

Work Instruction: Completing an Engineering Operation

1. Audience

Engineering

2. Objective:

Reviewing, completing approvals and releasing a job from Engineering in M1

3. Revision and Approval

Rev.	Date	Nature of Changes	Approved By
N	6/2/18	Original issue.	Eicher
001	09/30/2019	Updated to include the electrical design steps.	Wagner
002	5/16/2023	Update to procedures	Rigotti

4. Scope

Provide information on when a job is in different stages of the Engineering design process.

5. Prerequisites

Knowledge on operating M1.

6. Records

- Job and Sales order Record (Electronic)
- The approval drawing will be attached in M1
- Engineering Operations KPI

7. Associated Documents

- The electronic copy of the approval drawing is in M1 attachments
- Engineering Job Status Report
- Elec Engineering Job Status Report

8. Evaluative Factors

- On-Time measurements in Power BI

9. Responsibility

Engineering

10. Instructions

Step 1

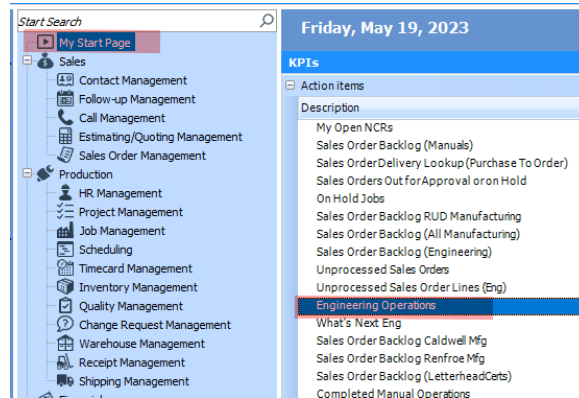
To see a list of the jobs assigned to you, go to the Engineering Operations KPI found on My Start Page.

Double click on the Engineering Operations to open it.

Find your name and click on the "+" sign to open your job queue.

Once open, double click on a Job ID to open the job.

This grid is your schedule and will contain all job operations assigned to you in chronological order.



Process ID	Part Description
uatDescription : 3 of 265 rows	
uatDescription Brian Wagner: 49 of 265 rows	
uatDescription Chad Ludlum: 20 of 265 rows	
uatDescription Dale Kelly: 2 of 265 rows	
uatDescription Dan Mongan: 6 of 265 rows	
uatDescription Dave Comisso: 26 of 265 rows	
uatDescription Dave Szymanski: 33 of 265 rows	
uatDescription Henry Vara: 3 of 265 rows	
uatDescription Ian Vara: 40 of 265 rows	
uatDescription Jason Schabacker: 8 of 265 rows	
uatDescription Mark Blomberg: 6 of 265 rows	
uatDescription Michael Stitt: 1 of 265 rows	
uatDescription Nagarjun Rao: 6 of 265 rows	

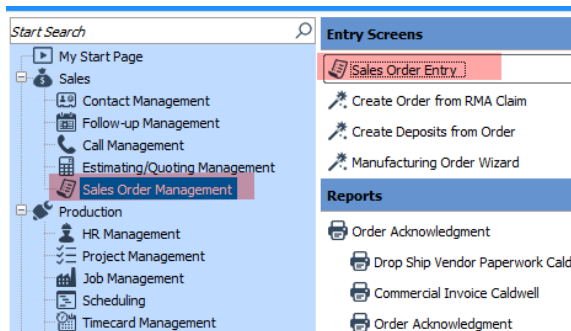
Process ID	Part Description	Long Description	Job ID	Start Date	Due Date	Est Prod Hrs	Engineering Review	On Hold?
uatDescription : 3 of 265 rows								
uatDescription Brian Wagner: 49 of 265 rows								
uatDescription Chad Ludlum: 20 of 265 rows								
uatDescription Dale Kelly: 2 of 265 rows								
uatDescription Dan Mongan: 6 of 265 rows								
uatDescription Dave Comisso: 26 of 265 rows								
uatDescription Dave Szymanski: 33 of 265 rows								
uatDescription Henry Vara: 3 of 265 rows								
uatDescription Ian Vara: 40 of 265 rows								
uatDescription Jason Schabacker: 8 of 265 rows								
APDSN - Approval Design	8SR-33-72 Telescoping Coil Grab	Engineering Approval Design	158938-01-01	6/5/2023	6/5/2023	0.03		
APPS - Approvals Update & Send to Sales	8SR-33-72 Telescoping Coil Grab	Update & Send to Sales	158938-01-01	6/8/2023	6/9/2023	0.50		
APDSN - Approval Design	23S-.25M-70 Roll Lifting Beam	Engineering Approval Design	158237-02-01	6/12/2023	6/12/2023	1.00		
APDSN - Approval Design	Parking Stand for Model 23S-.25M...	Engineering Approval Design	158237-01-01	6/14/2023	6/14/2023	1.00		
APPS - Approvals Update & Send to Sales	23S-.25M-70 Roll Lifting Beam	Update & Send to Sales	158237-02-01	6/13/2023	6/14/2023	0.50		
APPS - Approvals Update & Send to Sales	Parking Stand for Model 23S-.25M...	Update & Send to Sales	158237-01-01	6/15/2023	6/16/2023	0.50		
APDSN - Approval Design	60MS-5-48 , Heavy Duty Sheet Lif...	Engineering Approval Design	156704-01-01	7/12/2023	7/12/2023	3.00		
APPS - Approvals Update & Send to Sales	60MS-5-48 , Heavy Duty Sheet Lif...	Update & Send to Sales	156704-01-01	7/13/2023	7/14/2023	0.50		
						7.03		

Receiving and Reviewing a New Order

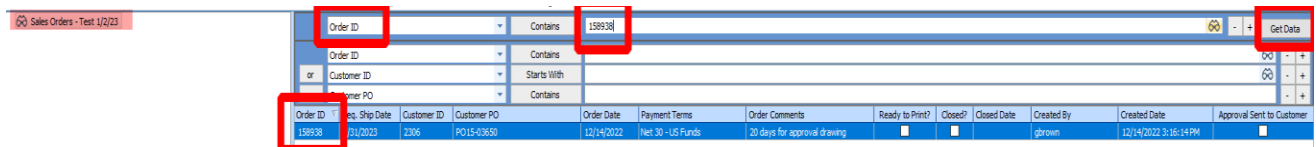
Step 2

When the Engineering Scheduler chooses a Designer for a job, he/she will send an email requesting estimated hours to complete the approval. Once the designer receives this request, they will review all of the information in the order.

To review an order, open the sales order by clicking on Sales Order Management, then click on Sales Order Entry.



Type in sales order number next to Order ID and click on Get Data.



Double click on the order ID to open the order.

Review all information (including Part Description/Model Number, Long Description and any attachments) to verify all info required to complete the approval is present. If electrical design is required, the electrical engineer will also review the order to make sure all information required is in the description or attached.

158938 - 2306 - 8/31/2023

1 - TGM - 1.0000

1 - 1.0000 - 8/31/2023

2 - SPECIAL INSTRUCTION MANUAL - 1.0000

Follow-ups

Calls

Sales Order Memos

Attachments

361462 - 12/14/2022 - PO 15-03650 THE CALDWELL GROUP, INC.

ID Info

Order ID* 158938 Order Line* 1 Cancel Reason <None> Cancel Date Engineering

Part Info

Part ID* Revision ROTATING

Part Description* 8SR-33-72 Telescoping Coil Grab UoM EA

Long Description

- Capacity: 66,000 lbs.
- Includes 350 degree powered rotating bail
- Coil Width Range: 20" to 72"
- Vertical Throat clearance: 32"
- Drive has torque limiting protection on gearbox
- Power requirements: 460/3/60

Send/Recv Customer Drawings

Approval Sent to Customer Approval Sent Date Approval Sent User

If either engineer is missing required information, they will send an e-mail to the salesperson responsible for the order and the engineering scheduler requesting the information. At this time, the order may be put on hold if required (see WI-20-049-Using Job Holds).

Note: To find the Salesperson responsible for a particular order, open the sales order and click on the sales order number.

Look under Salesperson Info. Any correspondence on the order should go to the TSR. If a TSR is not available refer to the Account Manager. If neither of these are available, choose the Created By person listed.

Sales Orders - The Caldwell Group***Live Database***

159443 - 2857 - 10/19/2023

Sales Order Lines

1 - TGM - 1.0000

Sales Order Deliveries

1 - 1.0000 - 10/19/2023

Job/Sales Order Line Links

1 - 159443-01-01

Job Assemblies

Salesperson Info

Salesperson ID* Name Split Percentage Add...

42 William H. Humphrey, Inc. 100.00

Created By TSR Account Manager

RWILLIAMS Reggie Williams Patrick O'Connor

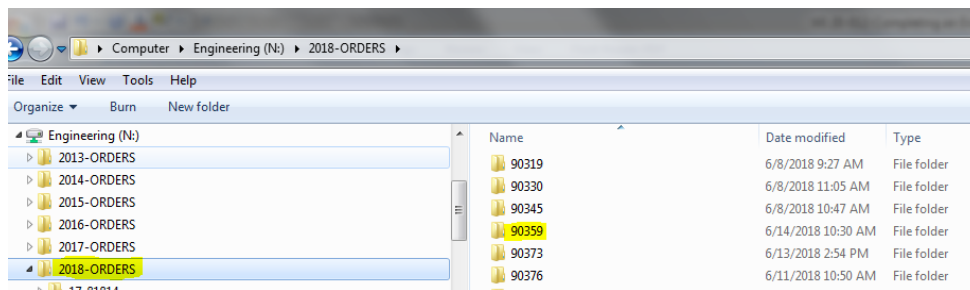
Req. Ship Date Ship Method Ship Payment Type Ship Via Acct No

10/19/2023 FLATBED (COVERED) TRUCK Freight Prepaid

Once you verify all information required is there, respond to the email from the Engineering Scheduler stating the estimated time to complete approvals.

Step 3

Create a job folder in the engineering drive under the current year to store all drawings and paperwork related to the job.

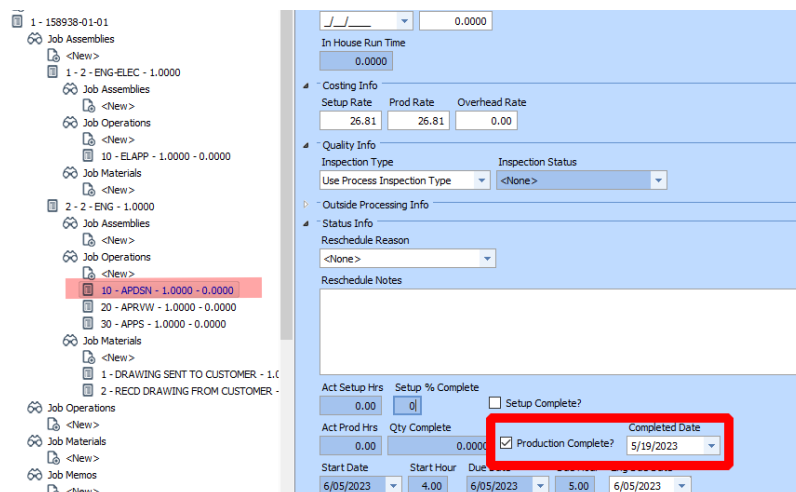


Completing and Sending an Approval Drawing

Step 4

When an approval drawing is done, it requires review from a qualified Engineer. Send an email to the Engineering Scheduler and the Engineering Manager stating that the approval is ready for review.

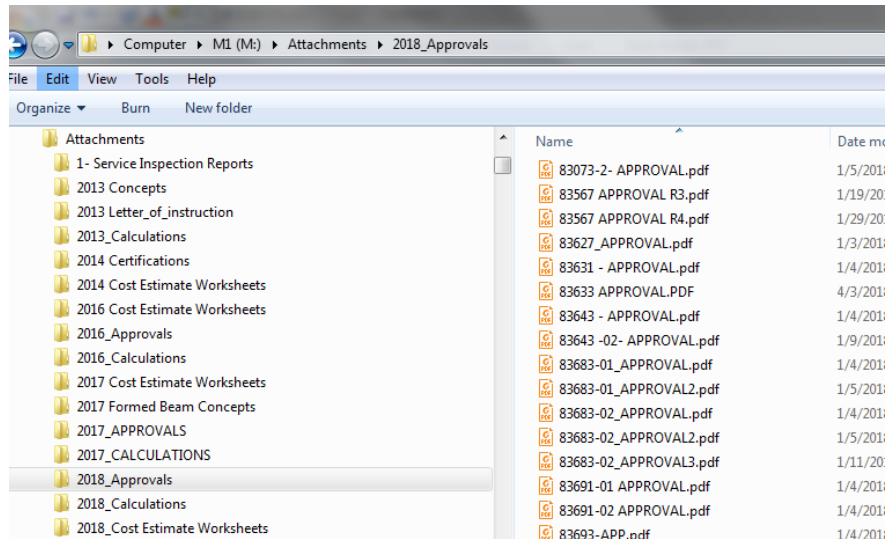
Check the Production complete box on the APDSN operation on the job.



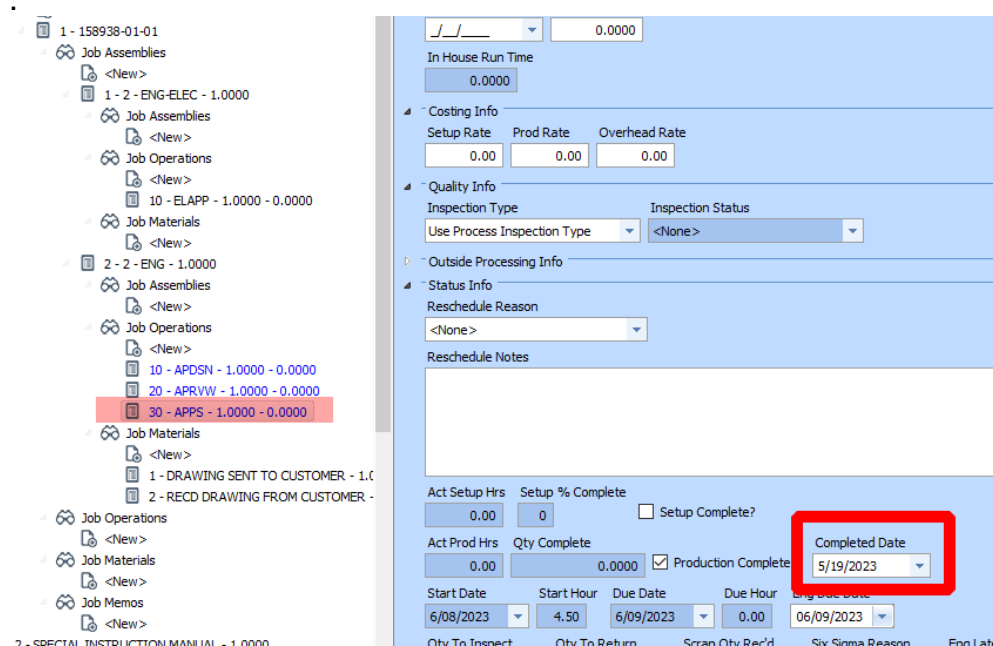
Step 5

When the qualified Engineer has reviewed and sent notes back, make the updates. If further review is required, send it back for review.

Once all updates are made and approved, a PDF copy needs to go into M1 attachments current year folder.



Check the Production complete box on the APPS operation on the job.



Then send an e-mail with the approval drawing attached or a link to the approval drawing to the Salesperson handling the order.

Attach a copy of the approval drawing to the job and sales order.

Jobs - Test 1/2/23

- <New>
- 158938-01-01 - TGM - 1.0000 - 8/31/2023
 - Job Assemblies
 - <New>
 - 1 - 2 - ENG-ELEC - 1.0000
 - 2 - 2 - ENG - 1.0000
 - Job Operations
 - <New>
 - Job Materials
 - <New>
 - Follow-ups
 - <New>
 - Calls
 - <New>
 - Job Memos
 - <New>
 - Attachments
 - <New>
 - 363007 - APPS - 5/19/2023 - 158938 Approval Drawing

ID Info

Attachment ID* 363007 Attachment Type Approval Drawings

Attachment Info

Date* 5/19/2023 Description* 158938 Approval Drawing

Long Description

Location M:\Attachments\2023_APPROVALS\158938-APP.pdf Open

☐ Reviewed? ☐ Uploaded From Web? ☐ Do Not Allow Download? ☐ Print? ☐ Email?

Source Info

Organization ID 2306 Location ID 810 Contact ID Customer Group ID <None>

Call ID Quote ID Order ID 158938 Shipment ID Receipt ID Project ID

RMA Claim ID Request ID Page ID

Job ID 158938-01-01 Part ID

NonConformance ID Inspection ID Inspection Line 0

Releasing a Job

Step 6

When the mechanical designer completes the details for a job, the drawings go to the checking process. Click on the DETAI operation in the job and check the Production Complete box. Then the designer will send an email to the Engineering Scheduler and Engineering Manager stating the Details are ready for checking.

Jobs - Test 1/2/23

- <New>
- 158938-01-01 - TGM - 1.0000 - 8/31/2023
 - Job Assemblies
 - <New>
 - 1 - 2 - ENG-ELEC - 1.0000
 - 2 - 2 - ENG - 1.0000
 - 3 - 2 - ENG-ELEC-DET-REL - 1.0000
 - 4 - 2 - ENG-DET-REL - 1.0000
 - Job Assemblies
 - <New>
 - Job Operations
 - <New>
 - 30 - DETAI - 1.0000 - 0.0000
 - 40 - DETCH - 1.0000 - 0.0000
 - 50 - DETFR - 1.0000 - 0.0000
 - 60 - REL - 1.0000 - 0.0000
 - Job Materials
 - <New>
 - Job Operations
 - <New>
 - Job Materials

ID Info

Operation Info

Costing Info

Quality Info

Outside Processing Info

Status Info

Reschedule Reason <None>

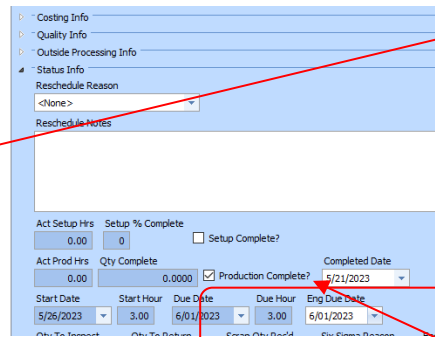
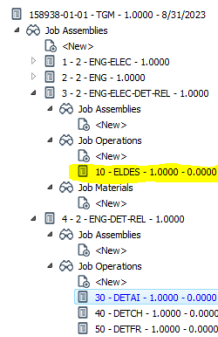
Reschedule Notes

Act Setup Hrs 0.00 Setup % Complete 0 ☐ Setup Complete?

Act Prod Hrs 0.00 Qty Complete 0.0000 ☒ Production Complete? Completed Date 5/21/2023

Start Date 5/26/2023 Start Hour 3.00 Due Date 6/01/2023 Due Hour 3.00 Eng Due Date 6/01/2023

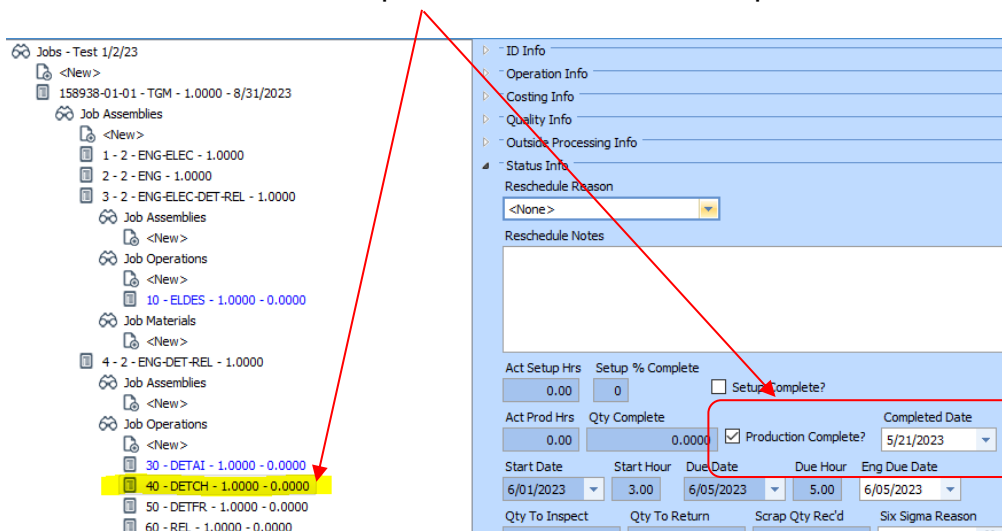
The Engineering scheduler will forward the email to the assigned checker, alerting them that the drawings are ready for checking.



If Electrical Design is required and completed, the electrical designer will give the electrical drawing to the Engineering Manager to check. When the drawing is returned and updated, the electrical engineer will attach the electrical drawing to the order and job. Click on the ELDES operation and check the Production Complete box.

Step 7

When the checker has finished reviewing the details, they will send an email to the designer with a summary of any errors found or suggestions. The checker will then check the Production Complete box on the DETCH operation.



Once the designer has made updates, they will email the Engineering Scheduler and the Engineering Manager to notify them that the drawings are ready for final review.

Step 8

After checking, the job will go through a qualified Engineer/Manager for final review.
After the final review is complete, an email will be sent to the designers with the results for them to update.

The qualified Engineer/Manager will then check the Production Complete box on the DETFR operation.

The screenshot shows the software interface with a job tree on the left and the DETFR operation details on the right. The job tree lists the following items:

- Jobs - Test 1/2/23
 - <New>
 - 158938-01-01 - TGM - 1.0000 - 8/31/2023
 - Job Assemblies
 - <New>
 - 1 - 2 - ENG-ELEC - 1.0000
 - 2 - 2 - ENG - 1.0000
 - 3 - 2 - ENG-ELEC-DET-REL - 1.0000
 - 4 - 2 - ENG-DET-REL - 1.0000
 - Job Assemblies
 - <New>
 - Job Operations
 - <New>
 - 30 - DETAI - 1.0000 - 0.0000
 - 40 - DETCH - 1.0000 - 0.0000
 - 50 - DETFR - 1.0000 - 0.0000
 - 60 - REL - 1.0000 - 0.0000
 - Job Materials
 - <New>
 - Job Operations
 - <New>
 - Job Materials
 - <New>

The DETFR operation details on the right show the following fields:

- Act Setup Hrs: 0.00
- Setup % Complete: 0
- Act Prod Hrs: 0.00
- Qty Complete: 0.0000
- Production Complete: ☒ (highlighted with a red box)
- Completed Date: 5/21/2023
- Start Date: 6/05/2023
- Start Hour: 5.00
- Due Date: 6/08/2023
- Due Hour: 4.50
- Eng Due Date: 6/08/2023

Step 8

Now the qualified Engineer/Manager will click on the job in the tree to the right and check the Engineering Final Review Box to show the job is ready for release.

The screenshot shows the software interface with a job tree on the left and the Engineering Final Review details on the right. The job tree lists the following items:

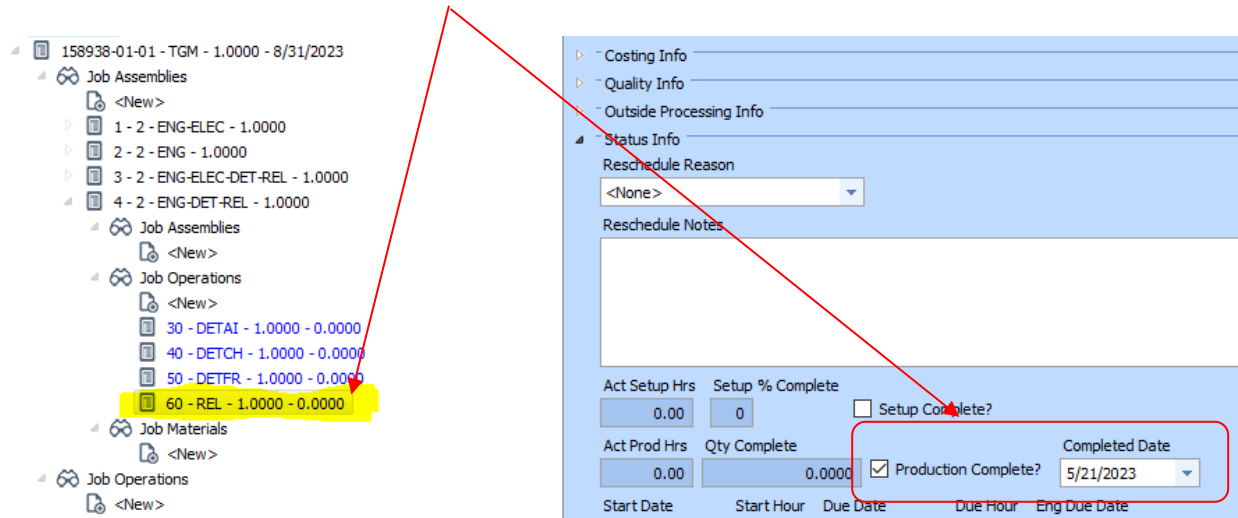
- Jobs - Test 1/2/23
 - <New>
 - 158938-01-01 - TGM - 1.0000 - 8/31/2023

The Engineering Final Review details on the right show the following fields:

- Part ID*: TGM
- Revision: ROTATING
- Part Description*: 85R-33-72 Telescoping Coil Grab
- Long Description:
 - Capacity: 66,000 lbs.
 - Includes 350 degree powered rotating bail
 - Coil Width Range: 20" to 72"
 - Vertical Throat clearance: 32"
 - Drive has torque limiting protection on gearbox
 - Power requirements: 460/3/60
- Complexity: Moderate
- Approval Lead Time: 20 Days
- Eng Detail Lead: 13 Days
- Job Functions:
 - Get Part Method
 - Move Top Level Assemblies to Materials
 - Configure Part
- Planning/Progress Info:
 - Engineering Review: ☒ (highlighted with a red box)
 - Approval Drawing Rcvd: ☒
 - Eng Pre Orders Complete: ☐
 - Engineering Final Review Complete: ☒ (highlighted with a red box)
 - Drawings Moved: ☐
- Engineer: Shelly Rigotti
- Engineering Review Date: 5/21/2023
- Final Approved Drawn: Shelly Rigotti
- Approval Rcvd Date: 5/19/2023
- Final Review Engineer: Shelly Rigotti
- Final Review Date: 5/21/2023

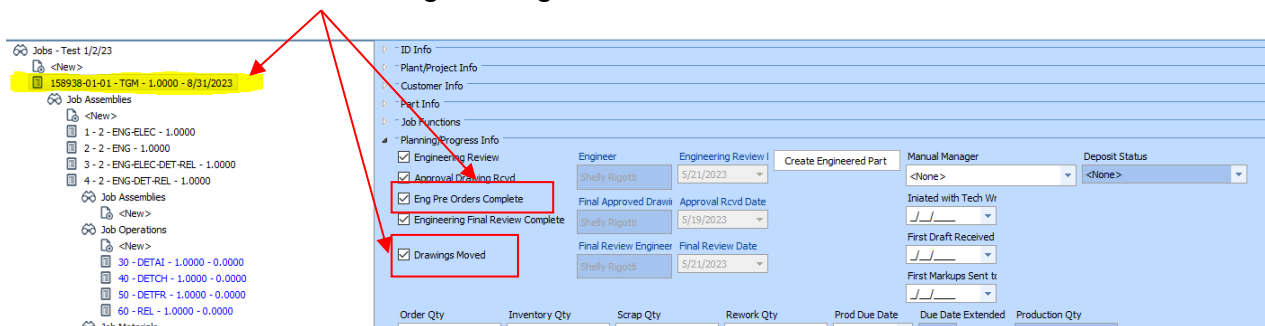
Step 9

Once the designer has completed all updates, they will release the job. Go to the job and click on the “REL” operation and check the “Production Complete” box.



Step 10

- Click on the Job ID in the tree on the left and go to the Planning/Progress Info section on the right side of the screen.
- Make sure any Pre-Order are emailed to the “Z – Preorder” group and check the Eng Pre Orders Complete box.
- Make sure all of the drawing are moved to their appropriate folders and check the Drawings Moved.
- Click on the Create Engineering Part button.



Note: The ENG Pre Orders Complete, Engineering Final Review Complete and Drawings Moved must all be checked for the Create Engineering Part button to be available.

Step 11

Under “Part ID*” enter the main assembly drawing number for the job and hit enter.

The screenshot shows the 'Part ID Info' section of the software. The 'Part ID*' field is highlighted with a red box and contains the value '85-9856'. A red arrow points from the 'Part Revisions' section on the left to the 'Part ID*' field. Another red arrow points from the 'Part ID*' field to the 'Drawing Number' field in the next screenshot.

Click on <New> under “Part Revisions”.

Step 11

Put the main assembly drawing number in “Drawing Number”.

The screenshot shows the 'Drawing Number' field of the software. The 'Drawing Number' field is highlighted with a red box and contains the value '85-9856'. A red arrow points from the 'Part ID*' field in the previous screenshot to the 'Drawing Number' field.

Step 12

Scroll down to the “ASME” section and fill in the “Rated Capacity” (in pounds), “Service Class” and “Design Category”.

The screenshot shows the 'ASME' section of the software. The 'ASME' section is highlighted with a red box and contains fields for 'Rated Capacity (lbs)', 'Jaw Min (in)', 'Jaw Max (in)', 'Unit Weight (lbs)', 'Service Class', and 'Design Category'. A red arrow points from the 'Part ID*' field in the previous screenshot to the 'ASME' section.

Step 13

Click back on the Parts level and click on the binoculars next to “Update Job” on the right side of the screen.

The screenshot shows the 'Parts - Test 1/2/23' window. On the left, a tree view shows '85-9856 - 85R-33-72 Telescoping Coil Grab' selected. On the right, the 'Update Job' button is highlighted with a red box and a binoculars icon. A red arrow points from the text 'Click on the binoculars next to “Update Job”' to this icon.

Enter the Job number click on Get Data.

The 'Search of Jobs' dialog box is shown. The 'Job ID' field is set to '158938-01-01'. The 'Get Data' button is highlighted with a red box and a binoculars icon. A red arrow points from the text 'Enter the Job number click on Get Data.' to the 'Get Data' button. Below the search fields, a table lists job details:

Job ID	Reschedule Reason ID	Part ID	Main Assembly Drawing	Part Description	Long Description	Fin
158938-01-01	<None>	TGM		85R-33-72 Telescoping Coil Grab	- Capacity: 66,000 lbs.	5/2

At the bottom, the 'Select' button is highlighted with a red box and a red arrow points from the text 'Click on “Select” button at the bottom of the screen.' to it.

Click on “Select” button at the bottom of the screen.

Step 13

Click on the Update Job’s Part button.

The screenshot shows the 'Update Job' button with a binoculars icon. A red arrow points from the text 'Click on the Update Job’s Part button.' to the 'Update Job's Part' button, which is highlighted with a red box.

Click on “Yes” when Replace? Box pops up.

The 'Replace?' dialog box is shown. It asks: 'Are you sure you want to replace the old PartID: TGM with the new PartID: 85-9856 on both the Job & Order?'. The 'Yes' button is highlighted with a red box and a red arrow points from the text 'Click on “Yes” when Replace? Box pops up.' to it.

Add the Main assembly Drawing Number when the Job appears and hit Save in the upper Left Hand corner.

The screenshot displays a software interface with a top toolbar and a main data entry area. In the toolbar, the 'Save' button (represented by a floppy disk icon) is highlighted with a red box and a red arrow pointing to it. Another red arrow points from the text above to the 'Main Assembly Drawing' field in the 'Part Info' section. The 'Part Info' section contains the following fields:

ID Info	
Job ID*	158938-01-01
Main Assembly Drawing	85-9856
RiskRating	0

Plant/Project Info	
Customer Info	

Part Info	
Part ID*	85-9856
Revision	
Part Description*	85R-33-72 Telescoping Coil Grab
Long Description	- Capacity: 66 000 lbs

UoM	Warehouse	Bin
EA	WH01	MAIN

The job & sales order are now updated and released to the manufacturing group to process.