CHECK POINTS AT MANUFACTURING FACILITY (GEMBA)

The Second edition 2010/1/11

1. Improvement Resource That Can Be Discovered from Actual Site

	Item		What To Check	Evaluation
Material Components	1. Storage Place & Packaging		1)Are the parts packed and stored for easy handling? (Height･direction･distance･one grip concept)	
			2)Are they placed in a process sequence order?	
			3)Are they stocked in a way that you do not have to look for them?	
			4)Can First-In and First-Out be performed?	
			5)Is the system in place so that you do not pick wrong parts? (Indication Lamp・sequential placement storage･partitioned lunch box)	
			6)Is the system set up to pull only the required quantity?	
			7)No excessive packaging ? (No cardboard)	
			8)Does the way packed at the supplier's last process reflect the way the assembly process at the line use?	
			9)Can they be shipped directly from the supplier's cell?	
			10)Can the receiving process be eliminated and the parts be delivered to the line directly?	
	2.Configuration & Accuracy		1)Can the quality standard be reevaluated to make the process and assembly easier?	
			2)Didn't you establish over specification beyond its functional requirement?	
			3)Is there any parts that can standardize or can you use common parts?	
		Assembly	4)Is the product configuration designed for easy assembly & installation?	
			＊Have you eliminated the practice of supporting any parts during installation?	
			＊Have you eliminated parts for which an air tool cannot be used?	
			5)Are there any installation methods without using bolts and nuts ? (One touch installation)	
			6)Can bolts and nuts engaging be eliminated?	
			7)Can we find a way to carry assemble with eyes closed?	
		Press Sheet Metal	8)Have you eliminated any sputtering?	
			9)Can the yield rate be improved?	
			10)Can scrap pieces be reused?	
		Process	11)Can the process accuracy be relaxed?	
			12)Can certain processing be omitted & the rough material be used as it is?	
			13)Can the process method be changed? (grinding to cutting)	
			14)Can cutting stock be minimized?	
			15)Is the specified dimensional accuracy and configuration achievable using the standard cutting tools?	
			16)Can the material be changed to the better machinability one?	

	Item		What To Check	Evaluation
Components Material	2.Configuration & Accuracy	**Molded Material**	17)Can deburring be eliminated?	
			18)Is there a configuration that doesn't require deburring?	
			19)Can coring be eliminated from cast parts?	
			20)Is there a better configuration which improves yield rate?	
		Heat Treatment	21)Can the heat treatment be omitted?	
			22)Can the deformation caused by heat treatment be prevented?	
			23)Can non-heat treat steel be used?	
Man	**3. Motion**		1)Have you eliminated operator waiting?	
			2)Have you eliminated any waste of walking?	
			3)Have you eliminated any stop time of motion?	
			4)Have you eliminated ergonomically forced motions? (bending・move on hand and knees)	
			5)Have you eliminated any unnatural movement?	
			6)Have you eliminated any looking back motion?	
			7)Have you eliminated any search movement of eye? (Watch the direction of their eyes.)	
			8)Are both hands well used?	
			9)Can you let tools go easily?	
			10)Is the motion easy to repeat?	
	4. Operations		1)Is it Chaku-Chaku process operation?	
			2)Have you eliminated othe situation where operator is still monitoring machine?	
			3)Have you eliminated adjustment and rework operations being performed ?	
			4)Have you eliminated manual finishing operations ? (deburring etc)	
			5) Are man's work and machine work separated ? (Is the process free from man's work?)	
			6)Have you eliminated any rearranging and reverse operations?	
			7)Have you eliminated any engaging and assembly operations? (bolts & nuts etc.)	
			8)Have you eliminated reassemble of assembled parts?	
			9)Have you eliminate the situation of rush operation to be faster than takt time?	
			10)Have you eliminated air blow or oil gun operation?	
			11)Have you eliminated chack marking operation?	

	Item	Check Point	Evaluation
Equipment & Machinery	5・Layout	1) Have you eliminated any isolated island in layout?	
		2)Is it the narrow frontage equipment installation layout? (Kyoto Style)	
		3)Is the rear end placement of autonomated equipment being practiced?	
		4)Is same tact time concept for various parts in one cell being adopted? (Build them as a set)	
		5)Is the layout accommodating man's operations together? (minimum operator line)	
		6)Does the layout design have no gap between equipments? (No accessory and access on the sides of equipment & rear side is for maintenance)	
		7)Is it a counterclockwise, U shaped layout?	
		8)Is the layout constant flow and multi-skill operator approach?	
	6. Inexpensive Autonomation	1)Is an autonomated quick release in use? (a ejection mechanism)	
		2)Are Nagara(on a way) switches and simultaneous start up in use?	
		3) Does cutting chips not pile up and no sweeping is required?	
		4)Is the entrance to the subsequent process located at the exit of the present process? (shooter、roller conveyor)	
		5)POKAYOKE(mistake proof) in use & no defective parts flow to the next process?	
		6)Have you autonomated air blowing and cleaning	
		7)One-Touch installation（Can operator perform with eyes closed)	
		8)Can the equipment be built with off-the-shelf parts or products?	

2. Genba Management & System (Foundation for Kaizen)

	Item	Check Point	Evaluation
Products Material	1. Standard Work in Process	1)Is it clearly indicated?	
		2) Is the description correct ? (Is the meaning clearly understood?)	
		3) Is it maintained as it is indicated?	
	2. Inventory	1)Are the reasons of inventory clearly indicated?	
		2)Is abnormal situation and its corrective action being taken clearly visible?	
		3)Is there any visual control to judge too much or too little inventory?	
		4)Are the actions being taken to minimize inventory? Has target been set?	
	3. No Work/ Full Work (Parts control in production line)	1)Is it functioning ? (A, B Control)	
		2)Is the number of parts limit logical and any stop mechanism in place?	
	4. Defects Reworks	1)Is there designated area ? (Pareto chart using actual products)	
		2)Are handling process standards clearly defined when abnormal situation occur?	
		3)Are the standards being followed ? (Immediately at the actual site)	
		4)Is there any activities under taken to eliminate them? (within the day)	
Man	5. Standard Work	1)Is standard work sheet correctly indicated?	
		2)Are they following standard work indicated on standard work sheet?	
		3)Is Standard Work improving and standard worksheet updated? (at least once a week)	
		4)Is Standard Work Combination sheet indicated ?	
		5)Are process elements in Standard Work Combination sheet detail enough and all described?	
		6)Is Operation Loading Chart indicated?(Assembly process)	
		7)Are operation elements in Operation Loading Chart detail enough and all described?	
		8)Is operation load properly distributed?	
		9)Is problem clearly visible and can you carry Kaizen activity?	
	6. Pace Maker	1)Is it in place and functioning?	
		2)Is there any delay or advancement of work against pace maker?	
		3)Is the warning system in place against delay ?	
		4)Is it used as a Kaizen tool ?	
	7. Production Output Control	1)Is there an hourly production output control table?	
		2)Are the causes of delay or advancement noted in the control table ?	
		3)Does the supervisor check it & write corrective actions immediately ?	
		4)Are corrective actions in place within the day of incident?	
	8. Fixed Location Stop (Forced moving Line)	1)Is fixed location stop mechanism in place and is it functioning?	
		2)Is the mechanism friendly for the operator to stop?	
		3)Is the fixed location mechanism in use ?	
		4)Are corrective actions against causes of stoppage taken within the same day?	

	Item	What To Check	Evaluation
Machinery & Equipment	9. Process Capacity Table	1)Is there a Process Capacity Table?	
		2)Is the bottleneck process clearly addressed ?	
		3)Is the bottleneck process visible at the shop floor ?	
		4)Are Kaizen actions being implemented for the bottleneck process ?	
	10. *ANDON* (Warning lamp)	1)Are functional distinctions & its description easy to understand? (Abnormal area, setup change, tool exchange, quality check, transportation, visual and audio warning system etc…)	
		2)Are they functioning ? (Immediate action）	
		3)Are they used effectively and the preventive measure placed?	
	11. *POKAYOKE* (Mistake Proof)	1)Is the place of POKAYOKE clearly indicated ?	
		2)Is POKAYOKE functioning properly ?	
		3)Are check standards in place and is it maintained ?	
	12. Production Control Board	1) Is there a Production Control Board & is it functioning ?	
		2)Are preventive measures implemented utilizing Production Control Board effectively?	
	13. Availability Factor (Breakdown, Set-up Change, Cutting tool change)	1)Is the availability rate of machinery & lines easy to see?	
		2)Is the availability rate good ? (Process line: over 90%, Assembly line: between 93 and 97%)	
		3)Are reasons for non-operation addressed and corrective actions taken?	
		4)Are the preventive measures implemented for breakdowns & short stop?	
		5)Are the responsibility allocation rules for daily maintenance in place (Inspection, lubrication, cleaning etc.) and can it be conducted by dedicated person without stopping the line?	
		6)Are external and internal set-up changes clearly defined ?	
		7)Is there any arrangement of dedicated operator for set-up change ?	
		8)Is there any set-up change procedure ?	
		9)Is the equipment enable for sequential set-up change ?	
		10)Is internal set- up change one touch system and moving forward to zero adjustments approach?	
		11)Is cutting tool change standard including the change frequency indicated and is it followed strictly?	
		12)Is cutting tool equipped with a quick tool change system and no adjustment?	

	Item	What To Check	Evaluation
System	14. Education & Training	1)Is responsibility level based Kaizen education & training being conducted ?	
		2)Is EHS education/training conducted at shop floor based on standard work?	
		3)Is quality education/training conducted at shop floor based on standard work?	
		4)Have you changed practice of education/training conducted in lecture room only?	
	15. Production & Purchase Order	1)Does the production forecast reflect the actual market & economy status ? Is the forecast highly reliable ?	
		2)Is there leveled production plan in place and pulling in level from the subsequent process?	
		3)Is the delivery instruction to suppliers leveled per parts basis ?	
		4)Is it a pull system ?	
		5)Does the production end when the production for the day is completed ? (The day's plan must be completed in the day.)	
		6)Is the system set up to build and order parts as a set/kit?	
		7)Is the price being agreed beforehand and PO being issued autonomously?	
	16. Standard	1)Does production preparation meet safety, quality and cost requirements?	
		2)Is the parts standardization in place for product & equipment designs and is it actually being practiced ?	
		3)Is DFMA standardization in place for product & equipment designs and is it actually being used ?	
		4)Does the product & equipment design standard include maintainability?	
		5)Are there the standards for process and production engineering technology?	