SIX SIGMA PROJECT CHARTER - DEFINE

P1

PROJECT TITLE 2300C PRODUCTION LINE SCRAP REDUCTION & SECONDARY EQUIPMENT RELIABILITY IMPROVEMENT

BUSINESS IMPACT

Why is this problem important to business? How is the problem impacting business results in terms of Safety, Quality, Delivery, Environment? Cost?

The impact to the business is financial which can be extrapolated to include the cost of loss of profit, recycling costs, disposal cost, rework costs, re-make the and replenishement costs loss of profit etc. The scrap report below was generated from the time period between 01-Jan-20 to 31-Oct-20

LH WHL Front/Rear G05 (# 113135604)	131,644	◄TOTAL PARTS PRODUCED	1,680	◄TOTAL SCRAPPED PARTS	$4,741	◄ PART COST LOSS TOTAL
RH WHL Front/Rear G05 (# 113135704)	128,536	◄TOTAL PARTS PRODUCED	2, 683	◄TOTAL SCRAPPED PARTS	$7,686	◄ PART COST LOSS TOTAL
Wheelhouse Liner Fr/Fr LH G05 (# 113135403)	135,190	◄TOTAL PARTS PRODUCED	1,751	◄TOTAL SCRAPPED PARTS	$5,003	◄ PART COST LOSS TOTAL
Wheelhouse Liner Fr/Fr RH G05 (# 113135503)	133,159	◄TOTAL PARTS PRODUCED	2,783	◄TOTAL SCRAPPED PARTS	$8,013	◄ PART COST LOSS TOTAL
LHD Cowl Grill Center G05/G6/G7 (# 113069403)	185,933	◄TOTAL PARTS PRODUCED	12,581	◄TOTAL SCRAPPED PARTS	$12,727	◄ PART COST LOSS TOTAL
Lower Partition Wall LHD G0506 (# 113133905)	195,744	◄TOTAL PARTS PRODUCED	4,679	◄TOTAL SCRAPPED PARTS	$8,555	◄ PART COST LOSS TOTAL
Center Partition Wall LHD G0506 (# 113133505)	187,261	◄TOTAL PARTS PRODUCED	8,555	◄TOTAL SCRAPPED PARTS	$10,202	◄ PART COST LOSS TOTAL
SCR Tank BR167 Daimler (#112513903)	54,184	◄TOTAL PARTS PRODUCED	2,635	◄TOTAL SCRAPPED PARTS	$72,825	◄ PART COST LOSS TOTAL
SCR Tank VS30 Daimler (# 113772901)	14,854	◄TOTAL PARTS PRODUCED	1,226	◄TOTAL SCRAPPED PARTS	$24,038	◄ PART COST LOSS TOTAL

EXPECTED OUTCOMES TARGETED GOALS

What do we want to achieve? How should things work? What actions will address the most important causes? What will be some of benefits to this project?

We want to make a 50% reduction in scrap parts for those identified part numbers from their current scrap rates. Focus on 2300C as this is the production with the most valuable part that you manufacture. Conduct improvement activities on 6 major product family parts as detailed in the Business Impact and at least once on all the other product family parts within the first of the year 2021. Reduce the number of external quality defective excaping to the customers of these part families MBSUI and BMW by 50% in the first year of project 2021.

OPPORTUNITY OR PROBLEM STATEMENT

What is wrong with what? Who is affected? What is known? Why are we talking about this? Customer non-conformance? Performance gaps? Lost Opportunity?

For the past 10 months the scrap rate for each of the selected parts has been above plan with the following current combined scrap rates have been 01.01.20 - 11.30.20. Baseline numbers:-

- 2300A BMW G05 LH/RH Rear Section Wheel House Liner = 1.7% scrap
- 2300B BMW G05 LH/RH Front Section Wheel House Liner = 1.7% scrap
- 1300A BMW G05/G06 LHD Center Partition Wall = 4.4% scrap
- 1300A BMW G06/G06 Lower Partition Wall = 2.2% scrap
- 2300G BMW G05/G06/G07 Cowl Grill = 6.9% scrap
- 2300C Daimler BR167 SCR Tank = 4.9% scrap • 2300C Daimler VS30 SCR Tank = 8.1% scrap • 2300C BMW Gen 3 G05/G06 SCR Tank = 5.5% scrap • 2300C BMW Gen 4 G05/G06 SCR Tank = 5.4% scrap

ACTION ITEMS AND COUNTERMEASURES

Who is going to do what by when? Follow up? How will the action items be managed?

Refer to improvement phase of project charter tabs for specific actions items by department, by person, by date. The action items will be managed by the individual tasks and associated sub-tasks assigned to each department as a breakdown by priority of impact.

GOAL STATEMENT

What do we want to achieve? How should things work? What actions will address the most important causes? What will be some of benefits? Expected Outcomes?

Reduce scrap for selected products in scope by 50% within one year of beginning of project for each of the product families listed in Business Impact with emphasis being on 2300C as this is the most expensive production line for scrap - see Business Impact above.

MEASURES AND METRICS

What will be the long term effectiveness tracking measurements, metrics periods to show the Improvement Case has had affect and no recurrence of the problem?

For production lines 2300A, 2300B, 1300A, 2300G will be scrap as sum of parts ran minus the sum defective scraped parts. 2300C as it is a multi process production line will use both total scrap and roll throughput yield of the individual work stations as each work station introduces a conponent that changes the in process value of the part.
The reporting period for project review and acheived milestones will be held weekly with the team members selection below in Team Selection. We will review:-

- Scrap for the previous calendar week
- Equipment related breakdown and basic analysis report taken from JOT
- Roll througput yield on a monthly basis
- Action items reviews per department

PROJECT SCOPE

What is in-scope to the problem? What if there is more than one problem? What can we get achieved in 3-5 days to get noticeable results?

The scope of the project will be limited to IMM 2300A PRODUCTION LINE # 3011032 - IMM 2300B PRODUCTION LINE # 3011034 - IMM 1300A PRODUCTION LINE # 3011028 - IMM 2300G PRODUCTION LINE # 3011038 - IMM 2300C PRODUCTION LINE # 3011036 - All process or part families are out of scope with this project.

Specific parts:-

IMM 2300A - LH WHL Front/Rear G05 (# 113135604) / RH WHL Front/Rear G05 (# 113135704)
IMM 2300B - Wheelhouse Liner Fr/Fr LH G05 (# 113135403) / Wheelhouse Liner Fr/Fr RH G05 (# 113135503)
IMM 1300A - Lower Partition Wall LHD G0506 (# 113133905) / Center Partition Wall LHD G0506 (# 113133505)
IMM 2300G - LHD Cowl Grill Center G05/G06/G07 (# 113069403)
IMM 2300C - SCR Tank BR167 Daimler (#112513903) / SCR Tank VS30 Daimler (# 113772901)/SCR Tank Gen 3 G05/G06 BMW (# 113068907)

PROJECT PLAN

When are we going to start the project? When would we like to finish the project? What are some of the major milestones? What are the five W's and five M's?

The project started on September 1st 2020 and projected as a goal to be completed by March 31st 2021 Major milestones will be the acheivement of the targeted scrap reduction goal as a percent % for each of the five (5) products listed in 1. The Who, What, Where, When, How, and How much can found on each of the individual department action item activities for the IMPROVE tabs of this charter. Inside each improve tab covers the resources People, Facilities, Equipment, and Materials that will be needed. Identified project activities with a schedule that includes an estimate of when each activity will take place and what resources are required to finish the tasks the project plan document is expected to change over time as more information about the project becomes available will be seen for each department undertaking their specific plan of action as this is a muilti-department resources requiremnts.

Parts and machines are: - • 2300A All BMW parts Wheel House Liner • 2300B All Volvo parts Wheel House Liner • 1300A All parts Lower Partition Wall / Center Partitiion Wall • 2300G All parts Cowl Grill BMW • 2300C All parts SCR Tanks BMW MBUSA

TEAM SELECTION

Who needs to be involved in the project? Operators? Subject matter experts? Vendors? Customers? Independent observers? What will be their roles?

NAME	JOB TITLE	DEPARTMENT / COMPANY	SIX SIGMA PROJECT ROLE
Fred Webberking	Continuous Improvement Engineer	Roechling Automotive	Leader
Brad Turner	Process Manager	Roechling Automotive	Member
Tim Mittmann	Director Project Management	Roechling Automotive	Sponsor
Stefan Pardeller	Technical Supervisor	Roechling Automotive	Member
Jammie Rasmussen	Maintenance Manager	Roechling Automotive	Member
Keaton Walker	Automation Engineer	Roechling Automotive	Member
Vladik Zadorozhnyy	Automation Engineer	Roechling Automotive	Member
Matthew Urias	Tooling Manger	Roechling Automotive	Member
Rober Kehler	Process Engineer	Roechling Automotive	Member
Brian Walulik	Technical Director	Roechling Automotive	Member

SIX SIGMA PROJECT CHARTER - MEASURE

P2

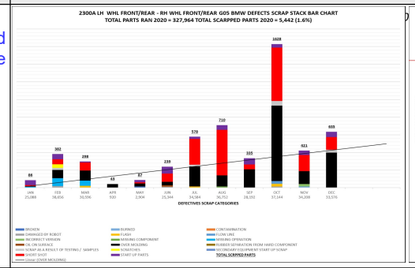
PROJECT TITLE	2300C PRODUCTION LINE SCRAP REDUCTION & SECONDARY EQUIPMENT RELIABILITY IMPROVEMENT

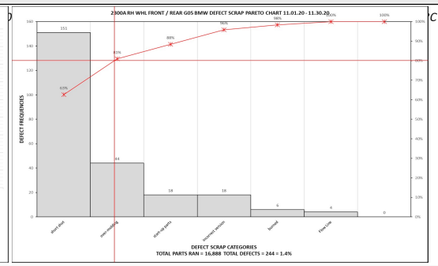
2300A BASE LINE MEASUREMENT

Have relevant Key Performance Indicators been selected and or developed? Have the KPIs been defined clearly using process maps and operational definitions?

Scrap is measured in several different ways whether measuring internal or external as a metric. Quality as an 'operational definition' is measured as good goods ran against bad parts produced as a percentage or count. Other measures specific to a particular project line use Roll Throughput Yield as in the case of a multi-process production cell such as 2300C which is a production cell that has discrete operations.

- 2300A BMW G05 LH Front Rear Section Wheel House Liner - Total parts ran in 2020 = 166,036 - Total scrapped parts 2020 = 2,185 = 1.3%
- 2300A BMW G05 RH Front Rear Section Wheel House Liner - Total parts ran in 2020 = 166,928 - Total scrapped parts 2020 = 3,234 = 1.9%



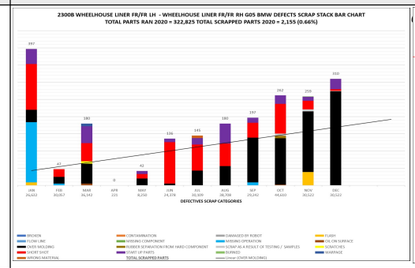


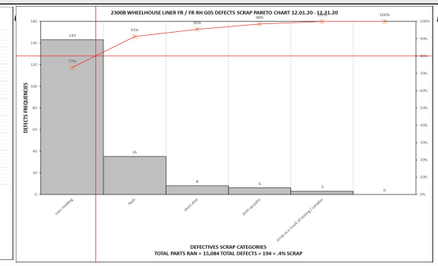
...cted already available or did you have mine it?

2300B BASE LINE MEASUREMENT

Is the quality of the data been checked challenged using a measurement system analysis such as a gauge repeatability and reproducibility?

- 2300B BMW G05 LH Front Front Section Wheel House Liner - Total parts ran in 2020 = 162,562 - Total scrapped parts 2020 = 1,977 = 1.2%
- 2300B BMW G05 RH Front Front Section Wheel House Liner - Total parts ran in 2020 = 160,255 - Total scrapped parts 2020 = 3,126 = 1.9%



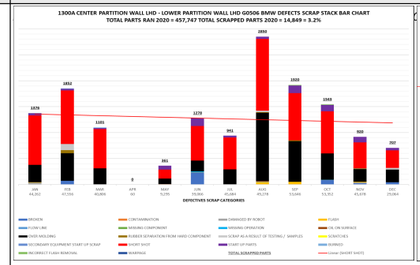


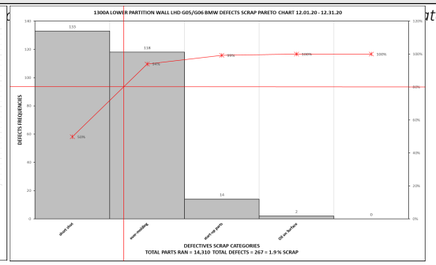
...have been selected for the problem and why?

1500B BASE LINE MEASUREMENT

Has the process capbillity been analyzed if applicable to the problem and the problem goal statement updated if necessary? Does the process look stable?

- 1300A BMW G05/G06 LHD Center Partition Wall - Total parts ran in 2020 = 437,606 - Total scrapped parts 2020 = 20,140 = 4.4%
- 1300A BMW G06/G06 LHD Lower Partition Wall - Total parts ran in 2020 = 447,676 - Total scrapped parts 2020 = 10,070 = 2.2%



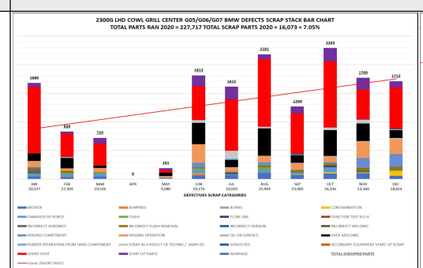


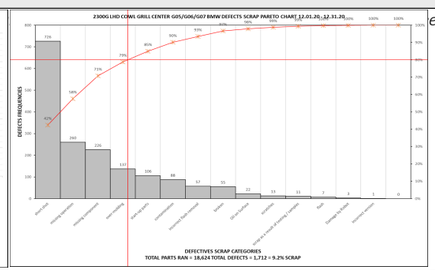
...ta during Analyze? In what context?

2300G BASE LINE MEASUREMNT

Where is the data and information coming from? Is it reliable and trustworthy? What has been learnt about the historical behavior of the whole process/s?

- 2300G BMW G05/G06/G07 Cowl Grill - Total parts ran in 2020 = 227,717 - Total scrapped part in 2020 = 16,073 = 7.0%





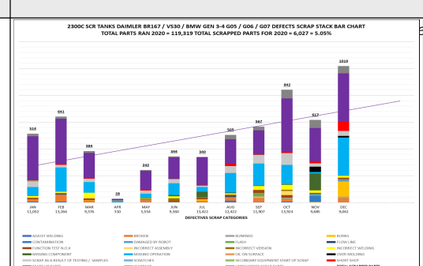
...en converted into a Sigma level?

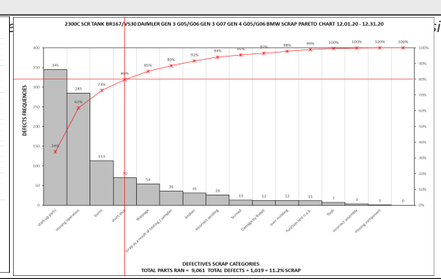
2300C BASE LINE MEASUREMENT

What is the best the process has ever performed and worst? Over what time period was the baseline performance of the process been established?

- 2300C Daimler BR167 SCR Tank Total parts ran in 2020-21 YTD = 63,864 - Total scrapped parts in 2020-21 = 3,275 = 5.1%
- 2300C Daimler VS30 SCR Tank Total parts ran in 2020021 YTD = 18,727 - Total scrapped parts in 2020-21 = 1,554 = 8.2%
- 2300C BMW Gen 3 G05/G06 SCR Tank Total parts ran in 2020-YTD = 21,624 - Total scrapped parts in 2020-21 = 1,266 = 5.8%
- 2300C BMW Gen 4 G05/G06 SCR Tank Total parts ran in 2020 = 15,104 - Total scrapped parts in 2020-21 = 1,090 = 7.2%
- 2300C Roll Throughput Yield 2021 to date as of 10.08.21 is 84.23% as a measure of long term performance.

- MTBF = 2.9 hrs - MTTR = 1.5 hrs - 41.5 hrs downtime - 42 breakdowns average between survey period of 06.14.21 to 07.26.21
- Conducted a measurement of historical data taken from the data aquisition registry detailing measured failure for both 0040-3017193 Shell to Shell Welder and the 0080-3017195 End Of Line Tester which yielded invaluable information for in process failures which can be view in the EVIDENCE tab of this charter by clicking on the hyperlink 0040-3017193 Production Data. Also the same information for the 0080-3017195 End Of Line Tester click on the hyperlink 0080-3017195 Production Data.





...ing historical data and information?

SIX SIGMA PROJECT CHARTER - ANALYZE

PROJECT TITLE	2300C PRODUCTION LINE SCRAP REDUCTION & SECONDARY EQUIPMENT RELIABILITY IMPROVEMENT

2300C

Has if applicable been mapped in detail as it is? Have the selected team gained first hand experience of the product, process, system, equipment or machine?

After reviewing the pareto charts and stack bar charts the major contributor to scrap parts was not actually defects. The injection molding machine on 2300C produces the top and lower SCR tank shells in one cycle as a matched pair. After molding the two parts the top and bottom shells of the tank have components installed on them such as vent tubes and module pumps at discrete work cell station downstream the injection molding process. It was discovered that if the two halves of the SCR tank if allowed to cool to room temperature the parts cannot be processed any further down the production cell from the injection molding process or after discrete operation station 0020 or 0030. If a single discrete operation station were to become unavailable because of a equipment related unplanned breakdown the parts off from the injection molding machine would have to be thrown away if they came down to room temperature. The parts essentially are good, not defective unless they came to room temperature. The amount of parts that were allowed to accumulate when this occurred was not specific. The operators would record the scrapped parts as 'Missing Operation' on the DCDS. 'Missing Operation' and 'Start Up Parts' are the two biggest contributors to defective scrapped parts as seen on the Pareto Chart.

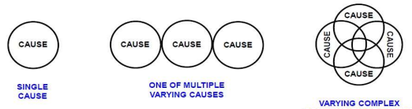
Has designed experiments (DOE) been used where applicable to find the critical process inputs? What are the key roots causes of failures or critical process inputs.

This a downloaded data taken from 0040-3017193 Shell To Shell clearly showing welding force the number one processing error as to why the machine is failing to meet it performance was for torque outs.

Part_station	Row Labels	Count Of Part_station
C58) Piece 1 Removed from mask		
C42) Welding started	Piece 1 H2	
Piece 1 H2	Piece 1 H2	2644
C49) Nut processing oside	C49) Welding end force NOK	2265
Piece 1 H2	C58) Piece 1 removed from holding fixture	825
C101) Piece 1 Removed from the exhaust arm	C42) Welding started	295
Piece 1 H2	C39) Melting Test cycle started	288
C39) Melting Test cycle started	C49) Nut processing oside2	180
C39) Melting Test cycle started	C49) ----	165
C39) Melting Test cycle started	C41) Melting end force NOK	76
C39) Melting Test cycle started	C49) Nut production oside	64
C43) Welding started	C42) Min. melting force NOK	59
C58) Piece 1 removed from holding fixture	C32) RT presence check 1 at cycle start NOK	53
C39) Melting Test cycle started	C40) Ex-change time NOK	27
C58) Piece 1 removed from holding fixture	C49) Nut processing oside2	26
C42) Welding started	C39) Fusion Test Cycle Started3	20
C43) Welding started	C101) Piece 1 is removed from unloading arm	17
C43) Welding started	C103) Presence check 1 NOO	12
C42) Min. melting force NOK	C101) Piece 1 Removed from the exhaust arm2	7
C43) Welding started	C43) Flattening time NOK	7
C42) Min. melting force NOK	C80) Tech without controls at Start2	4
C39) Melting Test cycle started	C48) Free Force Welding NOO	3
C39) Melting Test cycle started	C40) NOO Exchange Time2	2
C43) Welding started	C58) Factory 1 removed from e-scoring	2
C43) Min. melting force NOK	C58) Factory 1 removed from e-scoring2	1
C40) Welding started	Welch set 1 KO2	1
C43) Min. melting force NOK	C32) 1 right presence control at the beginning of the NOO 2	1
C40) Welding started	Grand Total	6890

Has a Failure Mode Effect Analysis been used if applicable to identify the greatest areas of risk in the product, process, system, equipment or machine?

The maintenance, automation and processing department will need to have a way and means to record unplanned events to capture all and any lost time event to use for analysis for the 'Missing Operations' events. When we have failures every day that occur in a tangled web of difference reasons and different varying causes it is hard if not impossible to determine a recurring pattern that can help us go from the general to the specific. Small almost unnotice deviations from established standards when left unrepaired or restored their performance reductions can have a cummulative effect that can exceed individual contributions. That



What were your theories about the potential cause/s of the problem when you started the Analyze phase? Were those theories proven during the analysis or not?

This a downloaded data taken from 0080-30171953 End of Line Tester clearly showing welding force the number one processing error as to why the machine is failing to meet it performance was failing to install bushing number 3 for VS30.

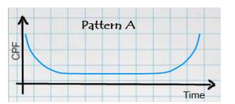
Part_station	Part_station	Count
C25) Datamatrix Camera Control NIO Pump	C20) Piece H2	40842
C42) Motor for lock of Big Bushing	C20) Piece H2	40842
C70) Time Out bushing insertion 2	C76) Bushing insertion Inter-lock 3	3,760
C71) Bushing 2 removed at the end of the cycle	C76) Bushing insertion Inter-lock 3	3,760
C72) Bushing 3 removed at the end of the cycle	C78) Bushing insertion Inter-lock 2	159
C25) Datamatrix Camera Control NIO Pump	C42) Scrap for lock Small sleeve	148
C72) Bushing 2 removed at the end of the cycle	C25) Datamatrix Camera Control NIO Pump	134
C27) Bushing 3 removed at the end of the cycle	C25) Datamatrix camera control NIO eumo	114
C27) Bushing 2 removed at the end of the cycle	C73) Bush 2 removed at the end of the cycle	98
C27) Bushing 3 removed at the end of the cycle	C73) Bush 3 removed at the end of the cycle	60
C00) ----	C00) ----	26
C25) Datamatrix Camera Control NIO Pump	C00) ----	26
C77) Bushing 3 removed at the end of the cycle	C42) Pump Scrap - Signal from Temperature sensor not present	19
C77) Bushing 2 removed at the end of the cycle	C42) Pump Scrap - Signal from Pressure sensor not present	16
C40) Piece H1	C42) Scrap from aeration bushing 4	10
C00) Ready for station 3	C48) Scrap for missing large sleeve	6
C20) Piece H2	C58) Pump Scrap - Timeout minimum speed of pump not reached	5
C76) Bushing 2 removed at the end of the cycle	C73) Bushing 2 removed at the end of the cycle	2
C76) Bushing 3 removed at the end of the cycle	C77) Motor for lock of Big Bushing	2
C40) Motor for lock of Bulkhead	C00) Ready for station 3	2
C77) Bushing 3 removed at the end of the cycle	C40) Pump Scrap - Pressure value after test out of tolerances	2
C77) Bushing 2 removed at the end of the cycle	C00) Ready for station 3	2
C45) Scrap for missing Large Bush	C41) Pump Scrap - Signal from Pressure sensor not present	2
C77) Bushing 2 removed at the end of the cycle	C70) Time Out bushing insertion 3	1
C42) Motor for lock Small Bushing	C70) Time Out bushing insertion 2	1
C77) Bushing 3 removed at the end of the cycle	C48) Scrap for missing Saree Bush	1
C77) Bushing 3 removed at the end of the cycle	C72) Bushing 2 present on the inserter at the end of the cycle	1
C76) Bushing insertion Inter-out 3	C57) Pump scrap - Sensor value Temperature out of tolerance	1
C66) Bushing insertion Inter-out 1	C57) Pump scrap - Pressure sensor value before motor test out of tolerance	1
C45) Piece H2	None	1

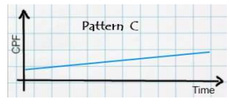
Has Brainstorming 5 Whys Fishbone diagrams been used to identify possible root causes? Has the data been analyzed graphically to investigate the clues within?

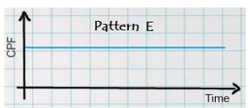
Faults are manifested as errors, which in turn are manifested as failures (Avizienis, 2004). A failure pattern describes how a failure is produced from a fault, identifies the components which are involved in the failure, the specific errors which allowed the failure to occur, and the effect of the failure on the system. If the failure was intentional (instead of produced by an accidental fault), it can also be described. The failure pattern also provides a solution to avoid this failure in the form of reliability and security patterns, as well as a way to store and analyze the information collected at each stage of the failure. Due to their dynamic descriptions, failure patterns allow countermeasures to be included to mitigate the identified failures.

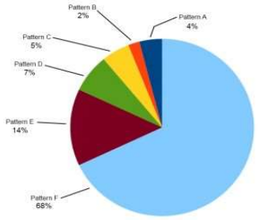
The secondary equipment on 2300C are exhibiting failures in the patterns of B and C Wear Out and Fatigue respectively. Mainly because of inadequate or no proactive maintenance procedures.

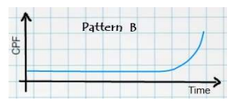
If an FMEA was completed, what risks were identified for reduction? What if any hypothesis tests were used? Why? In what ways was the data collected stratified?

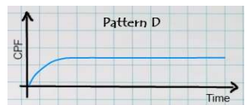


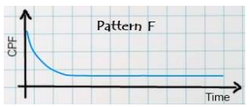












Have hypothesis tests been used where applicable to verify observations made from the graphical analysis? Has the data been stratified where possible for clues?

Pattern A This is the most famous failure pattern. It's commonly known as bathtube, due to its shape. We can identify three main zones. First, a high failure probability at the beginning of the operating life that decreases until it became stable. This zone is called infant mortality and means that when we install a new component there is an initial high risk of failure. The second zone is the rest of the useful life with a lower and constant failure probability. Finally, at the end, we identify a wear-out zone. In this pattern, replacing the component before reaching this last zone will reduce the failure probability. However, we need to take into consideration that we are also introducing high chances of early failures due to infant mortality.

Pattern C In this pattern, the conditional probability increases at a constant rate along the life of the component. We can't identify a definite wear-out zone so, there isn't an optimum time to replace the item. Nevertheless, we could replace the component when the failure probability reaches a certain value

What are the key ways in which the process or product fails in the mode or how it manifests itself? What if any hypothesis tests were used initially and Why?

Pattern B. This pattern is the same as the previous one but without the infant mortality zone at the beginning. Sometimes the absence of this initial zone is a characteristic of the component itself and other times is because the manufacturer had eliminated all the components with early defects. This elimination process is commonly known as burnout test.As well as in the pattern A, replacing the component before the wear-out zone is a good way of reducing the chances of failure and in this particular case we are not introducing extra failure possibilities due to infant mortality.

Pattern D This pattern shows a really low probability of failure at the beginning of the component's life which then increases up to a certain level that remain constant through the rest of its operating life. It's worth remarking that this area with a constant conditional probability shows us that the failures occur randomly. In this way, the replacement of a component won't bring up any benefit except for the already mentioned brief period of low failure probability at the beginning, which is truly insignificant compared to the rest of the useful life of the

Has correlation and regression techniques been used if applicable to understand and quantify the relationships between the critical process inputs and outputs?

Pattern E This pattern shows a constant failure probability along the component's life. We call this pattern a random failure distribution. Here, there is nothing that a component replacement can do to reduce the probability of a failure.

Pattern F This pattern is also a random failure distribution, but with an infant mortality area at the beginning. In this case, replacing a component not only won't bring up any benefit but also will increase the failure probability because we are introducing the initial high failure probability area of the new component's infant mortality.

Are you and the team confident that you know the true root causes that produce the majority of your process failures? How did the team get to know the process?

Now that we have identified the different patterns, it's time to analyze how the failure patterns are distributed among the components. That study in the 60's showed that for civil aviation, the components that belonged to each pattern were distributed as shown above These percentages come from the aviation industry, but are highly transferable to complex equipment in other fields and industries. The first conclusion is that in 68% of the cases (Pattern F), if we perform a scheduled replacement we are increasing the chances of failures. Moreover, in almost 90% of the cases (patterns D, E and F) that practice won't be effective at all.

SIX SIGMA PROJECT CHARTER - IMPROVE - SECONDARY EQUIPMENT

№	Action Item	Responsible	Due Date	Status
01.00	**0010-3011036 - 2300C IMM PRODUCTION LINE CELL**	**PRODUCTION LINE # 3011036 SECONDARY EQUIPMENT -** Current data collection is under developed and needs to be improved for better accuracy		
01.01	Redesign hour by hour board to eliminate wasteful data collection process	F. Webberking	23-Aug-20	
01.02	Update both the defect collection data sheet and hour by hour form and register on doc control on Ranet	F.Webberking	30-Sep-20	
01.03	Train all affected associates in the use of the new takt board and how to fill out new forms	F. Webberking	01-Oct-20	
01.04	Train all affected associates on 1st, 2nd and 3rd on proper data information collection and reporting	F. Webberking	30-Oct-20	
01.05	Run scrap reports from SAP to establish a baseline on scrap for each of the production lines in scope	F. Webberking	30-Oct-20	
01.06	Develop training documents on how to fill out DCDS SCSAS and train all operators on 1st 2nd and 3rd shifts	F. Webberking	14-Nov-20	
01.07	Translate German words to English on SCSAS update form and re-register on RAnet re-release on shopfloor	F. Webberking	05-Nov-20	
01.08	Run weekly scrap reports from SAP to monitor long term effectiveness tracking on corrective actions taken in collaboration with the process, automation, maintenance and set up departments	F. Webberking	31-Dec-21	
02.00	**0010-3011036 - 2300C IMM PRODUCTION LINE CELL**	**CONDUCT TIME STUDY -** Gain understanding of operations of 2300C as a manufacturing cell.		
02.01	Conduct time study on 2300 to observe work content to investigate problem of parts falling on the floor.	F. Webberking	23-Nov-20	
02.02	Summarize results of time study	F.Webberking	30-Nov-20	
02.03	Share results of time study with affected and stake holders	F. Webberking	06-Dec-20	
02.04	Propose and make necessary improvements	F. Webberking	12-Dec-20	
02.05				
03.00	**0010-3011036 - 2300C IMM PRODUCTION LINE CELL**	**REDESIGN HOUR BY HOUR BOARDS -** To eliminate wasteful data collection process		
03.01	Redesign hour by hour board to eliminate wasteful data collection process	F. Webberking	23-Aug-20	
03.02	Update both the defect collection data sheet and hour by hour form and register on doc control on Ranet	F.Webberking	30-Sep-20	
03.03	Train all affected associates in the use of the new takt board and how to fill out new forms	F. Webberking	01-Oct-20	
03.04	Train all affected associates on 1st, 2nd and 3rd on proper data information collection and reporting	F. Webberking	30-Oct-20	
03.05	Run scrap reports from SAP to establish a baseline on scrap for each of the production lines in scope	F. Webberking	30-Oct-20	
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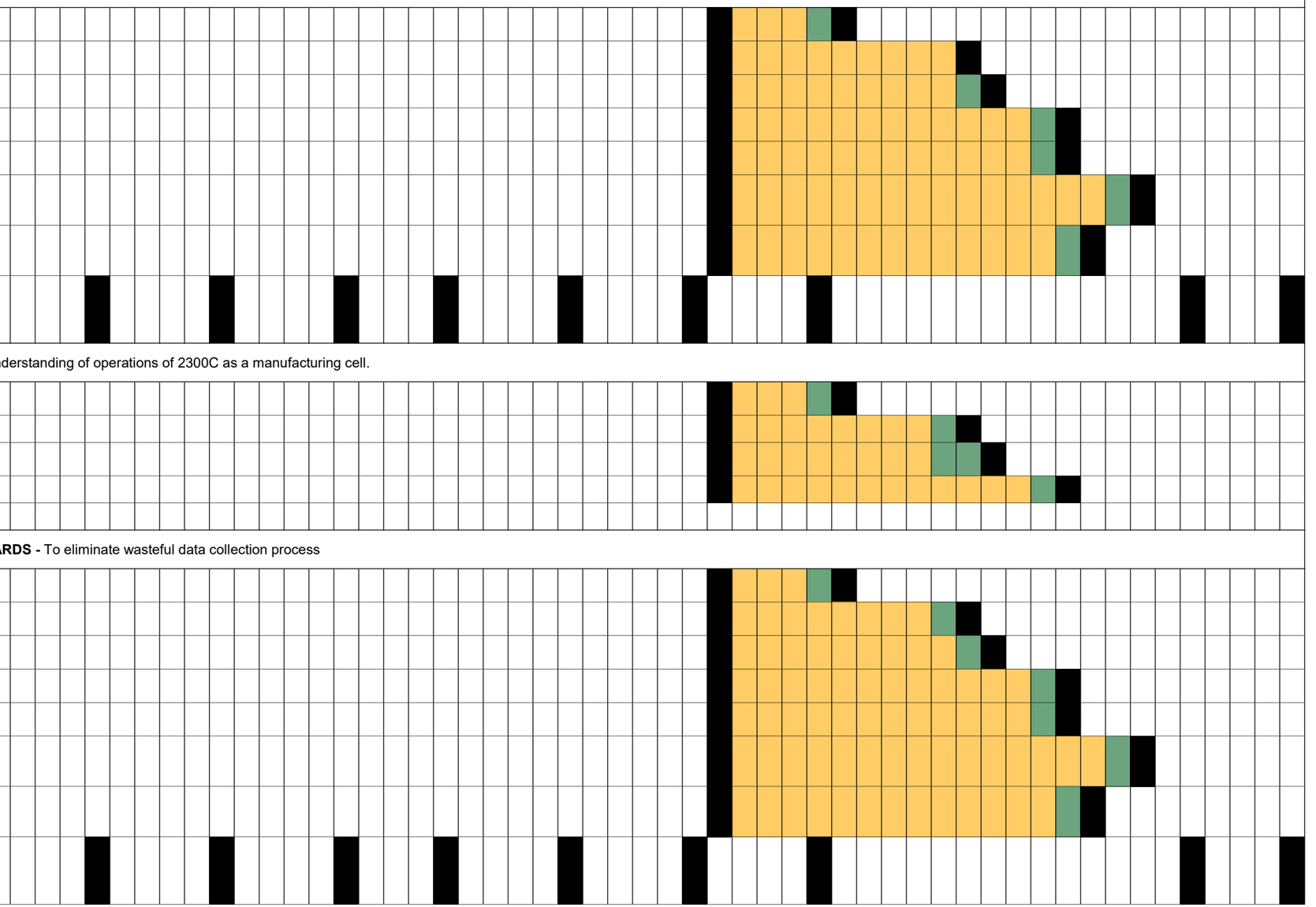
03.07	Translate German words to English on SCSAS update form and re-register on RAnet re-release on shopfloor	F. Webberking	05-Nov-20	
03.08	Run weekly scrap reports from SAP to monitor long term effectiveness tracking on corrective actions taken in collaboration with the process, automation, maintenance and set up departments	F. Webberking	31-Dec-21	

Week № 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52

3-Jan 10-Jan 17-Jan 24-Jan 31-Jan 7-Feb 14-Feb 21-Feb 28-Feb 7-Mar 14-Mar 21-Mar 28-Mar 4-Apr 11-Apr 18-Apr 25-Apr 2-May 9-May 16-May 23-May 30-May 6-Jun 13-Jun 20-Jun 27-Jun 4-Jul 11-Jul 18-Jul 25-Jul 1-Aug 8-Aug 15-Aug 22-Aug 29-Aug 5-Sep 12-Sep 19-Sep 26-Sep 3-Oct 10-Oct 17-Oct 24-Oct 31-Oct 7-Nov 14-Nov 21-Nov 28-Nov 5-Dec 12-Dec 19-Dec 26-Dec



SIX SIGMA PROJECT CHARTER - IMPROVE - SECONDARY EQUIPMENT

№	Action Item	Responsible	Due Date	Status	Week № 1 (3-Jan)	2 (10-Jan)	3 (17-Jan)	4 (24-Jan)	5 (31-Jan)	6 (7-Feb)	7 (14-Feb)	8 (21-Feb)	9 (28-Feb)	10 (7-Mar)	11 (14-Mar)	12 (21-Mar)	13 (28-Mar)	14 (4-Apr)	15 (11-Apr)	16 (18-Apr)	17 (25-Apr)	18 (2-May)	19 (9-May)	20 (16-May)	21 (23-May)	22 (30-May)	23 (6-Jun)	24 (13-Jun)	25 (20-Jun)	26 (27-Jun)	27 (4-Jul)	28 (11-Jul)	29 (18-Jul)	30 (25-Jul)	31 (1-Aug)	32 (8-Aug)	33 (15-Aug)	34 (22-Aug)	35 (29-Aug)	36 (5-Sep)	37 (12-Sep)	38 (19-Sep)	39 (26-Sep)	40 (3-Oct)	41 (10-Oct)	42 (17-Oct)	43 (24-Oct)	44 (31-Oct)	45 (7-Nov)	46 (14-Nov)	47 (21-Nov)	48 (28-Nov)	49 (5-Dec)	50 (12-Dec)	51 (19-Dec)	52 (26-Dec)
04.00	**0010-3011036 - 2300C IMM PRODUCTION LINE CELL**	**REVIEW 2300C PFMEA -** Relook PFMEA for content and accuracy.																																																									
04.01	Revisit Process flow block diagram or process map and PFMEA and control plan is basic in its construction and is unusable as a reference to build or revise the PFMEA. Re-writing and mapping the whole processes on each line from end to end either as flow block diagram or process flow map would be too time consuming and a resource issue.	F. Webberking	06-Jan-21																																																									
04.02	Audit all and any current state work instructions pack out instructions, checklists visuals, single point lessons, quality alerts for robustness and conformance. Fred Webberking to schedule an on the floor meeting to audit the production line with the members of this team on 01/14/21.	F. Webberking	21-Jan-21																																																							
04.03	Provide Andrew Klein with cost of poor quality in terms of chargebacks and other penalties for the last 6 months. This will allow him to build a ROI case for some his ideas on mistake proofing.	S. Kilpatrick	06-Jan-21																																																							
04.04	Re-look proposed solutions that Andrew Klein came up that were to build into the process mistake proofing mechanisms but were not adopted because of the cost and present package to upper management and controller who can decide if this is feasible and want to go ahead with implementations. Propose solutions using RA establish CapEx procedures and routing as necessary.	A. Klein	31-Jan-21																																																								
04.05	Reach out to Germain Pearson and ask him if would join this team to offer perspective from operations.	F. Webberking	06-Jan-21																																																									
04.06	Make visual aids and visual reminders and alerts as to the correct color of label and ribbon storage locations on both 2300A and 2300B label printers	F. Webberking	31-Jan-21																																																								
04.07	Design, make and install color coded signboard posts (yellow/pink) for LH and RH staging LH and RH totes line side storage.	F.Webberking	31-Jan-21																																																								
04.08	Install yellow separation rails to segregate LH and RH tote container line side for both 2300A and 2300B	F. Webberking B. Johnson	01-Jan-21																																																								
04.09	Design, make and install color coded (yellow/pink) work tables for LH and RH for 2300A and 2300B	F. Webberking	12-Jan-21																																																								
04.10	Order and install abrasion resistant LH and RH yellow and pink circle signs to be amounted on the top surface of both work tables on 2300A/B	F. Webberking	31-Jan-21																																																								
04.11	Re-instate the photo-electric sensors on 2300A and 2300B and put back in the programmed logic at the end of the exit conveyor to stop the conveyor, stop the robot and stop the injection molding machine when the operator packs out and when the operator prints and applies labels.	F. Webberking	01-Jan-31																																																								
04.12	Order materials for and make twelve dedicated bar code “LOPA boards” (level of protection assurance) for each 2300A BMW RH/LH R and 2300B RH/LH F and store for use line side at the RAFIT boards.	F. Webberking	22-Jan-21																																																							
04.13	Update cell layouts of 2300A and 2300B to include new tables and recently installed separation rails and sign posts on both 2300A/B sign, print out and post on both 2300A/B RAFIT boards.	B. Johnson	21-Jan-21																																																							
04.14	Install floor colored coded yellow LH pink RH arrowed signs that lead the operator up and down the side of the pack out totes on both 2300A and 2300B.	F. Webberking	31-Jan-21																																																								

SIX SIGMA PROJECT CHARTER - IMPROVE - SECONDARY EQUIPMENT

P6

№	Action Item	Responsible	Due Date	Status	Week № 1 (3-Jan)	2 (10-Jan)	3 (17-Jan)	4 (24-Jan)	5 (31-Jan)	6 (7-Feb)	7 (14-Feb)	8 (21-Feb)	9 (28-Feb)	10 (7-Mar)	11 (14-Mar)	12 (21-Mar)	13 (28-Mar)	14 (4-Apr)	15 (11-Apr)	16 (18-Apr)	17 (25-Apr)	18 (2-May)	19 (9-May)	20 (16-May)	21 (23-May)	22 (30-May)	23 (6-Jun)	24 (13-Jun)	25 (20-Jun)	26 (27-Jun)	27 (4-Jul)	28 (11-Jul)	29 (18-Jul)	30 (25-Jul)	31 (1-Aug)	32 (8-Aug)	33 (15-Aug)	34 (22-Aug)	35 (29-Aug)	36 (5-Sep)	37 (12-Sep)	38 (19-Sep)	39 (26-Sep)	40 (3-Oct)	41 (10-Oct)	42 (17-Oct)	43 (24-Oct)	44 (31-Oct)	45 (7-Nov)	46 (14-Nov)	47 (21-Nov)	48 (28-Nov)	49 (5-Dec)	50 (12-Dec)	51 (19-Dec)	52 (26-Dec)
04.15	Make and install guard for photo electric sensor to protect it and it cable connection from accidently being knock by operator pulling parts from exit conveyor	F. Webberking	31-Jan-21																																																								
05.00	**0010-3011036 - 2300C IMM PRODUCTION LINE CELL**	**REDESIGN RAFIT BOARDS -** Contains irrelevant and unnecessary information, forms and documents																																																									
05.01	Redesign hour by hour board to eliminate wasteful data collection process	F. Webberking	23-Aug-20																																																									
05.02	Update both the defect collection data sheet and hour by hour form and register on doc control on Ranet	F.Webberking	30-Sep-20																																																								
05.03	Train all affected associates in the use of the new takt board and how to fill out new forms	F. Webberking	01-Oct-20																																																								
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05.07	Translate German words to English on SCSAS update form and re-register on RAnet re-release on shopfloor	F. Webberking	05-Nov-20																																																					
05.08	Run weekly scrap reports from SAP to monitor long term effectiveness tracking on corrective actions taken in collaboration with the process, automation, maintenance and set up departments	F. Webberking	31-Dec-21																																																					
06.00	**0010-3011036 - 2300C IMM PRODUCTION LINE CELL**	**CONDUCT OPERATIONAL AUDIT -** To baseline current state conditions																																																								
06.01	Prepare planning and scheduling of audit by meeting with stake holders and affected personnel	F. Webberking	15-Jan-21																																																							
06.02	Draft audit elements and gain agreement with internal auditors	F.Webberking	15-Jan-21																																																						
06.03	Schedule the audit to conduct it when product is to run next (03-06-21)	F. Webberking	06-Mar-21																																																						
06.04	Review and analyze audit results	F. Webberking	10-Mar-21																																																						
06.05	Plan and assign corrective action as necessary with timeline	F. Webberking	01-Apr-21																																																					
07.00	**0010-3011036 - 2300C IMM PRODUCTION LINE CELL**	**UPDATE DCDS SCSAC SHEETS AND HOUR BY HOUR FORMS -** Not registered in any document control system																																																								
07.01	Redesign hour by hour board to eliminate wasteful data collection process	F. Webberking	23-Aug-20																																																								
07.02	Update both the defect collection data sheet and hour by hour form and register on doc control on Ranet	F.Webberking	30-Sep-20																																																							
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07.07	Translate German words to English on SCSAS update form and re-register on RAnet re-release on shopfloor	F. Webberking	05-Nov-20																																																					
07.08	Update DCDS sheet for new tool 8377 LHD Cowl Grill Center G05/G06/G07 BMW as it does not include 0020 assembly defect categories	F. Webberking	31-Mar-21																																																					

SIX SIGMA PROJECT CHARTER - IMPROVE - SECONDARY EQUIPMENT

P6

№	Action Item	Responsible	Due Date	Status
07.09	Run weekly monthly scrap reports from SAP to monitor long term effectiveness tracking on corrective actions taken in collaboration with the process, automation, maintenance and set up departments	F. Webberking	31-Dec-21	
07.10	Determine how to remove flash in broken POM Ring on LHD and RHD Cowl Grill Center using a deburring tool. Write work instructions and train operators in its use.	F. Webberking	31-May-21	
08.00	**0010-3011036 - 2300C IMM PRODUCTION LINE CELL**	**PRODUCTION LINE SECONDARY EQUIPMENT -** Review current state		
08.01	Redesign hour by hour board to eliminate wasteful data collection process	F. Webberking	23-Aug-20	
08.02	Update both the defect collection data sheet and hour by hour form and register on doc control on Ranet	F.Webberking	30-Sep-20	
08.03	Train all affected associates in the use of the new takt board and how to fill out new forms	F. Webberking	01-Oct-20	
08.04	Install red and blue clipboards on the work stations on 2300C for point of use data collection	F. Webberking	23-Aug-20	
08.05	Remove red bin on 2300C for the collection of pump module and put a cardboard gaylord in its place	F. Webberking	23-Oct-20	
08.06	Train all affected associates on 1st, 2nd and 3rd on proper data information collection and reporting	F. Webberking	30-Oct-20	
08.07	Begin writing six sigma charter to align with 2300C turnaround project headed by Tim Mittman	F. Webberking	15-Nov-20	
08.08	Run scrap reports from SAP to establish a baseline on scrap for each of the production lines in scope	F. Webberking	30-Oct-20	
08.09	Develop training documents on how to fill out DCDS SCSAS and train all operators on 1st 2nd and 3rd shifts	F. Webberking	14-Nov-20	
08.10	Translate German words to English on SCSAS update form and re-register on RAnet re-release on shopfloor	F. Webberking	05-Nov-20	
08.11	Demarcate location on floor for scrap bin totes at each station outlined using red floor tape	F. Webberking	31-Dec-20	
08.12	Draw a process layout map of 2300C production cell and indicate on that map the two conditions that have been determined at what point to shut down the injection molding machine when encountering an unplanned downstream downtime event. Register that document and then train all affected employees to that 'rule' or 'standard'	F. Webberking	23-Apr-21	
08.13	Make a physical display board to 'show-case' all the various single components that are used on all the SCR tanks that we run on the line and install the board line side to act a visual training aid	F. Webberking	12-Dec-20	
08.14	Run weekly scrap reports from SAP to monitor long term effectiveness tracking on corrective actions taken in collaboration with the process, automation, maintenance and set up departments	F. Webberking	31-Dec-21	

Week №: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52

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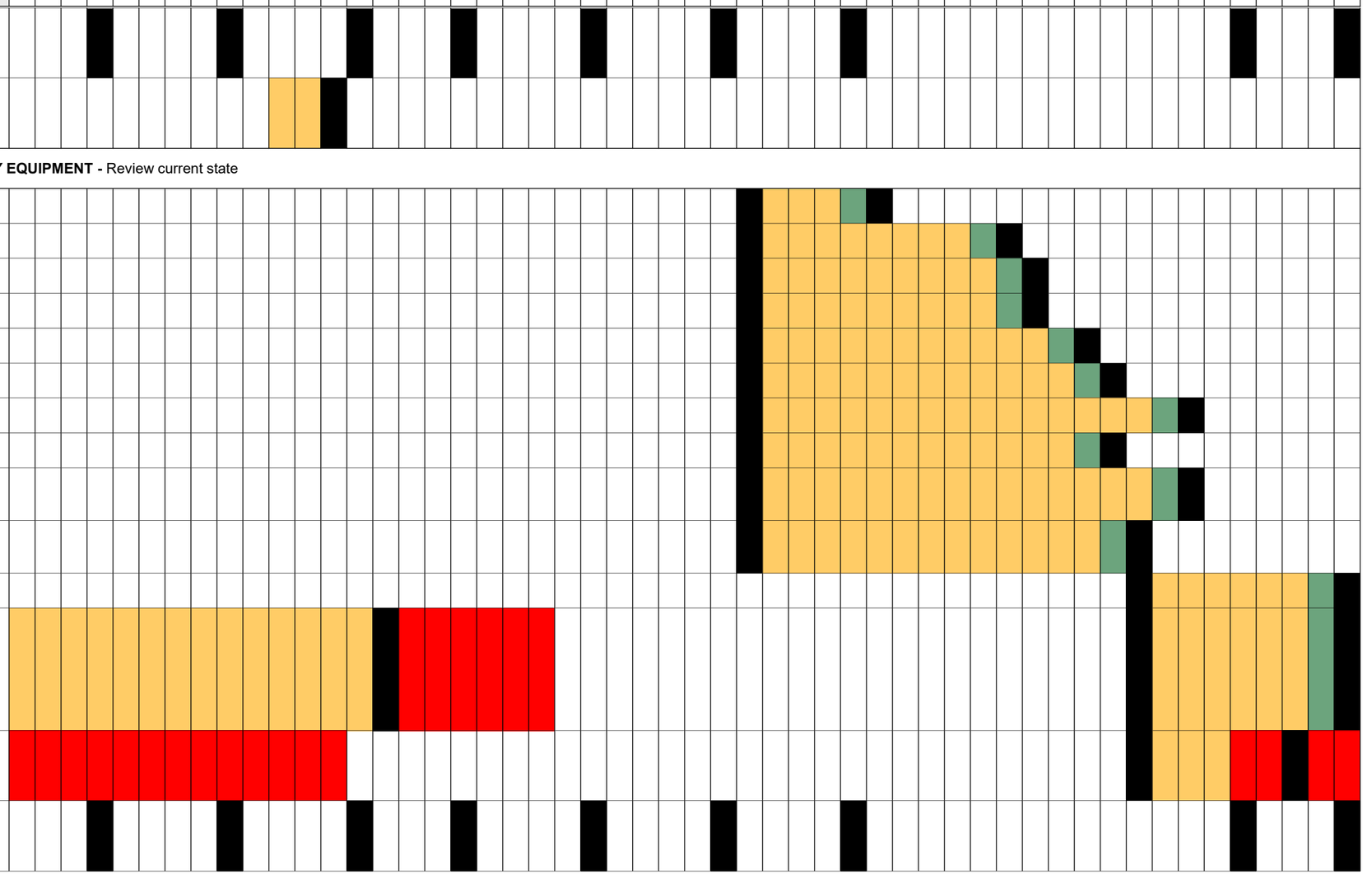

SIX SIGMA PROJECT CHARTER - IMPROVE - SECONDARY EQUIPMENT P6

Week №	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
	3-Jan	10-Jan	17-Jan	24-Jan	31-Jan	7-Feb	14-Feb	21-Feb	28-Feb	7-Mar	14-Mar	21-Mar	28-Mar	4-Apr	11-Apr	18-Apr	25-Apr	2-May	9-May	16-May	23-May	30-May	6-Jun	13-Jun	20-Jun	27-Jun	4-Jul	11-Jul	18-Jul	25-Jul	1-Aug	8-Aug	15-Aug	22-Aug	29-Aug	5-Sep	12-Sep	19-Sep	26-Sep	3-Oct	10-Oct	17-Oct	24-Oct	31-Oct	7-Nov	14-Nov	21-Nov	28-Nov	5-Dec	12-Dec	19-Dec	26-Dec

№	Action Item	Responsible	Due Date	Status
09.00	**0010-3011036 - 2300C IMM PRODUCTION LINE CELL**	**KAIZEN 2300C WITH BMW REPRESENTATIVES -** Customer mandated improvement workshop		
09.01	In collaboration with BMW representatives conduct current state cycle time study of production process cycle efficiency	F. Webberking B. Johnson	09-Sep-20	
09.02	Review results of cycle time study and propose improvements	F. Webberking B. Johnson	14-Sep-20	
09.03	Configure new operator work flow and job task content and sequencing within the cell arrangement and standardize	F. Webberking B. Johnson	01-Oct-20	
09.04	Update all necessary documentation and forms	F.Webberking B. Johnson	07-Nov-20	
10.00	**0010-3011036 - 2300C IMM PRODUCTION LINE CELL**	**UPGRADED CLIP BINDERS -** Current clip binder worn out		
10.01	Research industrial grade replacement clip blinder	F. Webberking	10-Jan-21	
10.02	Decide on best option and request quote from vendor	F. Webberking	11-Jan-21	
10.03	Submit requisition of order	F. Webberking	01-Mar-21	
10.04	Acquisition of order	F. Webberking	23-Mar-21	
10.05	Populate all documentation and forms that go into the clip binders for all part types that run in all machine in Business Unit 1 B	F. Webberking	30-Apr-21	
10.06	Label all binder accordingly on front and spine of clip binder and store in production information books cabinet	F. Webberking	30-Apr-21	
10.07	Modify RAFIT storage clip binder pockets to accept new sized and type of replacement clip binders for all RAFIT boards	F. Webberking	30-Apr-21	
10.08	Purchase Brady Printer S3100 Basic ID Label and Printer Kit to label all clip binders	F. Webberking	31-Mar-21	
11.00	**0010-3011036 - 2300C IMM PRODUCTION LINE CELL**	**REVAMP ENTIRE RAPS -** Current operation system is out of date		
11.01	~~Completely revise and update (RAPS) Roechling Automotive Production System manual so that it is concurrent and in alignment with new technologies and inclusive of the initiatives as outlined in the roll out of 1OX~~	~~F. Webberking~~	~~01-Jun-21~~	
11.02	~~Through the revisions created in 11.01 deploy those updates as a model of excellence to production lines 2300A, 2300B and 1500G~~	~~F. Webberking~~	~~31-Dec-21~~	
11.03	~~Revise form P08-01F 120 Hourly Production Tracking and One Point Lesson Hourly Production Tracking to include downtime category reasons and deploy on production lines 2300A, 2300B and 200B.~~	~~F. Webberking~~	~~24-Mar-21~~	
11.04	~~Deploy revised form P08-01F 120 Hourly Production Tracking and One Point Lesson Hourly Production Tracking on production lines 2300A, 2300B and 2000B and monitor for two weeks and collect information and data and analyze for completeness and usability.~~	~~F. Webberking~~ ~~F. Smith~~ ~~J. Brenner~~	~~13-Apr-21~~	
11.05	~~Mark out location on floor using 2" red floor tape and label accordingly behind helium leak tester for X 1 gaylord scrap tote~~	~~F. Webberking~~	~~25-Apr-21~~	
11.06	~~Repurpose existing Gemba board in BU1-A to incorporate new recording of shift to shift tracking of production targets using pin striping to make necessary rows and columns.~~	~~F. Webberking~~ ~~J. Brenner~~	~~18-Apr-21~~	
11.07	~~Update AutoCAD drawing for all BU1-A off line production cells to reflect new layouts as result of Kaizen event with Quadriga consultant~~	~~F. Webberking~~	~~21-Apr-21~~	

SIX SIGMA PROJECT CHARTER - IMPROVE - SECONDARY EQUIPMENT

№	Action Item	Responsible	Due Date	Status	Week № 1 (3-Jan)	2 (10-Jan)	3 (17-Jan)	4 (24-Jan)	5 (31-Jan)	6 (7-Feb)	7 (14-Feb)	8 (21-Feb)	9 (28-Feb)	10 (7-Mar)	11 (14-Mar)	12 (21-Mar)	13 (28-Mar)	14 (4-Apr)	15 (11-Apr)	16 (18-Apr)	17 (25-Apr)	18 (2-May)	19 (9-May)	20 (16-May)	21 (23-May)	22 (30-May)	23 (6-Jun)	24 (13-Jun)	25 (20-Jun)	26 (27-Jun)	27 (4-Jul)	28 (11-Jul)	29 (18-Jul)	30 (25-Jul)	31 (1-Aug)	32 (8-Aug)	33 (15-Aug)	34 (22-Aug)	35 (29-Aug)	36 (5-Sep)	37 (12-Sep)	38 (19-Sep)	39 (26-Sep)	40 (3-Oct)	41 (10-Oct)	42 (17-Oct)	43 (24-Oct)	44 (31-Oct)	45 (7-Nov)	46 (14-Nov)	47 (21-Nov)	48 (28-Nov)	49 (5-Dec)	50 (12-Dec)	51 (19-Dec)	52 (26-Dec)
11.08	~~Mark out on floor all work in process, finished goods, work stands, racks, carts, purchased components and equipment using color coded floor tape per standard color coding scheme~~	~~F. Webberking~~	~~20-May-21~~																																																								
11.09	~~Mark out on floor fleece container and scrap container location using 2" yellow and red floor tape respectively on 2300A and 2300B.~~	~~F. Webberking~~	~~14-May-21~~																																																								
12.00	**0010-3011036 - 2300C IMM PRODUCTION LINE CELL**	**PERMANENTLY MOUNT A TALKIE TALKIE TO I BEAM B19 NEXT TO 2300C -** This is to improve the response time and communication when operations needs help. Walkie talkie keeps going missing and operator wastes time either looking for																																																											
12.01	Obtain walkie talkie	F. Webberking	04-Oct-21																																																									
12.01	Make mounting plate	F. Webberking	11-Oct-21																																																									
12.01	Glue using JB Weld all components of the walkie talkie to the walkie talkie	F. Webberking	25-Oct-21																																																									
12.01	Mount plate and walkie talkie to I beam B19 next to 2300C	F. Webberking	26-Oct-21																																																									
12.01	Make notice sign and affix to I beam B19	F. Webberking	27-Oct-21																																																									
13.00	**0010-3011036 - 2300C IMM PRODUCTION LINE CELL**	**IMM 2300C PRODUCTION LINE # 3011036 SECONDARY EQUIPMENT -** Add the all the discrete secondardy equipment in JOT Form so technicians can select each machine that they have worked on																																																										
13.01	Conduct awareness training to all maintenance and automation technicians on 1st, 2nd and 3rd shifts of the results of 2300C survey and of impending focused improvement project.	F. Webberking	23-Sep-21																																																								
13.02	Add all secondary equipment as a sub group to 2300C Injection Molding Machine in JOT using physical asset numbers and description as it appears in SAP 3017221 ASSEMBLY 1 (0060) 3017231 ASSEMBLY 2 (0070) 3017213 HELIUM LEAK TESTER CHAMBER 1 (0050) 3017213 HELIUM LEAK TESTER CHAMBER 2 (0050) 3017192 PUMP HOT PLATE WELDER (0030) 3017193 SHELL TO SHELL WELDER (0040) 3017194 UPPER SHELL ASSEMBLY (0020) 3017195 END OF LINE TESTER (0080)	S. Pardeller	11-Oct-21																																																									
13.03	Inform all affected employees (maintenance, automation process technicians and engineers) of secondary equipment additions made to JOT under 2300C and to fill out work reports accordingly.	S. Pardeller	15-Oct-21																																																								
13.04	Provide Fred Webberking (CI Engineer) with all Original Equipment Manufacturers of 2300C secondary equipment contact information. Names, addresses, emails, web addresses, contact phone numbers etc.	S. Pardeller	04-Oct-21																																																								
13.05	Provide Fred Webberking (CI Engineer) with copies of new BR167 vent hose installation tooling modifications paperwork, technical drawings, plans and any in-house tooling, fixtures and fittings available to date. (Keaton Walker) When will new fixture be installed?	K. Walker	31-Oct-21																																																									
13.06	Train affected maintenance and automation technicians in P-M Analysis advanced problem solving methodology.	F. Webberking	31-Oct-21																																																									
14.00	**0010-3011036 - 2300C IMM PRODUCTION LINE CELL**	**CONDUCT A FAILURE ANALYSIS REPORT CORRECTIVE ACTION SYSTEM SURVEY OF ALL SECONDARY EQUIPMENT -** Baseline current equipment performance with regards to uptime availability																																																										
14.01	Base line defects and rejection reasons for all SCR tank part types from 0030-3017194 Shell To Shell Welder and the same for all SCR part types from 0080-3017195 End Of Line Tester and the same for all SCR part types from 0050-3017213 Helium Leak Tester.	F. Webberking K. Walker	15-Oct-21																																																								

SIX SIGMA PROJECT CHARTER - IMPROVE - SECONDARY EQUIPMENT

№	Action Item	Responsible	Due Date	Status
14.02	Export raw data part reject history information from 0040-3017193 Shell To Shell Welder data acquisition register. Convert and stratify collected information into part types, occurrences and durations.	F. Webberking	15-Oct-21	
14.03	Export raw data part reject history information from 0080-3017195 End Of Line Tester data acquisition register. Convert and stratify collected information into part types, occurrences and durations.	F. Webberking.	15-Oct-21	
14.04	Export raw data part reject history information from 0050-3017213 Helium Leak Tester data acquisition register. Convert and stratify collected information into part types, occurrences and durations.	K. Walker	15-Oct-21	
14.05	Export JOT maintenance report records from 05/11/21 - 10/08/21 for 0030-3017193 Shell To Shell Welder. Stratify information by machine - type of equipment - type of activity - work category - problem description to sort and filter for patterns of failure and breakdown types to occurrences and durations.	F. Webberking	15-Oct-21	
14.06	Export JOT maintenance report records from 05/11/21 - 10/08/21 for 0080-3017195 End Of Line Tester. Stratify information by machine - type of equipment - type of activity - work category - problem description to sort and filter for patterns of failure and breakdown types to occurrences and durations.	K. Walker	15-Oct-21	
14.07	Export weekly JOT maintenance report records. Stratify information by machine - type of equipment - type of activity - work category - problem description to sort and filter for patterns of failure and breakdown types to occurrences and durations. Plan corrective actions accordingly. Based on analysis.	F. Webberking K. Walker	25-Oct-21	
15.00	**0010-3011036 - 2300C IMM PRODUCTION LINE CELL**	**REPLACE ALL WORN, MISSING, BROKEN OR REMOVED PARTS AND COMPONENTS FROM ALL SECONDARY EQUIPMENT MACHINES AND SECONDARY EQUIPMENT FIXTURES -** Strategic dedicated spares parts		
15.01	**Leifers TEC** Conduct a survey to establish which of all the machines and of all fixtures and tooling for each product type that runs on the line has worn, missing, broken or removed parts, tools and components.	F. Webberking	11/31/2021	
15.02	Document all parts that need to be either re-ordered as replacements or upgraded and send RFQ to vendor	F. Webberking	06-Dec-21	
15.03	Receive quote from original equipment manufacturers Leifers and HeTech.	F. Webberking	31-Dec-21	
15.04	Enter BANF into SAP for replacement parts from original equipment manufactures.	F. Webberking	31-Dec-21	
15.05	BANF routing approval lead time to PO release issue	F. Webberking	10-Jan-22	
15.06	Vendor lead time	F. Webberking	04-Mar-22	
15.07	Receive replacement spare parts from vendor	F. Webberking	04-Mar-22	
15.08	Install all replacement parts to all fixtures to all secondary equipment	F. Webberking	30-Apr-22	
15.09	Install all received replacement parts to all secondary machines	F. Webberking	30-Apr-22	
15.10	Register all remaining replacement parts as spare parts into our spare parts store room	F. Webberking	30-Apr-22	
15.08	**HeTech Marposs** Conduct a survey to establish which of all the machines and of all fixtures and tooling for each product type that runs on the line has worn, missing, broken or removed parts, tools and components.	F. Webberking	31-Dec-21	

Week № 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52

3-Jan 10-Jan 17-Jan 24-Jan 31-Jan 7-Feb 14-Feb 21-Feb 28-Feb 7-Mar 14-Mar 21-Mar 28-Mar 4-Apr 11-Apr 18-Apr 25-Apr 2-May 9-May 16-May 23-May 30-May 6-Jun 13-Jun 20-Jun 27-Jun 4-Jul 11-Jul 18-Jul 25-Jul 1-Aug 8-Aug 15-Aug 22-Aug 29-Aug 5-Sep 12-Sep 19-Sep 26-Sep 3-Oct 10-Oct 17-Oct 24-Oct 31-Oct 7-Nov 14-Nov 21-Nov 28-Nov 5-Dec 12-Dec 19-Dec 26-Dec

SIX SIGMA PROJECT CHARTER - IMPROVE - SECONDARY EQUIPMENT **P6**

Week №	Date
1	3-Jan
2	10-Jan
3	17-Jan
4	24-Jan
5	31-Jan
6	7-Feb
7	14-Feb
8	21-Feb
9	28-Feb
10	7-Mar
11	14-Mar
12	21-Mar
13	28-Mar
14	4-Apr
15	11-Apr
16	18-Apr
17	25-Apr
18	2-May
19	9-May
20	16-May
21	23-May
22	30-May
23	6-Jun
24	13-Jun
25	20-Jun
26	27-Jun
27	4-Jul
28	11-Jul
29	18-Jul
30	25-Jul
31	1-Aug
32	8-Aug
33	15-Aug
34	22-Aug
35	29-Aug
36	5-Sep
37	12-Sep
38	19-Sep
39	26-Sep
40	3-Oct
41	10-Oct
42	17-Oct
43	24-Oct
44	31-Oct
45	7-Nov
46	14-Nov
47	21-Nov
48	28-Nov
49	5-Dec
50	12-Dec
51	19-Dec
52	26-Dec

№	Action Item	Responsible	Due Date	Status
15.09	Document all parts that need to be either re-ordered as replacements or upgraded and send RFQ to vendor	F. Webberking	31-Dec-21	
15.10	Receive quote from original equipment manufacturers Leifers and HeTech.	F. Webberking	24-Jan-22	
15.11	Enter BANF into SAP for replacement parts from original equipment manufactures.	F. Webberking	04-Feb-22	
15.12	BANF routing approval lead time to PO release issure	S. Pardeller	14-Feb-22	
15.13	Vendor lead time	F. Webberking	30-Apr-22	
15.13	Receive replacement spare parts from vendor	F. Webberking	01-May-22	
15.14	Install all replacement parts to all fixtures to all secondary equipment	F. Webberking	31-May-22	
15.15	Install all received replacement parts to all secondary machines	F. Webberking	31-May-22	
15.16	Register all remaining replacement parts as spare parts into our spare parts store room	F. Webberking	31-May-22	
16.00	**0020-3017194 - UPPER SHELL ASSEMBLY**	**BR167 SLEEVE INSERT EXPERIMENT USING INTENSIFIER -** Conduct an experiment to see as a 'countermeasure' to see if a pneumatic intensifier can be added to the insertion air cylinder on the down stroke station 0020 upper shell assembly		
06.01	~~Purchase high pressure pump to test even if it is possible to operate at higher air pressures to provide more force to push the sleeve insert into the filler neck of the tank.~~	~~F. Webberking~~	~~08-Oct-21~~	
06.02	~~Carry out experiment off line or if the machine is down~~	~~F. Webberking~~	~~15-Oct-21~~	
06.03				
06.04				
06.05				
17.00	**0020-3017194 - UPPER SHELL ASSEMBLY**	**CANNOT LOAD PROGRAM FROM HMI -** I each time when we changeover to a different part we have to power down the machine, open the main electrical panel, unplug a usb memory stick from the back of the HMI that contains the program		
17.01	Gather information about the problem	F. Webberking	01-Feb-22	
17.02	Contact Roechling TEC and ask for their advice	F. Webberking	17-Feb-22	
17.03	Roechling response lead time	F. Webberking	18-Feb-22	
17.04	Take corrective actions as recommended by TEC	F. Webberking H. Stephens M. Martinez	30-Mar-22	
17.05	Replace communication (USB) cable or repair	F. Webberking H. Stephens M. Martinez	31-Mar-22	

SIX SIGMA PROJECT CHARTER - IMPROVE - SECONDARY EQUIPMENT

№	Action Item	Responsible	Due Date	Status	Week № 1 (3-Jan)	2 (10-Jan)	3 (17-Jan)	4 (24-Jan)	5 (31-Jan)	6 (7-Feb)	7 (14-Feb)	8 (21-Feb)	9 (28-Feb)	10 (7-Mar)	11 (14-Mar)	12 (21-Mar)	13 (28-Mar)	14 (4-Apr)	15 (11-Apr)	16 (18-Apr)	17 (25-Apr)	18 (2-May)	19 (9-May)	20 (16-May)	21 (23-May)	22 (30-May)	23 (6-Jun)	24 (13-Jun)	25 (20-Jun)	26 (27-Jun)	27 (4-Jul)	28 (11-Jul)	29 (18-Jul)	30 (25-Jul)	31 (1-Aug)	32 (8-Aug)	33 (15-Aug)	34 (22-Aug)	35 (29-Aug)	36 (5-Sep)	37 (12-Sep)	38 (19-Sep)	39 (26-Sep)	40 (3-Oct)	41 (10-Oct)	42 (17-Oct)	43 (24-Oct)	44 (31-Oct)	45 (7-Nov)	46 (14-Nov)	47 (21-Nov)	48 (28-Nov)	49 (5-Dec)	50 (12-Dec)	51 (19-Dec)	52 (26-Dec)
18.00	**0020-3017194 - UPPER SHELL ASSEMBLY**	**MODIFY THE FLARING TOOL ON 0020-3017194 -** This has been a long standing problem. of the vent pipe not being flared to allow to come into alignment the SCR tank barb fitting during installation. The idea here is to make and install a conical f																																																												
18.01	Design a prototype vent hose flaring tool or modify and existing tool for that purpose	F. Webberking	01-Nov-21																																																										
18.02	Make the prototype flaring tool and install	F. Webberking	02-Nov-21																																																										
18.03	Install the prototype flaring tool and run test trials for capability	F. Webberking	05-Nov-21																																																										
18.04	Document change in JOT	F. Webberking	08-Nov-21																																																										
18.05	Once final trials are complete after installation of all replacement tooling, fixtures and fittings design permanent flaring tool	F. Webberking																																																										
18.06	Submit technical drawing to local machine shop (Diverse Maching Services) for request for quote	F. Webberking																																																										
18.07	Vendor request for quote lead time	F. Webberking																																																										
18.08	Receive quote from vendor and enter BANF into SAP for replacement parts from original equipment manufactures	F. Webberking																																																										
18.09	BANF routing approval lead time to PO release issue to vendor	F. Webberking																																																										
18.10	Vendor lead time to receipt of goods	F. Webberking																																																										
18.11	Plan and schedule a time to install the permanent hose flaring tool and run test trials	F. Webberking																																																										
18.12	Submit any technical drawings to the maintenance department head	F. Webberking																																																										
19.00	**0020-3017194 - UPPER SHELL ASSEMBLY**	**MAKE RED RABBIT FOR MBUSA BR167 3017194 UPPER SHELL ASSEMBLY -** We had a situation were the upper shell assembly machine failed to detect that the vent hose barb was completely flashed in by a breakage inside the 6705 tool. Pc																																																												
19.01	Order replacement sealing disc and plastic hold down tooling fixture from Leifers (current seal disc tooling is worn out).	F. Webberking	01-Dec-21																																																										
19.02	Obtain temporary seal disc and install and check for top shell vent pipe underside orifice alignment and contact	F. Webberking	01-Dec-21																																																										
19.03	Run trails to verify machine detects vent pipe barb blockage.	F. Webberking	02-Dec-21																																																										
19.04	Make red rabbit master fail upper shell part from blocked sample register and label as a gauge.	D. Potts	07-Dec-21																																																										
19.05	Make red rabbit check sheet if necessary and place in Production Information Book.	D. Potts	15-Dec-21																																																										
19.06	Update or establish work instructions for testing the red rabbit and register work instruction in Easy DMS if not already established.	D. Potts	15-Dec-21																																																									
19.07	Train all affected personnel how to use red rabbit and how to document results on verification form	D. Potts F. Webberking	16-Dec-21																																																									

SIX SIGMA PROJECT CHARTER - IMPROVE - SECONDARY EQUIPMENT

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20.00	**0020-3017194 - UPPER SHELL ASSEMBLY**	**REPLACE AIR CYLINDERS FOR VENT PIPE INSTALL AND SLEEVE INSERT INSTALL -** Unable to control extension and retraction of vent pipe install indicating that it is worn out and replacing the sleeve insert install cylinder might help with its p																																																							
20.01	Determine make model and part numbers of air cylinders	F. Webberking	31-Dec-21																																																							
20.02	Research vendor to purchase air cylinders	F. Webberking	03-Jan-22																																																							
20.03	Place order with vendor (vendor lead time)	F. Webberking	03-Jan-22																																																							
20.04	Receive air cylinders	F. Webberking	12-Feb-22																																																							
20.05	Install air cylinders	F. Webberking	23-Feb-22																																																							
20.06	Check for correct installing and improvements	F. Webberking	23-Feb-22																																																							
21.00	**0020-3017194 - UPPER SHELL ASSEMBLY**	**BR167 K2016-172 TUBE ASSEMBLY MODIFICATION -** This is a retro-fit modification to make it easier for the operator to manually align the vent tube on the assembly station prior automation cycling																																																							
21.01	Make modifications to existing tooling fixtures and fittings drawing to better illustrate to external machine shop what needs to be machined and modified. Call-outs.	K. Walker	09-Dec-21																																																						
21.02	Obtain an estimate from external machine shop how long it will take to modify the existing tooling fixtures to adapt the new tooling.	K. Walker	09-Dec-21																																																						
21.03	When BR167 is not running remove tooling fixtures and fittings and give to external machine for them to them to make the necessary modifications. (must not exceed the time when BR167 is due to run next and is coordinated with the machine shop when they are available to carry out the mods) (Time taken to remove existing tooling)	K. Walker F. Webberking	10-Dec-21																																																						
21.04	Re-assemble modified tooling fixtures and fittings and replace existing components so that BR167 in its existing state can run if need be, but tooling is really to get switched over to the modified version.	K. Walker F. Webberking	16-Dec-21																																																					
21.05	Contact necessary technical personnel in Italy to see about planning and schedule making the necessary programming modification beforehand when the planned day for the switch has been determined - is it just a case to simple wire up, remote in and upload the new program? Not not what's needed to prepare?	K. Walker	13-Dec-21																																																				
21.06	Contact Italy to notify them of the determined time and day of the planned and schedule to make the change (giving them an approximate time when we would call them after the mechanical tooling parts have been changed out) Italian time zone!!! (early morning - Mondays - Thursdays)	K. Walker F. Webberking																																																						
21.07	Make the tooling fixtures and fittings changes on the agreed time and date. (plan at least 2 hours for us to change the tooling fixtures and fitting before the scheduled time for Italy to remote in).																																																						
21.08	Italy remotes in and makes the programming changes.																																																						
21.09	Run test trials to ensure modification work successfully.																																																						
21.10	Software version control. Make a backup copy of both the old version (whatever codification scheme is used) and the new version of the program and store both on PC and on a remote hard drive or online file keeper.																																																						
21.11	Document all changes in JOT																																																						
22.00	**0020-3017194 - UPPER SHELL ASSEMBLY**	**REPLACE MRO OR TYPE SUCTION CUPS BEING SUBSTITUTED FOR ALL PART TYPES FIXTURES -** I have found that many of the suction cups used in the fixtures for the different part types used in this machine have been replaced with inco																																																						
22.01	Take a picture of all fixtures BMW MBSUI used in conjunction with this process work station machine	F. Webberking	04-Mar-22																																																					

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Week №	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
	3-Jan	10-Jan	17-Jan	24-Jan	31-Jan	7-Feb	14-Feb	21-Feb	28-Feb	7-Mar	14-Mar	21-Mar	28-Mar	4-Apr	11-Apr	18-Apr	25-Apr	2-May	9-May	16-May	23-May	30-May	6-Jun	13-Jun	20-Jun	27-Jun	4-Jul	11-Jul	18-Jul	25-Jul	1-Aug	8-Aug	15-Aug	22-Aug	29-Aug	5-Sep	12-Sep	19-Sep	26-Sep	3-Oct	10-Oct	17-Oct	24-Oct	31-Oct	7-Nov	14-Nov	21-Nov	28-Nov	5-Dec	12-Dec	19-Dec	26-Dec

№	Action Item	Responsible	Due Date	Status
22.02	Send document pictures to Leifer TEC to enquire with them what are the standard suction cups that should be used	F. Webberking		
22.03	From the information receieved from Leifers TEC replace or order and replace all the suction cups that should be used in all fixtures	F. Webberking		
22.04				
22.05				
23.00	**0020-3017194 - UPPER SHELL ASSEMBLY**	**REPLACE CLEAR GREEN RED TOWER STACK BAR LIGHT BEACONS -** There is one either side of the inside the machine both broken. They are located in a place at the edge back of the machine where they get hit when tool changing. The rep		
23.01	Determine make model and part numbers of air stack bar light tower	F. Webberking	03-Jan-22	
23.02	Put in a DSSI request for quote in SAP	F. Webberking	06-Jan-22	
23.03	Vendor lead to provide quote	F. Webberking	24-Feb-22	
23.04	Enter BANF in SAP to order parts	F. Webberking	25-Feb-22	
23.05	BANF approval lead time	F. Webberking	28-Feb-22	
23.06	Vendor lead time to receipt of goods	F. Webberking	10-Mar-22	
23.07	Decide on best location to mount lights inside machine carrying out whatever modifications necessary to mount the lights so that they do not get damaged again during tool changes	F. Webberking	14-Mar-22	
23.08	Install the lights	F. Webberking	20-Mar-22	
23.09	Test for proper operation	F. Webberking	21-Mar-22	
24.00	**0020-3017194 - UPPER SHELL ASSEMBLY**	**RECTIFY INTERMITTENT ALBANY RP300 SAFETY DOOR ROLL DOWN PROBLEM -** The safety roll door operates intermittently with a problem condition where after the operator has pressed the cycle start button the door will roll down until it pa		
24.01	Determine make model of door and research online user service manual	F. Webberking	18-Mar-22	
24.02	Look possible reasons for behavior of door	F. Webberking	20-Mar-22	
24.03	Clean and replace missing screws for pre-running photo sensors	F. Webberking H. Stephens M. Martinez	21-Mar-22	
24.04	Straighten bent and missaligned pre-running photo sensor sliding brackets and lubricate with a dry lubricant	F. Webberking H. Stephens M. Martinez	21-Mar-22	
24.05	Replace broken screw on integrated roll cable tray on right hand side	F. Webberking H. Stephens M. Martinez	21-Mar-22	
24.06	Clean both doors	F. Webberking H. Stephens M. Martinez	21-Mar-22	
24.07	Calibrate door	F. Webberking H. Stephens M. Martinez	21-Mar-22	
24.08	Test operation and monitor for long term effectiveness	F. Webberking	28-Feb-22	

SIX SIGMA PROJECT CHARTER - IMPROVE - SECONDARY EQUIPMENT

№	Action Item	Responsible	Due Date	Status	Week № 1 (3-Jan)	2 (10-Jan)	3 (17-Jan)	4 (24-Jan)	5 (31-Jan)	6 (7-Feb)	7 (14-Feb)	8 (21-Feb)	9 (28-Feb)	10 (7-Mar)	11 (14-Mar)	12 (21-Mar)	13 (28-Mar)	14 (4-Apr)	15 (11-Apr)	16 (18-Apr)	17 (25-Apr)	18 (2-May)	19 (9-May)	20 (16-May)	21 (23-May)	22 (30-May)	23 (6-Jun)	24 (13-Jun)	25 (20-Jun)	26 (27-Jun)	27 (4-Jul)	28 (11-Jul)	29 (18-Jul)	30 (25-Jul)	31 (1-Aug)	32 (8-Aug)	33 (15-Aug)	34 (22-Aug)	35 (29-Aug)	36 (5-Sep)	37 (12-Sep)	38 (19-Sep)	39 (26-Sep)	40 (3-Oct)	41 (10-Oct)	42 (17-Oct)	43 (24-Oct)	44 (31-Oct)	45 (7-Nov)	46 (14-Nov)	47 (21-Nov)	48 (28-Nov)	49 (5-Dec)	50 (12-Dec)	51 (19-Dec)	52 (26-Dec)
25.00	**0030-3017192 - PUMP SHELL HOT PLATE WELDER**	**PUMP TO SHELL HOT PLATE WELDER CHECK VALVE TEST -** On the MBUSA VS30 membrane check valve hot plate welder station there is a tooling fixture post that has a rubber disc seal in it that the one-way check valve locates and seats or																																																												
25.01	Do we want to take correction action in the first place?	C. Danesse	10-Mar-22																																																											
25.02	Gather information about the problem																																																												
25.03	Contact Roechling TEC and ask for their advice																																																												
25.04	Roechling TEC response lead time																																																												
25.05	Take corrective actions as recommended by TEC																																																												
26.00	**0030-3017192 - PUMP SHELL HOT PLATE WELDER**	**REPLACE MRO OR TYPE SUCTION CUPS BEING SUBSTITUTED FOR ALL PART TYPES FIXTURES -** I have found that many of the suction cups used in the fixtures for the different part types used in this machine have been replaced with incc																																																												
26.01	Take pictures of all fixture for each parts type for each work station that uses suction cups to hold parts in place	F. Webberking	19-Mar-22																																																											
26.02	Document pictures and send to Leifer TEC for identification of correct standard manufacturer of suction cups and type	F. Webberking																																																											
26.03	Replace non-standard suction cups with the correction original standard suction cups in all cases for all fixtures for all parts type that run in this process work station	F. Webberking																																																											
26.04																																																													
26.05																																																													
27.00	**0040-3017193 - SHELL SHELL HOT PLATE WELDER**	**CHECK FOR PARALLELISM ON SHELL TO SHELL WELDER -** Need to check for pallalelism because this can affect proper distribution of heat to the welding bead surface																																																											
27.01	Calibration	F.Webberking R. Horumba K. Walker																																																												
27.02																																																																	
27.03																																																													
27.04																																																													
27.05																																																													
27.06																																																													
27.07																																																													
28.00	**0040-3017193 - SHELL SHELL HOT PLATE WELDER**	**VERIFY WATTAGE ON SHELL TO SHELL WELDER TO CHECK CARTRIDGES FOR ZONE 1 ZONE AND ZONE 2 TO CALCULATE THE OUTPUT PER HEATER -** It was been noted that the cartridges have been changed out and need to verify																																																												
28.01	Obtain from Stefan any change history that was made to the hot plate welder	K. Walker																																																											
28.02	Make sure that after we have installed we check the wattage tolerances	F. Webberking K. Walker R. Horumba																																																											
28.03																																																													
28.04																																																													
28.05																																																													
28.06																																																													
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29.00	**0040-3017193 - SHELL SHELL HOT PLATE WELDER**	**REPLACE MRO OR TYPE SUCTION CUPS BEING SUBSTITUTED FOR ALL PART TYPES FIXTURES -** I found that one of the suction cups had been completely removed, the standoff and the cup and the tube disconnected and tied off and the																																																												
29.01	Take pictures of all fixture for each parts type for each work station that uses suction cups to hold parts in place	F. Webberking	19-Mar-22																																																										
29.02	Document pictures and send to Leifer TEC for identification of correct standard manufacturer of suction cups and type	F. Webberking																																																											
29.03	Replace non-standard suction cups with the correction original standard suction cups in all cases for all fixtures for all parts type that run in this process work station	F. Webberking																																																											
29.04																																																													
29.05																																																													
30.00	**0040-3017193 - SHELL SHELL HOT PLATE WELDER**	**DIVIDER DOOR BETWEEN LOADING TABLE AND HOLDING FIXTURE STICKING -** Door that slides between station 1 and station 2 sticks. I have checked the air and I have also check the bearings and the door needs to be check for being level																																																												
30.01	Dismantle door clean check for being plumb, level and square tighten lubricate if and where necessary	F. Webberking	07-Jul-22																																																											
30.02	See 102 below																																																												
30.03																																																													
30.04																																																													
30.05																																																													
30.06																																																													
30.07																																																													
30.08																																																													
30.09																																																													
30.10																																																													
31.00	**0040-3017193 - SHELL SHELL HOT PLATE WELDER**	**SAFETY RELAY - T**he latest equipment abnormal phenomenon is with the 0040-3017193 Shell To Shell Hot Plate Welder. Occasionally we will have a machine stoppage and error which will display on the control panel screen 'Welding machine mo																																																												
32.01	Gather information about the problem	F. Webberking																																																											
32.02	Contact Roechling TEC and ask for their advice																																																												
32.03	Roechling response lead time																																																											
32.04	Take corrective actions as recommended by TEC																																																											
32.05																																																													

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33.00	**0050-3017213 - HELIUM LEAK TESTER**	**REPLACE BMW MASTER LEAK ORIFICE ON HELIUM LEAK TESTERS -** Testers not correctly passing leak test on both chambers suspected master orifice blocked and need to re-order a calibrated replacement																																																									
33.01	Order replacement calibrated leak master to BMW specifications	D. Potts	24-Jan-22																																																							
33.02	Vendor lead time	D. Potts	28-Feb-22																																																							
33.03	Install on line	D. Potts																																																							
33.04	Conduct aware training to operator of replacement leak master for BMW SCR tanks	D. Potts																																																							
33.05																																																								
34.00	**0050-3017213 - HELIUM LEAK TESTER**	**INSTALL 'SPIRAL' WRAP OR CORRUGATED SLIT LOOM TUBING AROUND HELIUM LEAK TESTER HOSE -** Just to prevent the hose and tube that powers air to the dynamic seal from getting tangled up																																																								
34.01	Research what containers to buy and how many	F. Webberking	03-Jan-22																																																							
34.02	Research vendor to purchase from	F. Webberking	04-Jan-22																																																							
34.03	Place order with vendor	F. Webberking	05-Jan-22																																																							
34.04	Receive order from vendor	F. Webberking	06-Jan-22																																																							
34.05	Install boxes on helium testers	F. Webberking	07-Jan-22																																																							
34.06																																																								
34.07																																																								
35.00	**0050-3017213 - HELIUM LEAK TESTER**	**HELIUM LEAK TESTER -** Many recurring problems the leak tester both for chamber 1 and chamber 2 with the machine incorrectly passing know bad parts and rejecting good parts and recent quality escapes to MBUSI																																																								
35.01	Contact HeTech Marposs Calvignasco Italy to plan and schedule a exploratory visit from a expert technician to make an assessment of the helium leak tester.	F. Webberking																																																							
35.02	Make a phone call or send email to HeTech Marposs to enquire about the possibility of an onsite visit from a expert technician.	F. Webberking																																																							
35.03	Obtain cost estimate for technician visitation	F. Webberking																																																							
35.04	Plan and schedule and confirm date and duration of HeTech technician (arrange flights transportation if necessary)	F. Webberking																																																						
35.05	Enter vendor BANF in SAP	F. Webberking																																																					
35.06	BANF routing approval lead time to PO release issue	F. Webberking																																																					
35.07	PO release and issue to vendor (HeTech Marposs) lead time	F. Webberking																																																					
35.08	Vendor lead time to arrival of HeTech Marposs technician to plant	F. Webberking																																																					
35.09	HeTech Marposs Technician on site visitation and assessment time	F. Webberking																																																					
35.10	HeTech Marposs technician conducts assessment	F. Webberking																																																				
35.11	HeTech Marposs technician prepares assessment and issues findings and report to technical supervisor	F. Webberking																																																				
36.00	**0050-3017213 - HELIUM LEAK TESTER**	**ESTABLISH A SERVICE CONTRACT AGREEMENT WITH HETECH MARPOSS -** Many recurring problems the leak tester both for chamber 1 and chamber 2 with the machine incorrectly passing know bad parts and rejecting good parts and recer																																																							
36.01	Contact HeTech Marposs in America to plan and schedule a exploratory visit from a expert technician to make an assessment of the helium leak tester.	F. Webberking	01-Mar-22																																																						
36.02	HeTech Marposs to propose a service contract agreement and submit it to us.	F. Webberking	07-Mar-22																																																						
36.03	Vendor lead time to receipt of goods	F. Webberking	14-Mar-22																																																						
36.04	Review service contract agreement with maintenance department	F. Webberking																																																					

SIX SIGMA PROJECT CHARTER - IMPROVE - SECONDARY EQUIPMENT

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36.05	Enter vendor BANF in SAP	F. Webberking																																																							
36.06	BANF routing approval lead time to PO release issue	F. Webberking																																																							
36.07	PO release and issue to vendor (HeTech Marposs) lead time	F. Webberking																																																							
36.08	Monitor run hours elapsed time or cycles and plan and schedule service at that time	S. Pardeller																																																							
37.00	**0050-3017213 - HELIUM LEAK TESTER**	**INSTALL SMALL PART GRAVITY FEED BOXES ON EACH HELIUM TESTER TO HOLD PROTECTIVE CAPS -** Currently we are placing the protective cap all on the front machine cover and they fall on the floor and are not contained																																																							
37.01	Research what containers to buy and how many	F. Webberking	03-Jan-22																																																							
37.02	Research vendor to purchase from	F. Webberking	04-Jan-22																																																							
37.03	Place order with vendor (vendor lead time)	F. Webberking	07-Feb-22																																																						
37.04	Receive order from vendor	F. Webberking	14-Feb-22																																																						
37.05	Install boxes on helium testers	F. Webberking	14-Feb-22																																																						
38.00	**0050-3017213 - HELIUM LEAK TESTER**	**RESTORE AIR GUN AIR SUPPLY TO HELIUM LEAK TESTERS -** This is a air supply to two hand air guns that the operators use to blow out the helium inside the SCR tanks if they have been tested too many times. The air supply just needs to be																																																						
38.01	Order quick connector and adapter reducer to install to manifold on top of wire raceway.	F. Webberking	28-Oct-21																																																						
38.02	Install air quick connector when machine is down next time for changeover or come in on weekend on next available Sunday.	F. Webberking	01-Nov-21																																																						
38.03	Order air guns from McMaster-Carr - lead time	F. Webberking	03-Nov-21																																																					
38.04	Install air guns on line	F. Webberking	05-Nov-21																																																					
38.05																																																							
39.00	**0050-3017213 - HELIUM LEAK TESTER**	**MAKE TEST WANDS DOCKING 'KNOBS' OUT OF HARD PLASTIC INSTEAD OF STAINLESS STEEL -** The test wands get dinged up pretty bad by the operator either not docking the wand after each cycle or the docking knob is dinging the war																																																						
39.01	Measure what size round rod to order	F. Webberking	01-Feb-22																																																						
39.02	Order the round stock plastic. A hard plastic like with acetal or nylon	F. Webberking	02-Feb-22																																																					
39.03	Vendor lead time to receipt of goods	F. Webberking	06-Feb-22																																																					
39.04	Receive round stock and turn down to correct size in lathe	F. Webberking	24-Feb-22																																																					
39.05	Install in both chamber 1 and chamber 2	F. Webberking	05-Nov-21																																																				
40.00	**0050-3017213 - HELIUM LEAK TESTER**	**REPLACE DAMAGED AND BENT STAINLESS STEEL VERTICAL COVER ON CHAMBER 1 -** The right hand side stainless steel cover guard on chamber 2 is bent and damaged. I removed it and straighten it out as best I could and had to cut a s																																																						
40.01	Document the part that needs to be replaced and send RFQ to vendor	F. Webberking	01-Feb-22																																																					
40.02	Vendor lead time for RFQ	F. Webberking	02-Feb-22																																																					
40.03	Enter BANF into SAP	F. Webberking	14-Feb-22																																																					
40.04	BANF routing approval lead time to PO release issue	F. Webberking	15-Feb-22																																																				
40.05	Vendor lead time to receipt of goods	F. Webberking	16-Feb-22																																																				
40.06	Receive goods and plan and schedule date to install	F. Webberking	17-Feb-22																																																				

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Week №	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
	3-Jan	10-Jan	17-Jan	24-Jan	31-Jan	7-Feb	14-Feb	21-Feb	28-Feb	7-Mar	14-Mar	21-Mar	28-Mar	4-Apr	11-Apr	18-Apr	25-Apr	2-May	9-May	16-May	23-May	30-May	6-Jun	13-Jun	20-Jun	27-Jun

Week №	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
	4-Jul	11-Jul	18-Jul	25-Jul	1-Aug	8-Aug	15-Aug	22-Aug	29-Aug	5-Sep	12-Sep	19-Sep	26-Sep	3-Oct	10-Oct	17-Oct	24-Oct	31-Oct	7-Nov	14-Nov	21-Nov	28-Nov	5-Dec	12-Dec	19-Dec	26-Dec

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41.00	**0050-3017213 - HELIUM LEAK TESTER**	**TETHER ALL SCR TEST TAPER PLUGS USING PLASTIC COVERED WIRE CABLE FOR ALL FIXTURE ON BOTH CHAMBERS -** Taper plugs always going missing because because when changing out they can get lost during the transportion		
41.01	MBUSI BR167 Fixtures	F. Webberking	12-Dec-22	
41.02	MBUSI VS30 Fixtures	F. Webberking	14-Dec-22	
41.03	BMW Fixtures	F. Webberking	18-Dec-22	
41.04	Train operators in use and to use them each and every time	F. Webberking		
41.05		F. Webberking		
41.06		F. Webberking		
42.00	**0060-3017221 - HOSE ASSEMBLY 1 (BMW G06/06/07)**	**INCONSISTENT LATERAL ALIGNMENT OF THE FILL RUBBER HOSE TO TANK BARB BETWEEN THE PARTS -** Both the G05/06/07 rubber fill hoses use the tooling fixture to nest the hose in the tool and they share the same outlet part of the		
42.01	Investigate why there is a missalignment between the hoses	F. Webberking N. Green	05-Jul-22	
42.02	Design the two different hard stops as a temporary measure before a more permanent design can be made	F. Webberking N. Green	05-Jul-22	
42.03	Calculate the different lengths of the hard stops between G05 / G07	F. Webberking N. Green	06-Jul-22	
42.04	Make the hard stops and color them and label them as G05 G07	F. Webberking N. Green	07-Jul-22	
42.05	Write a one point lesson and post point of use on the machine	F. Webberking N.	08-Jul-22	
42.06	Communicate to all affected maintenance technicians of the change and that the different hard stops have to interchanged when changing over between the two different tank parts.	F. Webberking N. Green	08-Jul-22	
42.07	Document all changes in JOT	F. Webberking	10-Jul-22	
43.00	**0070-2017231 VENT HOSE ASSEMBLY 2**	**ASSEMBLY 2 -** Week of 02.14.22 02.18.22 very bad week of scrap on this machine with the vent pipe installation damaging the tank barb over 30 scrapped in a week. Have to re-think this problem again.		
43.01	Clarify the problem	F. Webberking	21-Feb-22	
43.02	Conduct a physical analysis	F. Webberking	22-Feb-22	
43.03	Identify constituent conditions	F. Webberking	23-Feb-22	
43.04	Study 5Ms For Casual Factors	F. Webberking	24-Feb-22	
43.05	Set Optimal Conditions	F. Webberking	25-Feb-22	
43.06	Plan and conduct a survey of factors	F. Webberking	26-Feb-22	
43.07	Identify abnormalities	F. Webberking	27-Feb-22	
43.08	Propose and make improvements	F. Webberking	28-Feb-22	
43.09	Monitor for long term effectiveness tracking	F. Webberking	31-Mar-22	
44.00	**0070-3017231 - VENT HOSE ASSEMBLY 2**	**REPLACE WORN OUT ASSEMBLY 2 VENT PIPE GRIPPER TOOL -** Currently we are gluing sand paper to the gripper tools because there is insufficient friction force between the inner contact surface of the vent hose gripper tools and the outside		
44.01	Remove one of the gripper tool when not running BMW G05/G06	F. Webberking	01-Nov-21	
44.02	Draw gripper tool	F. Webberking	02-Nov-21	
44.03	Submit request for quote to machine shop vendor	F. Webberking	05-Nov-21	
44.04	Received quote and enter BANF in SAP	F. Webberking	08-Nov-21	
44.05	Machine shop lead time	F. Webberking	10-Dec-21	
44.06	Install new tool and conduct trial tests for operation	F. Webberking	10-Dec-21	
44.07	Document in JOT all changes made	F. Webberking	10-Dec-21	
44.08	Submit any technical drawings to the maintenance department head.	F. Webberking	10-Dec-21	

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45.00	**0070-3017231 - VENT HOSE ASSEMBLY 2**	**VENT PIPE INSTALLATION AUTOMATON HAS A REDUNDANT DOUBLE PHANTOM OPERATION -** When running either bmw G05/G06 or G07 the assembly 2 vent pipe installation approach tooling has a 'phantom' movement both during tooli																																																										
45.01	Gather information about the problem	F. Webberking	24-Feb-22																																																									
45.02	Contact Roechling TEC and ask for their advice	F. Webberking	25-Feb-22																																																								
45.03	Roechling response lead time	F. Webberking	26-Feb-22																																																								
45.04	Take corrective actions as recommended by TEC	F. Webberking	27-Feb-22																																																								
45.05																																																											
46.00	**0070-3017231 - VENT HOSE ASSEMBLY 2**	**VENT PIPE PURCHASED COMPONENT VARIATION IN GEOMETRY DIMENSIONS -** Having a lot of variations between batches of vent hoses for both G05/G06 and G07 vent hoses which can wrack havoc during installation of the vent hose beca																																																											
46.01		R. Kempf																																																										
46.02																																																																
46.03																																																														
46.04																																																														
46.05																																																														
47.00	**0080-3017195 - END OF LINE TESTER**	**DIVIDER DOOR BETWEEN STATION 1 AND STATION 2 STICKING -** Door that slides between station 1 and station 2 sticks. I have checked the air and I have also check the bearings and the door needs to be check for being plumb level and stra																																																											
47.00	Dismantle door clean check for being plumb, level and square tighten lubricate if and where necessary	F. Webberking	07-Jul-22																																																									
47.01	Cleaned door of excessive lubricant	F. Webberking	07-Jul-22																																																								
47.02	Replaced both linear bearings	F. Webberking	08-Jul-22																																																								
47.03	Made and install label sign DO NOT USE GREASE TO LUBRICATE DOOR																																																								
47.04																																																											
47.05																																																											
47.06																																																											
47.07																																																											
47.08																																																											
47.09																																																											
48.00	**0080-3017195 - END OF LINE TESTER**	**REPLACE SILICONE RUBBER BUSHINGS ON 0080-3017195 END OF LINE TESTER FOR BR167 FIXTURE -** One of the bushings was missing and three others were worn out																																																											
48.01	Order replacement silicone rubber bushings for EMI Plastics Equipment (part number: 5384)	F. Webberking	03-Jan-22																																																									
48.02	Receipt of bushings from vendor lead time	F. Webberking	19-Jan-22																																																									
48.03	Replace all four bushings	F. Webberking	31-Jan-22																																																								
48.04																																																											
48.05																																																											

SIX SIGMA PROJECT CHARTER - IMPROVE - SECONDARY EQUIPMENT

№	Action Item	Responsible	Due Date	Status	Week № 1 (3-Jan)	2 (10-Jan)	3 (17-Jan)	4 (24-Jan)	5 (31-Jan)	6 (7-Feb)	7 (14-Feb)	8 (21-Feb)	9 (28-Feb)	10 (7-Mar)	11 (14-Mar)	12 (21-Mar)	13 (28-Mar)	14 (4-Apr)	15 (11-Apr)	16 (18-Apr)	17 (25-Apr)	18 (2-May)	19 (9-May)	20 (16-May)	21 (23-May)	22 (30-May)	23 (6-Jun)	24 (13-Jun)	25 (20-Jun)	26 (27-Jun)	27 (4-Jul)	28 (11-Jul)	29 (18-Jul)	30 (25-Jul)	31 (1-Aug)	32 (8-Aug)	33 (15-Aug)	34 (22-Aug)	35 (29-Aug)	36 (5-Sep)	37 (12-Sep)	38 (19-Sep)	39 (26-Sep)	40 (3-Oct)	41 (10-Oct)	42 (17-Oct)	43 (24-Oct)	44 (31-Oct)	45 (7-Nov)	46 (14-Nov)	47 (21-Nov)	48 (28-Nov)	49 (5-Dec)	50 (12-Dec)	51 (19-Dec)	52 (26-Dec)
49.00	**0080-3017195 - END OF LINE TESTER**	**EXTEND ALIGNMENT 'FORKS' ON VS30 NUMBER 3 BUSHING FIXTURE FOR EOLT ON ALL THREE SIDES -** Currently there is very little alignment of the bushing to the mounting leg hole before bushing is pressed in																																																								
49.01	Remove one of the alignment forks draw it up using either AutoCAD Visio or manually draft it and the design it to be long by the height length of the # 3 bushing with is 18mm	K. Walker	08-Oct-21																																																							
49.02	Either have someone in our machine shop make the modified longer alignment forks or have it sent out to a local machine shop to have them made - lead time to delivery	K. Walker	09-Oct-21																																																						
49.03	Enter BANF in SAP	F. Webberking	05-Nov-21																																																						
49.04	Plan schedule installation and test for effectiveness.	K. Walker F. Webberkin	06-Dec-21																																																						
49.05	Update any associated technical drawings and document change in JOT	K. Walker	07-Dec-21																																																						
50.00	**0080-3017195 - END OF LINE TESTER**	**ELECTRICAL PANEL VENTILATION AIR CONDITIONING UNIT NOT CONTROLING -** Currently the Cosmotec air conditioning unit is not controlling the main electrical panel. The panel houses some sensitive electronic equipment such as the ser																																																							
50.01	Investigate manufacturer of unit (Cosmotec) go online a download operator service	F. Webberking	08-Apr-22																																																						
50.02	Understand current error codes and reference to a corresponding fault type.	F. Webberking	09-Apr-22																																																						
50.03	Contact original equipment manufacturer and seek advice	F. Webberking	18-Apr-22																																																					
50.04	From the advice of the manufacturer I need to reset the controller unit and then program in all the parameters as set out in the service manual according to our operating conditions.	F. Webberking	30-Apr-22																																																				
50.05	Update any technical changes made and record work done and document change in JOT	F. Webberking	01-May-22																																																				
60.00	**0000-0000000 - PRODUCTION LINE CELL**	**LINE SIDE SUPERMARKET -** nInstall additional row of selective pallet rack to the right of the existing rack to provide storage space for all components																																																						
60.01	Request for quote from ESS for pallet rack parts for extension	F. Webberking	20-Nov-22																																																						
60.02	Enter BANF and issue purchase order to ESS	F. Webberking	02-Jan-23																																																						
60.03	Receive parts	F. Webberking	31-Jan-23																																																					
60.04	Install	F. Webberking	01-Feb-23																																																				
60.05	Establish min/max levels of parts to go on rack	F. Webberking	02-Feb-23																																																				
60.06	Make labels and install component labels on the racks	F. Webberking	04-Feb-23																																																				
70.00	**0000-0000000 - PRODUCTION LINE CELL**	**POINT OF USE STORAGE BINS -** Install components bins for each work station secondary equipment using the pet food feeders that facilitates FIFO																																																					
70.01	Determine the size of all the bins required by calcalating each component amount required to last a full shift.	F. Webberking	15-Oct-22																																																				
70.02	Order bins	F. Webberking	18-Oct-22																																																				
70.03	Receive and install bin at each site	F. Webberking	01-Nov-22																																																				
70.04	Make graphic symbols of each of the components and their descriptions and part number labels and install	F. Webberking	19-Nov-22																																																				
70.06	Train operators in their proper use	F. Webberking	25-Nov-22																																																			
80.00	**0000-0000000 - PRODUCTION LINE CELL**	**ADD NEW VS30 AND BR167 GEN 4 + PART NUMBERS SCSAS SHEET REGISTRATION FORM STORAGE BINS -** Updates to new part numbers																																																					
70.01	Release SCSAS from RAnet document control	F. Webberking	01-Dec-22																																																				
70.02	Update form to include new part numbers for VS30 and BR167	F. Webberking	04-Dec-22																																																				
70.03	Ask Ashleigh Allen to re-register form in RAnet document control	F. Webberking	06-Dec-22																																																			

SIX SIGMA PROJECT CHARTER - IMPROVE - SECONDARY EQUIPMENT P6

№	Action Item	Responsible	Due Date	Status	1 3-Jan	2 10-Jan	3 17-Jan	4 24-Jan	5 31-Jan	6 7-Feb	7 14-Feb	8 21-Feb	9 28-Feb	10 7-Mar	11 14-Mar	12 21-Mar	13 28-Mar	14 4-Apr	15 11-Apr	16 18-Apr	17 25-Apr	18 2-May	19 9-May	20 16-May	21 23-May	22 30-May	23 6-Jun	24 13-Jun	25 20-Jun	26 27-Jun	27 4-Jul	28 11-Jul	29 18-Jul	30 25-Jul	31 1-Aug	32 8-Aug	33 15-Aug	34 22-Aug	35 29-Aug	36 5-Sep	37 12-Sep	38 19-Sep	39 26-Sep	40 3-Oct	41 10-Oct	42 17-Oct	43 24-Oct	44 31-Oct	45 7-Nov	46 14-Nov	47 21-Nov	48 28-Nov	49 5-Dec	50 12-Dec	51 19-Dec	52 26-Dec
70.04	Train operators on how to use both DCDS and SCSAS	F. Webberking	13-Dec-22	●																																																				
70.06	Put Ranet shortcut to document control on the supervisors' computers on shopfloor so they can access this form from its controlled source and not make photocopies (will have to put in an IT ticket)	F. Webberking	27-Dec-22	●																																																				
90.00	**0000-0000000 - PRODUCTION LINE CELL**	**REPLACEMENT SPARE PARTS BOTH FOR HELIUM LEAK TESTER AND OTHER FIXTURES AND FITTINGS** - Add all replacement part purchased from HeTech into the store room as strategic dedicated spare parts																																																						
90.01	Fill out stock request form for each part to include price vendor, suggested min / max and reorder levels	F. Webberking	03-Dec-22	●																																																				
90.02	Put all parts in box and deliver to parts room coordinator (Craig Hallman)	F. Webberking	30-Dec-22	●																																																				
90.03	Task complete	F. Webberking	02-Jan-22	●																																																				
100.00	**0050-30172213 - HELIUM LEAK TESTER**	**INSTALL NEW COVER GUARD ON HELIUM LEAK TESTER -** Old cover guard was badly damaged																																																						
100.01	Modify cover guards to fit (not the same as originals)	F. Webberking	27-Dec-22	●																																																				
100.02	Install and make and install DO NOT STORE ITEMS ON COVER GUARD labels as a warning to not place items on top of guard that the door can crush	F. Webberking	27-Dec-22	●																																																				
100.03	Task complete	F. Webberking	27-Dec-22	●																																																				
100.00	**0050-30172213 - PRODUCTION LINE CELL**	**BRING BACK PUMP MODULE SCRAP GAYLORD TO PUT LINE SIDE** - Bring back scrap bin so we have a place to put the defective and scrapped pump modules																																																						
100.01	Make new lid as the old one was damaged	F. Webberking	01-Nov-22	●																																																				
100.02	Print out and adhere to gaylord scrap labels	F. Webberking	01-Nov-22	●																																																				
100.03	Mark on location on floor with red tape and label PUMP MODULE SCRAP BIN	F. Webberking	01-Nov-22	●																																																				
100.04	Attach work instructions to gaylord on what to do when the bin is full	F. Webberking	08-Nov-22	●																																																				
100.05	Train operators in its intended use □ (I have instructed the operators not to throw any pumps modules in the scrap gaylord, that needs to be up to the quality department to do that. I have instructed the operators to only fill out a defective red tag attach it to the defective pump module and place the pump module in the line side red bin)	F. Webberking	08-Nov-22	●																																																				
100.06	Task complete	F. Webberking	09-Nov-22	●																																																				
101.00	**0050-3017192 - PUMP TO SHELL WELDER**	**INSTALL HOOKS TO HANG RED TAGS AND TIES TO PUMP TO SHELL WELDER POINT OF USE -** Bring back scrap bin so we have a place to put the defective and scrapped pump modules																																																							
101.01	Train operators on when and how to fill out the tags (when the operator encounters a defective pump module albeit damaged, dropped, will not scan QR code they fill out the red tag attached to pump module and place pump in red bin) it is then up to the quality department to decide how they are going to finish off this PDCA such as investigate why and the manner of failure and if necessary charge back to pump vendor if the pumps are defective in any way on our receipt	F. Webberking	08-Dec-22	●																																																				
102.00	**0050-30172213 HELIUM LEAK TESTER**	**HELIUM LEAK TESTER WAND HOOK INSTALL (A PLACE INSIDE THE CHAMBERS FOR OPERATORS TO HANG THE TEST WAND TO PREVENT FROM BEING DAMAGED E -** Install inside the chambers for operators to hang the test wan																																																							
102.01	Order hooks	F. Webberking	02-Dec-22	●																																																				
102.02	Receive and install	F. Webberking	12-Dec-22	●																																																				
102.03	Train operator in their use	F. Webberking	13-Dec-22	●																																																				
103.00	**0070-3017231 VENT PIPE INSTALL STATION**	**WORK INSTRUCTIONS UPDATE FOR COMPONENT STORAGE AND USE FOR BMW 0060 AND 0070 WORK STATIONS BECAUSE OF NEW COMPONENTS BINS -** I need to update the work instructions to reflect the new location of the com																																																							
103.01	Release document from SAP Easy Document	F. Webberking																																																						

SIX SIGMA PROJECT CHARTER - IMPROVE - SECONDARY EQUIPMENT

№	Action Item	Responsible	Due Date	Status	Week № 1 (3-Jan)	2 (10-Jan)	3 (17-Jan)	4 (24-Jan)	5 (31-Jan)	6 (7-Feb)	7 (14-Feb)	8 (21-Feb)	9 (28-Feb)	10 (7-Mar)	11 (14-Mar)	12 (21-Mar)	13 (28-Mar)	14 (4-Apr)	15 (11-Apr)	16 (18-Apr)	17 (25-Apr)	18 (2-May)	19 (9-May)	20 (16-May)	21 (23-May)	22 (30-May)	23 (6-Jun)	24 (13-Jun)	25 (20-Jun)	26 (27-Jun)	27 (4-Jul)	28 (11-Jul)	29 (18-Jul)	30 (25-Jul)	31 (1-Aug)	32 (8-Aug)	33 (15-Aug)	34 (22-Aug)	35 (29-Aug)	36 (5-Sep)	37 (12-Sep)	38 (19-Sep)	39 (26-Sep)	40 (3-Oct)	41 (10-Oct)	42 (17-Oct)	43 (24-Oct)	44 (31-Oct)	45 (7-Nov)	46 (14-Nov)	47 (21-Nov)	48 (28-Nov)	49 (5-Dec)	50 (12-Dec)	51 (19-Dec)	52 (26-Dec)
103.02	Update document as necessary	F. Webberking																																																									
103.03	Ask Ashleigh Allen to re-register documents in SAP Easy Document	F. Webberking																																																									
104.00	**0000-000000 PRODUCTION LINE CELL**	**INSTALL HANGING FOLDERS TO STORE SCSAS SHEETS NEW COMPONENTS BINS -** Ideally the operators should print out the SCSAS sheet as and when they need them as document control 101 says you ought to. I will allow a small numb																																																										
104.01	Make storage bin	F. Webberking	28-Dec-22																																																										
104.02	Make label tabs for each of the different SCR tanks SCSAS sheets and install in bin	F. Webberking	28-Dec-22																																																										
104.04	Label hanging folder bin	F. Webberking	28-Dec-22																																																										
105.00	**0000-000000 PRODUCTION LINE CELL**	**INSTALL SCSAS MAILBOX LINE SIDE OF 2300C -** This is to make it easy for operators to place all the SCSAS sheets into mailbox at the end of each shift to be collected by Sheila Wilson																																																											
105.01	Order mailbox	F. Webberking	02-Dec-22																																																											
105.02	Receive and install on B18 I beam facing the aisle	F. Webberking	10-Dec-22																																																										
105.03	Give one of the keys for the lock to Sheila Wilson	F. Webberking	29-Dec-22																																																										
105.04	Train operators on how and when to use mailbox	F. Webberking	02-Jan-22																																																										
106.00	**0030-30167192 PUMP TO SHELL WELDER**	**RED CAPS BIN INSTALL -** Put in place a red caps bin at pump to shell welder. put a trash bin point of use at the membrane check valve (vs30) for operators to throw red caps away in																																																										
106.01	Obtain small black trash bin	F. Webberking	14-Dec-22																																																										
106.02	Mark off location inside the work station to store the trash bin using blue floor tape	F. Webberking	14-Dec-22																																																										
106.03	Label bin and location	F. Webberking	14-Dec-22																																																										
107.04	Train operators to throw caps in bin	F. Webberking	14-Dec-22																																																										
107.00	**0030-30167192 PUMP TO SHELL WELDER**	**STOP WATCHES AND CLIPBOARD REPLACEMENT -** Replace each work station (secondary equipment) missing or broken red dcds / scsas and orange downtime log clipboards and stop watches (the stop watches i originally installed at each sta																																																										
107.01	Order stop watches / timers and clipboards as necessary	F. Webberking	14-Dec-22																																																										
107.02	Install stop watches and clipboard at each work station that needs them	F. Webberking	20-Dec-22																																																										
107.03	Label bin and location	F. Webberking	21-Dec-22																																																										
107.04	Train operators to throw caps in bin	F. Webberking	22-Dec-22																																																										
108.00	**0000-000000 PRODUCTION LINE CELL**	**FOAM PAD INSTALL STATION -** Modify creform SCR tank foam pad install station (was really only good at holding the BR167 tank) so all SCR tanks can be placed there for foam pad installation																																																										
108.01	Modify as necessary to fit all SCR tanks	F. Webberking	01-Sep-22																																																										
108.02	Install replacement clipboards to hold foam pad on	F. Webberking	01-Sep-22																																																										
108.02	Task complete	F. Webberking	01-Sep-22																																																										
109.00	**0070-30117231 HOSE INSTALL**	**SHELF FOR EPDM HOSES -** Make and install some kind of shelf to hold the cardboard box of rubber hoses at a 45° for the BMW 0070 3017221 work station because the operators are having to double handle the product. They are opening the car																																																											
109.01	Design the shelf	F. Webberking	11-Jan-23																																																										
109.02																																																														
109.03																																																												
109.04																																																												
109.05																																																												
109.06																																																												
109.00	**0000-000000 PRODUCTION LINE CELL**	**TEAM MEETINGS -** Establish 2300C team meetings every Tuesday for the first, second and third shift operators to report out to them on the previous week's production results in terms of up time down time, scrap, re-enforce good habits and good r																																																											

SIX SIGMA PROJECT CHARTER - IMPROVE - SECONDARY EQUIPMENT P6

№	Action Item	Responsible	Due Date	Status	1 3-Jan	2 10-Jan	3 17-Jan	4 24-Jan	5 31-Jan	6 7-Feb	7 14-Feb	8 21-Feb	9 28-Feb	10 7-Mar	11 14-Mar	12 21-Mar	13 28-Mar	14 4-Apr	15 11-Apr	16 18-Apr	17 25-Apr	18 2-May	19 9-May	20 16-May	21 23-May	22 30-May	23 6-Jun	24 13-Jun	25 20-Jun	26 27-Jun	27 4-Jul	28 11-Jul	29 18-Jul	30 25-Jul	31 1-Aug	32 8-Aug	33 15-Aug	34 22-Aug	35 29-Aug	36 5-Sep	37 12-Sep	38 19-Sep	39 26-Sep	40 3-Oct	41 10-Oct	42 17-Oct	43 24-Oct	44 31-Oct	45 7-Nov	46 14-Nov	47 21-Nov	48 28-Nov	49 5-Dec	50 12-Dec	51 19-Dec	52 26-Dec
109.01	Run scrap reports from SAP (ZCO_SCRAP - CO) for all the previous week's production	F. Webberking	01-Dec-22	●																																																				
109.02	Run scrap reports from SAP (ZMM-DENSCAPRO) for all the previous week's production components	F. Webberking	02-Dec-22	●																																																				
109.03	Convert the raw data into information in the form of a pareto charts for ZCO and sub totals by operation activity for the ZMM report	F. Webberking	03-Dec-22	●																																																				
109.04	Run scrap reports from SAP for all the previous week's production	F. Webberking	04-Dec-22	●																																																				
109.06	On-going	F. Webberking																																																						
110.00	**0010-3011036 - INJECTION MOLDING MACHINE**	**CYCLE TIME STUDY -** Conduct a cycle times study for all SCR tanks (to prove or disprove that theory that a longer cooling time results in less distortion and not causing secondary equipment problems and scrap)																																																						
110.01	Flush BR167 tool (6705) to remove scale build up that can interfere with the heat exchange efficiency (Noah is going to request Mathew Urias to do this)	N. Greene																																																						
110.02	Remove excess chilled water line connectors to improve water flow	F. Webberking																																																						
110.03	Obtain X10 sample parts from each of the SCR tanks at their PPAP signoff cycle times when they run (e.g. BR167 130 seconds)	F. Webberking N. Greene																																																						
110.04	Set up secondary equipment to accept cooler straight not warped parts	F. Webberking N. Greene																																																						
110.05	Conduct tests: leak test okay, burst test okay, and tank gauge okay (weld height)	F. Webberking N. Greene																																																						
110.06	Adjust cooling zones on each tool at hot spots checking parts with thermos imaging camera	F. Webberking N. Greene																																																						
110.07	Observe full shift production at the rated cycle times and monitor and record any and all suspected downtime, minor stoppages and idling that might be the result of a warped part	F. Webberking N. Greene																																																						
110.08	Draw a conclusion	F. Webberking N. Greene																																																						
110.09	If yes on the null hypothesis we modify all documentation in SAP to new cycle times for each SCR tank	F. Webberking N. Greene																																																						

SIX SIGMA PROJECT CHARTER - COUNTERMEASUES - SECONDARY EQUIPMENT P7

Item №	Action Item №	Associated Action Item	Problem	Countermeasure	Responsible	Original Date	New Due Date	Status
1.00	**12.01**	Add all secondary equipment as a sub group to 2300C Injection Molding Machine in JOT using physical asset numbers and description as it appears in SAP 3017221 ASSEMBLY 1 (0060) 3017231 ASSEMBLY 2 (0070) 3017213 HELUIM LEAK TESTER CHAMBER 1 (0050) 3017213 HELUIM LEAK TESTER CHAMBER 2 (0050) 3017192 PUMP HOT PLATE WELDER (0030) 3017193 SHELL TO SHELL WELDER (0040) 3017194 UPPER SHELL ASSEMBLY (0020)	Awaiting information regarding cost centers from accounting specifically to come from Harrison Musselman or Benedict Schneider. Information required to complete associated action item.	Request information from Harrison Musselman or Benedict Schneider to be forwarded to Stefan Pardeller no later than 10/19/21.	S. Pardeller	15-Oct-21	01-Nov-21	●
2.00	**12.02**	Inform all affected employees (maintenance, automation process technicians and engineers) of secondary equipment additions made to JOT under 2300C and to fill out work reports accordingly.	This action item is a successor to Action Item 12.01	Complete predecessor Action Item 12.01	S. Pardeller	16-Oct-21	01-Nov-21	●
3.00	**19.05**	MODIFY THE FLARING TOOL ON 0020-3017194 - This has been a long standing problem. of the vent pipe not being flared to allow to come into alignment the SCR tank barb fitting during installaton. The idea here is to make and install a conical flaring tool to flare the end of pipe.	I finished the prototype part and installed it and ran a 30 piece study to check for performance and it is working very good and the flare a the end of the vent pipe helps align the end of the vent pipe with the barb better and it doesn't 'crash' by misalignment.	I would like to now make a permanent tool make in one piece from A2 steel and case hardened. I will have Diversity Machine make the new flaring tool. I will then submit the drawing to the maintenance or automation department.	F. Webberking	08-Nov-21	30-Dec-21	●
4.00	**15.00**	REPLACE ALL WORN, MISSING, BROKEN OR REMOVED PARTS AND COMPONENTS FROM ALL SECONDARY EQUIPMENT MACHINES AND SECONDARY EQUIPMENT FIXTURES - Strategic dedicated spare	All of the tooling parts do not fit either tooling to fixture or tooling to tooling or tooling to parts. In many cases it simply looks like it's the wrong version	I will take plan a time during the week of 03/28/22 to remove all the tooling for fixtures for MBUSI BR67 and for all BMW and take the parts to local machine shop to have them all measured and compared to the new replacement tooling to see what can be modified and what has to be completely remade and have the machine provide me with a quote for this work	F. Webberking	25-Mar-22	15-Apr-22	●

SIX SIGMA PROJECT CHARTER - IMPROVE - INJECTION MOLDING MACHINE P6

№	Action Item	Responsible	Due Date	Status	1 3-Jan	2 10-Jan	3 17-Jan	4 24-Jan	5 31-Jan	6 7-Feb	7 14-Feb	8 21-Feb	9 28-Feb	10 7-Mar	11 14-Mar	12 21-Mar	13 28-Mar	14 4-Apr	15 11-Apr	16 18-Apr	17 25-Apr	18 2-May	19 9-May	20 16-May	21 23-May	22 30-May	23 6-Jun	24 13-Jun	25 20-Jun	26 27-Jun	27 4-Jul	28 11-Jul	29 18-Jul	30 25-Jul	31 1-Aug	32 8-Aug	33 15-Aug	34 22-Aug	35 29-Aug	36 5-Sep	37 12-Sep	38 19-Sep	39 26-Sep	40 3-Oct	41 10-Oct	42 17-Oct	43 24-Oct	44 31-Oct	45 7-Nov	46 14-Nov	47 21-Nov	48 28-Nov	49 5-Dec	50 12-Dec	51 19-Dec	52 26-Dec
01.00	**0010-3011036 - 2300C IMM PRODUCTION LINE CELL**	**LINE STOP AUHORITY -** Institution a line stop authority by training authorized personnel and putting in a place a single point lesson on how to single cycle the injection molding machine when any one of the second equipment is in a failed breakdow																																																						
01.01	In collaboration with process engineering develop a single point lesson,	F. Webberking J. Kimbal		●																																																				
01.02	Register document in document control on RAnet.	F. Webberking		●																																																			
01.03	Laminate and post point of use on injection molding machine.	F. Webberking		●																																																			
01.04	Train all affected personnel to standard 1st shift	F. Webberking		●																																																			
01.05	Train all affected personnel to standard 2nd shift	F. Webberking		●																																																			
01.06	Train all affected personnel to standard 3 rd shift	F. Webberking		●																																																			
01.07	Monitor for long term effectiveness	F. Webberking		●																																																			
01.08																																																									
02.00	**0010-3011036 - INJECTION MOLDING MACHINE**	**CONDUCT A FARCAS (FAILURE ANALYSIS REPORT CORRECTIVE ACTION SYSTEM) -** To assess critical dedicated spare parts usage on 2300c to recognize any patterns of high usage																																																						
02.01	Conduct if possible a report on consumed spare parts usage on 2300C using CMMS or Roechling Spare Parts Warehouse Clerk software.	B. Walulik		●																																																				
02.02																																																									
02.03																																																										
02.04																																																										
02.05																																																										
03.00	**0010-3011036 - INJECTION MOLDING MACHINE**	**MAKE THROAT SLIDING VALVE EARLIER TO OPERATE -** Slide valve is very difficult to operate and has to be hit with a plastic mallet to open or close it.																																																							
03.01	Dismantle clean dress any burrs on slide valve.	F. Webberking	03-Oct-21	●																																																				
03.02																																																										
03.03																																																										
03.04																																																										
03.05																																																										
04.00	**0010-3011036 - INJECTION MOLDING MACHINE**	**INSTALL A MANUALLY CONTROLLED PNEUMATICALLY OERATATED THROAT SLIDE VALVE -** This is to alleviate the need to manually operate the slide valve by hand																																																							
04.01	~~Figure out what needs to be done to convert the throat slide valve to open and close by a power medium such as using a pneumatically powered air cylinder controlled by a toggle directional control valve. What materials parts and controls will be needed. Contact Jason Lemons from Engel Global~~	~~F. Webberking~~	~~11/31/2021~~																																																					
04.02	~~Order material and parts needed - lead time to order delivery~~	~~F. Webberking~~	~~12-Nov-21~~																																																					
04.03	~~Plan and schedule time to install automated throat slide valve - Lead time to install~~	~~F. Webberking~~																																																						
04.04	~~Train affected personnel when and how to use pneumatically operated throat slide valve~~	~~F. Webberking~~																																																						
04.05																																																									

SIX SIGMA PROJECT CHARTER - COUNTERMEASUES - INJECTION MOLDING MACHINE P5

Item №	Action Item №	Associated Action Item	Problem	Countermeasure	Responsible	Original Date	New Due Date	Status

SIX SIGMA PROJECT CHARTER - IMPROVE - PROCESS P6

				Week №	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
№	**Action Item**	**Responsible**	**Due Date**	**Status**	3-Jan	10-Jan	17-Jan	24-Jan	31-Jan	7-Feb	14-Feb	21-Feb	28-Feb	7-Mar	14-Mar	21-Mar	28-Mar	4-Apr	11-Apr	18-Apr	25-Apr	2-May	9-May	16-May	23-May	30-May	6-Jun	13-Jun	20-Jun	27-Jun	4-Jul	11-Jul	18-Jul	25-Jul	1-Aug	8-Aug	15-Aug	22-Aug	29-Aug	5-Sep	12-Sep	19-Sep	26-Sep	3-Oct	10-Oct	17-Oct	24-Oct	31-Oct	7-Nov	14-Nov	21-Nov	28-Nov	5-Dec	12-Dec	19-Dec	26-Dec
01.00	**0010-03011036 2300C IMM PROCESS**	**LINE STOP AUHORITY SINGLE CYCLING THE INJECTION MOLDING MACHINE -** Institutionalize line stop authority by training authorized personnel to single cycle the injection molding machine when any one of the second equipment brokedow																																																						
01.01	In collaboration with process engineering develop a single point lesson,	F. Webberking J. Kimbal	31-Dec-21																																																					
01.02	Register document in document control on RAnet.	F. Webberking	07-Jan-22																																																				
01.03	Laminate and post point of use on injection molding machine.	F. Webberking	10-Jan-22																																																				
01.04	Train all affected personnel to standard 1st shift	F. Webberking	31-Jan-22																																																				
01.05	Train all affected personnel to standard 2nd shift	F. Webberking	31-Jan-22																																																				
01.06	Train all affected personnel to standard 3 rd shift	F. Webberking	31-Jan-22																																																				
01.07	Monitor for long term effectiveness	F. Webberking																																																						
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SIX SIGMA PROJECT CHARTER - COUNTERMEASUES - PROCESS P9

Item №	Action Item №	Associated Action Item	Problem	Countermeasure	Responsible	Original Date	New Due Date	Status

SIX SIGMA PROJECT CHARTER - IMPROVE - TOOLING

P6

№	Action Item	Responsible	Due Date	Status	Week № 1 (3-Jan)	2 (10-Jan)	3 (17-Jan)	4 (24-Jan)	5 (31-Jan)	6 (7-Feb)	7 (14-Feb)	8 (21-Feb)	9 (28-Feb)	10 (7-Mar)	11 (14-Mar)	12 (21-Mar)	13 (28-Mar)	14 (4-Apr)	15 (11-Apr)	16 (18-Apr)	17 (25-Apr)	18 (2-May)	19 (9-May)	20 (16-May)	21 (23-May)	22 (30-May)	23 (6-Jun)	24 (13-Jun)	25 (20-Jun)	26 (27-Jun)	27 (4-Jul)	28 (11-Jul)	29 (18-Jul)	30 (25-Jul)	31 (1-Aug)	32 (8-Aug)	33 (15-Aug)	34 (22-Aug)	35 (29-Aug)	36 (5-Sep)	37 (12-Sep)	38 (19-Sep)	39 (26-Sep)	40 (3-Oct)	41 (10-Oct)	42 (17-Oct)	43 (24-Oct)	44 (31-Oct)	45 (7-Nov)	46 (14-Nov)	47 (21-Nov)	48 (28-Nov)	49 (5-Dec)	50 (12-Dec)	51 (19-Dec)	52 (26-Dec)
01.00	**0010-3011036-6705 (MBUSI BR167) TOOL**	**RECTIFY FLASH ON INSIDE OF FILLER NECK ON MBUSI BR167 SCR TANK TOOL 6705 -** Flash on the inside bottom wall of the BR167 filler neck that is preventing the sleeve insert from being install fully by automated way and has to be hit wi																																																													
01.01	Review with Fred Webberking problem that is being experienced at 0020-3017194 Upper Shell Assembly by flash on inside inner wall of filler neck of tank making sleeve insertion difficult (see evidence picture).	F. Webberking M. Urias M. Elliot	01-Nov-21																																																											
01.02	Review techical drawing of tooling design to see what the standard should be for a taper in the filler neck.	F. Webberking M. Urias M. Elliot	02-Nov-21																																																									
01.03	Plan and schedule initial inspection of tool when it is not running to visually inspect tool first to assess what is happening and what needs to be done to repair it.	F. Webberking M. Urias	08-Nov-21																																																									
01.04	Plan and schedule the time needed to have the repaired in-house. (looking like December 21-21-23-27-28-29-30)	M. Urias F.Webberking M. Elliot K. Sowell	17-Dec-21																																																								
01.05	Repair tool for repair in-house - repair lead time (5-6 days)	M. Urias																																																											
01.06	When tool returns and runs next time verify that the flash problem has been resolved.	F. Webberking M. Urias M. Elliot																																																											
01.07	Verify that flash problem has been resolved.	F. Webberking M. Urias M. Elliot																																																											
01.08	Check that secondary equipment work station 0020-3017194 can install the sleeve insert without the operator having hit it with a hammer to drive it in all the way to be level with the lip of the filler neck of the SCR Tank and document repair in JOT.	F. Webberking																																																										

SIX SIGMA PROJECT CHARTER - COUNTERMEASUES - TOOLING P11

Item №	Action Item №	Associated Action Item	Problem	Countermeasure	Responsible	Date Added	Due Date	Status

SIX SIGMA PROJECT CHARTER - CONTROL

PROJECT TITLE	2300C PRODUCTION LINE SCRAP REDUCTION & SECONDARY EQUIPMENT RELIABILITY IMPROVEMENT

Have ongoing KPIs been developed to monitor performance? Has the project report been completed, and lessons learnt communicated to other relevant areas?	*What next? Is there anywhere else in the organization that the lessons learnt from this project can be used? By how much did the problem and COPQ reduce by?*
Have they been integrated into the organizations' KPIs structure (dashboards, storyboards, MDI boards, scorecards etc.) where possible and or necessary?	*How were the ongoing KPIs selected? Have the temporary data collection plans for the project been removed? Who owns the KPIs now? Who will be monitoring them?*
Have data collection plans for the ongoing KPIs been implemented as 'business as usual'? Do the KPIs and data collection plans have clear owners?	*What has been done to ensure the improvements have become business as usual and won't 'fall over' after the project closes? What are the validated project savings?*
Have relevant graphical and statistical techniques been implemented to help the new owners monitor and review process performance? (SPC, histograms, run charts)	*Have the new KPI owners been helped to understand how to monitor the KPIs? How will we know if the process performance deteriorates? What alarm bells will ring?*
Have the improvements been documented, 'standardized' and become 'business as usual'? Where did the savings eventually come from? (efficiency, cash, benefits?)	*Have the improvements in the KPIs been quantified, and new baselines established? Have the project savings been calculated and signed off with finance department?*

SIX SIGMA PROJECT CHARTER - CONTROL PLAN

P13

PRODUCT / PART / MATERIAL / COMPONENT NAME	SCR Tank	CUSTOMER ME APPROVAL		PREPARATION BY	Fred Webberking	PLAN DATE (ORG.)	01-Jan-20
PRODUCT / PART / MATERIAL / COMPONENT DESCRIPTON	SCR Tank BR167 MBUSI	CUSTOMER QA APPROVAL		PROCESS OWNER		PLAN RELEASE DATE	02-Jan-20
PRODUCT / PART / MATERIAL / COMPONENT NUMBER	SAP MAT. # 112513903 / P/N: A1674708202	CUSTOMER PE APPROVAL				PLAN DATE (REV.)	03-Jan-20

THE CONTROL PLAN DOCUMENTS THE ELEMENTS OF A QUALITY ASSURANCE SYSTEM THAT ARE TO BE IMPLEMENTED IN ORDER TO ASSURE THAT QUALITY STANDARDS ARE MET FOR A PARTICULAR PRODUCT. THE CONTROL PLAN FORMALIZES THE SYSTEM OF CONTROLS THAT WILL BE UTILIZED

PROCES		CRITICAL TO QUALITY (Y) - (X)		MACHINE DEVICE TOOL JIG	CHARACTERISTICS			GAUGE	METHODS					RESPONSIBLE	MISTAKE PROOFING	WORK INSTRUCTIONS	REACTION PLAN
№	PROCESS / WORK DESCRIPTION	KPIV	KPOV		№	PRODUCT	PROCESS		TOLERANCE UCL	TOLERANCE LCL	EVALUATION MEASUREMENT TECHNIQUE	SAMPLING SIZE	SAMPLING FREQ.	CONTROL METHOD				
1.00	Plastic Injection Molding	X		2300C 6705 Tool	1.00	Appearance	Visual	N/A	No Scratch Marks		Visual Inspection	100%	Every Part	100% Visual Inspection	Shift Machine Operator	Operator Dependent	See Standard Work Instructions	Notify Quality Assurance
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SIX SIGMA PROJECT CHARTER - CONTROL PLAN ACTION ITEMS

Week №					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
№	**Action Item**	**Responsible**	**Due Date**	**Status**	3-Jan	10-Jan	17-Jan	24-Jan	31-Jan	7-Feb	14-Feb	21-Feb	28-Feb	7-Mar	14-Mar	21-Mar	28-Mar	4-Apr	11-Apr	18-Apr	25-Apr	2-May	9-May	16-May	23-May	30-May	6-Jun	13-Jun	20-Jun	27-Jun	4-Jul	11-Jul	18-Jul	25-Jul	1-Aug	8-Aug	15-Aug	22-Aug	29-Aug	5-Sep	12-Sep	19-Sep	26-Sep	3-Oct	10-Oct	17-Oct	24-Oct	31-Oct	7-Nov	14-Nov	21-Nov	28-Nov	5-Dec	12-Dec	19-Dec	26-Dec
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SIX SIGMA PROJECT CHARTER - COUNTERMEASUES - CONTROL PLAN P15

Item №	Action Item №	Associated Action Item	Problem	Countermeasure	Responsible	Date Added	Due Date	Status

SIX SIGMA PROJECT CHARTER - EVIDENCE

P16

CHARTER PROJECTS HYPERLINKS TO PROJECT FOLDERS

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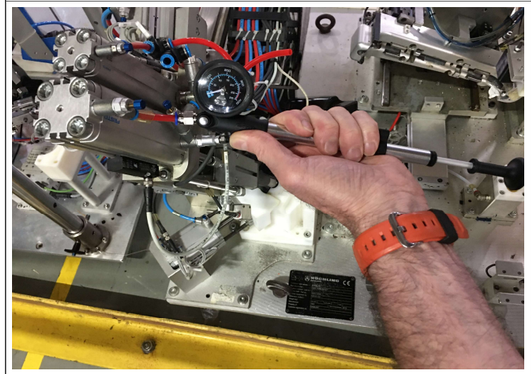
PHOTOGRAPHIC EVIDENCE - TOOLING

1.00 **REPAIR TOOL DAMAGE CAUSING FLASH FILLER NECK ON MBUSI BR167 SCR TANK TOOL 6705** - Flash on the inside bottom wall of the BR167 filler neck that is preventing the sleeve insert from being install fully by automated way and has to be hit with a hammer by the operator.

FLASH ON INSIDE WALL OF FULLER NECK

PICTURE 1.01

PENUMATIC INTENSIFIER EXPERIMENT



PICTURE 1.02

UNPLANNED EVENT INFORMATION COLLECTOR

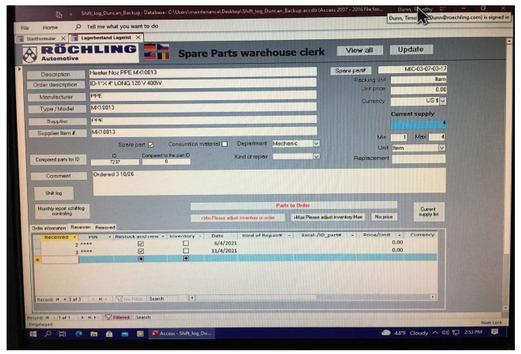
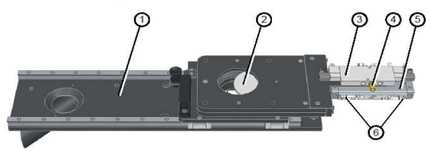
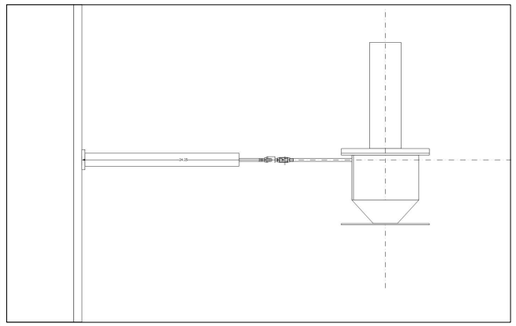
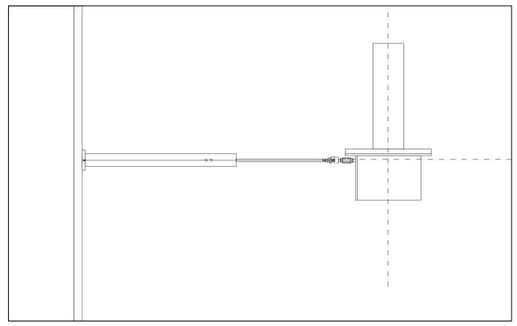
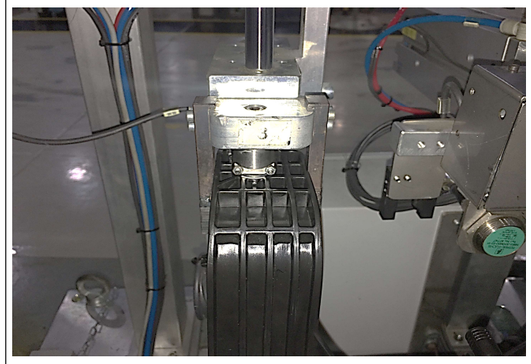
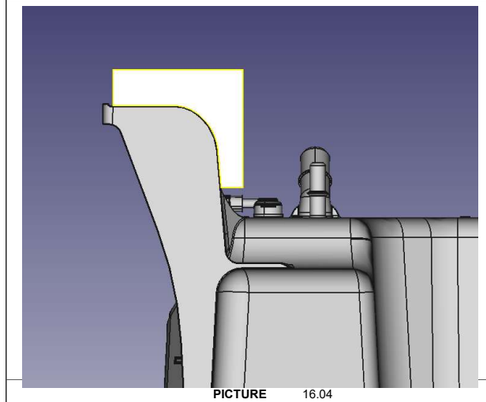
PICTURE 1.3

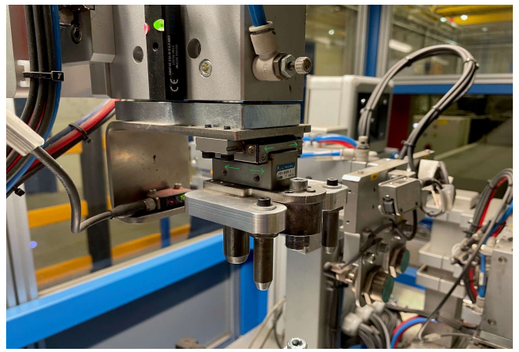
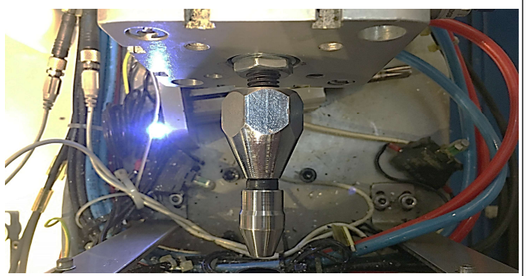
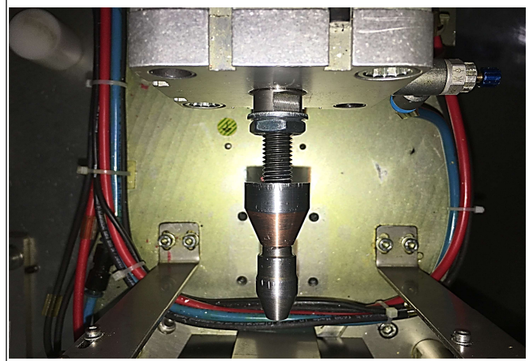
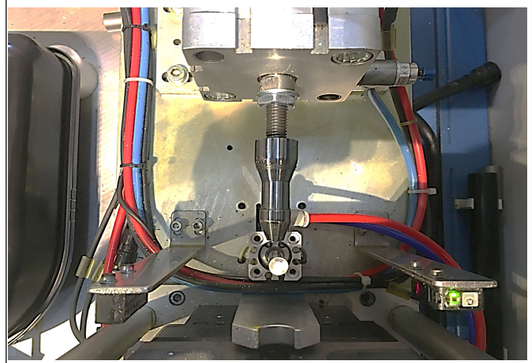
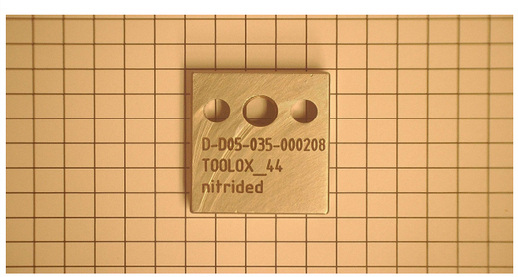
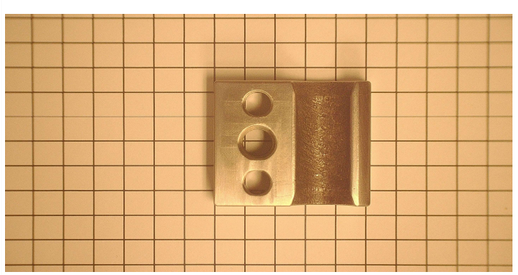
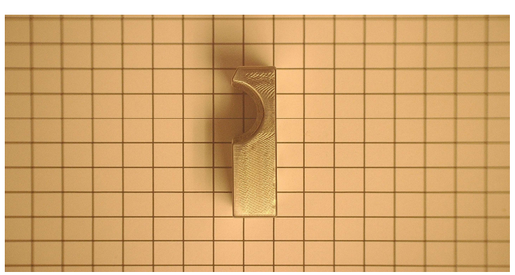
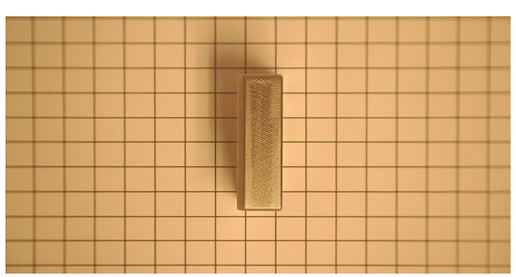
TITLE OR DESCRIPTON OF PHOTOGRAPHIC EVIDENCE HERE

INSERT PICTURE HERE

PICTURE 1.4

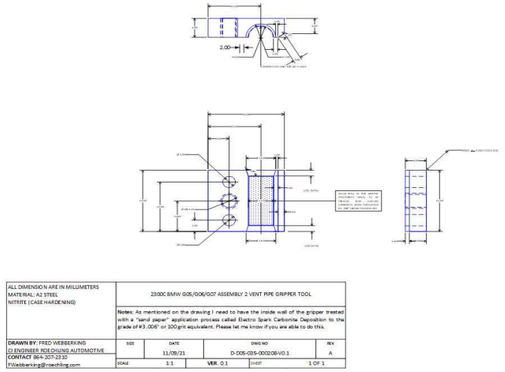
PHOTOGRAPHIC EVIDENCE - INJECTION MOLDING MACHINE

1.00	**CONDUCT A FARCAS (FAILURE ANALYSIS REPORT CORRECTIVE ACTION SYSTEM)** - This is to assess critical dedicated spare parts usage on 2300C to recognize any patterns of high usage.							
	SCREEN PICTURE OF SPARE PARTS WAREHOUSE CLERK		**TITLE OR DESCRIPTON OF PHOTOGRAPHIC EVIDENCE HERE**		**TITLE OR DESCRIPTON OF PHOTOGRAPHIC EVIDENCE HERE**		**TITLE OR DESCRIPTON OF PHOTOGRAPHIC EVIDENCE HERE**	
			INSERT PICTURE HERE		INSERT PICTURE HERE		INSERT PICTURE HERE	
	PICTURE 1.01		**PICTURE** 1.02		**PICTURE** 1.30		**PICTURE** 1.04	
	PHOTOGRAPHIC EVIDENCE - INJECTION MOLDING MACHINE							
4.00	**INSTALL A MANUALLY CONTROLLED PNEUMATICALLY OERATATED THROAT SLIDE VALVE ON** - This is to alleviate the need to manually operate the slide valve by hand							
	PROPOSAL FROM ENGEL FUTURE STATE AIR CONTROLLED		**CURRENT STATE MANUALLY OPERATED SLIDE VALVE**		**MY OWN DESIGN (VALVE OPEN)**		**MY OWN DESIGN (VALVE CLOSED)**	
	Pneumatic material hopper isolation  [1] Material hopper displacement unit [2] shut-off solenoid [3] Pneumatic valve [4] Connection for air maintenance unit [5] Pneumatic cylinder [6] non-contact end position switch							
	PICTURE 4.01		**PICTURE** 4.02		**PICTURE** 4.03		**PICTURE** 4.04	
	PHOTOGRAPHIC EVIDENCE - SECONDARY EQUIPMENT							
22.00	**EXTEND ALIGNMENT 'FORKS' ON VS30 NUMBER 3 BUSHING FIXTURE FOR EOLT 3017195-0080** - Currently there is very little aligment of the bushing to the mounting leg hole before bushing is pressed in							
	VS30 ALIGNMENT 'FORKS' - AFTER		**TITLE OR DESCRIPTON OF PHOTOGRAPHIC EVIDENCE HERE**		**TITLE OR DESCRIPTON OF PHOTOGRAPHIC EVIDENCE HERE**		**TITLE OR DESCRIPTON OF PHOTOGRAPHIC EVIDENCE HERE**	
			 7DF1B956.step					
	PICTURE 16.01		**PICTURE** 16.02		**PICTURE** 16.03		**PICTURE** 16.04	
	PHOTOGRAPHIC EVIDENCE - SECONDARY EQUIPMENT							

16.00	**EXTEND ALIGNMENT 'FORKS' ON VS30 NUMBER 3 BUSHING FIXTURE FOR EOLT 3017195-0080** - Currently there is very little aligment of the bushing to the mounting leg hole before bushing is pressed in			
VS30 ALIGNMENT PEINE GERMANY	**TITLE OR DESCRIPTON OF PHOTOGRAPHIC EVIDENCE HERE**	**TITLE OR DESCRIPTON OF PHOTOGRAPHIC EVIDENCE HERE**	**TITLE OR DESCRIPTON OF PHOTOGRAPHIC EVIDENCE HERE**	
				
PICTURE 16.05	**PICTURE** 16.06	**PICTURE** 16.07	**PICTURE** 16.08	
PHOTOGRAPHIC EVIDENCE - SECONDARY EQUIPMENT				
19.00	**MODIFY THE FLARING TOOL ON 0020-3017194** - This has been a long standing problem. of the vent pipe not being flared to allow to come into alignment the SCR tank barb fitting during installaton. The idea here is to make and install a conical flaring tool to flare the end of pipe.			
FLARING TOOL OLD - BEFORE	**FLARING TOOL NEW - AFTER**	**FLARING TOOL NEW - AFTER VERSION 2**	**FLARING TOOL NEW - FINAL VERSION 3**	
				
PICTURE 19.01	**PICTURE** 19.02	**PICTURE** 19.03	**PICTURE** 19.04	
PHOTOGRAPHIC EVIDENCE - SECONDARY EQUIPMENT				
20.00	**REPLACE WORN OUT ASSEMBY 2 VENT PIPE GRIPPER TOOL** - Currently we are gluing sand paper to the gripper tools because there is insufficient friction force between the inner contact surface of the vent hose gripper tools and the outside surface wall of the vent			
FRONT	**BACK**	**SIDE A**	**SIDE B**	
				
PICTURE 20.10	**PICTURE** 20.02	**PICTURE** 20.03	**PICTURE** 20.04	
PHOTOGRAPHIC EVIDENCE - SECONDARY EQUIPMENT				

20.00	**REPLACE WORN OUT ASSEMBY 2 VENT PIPE GRIPPER TOOL** - Currently we are gluing sand paper to the gripper tools because there is insufficient friction force between the inner contact surface of the vent hose gripper tools and the outside surface wall of the vent

DRAWING OF VENT PIPE GRIPPER TOOL



PICTURE 20.05

PDF OF VENT PIPE GRIPPER TOOL

2300C BMW G05.G06.G07 Assembly 2 Vent

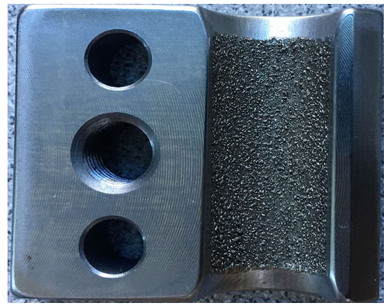
PICTURE 20.06

3D DRAWING OF GRIPPER

DA676102.step

PICTURE 20.07

NEW REPLACMENT GRIPPER BEFORE CASE HARDENING

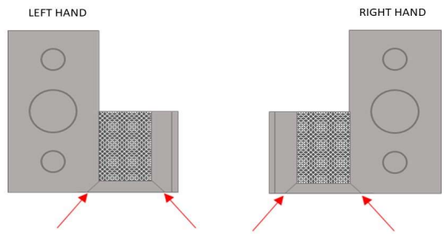


PICTURE 20.08

PHOTOGRAPHIC EVIDENCE - SECONDARY EQUIPMENT

20.00	**REPLACE WORN OUT ASSEMBY 2 VENT PIPE GRIPPER TOOL** - Currently we are gluing sand paper to the gripper tools because there is insufficient friction force between the inner contact surface of the vent hose gripper tools and the outside surface wall of the vent

ILLUSTRATION OF MODIFIED GRIPPER TOOL



PICTURE 20.09

TITLE OR DESCRIPTON OF PHOTOGRAPHIC EVIDENCE HERE

PICTURE 20.10

TITLE OR DESCRIPTON OF PHOTOGRAPHIC EVIDENCE HERE

PICTURE 20.11

TITLE OR DESCRIPTON OF PHOTOGRAPHIC EVIDENCE HERE

PICTURE 20.12

PHOTOGRAPHIC EVIDENCE

21.00	**LINE STOP AUHORITY SINGLE CYCLING THE INJECTION MOLDING MACHINE** - Institutionalize line stop authority by training authorized personnel to single cycle the injection molding machine when any one of the second equipment brokedown to contain 'missing

ONE POINT LESSON SINGLE CYCLE 2300C

Single Point Lesson - Single Cycling 2300C Injection

PICTURE 21.01

TRAINING SIGN IN SHEET

Xerox Scan_01212022 105320.pdf

PICTURE 21.02

TITLE OR DESCRIPTON OF PHOTOGRAPHIC EVIDENCE HERE

INSERT PICTURE HERE

PICTURE 21.03

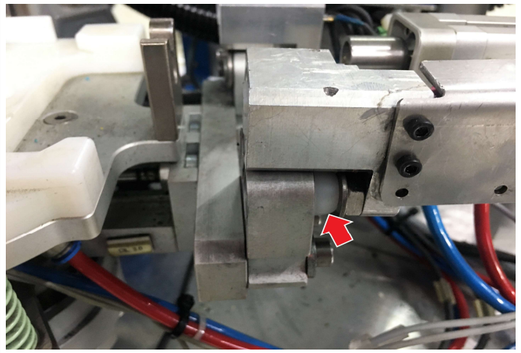
TITLE OR DESCRIPTON OF PHOTOGRAPHIC EVIDENCE HERE

INSERT PICTURE HERE

PICTURE 21.04

PHOTOGRAPHIC EVIDENCE

22.00 **REPLACE SILICONE RUBBER BUSHINGS ON 0080-3017195 END OF LINE TESTER FOR BR167 FIXTURE** - One of the bushings was missing and three others were worn out

TITLE OR DESCRIPTON OF PHOTOGRAPHIC EVIDENCE HERE	TITLE OR DESCRIPTON OF PHOTOGRAPHIC EVIDENCE HERE	TITLE OR DESCRIPTON OF PHOTOGRAPHIC EVIDENCE HERE	TITLE OR DESCRIPTON OF PHOTOGRAPHIC EVIDENCE HERE
	INSERT PICTURE HERE	INSERT PICTURE HERE	INSERT PICTURE HERE
PICTURE 22.01	**PICTURE** 22.02	**PICTURE** 22.03	**PICTURE** 22.04

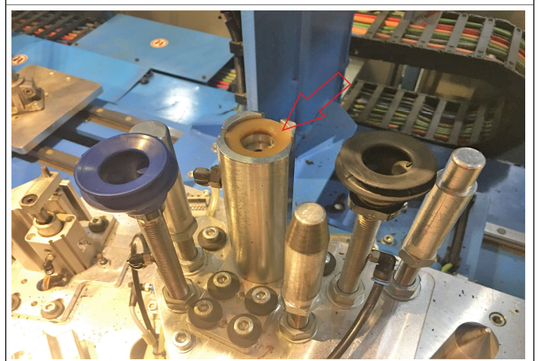
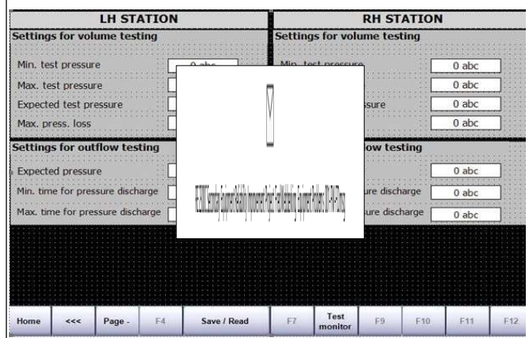
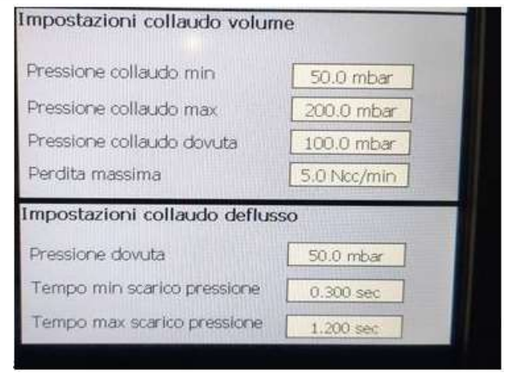
PHOTOGRAPHIC EVIDENCE

23.00 **0040-3017193 SHELL TO SHELL HOT PLATE WELDER DOOR SAFETY RELAY -** The latest equipment abnormal phenomenon is with the 0040-3017193 Shell To Shell Hot Plate Welder. Occasionally we will have a machine stoppage and error which will display on the control panel screen 'Welding mac

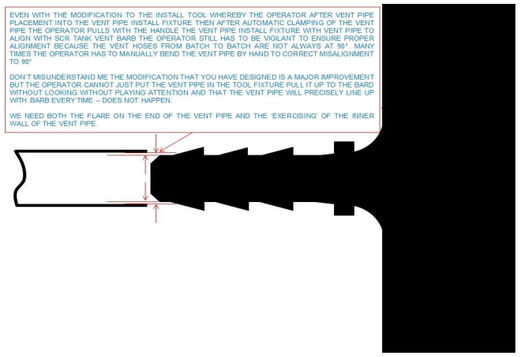
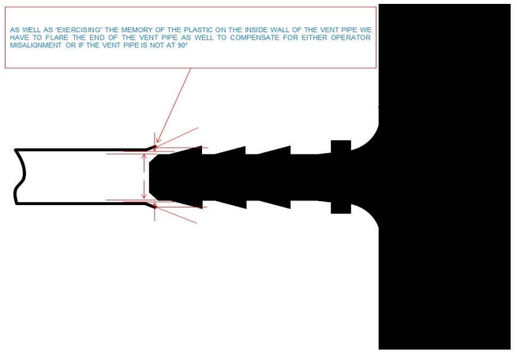
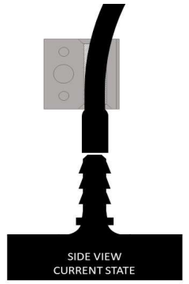
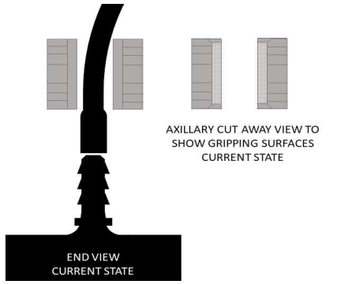
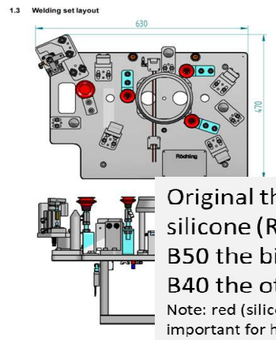
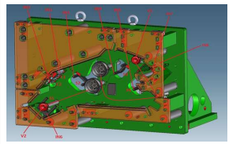
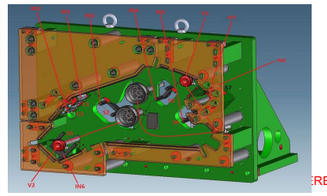
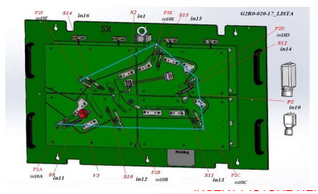
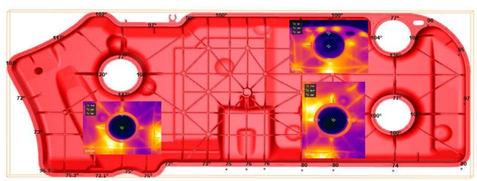
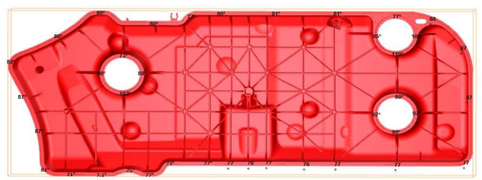
ALBANY DOOR CLOSE PROBLEM SOLUTION	TITLE OR DESCRIPTON OF PHOTOGRAPHIC EVIDENCE HERE	TITLE OR DESCRIPTON OF PHOTOGRAPHIC EVIDENCE HERE	TITLE OR DESCRIPTON OF PHOTOGRAPHIC EVIDENCE HERE
PDF Albany Door closed problem solution.pdf	INSERT PICTURE HERE	INSERT PICTURE HERE	INSERT PICTURE HERE
PICTURE 23.01	**PICTURE** 23.02	**PICTURE** 23.03	**PICTURE** 23.04

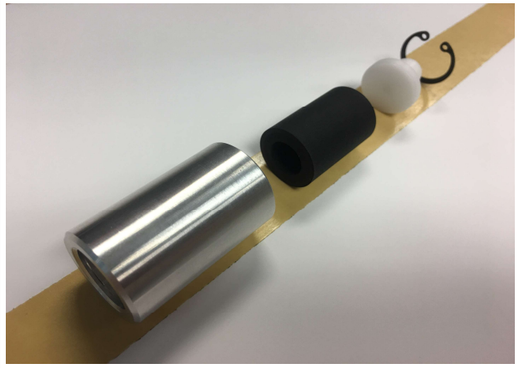
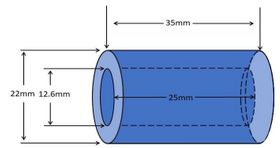
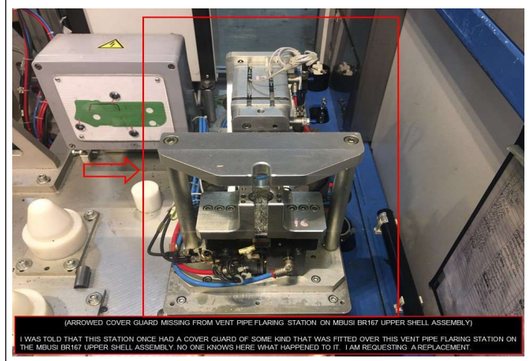
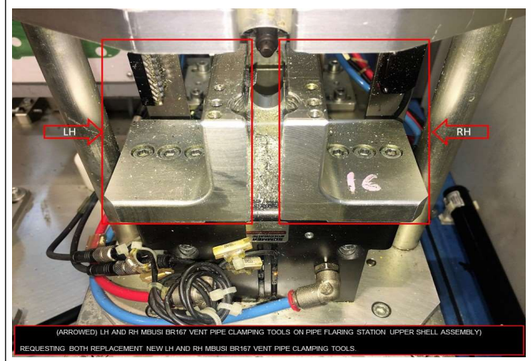
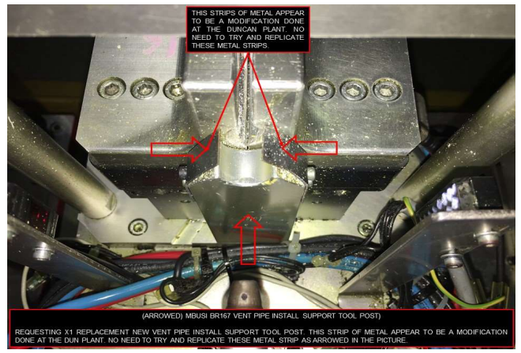
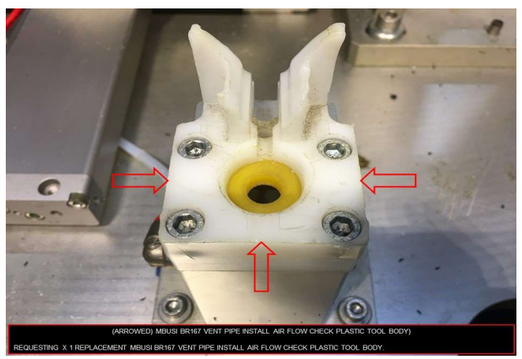
PHOTOGRAPHIC EVIDENCE

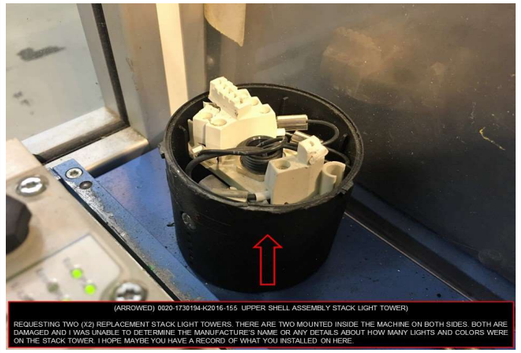
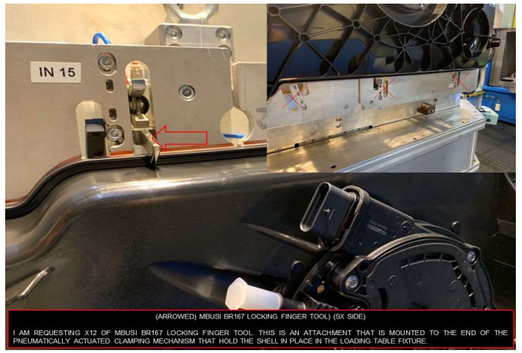
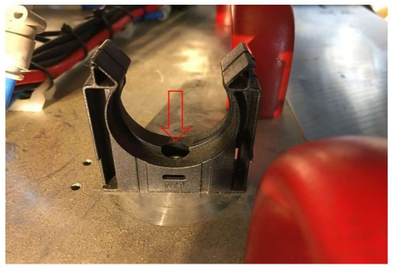
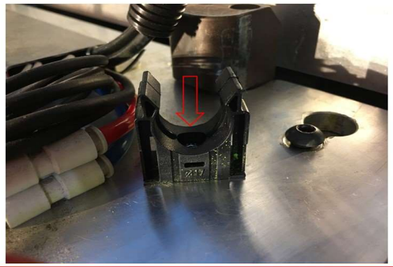
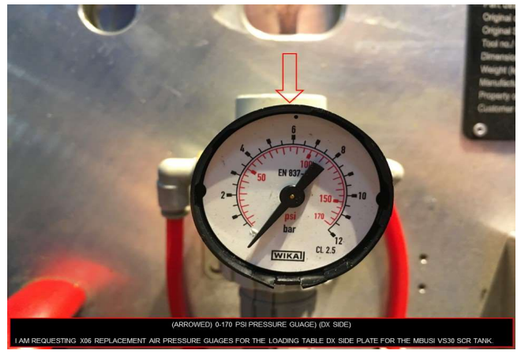
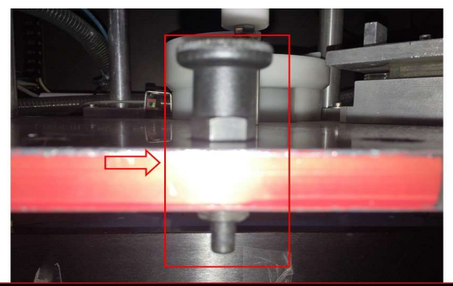
24.00 **0040-3017192 REFURBISH PUMP TO SHELL WELDER WORN TOOLING FOR VS30 -** The latest equipment abnormal phenomenon is with the 0040-3017193 Shell To Shell Hot Plate Welder. Occasionally we will have a machine stoppage and error which will display on

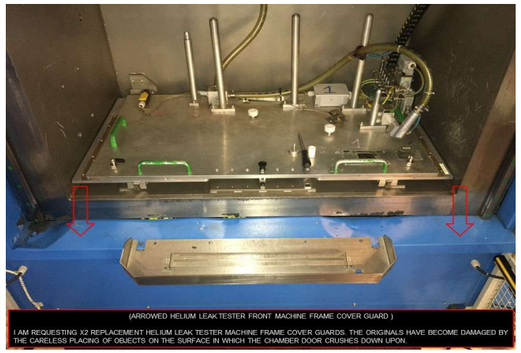
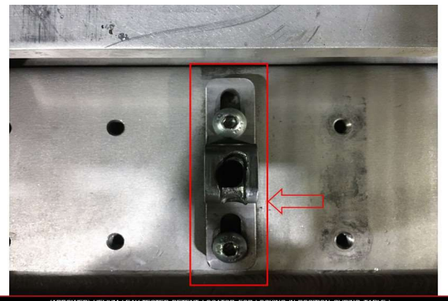
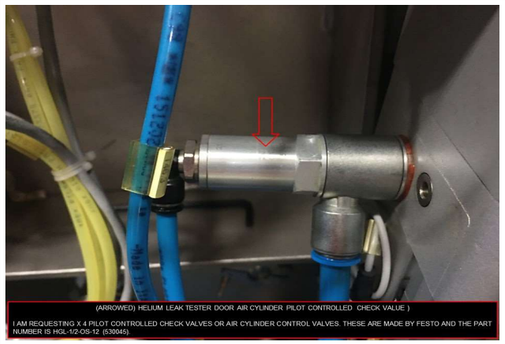
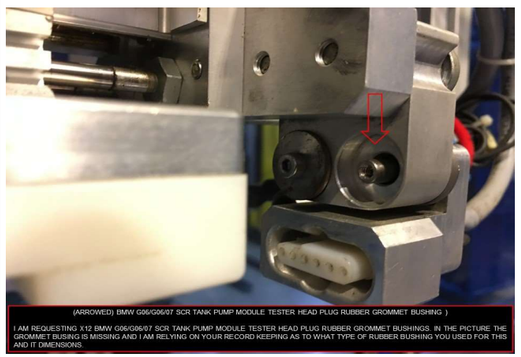
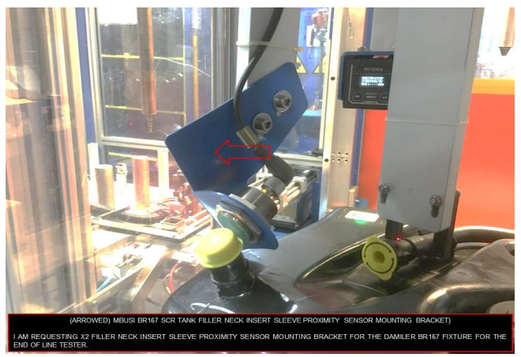
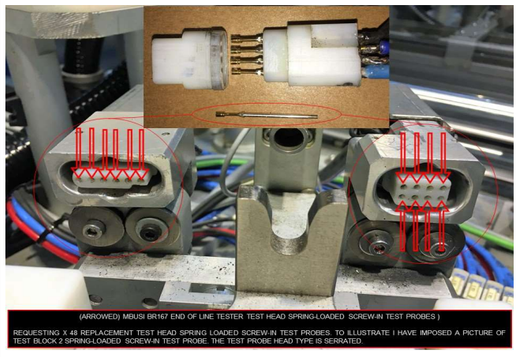
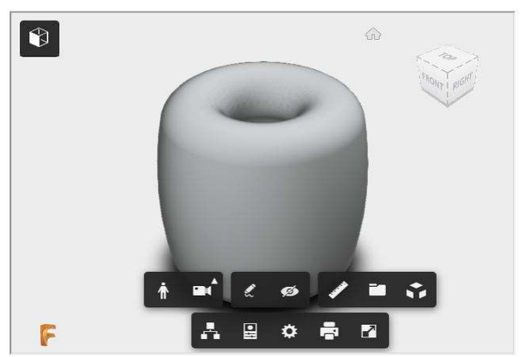
VS30 MEMBRANE CHECK VALUE WELD FIXTURE	MENBRANE CHECK VALVE	SCREEN SHOT 1	SCREEN SHOT 2
			
PICTURE 24.01	**PICTURE** 24.02	**PICTURE** 24.03	**PICTURE** 24.04

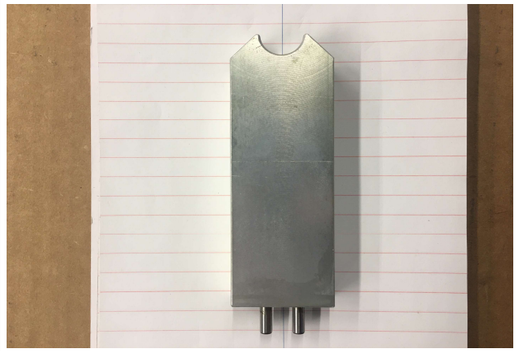
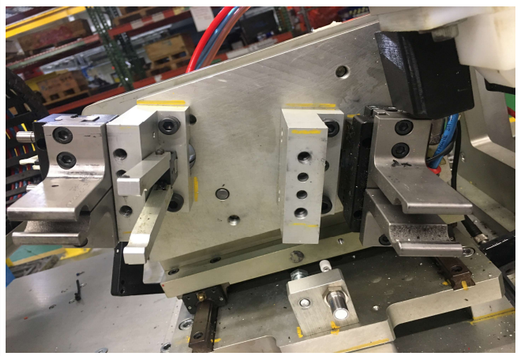
PHOTOGRAPHIC EVIDENCE

25.00	**0040-3017192 PUMP TO SHELL WELDER** - The latest equipment abnormal phenomenon is with the 0040-3017193 Shell To Shell Hot Plate Welder. Occasionally we will have a machine stoppage and error which will display on			
	ILLUSTRATION 1 	**ILLUSTRATION 2** 	**ILLUSTRATION 3** 	**ILLUSTRATION 4** 
	PICTURE 25.01	**PICTURE** 25.02	**PICTURE** 25.03	**PICTURE** 25.04
	PHOTOGRAPHIC EVIDENCE			
25.00	**REPLACE MRO OR TYPE SUCTION CUPS BEING SUBSTITUTED FOR ALL PART TYPES FIXTURES** - I have found that many of the suction cups used in the fixtures for the different part types used in this machine have been replaced with incorrect non-standard non-original suction cups with a mixture			
	 Original there was all PIAB silicone (RED) suction cups. B50 the bigger B40 the other 3 Note: red (silicone) or black (NBR) is only important for higher temperature, for this app, it's not relevant.	 Original there was all PIAB NBR (black) suction cups. B75 NBR (black) the bigger B40 silicone (red) the other Note: red (silicone) or black (NBR) is only important for higher temperature, for this app, it's not relevant.	 Original there was all PIAB NBR (black) suction cups. B75 NBR (black) the bigger B40 silicone (red) the other Note: red (silicone) or black (NBR) is only important for higher temperature, for this app, it's not relevant.	 Original there was all PIAB silicone (RED) suction cups. B40 Note: red (silicone) or black (NBR) is only important for higher temperature, for this app, it's not relevant.
	PICTURE 25.01	**PICTURE** 25.02	**PICTURE** 25.03	**PICTURE** 25.04
	PHOTOGRAPHIC EVIDENCE			
25.00	**THERMO IMAGES** - themo images of BR167			
	UPPER SHELL PART TEMPERATURES AT END OF EXIT CONVEYOR 	UPPER SHELL PART TEMPERATURES AT SHELL TO SHELL WELDER 	INSERT PICTURE HERE	INSERT PICTURE HERE
	PICTURE 25.01	**PICTURE** 25.02	**PICTURE** 25.03	**PICTURE** 25.04
	PHOTOGRAPHIC EVIDENCE			

26.00	**MBUSI VS30 SCR TANT HELIUM LEAK TEST ALUMINUM TEST CAP PLUG AND RUBBER INSERTS RENEW -** Worn out and or missing need X4 aluminum cap and X24 rubber insert bungs						
					INSERT PICTURE HERE		INSERT PICTURE HERE
	PICTURE 26.01		**PICTURE** 26.02		**PICTURE** 26.03		**PICTURE** 26.04
	PHOTOGRAPHIC EVIDENCE						
27.00	**REPLACE ALL WORN TOOLING ON BR167 UPPER SHELL ASSEMBLY -** Most of the tooling to tooling and part to tooling fixture are worn out and or broken and need to be replaced.						
							
	PICTURE 27.01		**PICTURE** 27.02		**PICTURE** 27.03		**PICTURE** 27.04
	PHOTOGRAPHIC EVIDENCE						
28.00	**REPLACE ALL WORN TOOLING ON BR167 UPPER SHELL ASSEMBLY -** Most of the tooling to tooling and part to tooling fixture are worn out and or broken and need to be replaced.						
							
	PICTURE 28.01		**PICTURE** 28.02		**PICTURE** 28.03		**PICTURE** 28.04
	PHOTOGRAPHIC EVIDENCE						

29.00	**REPLACE BROKEN MISSING TOWEL STATUS LIGHT TOWLER ON UPPER SHELL ASSEMBLY 3017194** - This is necessary so the operator if visually alerted if the part is good (green light) or bad (red light).						
	 (ARROWED) 0020-1736194-K2016-155: UPPER SHELL ASSEMBLY STACK LIGHT TOWER) REQUESTING TWO (X2) REPLACEMENT STACK LIGHT TOWERS. THERE ARE TWO MOUNTED INSIDE THE MACHINE ON BOTH SIDES. BOTH ARE DAMAGED AND I WAS UNABLE TO DETERMINE THE MANUFACTURE'S NAME OR ANY DETAILS ABOUT HOW MANY LIGHTS AND COLORS WERE ON THE STACK TOWER. I HOPE MAYBE YOU HAVE A RECORD OF WHAT YOU INSTALLED ON HERE.						
	PICTURE 29.01		**PICTURE** 29.02		**PICTURE** 29.03		**PICTURE** 29.04
	PHOTOGRAPHIC EVIDENCE						
30.00	**3017193 SHELL TO SHELL WELDER REPLACE BROKEN OR MISSING LOCKING PAWLS, CABLE CLIPS 3017194** - A lot of the locking hooks are missing and broken on the loading table fixtures for both VS30 and BR167						
	 (ARROWED) MBUSI BR167 LOCKING FINGER TOOL) (SX SIDE) I AM REQUESTING X12 OF MBUSI BR167 LOCKING FINGER TOOL. THIS IS AN ATTACHMENT THAT IS MOUNTED TO THE END OF THE PNEUMATICALLY ACTUATED CLAMPING MECHANISM THAT HOLD THE SHELL IN PLACE IN THE LOADING TABLE FIXTURE.		 (ARROWED) PLASTIC FLEX CORRUGATED ELECT. CABLE PNEU TUBE LOOM MOUNTING CLIP – 29 MM) (DX SIDE) I AM REQUESTING X12 OF THESE MOUNTING CLIPS OR CLAMPS USED FOR SECURING FLEXIBLE CORRUGATED PLASTIC LOOM CONDUIT. IT DOES NOT HAVE THE MANUFACTURER NAME MARKED ON ANY WHERE BUT THE DIAMETER IS MARKED AS Ø 29. WHAT IS MISSING IS THE TOP PART OF THE CLAMP THAT HOLDS THE FLEX TUBE IN PLACE		 (ARROWED) PLASTIC FLEX CORRUGATED ELECT. CABLE PNEU TUBE LOOM MOUNTING CLIP – 17 MM) (DX SIDE) I AM REQUESTING X12 OF THESE MOUNTING CLIPS OR CLAMPS USED FOR SECURING FLEXIBLE CORRUGATED PLASTIC LOOM CONDUIT. IT DOES NOT HAVE THE MANUFACTURER NAME MARKED ON ANY WHERE BUT THE DIAMETER IS MARKED AS Ø 17. WHAT IS MISSING IS THE TOP PART OF THE CLAMP THAT HOLDS THE FLEX TUBE IN PLACE		 (ARROWED) 0-170 PSI PRESSURE GUAGE) (DX SIDE) I AM REQUESTING X06 REPLACEMENT AIR PRESSURE GUAGES FOR THE LOADING TABLE DX SIDE PLATE FOR THE MBUSI VS30 SCR TANK.
	PICTURE 30.01		**PICTURE** 30.02		**PICTURE** 30.03		**PICTURE** 30.04
	PHOTOGRAPHIC EVIDENCE						
31.00	**3017213 HELIUM LEAK TESTER FIXTURES AND FITTINGS REPLACEMENTS FOR VS30 AND BR167** - A lot of the locking hooks are missing and broken on the loading table fixtures for both VS30 and BR167						
	LOCATING LOCKING PLUNGER PINS  (ARROWED) HELIUM LEAK TESTER DETENT LOCATOR SPRING LOADED PLUNGER PIN) I AM REQUESTING X4 REPLACEMENT HELIUM LEAK TESTER LOCATOR SPRING LOADED PLUNGER PINS. THESE ARE MOUNTED ON EACH OF THE SLIDING FIXTURES FOR ALL THE SCR TANKS SLIDING TABLES. THIS SPRING LOADED PLUNGER PIN IS PULLED UP BY THE OPERATOR THE SLIDING TABLE FIXTURE IS SLID INTO THE TESTING CHAMBER AND THE PIN IS RELEASED LOCING IT INTO THE DETENT LOCATOR TO HOLD THE FIXTURE TABLE IN PLACE DURING TESTING. AS THIS IS MOUNTED TO THE FXUTRE TABLE I AM CLASSIFYING THIS PART UNDER A 'FIXTURE' SPARE PART.		**REPLACE ALL BROKEN PIN & SLEEVE CONNECTOR BLOCKS**  (ARROWED) HELIUM LEAK TESTER MULTI PIN ELECTRICAL LATCHING CONNECTOR PLUG AND RECEPTACLE) I AM REQUESTING X10 REPLACEMENT HELIUM LEAK TESTER MULTI PIN ELECTRICAL LATCHING CONNECTOR PLUGS. AS THIS CONNECTS THE ELECTRICS FROM THE FIXTURE TO THE MACHINE. I AM CLASSIFYING THIS PART UNDER A 'FIXTURE' SPARE PART. I CANNOT MAKE OUT WHO THE MANUFACTURES IS AND ALMOST CERTAINLY A EUROPEAN MADE. WHAT HAS HAPPENED TO MANY OF THE CONNECTORS IS THAT THE LATCHING CLIPS HAVE BROKEN MAKING DIFFICULT FOR THE OPERATOR TO LATCH THE CONNECTOR IN PLACE. I AM ONLY REQUESTING THE RECEPTACLES BUT IF IT HAS TO COME WITH THE PLUG, I WILL HAVE TO PURCHASE THOSE TOO AS A SET IF NEED BE.		**RESTORE ORGINAL TAPER PLUG FOR VS30**  (ARROWED) HELIUM LEAK TESTER MBUSI VS30 SCR TANK PLUG) I AM REQUESTING X6 REPLACEMENT HELIUM LEAK TESTER MBUSI VS30 SCR TANK TAPER PLUG. THIS PLUG IS USED TO PLUG OR BLANK OFF THE SO-CALLED 'VALVE LOW FLOW WITH MEMBRANE' DURING HELIUM LEAK TESTING. I AM SURE THIS M6 X 45 MM ALLEN CAP SCREW THAT LOOKS LIKE IT HAS BEEN TURNED DOWN ON THE END FOR A MAKESHIFT PLUG CAN NOT BE THE ORIGINAL DESIGN. PLEASE COULD YOU CHECK YOUR RECORDS OF WHAT THE ORIGINAL DESIGN WAS AND SEND THOSE TO ME.		**REPLACE ALLUMINUM RUBBER INSERT PLUG BUNG VS30**  IF THESE PARTS ARE SOLD SEPARATELY, PLEASE PROVDE ME WITH X6 OF EACH (ARROWED) HELIUM LEAK TESTER MBUSI VS30 SCR TANK CAP PLUG) I AM REQUESTING X6 REPLACEMENT HELIUM LEAK TESTER MBUSI VS30 SCR TANK CAP PLUG. THIS PLUG IS USED TO PLUG OR BLANK OFF A BARP FITTING ON THE SCR TANK DURING HELIUM LEAK TESTING. IF THIS IS A THREE (X3) PART COMPONENT OF THE ALUMINUM CAP, SNAP RING (CIRCLIP) AND RUBBER PLUG OR BUNG PLUG THEN I WOULD LIKE TO HAVE SIX (X6) OF EACH.
	PICTURE 31.01		**PICTURE** 31.02		**PICTURE** 31.03		**PICTURE** 31.04
	PHOTOGRAPHIC EVIDENCE						

32.00	**3017213 HELIUM LEAK TESTER FIXTURES AND FITTINGS REPLACEMENTS FOR VS30 AND BR167** - A lot of the locking hooks are missing and broken on the loading table fixtures for both VS30 and BR167			
	REPLACE LH AND RH PUMP CAP SEAL CLAMP	**REPLACE SUPPORT POST FOR VS30 FIXTURE**	**REPLACE WORN TAPER PLUG BR167**	**REPLACE ALL MISSING AND BROKEN FLEX CONDUIT CLIPS**
	 (ARROWED) HELIUM LEAK TESTER MBUSI VS30 SCR TANK TOGGLE CLAMP) I AM REQUESTING X4 REPLACEMENT HELIUM LEAK TESTER MBUSI VS30 SCR TANK TOGGLE CLAMP. THIS TOGGLE CLAMP IS USED TO SECURE THE SCR IN PLACE DURING HELIUM LEAK TESTING.	 (ARROWED) HELIUM LEAK TESTER MBUSI VS30 SCR TANK NYLON SUPPORT POST) I AM REQUESTING X6 REPLACEMENT HELIUM LEAK TESTER MBUSI VS30 SCR TANK NYLON SUPPORT POST. THIE BOTTOM OF THE SCR TANK ON TWO THESE NYLON SUPPORT POST SOME ARE MISSING OR BROKEN. REQUESTING THE NYLON POST ONLY.	 (ARROWED) MBUSI BR167 SCR TANK VENT PIPE TAPER PLUG) I AM REQUESTING X4 REPLACEMENT SCR TANK VENT PIPE PLUG USED DURING LEAK TESTING IN THE HELIUM LEAK TESTERS. ORIGINALS HAVE BECOME WORN AND SCORED ON THE TAPERED SURFACE AFFECTING PROPER SEALING.	 (ARROWED) BMW G05/G06/G07 SCR TANK HELIUM LEAK TESTER FIXTURE PLASTIC CONDUIT SNAP IN PLACE CLAMP) I AM REQUESTING X12 REPLACEMENT PLASTIC CONDUIT SNAP IN PLACE CLAMPS. I AM USING THE FIXTURE REFERENCE AS A GUIDE FOR YOU TO IDENTIFY WHICH MANUFACTURER OF CLAMP YOU USED FOR THIS FIXTURE. THERE IS NO MANUFACTUR MARKED ON IT BUT THE
	PICTURE 32.01	**PICTURE** 32.02	**PICTURE** 32.03	**PICTURE** 32.04
	PHOTOGRAPHIC EVIDENCE			
33.00	**3017213 HELIUM LEAK TESTER FIXTURES AND FITTINGS REPLACEMENTS MACHINE** - Replacement parts and components for the helium leak tester			
	REPLACE DAMAGED BENT FRONT COVER ON BOTH SIDES	**REPLACE WORN OUT LOCKING FIXTURE PIN DETENT BOTH SIDES**	**REPLACE BOTH DEFECTIVE DOOR CONTROL VALVES**	**REPLACE BROKEN DISCONNECT HANDLE ON MAIN PANEL BOARD**
	 (ARROWED HELIUM LEAK TESTER FRONT MACHINE FRAME COVER GUARD) I AM REQUESTING X2 REPLACEMENT HELIUM LEAK TESTER MACHINE FRAME COVER GUARDS. THE ORIGINALS HAVE BECOME DAMAGED BY THE CARELESS PLACING OF OBJECTS ON THE SURFACE IN WHICH THE CHAMBER DOOR CRUSHES DOWN UPON.	 (ARROWED) HELIUM LEAK TESTER DETENT LOCATOR FOR LOCKING IN POSITION SLIDING TABLE) I AM REQUESTING X4 REPLACEMENT HELIUM LEAK TESTER DETENT LOCATOR TOOL FIXTURE FOR LOCKING IN PLACE INSIDE OF HELIUM TESTER CHAMBER SLIDING TABLE FIXTURE. THIS IS A LOCATOR FOR THE SPRING LOADED PIN PLUNGER FOR HOLDING THE SLIDING FIXTURE TABLE INSIDE THE CHAMBER DURING TESTING. ALTHOUGH MBUSI VS30 SCR TANK WAS RUNNING AT THE TIME THAT I TOOK THIS PICTURE THIS IS MOUNTED TO THE MACHINE ITSELF SO I AM CLASSIFIYING THIS PART UNDER A 'MACHINE' SPARE PART.	 (ARROWED) HELIUM LEAK TESTER DOOR AIR CYLINDER PILOT CONTROLLED CHECK VALUE) I AM REQUESTING X 4 PILOT CONTROLLED CHECK VALVES OR AIR CYLINDER CONTROL VALVES. THESE ARE MADE BY FESTO AND THE PART NUMBER IS HGL-1/2-OS-12 (530045).	 (ARROWED) HELIUM LEAK TESTER MAIN ELECTRICAL PANEL DISCONNECTOR LEVER) I AM REQUESTING X 1 MAIN ELECTRICAL CONTROL PANEL DISCONNECTOR LEVER. IF THIS MEANS HAVING TO PURCHASE THE WHOLE SWITCHGEAR MECHANISM SO BE IT.
	PICTURE 33.01	**PICTURE** 33.02	**PICTURE** 33.03	**PICTURE** 33.04
	PHOTOGRAPHIC EVIDENCE			
34.00	**3017195 END OF LINE TESTER** - Replacement parts and components for the end of line tester fixture and fitting and machine.			
	PUMP MODULE TEST RECEPTACLE BUSHINGS BR67	**REPLACE BENT DUST CAP DETECTION PROX BRACKET MOUNT**	**TEST PROBE BLOCKS AND TEST PROBES**	**REPLACEMENT SILICONE BUSHING FOR TEST HEAD BR167**
	 (ARROWED) BMW G05/G06/07 SCR TANK PUMP MODULE TESTER HEAD PLUG RUBBER GROMMET BUSHING) I AM REQUESTING X12 BMW G05/G06/07 SCR TANK PUMP MODULE TESTER HEAD PLUG RUBBER GROMMET BUSHINGS. IN THE PICTURE THE GROMMET BUSING IS MISSING AND I AM RELYING ON YOUR RECORD KEEPING AS TO WHAT TYPE OF RUBBER BUSHING YOU USED FOR THIS AND IT DIMENSIONS.	 (ARROWED) MBUSI BR167 SCR TANK FILLER NECK INSERT SLEEVE PROXIMITY SENSOR MOUNTING BRACKET) I AM REQUESTING X2 FILLER NECK INSERT SLEEVE PROXIMITY SENSOR MOUNTING BRACKET FOR THE DAMILER BR167 FIXTURE FOR THE END OF LINE TESTER.	 (ARROWED) MBUSI BR167 END OF LINE TESTER TEST HEAD SPRING-LOADED SCREW-IN TEST PROBES) REQUESTING X 48 REPLACEMENT TEST HEAD SPRING LOADED SCREW-IN TEST PROBES. TO ILLUSTRATE I HAVE IMPOSED A PICTURE OF TEST BLOCK 2 SPRING-LOADED SCREW-IN TEST PROBE. THE TEST PROBE HEAD TYPE IS SERRATED.	
	PICTURE 34.01	**PICTURE** 34.02	**PICTURE** 34.03	**PICTURE** 34.04
	PHOTOGRAPHIC EVIDENCE			

36.00	**3017195 END OF LINE TESTER** - Replacement parts and components for the end of line tester fixture and fitting and machine.			
VS30 #30 BUSHING FORK ALIGNMENT REPLACEMENT UPGRADE	**REPLACEMENT BUSHING CONVEYOR FEED VIBRATER MODULE**			
				
PICTURE 36.01	**PICTURE** 36.02	**PICTURE** 36.03	**PICTURE** 36.04	
PHOTOGRAPHIC EVIDENCE				
37.00	**3017194 UPPER SHELL ASSEMBLY BR167 TOOLING** - Additional tooling replacement because of being worn or damaged.			
BR167	**BR167**	**BR167**	**BR167**	
				
PICTURE 37.01	**PICTURE** 37.02	**PICTURE** 37.03	**PICTURE** 37.04	
PHOTOGRAPHIC EVIDENCE				
38.00	**3017192 PUMP TO SHELL WELDER FIXTURES BR167 AND VS20** - Additional tools and part replacement			
 (ARROWED) MULTI-PIN LOCKING PLUG AND RECEPTACLE CONNECTOR I AM REQUESTING X 3 MULT-PIN LOCKING PLUG AND RECEPTACLE CONNECTOR. THIS PLUGS INTO THE SECOND STATION FIXTURE. THE LOCKING LEVERS HAVE BECOME BROKEN AND HAVE FALLEN OFF AND BECOMES UNPLUGGED.				
PICTURE 388.01	**PICTURE** 38.02	**PICTURE** 38.03	**PICTURE** 38.04	
PHOTOGRAPHIC EVIDENCE				

SIX SIGMA PROJECT CHARTER - ADDITIONAL BACKGROUND INFORMATION P17

6 Ws 2 Hs 6 Ms

Fishbone Diagram	Work Breakdown Structure	Problem Statement Agreement	5 Ms	5 Whys Worksheet - Manpower	5 Whys Worksheet - Machine	Problem Solving Worksheet	Lean Continuous Improvement Glossary Quips	Problem Statement Agreement	PFMEA Criteria	Brainstorming Strategies	5 Whys 2 Hows Explanation
Kaizen Definitions	5 Ms 2 Hs 6 Ws	Kaizen Event Planning Scheduling	Kaizen Checklist	Waste Walk Observation Data Collection Sheet	Six Sigma DMAIC Checklist - Define	Document	Document	Document	Document	Document	What Is Six Sigma
	13 Steps to Create a Value Stream Map	Document									
1-Normality Test - Anderson-Darling	Basic Statistics										
Single Point Lesson - Single Cycling 2300C Injection											