LAYERED PROCESS AUDITS

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the luminous group LLC

AGENDA

- Introduction
- LPA Video
- Phase I: Developing the LPA plan
- Phase II: Review & Approve the LPA plan
- Phase III: Implement the LPA plan
- Phase IV: Monitor & Adjust
- Questions & Answers

INTRODUCTION

Quality Improvement Strategies

Automotive OEMs are becoming ever more demanding in terms of quality. Costs are constantly challenged. The global automotive industry has never been more competitive.

What strategies are you currently using to further improve Quality?

DaimlerChrysler Corporation
Peter M. Rosenfeld
Executive Vice President
Procurement & Supply

August 20, 2004

A Layered Process Audit ("LPA") is a quality improvement process involving multiple layers of management. It consists of regularly scheduled reviews of all elements in a manufacturing/ assembly process to ensure that: equipment is being properly maintained; error proofing is working, and; proper craftsmanship and/or build techniques, from standardized work instructions, are being followed. Utilization of LPA will result in more disciplined processes and improve overall quality. Most Chrysler Group Powertrain facilities are already using LPA.

I am requesting that all supplier manufacturing facilities providing parts to the Chrysler Group deploy LPA. LPA training will be offered on September 22, October 12, and November 3, 2004 at the DaimlerChrysler Technology Center. Attendance at one of these courses will fulfill your company's training requirements and, more importantly, assist you in immediately implementing this procedure within your facility. At the same time, the Chrysler Group will be moving to make LPA a mandate for all production suppliers in January 2005 and a prerequisite for obtaining PSO approval.

The Chrysler Group is in the process of finalizing implementation of LPA in all of its Powertrain Plants. It has proved to be a valuable tool to improve first-time through capability which ensures quality to the customer. The Layered Process Audit is a system to ensure that we build the best quality product together.
I appreciate your company's, and your personal, support on this matter.

Sincerely,

P. Rosenfeld

DaimlerChrysler Corporation
Scott R. Garberding
Vice President
World Wide Supplier Quality

August 20, 2004

TO: Chrysler Group Production Suppliers

DaimlerChrysler is moving to mandate Layered Process Auditing (LPA) to be implemented on each DaimlerChrysler line within your facility by January 2005. In support of this deadline, DaimlerChrysler has made available a new course that will provide production suppliers to the Chrysler Group the required training necessary to meet this deadline. The class is titled "Layered Process Audit for Production Suppliers," and its course code is P&SLAS100. It will be a 4-hour session, offered at multiple times on September 22, October 12, and November 3, 2004 at DCTC in Auburn Hills, Michigan.

This informational session is designed for your company to learn and begin immediately implementing Layered Process Audits (LPA) at your facility. Attendees from your facility should be restricted to the following representatives: Plant Manager, Operations Manager, Manufacturing Manager and Quality Manager. I strongly encourage the Plant Manager attend since they will be in a position to direct the implementation of this process. The course and registration information are attached. Registration deadline is September 17, 2004. The class is mandatory for all Production suppliers. However, if you have already successfully completed the LPA class sponsored by Powertrain P&S, participation in this class is optional. Please note that in addition to LPA, e-CIMS will also be presented at these sessions. e-CIMS (electronic-Corporate Issue Management System) will replace PRISM, the Chrysler Group's corrective action process system, in November 2004.

In addition to these sessions, there will be supplemental training offered for layered process audits, at supplier expense. This supplemental training entails an all day hands-on training session conducted at your facility. This supplemental training is optional to those suppliers that have completed the 4-hour workshop (above) and want to get additional support in implementing LPA in their facility. It will, however, be required for those suppliers that do not attend any of the workshop sessions. Details of the supplemental training will be covered during the workshops, as well as future correspondence to all suppliers.

To help enforce the LPA mandate, DaimlerChrysler will be incorporating a new section in the Company specific requirements that are used in conjunction with ISO/TS 16949 Standard. Each supplier must add this requirement into their ISO/TS documentation/procedures to reflect LPA's that will be conducted on all DaimlerChrysler lines.
By December 2004, you should start submitting your LPA results into Powerway.com. In addition, the LPA process will be an integral part of Process Sign-Off (PSO) approval starting in January 2005.

Layered Process Audits are being used in many of Chrysler Group's Powertrain/Component plants with great success. The Chrysler Group is a great believer in this process, and would like to see our supply base equally enthusiastic and successful. Without question, our success is dependent in a large part on yours.

Sincerely

S. R. Garberding
Vice President, Supplier Quality
Procurement & Supply

Chrysler Group Requirements

- Chrysler Group specific requirements for ISO/TS 16949

"**4.2.1.9.1 Layered Process Audits**

Organizations supplying components to DaimlerChrysler Powertrain and Component Manufacturing Plants shall conduct Layered Process Control Audits on all manufacturing and assembly lines that produce components for DaimlerChrysler. These shall include all error-proofing operations. *Note: Effective January 2005, all production suppliers will be required to comply with LPA which will become a prerequisite for obtaining PSO approval…*"

- Beginning January 2005 LPA will be a new element requirement in PSO 5th Edition Manual.
- No Tooling Payment permitted until successful LPA Plan is approved, implemented, and demonstrated.

What Are Layered Process Audits?

There are two Types of Layered Process Audits:

Process Control Audits
Error & Mistake Proofing Verification Audits

Layered Process Audits (LPA) are a system of audits performed by multiple levels of management. Key process characteristics are audited frequently to verify process conformance.

The purpose of Layered Process Audits is to ensure continuous conformance thereby improving process stability and first-time through capability.

Who Performs Layered Process Audits?

Anybody can perform a Layered Process Audit.
Manufacturing management must own the process and perform audits.
All managers, regardless of function, can be auditors.
Each management level should perform audits.

Process Control Audits **shall** be performed at least once per shift by supervisors.
Plant management shall perform the audit once per week.

Error & Mistake Proofing Verification audits **shall** be conducted at least once per day. Only qualified employees shall perform Error & Mistake Proof Verification Audits. Set-up, maintenance or quality auditors are usually qualified.

LPA Leadership Role

- LPA calls for substantial commitment of management's time and effort.
- Leadership's role is to:
  - ✓ Fix system problems
  - ✓ Instill discipline
  - ✓ Show appreciation to operators for doing work correctly
  - ✓ Encourage improvement ideas from the workforce
- All plant staff should conduct Layered Process Audits throughout the plant.
- Early phase management audits will find problems… but, later phase management audits will find improvements.

Layered Process Audit Benefits

The implementation of Layered Process Audits:

- Reduces variation (both assignable and common cause)
- Prevents process errors and operator mistakes
- Improves and maintains discipline
- Initiates Continuous Improvement actions
- Reduces rework
- Reduces scrap and eliminates waste
- Improves communication
- Instills and improves standardization
- Improves overall Quality and reduces costs

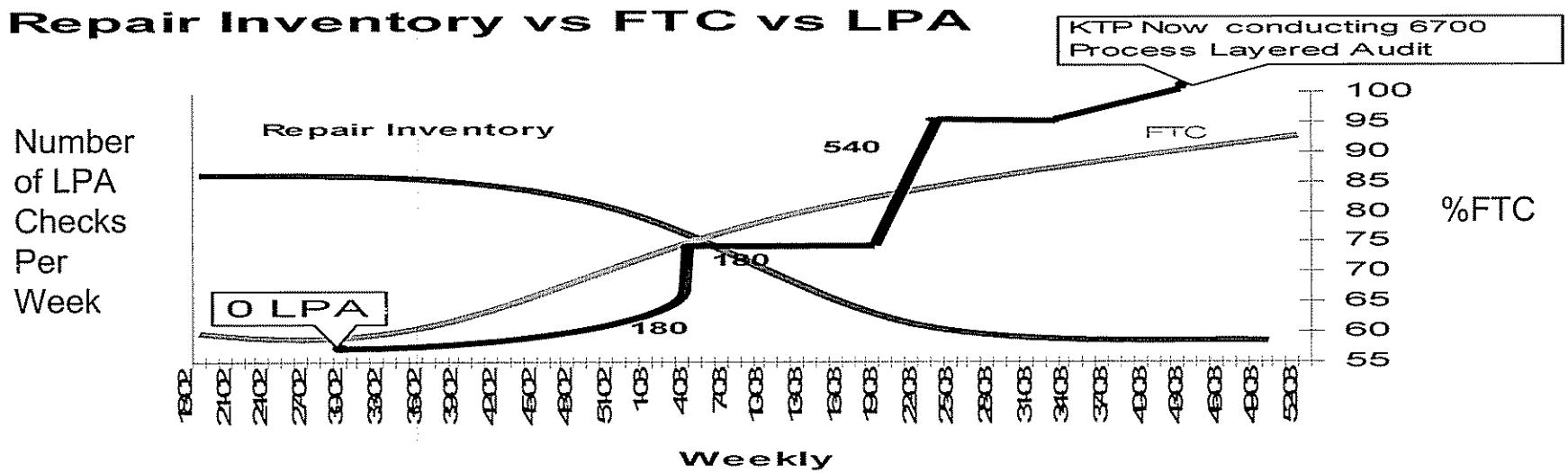
LPA Success Story

This quality strategy works so well for DCX, that they want you to be successful in implementing and using LPAs.

Likewise, you should consider introducing LPAs to your supply base.

The DaimlerChrysler Kokomo Transmission Plant has achieved significant gains in FTC using LPA.

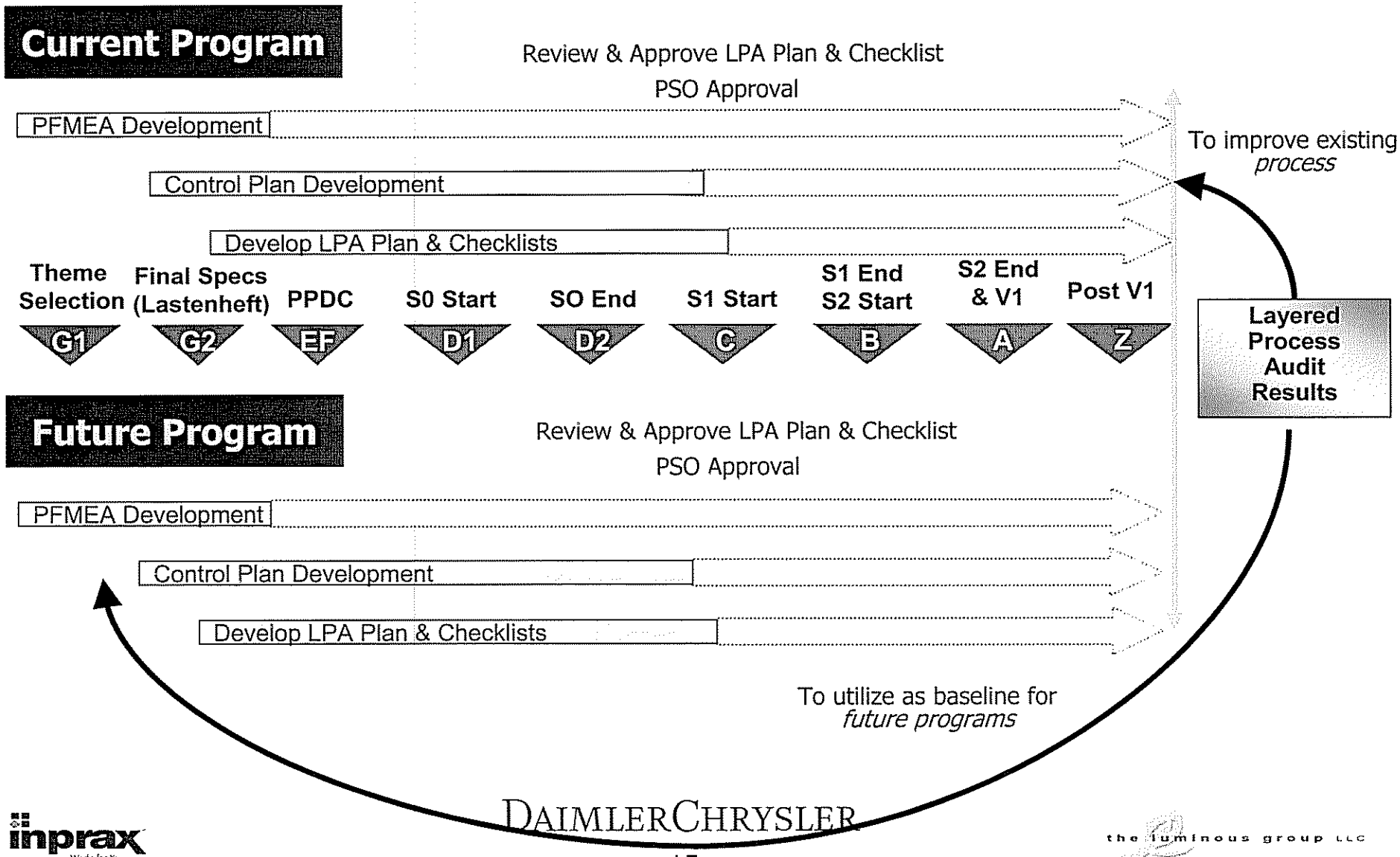
- FTC in the high 90%
- Rework now minimal
- Improvements correlate with LPA deployment



Chrysler Group LPA Video

Phase I:
DEVELOPING THE LPA PLAN

Layered Process Audit Integrated Into AQP



Form A LPA Team To Implement The Audit Process

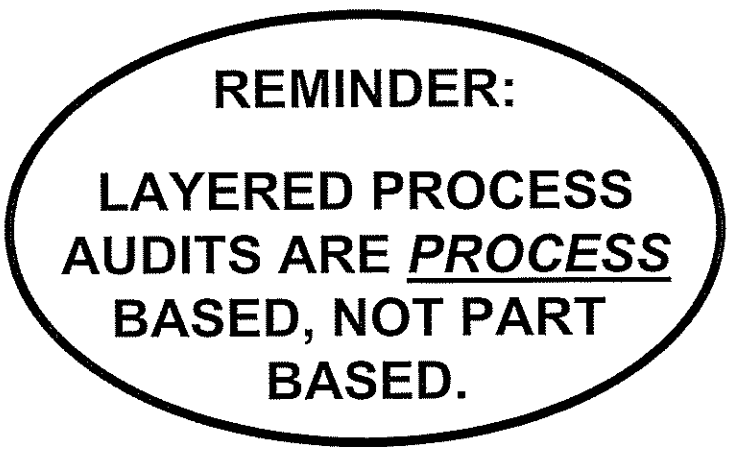
Multi-functional: Manufacturing, Quality, Engineering, Maintenance
Multi-level: Managers, Supervisors, Inspectors, Operators

- Form a team to develop the checklist and the LPA process.
- Upper management should be included in the team.
- Designate a Process Owner (Plant Management) and Implementation Team Leader.
- Empower the team to make decisions.
- Notify other Management to provide immediate support when requested.
- Schedule frequent meetings.
- Develop an Action Plan to identify all implementation steps.
- Management team should periodically review the Action Plan and status of the action items.

Identify Where To Begin Implementation.
Which Processes Or Manufacturing Areas?

Consider:

- Customer complaint history
- Process stability
- First-Time Through Capability
- High RPN values
- Operator influences
- Error proofing/detection



- The area of highest risk should be the first area to implement the Layered Process Audit.

- This area will also be used as a Lessons Learned for implementing the Layered Process Audit across the entire manufacturing facility.

Identify High Risk Items at Each Operation or Work Station.
Review Process Steps.
Review Quality Metrics and History of the Process.

Review:

Customer Complaints, Quality Alerts
First-Time Through data, Scrap Reports
Key Characteristics and Process Capability: CpK, PpK, Gage R&R
PFMEA, Process Flow Diagram, Control Plan
Set-up Sheets, Work Instructions, Inspection Instructions
Error and Mistake Proofing
Internal Audits: Quality System Audits, Dock Audits, Inspection Reports
Rework instructions and history

- The audit must address **HIGH RISK** items.
- Use discretion when adding items to the checklist.
- Audit items are issues that would cause Customer dissatisfaction.

Verify!
Verify!
Verify!

Typical Audit Elements

Machining/Robotics (Automation driven processes)	Assembly/Fabrication (Manually dependant processes)
• Preventative Maintenance tasks	• Craftsmanship
• Calibration of gages	• Operation movement
• Technical parameters	• Proper product identification
• Set-up procedures being followed	• Presence and content of instructions
• Machine settings	• Presence and content of visual aids
• Process sheets	• Sustainment of 5S workplace
• Tool change verification	• Touchpoint inspections
• Positioning of coolant lines	• Checking of customer used features
• Pattern of shot blast or deburr	• Use of manual assists
• Die coloration	• Packing and stacking techniques
• Gage plan being followed	• Placement of labels
• Sample part retention	• Calibration of gages
• Documentation of gage checks	• Inspection plan being followed
• SPC data capture and charting	• Torque monitoring
• Mastering of gages	• Completion of documentation
• Error & mistake proofing nonconformance testing	• Error & mistake proofing nonconformance testing

Error & Mistake Proofing Verification Audits (EMVA)

Is the mistake proofing working properly?

Verify!

Verify!

Verify!

- ✓ Verify effectiveness of error & mistake proofing
- ✓ Assure capability to stop defects
- ✓ Define countermeasures to assure quality
- ✓ Performed only by qualified individuals

EMVA Guidelines

- Check all mistake proofing devices at least once per day
- Check all critical mistake proofing devices at least once per shift
- Send a known non-conforming part through the system or device
- Send a known conforming part through the system or device
- Document checks on a checklist or log
- Check all Error proofing – which should prevent the manufacture of non-conforming product (i.e. it's designed out of the part)
- Check all Mistake proofing – which should detect and stop the transfer of non-conforming product
- Check all mistake proofing devices that might fail or wear
- Check all mistake proofing that might become misaligned or mislocated
- Check all mistake proofing that might be switched off or disabled
- Check all mistake proofing that might be by-passed or removed

Develop Audit Checklist.

- **Process Control Audit Checklist.**
- **Error & Mistake Proofing Verification Audit Checklist.**

Consider:

Questions must be concise and specific.

Phrase questions so a "no" always indicates a nonconformance.

Checklists define criteria for a nonconformance, the immediate reaction and the escalation process for each nonconformance.

- Questions should include complete identification of operation, equipment, documentation, etc…
- Reaction to nonconformances must be adequate to assure immediate response.

LPA Checklist Development

OPERATION or PROCESS	HISTORY	LPA CHECKLIST QUESTION
RECEIVING INSPECTION	Parts rejected by inspector have escaped to production due to lack of discrepancy information on tags.	If parts are tagged with red Non-Conformance Tag, is the tag complete with 1) part number, 2) date and 3) description of the discrepancy 4) disposition?
MOLDING	Assembly has found parts with excessive flash.	Verify machine process settings are correct as per the set-up sheet.
		Verify that the operators are checking for and removing any flash from edges of the molded part
		Verify that the operators are documenting flash removal on operator inspection form.
HEAT STAKE	A continuous improvement team is conducting a study to improve strength and decrease scrap.	Is the operator using the digital dial-indicator to check the stake height of assembly as per inspection instructions?
		Verify that the #2 temperature gage reads between 140 and 150 degrees Fahrenheit
ASSEMBLY	Customer has complained that assemblies squeak and have excess grease.	Verify the operator is applying grease on both the spring and pivot pin
		Verify on three assemblies that the parts are free of excess grease and flash.
		Verify that the handle operates smoothly without binding or squeak
SHIPPING	New procedure has been implemented, audit for effectiveness.	Using one part from the top of a packed tray, verify that the part number stamped on the part matches the pallet label
	Previous customer complaint requires blue dot.	Verify that shipping label on each wrapped pallet has a blue dot with initials and date

LPA Checklist Development

OPERATION or PROCESS	LPA CHECKLIST QUESTION	CORRECTIVE ACTION
RECEIVING INSPECTION	If parts are tagged with red Non-Conformance Tag, is the tag complete with 1) part number, 2) date and 3) description of the discrepancy 4) disposition?	Notify Receiving Inspection Supervisor.
MOLDING	Verify machine process settings are correct as per the set-up sheet.	Notify Molding Manager. Inform Quality Inspector to begin containment.
	Verify that the operators are checking for and removing any flash from edges of the molded part	Notify Molding Manager. Inform Quality Inspector to begin containment and initiate a C.A.R..
	Verify that the operators are documenting flash removal on operator inspection form.	Notify department supervisor.
HEAT STAKE	Is the operator using the digital dial-indicator to check the stake height of assembly as per inspection instructions?	Notify department supervisor.(Error Detection device at next station is set to reject nonconforming parts.)
	Verify that the #2 temperature gage reads between 140 and 150 degrees Fahrenheit	Notify area supervisor and Engineering Manager. Inform Quality Inspector to begin containment.
ASSEMBLY	Verify the operator is applying grease on both the spring and pivot pin	Notify Assembly Supervisor Inform Quality Inspector to begin containment and initiate a C.A.R..
	Verify on three assemblies that the parts are free of excess grease and flash.	Notify Assembly Supervisor Inform Quality Inspector to begin containment.
	Verify that the handle operates smoothly without binding or squeak	Notify Assembly Supervisor Inform Quality Inspector to begin containment.
SHIPPING	Using one part from the top of a packed tray, verify that the part number stamped on the part matches the pallet label	Notify Materials Manager Inform Quality Inspector to begin containment and initiate a C.A.R..
	Verify that shipping label on each wrapped pallet has a blue dot with initials and date	Notify Materials Manager Inform Quality Inspector to begin containment and initiate a C.A.R..

DCC Process Control Audit Sheet Example

Back to Process Control

9000 (42RLE) ASSEMBLY: ZONE "A" PROCESS CONTROL AUDIT
(done once per shift by Supervisor)

Next: Layered Audit Example

All questions are to be answered with a checkmark "√" or no "N" in the corresponding day's box. Non-compliances are to have corrective action recorded in the space provided & identified with either the letter of the day (M,T,W,R,F) or the date (MM/DD/YY)

SHIFT: _____

Date: _____
PLEASE WRITE ACTUAL DATES IN THE CORRESPONDING COLUMNS!!

What?
How?
Why?

ITEM#	THESE ITEMS ARE TO BE CHECKED EVERY SHIFT	ST.#	Mon	Tue	Wed	Thu	Fri	Sat	Corrective Action Taken
1	**Lead Off - Inspection Log Book:** Verify QAFM250092 is being filled out with date, shift, badge, and initials and checks are being made (Missing or incorrect data could result in incorrect units being held in the event of a containment)	1							
2	**Lead Off - Load Case to Pallet:** Verfiy the operator is visually inspecting the case for chips and damage defects (Chip in transmission or damage across a machined face can result in field failure for the customer)	1							
3	**Lead Off - Install Hat Plug:** Verify the hat plug is being installed flush with the case as shown in SWI (failure to install hat plug flush may result in rejects at final air decay or field failures)	1							
4	**L/R Ball and Stake:** Verify presence of L/R circuit ball and proper stake. Note: "proper stake" will show three point movement of aluminum in hole. (If stake is not secure, the ball could come out causing a failure of the L/R clutch.)	2							
5	**Bar Code Tags:** Verify that the bar code tag and the pinstamp match each other on two consectutive transmissions (Duplicate tags will create a reject for our customer - the car plant.)	2							
6	**L/R Piston Retainer Installation:** Is the operator using the grease dispenser to apply grease to the L/R gasket? (Absence of grease could result in a mislocated gasket and leak tester reject or warranty failure.)	6							

DCC Error & Mistake Proofing Verification Audit Example

Back to Process Control

D-9100 (41TE) ASSEMBLY ERRORPROOFING VERIFICATION AUDIT
(done once per shift by Utility man / Quality Auditor)

All questions are to be answered with a checkmark "√" or no "N" in the corresponding day's box. Non-compliances are to have corrective action recorded in the space provided & identified with either the letter of the day (M,T,W,R,F) or the date (MM/DD/YY)

SHIFT: _____

Date: _____
****PLEASE WRITE ACTUAL DATES IN THE CORRESPONDING COLUMNS!!****

What?
How?
Why?

Item	THESE ITEMS ARE TO BE CHECKED DAILY	Sta #	Mon	Tue	Wed	Thu	Fri	Sat	Corrective Action Taken
	CASE LINE								
1	At Station #10 allow 1 unit to mis-build without low/reverse piston retaining snap ring - follow to Station # 12, verify that unit rejects for piston movement & follow to audit bay (causes clutch/trans failures)	12							
2	Review log book at station-Is gage crib calibration of air decay up to date?	12							
3	Visual RTV sealant bead for uniform size (width/height) & that it is being applied to the extension face sealing area. (causes leaks)	13							
4	Review log book at audit bay-Is gage crib calibration of air decay up to date?	19							
	PRE LOAD LINE								
5	Remove O-Ring from transfer shaft bearing retainer cup. Does Vision system give "Red" light?	8							
6	With Vision system showing "Red" light - hit foot pedal. Does pallet remain (stay) in station - until proper parts are installed?	8							

DISCUSSION EXAMPLE:

LPA Situation

High risk item: Hole diameter varies – 3 customer complaints in the past 6 mos.

Process Operation: "B" Line Operation 20, Bore Hole

Audit item: Operator Inspection Sheet

Evidence: Completed 1/hour
Operator Signature
Actual dimension recorded
Accept/reject status indicated
Corrective action denoted if appropriate

DISCUSSION EXAMPLE:

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Audit item: Operator Inspection Sheet

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Operator Signature
Actual dimension recorded
Accept/reject status indicated
Corrective action denoted if appropriate

LPA Solution

Question on LPA:

WHAT: Operation 20 Operator Inspection Sheet

HOW: Is operator checking and documenting hourly as per the Operator Inspection Sheet?

WHY: Small hole diameter prevents assembly at customer

Determine Who Will Conduct Audits.

Include:

All levels of management
All shifts
Multi-functional: Operations, Manufacturing, Quality, Engineering, Maintenance, Set-up
Utilize support staff where appropriate.
Different processes may require different people.

- Error & Mistake proofing verification shall be done by qualified employees.
- Management must physically perform the audit; this is not a desk audit.

Determine Audit Frequency for Each Level.

Process Control Audit

At least once per shift done by group leaders, supervisors
Management performs audits weekly
Divide manufacturing areas and rotate so all areas are audited

Error & Mistake Proofing Verification Audit

At least once per day done by Maintenance, Set-up or Quality Auditor

- Minimum frequency requirements shall be met.
- Any scheduled audit must be performed to maintain discipline and improve quality.

EXAMPLE: LPA FREQUENCY AND STRUCTURE

	Assigned Management Category (example)	Assigned Management Personnel (example)	Audit Assignment	Department A	Department B	Department C	Department D	Department E	Department F
1st Layer of Management	Supervisors	Supervisor 1	Own Department	1 per shift	1 per shift				
		Supervisor 2	Own Department			1 per shift	1 per shift		
		Supervisor 3	Own Department					1 per shift	1 per shift
2nd Layer of Management	Area Managers	Area Manager 1	Own Area	2 per week	2 per week	2 per week	2 per week		
		Area Manager 2	Own Area					2 per week	2 per week
3rd Layer of Management	Plant Staff and Plant Manager	Engrng Mgr	Rotate Depts.	1 per week					
		Quality Mgr	Rotate Depts.	1 per week					
		Tooling Mgr	Rotate Depts.	1 per week					
		H.R. Mgr	Rotate Depts.	1 per week					
		Training Coord.	Rotate Depts.	1 per week					
		Plant Manager	Rotate Depts.	1 per week					

Develop A Monitoring Process And Reports For Management Review.

Develop:

Corrective Action Request forms for nonconformances
Summary of audit results: Pareto of nonconformances
Summary of on-time/missed/late audit completion
Frequency for management review
Management reaction plan for LPA process

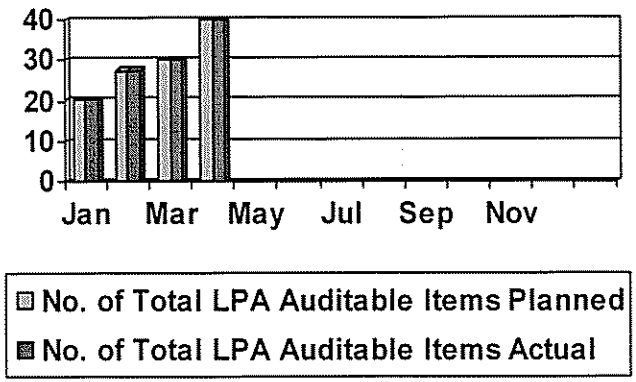
- Corrective actions shall be linked and documented as required by ISO/TS
- There must be a system to maintain the audit schedule and track completion.
- Improvements driven by the LPA process shall be measured, monitored, and reported to management as per Chrysler Group TS Customer Specifics(4.2.1.9.1).

AQP Family Group Indicators

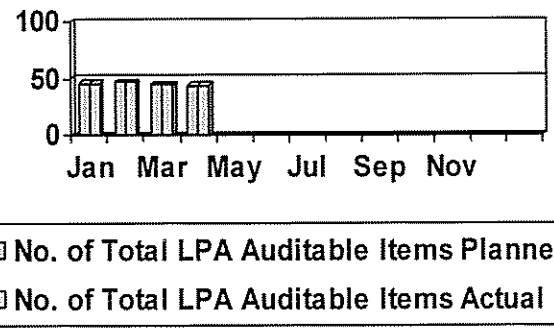
Supplier Name:
Supplier Location:

Project #/AQP Family Group:

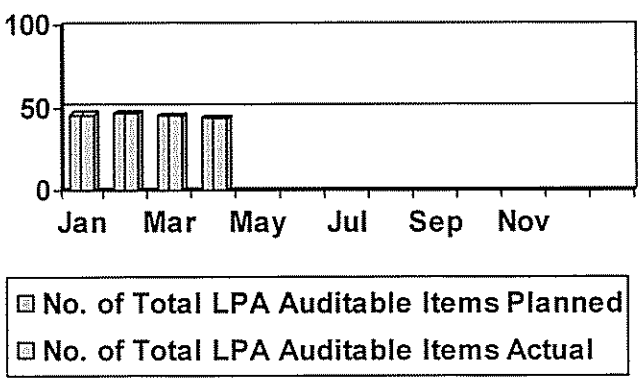
Line Supervisor Plan vs. Actual



Middle Management Plan vs. Actual



Top Management Plan vs. Actual



Please note:

1. This shows three levels of management. Chrysler Group TS requirements state that the supplier must have "multiple levels" of management.

2. The number of LPA auditable items refers to the number of items on the LPA checklist multiplied by the number of times the items are checked in that month.

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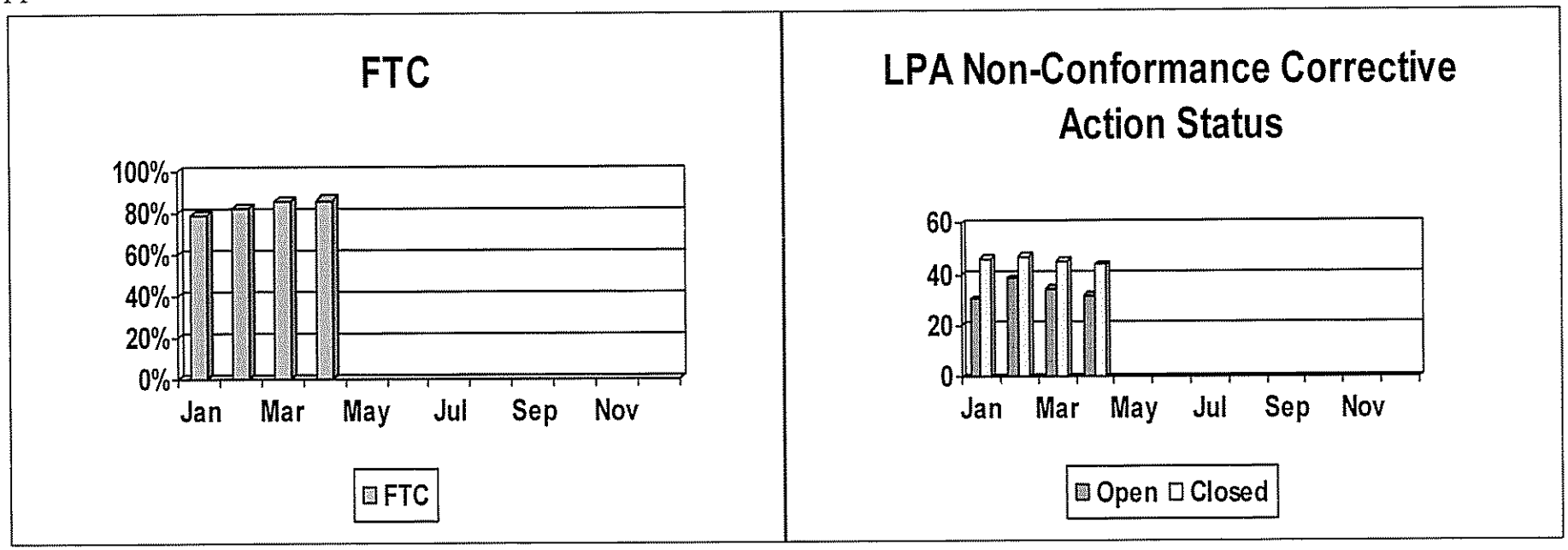
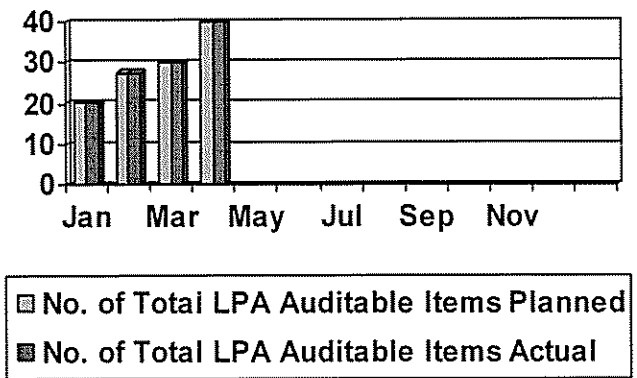


Manufacturing Location Summary Indicators

Supplier Name:
Supplier Location:

Line Supervisor Plan vs. Actual



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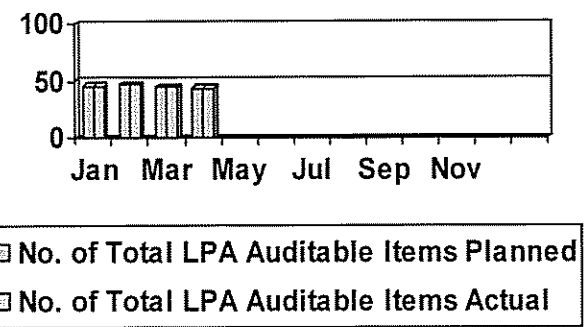

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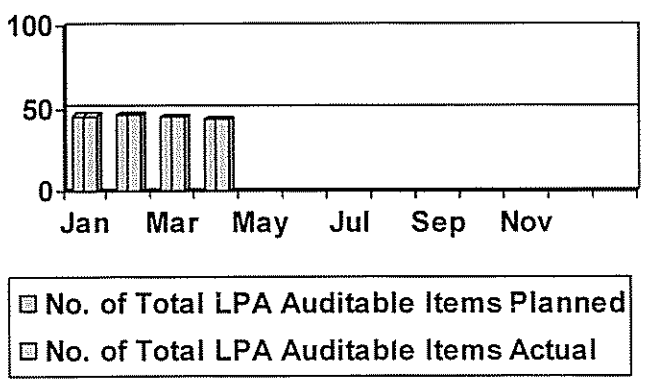

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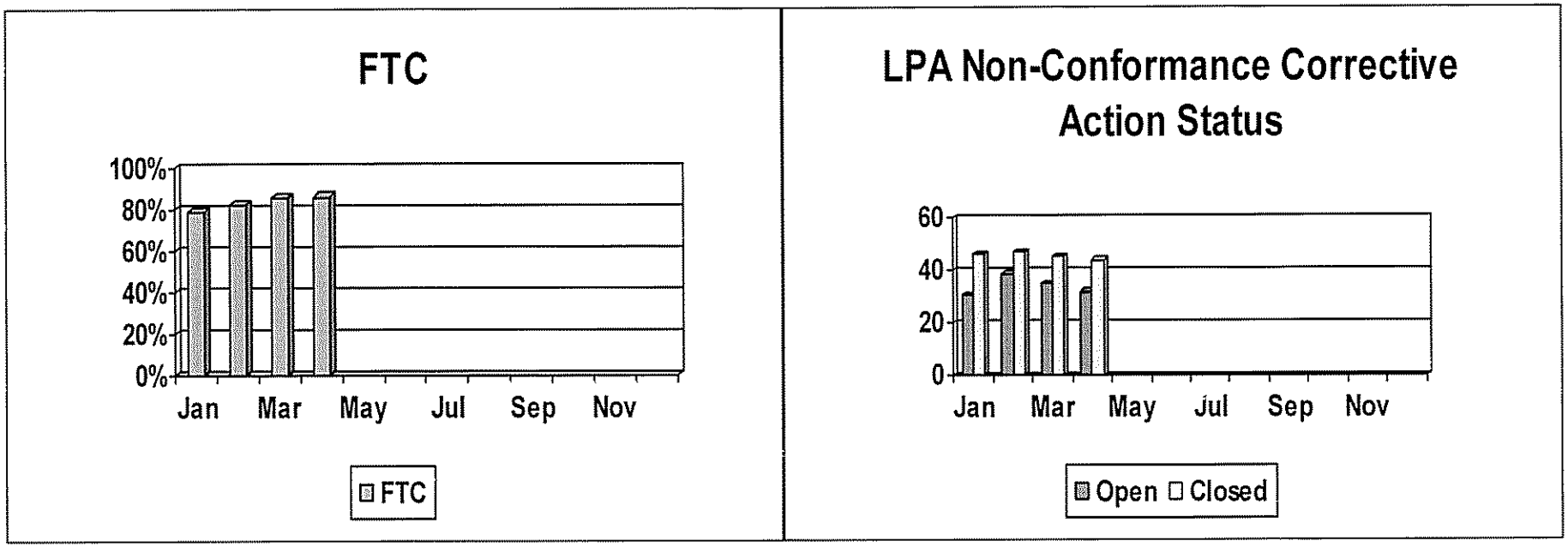
Supplier Location:



Proceduralize LPA Process And Documentation.

- Add LPA to existing Internal Audit procedure.
- Include checklist and tracking forms in controlled documents.
- Conduct internal review of LPA.
- The LPA process shall be part of your TS Quality System. (The TS Chrysler Group specific LPA requirement is included in the appendix.)

Phase II:

REVIEW & APPROVE THE LPA PLAN

Supplier's Review & Approval

- Supplier shall conduct internal review of LPA Plan
  - — LPA plan to include LPA implementation timing plan
- Supplier shall finalize LPA plan
  - — Shall be signed-off by LPA team & Plant Manager

Powerway Requirements for Review & Approval

- Supplier shall answer Powerway LPA Exit Criteria question in Gate C
  - "Have you prepared & finalized a plan for implementation of LPA?"
  - Please see Appendix for detailed Powerway instructions.

Supplier Quality Specialist's Review & Approval

- Supplier Quality Specialist shall review & approve LPA Plan with supplier (Required only for **High & Medium** Risk Parts) prior to the PSO visit. For low risk parts, suppliers shall approve their own LPA plan.
- The LPA Plan shall include (at a minimum):
  - LPA Roll-Out timing plan
  - Frequency/Schedule & Structure Chart (Please see page 30)
  - Auditor Training Plan
  - Checklists that include an area/section for entering immediate reaction plan(s)
  - Non-conformance corrective action procedure
  - Schedule of management reviews for LPA results
  - Provisions for eventual LPA coverage of all Chrysler Group parts produced at supplier's location

Train Auditors

Once the LPA plan is approved, the supplier shall train their Layered Process Auditors.

- Auditors must understand LPA strategy and purpose.
- Review checklist and reactions with auditors.
- Auditors must know to respond immediately after finding a nonconformance.
- EMPV Auditors shall be qualified to perform error and mistake proofing verification.
- Perform a practice audit where appropriate.

PSO On-Site Visit Approval

- Supplier Quality Specialist shall witness the supplier's LPA ***live*** during the PSO on-site visit.
- For PSO visits for multiple parts: Please keep in mind that the LPA review must include every process not necessarily every part.
- PSO approval (Z or A) will be dependent upon successful LPA Plan approval and demonstration.
- Any LPA plan or demonstration issues during the PSO on-site visit shall be documented on the PSO Comments/Follow Up Sheet.

Phase III:

IMPLEMENT THE LPA PLAN

Notify Workforce

- Explain why the LPA is being implemented.
- Explain the purpose and benefits of the LPA process.
- Inform workforce of LPA activity and what to expect when audits are performed in their work areas.
- Encourage workforce feedback.
- Communicate LPA results frequently.

Begin Audits

- Review audit results frequently when starting process.
- Improve audit checklist based on auditor feedback.
- Management must instill discipline early in the process complete audits on time and supply resources for immediate corrective action.
- Develop and apply Lessons Learned to improve audit.

Begin Audits

- Supplier shall perform at least one complete audit cycle in order to be considered "implemented"
- One complete audit cycle is defined as the completion of audits:
  - By all levels of management
  - On all LPA processes
  - For all LPA items
- Supplier shall answer Powerway LPA Exit Criteria question in Quality Gate Z
- "Have you implemented & performed periodic LPA's?" (Please see appendix for detailed Powerway instructions.)

PHASE IV:

MONITOR RESULTS OF LPA & ADJUST AS REQUIRED

Suppliers Shall Institutionalize LPA Process

- Cascade audit to all processes and operations.
- Complete all LPA action plan items.
- Continue LPA team meetings less frequently.
- Link LPA to other activities: APQP, Continual Improvement…
- Develop action plans to address non-compliances. Feedback follow-up actions and results to LPA plan.
- Validate effectiveness of follow-up actions. Verify that corrective actions prevent recurrence of the checklist item.
- Modify LPA questions. LPA should be a living document.
- Removal of a checklist item shall be approved by a Supplier Quality Specialist.

Monitoring LPA Results

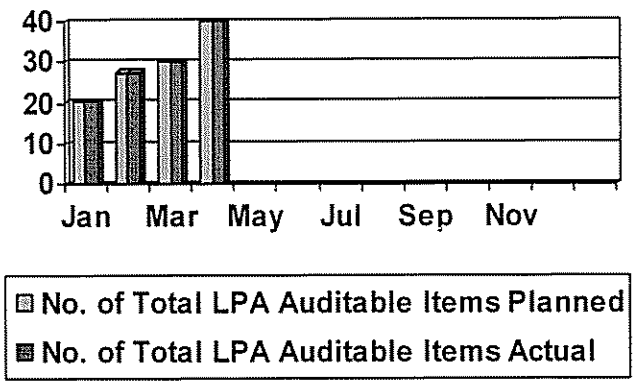
- Suppliers shall monitor/measure impact of LPA on business metrics.
- Suppliers shall upload in Powerway Quality Gate Z the deliverable "Layered Process Audit Results" and provide supplier opinion(s). (Red, Yellow, Green) Results shall be updated quarterly.
- Supplier Quality Specialist shall review LPA as part of corrective action(s) for quality spills.
- Chrysler Group's specific TS-16949 LPA requirements reference multiple levels of management. Please note that the following slides reflect three levels of plant management.

AQP Family Group Indicators

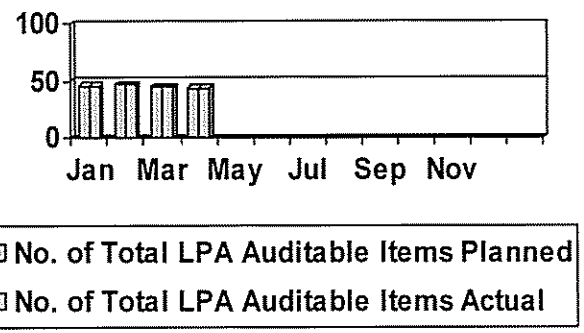
Supplier Name:
Supplier Location:

Project #/AQP Family Group:

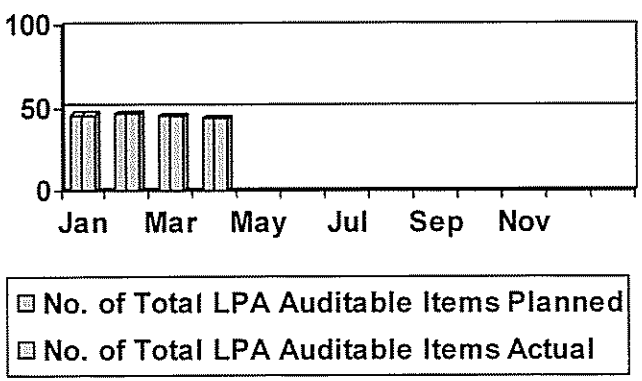
Line Supervisor Plan vs. Actual



Middle Management Plan vs. Actual



Top Management Plan vs. Actual



Please note:

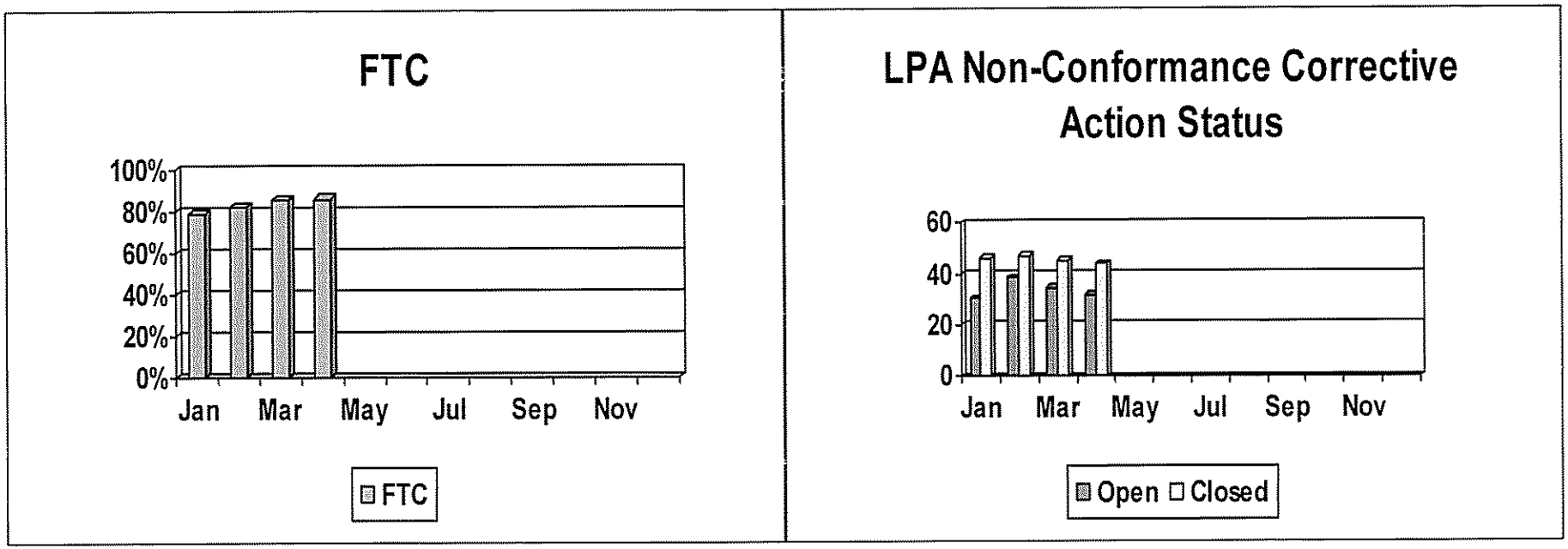
1. This shows three levels of management. Chrysler Group TS requirements state that the supplier must have "multiple levels" of management.

2. The number of LPA auditable items refers to the number of items on the LPA checklist multiplied by the number of times the items are checked in that month.

AQP Family Group Indicators

Supplier Name:
Supplier Location:

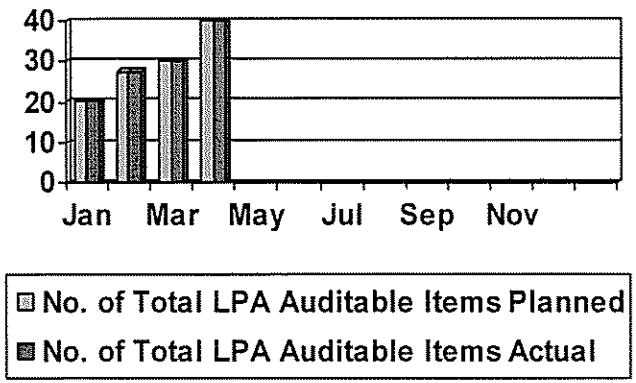
Project #/AQP Family Group:



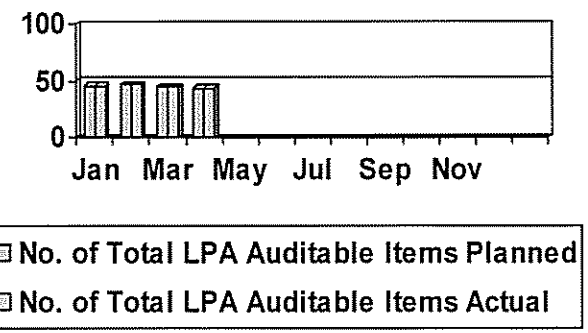
Manufacturing Location Summary Indicators

Supplier Name:
Supplier Location:

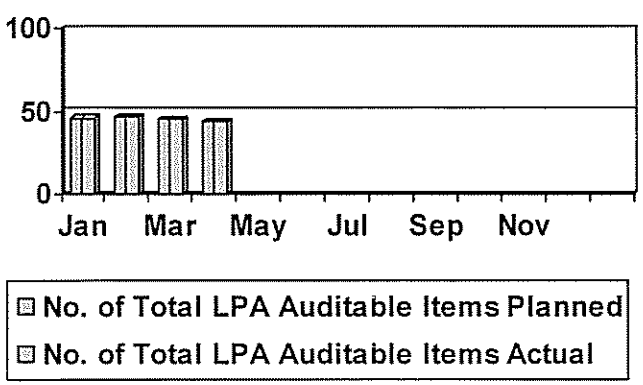
Line Supervisor Plan vs. Actual



Middle Management Plan vs. Actual



Top Management Plan vs. Actual



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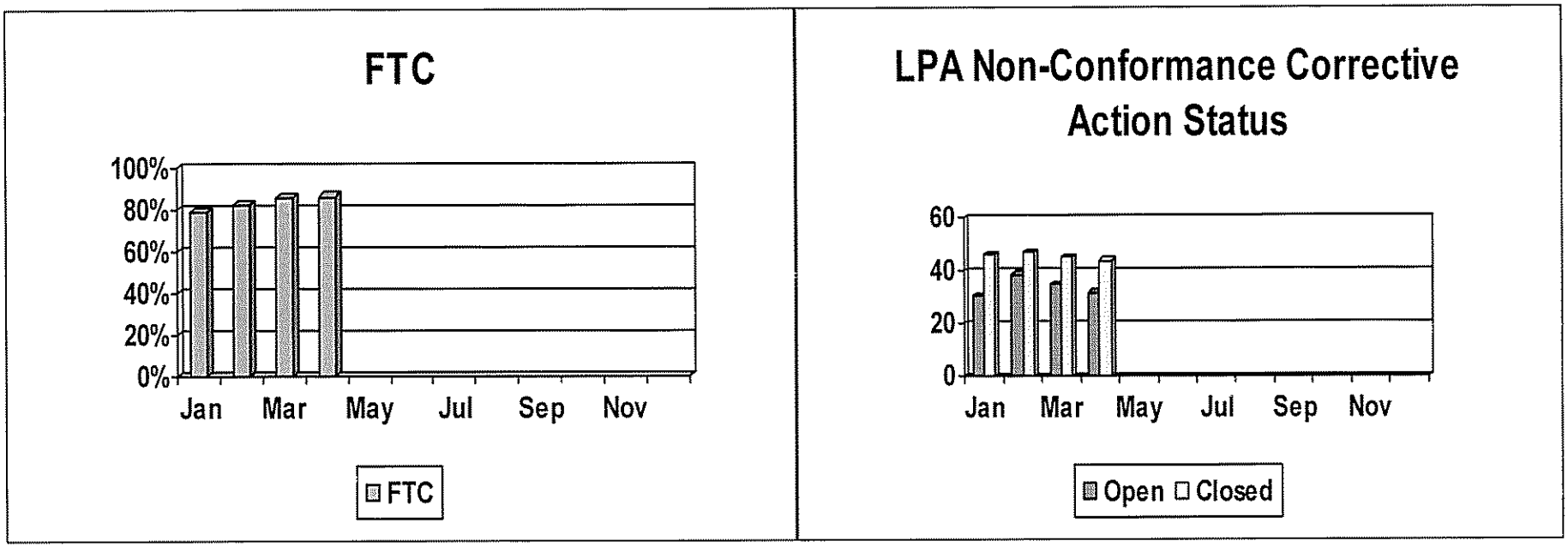
Supplier Location:



Layered Process Audits-Powerway.com Requirements

Gate C

Exit Criteria : *Have you prepared and finalized a plan for the implementation of Layered Process Audits?*

Gate Z

Exit Criteria : *Have you implemented and performed periodic Layered Process Audits?*

Deliverable : *Layered Process Audit Result Indicators*

SUMMARY

- ✓ The LPA is an audit of the ***process***.
- ✓ For **medium** and **high** risk parts, both the LPA plan and demonstration shall be approved by the Supplier Quality Specialist.
- ✓ Supplier Quality Specialists will review LPA's as part of the Corrective Action process for quality spills; this includes current production.
- ✓ The LPA checklist is a living document.
- ✓ Plant Management must remain involved and committed to the LPA process.
- ✓ In January 2005, the LPA will be a PSO requirement.