

# ***OPERATING LEASE SUPPORT SYSTEM DEVELOPMENT***

**FOR**



## ***Functional Specification A.2 Maintenance Module***

**Revision 3.0**

**Prepared by:**

**PT. Berlian Sistem Informasi**

KTB Annex Bld. 4<sup>th</sup> Floor, Jl. Jend. A. Yani. Pulomas,  
Tel. +62 21 4786 7575 (Hunting) Fax. +62 21 4714964 [www.bsi.co.id](http://www.bsi.co.id)

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## Distribution List

Name	Organization	Title
Mr. Abdul Somad	Dipo Star Finance, PT	DSF NBD Head
Mr. Ahmad Fikri	Dipo Star Finance, PT	DSF ITD Head
Mr. Mukhlis Ibrahim	Dipo Star Finance, PT	DSF ITD
Mr. Feri Irawan	Berlian Sistem Informasi, PT	BSI Multifinance Division Head
Mr. Asra Haryadi	Berlian Sistem Informasi, PT	BSI Operation Unit Manager
Mr. Devilosa Indra Kamal	Berlian Sistem Informasi, PT	BSI Service Manager

## Document Approval

By signing this document I acknowledge I have read the document and give the Project Management Team approval to proceed.

Role	Name	Signature	Date
DSF NBD Head	Mr. Abdul Somad		
DSF ITD Head	Mr. Ahmad Fikri		
DSF ITD	Mr. Mukhlis Ibrahim		

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BSI Operation Unit Manager	Mr. Asra Haryadi		
BSI Service Manager	Mr. Devilosa Indra Kamal		

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## 1 Introduction

### 1.1 Purpose

Functional specification is to explain some of the following:

- 1) Describe who uses your application or system,
- 2) Describe the order in which steps or events or on the scenario are performed,
- 3) Show user interface design, and
- 4) What kind of data that will be maintained by functions.

### 1.2 Scope

Marketing module described about how to maintain data transaction on the marketing process which is utilized by functions in the system. On this module there's no integration with another system (such as ACA and MFAPPL). This modules deal in the "to-be design" for developing the new system.

To keep the accuracy of entire design of the system we are using modeling approach for design and analysis. **To define a model of functions we will determine use cases. In the use case, it can summarize who uses your application or system, and what they can do with it.**

Within a use case we can determine which use cases are supported by application. We can create use case diagram, activity diagram, use case scenario, data structure, and interface design.

A data structure can be specified what kind of information that will be required for the system. Data structure is represented database design of the system. A user interface design can imagine the user about the system as visual. User interface is designed based on prototypes which have been already created. And, based on these things, we will develop the system.

The following is functionality of Maintenance module:

- ✓ Service History Inquiry
  - a. Add new service history records  
To input a new service history records by fill out the form. This feature allows a user to save a data into database, after input on the service history record form.
  - b. Update details service history records  
To update a detail service history records by fill out the details form. This feature allows a user to changes any data, and then saves into database.
  - c. Filter and sort agreement information  
On this feature the record can be filtered and sorted based on columns on top of the list.
  - d. Delete service history records  
Delete a record of service history on the list. Only status draft can be deleted.
  - e. Validate service history records  
After the records was confirm, the record can be to validate.
  - f. Set to draft service history records  
If the data still need to be update by user who initiate to create the agreement, the records can be set to draft.

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### 1.3 Acronyms and abbreviations

- ACA : Auto Credit Approval System
- MFAPPL : Multi Finance Application

### 1.4 References

This functional scope refers “to be design” in the section A.1.Marketing Module.

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## 2 Detail Specification

### 2.1 Service History Inquiry

#### 2.1.1 Use case

The figure below is summarizing who uses features of function, and what they can do with it.

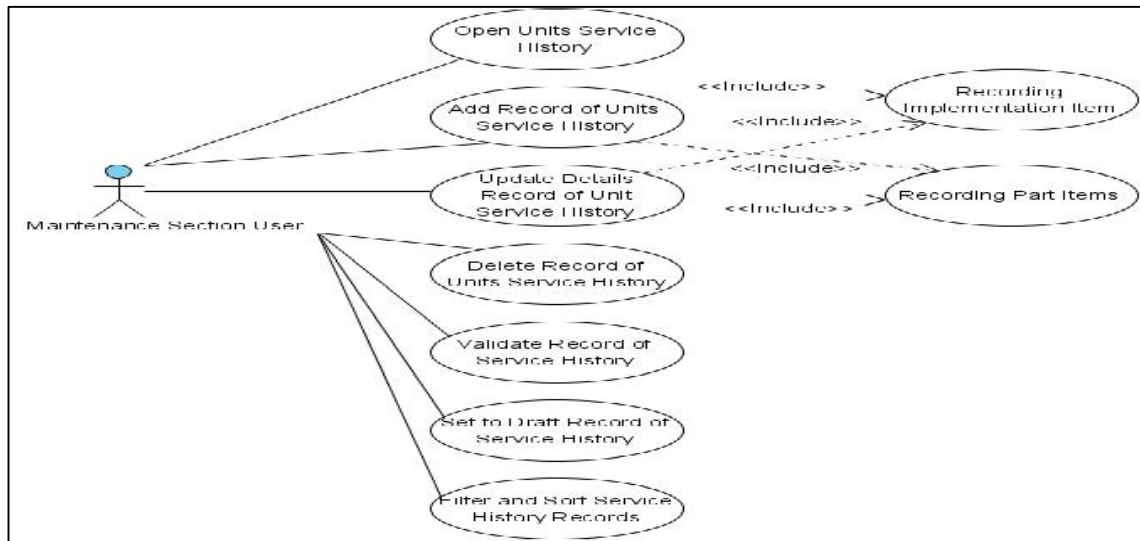


Figure 1 – Use case diagram of Service History Inquiry

#### 2.1.2 Operations and scenarios

The figure below is describing operations or steps performed in a function interact with people (flow of work between actors and the system).

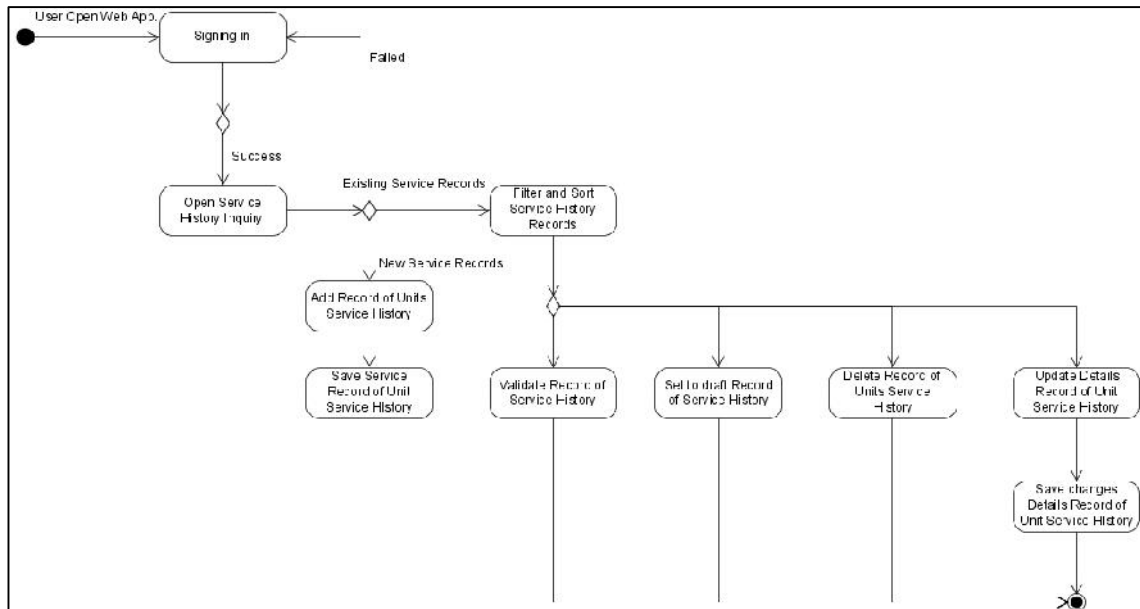


Figure 2 – Activity diagram of Service History Inquiry

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No.	Steps/ Operations	Actor/ People	Scenario
1	Signing in	Maintenance Section User	<ul style="list-style-type: none"> <li>Actor fills out sign in form by inputting user name and password.</li> <li>Actor clicks [sign in] button. System will check the account of user; if user account is already registered user will enter into the system. If doesn't user can return the step.</li> </ul>
2.	Open service history inquiry module	Maintenance Section User	<ul style="list-style-type: none"> <li>After login, actor can open service history inquiry module on the menu of system. After that, screen of service history inquiry will open.</li> </ul>
3.	Add new service history record	Maintenance Section User	<ul style="list-style-type: none"> <li>If service history screen opens, actor can determined the agreement number and police number that want to be add the service history record.</li> <li>Upon clicking [...] button on the agreement number fields, the agreement look-up screen will be displayed. Agreement number can be selected (only one record can be select). After it's done, agreement information field will be filled automatically.</li> <li>After determined agreement number, actor can determine the police number by clicking [...] button on the police number field. The Units (Object Lease) look-up screen will be displayed. Police number can be selected (only one record can be select). After it's done, unit's information field will be filled automatically.</li> <li>After determining agreement number and police number, user can click [Add] button to add new service history record. Once it done, 'Add' screen will be displayed.</li> <li>On 'Add' screen open, general information of service can be views. To input service history details, actor should input several fields, such as; type of service, service date, actual mileage and workshop. Once it done, service record history can be saved as draft by clicking [Save as Draft] button.</li> <li>If service history records already drafted, actor can add main implementation item and parts item by clicking [Add] button, and then input the data's.</li> <li>The mandatory fields cannot be blank.</li> </ul>
4.	Save service history records as draft	Maintenance Section User	<ul style="list-style-type: none"> <li>After filling out the fields, actor can click [save as draft] button, if want to make a records as <b><u>draft</u></b>.</li> <li>After that, system will proceed to store a data into database and will automatically check a validity of data (such as; data type, mandatory data, and data length)</li> <li>If done, actor can click [Back] button to return to the main screen.</li> </ul>
5.	Filter and sort service history records	Maintenance Section User	<ul style="list-style-type: none"> <li>Actor can filter and sort the record based on columns where displayed on the list.</li> </ul>



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			<ul style="list-style-type: none"> <li>To filter the records, actor can enter keywords into the filter fields. If matched data founds, the filtered result will be displayed on list. If doesn't the list will be empty.</li> <li>To sort the records, actor can click header of column on the list table. After that the records will be sorted by ascending or descending, alternately.</li> <li>Upon select [record number filter] drop down list, actor can select a records number to display on the list. At least only one item can be selected.</li> </ul>
6.	Update service history record	Maintenance Section User	<ul style="list-style-type: none"> <li>If service history screen opens, actor can determined the agreement number and police number that want to be display in the service history.</li> <li>Upon clicking [...] button on the agreement number fields, the agreement look-up screen will be displayed. Agreement number can be selected (only one record can be select). After it's done, agreement information field will be filled automatically.</li> <li>After determined agreement number, actor can determine the police number by clicking [...] button on the police number field. The Units (Object Lease) look-up screen will be displayed. Police number can be selected (only one record can be select). After it's done, unit's information field will be filled automatically.</li> <li>After determining agreement number and police number, user can click [Details] button to edit the details of service history record. Once it done, 'Details' screen will be displayed.</li> <li>If 'Details' screen opens, actor can edit a record by inputting a data on each of the fields.</li> <li>The mandatory fields cannot be blank.</li> </ul>
7.	Delete a service history record	Maintenance Section User	<ul style="list-style-type: none"> <li>Actor can delete the record of service history that display on the list. Only data with status draft can be deleted.</li> </ul>
8.	Validate service history record	Maintenance Section User	<ul style="list-style-type: none"> <li>Once data is saved and data has been confirmed, actor can validate the record by clicking [Validate] button.</li> <li>After that system will set a record as <b><u>validate (or not draft)</u></b>.</li> <li>If done, actor can click back button to return to the list of service history.</li> </ul>
9.	Set to draft of service history	Maintenance Section User	<ul style="list-style-type: none"> <li>To do this process, actor should open detail screen by clicking [Details] button on the list. Once it open, actor can set to draft by clicking [set to draft] button. If the records still need to revise and status still not valid yet, actor can change the record status from <b>validated</b> to <b>draft</b>.</li> <li>After that, system will proceed automatically to change the status, and actor can click [Back] button to return to the list.</li> </ul>

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### 2.1.3 Status management and roles

The figure below is describing a role matrix (including relation with Status) of actor that already identified in a function.

Role of Actor	Filter and sort	Save as draft	Save changes (draft)	validate	Validate
Maintenance user	Yes	Yes	Yes	Yes	Yes

The figure below is describing transition of Status that performed when people interact in a function. In this features, drafting process triggered on the agreement module. If service schedule already generated on the agreement module, so the status of service records will be draft too, and vice versa.

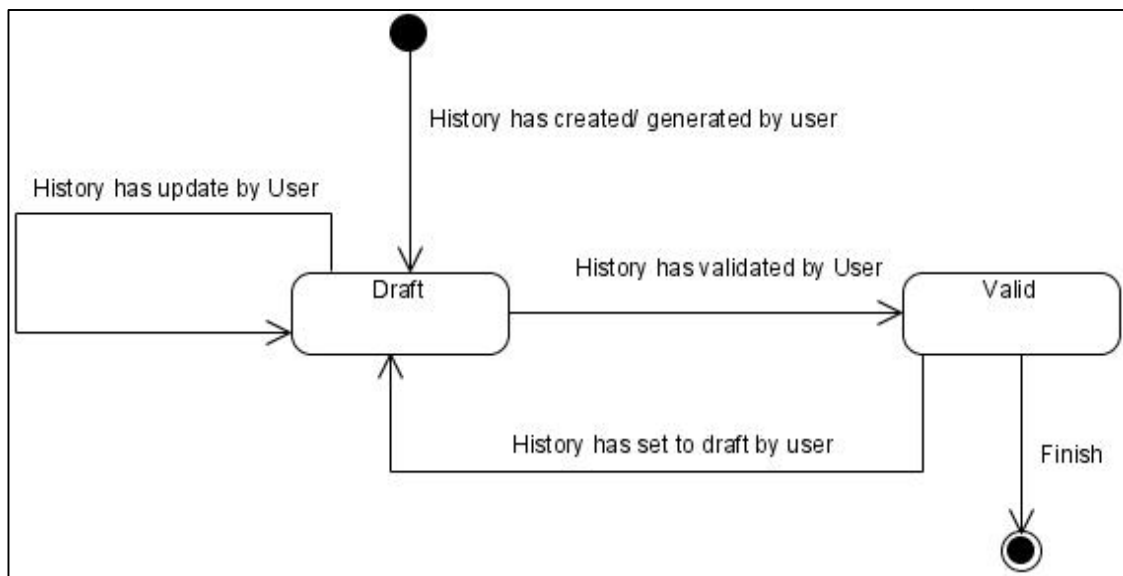


Figure 3 – Status diagram of Service History Inquiry

### 2.1.4 Sitemap design

Describe a web page that lists the pages on a web site to users. Usually sitemap organized in hierarchical style.



Figure 4 – Sitemap design of Service History Inquiry

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## 2.1.5 Screen design

### 2.1.5.1 Service history inquiry

This screen is designed to service history inquiry. On this screen actor can open service records. And also, actor can open another screen to add and/or update service history record.

**Open Details Agreement**

Created by Deny Prasetya Created Date 12/23/2014 Last Modified By Deny Prasetya Last Modified Date 01/07/2015

**Agreement Information**

Agreement Number: A3H001 Previous Agreement Number: Previous Agreement Number Agreement Date (mm/dd/yyyy): 12/01/2014

**Service Record History**

General information of service history/ maintenance condition

Police Number / Invoice Number: INV001 Engine Number: ENG001 Marketing Officer PIC Name: Deny Prasetya Marketing Officer PIC Position: PM

Marketing Officer PIC Phone: 083057360979 Marketing Officer PIC Email: denyprasetya@gmail.com Customer Name: Zain Product Brand Name: MITSUBISHI

Product Model Name: COLT 1120SS 2 PICK UP FLAT DECK 1.5 Model Year (yyyy/MM): 2013/01 Lease Category: New Maintenance Type: Full Maintenance

Insurance: Yes Purchase Required: Yes Start Date Usage Unit (mm/dd/yyyy): 01/11/2015 End Date Usage Unit (mm/dd/yyyy): 01/01/2018

Lease Period (Months): 36 Usage: City

**Add**

Maintenance Budget: Rp 2.000.000 Maintenance Disbursement: Rp 13.507.060.490 Digestibility: 150073.316688

To add new records

total budget during the period of lease

To open details service history

Search:

Service Date	Actual Mileage	Maintenance Item	Payment Expenses	Workshop	Workshop Address	Action
11/01/2014	3000000	CSD Maintenance	28,944.000	TAN SICK KHONEN	JL. PETOJO UTARA IV NO. 3, JAKARTA	[Edit] [Delete]
11/30/2014	12345670	Periodic Maintenance	1,321,520.756	DAVID	JL KEMBAR MAS II NO 12 RT/RW 05/09 KEL. ANCOL KEC. REGOL	[Edit] [Delete]
12/03/2014	200	Periodic Maintenance	12,155,896.014	GRAHA AUTO, UD.	JL KLAMPIS INDAH 6/3 E - 26	[Edit] [Delete]
12/10/2014	2000	CSD Maintenance	0	GRAHA AUTO, UD.	JL KLAMPIS INDAH 6/3 E - 26	[Edit] [Delete]
12/10/2014	2000	CSD Maintenance	0	GRAHA AUTO, UD.	JL KLAMPIS INDAH 6/3 E - 26	[Edit] [Delete]

Showing 1 to 5 of 52 entries

Data paging information

To open paging of records

Previous 1 2 3 4 5 Next Last

Figure 5 – Service History Inquiry Screen

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### 2.1.5.2 Add new service history records

This screen is designed to add new service history record. After filling out necessary data on the screen, actor can store a data into the system by clicking the action button.

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### 2.1.5.2 Add new service history records

This screen is designed to add new service history record. After filling out necessary data on the screen, actor can store a data into the system by clicking the action button.

**General Information of Service**

General Information of service history/ maintenance condition

Agreement Number: [Agreement Number] Previous Agreement Number: [Previous Agreement Number] Agreement Date: [mmdd/yyyy] Police Number/ Invoice Number: [Police Number/ Invoice Number] Engine Number: [Engine Number] Maintenance Type: [Maintenance Type]

**Service History Details**

Details information of service history

Periodic Maintenance: ☐ Customer Service (Desk (1:50)): ☒ Regular Maintenance: ☐ Workshop: [TAH GIGIKI KOCN] Service Date (mmdd/yyyy): [11/01/2014] Actual Mileage (KM): [300000] Km

**Main Implementation Item**

To add Implementation

Sub Total	PPN Tax (10%)	PPH Tax (2%)	Total
Rp 1,000,000	Rp 100,000	Rp 20,000	Rp 1,080,000

will be filled automatically

Showing 1 to 1 of 1 entries

Implementation Item	Labor Cost Amount	PPn	PPh	Remarks	Action
Jasa Montir	500,000	50,000	10,000		[Delete] [Details]

Data paging information

To open paging of records

Showing 1 to 1 of 1 entries

First Previous 1 Next Last

**Parts Item**

To add Part Items

Showing 1 to 1 of 1 entries

To delete the items and open

Parts Code	Parts Name	Amount	Quantity	PPn	PPh	Remarks	Action
OM	Oil Mesin	50,000	10	5,000	1,000		[Delete] [Details]

Data paging information

To open paging of records

Showing 1 to 1 of 1 entries

First Previous 1 Next Last

Save Changes Validate

Buttons to save and validate the records

Figure 6 – Screen of Add New Service History Record

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**Add History Item**

Implementation Item

Labor Cost Amount

PPN

PPh

Remarks

Close Add

value of [PPN] and [PPh] will be filled manually

Figure 7 – Screen of Add New Implementation item

**History Part Detail**

Part Code

Part Name

Type Of Action

Quantity

Amount

PPN

PPh

Remarks

Close Add

value of [PPN] and [PPh] will be filled manually

Figure 8 – Screen of Add New Part item

### 2.1.5.3 Update service history records

This screen is designed to update the service history records. After changing some data on the screen, actor can store a data into the system by clicking the action button.

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< Back

To view audit trail

Created By Created By Created Date Created Date Modified by Created Date Last Modified Created Date

**General Information of Service** General Information of service history/ maintenance condition

Agreement Number Agreement Number Previous Agreement Number Previous Agreement Number Agreement Date (mm/dd/yyyy)

Police Number/ Invoice Number Police Number/ Invoice Number Engine Number Engine Number Maintenance Type Maintenance Type

Service History Details

Details information of service history

Just view active workshop

Main Implementation Item will be filled automatically

To add Implementation

Sub Total PPN Tax (10%) PPH Tax (2%) Total

Rp 1,000,000 Rp 100,000 Rp 20,000 Rp 1,080,000

Show 10 entries

To delete the items and open details

Implementation Item	Labor Cost Amount	PPn	PPh	Remarks	Action
Jasa Montir	500,000	50,000	10,000		

Showing 1 to 1 of 1 entries

Data paging information

To open paging of records

First Previous 1 Next Last

Parts Item

To add Part Items

To delete the items and open details

Show 10 entries

Parts Code	Parts Name	Amount	Quantity	PPn	PPh	Remarks	Action
OM	Oil Mesin	50,000	10	5,000	1,000		

Showing 1 to 1 of 1 entries

Data paging information

To open paging of records

First Previous 1 Next Last

Save Changes Validate

Buttons to save and validate the records

Figure 9 – Screen of Update Details Service History

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**History Item Detail**

Implementation Item: Jasa Montir

Labor Cost Amount: Rp 500000

PPN: Rp 50000

PPh: Rp 10000

Remarks: Remarks

value of [PPN] and [PPh] will be filled manually

Close Save Changes

Figure 10 – Screen of Add New Implementation item

**History Part Detail**

Part Code: OM

Part Name: Oli Mesin

Type Of Action: Repaired

Quantity: 10

Amount: Rp 50000

PPN: Rp 5000

PPh: Rp 1000

Remarks: Remarks

value of [PPN] and [PPh] will be filled manually

Close Save Changes

Figure 11 – Screen of Add New Part item

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### 2.1.6 Screen features

Features	Description
[Filter and sort]	To perform data filtering and data sorting of records.
[Add new]	To add new record by entering data on the 'create' form.
[Save as draft] or [Set to draft]	To save a record as a draft.
[Validate]	To validate a record as a final.
[Save changes]	To update changes when editing sorting record.
[Delete]	To delete the service history records.

### 2.1.7 Data structure

Field	Data Type	Data Length	Format	Mandatory	DB Mapping
<b>Agreement Information</b>					
Agreement Number	Varchar	50	N/A	Yes	OPLAgreement. AgreementNumber
Previous Agreement Number	Varchar	100	N/A	No	OPLAgreement. AgreementNumberReff
Agreement Date	Date	N/A	mm/dd/yyyy	Yes	OPLAgreement. AgreementDate
<b>Service Record History</b>					
Police Number / Invoice Number	Varchar	20	N/A	Yes	OPLUObjectLease.IdentityPoliceNumber
Engine Number	Varchar	100	N/A	Yes	OPLUObjectLease.EngineNumber
Marketing Officer PIC Name	Varchar	200	N/A	Yes	OPLAgreement. PICFullName
Marketing Officer PIC Position	Varchar	50	N/A	Yes	OPLAgreement. PICPositionName
Marketing Officer PIC Phone	Varchar	50	N/A	Yes	OPLAgreement. PICTelephone
Marketing Officer PIC Email	Varchar	50	N/A	Yes	OPLAgreement. PICEmailAddresses
Customer Name	Varchar	200	N/A	Yes	Customer.CustomerName
Product Brand Name	Varchar	100	N/A	Yes	Product.BrandName
Product Model Name	Varchar	100	N/A	Yes	Product.ModelName



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Model Year	Date	N/A	Yyyy	Yes	Product.Model Year
Lease Category	Varchar	100	N/A	Yes	OPLAgreement. LeaseCategory
Maintenance Type	Varchar	100	N/A	Yes	OPLAgreement Details.MaintenanceType
Insurance	Bit	N/A	N/A	Yes	OPLAgreement. IsInsurance
Purchase Required	Bit	N/A	N/A	Yes	OPLAgreement. PurchaseAfterLease
Start Date Usage Unit	Date	N/A	mm/dd/yyyy	Yes	OPLAgreement. StartPeriodDate
End Date Usage Unit	Date	N/A	mm/dd/yyyy	Yes	OPLAgreement. EndPeriodDate
Lease Period	Int	N/A	N/A	Yes	OPLCalculation. LeasePeriodPlan
Usage	Varchar	100	N/A	Yes	OPLAgreement Details.Usage
<b>Service History Summary</b>					
Maintenance Budget	Decimal	18,0	###,###,###.##	Yes	OPLServiceHistorySum.MaintenanceBudget
Maintenance Disbursement	Decimal	18,0	###,###,###.##	Yes	OPLServiceHistorySum.MaintenanceDisbursement
Digestibility	Decimal	18,6	###,###,###.##	Yes	OPLServiceHistorySum.Digestibility
<b>General Information of Service</b>					
Agreement Number	Varchar	50	N/A	Yes	OPLAgreement. AgreementNumber
Previous Agreement Number	Varchar	100	N/A	No	OPLAgreement. AgreementNumberReff
Agreement Date	Date	N/A	mm/dd/yyyy	Yes	OPLAgreement. AgreementDate
Police Number/Invoice Number	Varchar	20	N/A	Yes	OPLUObjectLease.IdentityPoliceNumber
Engine Number	Varchar	100	N/A	No	OPLUObjectLease.EngineNumber
Maintenance Type	Varchar	100	N/A	Yes	OPLServiceHistory.MaintenanceType
<b>Service History Details</b>					

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Service Date	Date	N/A	mm/dd/yyyy	Yes	OPServiceHistory.ServiceDate
Actual Mileage	Int	N/A	N/A	Yes	OPLServiceHistory.MonthlyMileage
Workshop	Varchar	100	N/A	Yes	Supplier.SupplierName
Periodic Maintenance	Bit	N/A	N/A	Yes	OPLServiceHistory.IsPeriodicMaintenance
Customer Service Desk	Bit	N/A	N/A	Yes	OPLServiceHistory.IsServiceDesk
Irregular Maintenance	Bit	N/A	N/A	No	OPLServiceHistory.IsIrregularMaintenance
Sub Total	Decimal	18,0	###,###,###.##	No	OPLServiceHistory.SubTotal
PPN Tax	Decimal	18,0	###,###,###.##	No	OPLServiceHistory.PPNTax
PPH Tax	Decimal	18,0	###,###,###.##	No	OPLServiceHistory.PPHTax
Total	Decimal	18,0	###,###,###.##	No	OPLServiceHistory.TotalIncludeTax
<b>Implementation Item</b>					
Implementation Item	Varchar	100	N/A	Yes	OPLSHistoryItems.ImplementationItems
Labor Cost Amount	Decimal	18,0	###,###,###.##	Yes	OPLSHistoryItems.LaborCostAmount
PPN Tax	Decimal	18,0	###,###,###.##	No	OPLSHistoryItems.PPNTax
PPH Tax	Decimal	18,0	###,###,###.##	No	OPLSHistoryItems.PPHTax
Remarks	Varchar	200	N/A	No	OPLSHistoryItems.Remarks
<b>Parts Item</b>					
Part Code	Varchar	50	N/A	Yes	OPLSHistoryParts.PartCode
Part Name	Varchar	100	N/A	Yes	OPLSHistoryParts.PartName
Type Of Action	Varchar	100	N/A	Yes	OPLSHistoryParts.TypeOfAction
Quantity	Int	N/A	N/A	Yes	OPLSHistoryParts.Quantity
Amount	Decimal	18,0	###,###,###.##	Yes	OPLSHistoryParts.Amount
PPN Tax	Decimal	18,0	###,###,###.##	No	OPLSHistoryParts.PPNTax
PPH Tax	Decimal	18,0	###,###,###.##	No	OPLSHistoryParts.PPHTax

Functional Specification: A.2 Maintenance Module					
Project	Operating Lease Support System Development				
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					ts.PPHTax
Remarks	Varchar	200	N/A	No	OPLSHistoryPar ts.Remarks
<b>Audit Rail</b>					
Create By	Varchar	25	N/A	Yes	CreateBy
Create Date	Date	N/A	mm-dd-yyyy:hh-mm-ss	Yes	CreateDate
Last Modified By	Varchar	25	N/A	Yes	LastModifiedBy
Last Modified	Date	N/A	mm-dd-yyyy:hh-mm-ss	Yes	LastModified
<b>Status Management</b>					
Is Deleted	Bit	N/A	N/A	Yes	IsDeleted
Is Draft	Bit	N/A	N/A	Yes	IsDraft
Is Submitted	Bit	N/A	N/A	Yes	IsSubmitted
Is Valid	Bit	N/A	N/A	Yes	IsValid

Functional Specification: A.2 Maintenance Module			
Project	Operating Lease Support System Development		
Author	Deny Prasetya	Date	03 Juli 2015
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## 3 Appendix

### 3.1 Use Case Terminology

#### What is the use case?

- (i) **A use case is** a written description of how users will perform tasks on your website. It outlines, from a user's point of view, a system's behavior as it responds to a request. Each use case is represented as a sequence of simple steps, beginning with a user's goal and ending when that goal is fulfilled. (<http://www.usability.gov/how-to-and-tools/methods/use-cases.html>)
- (ii) **A use case is** a list of steps, typically defining interactions between a role and a system. ([http://en.wikipedia.org/wiki/Use\\_case](http://en.wikipedia.org/wiki/Use_case))
- (i) **A use case is** a formal way of representing how a business interacts with its environment. it summarized into a single picture. (<http://romisatriawahono.net/lecture/sad/romi-sad-05-implementation-march2014.pptx>)

#### What are Benefits of use cases?

- (i) **Use cases** add value because they help explain how the system should behave and in the process, they also help brainstorm what could go wrong. They provide a list of goals and this list can be used to establish the cost and complexity of the system. Project teams can then negotiate which functions become requirements and are built.

What Use Cases Include	What Use Cases Do NOT Include
<ul style="list-style-type: none"> <li>Who is using the website</li> <li>What the user want to do</li> <li>The user's goal</li> <li>The steps the user takes to accomplish a particular task</li> <li>How the website should respond to an action</li> </ul>	<ul style="list-style-type: none"> <li>Implementation-specific language</li> <li>Details about the user interfaces or screens.</li> </ul>

(<http://www.usability.gov/how-to-and-tools/methods/use-cases.html>)

- (ii) With the help of use case diagram, you can discuss and communicate:
  - The scenarios in which your system or application interacts with people, organizations, or external systems.
  - The goals that it helps those actors achieve.
  - The scope of your system.

(<http://msdn.microsoft.com/en-us/library/dd409432.aspx>)