced by the Master Configuration WorkBench parser. Defines part and figure information. Used during database generation. The *root* prefix is defined in the IPC Format file.

**figure**

In the workbench user guides, the term *figure* generally refers to the IPC references to a figure in the master configuration database. The term *image* refers to the actual graphical representation of the figure, stored as an bitmap image file and displayed by the workbench applications.

**Figure file (*rootfigs.iff*)**

File produced by the Master Configuration WorkBench parser. Defines figure information. Edited to define racks. Used during database generation. The *root* prefix is defined in the IPC Format file.

**flat file**

ASCII file with data arranged in the form of one record per line. A flat file contains no embedded structure information.

**hotspot**

Index number on an electronic image that is linked to displayable database information about the part. If the index number has a box around it, the link goes to another figure that illustrates the indicated part or assembly in detail.

**Hotspot file**

Text file that records the location on an image of the hotspot for each index number and which information in the master configuration database is associated with each index number. Also records the routes linked to the hotspot. The Hotspot file can be used to restore a master configuration that has had its database rebuilt.

**Industry Index number (IIN)**

Standard industry number assigned to life-limited and time-tracked parts that the FAA dictates must be tracked.

**Illustrated Parts Catalog (IPC)**

Assembly breakdown of a product that lists all parts and alternates indexed to illustrations.

**image**

In the workbench user guides, the term *image* generally refers to the graphical representation of the figure, stored as a bitmap image file and displayed by the workbench applications. The term *figure* refers to the IPC references to the figure in the master configuration database

**internal outside processing**

A service supplied by a sister organization as part of a job.

**IPC ASCII file (*root.asc*)**

The electronic version of the text of the Illustrated Parts Catalog in ASCII format. The *root* prefix is defined in the IPC Format file.

**IPC Format file (*root.ipc*)**

Text file that defines the format and keywords used in the IPC ASCII file. Used by the Master Configuration WorkBench when generating the engine part and figure database. The *root* prefix is defined in the IPC Format file.

**item master file**

A text format dump file of all items recorded in the Oracle materials management system.

**Kits ASCII file (*rootkits.asc*)**

ASCII text file of IPC kit information. Used during parsing. The *root* prefix is defined in the IPC Format file.

**Kits file (*rootkits.iff*)**

File produced by the Master Configuration WorkBench parser. Defines kit information. Used during database generation. The *root* prefix is defined in the IPC Format file.

**mapping**

Associating one item with another. In figure mapping, an IPC reference to a figure is associated with the image file of the scanned figure. Index numbers on figures are associated with routes that define the tasks appropriate for that part or assembly.

**master configuration**

Oracle MRO representation of a product assembly model, including all part, alternate part, reference information, and figures for all models and versions as defined in the Illustrated Parts Catalog.

**Manufacturing Review Board (MRB)**

Group responsible dispositioning parts could not be dispositioned within the normal processes. Items for disposition are often held in an area specified for MRB parts.

**nomenclature**

Official part name as recorded in the Illustrated Parts Catalog for a product.

**nonconformance record (NCR)**

A record created and tracked for a part or a component when additional information is required to resolve a situation concerning the status or condition of the part.

**operation**

A process or series of actions involved in completing a particular piece of work.

**outside processing**

A service supplied by a vendor as part of a job.

**Picture Book**

In Oracle MRO, *Picture Book* refers to the online IPC representation of a master or unit configuration. In the Master Configuration Workbench, the Picture Book is used to create hotspots and associate routes with index numbers on electronic images. The Inspection and Assembly WorkBenches use the online Picture Book to guide the disassembly, repair, assembly, and test processes.

**purchase order**

Typical agreement between an organization and vendor or supplier for product or services to be provided by the vendor or supplier.

**purchase release**

A releases of an actual order of goods and services issued against a blanket purchase agreement. The purchase release specifies the actual quantities and dates ordered for the items.

**rack**

Grouping of components for efficient service. Racks are created in the master configuration and used to define unit configurations.

**repair blanket**

Blanket order specifically for services.

**role**

Part of the Access Control System. Each user is assigned a role. A role consists of a set of capabilities. Roles are defined with the Access Control WorkBench. Roles are created in the Access Control WorkBench.

See also *capability, user, workgroup*.

**rollout**

The process of moving the material being accumulated to the shop floor for use during the assembly process. The material requirements for the accumulation job are moved to the assembly job.

**rotable**

A repaired part or assembly that is stocked and available use. An assembly that requires more time for repair than the delivery date allows may be replaced with a rotatable from inventory. When the assembly is repaired, it is placed in inventory and becomes a rotatable.

**route**

A procedure or instruction used in the disassembly, cleaning, inspection, repair, parts conversion, assembly, and testing of parts linked to master configurations. Routes are created and maintained in the Route Management WorkBench. May also be referred to as *router* or *routing*.

**route group**

A collection of routes assigned to a specific engine type, engine model, and item. May also be referred to as *router group*.

**sales order**

A typical agreement between customer and organization of product or services to be provided by the organization.

**service type**

The type of service to be performed on a unit, such as major overhaul, minor overhaul, or repair. Routes may be classified with the service type to which they apply, which provides the ability to filter the number of routes shown.

**Sets file (*rootsets.iff*)**

Text file that defines how models and versions are indicated in the Engine and Figure files after parsing. Used by the Master Configuration WorkBench when generating the IPC database. The *root* prefix is defined in the IPC Format file.

**supplier**

Outside company supplying a product.

**top job**

Defines the job under which all work to be performed falls. Used for scheduling purposes. Created in the Unit Configuration WorkBench.

**topic**

Part of the Access Control System. Topics define information that applies within a workgroup to all applications. Topics are created and edited with the Access Control Workbench.

See also *topic entry*.

**topic entry**

Part of the Access Control System. Topic entries define information that applies to specific users or specific client workstations. Topic entries are created and edited with the Access Control Workbench.

See also *topic* and *topic group*.

**topic group**

Part of the Access Control System. The topic group controls the distribution and setting of default values in the Oracle MRO system. The topic group is defined in a Windows ini file containing information relating to applications, workgroups, and users. Topic groups are edited with the Access Control Workbench.

See also *topic* and *topic entry*.

**TSN**

Time since new.

**TSO**

Time since overhaul.

**TSR**

Time since repair.

**unit configuration**

Oracle MRO representation of a specific unit received for service, derived from the master configuration for that product. Also referred to as the *as maintained bill of material*.

**UOC**

Use-on code. In Illustrated Parts catalog, indicates models for which part is valid.

**UPA**

Units per assembly.

**user**

Part of the Access Control System. A user definition consists of a name, logon name, password and assigned specific predefined Access Control System roles. Users are created in the Access Control WorkBench.

See also *capability, role, workgroup*.

**vendor**

Outside company supplying a service to a customer or organization's product.

**workbook**

A manual created from an IPC, using only the portions necessary to define a specific engine configuration.

**workgroup**

Part of the Access Control System. Workgroups are created in the Access Control WorkBench.

A workgroup is a grouping with assigned roles to which users are assigned. Workgroups control access to workbenches and functions within workbenches. Workgroups are also used to control database paths and configuration parameters for sets of users.

Workgroups can contain sets of users that perform similar functions or are associated according to the resources they use, such as databases and printers.

Workgroups can be mapped closely to the structure of the organization. For example, each inspection cell may be defined as a workgroup. Branch offices or departments can also be workgroups.

See also *capability, role, user*.

**workscope**

The scope or understanding of all the details and tasks that must be performed for a particular service. Includes information such as picking rules for replacement parts, repair value limits, build goal, procedural preferences, and scrap management parameters.

See also *build goal*.



---

---

# Index

## Symbols

---

<root>garb.txt file, 4-7  
<root>misc.txt file, 4-7  
<root>parse.txt file, 4-7

## A

---

attaching parts, 4-6  
auxiliary racks, 4-10, 4-14

## D

---

database, building, 4-14

## E

---

Engine file, 4-8

## F

---

### Figure file

adding rack definitions, 4-9  
editing, 4-10  
example, 4-12, 4-13

figure mapping, 4-21

figure mapping, restoring, 4-34

### figures

adding to IPC, 8-2  
adding/removing IPC index, 8-2  
removing from IPC, 8-2

### files

Engine file, 4-8  
Figure file, 4-9

files required for master configuration, 3-3

IPC ASCII file, 3-3

IPC Format file, 3-8

Kits file, 4-8

Sets file, 3-11

## G

---

garbage keys, 3-9

## H

---

### hotspots

creating, 4-23

deleting, 4-28

editing specifications, 4-28

moving, 4-28

restoring, 4-34

saving, 4-33

## I

---

images files, 3-14

index numbers, linking to routes, 6-2

IPC Format file, 3-8

IPC, reviewing, 3-5

## K

---

### keywords

Figure file, 4-9

IPC Format file, 3-8

Sets file, 3-11

Kits file, 4-8

## L

---

logging in, 2-2

## M

---

mapping figures, 4-21

master configuration

building database, 4-14

creating new, 8-2

creating, general steps, 1-11

Database Builder, 4-3

files required for, 3-2

navigating, 7-2

overview, 1-10

parsing, 4-6

preparing, 4-5

searching, 7-2

searching and navigating, 7-2

## N

---

navigating a master configuration, 7-2

## P

---

parsing, 4-6

parsing errors, 4-7

part information

adding, 4-29

deleting, 4-29

editing, 4-29, 8-2

Picture Book, 4-15

preparing, 4-5

## R

---

racks

adding rack definitions to Figure file, 4-9, 8-2

auxiliary racks, 3-13, 4-10, 4-14

changing contents, 8-2

defining, 3-13

removing definitions from Figure file, 8-2

route linking, restoring, 4-34

routes

accumulation, 6-2

linking index numbers with, 6-2

## S

---

scanning text, 3-3

searching a master configuration, 7-2

Sets file, 3-11

status files, parsing, 4-7

## T

---

text scanning, 3-3