CHANGE MANAGEMENT

for

ATE BOM Report 2.0
and
Assembly Tree

Version 1.0

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Submitted to : MSIL

November, 2019

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1 Introduction

1.1 Purpose

ATE department is concerned with the manufacturing of special purpose machines intended for use within the car manufacturing line of Maruti Suzuki India Ltd. This requires:
1. 3D CAD Designing/ modelling of machines using Solid Edge software with Teamcenter PLM manage mode.
2. Procurement of components required for manufacturing, provided by design team through EBOM.
3. Fabrication Integration of procured components to give functionality to machine as intended during design to perform a specific function.

Currently the BOM generation process is through a customized Solid Edge ATE BOM utility API. This API was developed by Siemens and coordinated by NPE department. Functional specifications of the current utility is:

1. Integrability: The utility is integrated in Solid Edge run time environment and launched through the Macros functionality.

2. INPUT: User opens the solid edge file for which the user wants to generate the BOM

3. OUTPUT: Utility generates an excel file consisting of three separate sheets used for registering the BOM values as per the format defined by ATE. These sheets are segregated according to component types: Fabricated, Machined and BOP.

With updates in ATE design procedure, a new BOM format is desired to streamline the workflow and reduce manpower hours on repetitive tasks. The following documents intends to clarify on these perspectives.

1.2 Project Scope

The new product development cycle is demonstrated in figure 1.1. and has been briefly explained now to bring clarity on the new workflow.
A large machine usually consists of significant number of stand alone units (Assembly 1,2..,n), that can be individually manufactured and can later be assembled. As per the new workflow these units will be offloaded to third party manufacturers for time and

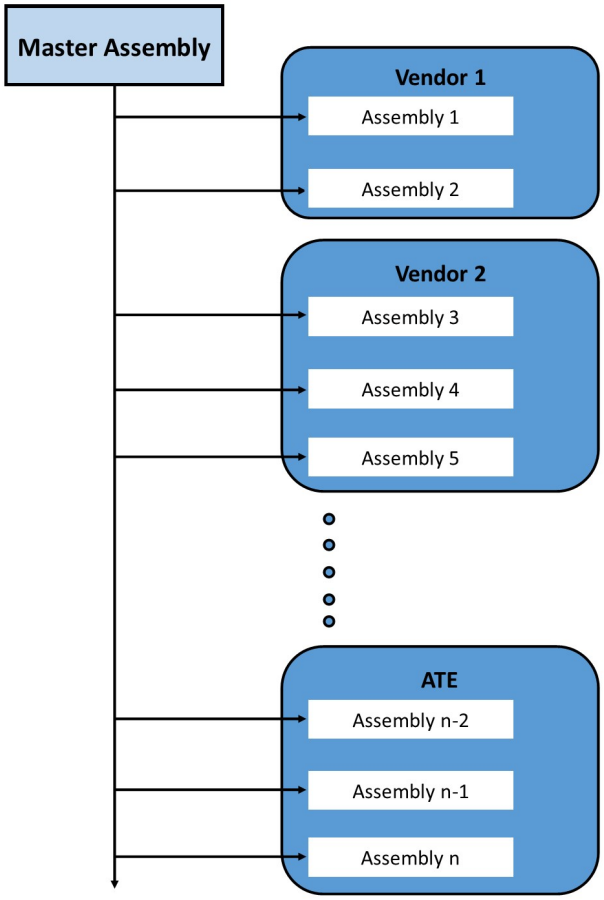

Figure 1.1: Assembly structure based on vendor

cost saving. Since these units will be manufactured externally, separate BOM will have to be compiled for all offloaded work based on assembly number.

Alongside units that will be manufactured in house shall be procured in house and will require separate BOM. So, instead of a single BOM of master assembly that was generated by previous utility, multiple BOM's will be required as per user input to the utility. These functionalities are outside the scope of the current BOM utility. Manually carrying out this task of segregating BOM vendor wise is very time consuming and is also prone to typing errors. Hence a new utility is envisioned that could perform this task automatically which is explained in next chapter.

2 Functional Requirements

In this chapter expected functionality of the application is discussed based on three parameters.

2.1 Integrability

Execution and integration of current BOM utility is OK. Suggestions can be provided by developer team if any.
Other points to note are:

1. The application is expected to run on all ATE design assets wherever Solid Edge and Teamcenter is installed.
2. BOM has to be generated from within Solid Edge using local files for BOM structure.
3. Application should automatically check for latest BOM API files on system, by syncing with files on MSIL server when Team center is started.
4. Necessary documentation of baseline features and software required for running the application to be shared.
5. Any issues faced in current version of utility should not be reproduced in the new version.
6. Utility is supposed to run properly (i.e. without any run time exception and unexpected errors) with all OTB and existing custom functionalities.

2.2 USER INPUT

Following inputs will be provided by user to utility for generating the BOM.

1. Main assembly: Main assembly will be opened by user in Solid Edge.
2. Sub-assemblies: List of sub assemblies for which separate BOM is required to be selected by user. Refer figure 2.2 which is briefed now. When user selects the utility **"1"**, Pop up window displaying list of all "SE assembly" will be populated in dialog **"5"**. The dialog will give user the ability to search an assembly from option **"2"**. Option **"4"** will be required to filter the generated list in **"5"**; according to ATE component type. Using **clear** option in **"3"** user can clear the list of searched

values, and using **reset** option the pop up dialog will return to initial state. Here it can be seen that the user has selected **ALB-M-0088960** and **ALB-M-0090869** for separate BOM.

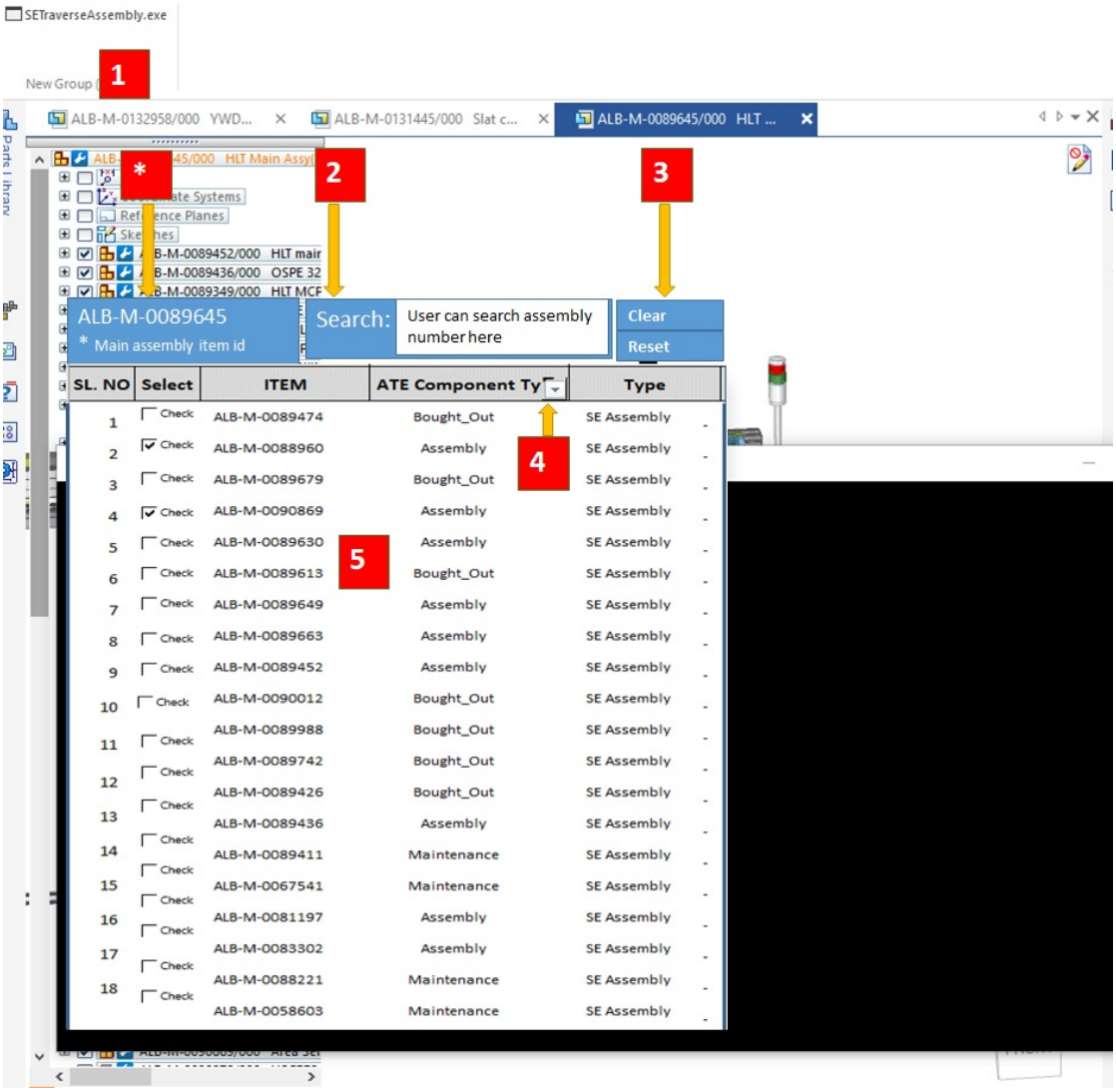

Figure 2.1: User interface of Input dialog box

Based on the above inputs report will be generated as discussed in output section.

2.3 OUTPUT

The output report will be generated in excel format, as in the current version of the utility with the following changes as mentioned below:

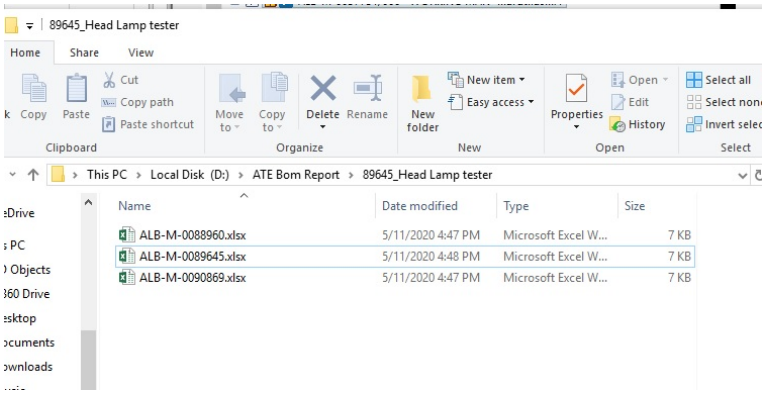

Figure 2.2: Folder structure

1. BOM report: Currently their is a single report generated for the master assembly. In the new version the final output will be multiple separate reports depending on the number of sub assemblies selected by user during input step as illustrated in Figure 2.1:
   - Individual BOM report for user selected subassemblies. -(i).
   - Overall BOM report of main assembly minus the component quantity BOM already generated in (i). Quantities should not be repeated. Therefore, if total quantity of **assembly A** in main assembly in 5 and it has been used 2 times in (i), then quantity reflected in this BOM should be 5-2 =3.

   As can been seen, since user selected **ALB-M-0088960** and **ALB-M-0090869** in the input step, three reports will be generated as seen in figure 2.2.

2. ALB component type: Current version of report segregate the output excel BOM into three sheets, namely Fabricated, Machined and BOP as per ALB component type. New version will require that each report is segregated into four sheets:
   - Fabricated
   - Machined
   - BOP
   - Maintenance (*new addition): Format will necessarily be same as BOP sheet.

New inputs from software design team can also be given.

2.4 LOGS

BOM traversing logs to be stored in local drive for further analysis in case of any BOM report functionality issue.

3 Other Nonfunctional Requirements

3.1 Performance Requirements

Application should be able to function properly wherever Solid Edge is functional with expected report generation time to be within 5 minutes. Report traversal time benchmarking data to be shared by design team.

3.2 Security Requirements

As per NPE guidelines.

3.3 Software Quality Attributes

Software should be functional in older versions of Solid Edge and Team center. Compatibility scope for new versions of Solid Edge package to be suggested as per feasibility.

4 Other Requirements

Add if any.
This is the end of version 1.0 of the report.