



PROTEUS MMX – BILL OF MATERIAL –  
WORK ORDER

EAGLE TECHNOLOGY, INC.



# BILL OF MATERIAL – WORK ORDER

## OVERVIEW

There is Bill of Material (BOM) – Work Order Enhancement on the **Asset Master** page. From the **Assets Navigator**, select an asset and click the **Perform BOM** icon.

**NOTE:** This feature will only work when the **UL** feature is **On**.

## STEP 1 – CREATE A PART AND GIVE IT A RUNTIME LIMIT

The screenshot shows the Proteus Asset Master interface. The top navigation bar includes links for Home, Assets, Inventory, Personnel, Providers, Purchasing, Reports, Service Requests, Work Orders, Company, Rights, Active Directory, KPI, and Settings. The main header displays 'Inventory - Parts >> Parts' and the specific part identifier 'part-nov 15-01'. Below this, there are tabs for Details, Stockroom Parts, Work Orders, Asset History, and Attachments. The 'Details' tab is active, showing a form with various fields for part information. The 'Runtime Limit' field, located under the 'Inventory Classification' section, is highlighted with a red rectangular box and contains the value '110.00'. Other fields include Part Number, Part Name, Stock Class, Category, Shelf Life, Part Size, Manufacturer, Description, Measurement Unit, Manufacturer Part Number, PM Strategy, SMP No., Frequency, Standard Duration, Machine STOP or Running, AM Standard, Frequency (AM), QM Matrix No., Kaizen Type, Kaizen No., Inventory Usage, and Inventory Classification.

## STEP 2 – CREATE BOM AND ADD PARTS WHICH HAVE RUNTIME LIMITS

- The user can add a single part multiple times.
- A new field—**Component Position**—is added and the **Edit** functionality is also added in the **Parts Tab**.

The screenshot shows the Proteus BOM interface. The 'Inventory - Bill Of Materials >> Bill Of Materials' breadcrumb is highlighted. The 'Parts' tab is selected. A table lists components with columns for Part Number, Part Name, and Component Position. The first two rows are highlighted in red, showing 'part-nov 15-01' and 'part-nov 15-01' with their respective positions.

Part Number	Part Name	Component Position
part-nov 15-01	part-nov 15-01	part-nov 15-01
part-nov 15-01	part-nov 15-01	part-nov 15-01-01
part-nov 15-02	part-nov 15-02	part-nov 15-02

## HOW CAN THE USER ENTER DATA IN THE *COMPONENT POSTION* FIELD?

The user will click the **Save** icon. After selecting a part, a window will populate to enter the **component position**.

The screenshot shows the Proteus BOM interface with the 'Component Position' dialog box open. The dialog box has a 'Component Position:' label and a text input field. A 'Submit' button is at the bottom right. The background shows the same table as the previous screenshot.

Part Number	Part Name	Component Position
part-nov 15-01	part-nov 15-01	part-nov 15-01
part-nov 15-01	part-nov 15-01	part-nov 15-01-01
part-nov 15-02	part-nov 15-02	part-nov 15-02

### STEP 3 – CREATE AN ASSET THEN ASSOCIATE THE ABOVE BOM TO IT

Bill Of Materials

Bill Of Materials  
BOM-nov 15

Part Number	Part Name	Component Position	Manufacturer Part Number	Current Component Runtime	Asset Runtime At Last Replacement	Runtime Limit	Last Replacement Date	Part description
part-nov 15-01	part-nov 15-01	part-nov 15-01	Part 15-01	0.000000	0.000000	110.000000		part 15-01 description
part-nov 15-01	part-nov 15-01	part-nov 15-01-01	Part 15-01	0.000000	0.000000	110.000000		part 15-01 description
part-nov 15-02	part-nov 15-02	part-nov 15-02	Part 15-02	0.000000	0.000000	120.000000		part 15-01 description

**NOTE:** After the first time, never click the **Save**. Clicking **Save** will cause the data to be reset.

- **Runtime Limit** = Part Runtime Limit that is given in the *Part Details* from the *Part Master* page.
- **Current Component Runtime** = Asset Runtime (*minus*) Asset runtime at last replacement
- **Asset Runtime at Last Replacement** = The value given in Asset Runtime at part replacement (The value will reflect after the work order is closed)
- **Last Replacement Date** = Work Order Closed Date

**LOGIC OF BOM – WORK ORDER ENHANCEMENT:**

Asset		Associated BOM				
Asset Name	Asset Runtime	Part Number	Current Component Runtime	Asset Runtime at Last Replacement	Runtime Limit	Last Replacement Date
Asset - 01	At the start, it is 0	Part – Nov 15-01	0-0=0	0	110	
	Change 0 to 100		100-0=100	0	110	
	Change 100 to 110		110-0=110	0	110	
	At the start, it is 0	Part – Nov 15-01	0-0=0	0	110	
	Change 0 to 100		100-0=100	0	110	
	Change 100 to 110		110-0=110	0	110	
	At the start, it is 0	Part – Nov 15-02	0-0=0	0	120	
	Change 0 to 100		100-0=100	0	120	
	Change 100 to 110		110-0=110	0	120	

**NOTE:** After associating the BOM to Assets, the **Current Component Runtime** will be equal to **Asset Runtime** for the first time (either asset runtime is 0 or 100).

### STEP 1

Asset Runtime = 0

Part – Nov 15-01 = 110

Current component runtime will always be equal to →

***Asset Runtime (minus) Asset Runtime at Last Replacement***

### STEP 2

The user will change the asset runtime from 0 to 100, so the current component runtime will be equal to →

***Asset Runtime (minus) Asset Runtime at Last Replacement = 100-0 = 100***

**NOTE:** The runtime limit is 110

### STEP 3

In the 3<sup>rd</sup> step, the user will change the **asset runtime** to **110**, so that →

***Asset Runtime (minus) Asset Runtime at Last Replacement = 110-0 = 110***

That is equal to the runtime limit.

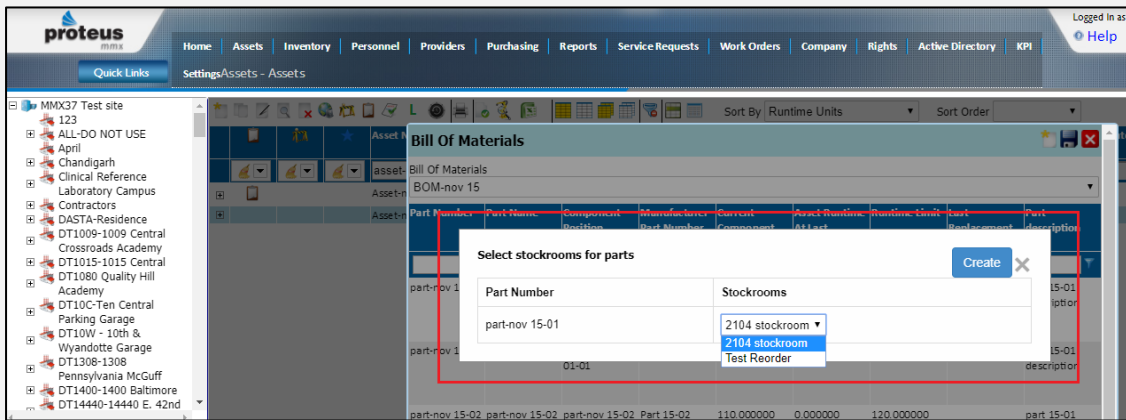
The same formula will work for another part; **Part – Nov 15-01 and Part – Nov 15-02**

### STEP 4

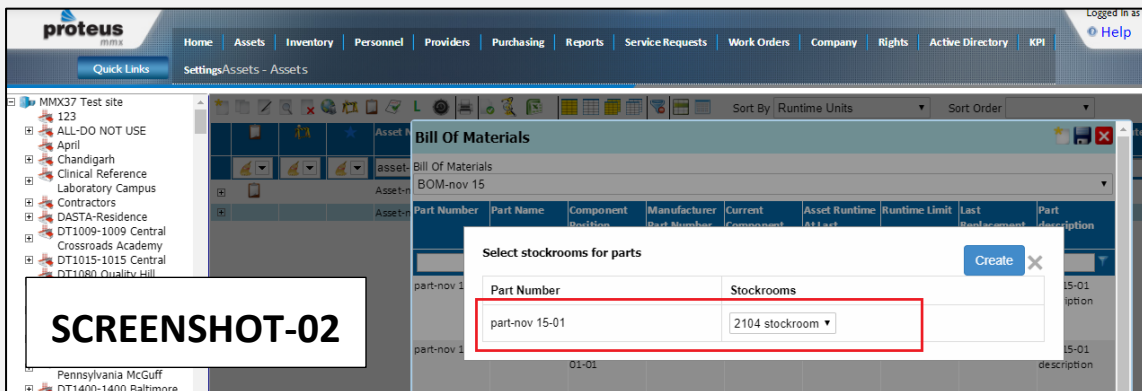
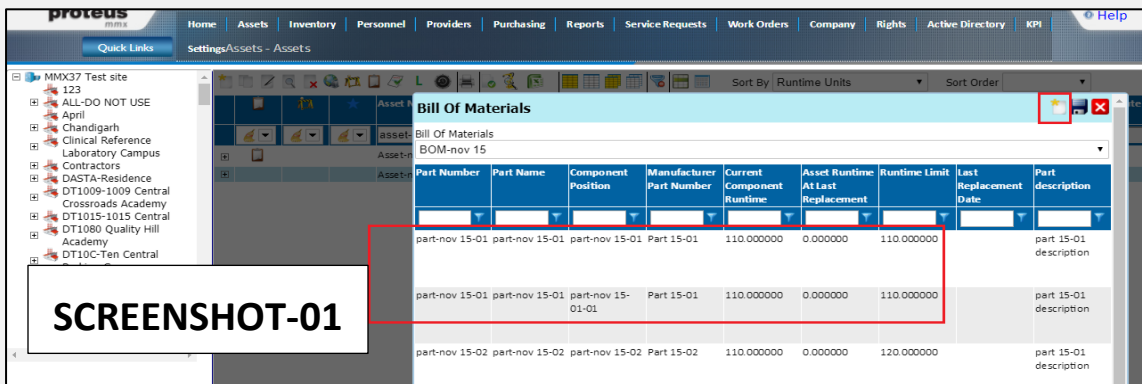
Click on the **New** icon on BOM screen to create a work order.

The screenshot shows the Proteus software interface. The top navigation bar includes links for Home, Assets, Inventory, Personnel, Providers, Purchasing, Reports, Service Requests, Work Orders, Company, Rights, Active Directory, and KPI. The main content area is titled 'Bill Of Materials' and displays a table with columns: Part Number, Part Name, Component Position, Manufacturer Part Number, Current Component Runtime, Asset Runtime At Last Replacement, Runtime Limit, Last Replacement Date, and Part description. The table lists three parts: part-nov 15-01, part-nov 15-01, and part-nov 15-02. A red box highlights the 'New' icon in the top right corner of the BOM screen.

As the user clicks on **New**, the below screen will populate.



If one part is added multiple times, then they will require replacement at the same time (**Screenshot-01**). At the time of work order creation, there will only one (1) part and one (1) stockroom for both (**Screenshot-02**).

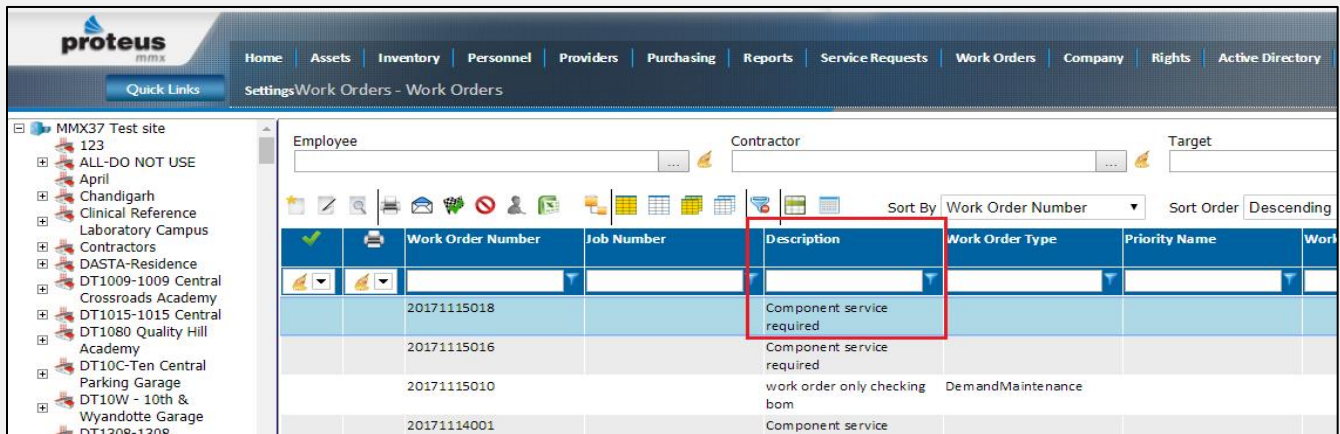


**NOTE:** If the part is not in any stockroom, then first add the part to any stockroom, then create the work order.

## WORK ORDER CREATED:

For **Replacement Required Part**, select stockroom (if the part is added in multiple stockrooms) then click on **Create** and work order will be created with the description: **“Component service required”**

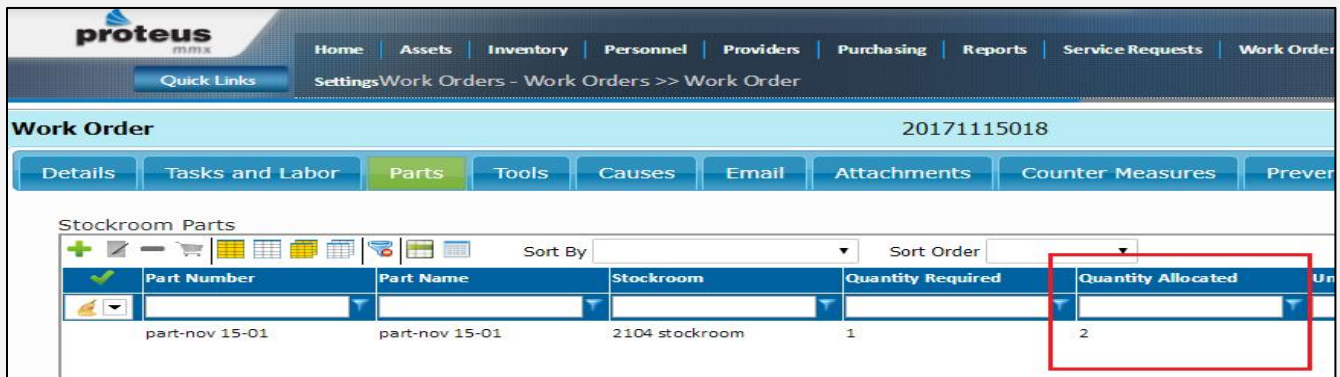
**NOTE:** The Work Order Type would be **Preventive Maintenance**.



Employee	Contractor	Target	Work Order Number	Job Number	Description	Work Order Type	Priority Name	Work
			20171115018		Component service required			
			20171115016		Component service required			
			20171115010		work order only checking bom	DemandMaintenance		
			20171114001		Component service			

Edit the created work order go to the **Parts Tab**.

**Quantity Allocated** will be **two (2)** if there are two of the same parts are replaced at the same time. It could be **three (3)**, if 3 of the same parts are added.



Part Number	Part Name	Stockroom	Quantity Required	Quantity Allocated	Un
part-nov 15-01	part-nov 15-01	2104 stockroom	1	2	

The **BOM Screen** on the asset will be changed to the one displayed below.



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## CASE 01: IF WORK ORDER IS CLOSED

Asset		Associated BOM				
Asset Name	Asset Runtime	Part Number	Current Component Runtime	Asset Runtime at Last Replacement	Runtime Limit	Last Replacement Date
Asset - 01	110	Part – Nov 15-01	0	110	110	WO Closed Date
	Change 110 to 120		$120 - 110 = 10$	110	110	
	110	Part – Nov 15-01	0	110	110	WO Closed Date
	Change 110 to 120		$120 - 110 = 10$	110	110	
	110	Part – Nov 15-02	110	0	120	
	Change 110 to 120		120	0	120	

**NOTE:** The **Current Component Runtime** will be updated to 0 because the work order is closed.

**Asset Runtime** at last replacement will be changed to 110 because it is at asset runtime at the part replacement time.

The **Runtime Limit** will be the same because it is given from the **Part Master Page**.

The **Last Replacement Date** will be the date when the work order is closed.

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## CASE 02: IF THE WORK ORDER IS NOT CLOSED/CANCELLED

Asset		Associated BOM				
Asset Name	Asset Runtime	Part Number	Current Component Runtime	Asset Runtime at Last Replacement	Runtime Limit	Last Replacement Date
Asset - 01	110	Part – Nov 15-01	0	110	110	WO Closed Date
	Change 110 to 120		120-110 = 10	110	110	
	110	Part – Nov 15-01	0	110	110	WO Closed Date
	Change 110 to 120		120-110 = 10	110	110	
	110	Part – Nov 15-02	110	0	120	
	Change 110 to 120		120	0	120	

The **Current Component Runtime** for **Part – Nov-02** will not be updated to 0 because the work order is not closed/cancelled and the **Asset Runtime at Last Replacement/Last Replacement Date** is also not updated.

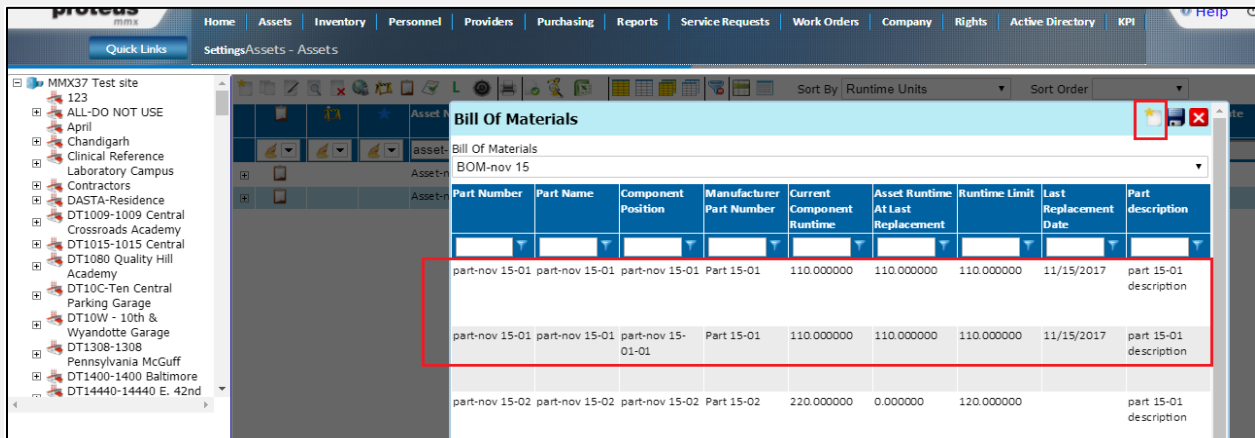
As the user increases the **Asset Runtime**, the **Current Component Runtime** will be updated but another work order will not be created for same part until it is closed or cancelled.

**NOTE:** Until the work order of the related part is closed or cancelled, another work order will not be created for the same part. The user will be notified of this occurrence when they click the **New** button.

The screenshot displays the proteusmmx.com web application. A notification window at the top center states: "proteusmmx.com says: No parts need replacement" with an "OK" button. Below this, a "Bill Of Materials" window is open, showing a table for "BOM-nov 15". The table has columns: Part Number, Part Name, Component Position, Manufacturer Part Number, Current Component Runtime, Asset Runtime At Last Replacement, Runtime Limit, Last Replacement Date, and Part description. The table contains three rows of data. The first two rows have a "part 15-01 description", while the third row has a "part 15-02 description". A red box highlights the third row. The left sidebar shows a tree view of assets, including "MMX37 Test site" and various locations like "ALL-DO NOT USE", "April", "Chandigarh", etc. The top navigation bar includes "Home", "Assets", "Inventory", "Personnel", "Company", "Rights", "Active Directory", "KPI", and "Help".

Part Number	Part Name	Component Position	Manufacturer Part Number	Current Component Runtime	Asset Runtime At Last Replacement	Runtime Limit	Last Replacement Date	Part description
part-nov 15-01	part-nov 15-01	part-nov 15-01	Part 15-01	20.000000	110.000000	110.000000	11/15/2017	part 15-01 description
part-nov 15-01	part-nov 15-01	part-nov 15-01-01	Part 15-01	20.000000	110.000000	110.000000	11/15/2017	part 15-01 description
part-nov 15-02	part-nov 15-02	part-nov 15-02	Part 15-02	130.000000	0.000000	120.000000		part 15-02 description

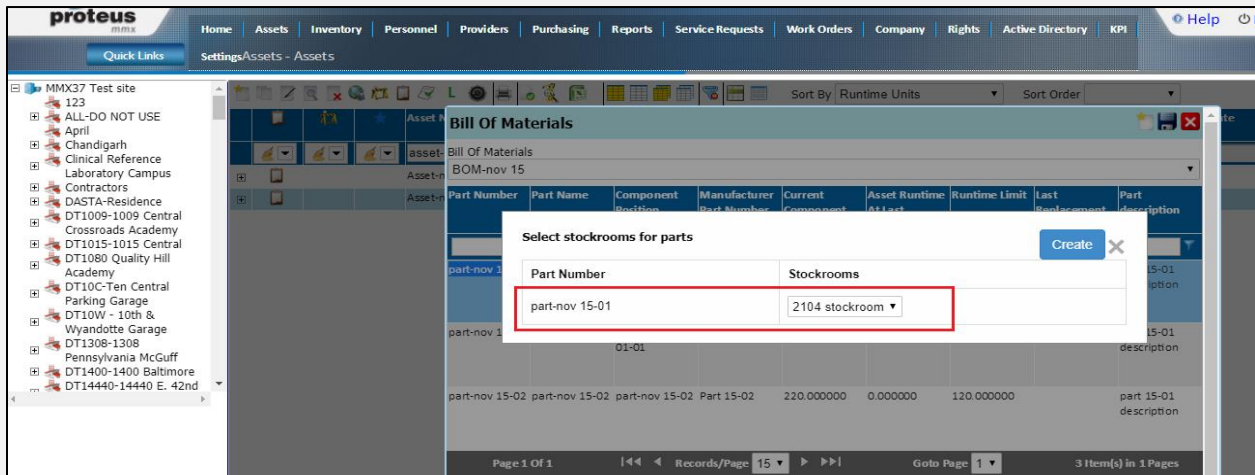
## SCENARIO 01: PART – NOV 15-01 NEEDS REPLACEMENT AND PART – NOV 15-02 WORK ORDER ALREADY CREATED



Part Number	Part Name	Component Position	Manufacturer Part Number	Current Component Runtime	Asset Runtime At Last Replacement	Runtime Limit	Last Replacement Date	Part description
part-nov 15-01	part-nov 15-01	part-nov 15-01	Part 15-01	110.000000	110.000000	110.000000	11/15/2017	part 15-01 description
part-nov 15-01	part-nov 15-01	part-nov 15-01-01	Part 15-01	110.000000	110.000000	110.000000	11/15/2017	part 15-01 description
part-nov 15-02	part-nov 15-02	part-nov 15-02	Part 15-02	220.000000	0.000000	120.000000		part 15-01 description

Click on **New** to create a work order.

Here, only one part will display because another part's work order is not closed/cancelled.



Part Number	Part Name	Component Position	Manufacturer Part Number	Current Component Runtime	Asset Runtime At Last Replacement	Runtime Limit	Last Replacement Date	Part description
part-nov 15-01	part-nov 15-01	part-nov 15-01	Part 15-01	110.000000	110.000000	110.000000	11/15/2017	part 15-01 description
part-nov 15-01	part-nov 15-01	part-nov 15-01-01	Part 15-01	110.000000	110.000000	110.000000	11/15/2017	part 15-01 description
part-nov 15-02	part-nov 15-02	part-nov 15-02	Part 15-02	220.000000	0.000000	120.000000		part 15-01 description

Select stockrooms for parts

Part Number: part-nov 15-01

Stockrooms: 2104 stockroom

Create

## SCENARIO 02: DELETE PARTS FROM WORK ORDER (CREATED FROM BOM)

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1. The **Current Component Runtime** is higher than the **Runtime Limit**.
2. The work order is created but not closed/cancelled.
3. Go to that created work order then **Delete** the added parts.
4. Now, go to **Assets**. At the **BOM** window, click on **New**, then it should allow the user to create a new work order.

## SCENARIO 3: CREATE WORK ORDER, THEN ADD BOM PARTS

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1. The **Current Component Runtime** is higher than the **Runtime Limit**.
2. The work order is created (suppose it is **WO-01**) but not closed/cancelled
3. Create another work order (suppose it is **WO-02**) from the **Work Order** module, using the same asset that has the **BOM** associated.
4. Now, **Close/Cancel** work order (**WO-02**). It is not created from the **BOM** but it still affects the **BOM**.