

OPERATING LEASE SUPPORT SYSTEM DEVELOPMENT

FOR



Functional Specification A.2 Maintenance Module

Revision 1.0

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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.

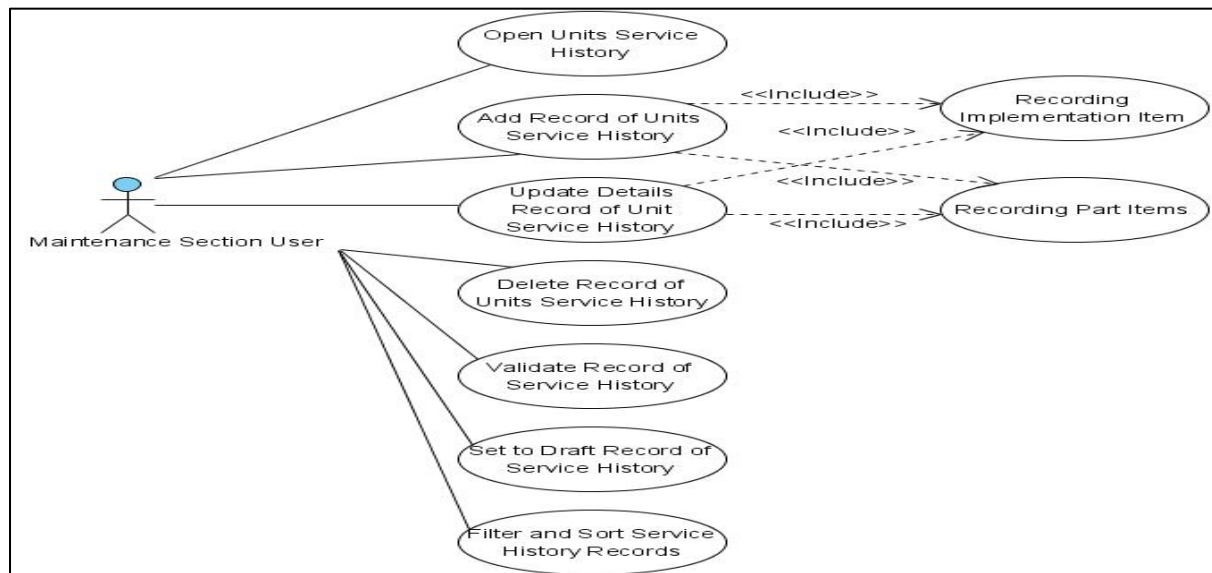


Figure 1 – Use case diagram of Service History Inquiry

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).

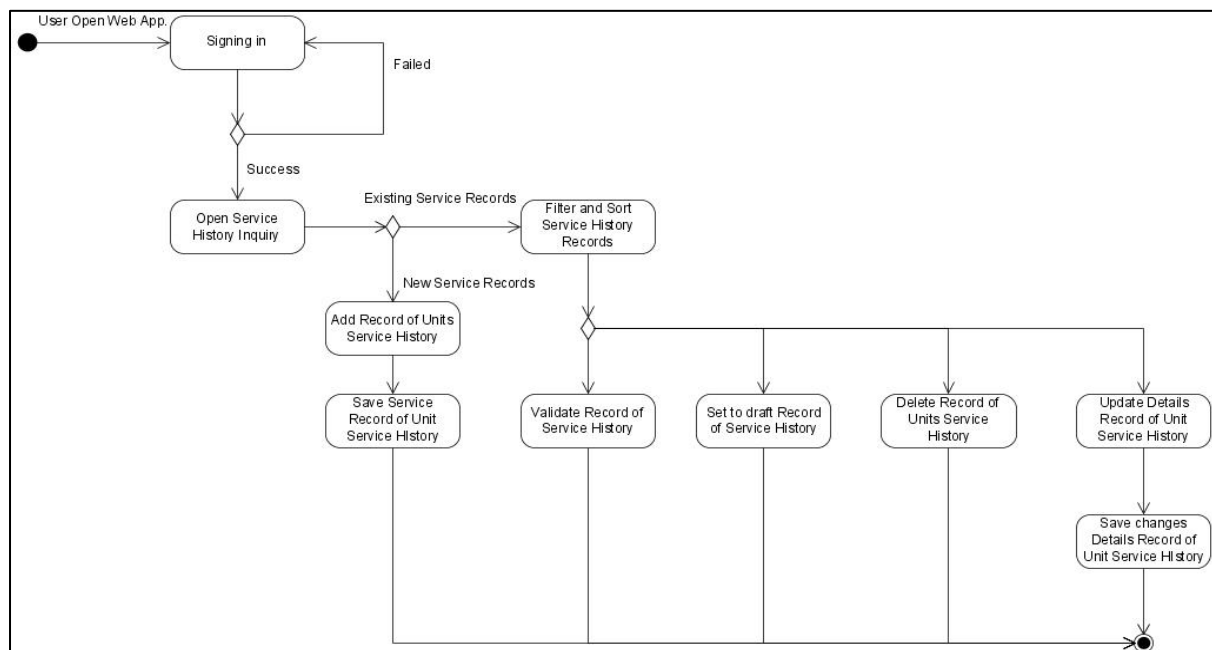


Figure 2 – Activity diagram of Service History Inquiry

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No.	Steps/ Operations	Actor/ People	Scenario
1	Signing in	Maintenance Section User	<ul style="list-style-type: none"> Actor fills out sign in form by inputting user name and password. 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.
2.	Open service history inquiry module	Maintenance Section User	<ul style="list-style-type: none"> After login, actor can open service history inquiry module on the menu of system. After that, screen of service history inquiry will open.
3.	Add new service history record	Maintenance Section User	<ul style="list-style-type: none"> If service history screen opens, actor can determined the agreement number and police number that want to be add the service history record. 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. 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. 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. 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. 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. The mandatory fields cannot be blank.
4.	Save service history records as draft	Maintenance Section User	<ul style="list-style-type: none"> After filling out the fields, actor can click [save as draft] button, if want to make a records as draft. 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) If done, actor can click [Back] button to return to the main screen.
5.	Filter and sort service history records	Maintenance Section User	<ul style="list-style-type: none"> Actor can filter and sort the record based on columns where displayed on the list. To filter the records, actor can enter keywords into the

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			<p>filter fields. If matched data founds, the filtered result will be displayed on list. If doesn't the list will be empty.</p> <ul style="list-style-type: none"> 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. 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.
6.	Update service history record	Maintenance Section User	<ul style="list-style-type: none"> If service history screen opens, actor can determined the agreement number and police number that want to be display in the service history. 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. 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. 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. If 'Details' screen opens, actor can edit a record by inputting a data on each of the fields. The mandatory fields cannot be blank.
7.	Delete a service history record	Maintenance Section User	<ul style="list-style-type: none"> Actor can delete the record of service history that display on the list. Only data with status draft can be deleted.
8.	Validate service history record	Maintenance Section User	<ul style="list-style-type: none"> Once data is saved and data has been confirmed, actor can validate the record by clicking [Validate] button. After that system will set a record as <u>validate (or not draft)</u>. If done, actor can click back button to return to the list of service history.
9.	Set to draft of service history	Maintenance Section User	<ul style="list-style-type: none"> 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 validated to draft. After that, system will proceed automatically to change the status, and actor can click [Back] button to return to the list.

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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.

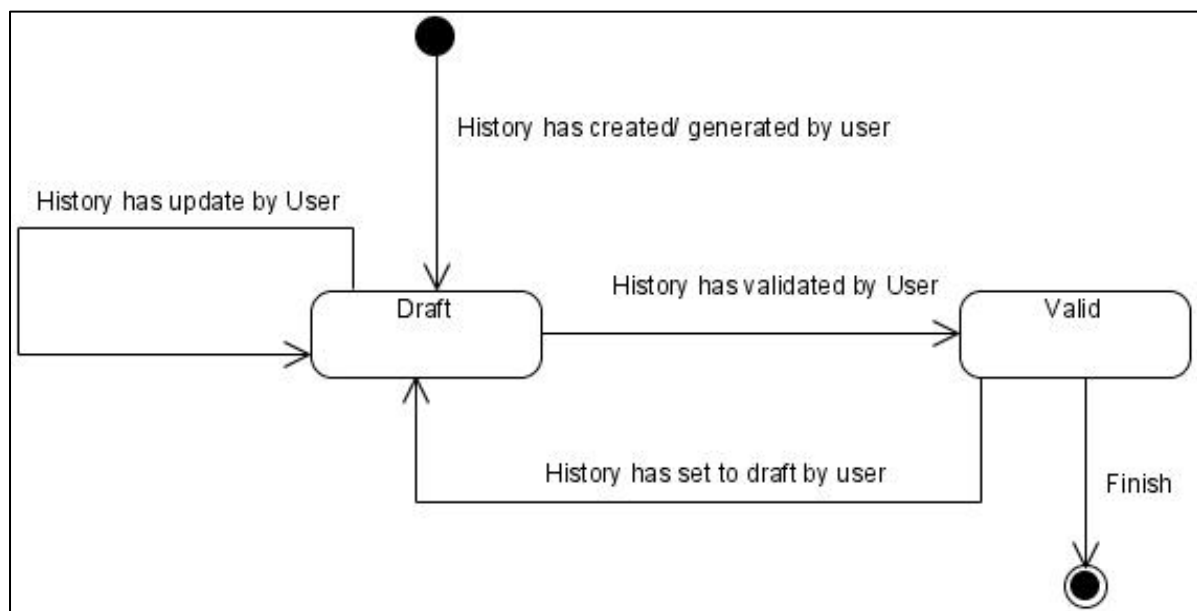


Figure 3 – Status diagram of Service History Inquiry

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 Agreement Information Inquiry](#)

To view audit rails

Created By Created Date Modified by Last Modified

Contract Information

General information of agreement

Agreement Number Previous Agreement Number Agreement Date

Service Record History

General information of service history/ maintenance condition

Police Number/ Invoice Number Police/ Inv. Number Engine Number Maintenance Type

Sales PIC Name Sales PIC Position Sales PIC Phone Sales PIC Email

Customer Name Product Brand Name Product Model Name Model Year

Lease Category Maintenance Type Insurance Purchase Required

Contract Start Date Contract Expired Date Lease Period (Months) Usage

Service History Record List

To open details service history

Add To add new records Maintenance Budget Maintenance Disbursement Digestibility

Service Date	Actual Mileage	Maintenance Items	Payment Expenses	Workshop	Action
10/10/2014	31000	Periodic Maintenance	1,430,500	Sun Motor	Details Delete
09/10/2014	29000	Batery Replacement	1,430,500	Sun Motor	Details Delete
08/10/2014	28000	Tire Replacement	2,400,000	Sun Motor	Details Delete
07/10/2014	26000	Periodic Maintenance	1,430,500	Sun Motor	Details Delete
06/10/2014	21000	Periodic Maintenance	1,430,500	Sun Motor	Details Delete
05/10/2014	16000	Periodic Maintenance	1,430,500	Sun Motor	Details Delete
04/10/2014	17000	Batery Replacement	1,430,500	Sun Motor	Details Delete
03/10/2014	14000	Tire Replacement	2,400,000	Sun Motor	Details Delete
02/10/2014	11000	Periodic Maintenance	1,430,500	Sun Motor	Details Delete
01/10/2014	5500	Periodic Maintenance	1,430,500	Sun Motor	Details Delete

Showing 1 to 10 of 18 entries Data paging information To open paging of records First Previous 1 2 Next Last

Image 1 – 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.

General Information of Service

General Information of service history/ maintenance condition

Agreement Number: [Input Field] Previous Agreement Number: [Input Field] Agreement Date: (mm/dd/yyyy)

Police Number/ Invoice Number: [Input Field] Engine Number: [Input Field] Maintenance Type: [Input Field]

Services History Details

Details information of service history

☐ Periodic Maintenance ☐ Customer Service Desk (CSD) ☐ Irregular Maintenance Workshop: [Input Field] Service Date: (mm/dd/yyyy)

Main Implementation Item

To add Implementation

Add Sub Total Rp. [Input Field] PPN Tax (10%) Rp. [Input Field] PPH Tax (2%) Rp. [Input Field] Actual Mileage (KM) [Input Field] Actual Mileage (KM) [Input Field]

Code	Implementation Items	Labor Cost Amount	Remarks	Action
PMA	Periodic Every 5000 KM	850,000		Details Delete
SOP	Sparkling Plug	35,000		Details Delete
BCH	Dry Accu Batery	50,000		Details Delete
TCH	Tubeless Radial	100,000		Details Delete
TCH	Sporing & Balancing	200,000		Details Delete

Showing 1 to 5 of 8 entries Data paging information To open paging of records First Previous 1 2 Next Last

Parts Item

To add Part Items

To delete the items and open details

Parts Code	Parts Name	Amount	Quantity	Remarks	Action
PC0001	Disc Brake	850,000	1		Details Delete
PC0002	Caliper Kit	35,000	1		Details Delete
PC0003	Belt	50,000	1		Details Delete
PC0004	Tubeless Radial	100,000	1		Details Delete
PC0005	Sparkling Plug	200,000	1		Details Delete

Showing 1 to 5 of 9 entries Data paging information To open paging of records First Previous 1 2 Next Last

Save Changes Validate Buttons to save and validate the records

Image 2 – Screen of Add New Service History Record

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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.

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]

Services History Details

Details information of service history

☐ Periodic Maintenance ☐ Customer Service Desk (CSD) ☐ Irregular Maintenance Workshop: [Workshop] Service Date: (mm/dd/yyyy)

Main Implementation Item

To add Implementation

Add Sub Total Rp. PPN Tax (10%) Rp. PPH Tax (2%) Rp. Actual Mileage (KM) [Actual Mileage (KM)]

To delete the items and open details

Code	Implementation Items	Labor Cost Amount	Remarks	Action
PMA	Periodic Every 5000 KM	850,000		Details Delete
SOP	Spark Plug	35,000		Details Delete
BCH	Dry Accu Batery	50,000		Details Delete
TCH	Tubeless Radial	100,000		Details Delete
TCH	Spooring & Balancing	200,000		Details Delete

Showing 1 to 5 of 8 entries Data paging information To open paging of records First Previous 1 2 Next Last

Parts Item

To add Part Items

To delete the items and open details

Parts Code	Parts Name	Amount	Quantity	Remarks	Action
PC0001	Disc Brake	850,000	1		Details Delete
PC0002	Caliper Kit	35,000	1		Details Delete
PC0003	Belt	50,000	1		Details Delete
PC0004	Tubeless Radial	100,000	1		Details Delete
PC0005	Spark Plug	200,000	1		Details Delete

Showing 1 to 5 of 9 entries Data paging information To open paging of records First Previous 1 2 Next Last

Save Changes Validate Buttons to save and validate the records

Image 3 – Screen of Update Details Service History

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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
Service History Summary				
MaintenanceBudget	Decimal	18,0	###,###,###.##	Yes
MaintenanceDisbursement	Decimal	18,0	###,###,###.##	Yes
Digestibility	Decimal	18,0	###,###,###.##	Yes
Service History Record				
MaintenanceType	Text	100	N/A	Yes
ServiceDate	Date	N/A	mm-dd-yyyy	Yes
MonthlyMileage	Numeric	N/A	N/A	No
Maintenanceltem	Text	100	N/A	Yes
PaymentExpense	Decimal	18,0	###,###,###.##	No
SuplierCode	Text	50	N/A	Yes
IsPerodicMaintenance	Yes/No	N/A	N/A	No
IsCSserviceDesk	Yes/No	N/A	N/A	No
IsregularMaintenance	Yes/No	N/A	N/A	No
SubTotal	Decimal	18,0	###,###,###.##	No
PPNTax	Decimal	18,0	###,###,###.##	No
PPHTax	Decimal	18,0	###,###,###.##	No
TotalIncludeTax	Decimal	18,0	###,###,###.##	No
Audit Rail				
Create By	Text	100	N/A	Yes
Create Date	Date time	N/A	mm-dd-yyyy:hh-mm-ss	No
Last Modified By	Text	100	N/A	Yes
Last Modified	Date	N/A	mm-dd-yyyy	No
Status Management				
Is Deleted	Yes/No	N/A	N/A	Yes

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Is Draft	Yes/No	N/A	N/A	Yes
Is Submitted	Yes/No	N/A	N/A	Yes
Is Valid	Yes/No	N/A	N/A	Yes

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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)
- (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">• Who is using the website• What the user want to do• The user's goal• The steps the user takes to accomplish a particular task• How the website should respond to an action	<ul style="list-style-type: none">• Implementation-specific language• Details about the user interfaces or screens.

(<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>)