



DEVELOPING PM PROCEDURES

1. Purpose

- 1.1 To define the process for developing and uploading the PM Procedures
- 1.2 To define the responsibilities for developing and uploading PM Procedures
- 1.3 To provide detailed instructions to those who develop and upload the PM Procedures

2. Definitions

Acronym or Word	Definition
BCBME	British Columbia Biomedical Engineering
CMMS	Computerized Maintenance Management System, which is the database that houses all medical device records, including repairs, inspections, purchase information, warranties, parts, etc.
CMMS PM Writer	Staff that have been trained to upload procedures into the CMMS procedure module. CMMS PM Writers do not need to be subject matter experts (SMEs)
Major PM Procedure Change	New or Updated PM Procedure that is substantially different and/or may have a significant workload impact. Includes the addition of modification steps associated with an alert/recall or incident investigation
Minor PM Procedure Changes	Minor updates to PM Procedures (Typos, Streamlining/Rearranging PM Steps, Clarifications, Additional Details, minor additions/deletions).
PM Developer	The Subject Matter Expert (SME) that develops the procedure that will be used in the CMMS.
PM	Planned Maintenance: One or more scheduled inspections and/or maintenance procedures used to verify the function, minimize the probability of failure, and improve the reliability & safety of a particular device. Often includes periodic tasks such as the replacement of parts, calibration, cleaning/lubrication, performance verification, safety inspections, software updates/patches, and/or required accreditation/regulatory testing. Aliases: Preventive Maintenance, Scheduled Maintenance, Performance Assurance
Provincial PM Program Committee	PM Program Committee is made up of Provincial Representation and is responsible for oversight of the PM Program including PM Change requests for new/update PM Procedures.
PM Instructions	This is “what you do” and include the steps to be followed when performing the PM
PM Manager	PM Manager will be responsible for overseeing the PM Program including PM Risk and PM Procedures
PM Procedure	The step-by-step instructions that are to be completed during PM work order
PM Recording	This is “what you record” when performing the PM Procedure, and consists of yes/no checkboxes, data recordings, and comments

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Revision Number	The revision number is used to track changes to the PM Procedure
SME	Subject Matter Expert - A Biomedical Engineering Staff member with 5 or more years and/or factory trained in a particular device type/subcategory or model. SME may be either a Clinical Engineer or Biomedical Engineering Technologist.
Sub-Procedures	This is the term used in TMS for the individual steps listed in a PM Procedure. There are 5 types of sub-procedures (4 which we are using) listed in Section 6.1 General Overview of the Procedure Modules in TMS.
Version Number	The version number is used to track difference between manufacturer releases of models, manuals and software

3. Scope

This guideline applies to the development of all BCBME PM Procedures. Refer to the PM Program BCBME SOP005 for guidelines on devices requiring PM procedures.

4. Principles

- The principles for reviewing and approving PM Procedures are listed in SOP # P-14-16-40006 – PM Procedures
- All BCBME staff may request a New Procedure or a revision to an existing procedure through the Online Change Request Form
- The Provincial PM Program Committee regularly reviews devices that meet the threshold for requiring a PM Procedure and assign new procedures for development to SME's

5. Process

5.1 Process for Developing Procedures

- The development of a new or revised PM Procedure begins with a PM Change request.
- The Provincial PM Program Committee will:
 - Assign a PM team Representative/Responder and CMMS PM Writer to the New/Revised Procedure ticket
 - The Provincial PM Program Committee will set timeline expectations for draft completion and the responsibility for follow-up and testing with the PM Developer
 - Review the PM procedure and ensure it meets the requirements outlined in Appendix A and guidelines outlined in SOP P-14-40006
- The PM team Representative/Responder will:
 - Assign and work with a local PM Developer
 - Keep the PM Manager informed of progress, and request approval of the final draft
 - Identify if the PM Procedure has significant changes warranting a review as an AEM procedure

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Guideline # P-14-07-40002

- Ensure Relevant Documentation is Complete
 - Change the PM Procedure to Active in the CMMS
 - Complete the Procedure Approved Date
 - If a previous version is in the CMMS, he/she will retire the old version
 - Ensure the PM Change request ticket number is entered on the main procedure tab
 - Complete the Procedure Review Date
- **The PM Developer will:**
 - Follow the guidelines below in Sections 6.2 – Guidelines for Developing Procedures, 6.5 Testing the Procedure in TMS, and in Appendix A - PM PROCEDURE GENERAL GUIDELINES
 - Review the PM Change request ticket and supporting information
 - Discuss the procedure with the Requester, PM Team Representative/Responder, and other SME/Biomed Staff members
 - Draft the PM Procedure in a Word document (using the PM Procedure Template)
 - Send the following to the CMMS PM Writer:
 - PM Procedure Word document (using Template), including details/explanation on any major changes to the procedure away from the manufacturer's procedure (omitting or adding steps; changing the order of the steps would be considered minor changes)
 - The service manual and other related documents (ex. Performance Inspection Procedure)
 - Test the PM Procedure in TMS once the CMMS PM Writer has uploaded it to ensure the procedure looks and functions as it was intended
- **The CMMS PM Writer will:**
 - Follow the guidelines below in Sections 6.3 Guidelines for CMMS PM Writers, 6.4 Instructions for CMMS PM Writers for Uploading Procedures into TMS and 6.5 Testing the Procedure in TMS and Appendix A
 - Enter the PM Procedure into the CMMS, making formatting adjustments if/when needed to accommodate the CMMS system requirements
 - If adjustments were made, make modifications to the Word document
 - Attach the service manual and/or other related documents to the model and Procedure modules in the CMMS
 - PDF the Word version (reformatted as needed) and attach the PDF to the Procedure module in the CMMS. Also attach the Word document.
 - Request assistance from the DBA, if needed
 - Assign a Revision Number (see 5.2 Revision Control)

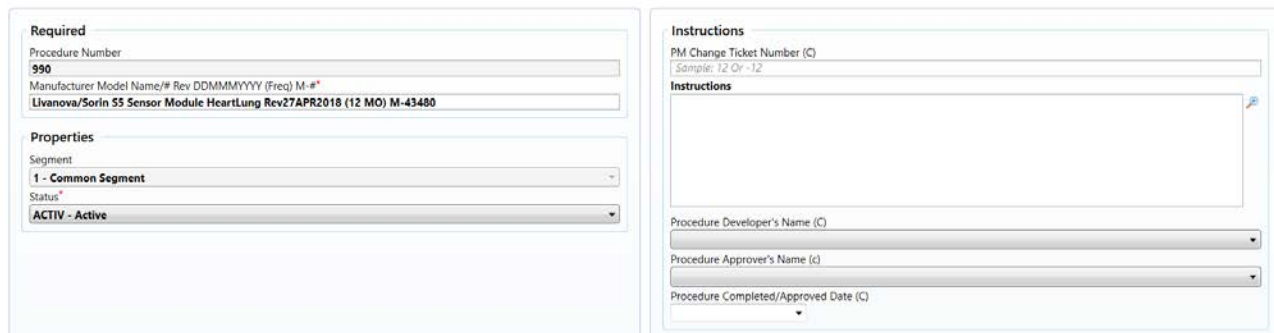
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- Test the PM Procedure in TMS to ensure it looks and functions correctly and confirm with the original PM Developer
 - Inform the PM Team Responder when the job procedure is ready for review
 - Fill in the Procedure Completed Date
- For procedures that vary from the manufacturer's recommendations, the PM Manager or Designate Clinical Engineer will review from a risk management perspective

Note: Some procedures may go through beta testing before being made available to all staff. This is at the discretion of the Provincial PM Program Committee

5.2 Revision Control

- The revision for a procedure is different than the version for a model, manual and/or software
- The revision number is used to track changes in the PM procedure
- The version number is used to track difference between manufacturer releases of model, manual and/or software
- Each revision of a procedure will have a Revision Number and an Approval Date
- All procedures will begin and remain in Draft status in the CMMS, until approved. Once Approved, the procedure will be changed to Active status and any older version will be changed to Retired status, thus maintaining a record of all versions within the CMMS
- All revisions must follow the same Instructions and Guidelines in Appendix A



The screenshot shows a web form for creating or editing a PM procedure. It is divided into two main sections: 'Required' and 'Instructions'.

Required Section:

- Procedure Number:** A text field containing '990'.
- Manufacturer Model Name/# Rev DDMMYYYY (Freq) M-#:** A text field containing 'Livanova/Sorin 55 Sensor Module HeartLung Rev27APR2018 (12 MO) M-43480'.
- Properties Section:**
 - Segment:** A dropdown menu with '1 - Common Segment' selected.
 - Status:** A dropdown menu with 'ACTIV - Active' selected.

Instructions Section:

- PM Change Ticket Number (C):** A text field with a sample value '12 Or -12'.
- Instructions:** A large text area for providing detailed instructions.
- Procedure Developer's Name (C):** A dropdown menu.
- Procedure Approver's Name (C):** A dropdown menu.
- Procedure Completed/Approved Date (C):** A date selection field.

- All Procedures will have a Revision #, and Revisions will abide by the following rules:
 - The Revision # will reside in the Description field (this is the Procedure Name field)
 - The Revision # will appear as "Rev DDMMYYYY"
 - This conveys a unique revision # and the date the revision was created.
 - There will only be one Active revision at any time.
 - All other revisions will be in Retired status

- Minor edits, typos (not including values) or changes to the order of the procedure, will be reviewed by a PM Committee member to determine if a new version needs to be created
- Except while there is a draft revision for a short period of time.

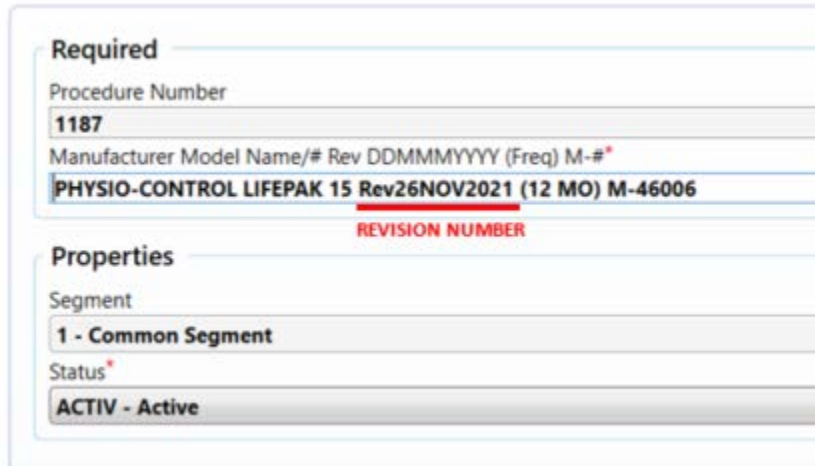


Figure 1: Revision Number in Procedure Name Field

- If there are multiple Versions to a model, then:
 - If the manufacturer procedures are essentially the same between versions, there will be one procedure with clear indicators when a step applies to a particular version; a copy of the PM will need to be created for each model number in the CMMS
 - If the steps/instructions in the manufacturer procedures are substantially different, then a unique procedure must be created for each version
 - In all cases, it will be stated clearly at the top of the procedure, and in the name of the procedure, to which model number the procedure applies

6. Instructions for Developing/Revising a PM Procedure

This set of instructions includes:

- 6.1 General Overview of the Procedures Module in TMS
- 6.2 Guidelines for PM Developers
- 6.3 Guidelines for CMMS PM Writers
- 6.4 Instructions for CMMS PM Writers for Uploading Procedures into TMS
- 6.5 Testing of the New Procedure in TMS – PM Developers, CMMS PM Writers and Engineers

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6.1 General Overview of the Procedures Module in TMS

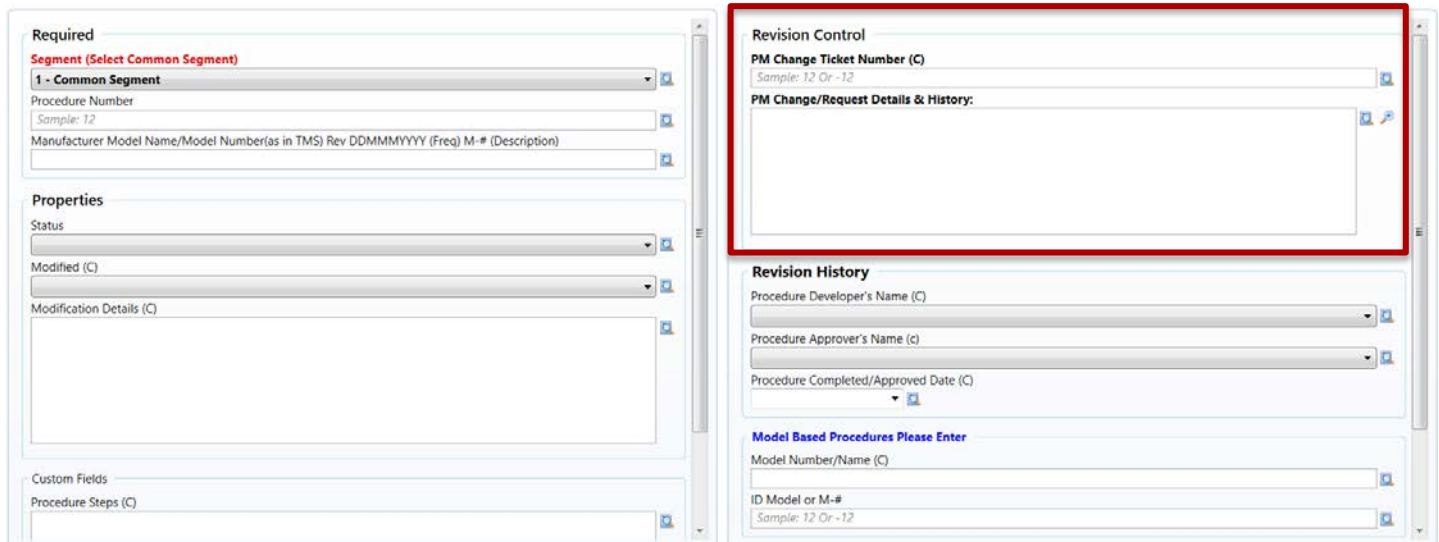
Procedures are developed by the PM Developer, uploaded into TMS by the CMMS PM Writer and then get applied to the PM Work Order (WO). The Procedures are auto-loaded to the WO or they can be manually loaded to the WO by the technologist. Staff can't see or use them until they are made active. Procedures in TMS are found in the Modules > Procedures dropdown of the main menu. TMS uses Procedures and Sub Procedures.

- The **Procedure** refers to the specific Model e.g. Procedure for a Lifepak 15 Defibrillator.
- The **Sub Procedure** refers to the steps within the Procedure e.g. record a measurement, perform a visual inspection, etc. There are 5 types of Sub Procedures in TMS:
 - **Choice List** - there are 3 options within this type:
 - Radio buttons most prevalently used
e.g. Pass, Pass with Corrective Action, Fail or NA radio button options.
 - Drop Down List – not commonly used
 - Checkboxes – not commonly used
Note that the checkbox option allows for multiple responses and makes reviewing the data more difficult.
Use the choice list instead of Yes/No because it can describe the response more clearly.
 - **Data Reading** – this allows staff to record a measured value e.g. Meter Reading. Use this in very specific situations per SOP P-14-16-40006
 - **Notes/Comments** – this allows staff to record notes for steps e.g. Test equipment can have the ECNs listed as the response to the sub-procedure.
 - This is also included in the common acknowledgement section of every procedure, and where the technologist can enter their notes or comments. The Comments entered here in the acknowledgement section (not all comment fields) will be copied to the WO Completion Comments field when the technologist saves the work order. That way, the WO Comments can all be found in one place, and they will appear in the query views and in reports
 - **Data Range** – this is the same as Data Reading, except staff can enter acceptable ranges. TMS can then show a flag if the number is outside the range. This feature is **NOT** used at this time (see Guidelines below).
 - **Yes/No** – this functions like the choice list radio buttons, but the only options are yes/no.
- **If/Then** workflow can be used in the procedure. This allows staff to make steps conditional based on responses from previous sub-procedure. One limitation is the workflow cannot link to other sub-procedures with workflow.

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In the 'Procedure Developer Form' view, there is a Revision Control section on the form, highlighted in red below. The instruction section is used to track any changes made to the procedure after it has been made active as requested in the PM Change Ticket:



The screenshot shows a web-based form for developing PM procedures. The form is divided into several sections. On the left, there is a 'Required' section with a dropdown for 'Segment (Select Common Segment)' set to '1 - Common Segment'. Below this are fields for 'Procedure Number', 'Sample: 12', and 'Manufacturer Model Name/Model Number(as in TMS) Rev DDDMMYYYY (Freq) M-# (Description)'. The 'Properties' section includes 'Status', 'Modified (C)', and 'Modification Details (C)'. At the bottom left is a 'Custom Fields' section with 'Procedure Steps (C)'. On the right, the 'Revision Control' section is highlighted with a red border. It contains a 'PM Change Ticket Number (C)' field with 'Sample: 12 Or -12', a 'PM Change/Request Details & History' text area, and a 'Revision History' section with fields for 'Procedure Developer's Name (C)', 'Procedure Approver's Name (C)', and 'Procedure Completed/Approved Date (C)'. Below this is a 'Model Based Procedures Please Enter' section with 'Model Number/Name (C)' and 'ID Model or M-# Sample: 12 Or -12' fields.

- Instructions for performing the PM from the developed procedure go in the Sub Procedure steps

When a WO is created there is a procedure tab where the current active procedure is auto-loaded (also available in the Quick Tab). The Procedure is located in both the procedure tab and quick tab where it can be viewed and worked on via a Wizard (one window for each step), or via the on screen Worksheet Form.

- The procedure can be printed, but not from the WO. In order to print it, staff must go to the Attachments>Procedures folder, then open and print the form.
- Staff can view the results of the form on the screen within the procedure tab by clicking the  button under the procedure number and name
- The technologist completes the procedure according to the instructions in the Wizard or Worksheet, records that it Passed, Passed with Corrective Action or Failed, and Saves the WO.
- The technologist can access the manufacturer Service Manual by opening the attachment (with the Documents button on the main toolbar).
- For larger DI systems, or more complex procedures the technologist will need to open the manufacturers' procedure in the attachments. This is because, rewriting the whole PM for major systems does not lend itself well to this PM process.
- Not all Manufacturer procedures can be attached, some are only available online by the vendor ex. Zeus Anesthesia machines

Documents can be attached to the Procedure, and can be viewed from the WO. This is where the manufacturer service Manual and procedure will be attached, so that the technologist can open it for further details while they're in the WO.

Both the PM Developer and CMMS PM Writer, will test the procedure in the WO Module, by opening a new WO to ensure that the procedure is auto-loaded and works correctly as designed.

6.2 Guidelines for PM Developers

It is critical Procedures are standardized as much as possible, with a similar “look and feel” and with similar guidelines or rules to eliminate confusion and create a streamlined process

- Procedures will follow the guidelines outlined in Appendix A
- Parts needed to complete the PM will be listed along with frequency as a sub-procedure
- Use the **PM Procedure Template** to guide you through writing/developing the procedure. The Template includes the following sections:
 - Checklist of documents to use and attach
 - A section to list all the major deviations from the manufacturer's procedure
 - Sample formats for all the sub-procedure types available for use in TMS

6.2.1 Details in the PM Procedure

Determining the level of detail required is important; use the guidelines below to help with this task:

- Avoid too little detail; this forces the technologist to open procedure/manual attachments
- Too much detail may result in the procedure being long and cumbersome
- Replacement parts and frequency should all be listed individually for each part sub-procedures (the check box should be optional for items that are not replaced every PM)
- Avoid instructions longer than 10 lines, this introduces a scroll bar that could hinder the technologist seeing all the instruction
- Where applicable include tips/hints in the procedure Ex. How to enter service mode
- Include instruction on parts replacement if needed
- Focus the Instructions (each step) on Headings and Sub Headings from the manufacturer procedure
- Include corresponding page numbers in the procedure. This allows for quick look up if required
- Change the order of the sub-procedure steps to make it more streamlined and efficient
- Test equipment required will go into its own sub-procedure before any instructional steps (notes/comments option). ECN entry will be optional if accreditation requires it.
- Measurement ranges and specifications should be included with instructions ex: [+/- 10psi]

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- If there is a data reading field with a range measurement, add the range to the Data Reading Label field
- Data reading fields are to only be used when values are required to be tracked per SOP P-14-16-40006
- Data Reading steps with range measurements also need to include a choice list question to indicate a pass, pass w/corrective action, and fail. This can be used in trend analysis to see what steps had corrective action done to pass.

6.3 Guidelines for CMMS PM Writers

- All Procedures will go into the Common Segment so that they are available to all BCBME staff
- CMMS PM Writers will have permissions to create and edit Procedures.

6.3.1 Procedure Status

- The Procedure Status will be used according to the following rules:
 - **Active** – Status used for procedures that will be automatically or manually loaded.
 - **Draft** – Status is used for new procedures or for procedures that are being edited or reviewed. They cannot be loaded to the WO.
 - **Retired** – Status is for procedures no longer being used. They cannot be loaded to the work order. It could include any of the following:
 - A procedure that is/was a mistake or a duplicate
 - A procedure that is replaced by a newer version
 - A procedure that is no longer needed because there are no longer any assets

6.3.2 Attachments

- Manufacturer's procedures and/or the service manual will be attached to the Procedure (not to the WO or asset). This makes them available for all WOs that use that procedure. There is a maximum file size of 10MB; keep the file size reasonable (i.e. < 5 MB). If the manual is very large only attach the applicable section of the manual.
- The finalized copy of the PM template is made into a PDF copy and attached to the Procedure.
 - See SOP # P-14-16-40010 – Uploading Attachments for instructions and naming of files
 - **NOTE: When a Procedure is duplicated, the attachments do NOT get copied, they will need to be reattached to the new procedure**

6.4 Instructions for CMMS PM Writers for Uploading Procedures into TMS

6.4.1 Procedure Development Form

GOTO Modules>Procedures>New



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ENTER the Procedure Name in the Description field. Follow the nomenclature below otherwise the procedure may not auto load to the work order.

Nomenclature:

Manufacturer Model# Device Type Ver# Revision# Schedule ModelID or SubCategoryID

Example:

Livanova/Sorin S5 Sensor Module HeartLung Rev27APR2018 (12 MO) M-43480

- Use the shortened version of the manufacturer name
- Use the Model #, not the Model Name
- Use the most common name for the Device Type – do not use the ECRI description
- The ModelID or SubCategoryID is MANDATORY. It is needed to ensure the Procedure gets auto loaded to the WOs. If the Procedure is for a model, use the ModelID. If it is for a sub category, use the SubCategoryID. To obtain these use the following steps:
 - **GOTO** Reports>Query
 - **SELECT** Segment = Common
 - **ENTER** Name = *model id*
 - **EXECUTE**
 - **SELECT** "TMSAdmin Get Model ID, SubCat ID Number By Asset Number..." SAVE to Favorites, so you can find it easily in the future.
 - **PRESS** pdf button and Report Prompts screen will open
 - **ENTER** ECN

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- **ENTER** Segment Number (you can find the Segment Number in any Asset Query)
- **SAVE**. Then open the report and you will see the Model ID and Sub Category ID. Use the appropriate one. The Model ID and Sub Category ID are unique and linked to each different model number and sub category and they do not change. If some model numbers or sub categories are corrected or changed in TMS; then the link to the correct procedure is not lost. **SELECT** Segment = 1-Common Segment
- All Procedures are stored in the Common segment so that they are available to everyone in the BCBME

SELECT Status = Draft

- Always **SELECT** Status = Draft for procedure creation or editing, this prevents it from being auto-loaded into the WOs before it is Approved.

LEAVE Estimated Hours = Blank

- Estimated Hours are not used at this time

LEAVE Instructions

- The instructions field is used to list the Service Manual and/or manufacturer's PM version, the PM Developer and Reviews full names and HAs and explain and changes made to the procedure that vary from the manufacturer's procedure and why.

ATTACH the manufacturer procedure or service manual and the PDF paper version of the Developed PM Procedure

- Manufacturer procedures and/or the service manual will be attached to the Procedure (not to the WO or asset). This makes them available for all WOs that use that procedure.
- Finalize the Word Version of the procedure being uploaded, make a PDF copy and attach the PDF to the Procedure
- **NOTE: When a Procedure is duplicated, the attachments do NOT get copied, they will need to be reattached to the new procedure**

SAVE Procedure

- The Procedure Number field will appear (along with other tabs). The Procedure Number is created by TMS and cannot be changed. This Procedure # is unique and can be used by the technologist to find a procedure and to manually loaded it to a work order.

NOTE We are not using the materials tab at this time

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6.4.2 SUB PROCEDURES

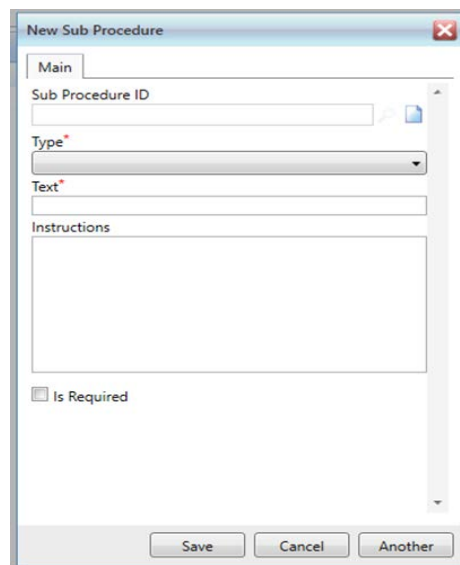
- Multiple sub-procedures will be created for each PM Form
- **4 Types are available to use:**

1. SUB PROCEDURE TYPE – Notes/Comments

SELECT Sub Procedures Tab

PRESS New Sub Procedure button

- This opens the New Sub Procedure window



PRESS New button next to Sub Procedure ID field

- This creates a new sub-procedure so that a Type can be selected.

SELECT Type = Notes/Comments



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COPY the step heading from the PM word form into the Text field

- It should be specific to the device and include the page number reference

ENTER Instructions into the Instructions field

- The easiest way to do this is to cut and paste from the Word Template provided into the Instructions field. The Word Template is setup to allow for easier formatting and to provide consistency.

REQUIRED BOX only check the “Is Required” box, when the step is required. When this box is checked it will not allow the PM procedure to be completed until a pass/fail has been selected for that step. Leave this box unchecked if that sub procedure step is optional.

SAVE Sub Procedure

- Example of a filled in Notes / Comments Sub Procedure



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2. SUB PROCEDURE TYPE – Data Reading

If a measured value needs to be recorded (as per the criteria), then a separate Sub Procedure needs to be created using the Data Reading field.

SELECT Sub Procedures Tab

PRESS New Sub Procedure button

- This opens the New Sub Procedure window

PRESS New button next to Sub Procedure ID field

- This creates a new sub-procedure so that a Type can be selected. Copy the sub-procedure heading into the Text field and copy the Instructions

SELECT Type = Data Reading

ENTER data into Text field as per above

ENTER Data Reading Label field

- Hours – for meter readings
- For range readings or specs, the ranges are added to the Reading Label Field. This way they are displayed in the procedure, the procedure results, and also in reports. Ex. 205 to 285mA

SELECT Type = Data Type

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- String is the most common , it allows you to enter letters and numbers
- Date, Date/Time, Decimal Number, Time, & Whole Number are used when a specific decimal number format is needed.
- **ENTER** Instructions
- Include any instructions needed to complete the step/test and the range/limits for the test reading

REQUIRED BOX only check the “Is Required” box, when the step is required. When this box is checked it will not allow the PM procedure to be completed until a pass/fail has been selected for that step. Leave this box unchecked if that sub procedure step is optional.

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PRESS OK button

SAVE Sub Procedure

Note: Data Reading steps with range measurements need to include a choice list question to indicate a pass, pass w/corrective action, and fail. This can be used in trend analysis to see what steps had corrective action done to pass.

3. SUB PROCEDURE TYPE – Choice List

This is a sub-procedure where an action is required. Most commonly pass, fail, or pass with corrective action. The quickest way for Technologists to identify these steps is using radio buttons, drop down lists or checkboxes. Radio buttons and drop down lists only allow one option to be selected. Checkboxes allow multiple boxes, BUT be careful when using checkboxes because when multiple options are checked the results cannot be viewed for the checkboxes on the screen later - it will only identify that multiple options were selected.

SELECT Sub Procedures Tab

PRESS New Sub Procedure button

- This opens the New Sub Procedure window

PRESS New button next to Sub Procedure ID field

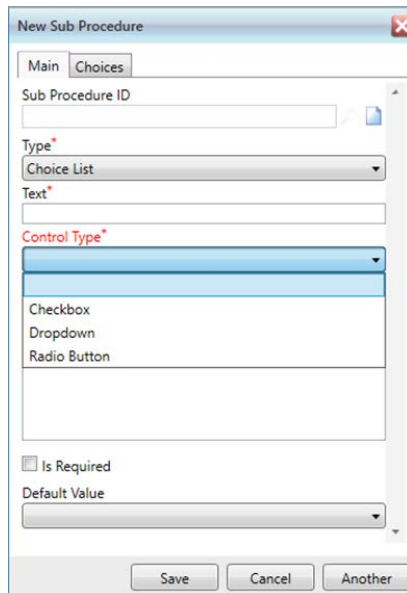
- This creates a new sub-procedure so that a Type can be selected. Copy the sub-procedure heading into the Text field and copy the Instructions

SELECT Type = Choice List

ENTER data into Text field as per above

SELECT CONTROL TYPE pick the type of choice list form the drop down menu

- Check box (multiple options can be selected)
- Radio Button (only one option can be selected and the quickest for the Technologist to select)
- Dropdown (only one option can be selected)



New Sub Procedure

Main Choices

Sub Procedure ID

Type*

Choice List

Text*

Control Type*

Checkbox

Dropdown

Radio Button

Is Required

Default Value

Save Cancel Another

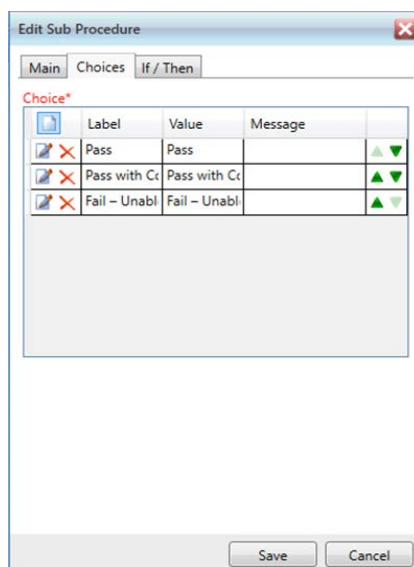
ENTER Instructions

- Include any instructions needed to complete the step/test and the range/limits for the test readings

SELECT CHOICE TAB

PRESS New choice next to the Label heading

- Both the LABEL and VALUE fields need to be populated (same label for both)



Edit Sub Procedure

Main Choices If / Then

Choice*

	Label	Value	Message	
	Pass	Pass		▲▼
	Pass with Cc	Pass with Cc		▲▼
	Fail - Unabl	Fail - Unabl		▲▼

Save Cancel

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- Repeat steps for all choices
- Majority of choices for radio buttons will be the following:
 - Pass
 - Pass with Corrective Action (see comments)
 - Fail – Unable to Repair (see comments) - usually results in retiring the device, but there are rare circumstances where the test might fail but the vendor does deem the device safe to use
 - NA (only use when applicable)

PRESS OK button

REQUIRED BOX only check the “Is Required” box, when the step is required. When this box is checked it will not allow the PM procedure to be completed until a pass/fail has been selected for that step. Leave this box unchecked if that sub procedure step is optional.

PRESS OK button

SAVE Sub Procedure

4. SUB PROCEDURE TYPE – Yes/No

This sub-procedure type is the same as the choice list, but the yes/no responses are already populated. Use this for sub-procedures for things like parts or for features/modules that may or may not be installed on this asset.

SELECT Sub Procedures Tab

PRESS New Sub Procedure button

- This opens the New Sub Procedure window

PRESS New button next to Sub Procedure ID field

- This creates a new sub-procedure so that a Type can be selected. Copy the sub-procedure heading into the Text field and copy the Instructions

SELECT Type = Yes/No Reading

ENTER data into Text field as per above

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ENTER Instructions

- Include any instructions needed to complete the step/test and the range/limits for the test readings

REQUIRED BOX only check the “Is Required” box, when the step is required. When this box is checked it will not allow the PM procedure to be completed until a pass/fail has been selected for that step. Leave this box unchecked if that sub procedure step is optional. **PRESS** OK button

SAVE Sub Procedure

6.4.3 INSERTING A COMMON (GENERIC) SUB PROCEDURE

You can add a pre-existing generic sub-procedure to the procedure. For example the electrical safety.

SELECT Sub Procedures Tab

PRESS New Sub Procedure button

- This opens the New Sub Procedure window

ENTER in the Sub Procedure ID field (refer to the list of common sub-procedure numbers)

- It will populate with all the relevant information. Essentially you are just copying it into the procedure and making it active
- Do not make any changes to this sub procedure

REQUIRED BOX only check the “Is Required” box, when the step is required. When this box is checked it will not allow the PM procedure to be completed until a pass/fail has been selected for that step. Leave this box unchecked if that sub procedure step is optional. **SAVE** Sub Procedure

6.4.4 ADDING IF/THEN WORKFLOW

All Sub-procedures that will be linked with if/then workflow need to be created and saved before the workflow can be added.

REQUIRED BOX – **Do NOT check this box when there is workflow**

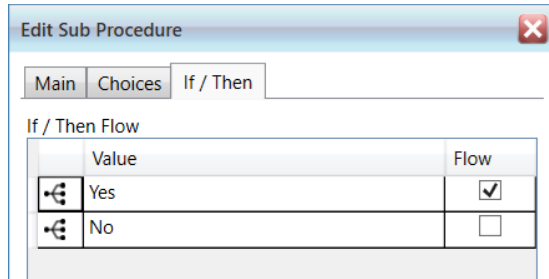
SELECT the edit button next to the sub-procedure that is the pre-determining step for the other sub-procedures.

SELECT the If/Then tab



CHECK the “Flow” box for the responses that will have workflow attached


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- If there is no workflow required then leave the box unchecked Ex. If “No” then no additional sub-procedures are needing to be linked to this step

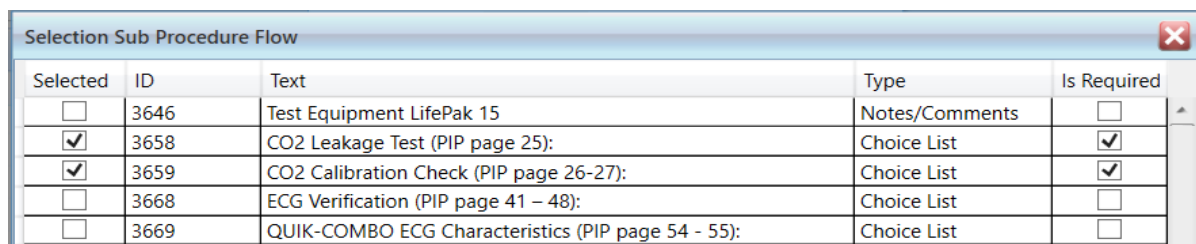


The dialog box has tabs for Main, Choices, and If / Then. The If / Then tab is active, showing a table for workflow configuration.

If / Then Flow		Flow
	Value	
	Yes	<input checked="" type="checkbox"/>
	No	<input type="checkbox"/>

SELECT THE  button next to the response you want to add workflow to

CHECK the “Selected” box of the sub-procedures that will be linked to the pre-selected response Ex. “Yes”



Selected	ID	Text	Type	Is Required
<input type="checkbox"/>	3646	Test Equipment LifePak 15	Notes/Comments	<input type="checkbox"/>
<input checked="" type="checkbox"/>	3658	CO2 Leakage Test (PIP page 25):	Choice List	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	3659	CO2 Calibration Check (PIP page 26-27):	Choice List	<input checked="" type="checkbox"/>
<input type="checkbox"/>	3668	ECG Verification (PIP page 41 – 48):	Choice List	<input type="checkbox"/>
<input type="checkbox"/>	3669	QUIK-COMBO ECG Characteristics (PIP page 54 - 55):	Choice List	<input type="checkbox"/>

- REQUIRED BOX** only check the “Is Required” box, when the step is required. When this box is checked it will not allow the PM procedure to be completed until a pass/fail has been selected for that step. Leave this box unchecked if that sub procedure step is optional.

PRESS SAVE button on the Sub Procedure Flow window

PRESS SAVE button on the Sub Procedure window

PRESS Save button on the main toolbar to complete the Procedure

- NOTE:** When you duplicate a Procedure, the if/then workflow does not get copied, so the workflow links will need to be reset

6.5 TESTING THE NEW PROCEDURE IN TMS – PM Developers, CMMS PM Writer and Engineers

6.5.1 Testing the PM Procedure in TMS (CMMS PM Writer and PM Developer)

The CMMS PM Writer will test the draft procedure after entry is complete. The CMMS PM Writer will inform the PM Developer and PM Team Responder that the procedure is complete and ready for further testing and review.

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All testers can test the procedure by doing the following:

OPEN a New WO

- Use Asset number PM test in the “PHC” segment
- This Asset number is regularly cleaned up by the DBM Team

GO TO the Procedures Tab

- CLICK the New Procedure button and enter the Procedure number that you are testing



- The procedure can still be in Draft for you to test all the functions and workflow

PRESS Worksheet button

- Review the Procedure in the WO Form and ensure it is correct and complete

6.5.2 DBM or Approving Engineer Final Test for Go Live

OPEN a New WO

- Find an asset for the model in question to verify it auto-loads
- NOTE the WO # and Segment to have it deleted by the CMMS Team

GO TO the Procedures Tab

- The new Procedure should be attached. If it is not, then check the ModelID or SubCategoryID is correct.

PRESS Worksheet button

- Review the Procedure in the WO Form and ensure it is correct and complete

SEND an email to the CMMS Team and **REQUEST** that the WO be deleted

7. Reference Documents

- SOP # P-14-16-40006 – PM Procedures
- BCBME SOP005 – PM Program
- [PM Form Template](#)

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Effective Date:	03-MAR-2023			
First Released:	2-ARP-2017			
Last Revised:	03-MAR-2023			
Last Reviewed:	03-MAR-2023			
Approved By:	BCBME Federated Directors			
Owners:	BCBME Federated Directors			
Revision History:	Version	Date	Description/ Key Changes	Revised By
	1.0	2-FEB-2016	Draft	LM Director
	1.1	2-ARP-2017	Review	PM Manager
	1.2	03-MAR-2023	PM Improvement Revisions	LM QI Leader

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APPENDIX A - PM PROCEDURE GENERAL GUIDELINES

The PM Procedures being submitted by the PM Developers for CMMS PM Writers will incorporate the following:

1. Vendor, Make and Model(s)
2. Link to manual or manual attached
3. PM Frequency (List steps that have other frequencies Ex. Battery replacement)
4. Last reviewed date (if not new)
5. PM Developers Full Name and HA (Tech must be the SME and/or have experience with the device)
6. Full name and HA of Reviewer(s)
7. List Required Test Equipment (make ECN required when there is a regulatory need)
8. List Parts to be replaced and frequency
9. Develop PM from manufacturer's instructions - The form alone should provide sufficient information for an Experienced Tech to complete the PM
10. The steps should be in a logical order (may vary from manufacturer's instructions)
11. Each step requires a reference to manual (page and/or section #, dependant on the length of the manual, section maybe more relevant to smaller manuals) and the reference after the step/heading in the form
12. Add hints where applicable. Eg. How to enter service mode
13. Specify value requirements for each step where applicable (Upper and Lower Limits e.g. +/- 10%)
14. Add Data Reading fields only when values are required to be tracked per SOP 14-16-40006
15. Data Reading steps with range measurements need to also include a choice list question to indicate a pass, pass w/corrective action, and fail. This can be used in trend analysis to see what steps had corrective action done to pass. (unless It is a device usage readings e.g. # of hours on device)
16. Add software, IP address, Hours, etc. fields to ensure they are up to date, and these fields need to connect and update the asset record not just the PM Form
17. Where applicable include instructions on how to replace PM parts ex. Filters

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18. Add required sub-procedures that are generic - Ex. Electrical Safety
19. Revision log which includes explanation for skipped, modified, or added steps from manufacturer instructions
20. Reviewed by other Experienced Techs and the PM Program Committee
21. Sign off from PM Manager or Designate Clinical Engineer
22. Next PM Review Date to be set for 2 years from the approval date

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