

LAYERED AUDITS



LAYERED AUDITS

PURPOSE:

To provide a system to:

- verify compliance to the documented process
- instill discipline
- improve communication
- improve overall quality

SCOPE:

- Assembly Area
- Manufacturing Operations
- Shipping/Receiving
- Repair/Rework Area
- All Operations and other support functions

RESPONSIBILITY:

- Single Ownership
 - Plant Manager
- Supported By
 - Quality Manager

REQUIREMENTS:

- Layered Audits shall be conducted for manufacturing and assembly of high risk items at a minimum of once per shift.
- Frequency of Layered Audits based on production volume or level of risk associated with process.
- Layered Audits supplement ongoing control plan and job instruction checks.
- A check list of high risk items to be verified during Layered Audits shall be established.
- Elements should be considered in developing the check list. (Example)

(Example)

Elements

- Utilization of manufacturing assists (as applicable)
- Gages functioning and calibration confirmation
- Stacking / packing techniques
- Build / manufacturing techniques
- Visual aids presence and content
- Process parameter setting
- Job instructions
- Correct product identification
- Process steps adhered to
- Required inspections completed
- Torque monitoring (if applicable)
- Product dimensions or visual inspection
- Documentation / record completion
- Quality Gates (as applicable)
- Customer feedback

REQUIREMENTS (continued):

- Layered Audits results shall be recorded.
- Non-conformities shall be addressed immediately
- Reaction plan(s) for non-conformities detected during Layered Audits shall be documented and available for use.
- Corrective actions shall be documented.
- Results shall be summarized and reviewed by the manufacturing site leadership.
- Layered Audit documentation shall be compiled in the **Lessons Learned** (key strategy) database.

REQUIREMENTS (continued):

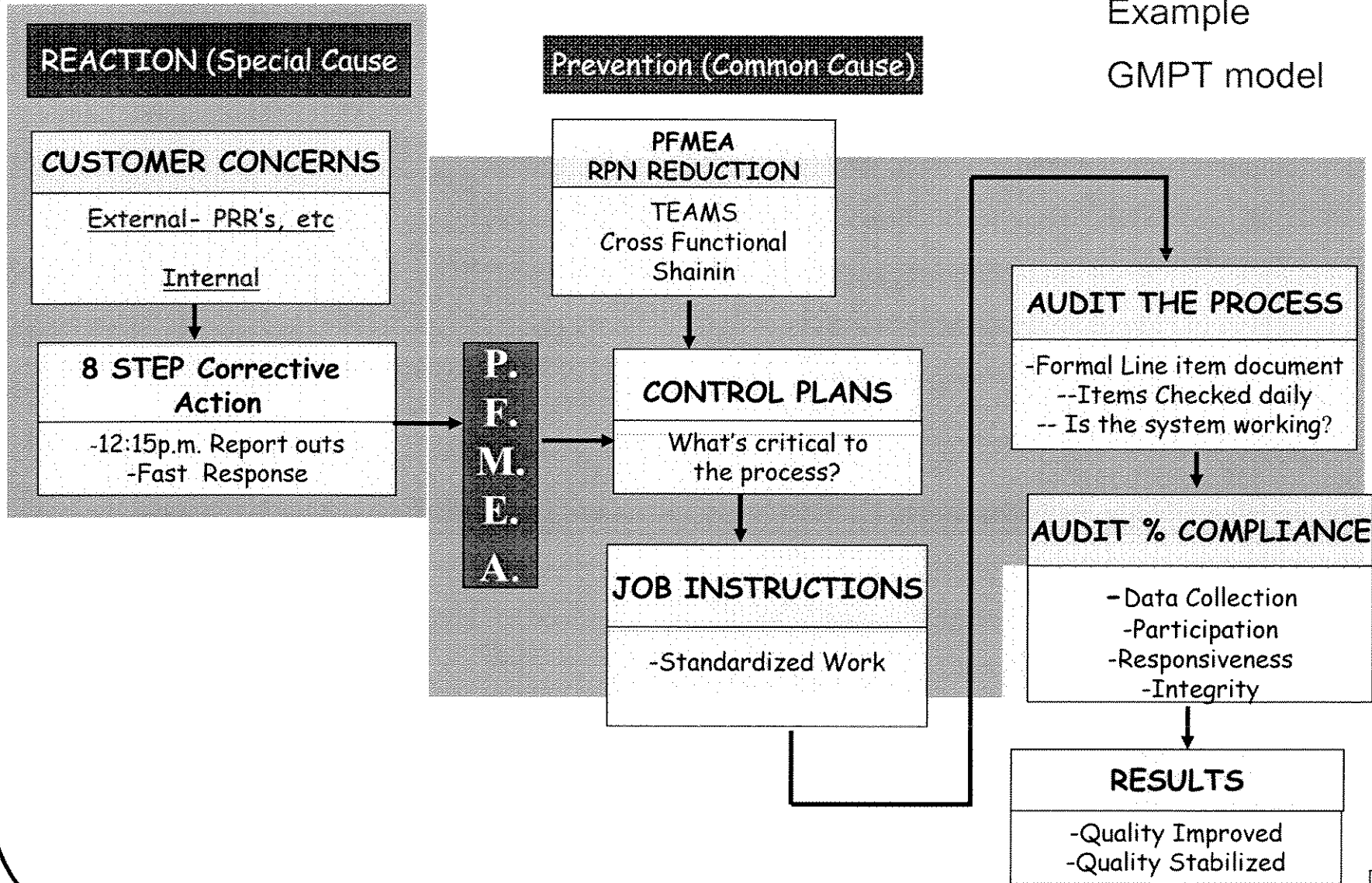
- Customer used features shall be identified, listed and checked in the manufacturing process with emphasis on:
 - Supplier pass through features
 - Mounting (holes, taps, etc.)
 - Electrical connections/connectors
 - Mounting surfaces
 - Clearances
 - Missing/wrong brackets
 - Incorrect parts
 - Others as identified by customer

REQUIREMENTS (continued):

- The following is an example of a Layered Audit with three levels of management involved in the process:
 - The manufacturing supervisor shall verify (daily) all quality documentation is completed by operators.
 - The manufacturing area manager shall verify (weekly) that supervisor verification is being completed.
 - Site leadership shall conduct layered audits at a frequency defined locally.

QUALITY ELEMENT: LAYERED AUDIT

Example
GMPT model



LAYERED AUDIT MATRIX (Example)

	SHIFT		DAILY		WEEKLY			MONTHLY		QUARTERLY	
	OPERATOR	QA INSPECTOR	TEAM LEADER	SUPERVISOR	PLANT MANAGER	QA MANAGER	OPERATIONS MANAGER	EQUIPMENT MANAGER	CORPORATE MANAGER	PRESIDENT	CEO
PART / PRODUCT											
Error Proofing Verification											
First Piece Inspection											
Last Piece Inspection											
Standard Work Instruction Present											
Operator Training Tracking Sheet											
Safety Issues											
PROCESS											
Set-up											
SPC Compliance											
Tooling Approval (Sign-off)											
Quality Gate Data											
SYSTEM											
Preventative Maintenance											
Calibration											
Lot Traceability											
Housekeeping											
VOICE OF THE CUSTOMER											
6-Panel Posted											
Action Plans Updated & on-time											
PR/R's Posted											
Customer Delivery Performance											
C.A.R.E.											



(Example)

PART NAME: _____
PART NUMBER: _____
CUSTOMER : _____
DEPARTMENT: _____

SHIFT: _____

WEEK ENDING: _____

		Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Op 10	Broach						
	Is runout (column #2) within spec (20 lights)						
	Has perpendicularity been gaged (402-3537)? Spec is 20 lines						
	Is there any broach tear? (Check one part from each broach)						
Op 20	Olofssons						
	Is the ID on size (columns #2 & 3)?						
	Is the ID run out within specifications?						
	Is the ID taper (between columns 2 & 3) within specification?						
Op 30	Hones						
	Has the ID-Micro been checked and the Micro Log completed?						
*	Entire Department						
	Are operators verification sheets completed daily by all shifts?						
	Are the tagging procedures being followed?						
	Are any Temporary Alert Notices posted that have expired?						



(Example)

PART NAME: _____
 PART NUMBER: _____
 CUSTOMER: _____
 DEPARTMENT: _____

SHIFT: _____

WEEK ENDING: _____

		Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Op A	Assembly						
	Are the builders checking rotation & marking parts (touch point)?						
	Have the 8-hole sprags been inspected for presence of 8-holes and identified with orange marker?						
	Are bar code labels attached to shipping container in correct location?						
	Are shipping containers checked for actual count?						

Machining Operations Total Non-Conforming Items

Assembly Total Non-Conforming Items

LIST ANY QUALITY OR MANUFACTURING CONCERNS ON ALL OPERATIONS.



(Example)

DEPARTMENT _____

LAYERED AUDIT RESULTS

ITEMS NOT IN COMPLIANCE

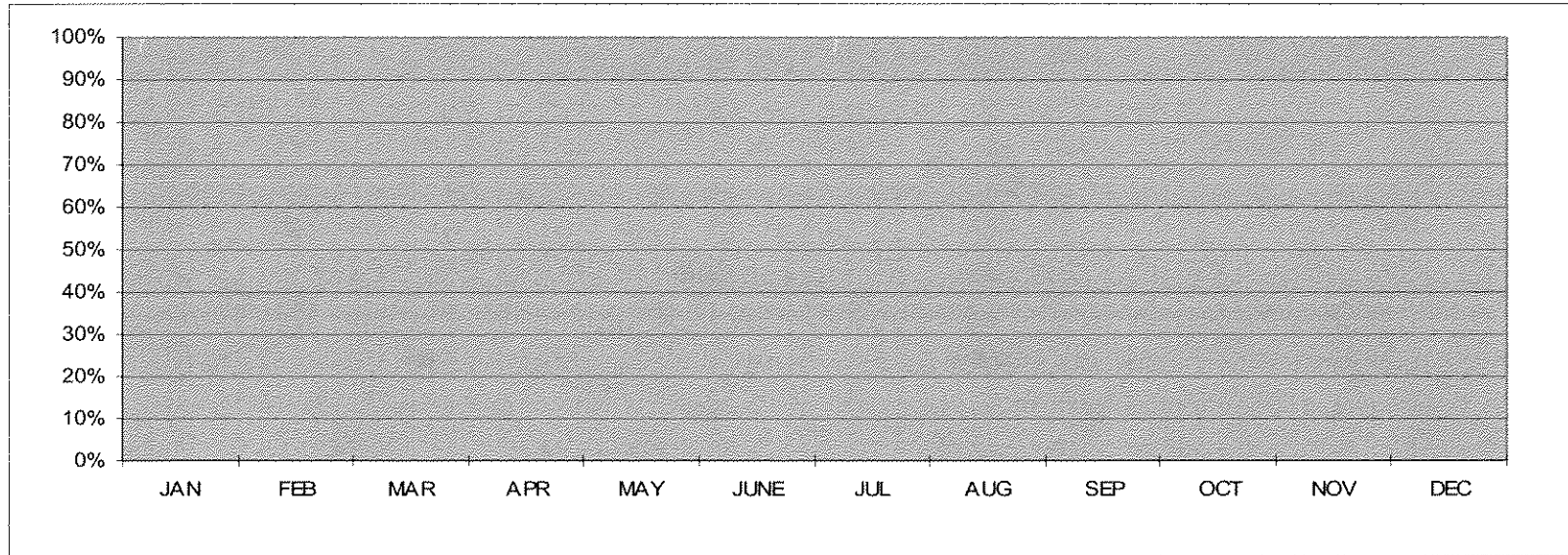
ITEM	NUMBER OF OCCURANCES												



(Example)

DEPT. _____

LAYERED AUDITS RESULTS



	JAN	FEB	MAR	APR	MAY	JUNE	JUL	AUG	SEP	OCT	NOV	DEC
% IN COMPLIANCE:												
# OF ITEMS ON ASSESSMENT:												
# OF ASSESSMENTS												
TOTAL # OF ITEMS ASSESSED:												
# OF ITEMS IN COMPLIANCE:												

