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5.0 SUPPLIER RESPONSIBILITIES

5.1 Unless otherwise indicated by Key Safety Systems, timing for the Run @ Rate is per the dates indicated by the Key Safety Systems SDE and or Key Safety Systems Buyer. **The Run @ Rate should not be conducted until the supplier has received Approval from the PPAP group at the applicable Key Safety Systems facility.**

The Key Safety Systems SDE and Buyer reserve the right to visit the supplier during the Run @ Rate to witness the activity, at their discretion. The supplier will be notified of Key Safety Systems participation.


5.2 The supplier must include all processes in the Run @ Rate, with special attention being paid to bottlenecks, any final assembly and new processes, facilities or cells. All processes should be run in the correct sequence and notations made to indicate any processes which had to be run “off-line” due to new model/old model build out or change over requirements.

5.3 **Trials must be representative of Mass Production**

- Facilities, tooling and equipment must be complete.
- Operators must be trained and must be those who will be used in Mass Production. The trial should include operators from all shifts.
- Production method must be the same as Mass Production and include:
 1. Written Work Instructions
 2. Mass Production Quality Control Plan
 3. Tool changes and set up instructions and sheets
 4. Mass Production line speed (takt time)
 5. Mass production tool and machine capacities, as quoted.

5.4 Material must be the same as Mass Production materials.

Note: All Direct Run Parts can be used to support mass production shipments providing no late ECN changes or other tuning as required by Key Safety Systems occur (any reworked parts must be approved by Key Safety Systems SDE). These parts must be identified as Run @ Rate parts or traceable by date code (date code method preferable).

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- 5.5 Trial targets for quality and quantity must be clearly specified.
Definitions:

Quality – Parts produced which satisfy the approved Part Mass Production Drawing and Boundary samples (if applicable)

Quantity – Rate of direct run good parts (no re-worked parts) which satisfy Key Safety Systems demand (Mass Production volume requirements). Procurement shall define Key Safety Systems capacity planning volumes for the components. Including all sources of consumption not only program being launched.

5.6 REQUIRED PARTICIPATION

Key Safety Systems Monitored -

A representative from Key Safety Systems, usually the SDE and or the Buyer, is to be present for the entire Run @ Rate. No portion of the Run @ Rate is to be performed without representation of Key Safety Systems personnel without prior written approval.


Supplier Monitored -

The lead supplier representative is to be the project manager or manager appointee. In addition, the supplier’s Quality Manager or designee must attend and approve the Run @ Rate.

Note: Equipment and/or subcontractors may be asked to participate.

5.7 PERFORMING RUN @ RATE

- 5.7.1 During each individual trial, production must be continuous at Mass Production speeds with the output of the process constantly recorded, typically for a period of 1 hour. The process should then be stopped, reviewed and countermeasured for improvement, if necessary, and then tried again. This process should be repeated until the target criteria for the process output is achieved. The results must be recorded on the Run @ Rate Trial sheet (Appendix D).

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5.7.2 The supplier should track problems found, the countermeasures and follow-up items and document them on a Problem Follow Sheet (Appendix C). The supplier should also consider workability, safety and ergonomic issues, as well as problems related to parts and capacity.

5.7.3 Once the target for Direct Run Good Parts has been achieved, an additional trial should be conducted for at least ½ shift to establish consistency of output and confirm reject levels (these trials can be used for process capability studies).

Note: Appendix E gives examples of how to calculate Net Operating Time and Required Parts per Hour.

Note: Direct Run Good Parts should not include parts reworked to a Good/OK status.

5.7.4 When the trial is completed, the supplier must submit the Run @ Rate Supplementary Worksheet (Appendix A), Run at Rate Trial Sheet (appendix B), Problem Follow Up Sheet (appendix C) and the Run @ Rate Summary Sheet (Appendix D) to both Key Safety Systems Purchasing and SDE.

5.7.5 If the supplier is unable to achieve target levels after countermeasuring the process, they must notify their Buyer and SDE, immediately.


6.0 **RUN @ RATE REVIEW CONTENT**

The Run @ Rate is verification that the results of the supplier's actual manufacturing process meet customer requirements for on-going quality and at the quoted tooled capacity. Verification that the supplier's actual process is to plan requires: process documentation, manufacturing process results, part quality results, sub-supplier requirements, the Run @ Rate worksheet, and packaging.

6.1 **DOCUMENTATION:**

At the time of the Run @ Rate, the following support documentation should be available:

- 6.1.1 PPAP Provisional Approval Sheet
- 6.1.2 a). Process flow diagram
- b). Process control plan, with reaction plan
- c). DFMEA/PFMEA
- d). Master parts(s) (if available)

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- 6.1.3 Operator/inspection instructions
- 6.1.4 Packaging/ labeling plan
- 6.1.5 Acceleration plan

Note: Complete Sections A and B of supplier Run at Rate Supplementary Worksheet prior to run at rate. Complete sections C, D and E during or at the end of the run at rate. (See Appendix A) All documentation must be complete and correct.

6.2 SUBCONTRACTOR REQUIREMENTS

- 6.2.1 Subcontractor(s) abilities to meet the customer’s quality capacity requirements must be confirmed by the supplier prior to the Run @ Rate being conducted at the supplier’s facility. Verification of the subcontractor(s) manufacturing processes should be accomplished through a Run @ Rate conducted by the supplier. All documentation requested in 6.1 should be available from subcontractors.
- 6.2.2 Controls shall be in place to isolate incoming material until it has been approved.
Note: The above requirements must be met to pass the Run @ Rate.

6.3 PACKAGING AND HANDLING

- 6.3.1 In process and final shipment packaging shall be reviewed for preservation of part quality and ergonomics. The supplier’s method for in process and final shipping packaging and handling must effectively eliminate the potential for process errors or mixed stock.



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APPENDIX A

**Key Safety Systems
Supplier Run @ Rate Supplementary Worksheet**

Supplier Name: _____ Part Number(s): _____

Date: _____

RUN @ RATE REVIEW CONTENT

This worksheet must be attached to the Trial Status sheet and retained at the supplier.

Sections A & B are to be completed prior to Run @ Rate. Sections C, D, & E are to be completed either during or at the completion of

A. Documentation

At the time of the Run @ Rate, the following support documentation should be available :

	Yes	No	N/A
1. PPAP Provisional Approval Sheet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Process flow diagram	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Process Control Plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. PFMEA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Master parts or boundary samples, if available.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Operator/inspection Instructions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Packaging/labeling plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Acceleration plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note: All documentation must be complete and correct

B. MANUFACTURING PROCESS- ACTUAL TO PLAN

1. Is the product being manufactured at the production site using the production tooling, gauging, process, materials, operators, environment, and process settings? Yes No

Comments: _____

2. Does the actual process flow agree with the process flow diagram, as documented in PPAP? (Review the facility plan and layout. Walk the process with the flow diagram.) Yes No

Comments: _____

3. Are operator instructions/visual controls available and adhered to at each work station?

Yes No Comments: _____

4. Is all in-process documentation, such as process control charts, in place at the time of the Run @ Rate? Is the documentation utilized to drive a defined reaction plan and corrective action process?

Yes No Comments: _____

5. When required, are production boundary samples available at required work stations? Are the boundary samples approved by the customer? Yes No Comments: _____

6. Are maintenance plans in place? Are repair and maintenance parts available? Is there planned downtime for preventative maintenance? Yes No Comments: _____

Note: All preceding requirements must be met to pass the Run @ Rate.

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C. MANUFACTURING CAPACITY RESULTS

To be completed during or after the Run @ Rate.

1. Can net output from each operation support quoted capacity? Yes No

Comments: _____

Operation	Quoted Capacity	Rate
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

2. During the Run @ Rate, did the tooling meet the quoted up-time requirements (net vs. gross quoted output)? Make note of any unexpected downtime and corrective action plans required. Yes No

Comments: _____

3. Does the net through-put of good pieces (scrap taken out, any allowable rework) meet daily quoted capacity? Yes No Comments: _____

4. Can all line change-overs, if any, be performed within the quoted tooling capacity requirements? Yes No Comments: _____

5. Is the acceleration plan sufficient to meet requirements? Yes No

Comments: _____

Note: All of the preceding five requirements must be met to pass the Run @ Rate

D. PART QUALITY PLAN TO ACTUAL

1. Are all production checking fixtures complete, with acceptable measurement system studies (i.e. Gage R & R) performed, and operator instructions/visual aids available? Yes No

Comments: _____

2. Are all in-process gauging and controls complete, functional, and in place? Yes No

Comments: _____

3. Do the process control plans (normal and LCS) agree with the actual process? Do production part checks and statistical monitoring take place as outlined on the process control plan? Yes No

Comments: _____

4. Are potential failure modes, as identified in the PFMEA, addressed through error-proofing or the control plan? Yes No Comments: _____

5. Do the process control plan reaction plan and the supplier's corrective actions ensure effective containment and correction? Yes No Comments: _____

Note: All of the preceding five requirements must be met to pass the Run @ Rate.

E. PART QUALITY RESULTS

Note: The total number of parts be produced, the pieces rejected and the pieces reworked must be documented on the summary sheet.

1. Do the parts produced off production tooling during the Run @ Rate meet BREED's requirements for on-going quality, as stated in PPAP? Yes No Comments: _____

2. Is the manufacturing process in control? Yes No Comments: _____

3. Does the manufacturing process demonstrate the required capability? Yes No

Comments: _____

4. Is the process control plan sufficient to effectively meet the design record requirements, i.e., control points, frequency of checks, etc.? Yes No Comments: _____



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COMMENTS: _____



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Appendix C

PROBLEM FOLLOW-UP SHEET

Supplier Name: _____
 Part Name: _____
 Part Number: _____
 Process: _____

CODE: _____

	Approved	Checked	Originator
Title	G. Mgr.	Mgr.	Engin.
Sign & Date			

NO. DATE PRIORITY	PROBLEMS		N.C.* RATIO	CAUSE	COUNTERMEASURE			FOLLOW UP RESULT				PROGRESS	
	ITEM	SKETCH			ACTION	RESP. PERSON	DATE	RESULT	DATE	RESULT	DATE		
<input type="checkbox"/> PROBLEM IDENTIFIED		<input type="checkbox"/> COUNTERMEASURE PROPOSED		<input type="checkbox"/> COUNTERMEASURE AGREED			<input type="checkbox"/> PROBLEM SOLVED						

*NC = Non Conforming Ratio = $\frac{\text{Scrap} + \text{Rework}}{\text{Total}}$



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APPENDIX D

Run at Rate Summary

Part Description:
Supplier:
Manufacturing Location:
Supplier Quoted Production Rate:

Part Number:
Machine Number:

Line:
Planned Usage: Weekly

Planned Run Date:
Planned Hours to Run:
Planned Shift(s):
Reason for Planned Down Time:

Goal (Net Good Parts)
pcs/hour
pcs/shift
pcs/day

RESULTS
Actual Hours: From Date To Date
Actual Shift(s):
Actual Downtime: (Planned & Unplanned)
Explain:

Actual (Net Good Parts)
pcs/hour
pcs/shift
pcs/day

Total Produced: Total Rejected: Net Produced 0
Comments/Open Issues:

Supplier Run at Rate Recommendation: Pass Open Fail Rerun Date:
Comments:

Supplier Signature Title Phone Date

For Customer Monitored Run at Rates

Run at Rate Summary: Pass Open Fail Rerun Date:
Comments:

Authorized BREED Signature Title Phone Date

