Adroit Technologies

Adroit Enterprise OEE

Training Manual

Adroit

MITSUBISHI ELECTRIC
FACTORY AUTOMATION

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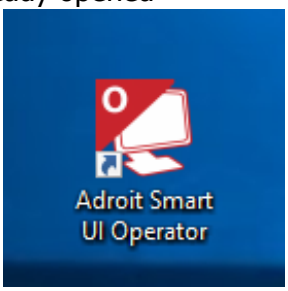
Contents

Adroit OEE User Training Manual

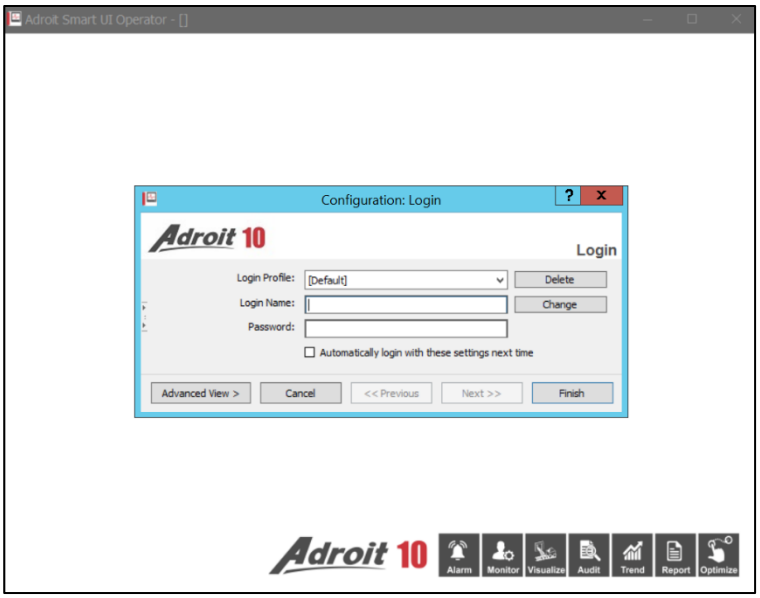
Supervisor Training Manual

1. Logging on

Locate and double click the 'Adroit Smart UI Operator' icon on the desktop if the login page is not already opened

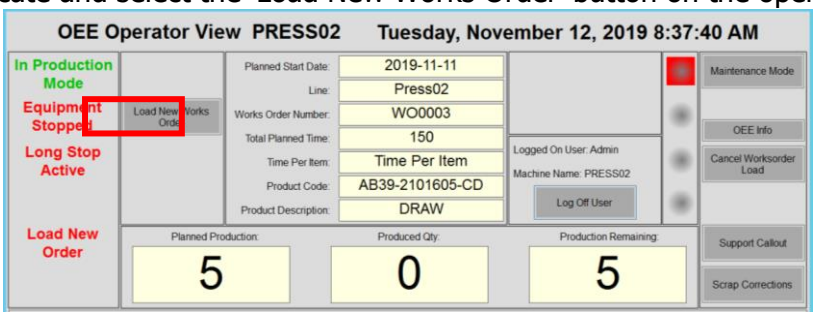


Enter the relevant login name and password and select 'Finish'

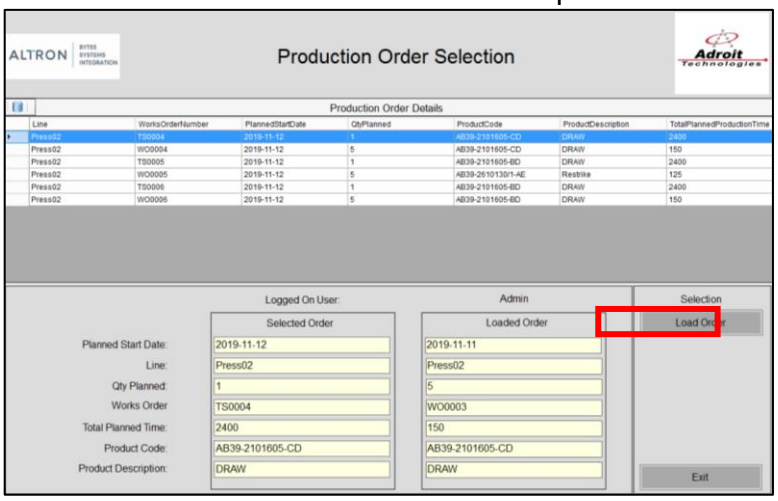


2. Loading New Worksorder/Tool setup and Starting Equipment

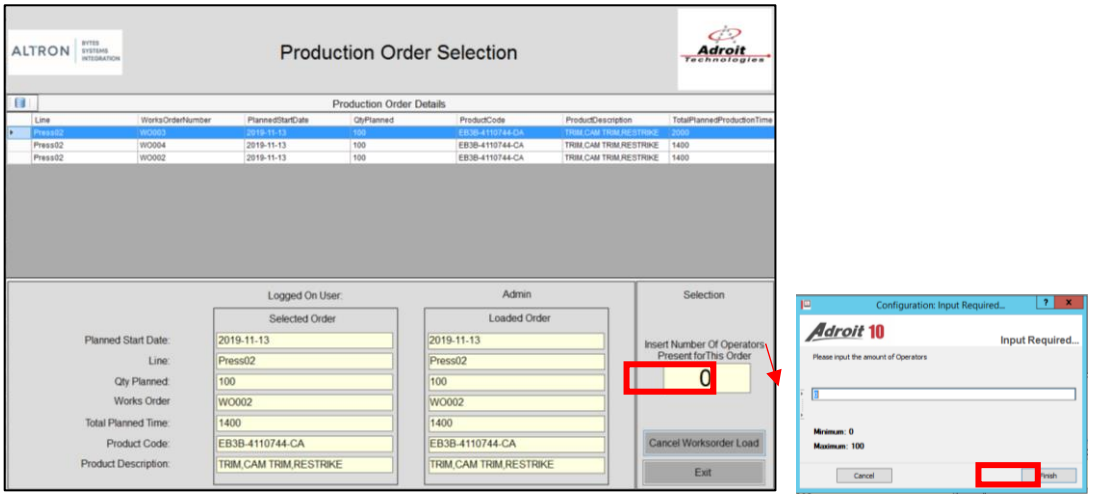
Locate and select the 'Load New Works Order' button on the operator view screen



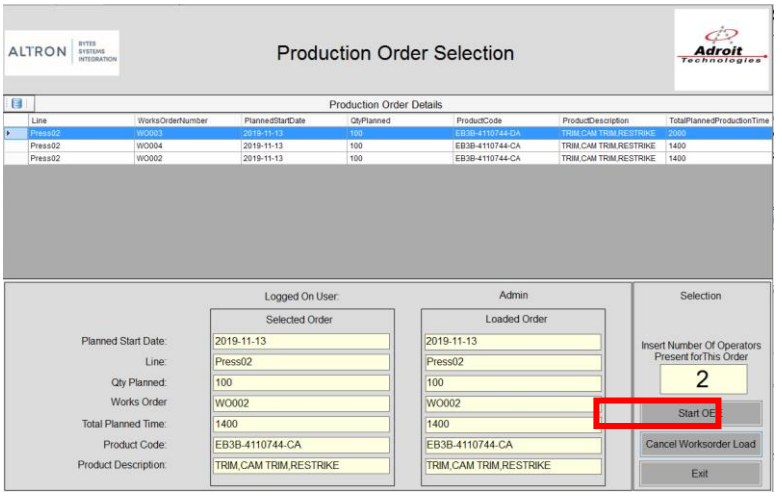
The orders that have been preloaded by the planner can now be viewed. Note that these could be both normal works orders or it could be a tool setup. Select 'Load Order'.



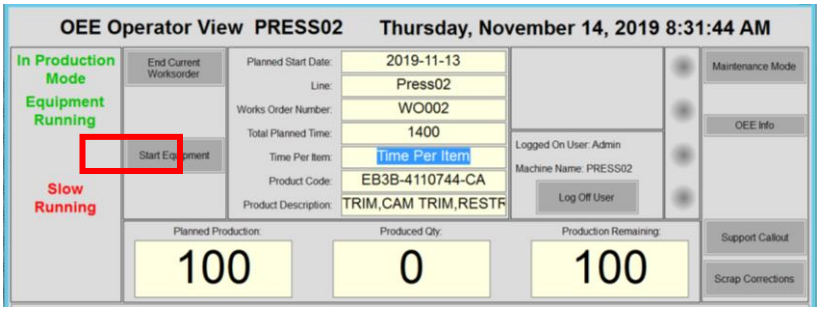
Select the number of operators that are required to work for the works order.



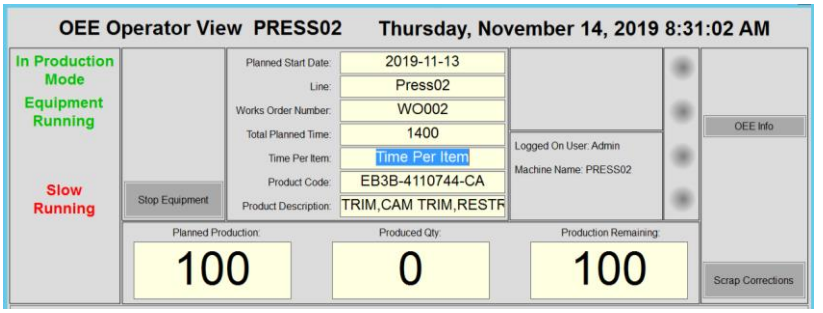
Confirm that all the information regarding the works order is correct. Thereafter select 'Start OEE'.



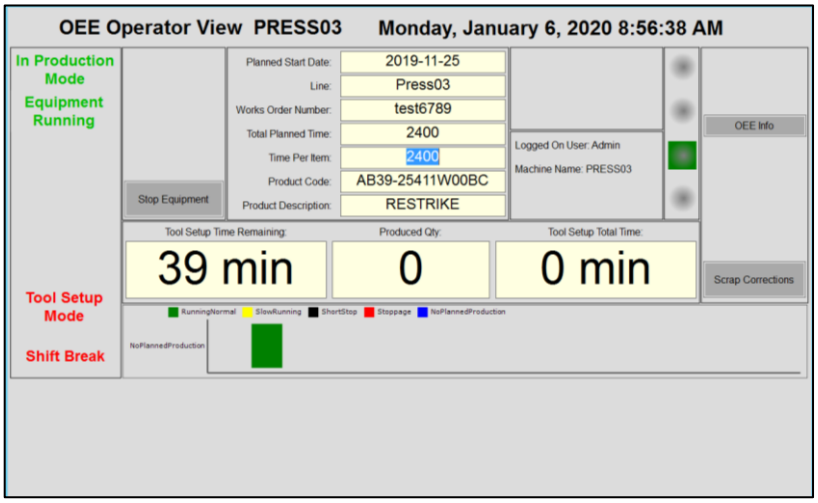
Now the equipment is ready to be started, note that the machine is still interlocked and will only be able to be pressed once the 'Start Equipment' button is pressed.



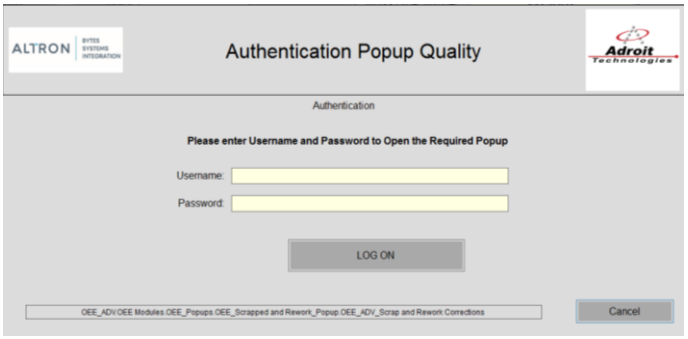
The OEE has now started and the machine can now be pressed. When the machine is pressed, notice of the counters start adding up.



For a tool setup, the main OEE screen will have a different look. Showing the time allocated to the changing of the tool. The tool setup mode has been setup to allow the setter an allocated time for the tool change (40min for the example seen below). After 40min, a short stop will occur where the machine may still move. After some time a long stop will occur, interlocking the machine. Thereafter, the supervisor needs to book the delay, and then the setter gets 4 more opportunities to finish up the tool setting. Each opportunity will be a fourth of the total allocated time (in the example bellow, each opportunity will be 10min) and goes into a short and long stop as well. After every 10min another delay reason needs to be booked.



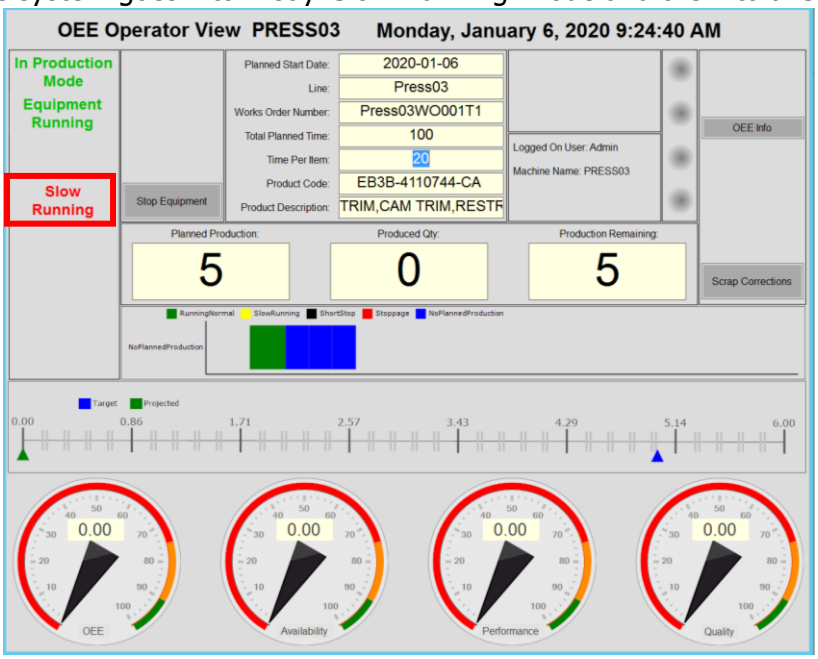
Once the order is complete, the scrap and rework of the order must be filled in. An authorisation page will automatically open once the order is complete and the relevant user must login and enter the scarp and rework.



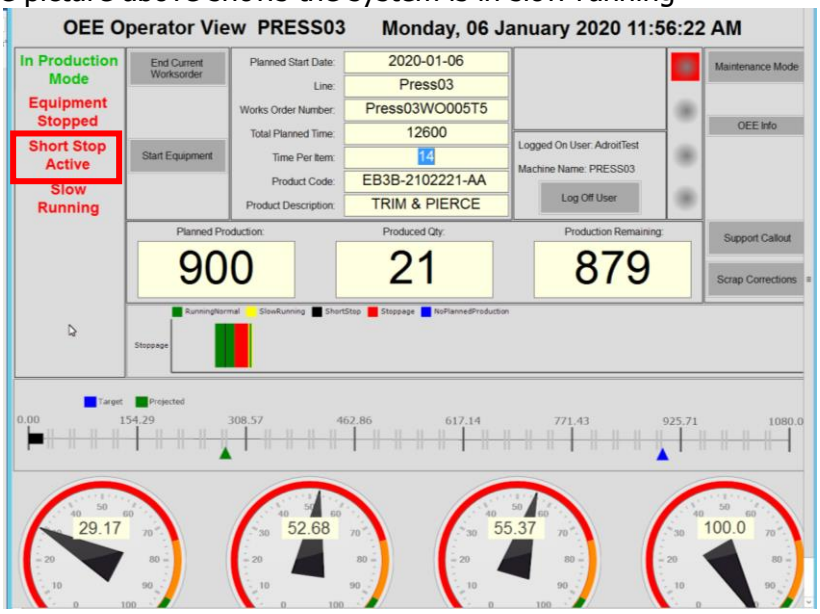
The works order is now complete

3. Booking Production Delays

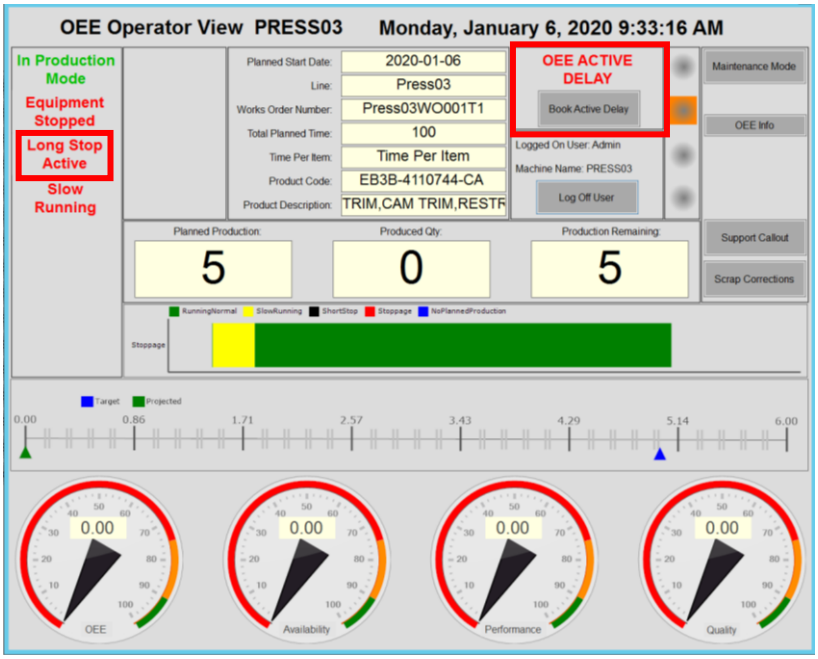
During a works order, there might be a reason that production stops for a certain time. In this instance, the system will go into a production delay (Long Stop).
If an order is running but the machine is standing still and not producing, after a predetermined time the system goes into firstly 'Slow Running' mode and the into a 'Short Stop'.



The picture above shows the system is in slow running

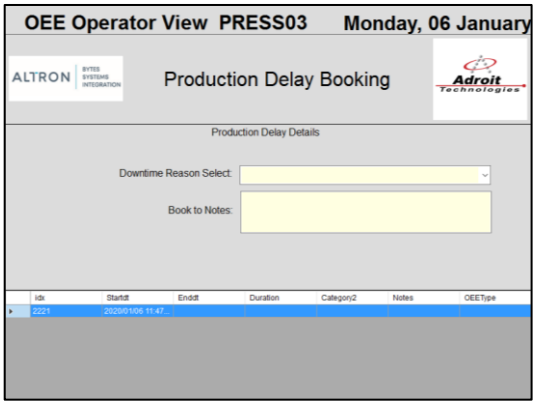


After a while, the system goes into a short stop. The operator can still press the machine and continue production. However, if the machine isn't pressed, the system eventually goes into a long stop and the machine is interlocked (machine won't be able to be pressed).

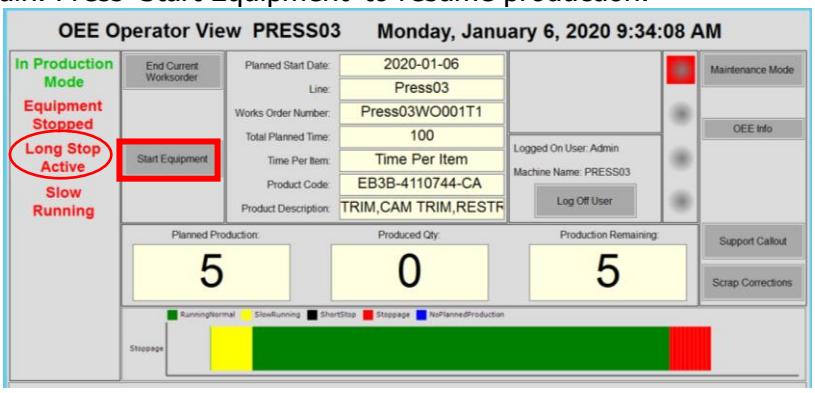


Now the production delay (long stop) alarm appears. The supervisor must now select the 'Book Active Delay' button.

The production delay booking page is now open, this section is to allow the supervisor to provide a reason as to why the machine was standing and not producing. Click on the dropdown arrow for 'Downtime Reason Select', select the reason then click 'Save' and 'Exit'.

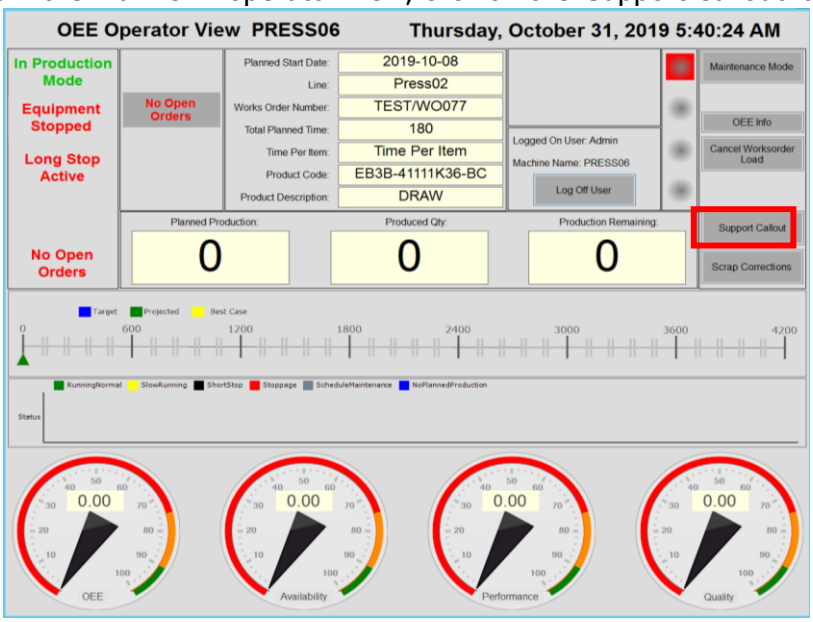


After booking the delay reason, the system will remain in a long stop until the machine is started up again. Press 'Start Equipment' to resume production.

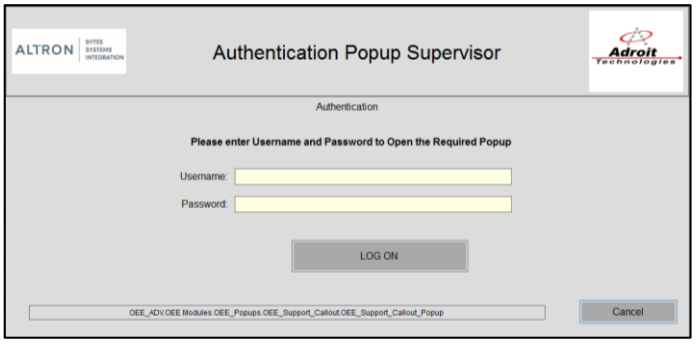


4. Support Callout

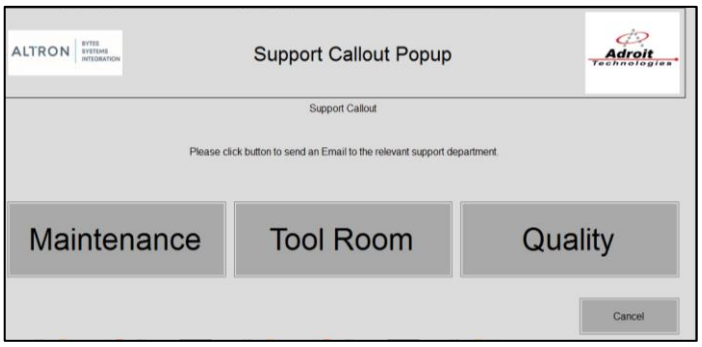
The purpose of the support callout functionality is if there is a breakdown with a machine, or any other reason that the help of maintenance, toolroom or quality is needed. An email is sent out to either maintenance, toolroom or quality depending on the problem.
From the main OEE operator view, click on the 'Support Callout' button.

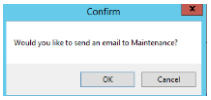


An authorisation page will pop up, the supervisor is now expected to login.



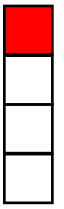
The support callout page will open, select any of the three options depending on the problem of the machine.





5. Stack Lights

This section is available for the purpose of giving an indication of different statuses of the OEE or stages of production.



Red Light
Solid Red Light – Machine is ready to run. The operator needs to start the machine.
Flickering Red Light – The machine is experiencing some sort of a fault e.g. estop is pressed.

Orange Light
The orange light indicates that the system is in a long stop and the operator has an outstanding reason that needs to be booked for a production delay/machine stoppage.

Green Light
Solid Green Light – The machine is running normal.
Flashing Green Light – This means that the machine is in slow running in other words producing less than the target

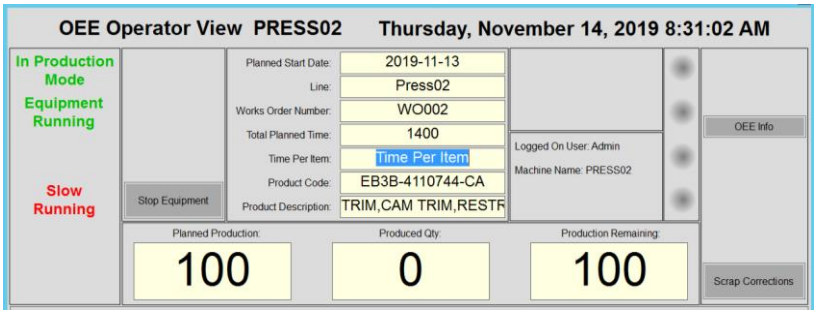
Blue Light
Solid Blue Light – The system is in maintenance mode
Flashing Blue Light – The system is in tool setup mode (a tool is being changed)

Adroit OEE User Training Manual

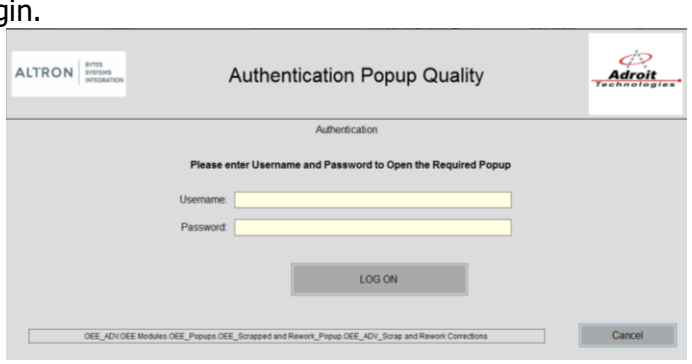
Quality Training Manual

1. Scrap and Rework Input after Works Order is complete

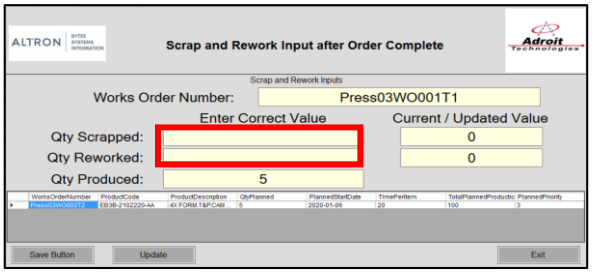
After an order is complete, a quality user needs to enter the number of products that were scrapped and rework.

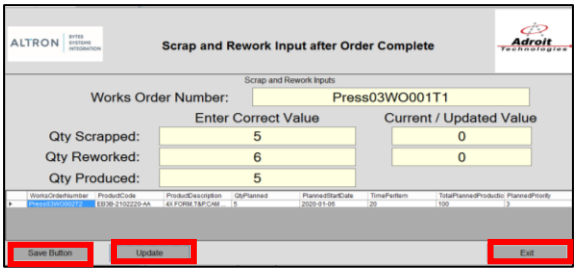


An authorisation page will automatically open once the order is complete and the relevant user must login.



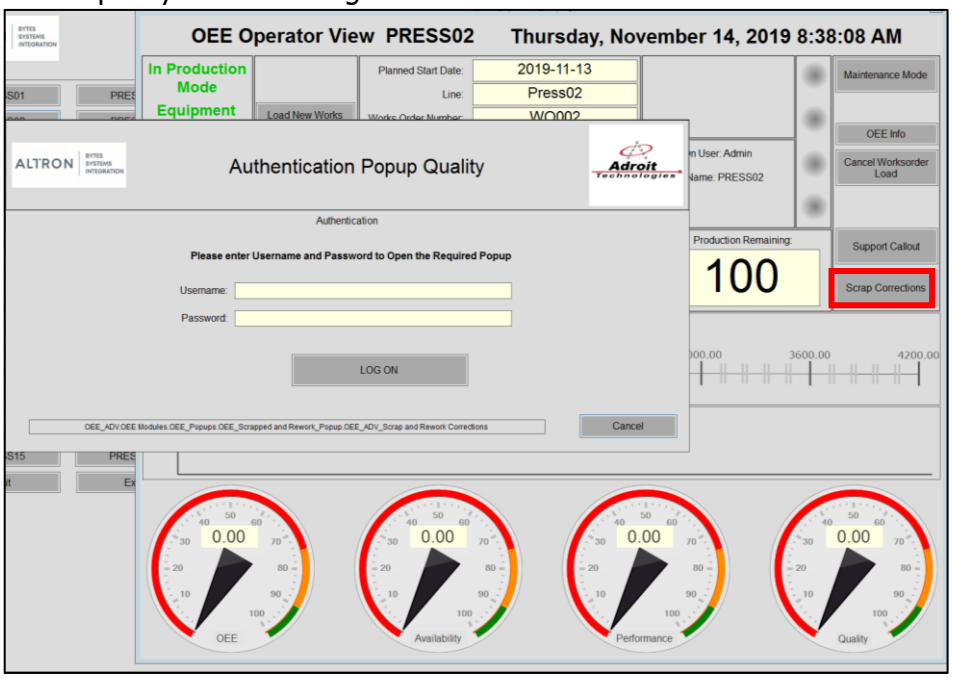
The 'Scrap and Rework Input after Order Complete' page will open up, enter the relevant amounts for scrap and rework. Click on 'Save', 'Update' then 'Exit'



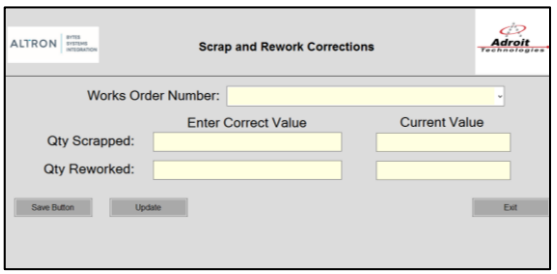


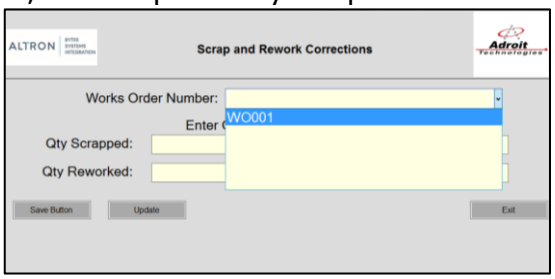
2. Scrap and Rework Correction

If there was a mistake made when inputting the scrap/rework values, a quality user can always go back and correct the scrap/rework for the last 5 works orders.
Select the 'Scrap Corrections' button on the main OEE operator page. An authorisation page will pop up and a quality user must login.

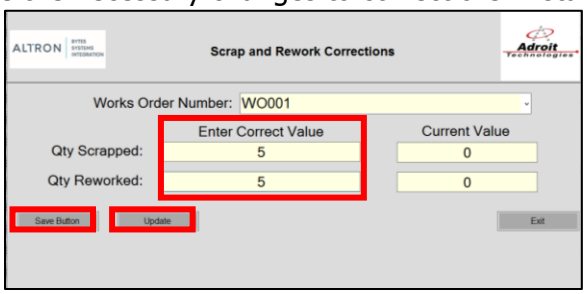


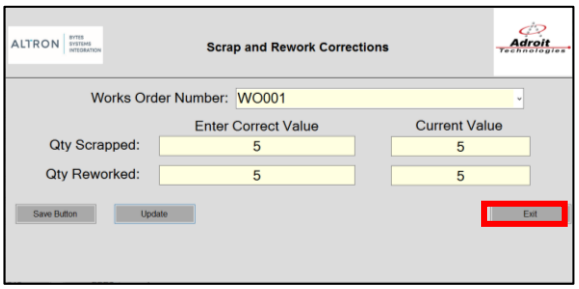
The scrap and rework corrections page is now open, select a previously completed works order.





Make the necessary changes to correct the mistakes

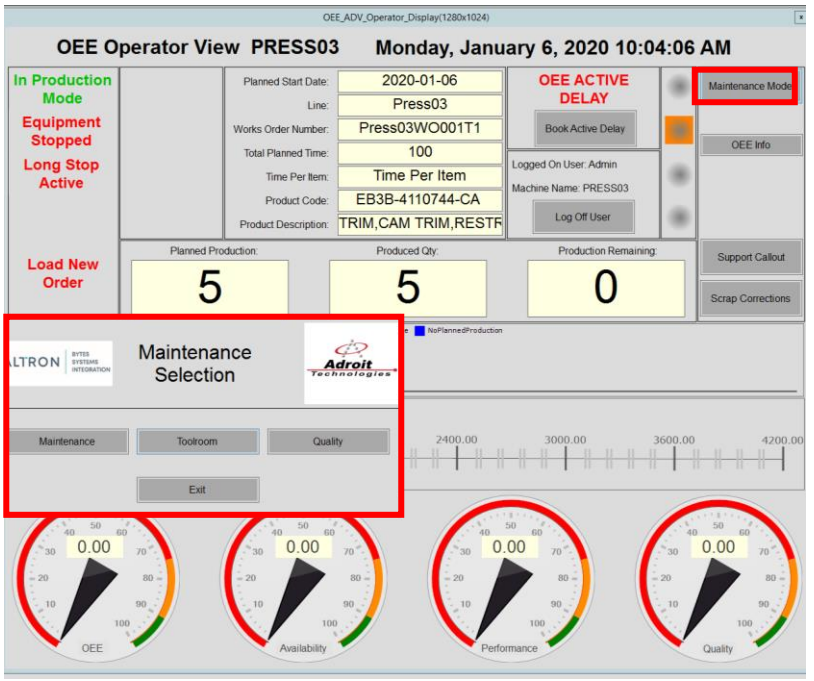




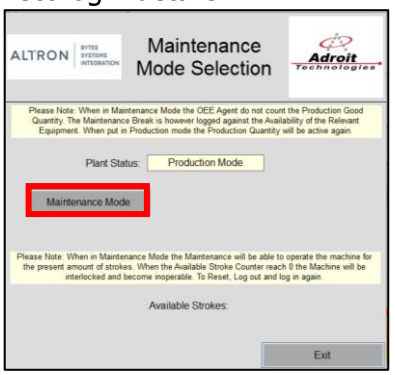
3. Maintenance Mode (Quality)

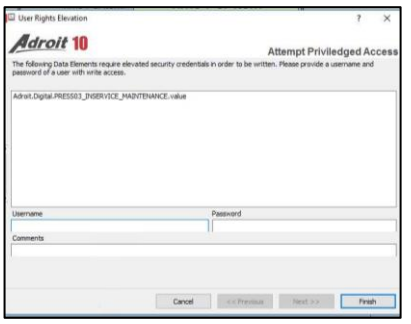
After maintenance, quality or toolroom receives the support callout email they must immediately respond and attend to the problem at the press. The system must first be changed to Maintenance Mode.

On the main operator screen, select the 'Quality' button. The maintenance selection page will pop up and select the correct mode.

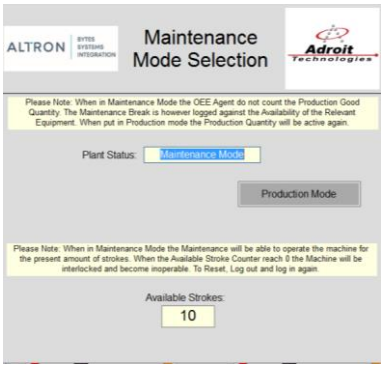


Select the Maintenance mode button. A login page will pop up, the relevant user must then enter the correct login details.

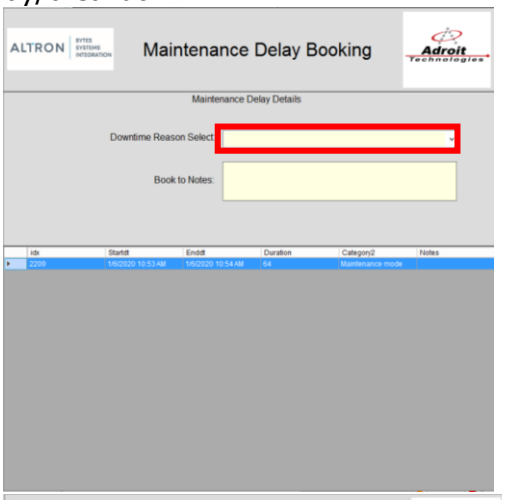


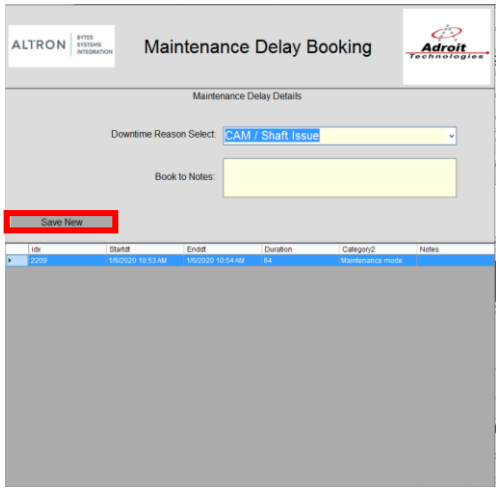


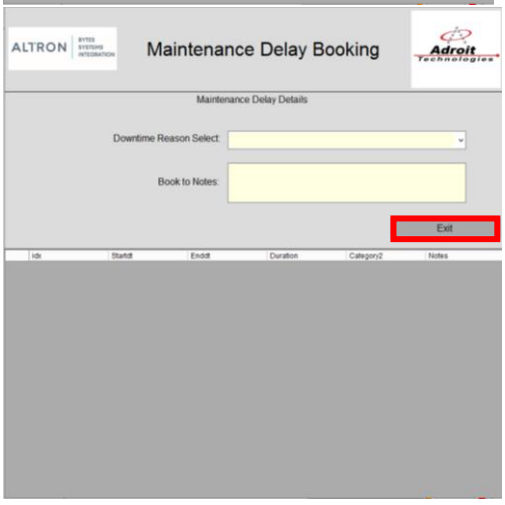
The system is now in maintenance mode, the machine can only be pressed 10 times. If more presses are needed then the user must log out and log in again.



Once the machine is fixed and ready to go back into production, select the 'Production Mode' button. A maintenance delay booking page will open, a reason must be given for the maintenance delay/breakdown.







Once the reasons are booked, another login page will pop up before returning into production mode

4. Stack Lights

This section is available for the purpose of giving an indication of different statuses of the OEE or stages of production.

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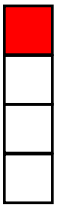

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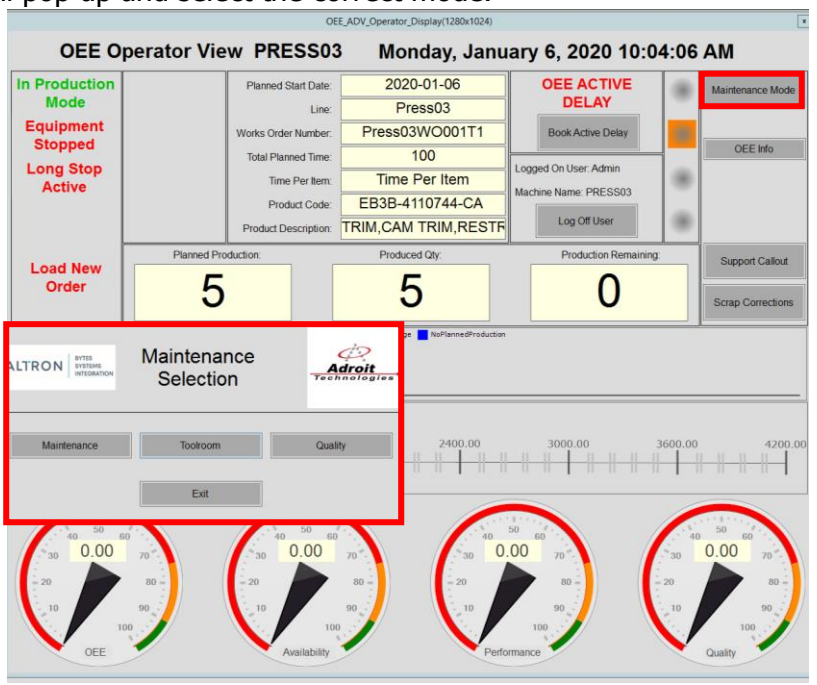
Maintenance Training Manual

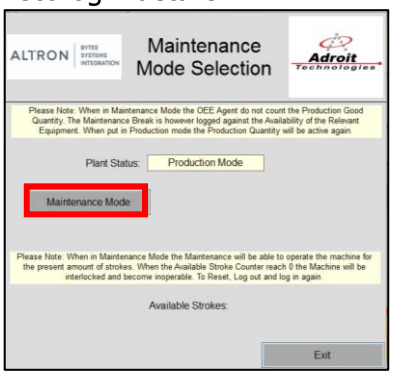
1. Maintenance Mode

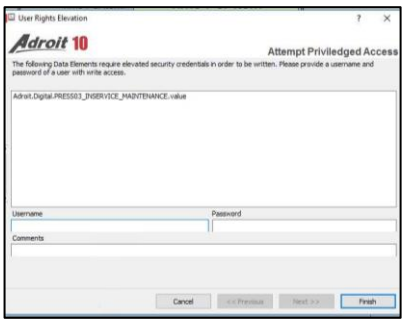
After maintenance, quality or toolroom receives the support callout email they must immediately respond and attend to the problem at the press. The system must first be changed to Maintenance Mode.

On the main operator screen, select the 'Maintenance Mode' button. The maintenance selection page will pop up and select the correct mode.

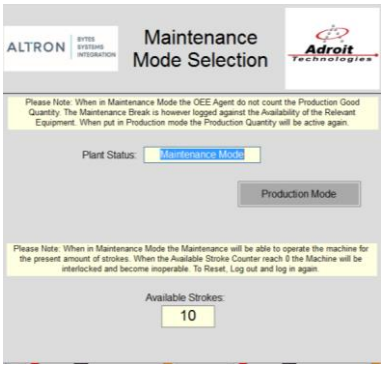


Select the Maintenance mode button. A login page will pop up, the relevant user must then enter the correct login details.





The system is now in maintenance mode, the machine can only be pressed 10 times. If more presses are needed, then the user must log out and log in again.



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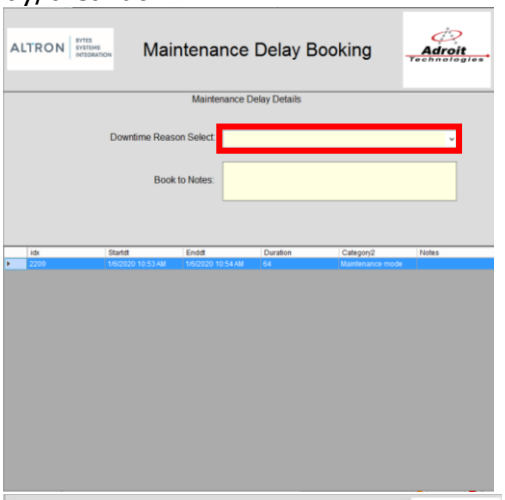
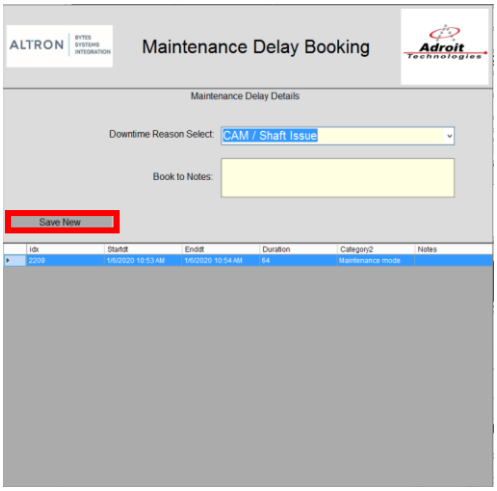
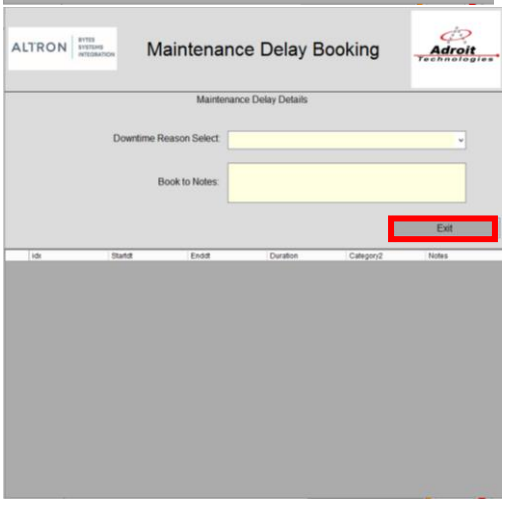






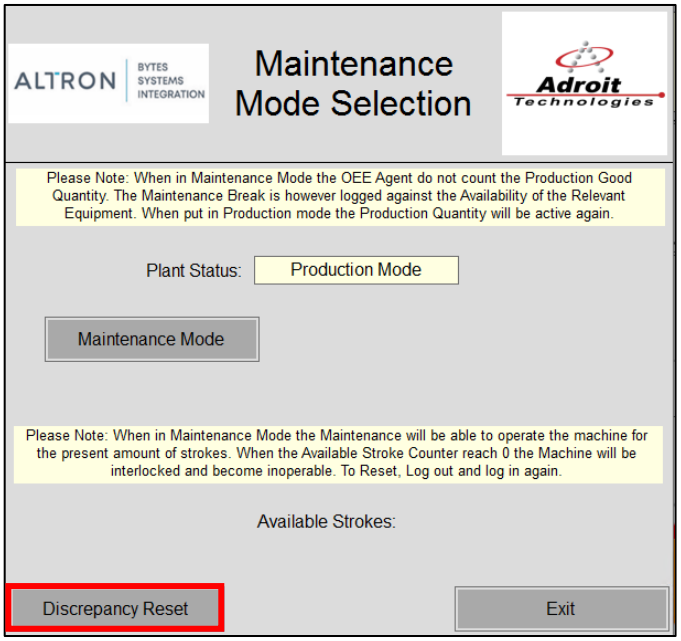
Once the reasons are booked, another login page will pop up before returning into production mode

2. Discrepancy Reset

The sensor faulty alarms will only be activated by the following conditions:

- Top limit sensor pulse occurs 5 or more times than the count sensor pulse
- Count sensor pulse occurs 5 or more times than the top limit sensor pulse

If any of these conditions occur, the machine will interlock, and the alarm will appear. This is to help indicate that there is a sensor problem and maintenance (an electrician) needs to try fix the sensor issue, reset the discrepancy in maintenance mode and continue production.



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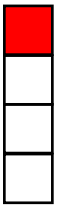
Solid Red Light – Machine is ready to run. The operator needs to start the machine.
Flickering Red Light – The machine is experiencing some sort of a fault e.g. estop is pressed.



Orange Light
The orange light indicates that the system is in a long stop and the operator has an outstanding reason that needs to be booked for a production delay/machine stoppage.

Green Light
Solid Green Light – The machine is running normal.
Flashing Green Light – This means that the machine is in slow running in other words producing less than the target

Blue Light
Solid Blue Light – The system is in maintenance mode
Flashing Blue Light – The system is in tool setup mode (a tool is being changed)

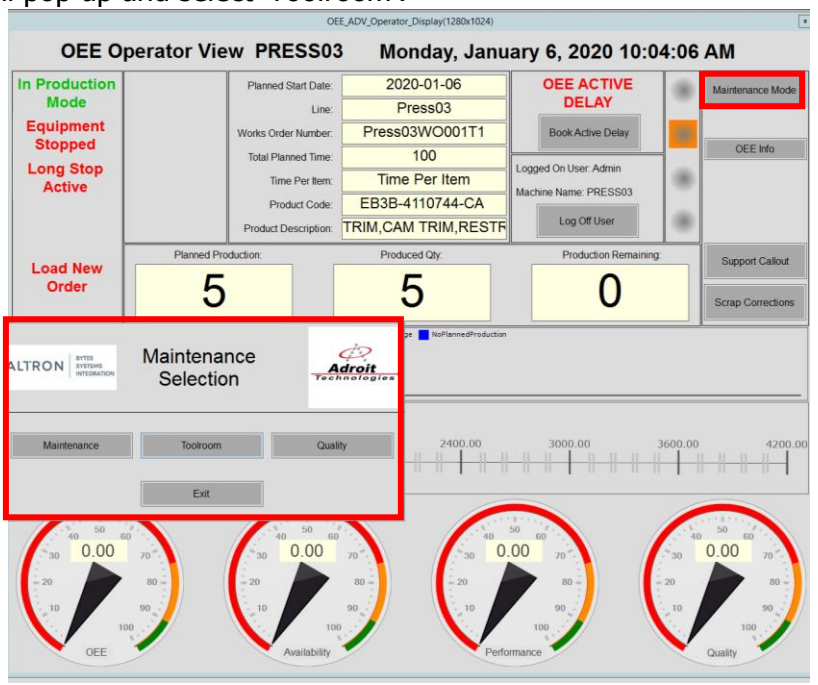
Adroit OEE User Training Manual

Tool Setter Training Manual

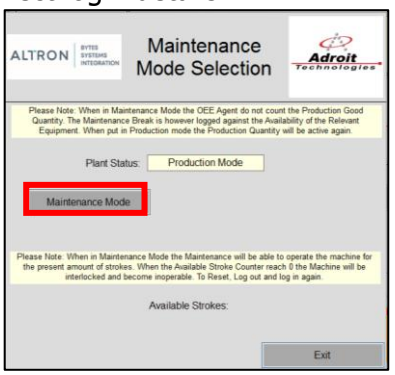
1. Maintenance Mode (Toolroom)

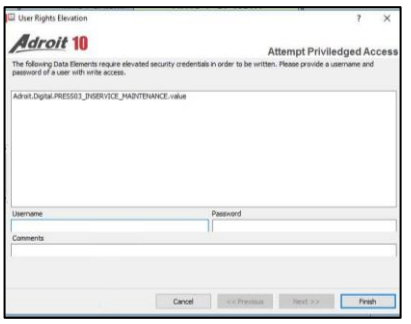
After maintenance, quality or toolroom receives the support callout email they must immediately respond and attend to the problem at the press. The system must first be changed to Maintenance Mode.

On the main operator screen, select the 'Maintenance Mode' button. The maintenance selection page will pop up and select 'Toolroom'.

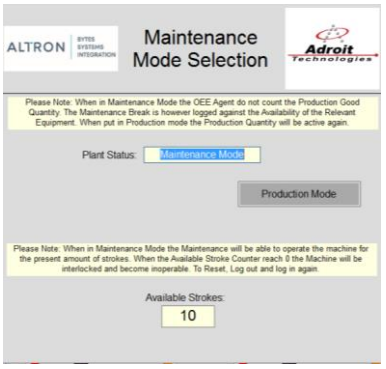


Select the Maintenance mode button. A login page will pop up, the relevant user must then enter the correct login details.

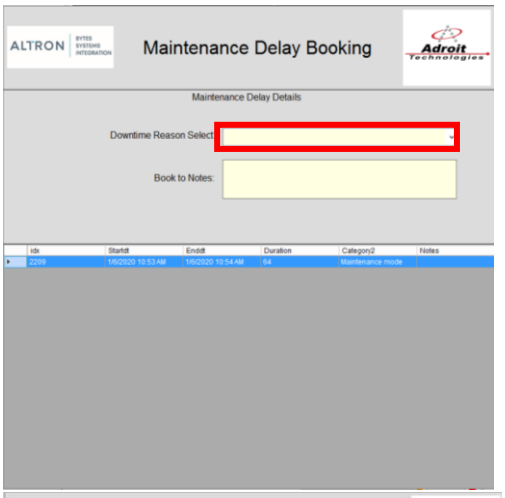


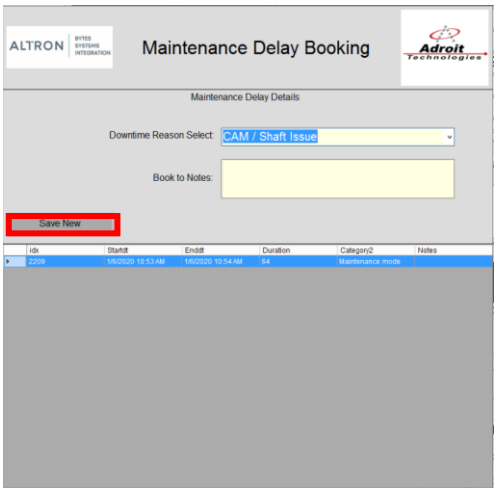


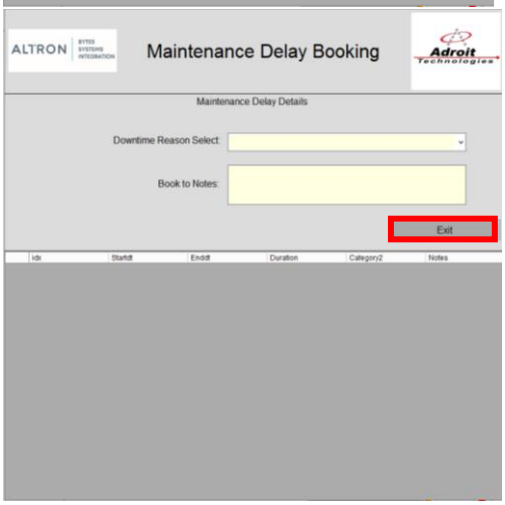
The system is now in maintenance mode, the machine can only be pressed 10 times. If more presses are needed, then the user must log out and log in again.



Once the machine is fixed and ready to go back into production, select the 'Production Mode' button. A maintenance delay booking page will open, a reason must be given for the maintenance delay/breakdown.





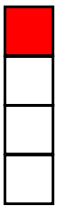


Once the reasons are booked, another login page will pop up before returning into production mode

2. Stack Lights

This section is available for the purpose of giving an indication of different statuses of the OEE or stages of production.

Red Light
Solid Red Light – Machine is ready to run. The operator needs to start the machine.
Flickering Red Light – The machine is experiencing some sort of a fault e.g. estop is pressed.



Orange Light
The orange light indicates that the system is in a long stop and the operator has an outstanding reason that needs to be booked for a production delay/machine stoppage.

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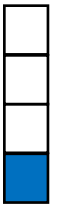


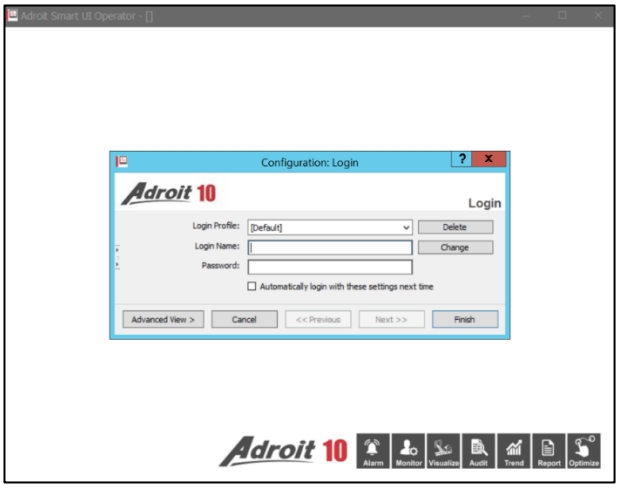
Adroit OEE User Training Manual

Planner Training Manual

1. Logging in

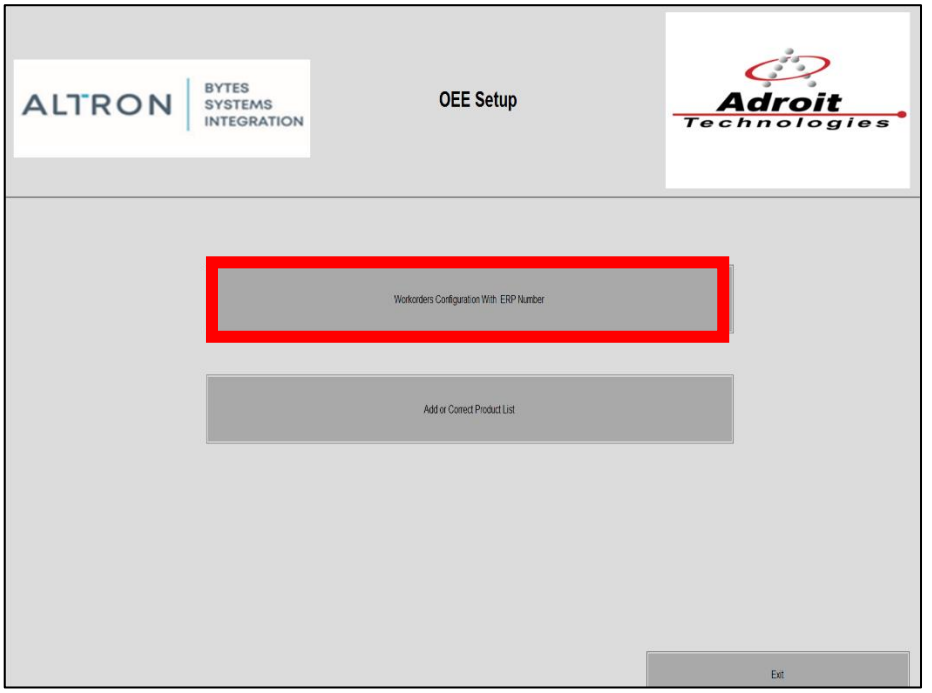
Locate and double click the 'Adroit Smart UI Operator' icon on the desktop if the login page is not already opened

Enter the relevant login name and password and select 'Finish'

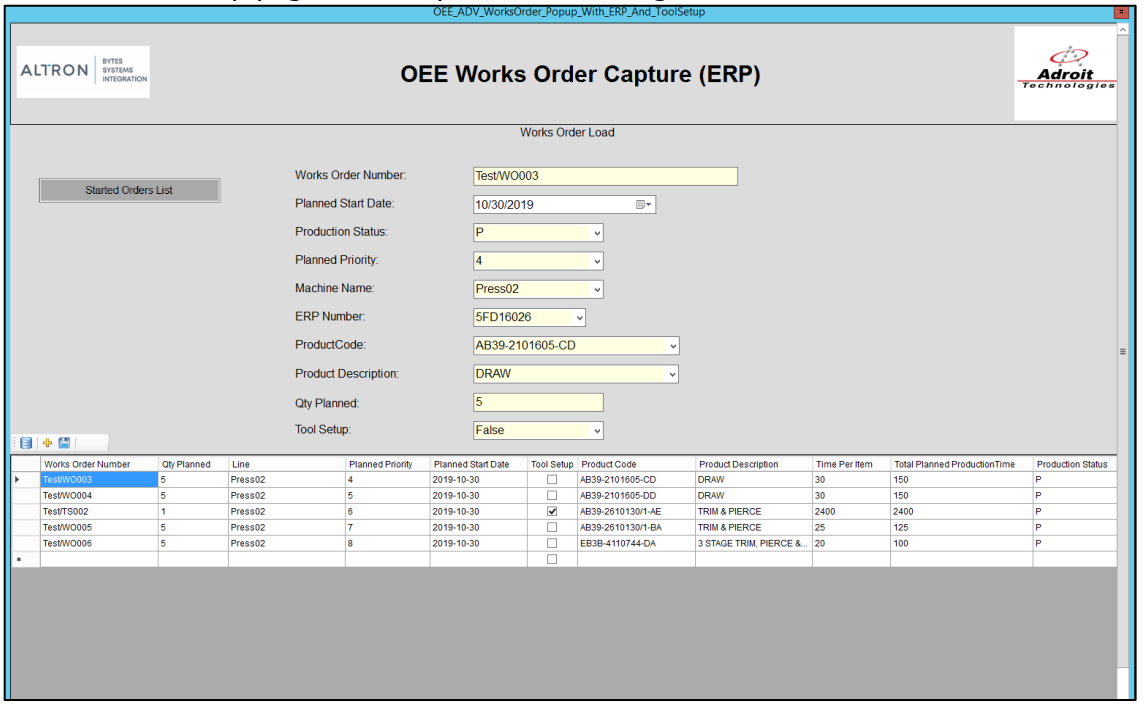


2. Loading orders or tool setups onto database

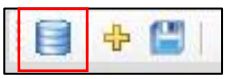
From the main operator view, locate and select the 'Worksorder Setup ERP Number Only' button

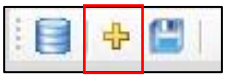


The worksorder setup page is now open, see the image that follows.

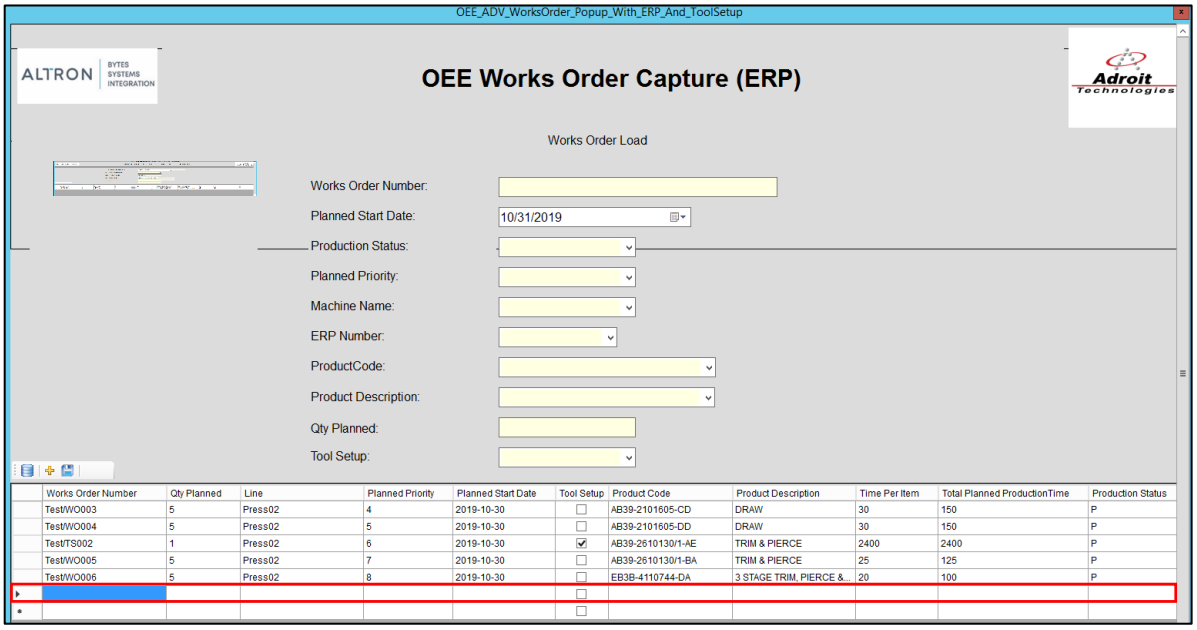


Refresh the page by selecting the refresh button. Thereafter select the '+' button to add a new line to enter a new works order





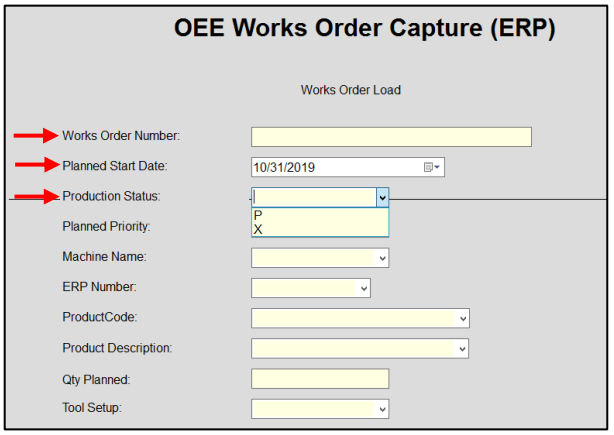
See from the image below that a new line has been added.



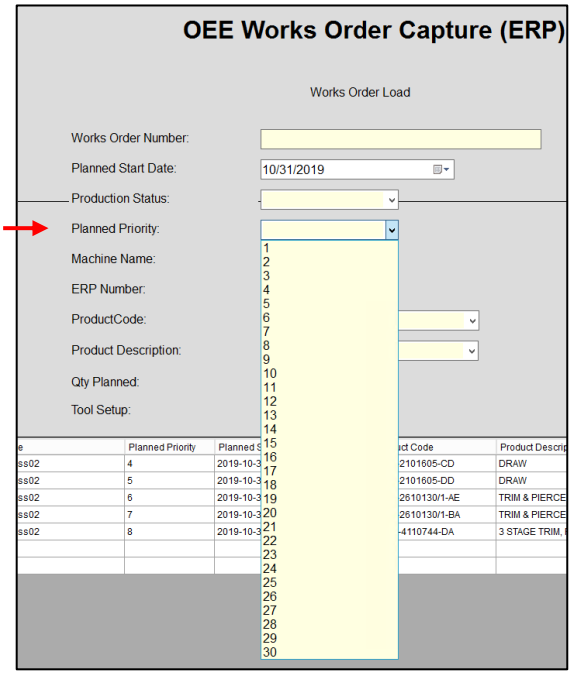
Start off by entering a relevant works order number in the field provided as long as the planned date for the order. Thereafter enter the production status:

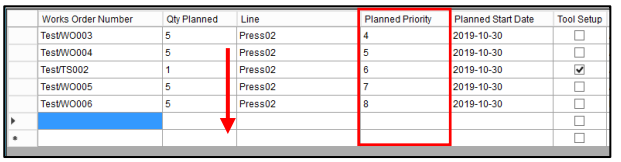
P – Planned

X – Delete



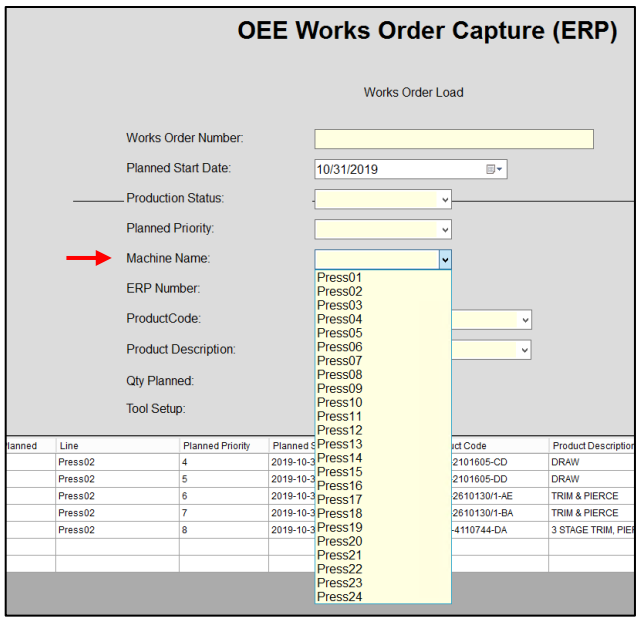
Select a priority number for the works order as they will appear on the operator view in ascending order.



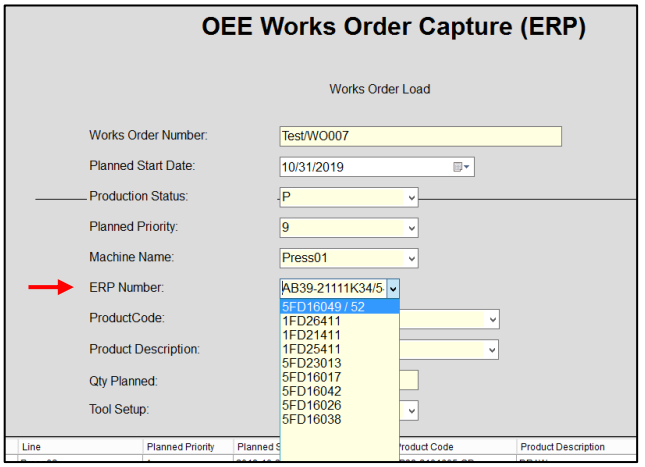


Works Order Number	Qty Planned	Line	Planned Priority	Planned Start Date	Tool Setup
TestWO003	5	Press02	4	2019-10-30	☐
TestWO004	5	Press02	5	2019-10-30	☐
TestTS002	1	Press02	6	2019-10-30	☑
TestWO005	5	Press02	7	2019-10-30	☐
TestWO006	5	Press02	8	2019-10-30	☐

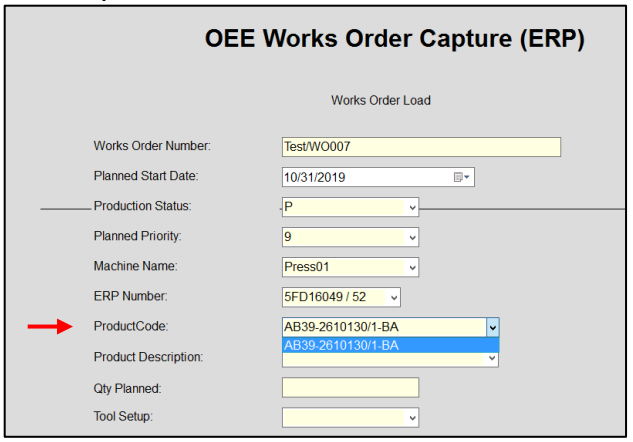
Select the machine to where the works order is to be produced.



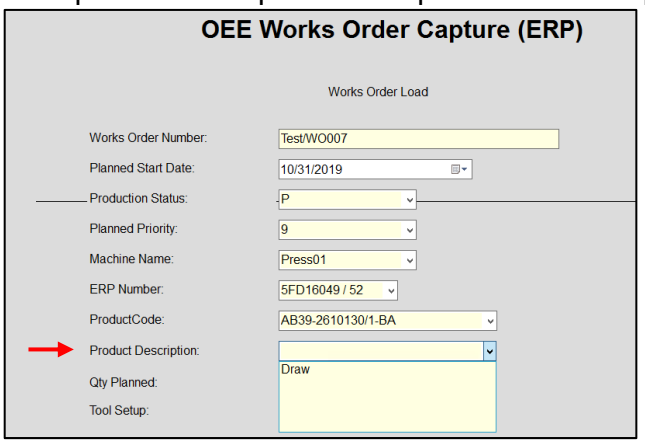
Once a machine is selected, a query is being executed in the background to only filter out specific ERP numbers and product codes relating to only the machine that was selected. Select the relevant ERP number.



Select the product code



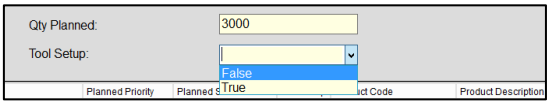
Select a product description of the part that is to be produced

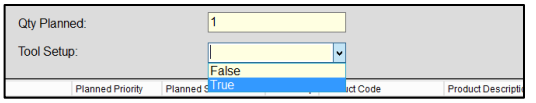


Before entering the next two fields, it is important to understand a Tool Setup:

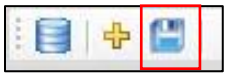
- True – A tool change needs to occur. Qty planned should be 1.
- False – No tool change needed, a normal worksorder is being loaded and Qty planned should be entered as normal.

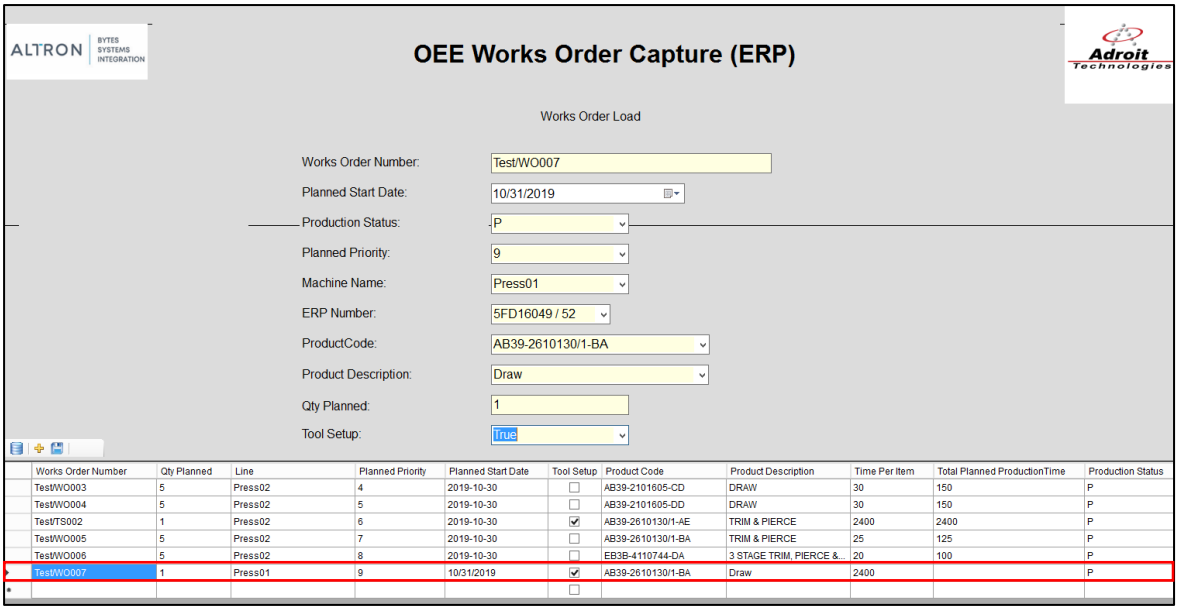
Enter the quantity of products that is planned to be produced along with whether the order is a tool setup or not.





All fields have now been filled, make sure to click on the save button to make sure that a record of the new works order/tool setup is loaded onto the database.

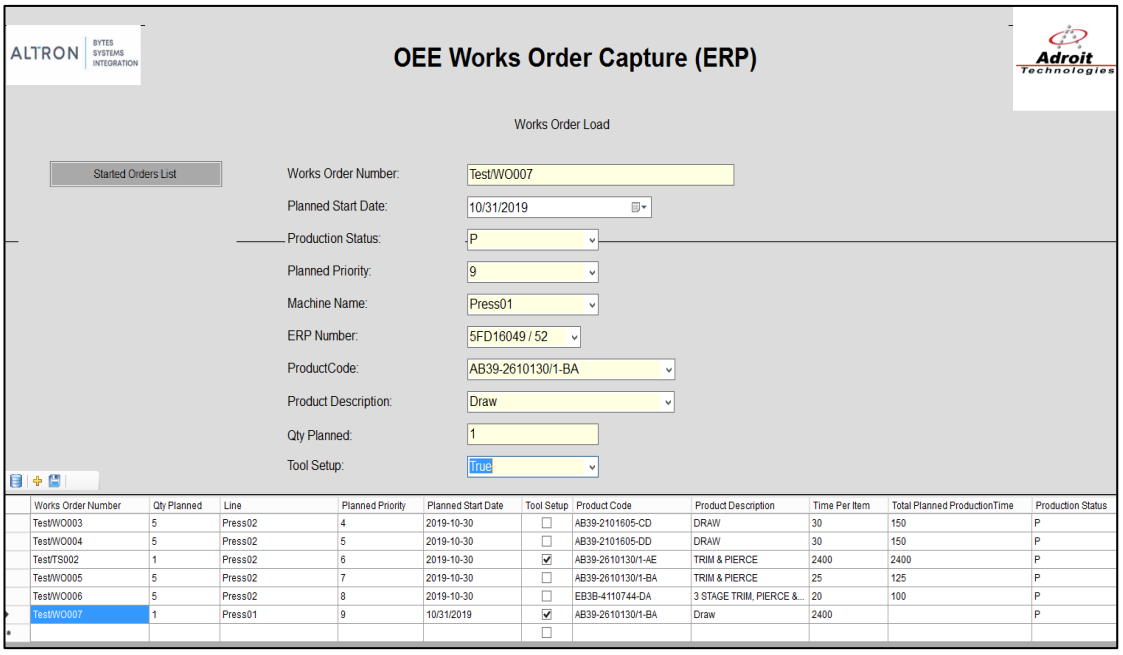




Works Order Number	Qty Planned	Line	Planned Priority	Planned Start Date	Tool Setup	Product Code	Product Description	Time Per Item	Total Planned ProductionTime	Production Status
Test/WO003	5	Press02	4	2019-10-30	☐	AB39-2101605-CD	DRAW	30	150	P
Test/WO004	5	Press02	5	2019-10-30	☐	AB39-2101605-DD	DRAW	30	150	P
Test/TS002	1	Press02	6	2019-10-30	☑	AB39-2610130/1-AE	TRIM & PIERCE	2400	2400	P
Test/WO005	5	Press02	7	2019-10-30	☐	AB39-2610130/1-BA	TRIM & PIERCE	25	125	P
Test/WO006	5	Press02	8	2019-10-30	☐	EB3B-4110744-DA	3 STAGE TRIM, PIERCE &...	20	100	P
Test/WO007	1	Press01	9	10/31/2019	☑	AB39-2610130/1-BA	Draw	2400		P
					☐					

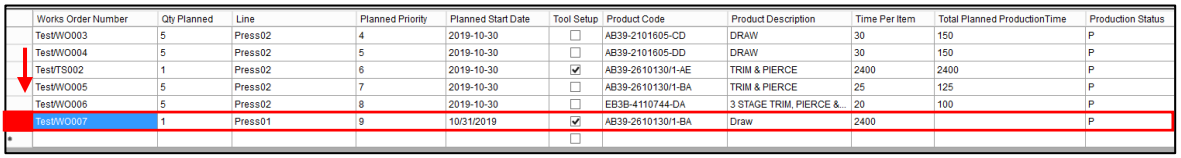
3. Editing Orders

In a situation where there was a mistake made by the planner after having loaded an order, or for any other reason a change needs to be made to an order, the following steps should be followed.
Open the OEE Works Order Capture page, see section 2 for login method.



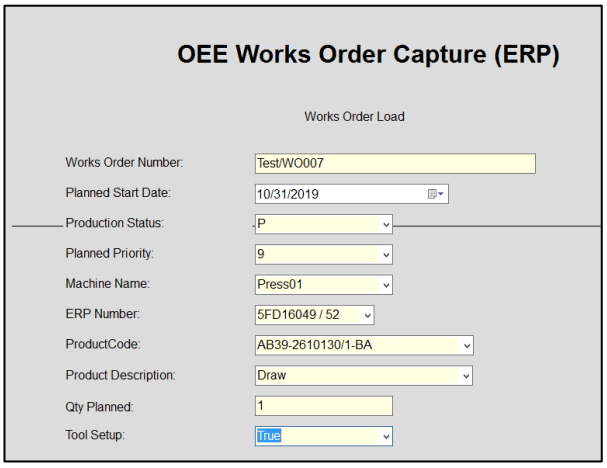
Works Order Number	Qty Planned	Line	Planned Priority	Planned Start Date	Tool Setup	Product Code	Product Description	Time Per Item	Total Planned ProductionTime	Production Status
Test/WO003	5	Press02	4	2019-10-30	☐	AB39-2101605-CD	DRAW	30	150	P
Test/WO004	5	Press02	5	2019-10-30	☐	AB39-2101605-DD	DRAW	30	150	P
Test/TS002	1	Press02	6	2019-10-30	☑	AB39-2610130/1-AE	TRIM & PIERCE	2400	2400	P
Test/WO005	5	Press02	7	2019-10-30	☐	AB39-2610130/1-BA	TRIM & PIERCE	25	125	P
Test/WO006	5	Press02	8	2019-10-30	☐	EB3B-4110744-DA	3 STAGE TRIM, PIERCE &...	20	100	P
Test/WO007	1	Press01	9	10/31/2019	☑	AB39-2610130/1-BA	Draw	2400		P

Once open select the specific works order/tool setup to be changed by selecting the first cell which always remains empty which then selects the entire row.



Works Order Number	Qty Planned	Line	Planned Priority	Planned Start Date	Tool Setup	Product Code	Product Description	Time Per Item	Total Planned ProductionTime	Production Status
Test/WO003	5	Press02	4	2019-10-30	☐	AB39-2101605-CD	DRAW	30	150	P
Test/WO004	5	Press02	5	2019-10-30	☐	AB39-2101605-DD	DRAW	30	150	P
Test/TS002	1	Press02	6	2019-10-30	☑	AB39-2610130/1-AE	TRIM & PIERCE	2400	2400	P
Test/WO005	5	Press02	7	2019-10-30	☐	AB39-2610130/1-BA	TRIM & PIERCE	25	125	P
Test/WO006	5	Press02	8	2019-10-30	☐	EB3B-4110744-DA	3 STAGE TRIM, PIERCE &...	20	100	P
Test/WO007	1	Press01	9	10/31/2019	☑	AB39-2610130/1-BA	Draw	2400		P

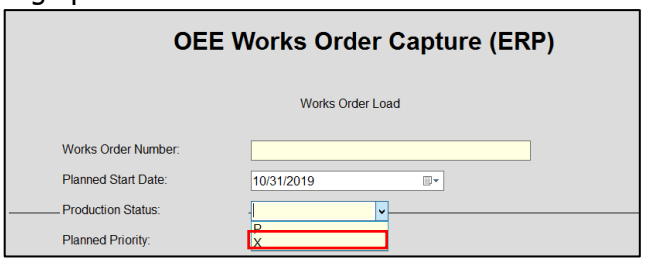
The fields below will then update according to the selected row. At this point any fields can be selected and edited. Once satisfied click on the save button and the record will be updated.



4. Deleting a record

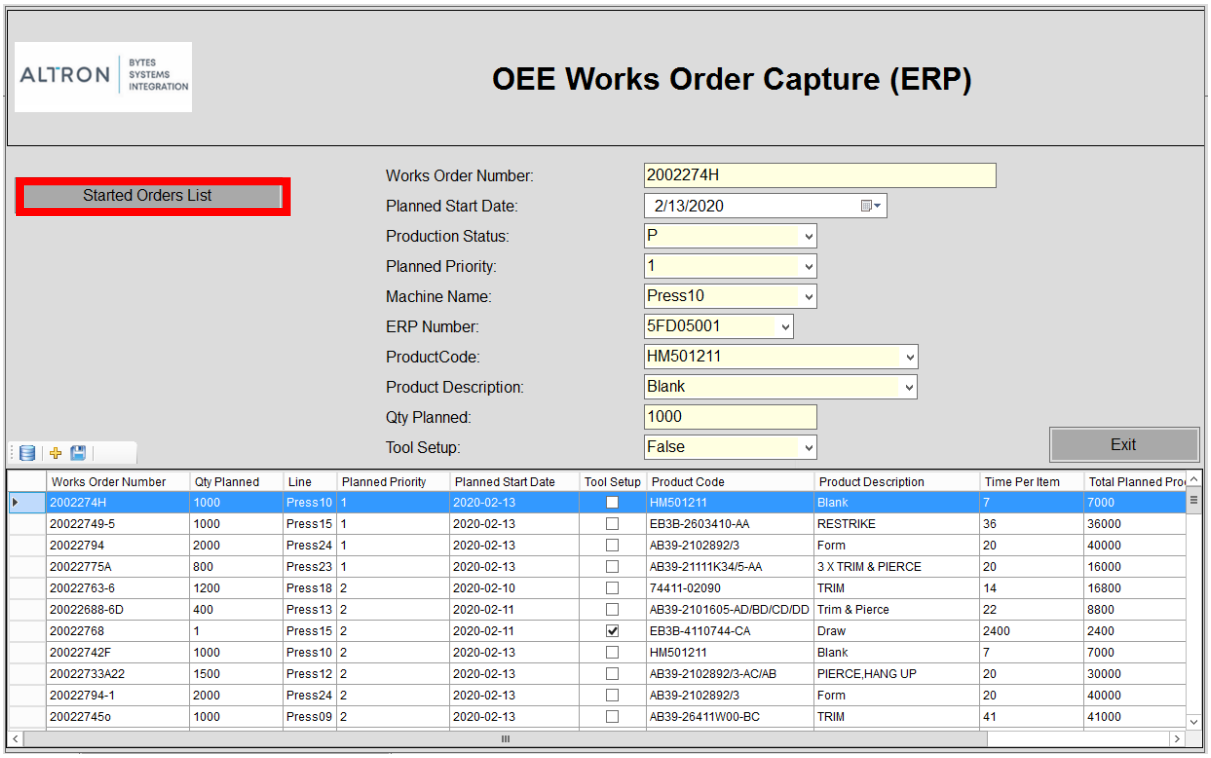
Select the record that needs to be removed. See section 3 on how to select to edit a record. It is important to note that when a record is deleted, it is removed only from the front-end interface. The record is always saved in the SQL database and cannot be deleted; however the production status is saved as 'X'.

Change production status from 'P' to 'X'.



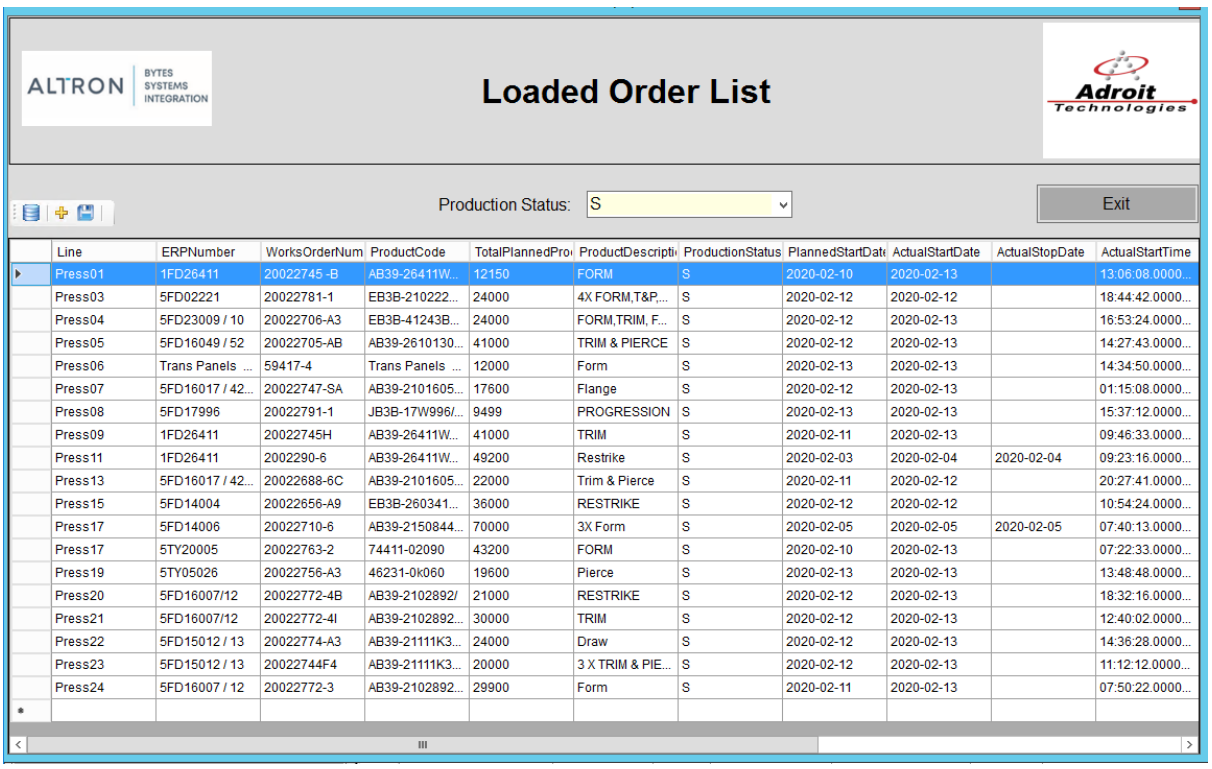
5. Viewing current running orders

The planner can view the orders that are currently running on the plant floor.
Select the 'Started Orders List' button



Works Order Number	Qty Planned	Line	Planned Priority	Planned Start Date	Tool Setup	Product Code	Product Description	Time Per Item	Total Planned Pro
2002274H	1000	Press10	1	2020-02-13	☐	HM501211	Blank	7	7000
20022749-5	1000	Press15	1	2020-02-13	☐	EB3B-2603410-AA	RESTRIKE	36	36000
20022794	2000	Press24	1	2020-02-13	☐	AB39-2102892/3	Form	20	40000
20022775A	800	Press23	1	2020-02-13	☐	AB39-21111K34/5-AA	3 X TRIM & PIERCE	20	16000
20022763-6	1200	Press18	2	2020-02-10	☐	74411-02090	TRIM	14	16800
20022688-6D	400	Press13	2	2020-02-11	☐	AB39-2101605-AD/BD/CD/DD	Trim & Pierce	22	8800
20022768	1	Press15	2	2020-02-11	☑	EB3B-4110744-CA	Draw	2400	2400
20022742F	1000	Press10	2	2020-02-13	☐	HM501211	Blank	7	7000
20022733A22	1500	Press12	2	2020-02-13	☐	AB39-2102892/3-AC/AB	PIERCE,HANG UP	20	30000
20022794-1	2000	Press24	2	2020-02-13	☐	AB39-2102892/3	Form	20	40000
20022745o	1000	Press09	2	2020-02-13	☐	AB39-26411W00-BC	TRIM	41	41000

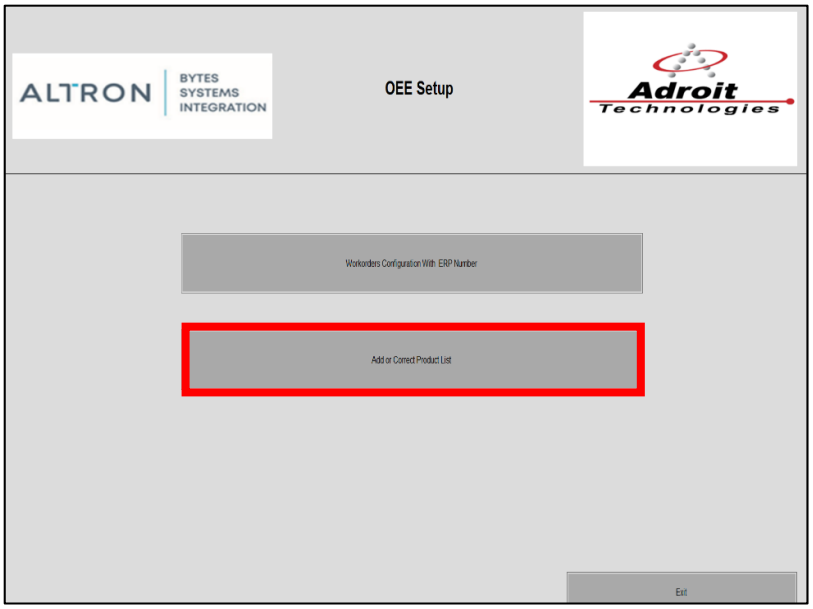
If the Production Status is 'S', it indicates that the order has started. The Load Order List page will open up for the planner to view the current status of the orders that are in production in the plant.



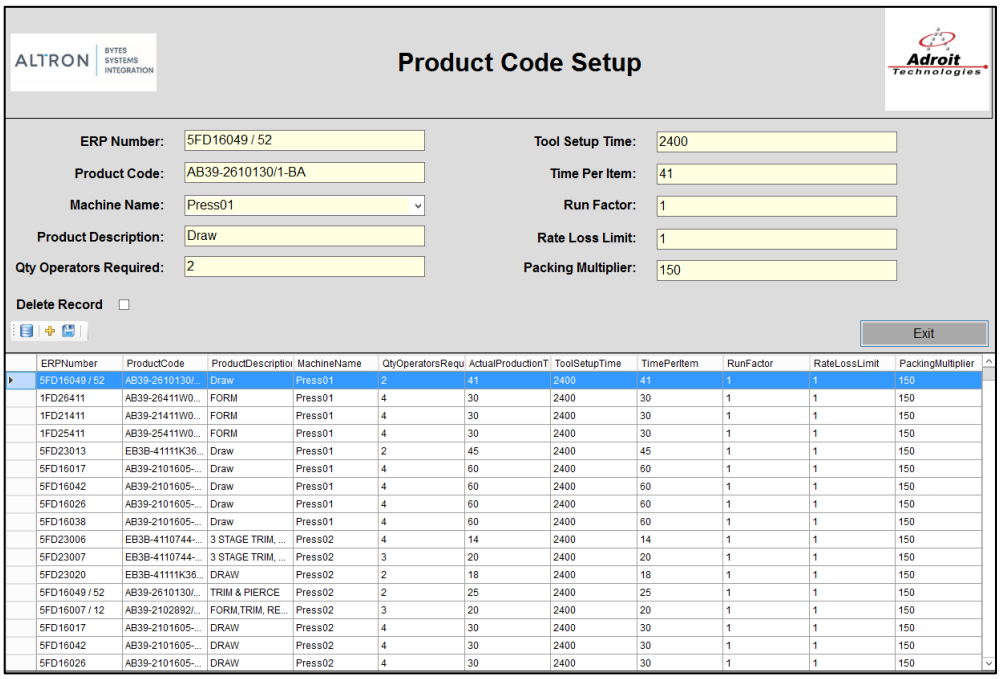
Line	ERPNumber	WorksOrderNum	ProductCode	TotalPlannedPro	ProductDescripti	ProductionStatus	PlannedStartDat	ActualStartDate	ActualStopDate	ActualStartTime
Press01	1FD26411	20022745 -B	AB39-26411W...	12150	FORM	S	2020-02-10	2020-02-13		13:06:08.0000...
Press03	5FD02221	20022781-1	EB3B-210222...	24000	4X FORM,T&P,...	S	2020-02-12	2020-02-12		18:44:42.0000...
Press04	5FD23009 / 10	20022706-A3	EB3B-41243B...	24000	FORM,TRIM, F...	S	2020-02-12	2020-02-13		16:53:24.0000...
Press05	5FD16049 / 52	20022705-AB	AB39-2610130...	41000	TRIM & PIERCE	S	2020-02-12	2020-02-13		14:27:43.0000...
Press06	Trans Panels ...	59417-4	Trans Panels ...	12000	Form	S	2020-02-13	2020-02-13		14:34:50.0000...
Press07	5FD16017 / 42...	20022747-SA	AB39-2101605...	17600	Flange	S	2020-02-12	2020-02-13		01:15:08.0000...
Press08	5FD17996	20022791-1	JB3B-17W996/...	9499	PROGRESSION	S	2020-02-13	2020-02-13		15:37:12.0000...
Press09	1FD26411	20022745H	AB39-26411W...	41000	TRIM	S	2020-02-11	2020-02-13		09:46:33.0000...
Press11	1FD26411	2002290-6	AB39-26411W...	49200	Restrike	S	2020-02-03	2020-02-04	2020-02-04	09:23:16.0000...
Press13	5FD16017 / 42...	20022688-6C	AB39-2101605...	22000	Trim & Pierce	S	2020-02-11	2020-02-12		20:27:41.0000...
Press15	5FD14004	20022656-A9	EB3B-260341...	36000	RESTRIKE	S	2020-02-12	2020-02-12		10:54:24.0000...
Press17	5FD14006	20022710-6	AB39-2150844...	70000	3X Form	S	2020-02-05	2020-02-05	2020-02-05	07:40:13.0000...
Press17	5TY20005	20022763-2	74411-02090	43200	FORM	S	2020-02-10	2020-02-13		07:22:33.0000...
Press19	5TY05026	20022756-A3	46231-0k060	19600	Pierce	S	2020-02-13	2020-02-13		13:48:48.0000...
Press20	5FD16007/12	20022772-4B	AB39-2102892/	21000	RESTRIKE	S	2020-02-12	2020-02-13		18:32:16.0000...
Press21	5FD16007/12	20022772-4I	AB39-2102892...	30000	TRIM	S	2020-02-12	2020-02-13		12:40:02.0000...
Press22	5FD15012 / 13	20022774-A3	AB39-21111K3...	24000	Draw	S	2020-02-12	2020-02-13		14:36:28.0000...
Press23	5FD15012 / 13	20022744F4	AB39-21111K3...	20000	3 X TRIM & PIE...	S	2020-02-12	2020-02-13		11:12:12.0000...
Press24	5FD16007 / 12	20022772-3	AB39-2102892...	29900	Form	S	2020-02-11	2020-02-13		07:50:22.0000...

6. Adjustments to Product Codes

This section is to assist the planner in making changes to crucial information relating to any product that is listed in the product list table or add a new product. Select the 'Add or Correct Product List' button



In this screen you can filter by the Machine Name and then simply select the product that you want to adjust, edit the information that needs to be updated and then select save. When adding a new product, select the plus button and all the fields will be empty, populate all the fields with the relevant information relating to the new product. Once completed, select the save button and the new product has been added for the selected machine.



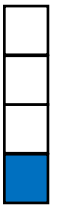
7. Stack Lights

This section is available for the purpose of giving an indication of different statuses of the OEE or stages of production.

Red Light
Solid Red Light – Machine is ready to run. The operator needs to start the machine.
Flickering Red Light – The machine is experiencing some sort of a fault e.g. estop is pressed.

Orange Light
The orange light indicates that the system is in a long stop and the operator has an outstanding reason that needs to be booked for a production delay/machine stoppage.

Green Light
Solid Green Light – The machine is running normal.
Flashing Green Light – This means that the machine is in slow running in other words producing less than the target



Blue Light
Solid Blue Light – The system is in maintenance mode
Flashing Blue Light – The system is in tool setup mode (a tool is being changed)