

POTENTIAL FAILURE MODE AND EFFECT ANALYSIS																			
BHAGWAN AUTO PRODUCTS MANESAR																			
(PROCESS FMEA)																			
FMEA Number: FMEA/GPD-KONA/ 83																			
Prepared by: SURAJ																			
Date (Orig.) 20.11.2018																			
Rev.:- 00 Rev. Date:-																			
Core Team :Mr. D.Lamba, Mr. J.P Sharma, Mr. Shailesh, Mr. Praveen,Mr. Nitin Virmani, Mr. S. Prakash																			
Process No/ Process Function Require- ments	Process Require- ments	Potential Failure Mode	Potential Effect(s) of Failure	S e v e r i t y	C l a s s	Potential Cause(s)/ Mechanism(s) of Failure	O c c u r r e n c e	Current Process Controls Prevention	Current Process Controls Detection	D e t e c t i o n	R. P. N.	Recommended Action(s)	Responsibility & Target Completion Date	Action Results					
														Actions Taken	S e v e r i t y	O c c u r r e n c e	D e t e c t i o n	R. P. N.	
10	Raw material receiving	1) Chemical Composition 2) Mech.& Phy.Properties 3) Surface Defects.	Effect on Part Performance at user end, Machining Prob.	8		Process Fault, R/M Mixing at supplier or consumer end	2	Supplier's R/M T.C, Inhouse & Sunbeam Lab Report	----	5	80								
20	Blank Cutting	Billet Weight Over Size.	1) More material For Forging. 2) Pressure on Die. 3) Effect on Die Life	6		1) Clamp & Stopper Not Working Properly. 2) Wrong Prog.	3	1) In Process Insp. 2) Patrol Insp.	1) setting approval 2) Prev. Maintenance Plan	3	54								
		Billet Weight Under Size.	1) Underfilling In Forging 2) Piece Reject.	7		1) Clamp & Stopper Not Working Properly. 2) Wrong Prog.	3	1) In Process Insp. 2) Patrol Insp.	1) setting approval. 2) Prev. Maintenance Plan.	4	84								
30	Hot Forging	Temp. High	Material easily burn that causes underfilling, scaling etc.	6		Excessive heating time (heater timer prob.)	3	Adjustment of power by monitoring output temperature	Set up and temperature monitoring (Reading / Hour)	3	54								
		Temp. Low	Wear and tear rate in die will be high.	6		Less heating time (Heater timer prob.)	3	Adjustment of power by monitoring output temperature	Set up and temperature monitoring (Reading / Hour)	3	54								
		OD. Over Size.	1) Unclean O.D 2) Reject at Customer End	6		1) Wrong Die Selection 2) Wrong Press Selection	2	1) In Process Insp. 2) Patrol Insp.	1) Die Insp. Report During Setting. 2) Identification Tag on Die 3) C.P. & Process Parameter	3	36								
		O. D. Under Size.	1) More Margin for Facing	7		1) Wrong Die Selection 2) Die wearout	2	1) In Process Insp. 2) Patrol Insp.	1) Die Insp. Report During Setting. 2) Identification Tag on Die 3) C.P. & Process Parameter 4) Tool Monitoring Sheet	6	84								
		Thickness Over Size.	Excess material may cause of m/c accident or tool broken.	6		Dim. in die not correct.	3	Setting approval of 1st part.	Setting approval and in process inspection.	3	54								
		Thickness Under Size.	Due to less material may unclean on face.	7		Dim. in die not correct.	3	Setting approval of 1st part.	Setting approval and in process inspection.	4	84								
		Heavy Flashes.	Parts with heavy flashes may cause tool breakage or m/c accident.	6		Excess billet weight.	2	Setting approval of 1st part	Setting approval and in process inspection.	4	48								
40	Normalizing	Hardness High.	1) Piece Can be Break.	8		1) Normalising Time Less. 2) Temp. low 3) Error in R.H.T.	1	1) After Temp. Check sheet should be provide 2) Patrol Insp.	1) Training regarding loading & unloading 2) key lock 3) Daily Calibration of R.H.T 4) Digital display should be provided	6	48								
		Hardness Low.	1) Piece Can not be run for more time.	8		1) Normalising Time More. 2) Temp. High 3) Error in R.H.T	1	1) After Temp. Check sheet should be provide. 2) Patrol Insp.	1) Training regarding loading & unloading 2) key lock 3) Daily Calibration of R.H.T 4) Alarm System Should be provided.	6	48								

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BHAGWAN AUTO PRODUCTS MANESAR										(PROCESS FMEA)									
Part Number		GEAR M-2										FMEA Number:		FMEA/GPD-KONA/_83_					
Part Name		23431-KONA-D000						Process Responsibility		Mr. NITIN VIRMANI		Prepared by:		SURAJ					
Model Year(s)/Vehicle(s)		KONA						Key Date				Date (Orig.)		20.11.2018					
Core Team :Mr. D.Lamba, Mr. J.P Sharma, Mr. Shailesh, Mr. Praveen,Mr. Nitin Virmani, Mr. S. Prakash												Rev.:- 00		Rev. Date:-					
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														Actions Taken	S e v	O c c	D e t	R. P. N.	
50	Shot Blasting	No Scaling & No Rusting.	1) Effect on Part Performance at Next Opn.	5		1) Improper Timing. 2) Shots Size.	1	1) 100% Visual Insp.	1) Digital Display. 2) Alarm In M/c.	7	35								
60	Final insp.	Insp. Not done properly.	Defective parts despatch to customer	7		Parts not inspected as per final insp. Standard.	3	Final Insp. Std.	PDIR	3	63								
70	Forging Receiving	Not as per invoice / chalaan	Received material may be not as per spec. resulting stoppage in production.	5		Supplier Error.	3	Security will check the material against invoice / chalan	Security will check the material against invoice / chalan	2	30								
		Short delivery	Resulting in stoppage in production	5		Supplier Error.	3	Store will check the qty. of material against the invoice.	Store will check the qty. of material against the invoice.	3	45								
		Late delivery	Resulting in stoppage in production	6		Supplier Error.	3	Material requirement schedule issued to supplier.	Material requirement schedule issued to supplier.	3	54								
		Material without supporting documents	Delay in production	4		Supplier Error.	3	Receiving inspection	Receiving inspection	3	36								
80	MACHINING 1st	O.D. 35.6 ± 0.03 Over Size.	Fitment problem line stoppage at customer end.	6		Wrong setting or wrong offset given by operator ,Tool wear .	3	Process parameter and controlled by programme.	Setting approval and in process inspection.	4	72								
		O.D. 35.6 ± 0.03 Under Size.	Fitment problem line stoppage at customer end.	7		Wrong setting or wrong offset given by operator	4	Process parameter and controlled by programme.	Setting approval and in process inspection.	3	84								
		Chamfer out of spec.	Fitment problem line stoppage at customer end.	6		Wrong setting or wrong offset given by operator	3	Process parameter controlled by programme.	Setting approval and in process inspection.	4	72								
90	MACHINING 2nd	O.D. 35.6 ± 0.03 Over Size.	Fitment problem line stoppage at customer end.	6		Wrong setting or wrong offset given by operator ,tool wear	3	Process parameter and controlled by programme.	Setting approval and in process inspection.	4	72								
		O.D. 35.6 ± 0.03 Under Size.	Fitment problem line stoppage at customer end.	7		Wrong setting or wrong offset given by operator	4	Process parameter and controlled by programme.	Setting approval and in process inspection.	3	84								
		Bore Dia 14.81 ± 0.008 Over Size.	Fitment problem line stoppage at customer end.	7	▽	Wrong setting or wrong offset given by operator	3	Process parameter and controlled by programme.	Setting approval and in process inspection.	4	84								
		Bore Dia 14.81 ± 0.008 Under Size.	Fitment problem line stoppage at customer end.	6	▽	Wrong setting or wrong offset given by operator	3	Process parameter and controlled by programme.	Setting approval and in process inspection.	4	72								
		Total Height NG	Fitment problem line stoppage at customer end.	7	◇	Wrong setting or wrong offset given by operator	3	Process parameter and controlled by programme.	Setting approval and in process inspection.	4	84								

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Part Name	23431-KONA-D000				Mr. NITIN VIRMANI						Prepared by:	SURAJ						
Model Year(s)/Vehicle(s)	KONA				Key Date						Date (Orig.)	20.11.2018						
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														Actions Taken	S e v e r i t y	O c c u r r e n c e	D e t e c t i v e	R. P. N.
90	MACHINING 2nd	Total Run Out more.	Fitment problem line stoppage at customer end.	7	▽	Wrong jaws forming .	4	Run out checked after Jaws forming.	Setting approval and in process inspection.	3	84							
		Chamfer out of spec.	Fitment problem line stoppage at customer end.	6		Wrong setting or wrong offset given by operator	3	Process parameter and controlled by programme.	Setting approval and in process inspection.	3	54							
		Parallelism Out.	Fitment problem line stoppage at customer end.	6		Wrong loading of the part by operator .	3	Process parameter and controlled by programme.	Setting approval and in process inspection.	4	72							
		Poor Finish.	More wear and tear in mating part or fitment prob.	5		Wrong feed or insert wear out.	3	Process parameter and controlled by programme.	Setting approval and in process inspection.	3	45							
100	Final Insp.	Insp. Not done properly.	Defective parts despatch to customer.	7		Parts not inspected as per final insp. Standard.	3	Final Insp. Std.	PDIR	3	63							
110	Oiling & Packing	Oiling not done properly.	Rust on parts.	6		Parts not dip in oil	3	Oiling work instruction	Doc. Audit.	3	54							
		Improper packing.	Lees or excess quantity in box or parts damage during transport.	6		Parts not packed in the specified boxes as per the packing standard.	4	Packing standard	Doc. Audit.	3	72							
120	Dispatch to customer	Late delivery.	Stoppage in customer production line.	5		Parts not despatched as per the customer schedule.	4	Customer schedule.	Schedule v/s supply monitoring.	3	60							
LEGEND		⊙ SAFETY/COMPLIANCE				◇ FIT/FUNCTION		▽ PROCESS CONTROL				⊗ PAST TROUBLE						
REV. NO.		REVISION DETAIL						DATE		Prepared By		Approved By						
Prepared By:-		Checked by:-						Approved By:-										