EXTERNAL LOGISTICS

Quality & Industrial Performance version 3

“Going From Reactive to Proactive”

Introduction

PURPOSE:

- Have a system that ensures product is delivered on time.
- Product at the right place at the right time
- Robust shipping department that is able to effectively respond to shipping demands
- Appropriate levels of finished goods to supply customers
- Optimized level of stock.

SCOPE:

- Incoming material area
- Shipping area
- Supply operations

RESPONSIBILITY:

- Logistic Manager
- Plant Manager
- Supply Ops Manager

Benefits

- Avoids plant disruptions (External and Internal
- Supports reduction activities in stock levels ➔ Cost savings
- Increases flexibility in schedule changes ➔ Cost savings
- Improves the fast response for urgent schedule changes
- Increases the logistic flow reliability through production flow optimization
- Ensures right part is delivered at right time

Supply process (incoming), what are we searching for ?

Item	Requirement	#Criteria	Criteria requirement
ELG1	Supply process (incoming) is managed, organized & tracked	**ELG11**	**A process to follow deliveries is formalized and applied. Related operations are standardized and a visual management is implemented.**
		ELG12	**A reception control plan is established between logistic and quality. Rules of sampling are based on historical quality and parts qualification status. The use of a sampled batch is subordinated to the quality department opinion.**
		ELG13	A schedule of deliveries is defined with Tier X suppliers and regularly updated. It is used to level deliveries and optimize ressources needs and transportation operations.
		ELG14	At the reception of supplied product the first controls take into account the checking of the quantity, of the integrity of the packaging and the identification of the product.

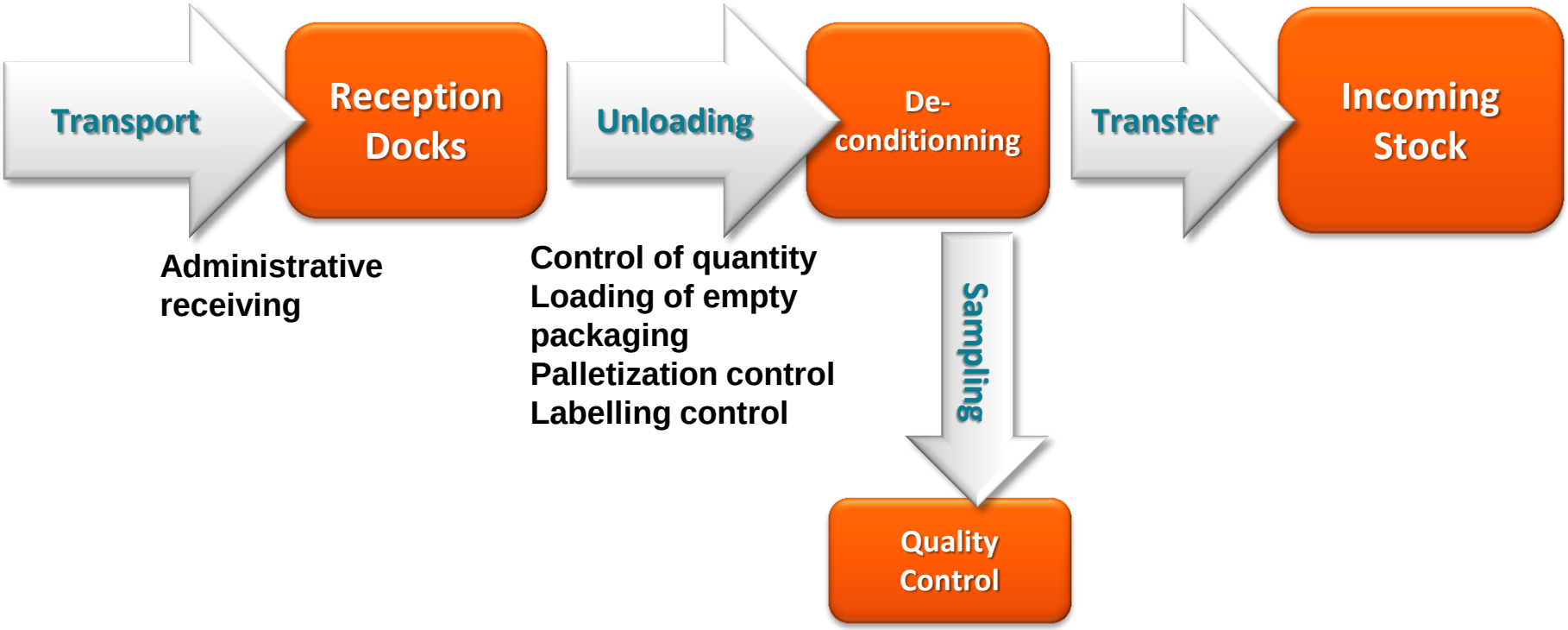
Criteria of Requirement

11 – page 5-6
12 – page 7
13 – page 8 - 13
14 – page 14
Auditor hints – page 15

Prev. Requirement Next Requirement

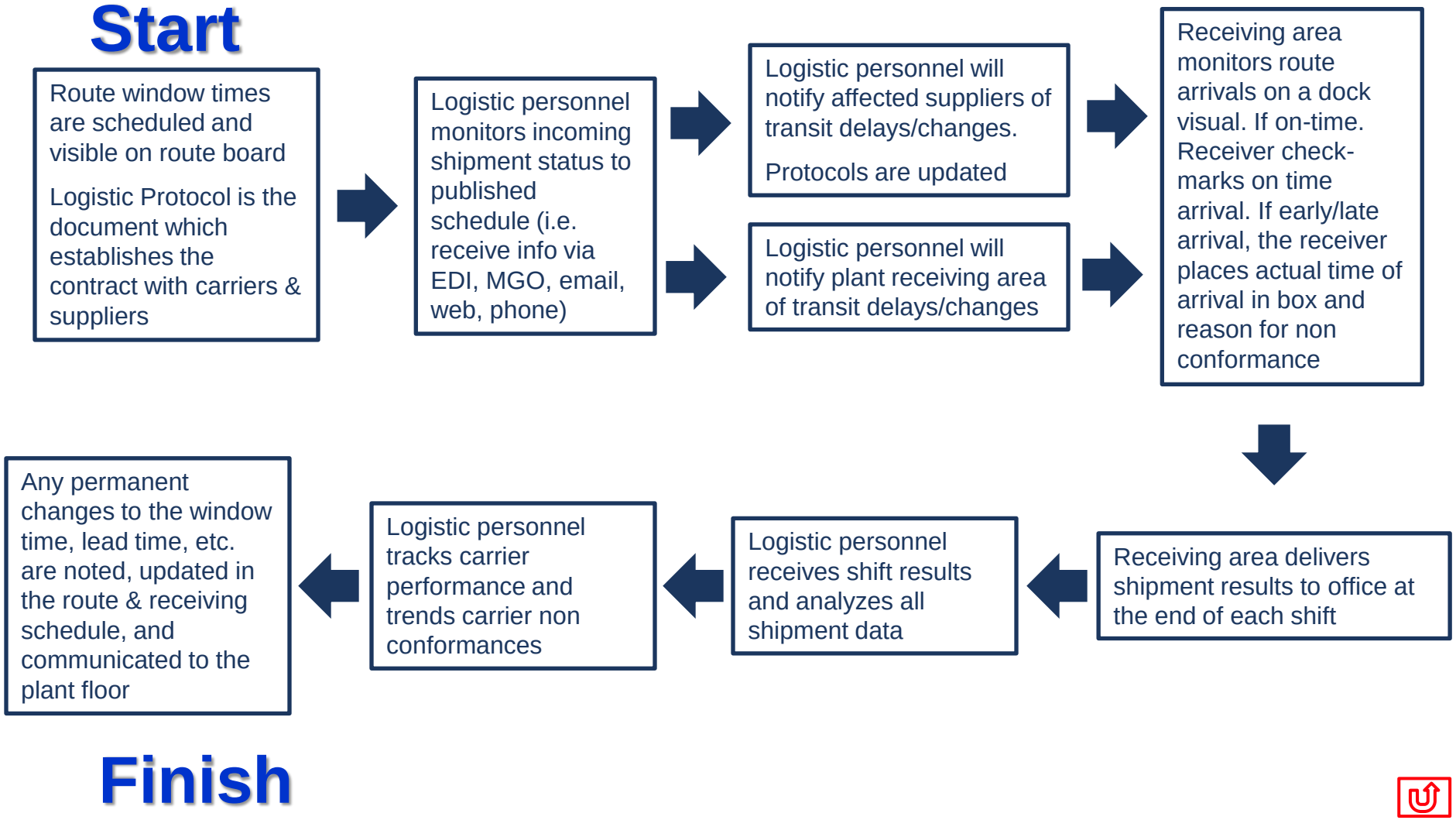
Incoming Area: Main Steps

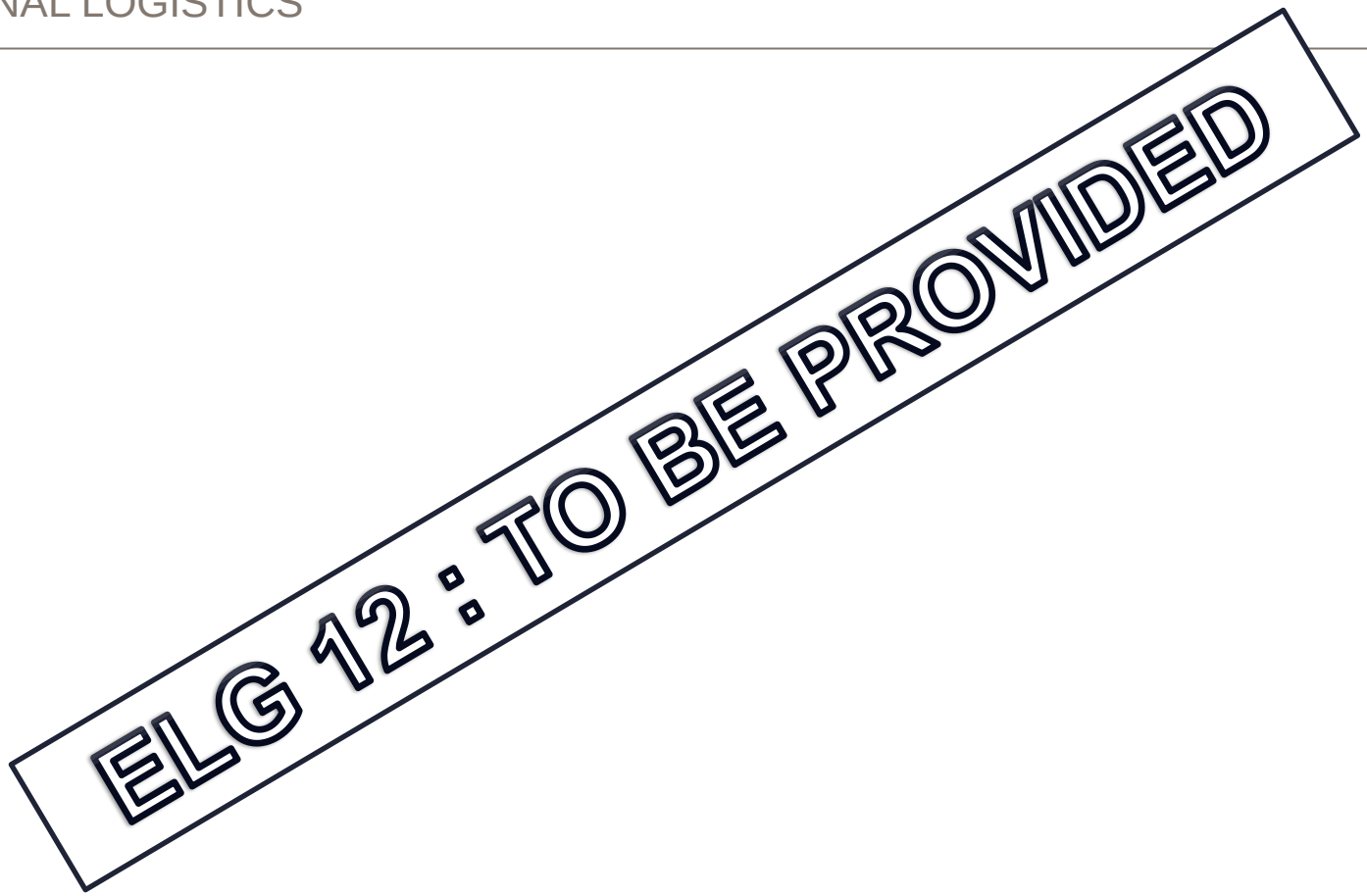
- **Typical Lay out and Sequence of Process at incoming area.**



Process to Follow Supplier Deliveries

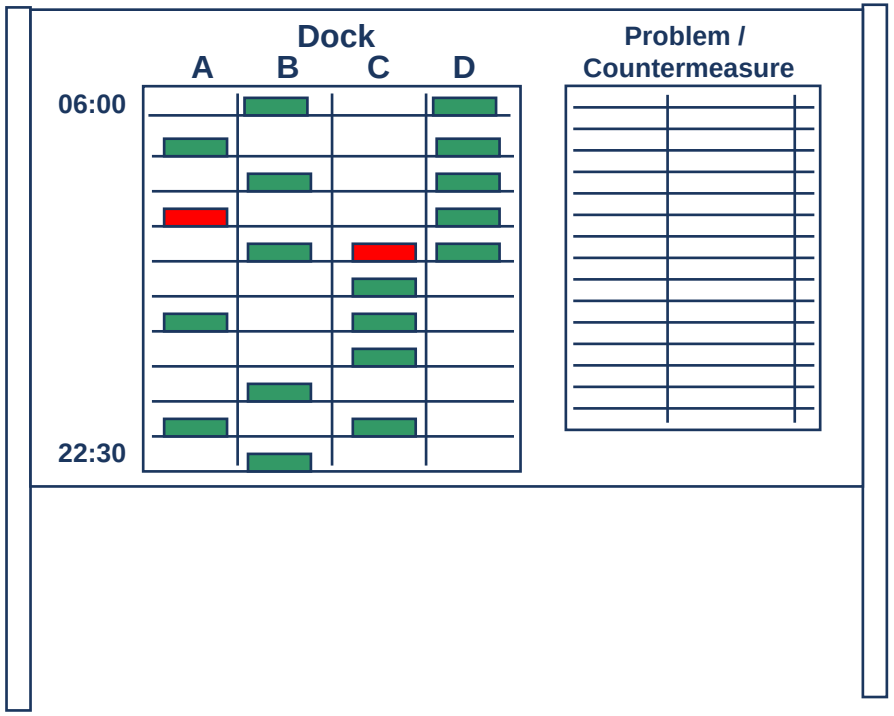
(Example)




ELG 12 : TO BE PROVIDED

Tracking Board – Master Schedule of Delivering

(Example)



- Put in place a working planning in coherence with the plant takt time
- At the incoming , organize and optimize the activity on the basis of a stable workload
- Visual management: quickly identify late deliveries & initiate as soon as possible escalation process

Tracking Board – Master Schedule of Delivering

(Example)

Route Tracking Board

Date / Shift :_____

Dock:_____

Route Number / Carrier	Scheduled Delivery Date/Time	Route Status	Not On-Time? Insert Actual Time	Comments
52 - LDWI	6:30			
18 - TDR	7:00	▽	7:30	Road Construction on Interstate 95
23 - RSDC	7:30	⊘		Part # 555-1212; short 250 pcs
88 - PWT	8:00			
16 - ABCD	8:30			Expedited Truck – Please bring directly to line
41 - Ryder	9:00	●	ETA 11:00	Delayed at supplier XYZ due to quality issue

EXAMPLE

Post Route Issue Details

Route # ___ Delivery Time ____ Dock ___

Supplier	Duns	City	St	Collect Rt#	Pick-Up Time
#1					
#2					
#4					
#5					

Total Weight: _____
Total Cube:

Legend

- ● Route Delay
- ⊘ Under shipment
- ▽ Missed Dock Window

Early Warning Communication

- Alarm Process communicates transportation exceptions to the Plant:
  - Alarm #1: Schedule – schedules don't cover reqmts.
  - Alarm #2: Supplier – material not available to ship
  - Alarm #3: Carrier – material not ready to pick up (when applicable)
  - Alarm #4: Dock – carrier window time not met
  - Alarm #5: Plant: Inventory drops below min.

Note: Alarm 2, 3 and 4 issues are related to logistics activities

Alarm #2: Supplier warnings to plant

- All Tiers non-compliance to schedule issues (i.e. Quantity/Quality) should be communicated to the plant through the logistic contact immediately when identified. Tiers should then arrange for an expedited shipment per plant requirements

(Example)

DATE	SUPPLIER	PART NUMBER's	SCHEDULED DELIVERY	COMMITTED DELIVERY TIME	COMMENTS

Alarm #3: Carrier warnings to plant (when applicable)

- Carriers are responsible to identify and communicate Supplier non-compliance issues (i.e. schedule part numbers / quantity) to the plant through the logistics contact prior to leaving each Tier location

(Example)

Date / Time	Supplier Duns #	Time In Time Out	Compliant? Y/N	Issue	Comments
		/			
		/			
		/			
		/			
		/			
		/			
		/			
		/			
		/			

Alarm #4: Track inbound

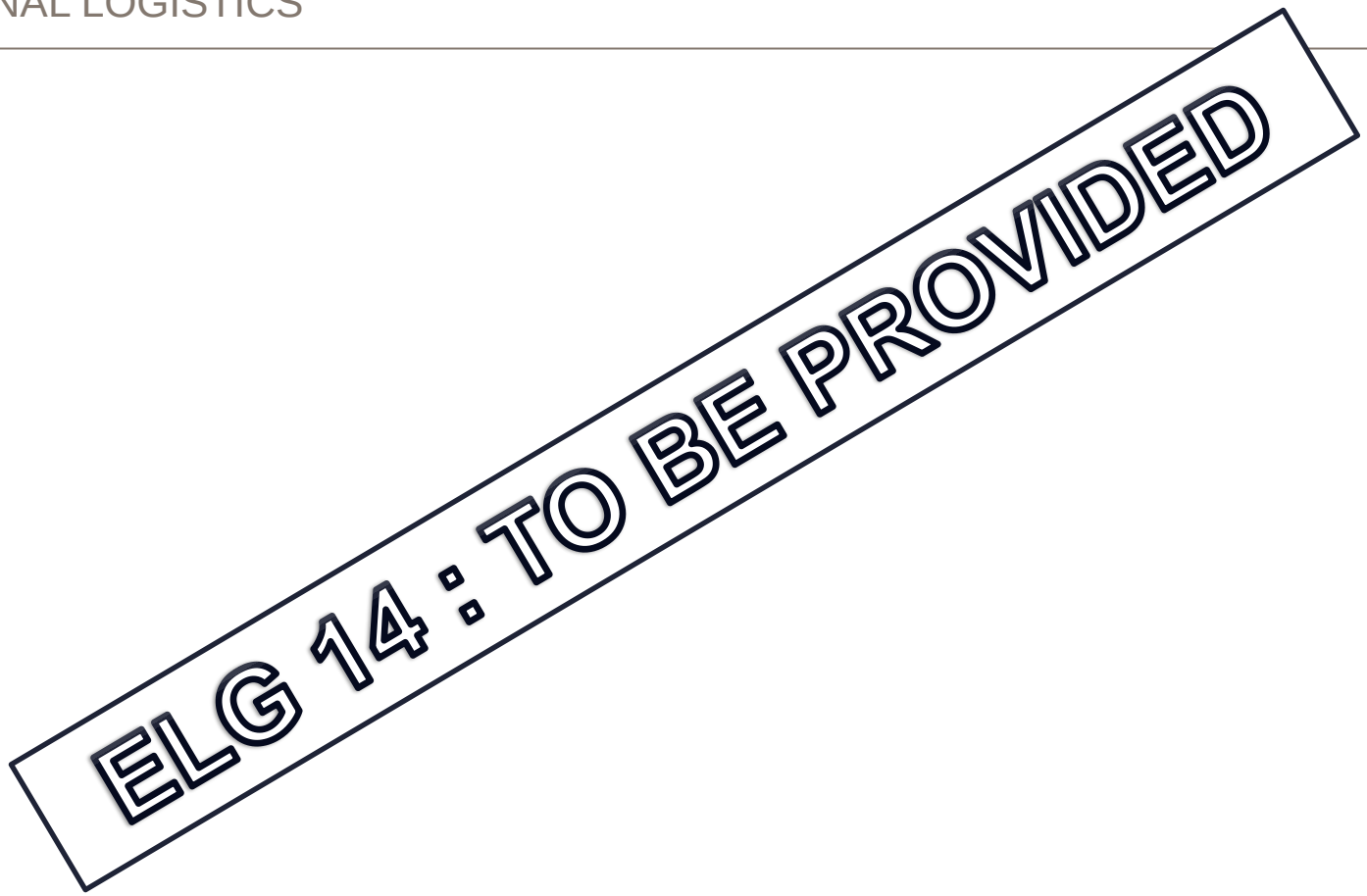
- Dock schedule data provides a daily list of non conformances. The plant logistics contact review the non conformances, then tracks & trends the results.

(Example)

MONDAY

Inbound Loads

Date	Lane#	Carrier	Trailer #	Window Time	Actual Delivery Time	(E) Early (O) OnTime (L) Late (X) Cancel	Early Notice Y/N	REASON FOR DELAY (Be specific in regards to the responsible party, the supplier or the carrier, and give names. A no call will be attributed	SCAC	EARLY	ON TIME	LATE
8/14/2004	15	MKUA	XXXX	0030	XXXX	X	Y	MATERIAL NOT REQD	MKUA			
8/14/2004	88	FCNC	8026	0030	8/14/04 2316	E	Y	PRODUCTION REQUEST	FCNC	1		
8/14/2004	16	GRLC	218882	0130	0200	L	Y	LOADED LATE, TOLD STEVE	GRLC			1
8/14/2004	67	FCNC	8406	0130	0050	O			FCNC		1	
8/14/2004	M22	LINC	12870	0200	0215	O			LINC		1	
8/14/2004	MR53	APAD	539394	0245	0155	O			APAD		1	
8/14/2004	7	LINC	XXXX	0330	XXXX	X	Y	MATERIAL NOT REQD	LINC			
8/14/2004	42	JTXP	53644	0500	0520	L	Y	DRIVER B/S, TOLD STEVE	JTXP			1
8/14/2004	MR52	LDWI	537370	0630	0630	E	N	PULL AHEAD BY PRODUCTION	LDWI	1		
8/14/2004	18	TDR	33665	0700	0730	L	N	ROAD CONSTRUCTION	TDR			1
8/14/2004	M23	RSDC	876598	0730	0730	O			RSDC		1	
8/14/2004	88	PWT	8855	0800	0800	O			PWT		1	
8/14/2004	16	ABCD	4402	0830	0830	O			ABCD		1	


ELG 14 : TO BE PROVIDED

Auditor hints

During the audit check:

- Organization of the incoming (truck reception, unloading area, transfer to incoming stock)
- Master schedule of deliveries (stability through weeks).
- Working instructions.
- An example of protocol with a tier X.
- Service rate metrics.
- Action Plans established for Key Critical Tiers
- An example of alert in case of deviation.
- Resources available matches incoming and outbound deliveries.

Protect production, what are we searching for ?

Item	Requirement	#Criteria	Criteria requirement
ELG2	A process to secure supplies (incoming) is applied on a basis of risks analysis	**ELG21**	**Components/materials which are risky to supply are identified and adressed to daily supply operations/logistic meeting. Countermeasures and corrective plans are established and followed with tier N.**
		ELG22	**Medium/Long term securing plans for key critical suppliers / parts are periodically reviewed by leadership.**
		ELG23	Safety stocks, advance warehouses are contractually defined and managed for the "far" Tier N and when applicable for the "risky" Tier N.

Criteria of Requirement

21 – page 17 - 20
22 – page 21 - 22
23 – page 21
Auditor Hints – page 23

Prev. Requirement Next Requirement

The criteria to define « risky supplies » must be clearly defined

Examples of criteria

- « far tier X supplier »: more than 48h of transportation , complex flow (different transportation means, customs, …)
- Tier X supplier with bad service rate (several plant disruption in the past,…)
- Tier X near from full capacity or with critical constraints
- Supplies which can be easily damage by transportation conditions
- …..

Supply Chain Critical Meeting

In **preparation** for the Supply Chain Critical meeting, at the start of the day, Departments shall identify their **significant** concerns from the **past 24 hours** which include:

- Internal Concerns:
  - Quality issues (internal or from suppliers) generating short fall
  - Production program change (change in the mix, quantity, etc.)
  - Inventory adjustment (lack of parts to cover the day)
  - Downtime/Production Loss due to lack of material/components
- External Concerns:
  - Days on hands (quantity of stock) below of the target
  - Customs issues (for imported material) / roads closed
  - Supplier issues (strike, bankruptcy, etc.)
  - Historical Critical Suppliers (worst service rate, constraints, lack of management, etc.)

All the significant issues are tracked on Critical Worksheet/Board.

Supply Chain Critical Meeting - Structure

- The meeting is a logistic review meeting **owned by Logistic/Supply Chain Operations** and supported by Quality, Manufacturing, Material Handling, and support staff.
- Shall be held daily to review the significant supply concerns gathered by Departments.
- At the meeting, leadership shall:
  - Designate a leader (natural owner) for each concern/issue if one has not been already assigned.
  - Ensure proper support from all disciplines through attendance.
  - Identify action required.
  - Establish the next report out date for the issue if it is not closed.
- Each issue shall be documented on a board or equivalent. This form is reviewed at the meeting to provide structure for the report out and to keep the meeting to its allotted time frame.

Supply Chain Critical – Worksheet/Board Control

Points to Review:
Ownership
Countermeasure
Overall Status
Next Report Out Date

ABC Company - Supply Chain Critical Meeting Tracking Board

(Example)

R	1) Required but not initiated 2) Target Date Missed
Y	Initiated but not complete
G	Complete
N/A	Not Applicable

ITEM #	Date Opened	Department	Supplier	Part & Part Number	Customer	Coverage (days)	Issue Description	Reason	Owner	Next Report Date By Owner	Status		Actual Closed Date	Time to close	OVERALL STATUS (R/Y/G) Open > 30 Days=R
1	4/15/13	Welding	XYZ	Nut 93345678	GM	0.5	Lack of component	High Quality rejection @ supplier plant	Maurice SQE	16/04	04/15 - SQE working @ supplier process in order to fix it 04/15 - Process fixed and good parts in transit 04/16 - Ok parts arrived @ plant 04/16 - Level of stock achieved the target 04/16 - Issue solved		16-Apr	1	G
2	4/15/13	Stamping	FFE	Raw Material 95777718	PSA	0.8	Lack of raw material	Wrong Engineering Release	John DRE	~~16/04~~ 27/04	04/15 - DRE verifing the data bank 04/15 - Deviation opened in order to use the "wrong material 04/16 - Supplier starts the production of the "right" material (forecast to receive the material - 10 days) 04/27 - Right raw material received 04/27 - Issue solved		27-Apr	12	G
3	4/16/2013	Material Flow	TTT	Plastic pin	GM	6	Material Blocked @ Customs	Customs Strike	Marc MF Sup.	17/04	04/16 - Issue escalated to Department in charge of importation/exportation				Y

- Field “Status” in the Board: countermeasure plan (securing) shall be defined and tracked in order to avoid Downtimes/Production Losses.

Key Critical Suppliers/Parts – Medium/Long Term Securing Plan Review

- The meeting is a logistic review meeting **owned by Logistic/Plant Manager** and supported by Purchasing, Program Management, Quality, Manufacturing, Material Handling, and support staff.
- Shall be held at least in a monthly basis to review the long term securing plan related to Key critical Suppliers/Parts.
- Inputs for this meeting:
  - The issues that cannot be solved in the Supply Chain Critical Meeting
  - Future Capacity issues (change in the customers demand that could affect the capacity based on S&OP / MPS information)
  - Trouble suppliers issues (Financial issues, Logistic issues, Quality issues, etc.)
  - Safety stock strategy
    - Stock levels adapted to customer demand
    - When applicable, warehouse established and managed for suppliers with high supply lead time and/or trouble suppliers

Key Critical Suppliers/Parts - Long Term Securing Plan Review (Cont.)

- At the meeting leadership shall:
  - Review the status of on going plans
  - Ensure proper support from all disciplines through attendance
  - Identify and eliminate Roadblocks

Auditor hints

During the audit check:

- Identify a "risky" supply (ex: far supplier or failing supplier).
- Examine the securing plan associated.
- Emergency procedures with alternate supply process.
- In case of safety stocks, check tier1 strategy defined for that (contractual definition, increased demand etc.)

Supply process (outgoing), what are we searching for ?

Item	Requirement	#Criteria	Criteria requirement
ELG3	Shipping process (outgoing) including the management of packaging is organized and tracked	ELG31	**The loops and flows of full/empty packaging are organized and managed. Number of the available empty packaging is enough to keep the production running.**
		ELG32	**Empty packaging which are not meeting customer requirements are contained (e.g.: cleanliness, functional state of packaging...) and corrective actions are defined (e.g.: alternative packaging...).**
		ELG33	**A process to follow-up shippings is formalized and applied. Related operations are standardized and a visual management is implemented. Key milestones are set in order to alert customer in relevant time in case of any issue. (ex: checking of the availability of the end products, end of loading of trucks AVIEXP / ASN).**
		ELG34	**A preparation list is available for operators. Loading is prepared on "bogus truck" areas.**
		ELG35	A device makes it possible to guarantee the respect of the "logistics requirements customers" (ex: labelling, rule palletization…).

Criteria of Requirement

31 – page 25 - 30
32 – page 31 - 33
Auditor Hints – page 34
33 – page 35 - 38
34 – page 39 - 40
35 – page 41 - 48
Auditor Hints – page 49

Prev. Requirement Next Requirement

Shipping Container Examples

(Global Container Responsible)

Engineered Container

Standard Container

Expendable Container Example

(Tier 1 Responsible*)

* Global Containers Will Provide Specifications, Standards, and Approvals To Expendable Container Designs

Non-Shipping Container Examples

(IE Responsible)

"WIP" Racks (*)

(*) WIP: Work In Progress

"Kit" Racks

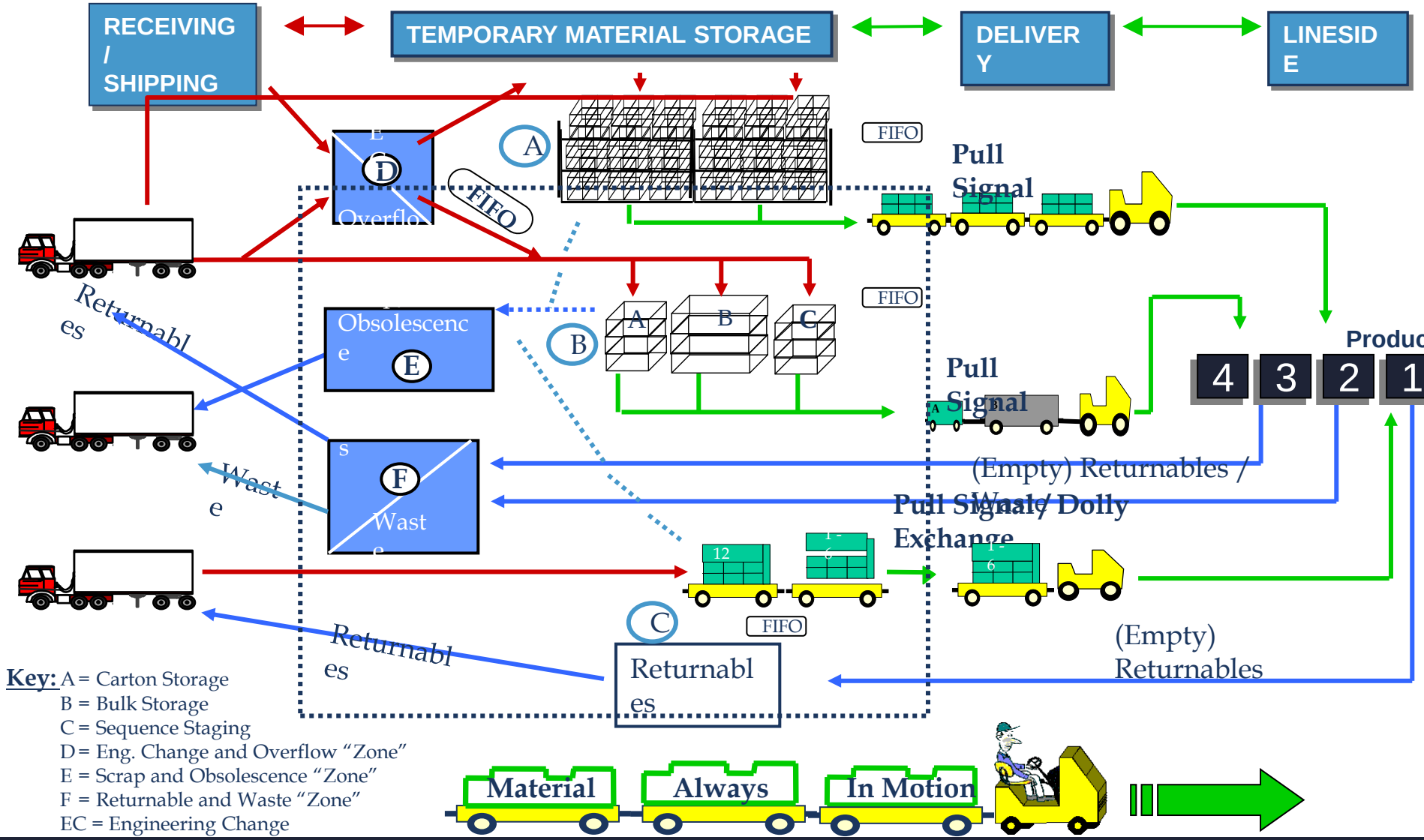
Racks on Wheels

External Sequence Rack

Minomi Racks

Internal Sequence Racks

Flow of Full/empty packaging: Organization



Key: A = Carton Storage
B = Bulk Storage
C = Sequence Staging
D = Eng. Change and Overflow "Zone"
E = Scrap and Obsolescence "Zone"
F = Returnable and Waste "Zone"
EC = Engineering Change

Flow of Full/empty packaging: Organization

Organization shall:

- Define number and location of material storage areas are optimized;
- Establish for each part number one fixed storage location that is visually identified by labels or signs, etc.
- Develop and maintain min/max quantities and have a process in place to manage exceptions. Exceptions could include min and max violations, out-of-stock conditions, overflow, etc.
- Use visual controls to ensure that safety (e.g. safe stacking height), material flow process, and inventory control (i.e. min/max., FIFO, overflow) are managed on the shop floor
- Establish engineering change material, obsolete material, non-conformance/scrap,-packaging trials, and service parts areas with proper visuals and respective to policies

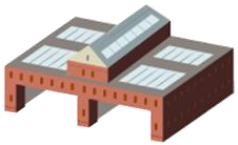
Packaging flow organization: empty containers

- Organization shall define where empty containers are stored prior to return to supplier
- Empty container return areas:
  - are designated for collecting, sorting and staging.
  - are clearly identified with appropriate addresses and visual controls (e.g. type of area “Sort”, “Stage”, supplier, return schedule, preparation instructions, etc.).
  - accommodate planned quantities of containers.
  - are designated for every supplier and/or container combination.
  - are located to minimize travel distance and standardize the work flow.

Packaging flow organization

- Loop of full / empty packaging

Supplier:
- Tier 2
- Upstream process
- Tier 1



Transport Time
Full Packaging

IR: Index of rotation =
Nb of days of packaging

Customer:
- Tier 1
- Downstream process
- OEM

Supplier Stock:
- Production work in progress
- Buffer Stock
- Empty pack storage

Transport Time
Empty Packaging

Customer Stock:
- Operating stock
- Customer buffer stock
- Production work in progress

IR: the time, in number of days, which packaging takes to cover the entire physical customer-Supplier-customer circuit (loop)
It is variable in time and it is used to determine the number of packaging needed to work properly

Loop Allocation: the loop is initialized by setting up the packaging stock that corresponds to **IR * production volume / Number of parts in the packaging**

Packaging flow organization

- **Example of packaging stock tracking**

(Example)

Week	Date	Inputs	Outputs	Physical stock at the supplier's site	Target Stock IR at the supplier's site (ssf+ec+convoy+cadvide) x CMJ / UC	Rate of fill
	Stock start M			872		
W40	03/10/2011	210	90	992	396	100%
	04/10/2011	90	120	962	396	
	05/10/2011	90	90	962	396	
	06/10/2011	90	90	962	396	
	07/10/2011	90	90	962	396	
W41	10/10/2011	120	120	962	396	100%
	11/10/2011	90	90	962	396	
	12/10/2011	120	120	962	396	
	13/10/2011	90	90	962	396	
	14/20/2011	90	90	962	396	
W42	17/10/2011	120	120	962	396	100%
	18/10/2011	90	90	962	396	
	19/10/2011	120	120	962	396	
	20/10/2011	90	90	962	396	
	21/10/2011	90	60	992	396	
W43	24/10/2011		120	872	396	100%
	25/10/2011	180	90	962	396	
	26/10/2011	90	120	932	396	
	27/10/2011	120	90	962	396	
	28/10/2011	90	90	962	396	
	MONTH TOTAL	2070	1980			100%
	I/O DIFFERENCE	90				

Weeks & days

Supplier Stock

Alert Threshold

Alert threshold definition is based on the IR value

Packaging – quality checking

- Organization shall establish a standard work (packaging inspection standard) to check the quality of packaging. It should:
  - include pictures or samples explaining the acceptance criteria
  - Inform customer requirements and alternative packaging approved
  - Countermeasures in case of non conformity with package

Customer Requirements (Example)

GM 1738i Packaging Approval & Data Form

Supplier Information (Shipping)

Company Name:				DUNS#	
Company Address:		City:		Country Code:	
Pkg Contact Name:		Tel No.			
Email Address:		Fax No.			

When Complete: e-mail to the GM Regional / Business Unit Contact for Approval

Date:

(Form 1738i Regional / Business Unit Contact / Approver List)

Section 1: Program & Part Information

A.	GM Customer Region	GM Latin America - Africa - Middle East		G.	GM Program(Code):	GMi700
B.	GM Plant(s) City, State, Country	General Motors do Brasil Ltd				
C.	Part Description (Name)	Generator		H.	LCR (Annual Volume):	10,105
D.	Part Weight (kg): each	6.50		I.	Number of Parts / Vehicle:	1
E.	Part Dimensions L x W x H (mm)	176.00	150.00 178.00	J.	Packaging Cost / Part:	$1.000
F.	Part Number(s)	13502988				

Section 2: Packaging Information

		1° Primary Packaging (carton-box)	2° Secondary Packaging (unit shipping load)
A.	Density (Quantity of parts)	1	72
B.	Packaging Strategy	Expendable	Expendable
C.	Carton Code	No Primary Cartons Used	GM/ISO Std. Pallet 1140mm x 980mm
D.	Carton Type (design)		
E.	Material Type		oxes & bed cardboard, Stamp fumigation, Ba
F.	Securement / Closure Type		Plastic Banding
G.	Total Loaded Weight (kg - full)		488.00
H.	Outside Dimensions LxWxH (mm)		1140.00 980.00 750.00
I.	Dunnage & Description		Yes Cardboard Box with 3 layers
J.	Labels (Quantity / Location)		4 One label by side
K.	*Compliant to GM1738G Specification's*		*Compliant*

Packaging – quality checking (Example)

Packaging Inspection Standard (PIS)

			PIS Document #	
Area Name:	Incoming Packaging	No.	Product Line:	
Category Name:	Empty	No.		
Reference #:				

Item	Standard / Frequency	Criteria / Sketch
1 - General Condition	Feature: General Condition	1
	Criteria: w/out damages	DEFECTS ON SPACERS
	Method: Visual	TO BE REPAIRED
	Frequency: Every Receiving	All spacers must be present. The spacer must be welded to the deckboard in at least 2 places on the side rail. There must not be any sharp edges on the container protruding outwards.
2 - Labels Holders	Feature: Label Holders	ACCEPTABLE
	Criteria: w/out damages	2
	Method: Visual	CAUTION, THE MULTIPURPOSE CONTAINER MUST NOT BE REMOVED FOR MAINTENANCE SIMPLY FOR THE LABEL HOLDER
	Frequency: Every Receiving	DEFECTS ON LABEL HOLDERS
		A label holder is present on one of the 2 long wire-mesh panels. A label holder is present on one of the 2 short wire-mesh panels. No wire with broken weld joint. The label holder is attached to the panel by at least 3 weld points or rivets. No sharp edges protruding out from the container.
		LABEL HOLDERS ARE SYSTEMATICALLY REPAIRED WHEN THEY ENTER THE REPAIR PROCESS

Document:	Originator	CE Approver	Manufacturing	Revision (Controlled documents printed with blue header)	Reviewed by:	
Name:				(Enter current brief description of revision here)		Quality
Signature:					Name:	
Date:				Revision Date:	Date:	
Document File Name:			PIS Release Date:	For PIS Revisions:	(Enter Technical Contact)	

Packaging – checking, cleaning and maintaining

- Organization shall establish a maintenance plan which includes storage, handling, and cleaning for containers to ensure racks are properly maintained throughout the life of the program (refer Global APQP Manual).

Storage Conditions

Cleaning Process

Handling Rules

Auditor hints

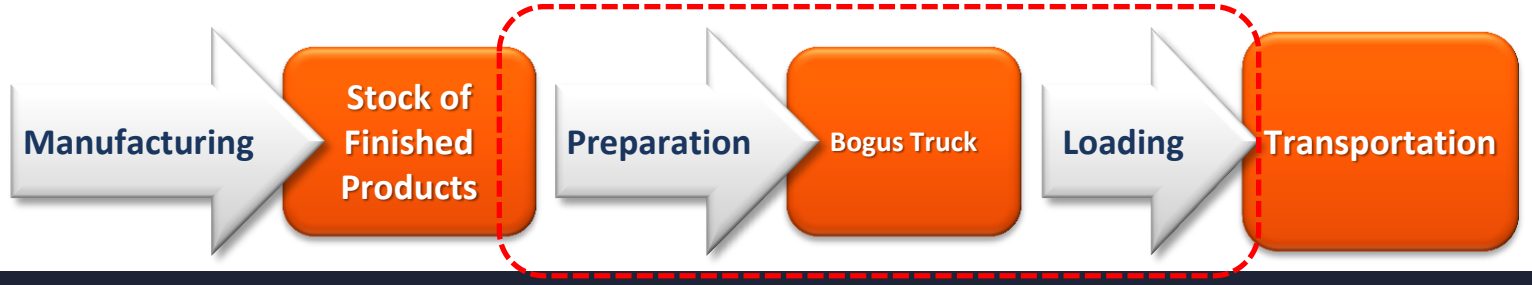
- Examine the flow of empty packaging. Try to see the loops are respected
- Verify the procedure to initiate the supply of additional packaging (threshold definition, alert process, timely response)
- Check empty packaging storage area.
- Verify a Work instructions for checking and cleaning.
- What happens if there are no more Empty packaging?
- Look at the conditions of the packaging particularly the label support.
- Check actions for critical packaging from availability point of view (e.g.: alternative packaging is defined, for final product it is approved by customer)

Shipping Process Management

- The Organization shall describe (in a procedure) all steps related to shipping process and manage them in order to support the repetitive shipping and delivery plan. Some examples of steps:

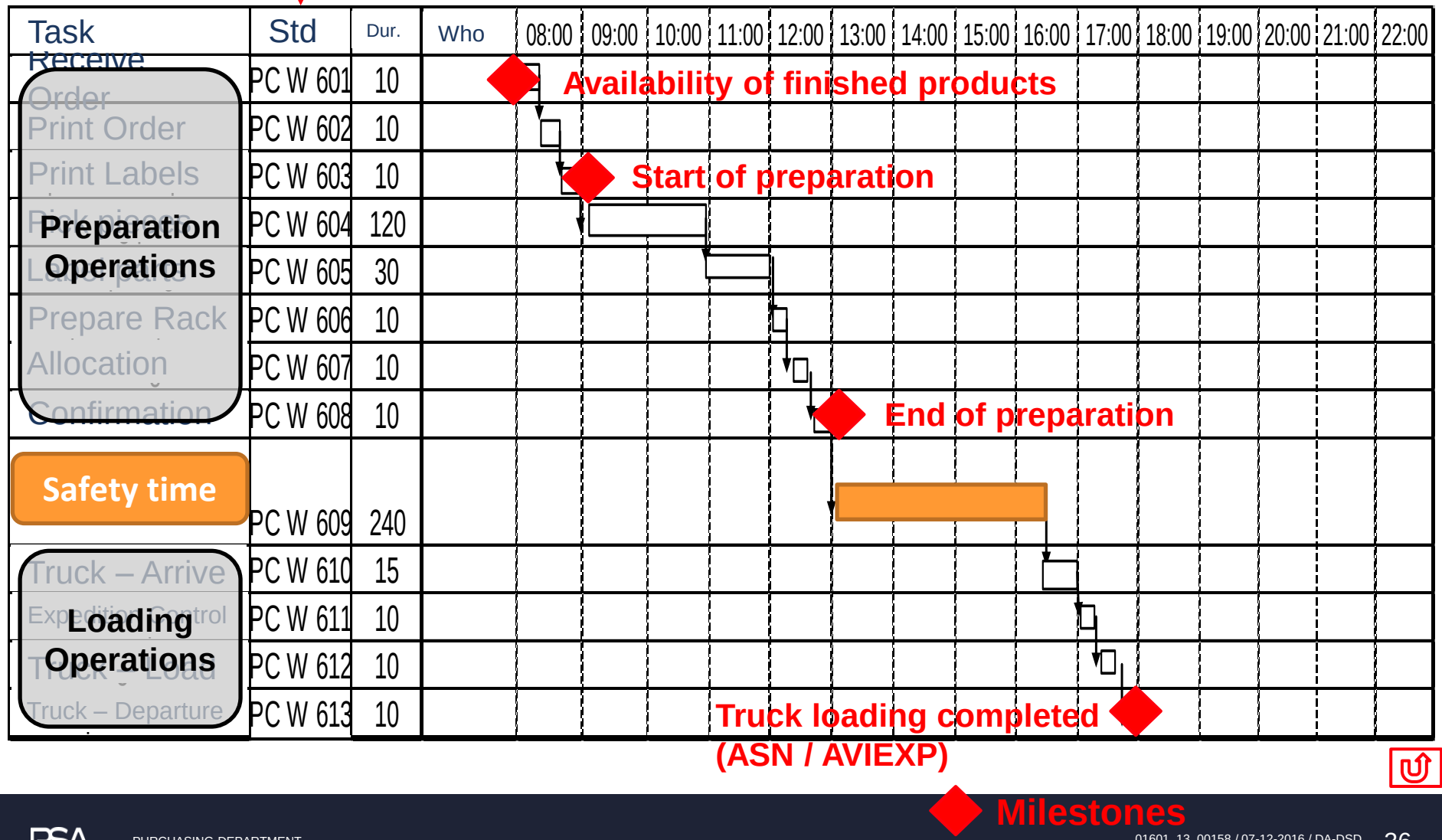
- **Preparation**
  - Receive and Print Order
  - Verify availibility of finished products
  - Prepare correct material per schedule requirement
  - Ensure shipments are properly labeled and palletized
  - Stage material on truck dock ahead of window time

- **Loading**
  - Allow Carrier driver access to dock for material verification
  - Load material to the scheduled window time
  - Communicate non-conformance issues to customer



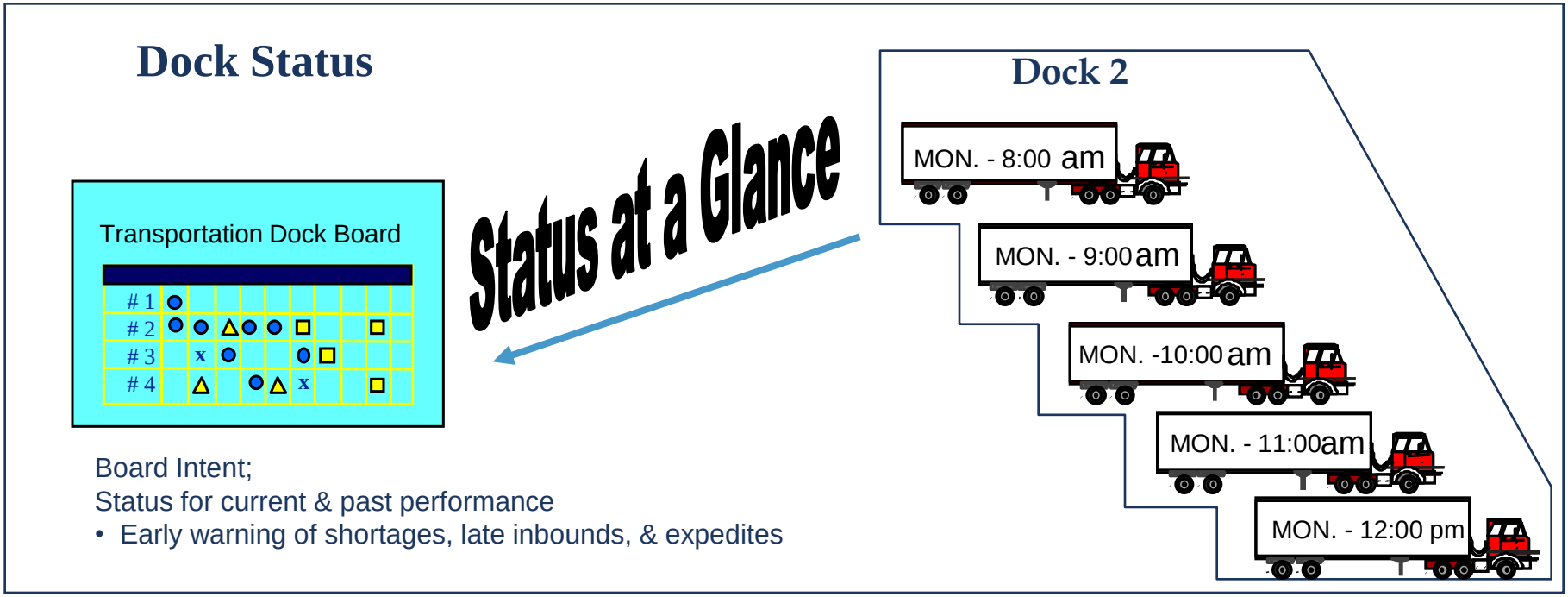
Standard Work – worksheet reference

(Example)



Shipping Process Management: Visual Management

- Dock Boards are: Visual, Simple, and Manual
- All parts are delivered at scheduled window times
- Deliveries to the plant are level hour-to-hour, day-to-day
- Non-conformances are tracked for problem resolution



Shipping Process Management: Visual Management

- One unique board in the shipping area
- In case of NOK Status escalation process shall be followed.

(Example)

Product + Customer

End of preparation scheduled time

Truck departure time & date

Preparation status
G: on time / O: late / R: Emergency

Quantity

Bogus Truck Location

Previous day situation

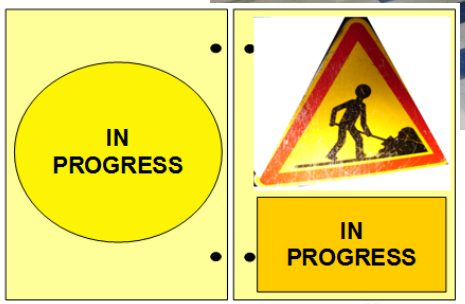
Bogus truck (Staging Area): Visual Management

- Area identified with footprint
- Best Practice: One are = one truck

Preparation List

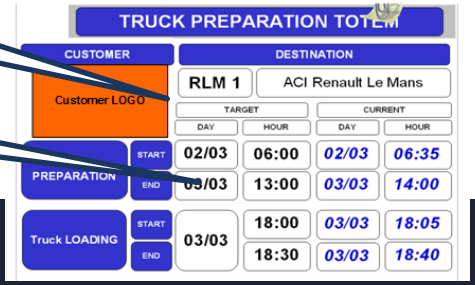
Preparation Totem

Defined area



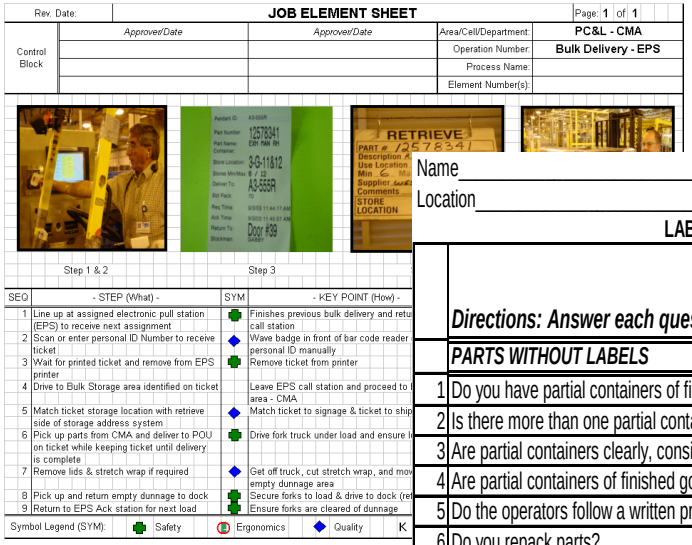
Customer & Product

Timing



Labeling Process

- The labeling process shall be defined in a standard work
- The labeling process shall be assessed through layered audit or specific label error proofing checklist
- When applicable, label error proofing strategy must be applied in order to prevent mislabeling issues



Rev. Date: **JOB ELEMENT SHEET** Page: 1 of 1

Control Block — Approver/Date | Approver/Date

Area/Cell/Department: PC&L - CMA
Operation Number: Bulk Delivery - EPS
Process Name:
Element Number(s):

SEQ	- STEP (What) -	SYM	- KEY POINT (How) -
1	Line up at assigned electronic pull station (EPS) to receive next assignment		Finishes previous bulk delivery and retu call station
2	Scan or enter personal ID Number to receive ticket		Wave badge in front of bar code reader personal ID manually
3	Wait for printed ticket and remove from EPS printer		Remove ticket from printer
4	Drive to Bulk Storage area identified on ticket		Leave EPS call station and proceed to area - CMA
5	Match ticket storage location with retrieve side of storage address system		Match ticket to signage & ticket to ship
6	Pick up parts from CMA and deliver to POU on ticket while keeping ticket until delivery is complete		Drive fork truck under load and ensure l
7	Remove lids & stretch wrap if required		Get off truck, cut stretch wrap, and mov empty dunnage area
8	Pick up and return empty dunnage to dock		Secure forks to load & drive to dock (ret
9	Return to EPS Ack station for next load		Ensure forks are cleared of dunnage

Symbol Legend (SYM): Safety | Ergonomics | Quality | K

(Example)

Name_____

Location_____ Date_____

LABEL ERROR PROOFING ASSESSMENT - MANUFACTURING

	Directions: Answer each question by checking the column that applies.	Never (No)	Sometimes	Frequently	Always (Yes)
	PARTS WITHOUT LABELS				
1	Do you have partial containers of finished goods?				
2	Is there more than one partial container of finished goods for a part/number?				
3	Are partial containers clearly, consistently and correctly identified as "partials"?				
4	Are partial containers of finished goods kept in a designated, segregated area?				
5	Do the operators follow a written process for re-introducing partial containers?				
6	Do you repack parts?				
7	Is there more than one part number in the repack/sorting area at the same time?				
8	Is non-conforming material placed in a clearly, consistently and correctly identified container?				

Total Quality is the key to our survival

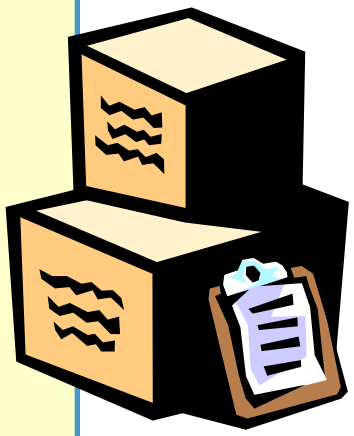
The design is right.

The raw materials meet spec.

The manufacturing process is capable.

The part quality is excellent.

Why can't they get the right label on the box?



Assembly Plant Disruption

Typical Assembly Plant

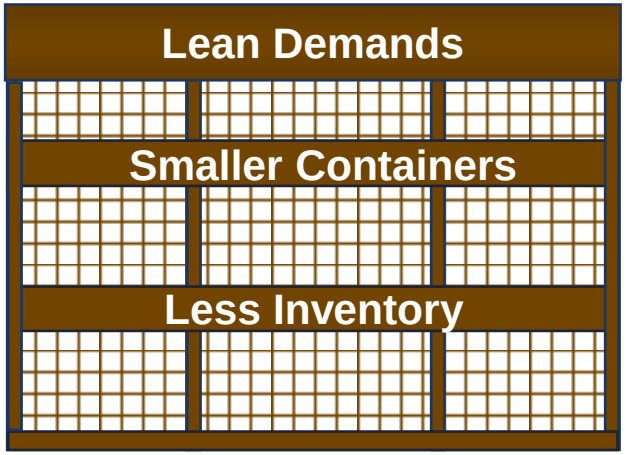
1 Vehicle Built Per Minute

1,000 Vehicles Built Per Day

3,000 Part Numbers Per Vehicle

50 Parts Per Container

60,000 Containers Per Day



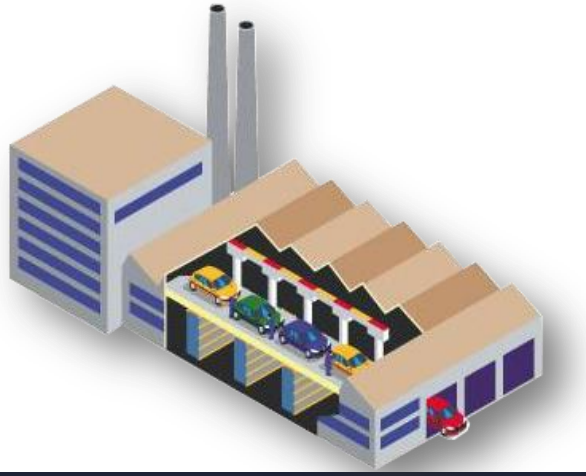
Smaller Containers = More Labels / More Opportunities for Errors

Less Inventory = More Disruption When Parts Are Wrong

Mislabeling represents one of the biggest supplier impacts on QUALITY

Effect of Mislabeling to a Customer Assembly Plant

- Impact direct run rate at the Customer assembly plants
- Deteriorate vehicle quality
- Cause warranty and customer dissatisfaction
- Create frustration due to repeat problems
- Incur significant costs due to retrofit, rework, logistics

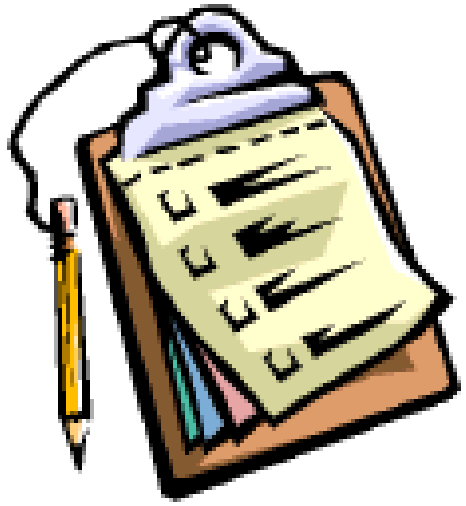


What is Mislabeling

PARTS AND LABEL DO NOT MATCH

- Wrong part number
- Wrong hand
- Wrong color
- Mixed parts
- Partial container
- Foreign parts
- Wrong destination
- Wrong engineering Level
- Unreadable bar code
- Missing label
- Wrong sequence
- Incorrect quantity
- Mixed containers on pallet
- Wrong part identification

Probable Causes of Mislabeling

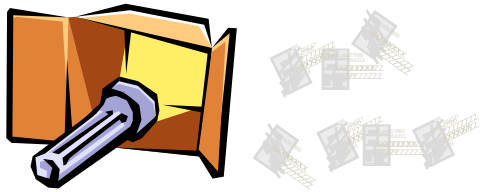


- Parts Without Labels
- Labels Without Parts
- Informal Changeover
- Dependent Labels
- Lack Of Error Proofing
- Lack of Documented Labeling Process / Training / Communication
- Lack Of Workplace Organization

Parts Without Labels

- Partial Containers
- Unlabeled/Poorly Labeled Finished Goods
- Unlabeled/Poorly Labeled Scrap
- Unlabeled/Poorly Labeled WIP
- Unidentified Repair
- Repack
- Engineering Samples
- Parts in the Office Area

Labels Without Parts



- Old Labels on Returnable Containers
- Pre-printed Labels in “Office”
- Pre-printed Labels at Workstation
- No Control of Pre-Printed Labels
- Labels Fall Off Containers
- Containers Labeled Ahead
- Quality Dots Labeled Ahead

Lack of Error Proofing

First Manufacturing Step

Last Manufacturing Step

No Error Proofing

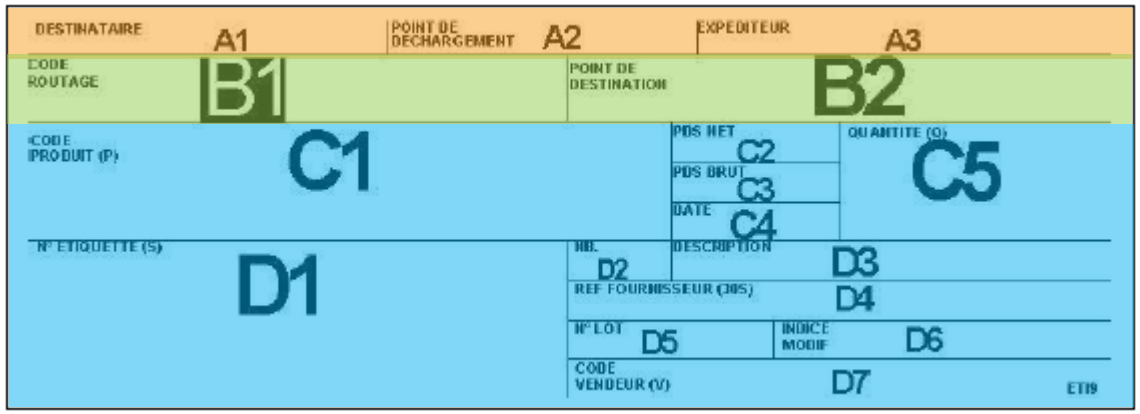
Apply Label (Less than 3 seconds)

No Error Detection

Customer Assembly Plant
detects defect and issues PRR

Label ETI9 – GALIA Standard (example)

CONSIGNEE COMPANY NAME + CITY	UNLOADING POINT LOC+11 (3225)	CONSIGNOR COMPANY NAME + CITY
ROUTING CODE (*) RFF+AMU (1154)		PLACE OF DESTINATION LOC+159 (3225)
PRODUCT CODE (P) LIN (7140)	NET WEIGHT GROSS WEIGHT MEA (6314) DATE DTM+36 (2380) *	QUANTITY (Q) QTY+52 (6060)
SERIAL No (S) GIR (7402) (ML) + seller name and address	NUMBER	DESCRIPTION IMD (7008)
	SUPPLIER REF.(30S) PIA (7140)	
	BATCH No GIR (7402) (BX)	ENG. CHANGE No
	SELLER CODE (V) RFF+ADE (1154)	emb/Unit



The ETI9 contains 16 information fields that are spread out as follows:

- Line A → transport information.
- Line B → internal routing information for packages
- Lines C and D → part characteristics and references

Auditor hints

During the audit check:

- Shipping management board.
- Verify that the shipping process includes at least the following milestone:
    - verification of finished products availability
    - start of preparation
    - end of preparation. Ready to ship
    - truck loading completed (EDI message sent to customer)
- Identification of deviations on the board (late supply…).
- Organization of bogus truck areas.
- Preparation lists.
- Labels correctly fulfilled (with the right routing code).
- Equipment and work instructions to check the product and pallet labeling.
- Check hooping of the pallets (e.g.: safety aspect: metallic one can be danger for operators)
- Verify that the AVIEXP message sent when truck loading is completed.

Communication, what are we searching for ?

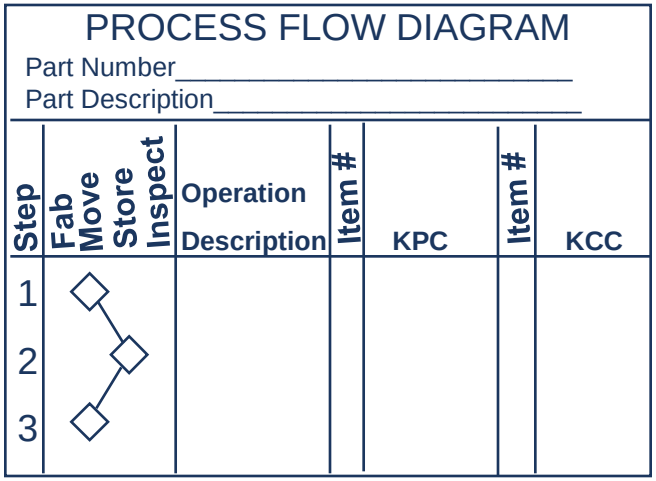
Item	Requirement	#Criteria	Criteria requirement
ELG4	JIT / Sequenced flows are managed, organized and tracked	ELG41	**A Flow FMEA (FFMEA) is available for each JIT / Sequenced flow (customer plants). It takes into account the overall flow from the reception of components at supplier facility until the delivery of finished products at customer plant. The FFMEA is reviewed and updated for each logistic or quality issue detected by customer.**
		ELG42	**The sequence required by the customer is strictly complied until reception of the finished product at customer facility. Control operations are implemented at each step in the flow.**
		ELG43	**Degraded modes are defined to minimize impact of transportation or quality issues until delivery of finished products at customer facility. The definition of degraded modes is coherent with FFMEA.**
		ELG44	The final products are fully identified in the manufacturing sequence: labelling on parts (reference, sequence number), on pakaging unit and on handling unit
		ELG45	Every deviation / issue is detected, managed in real time and initiates immediate countermeasures and corrective actions.

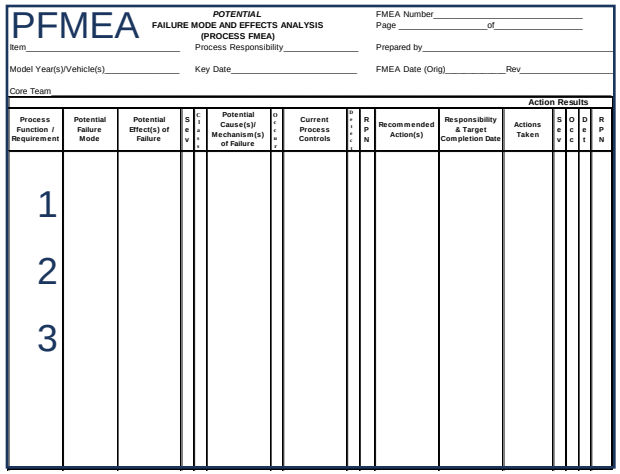
Criteria of Requirement

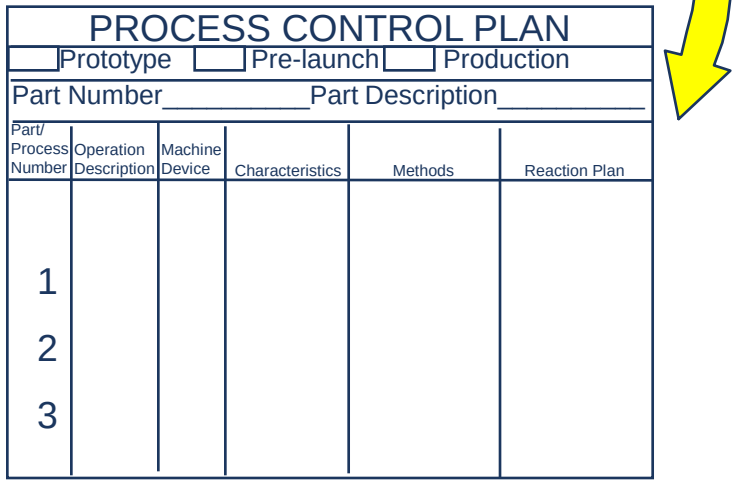
41 – page 51 - 52
42 – page 53
43 – page 54
44 – page 55
45 – page 56

Prev. Requirement Next Requirement

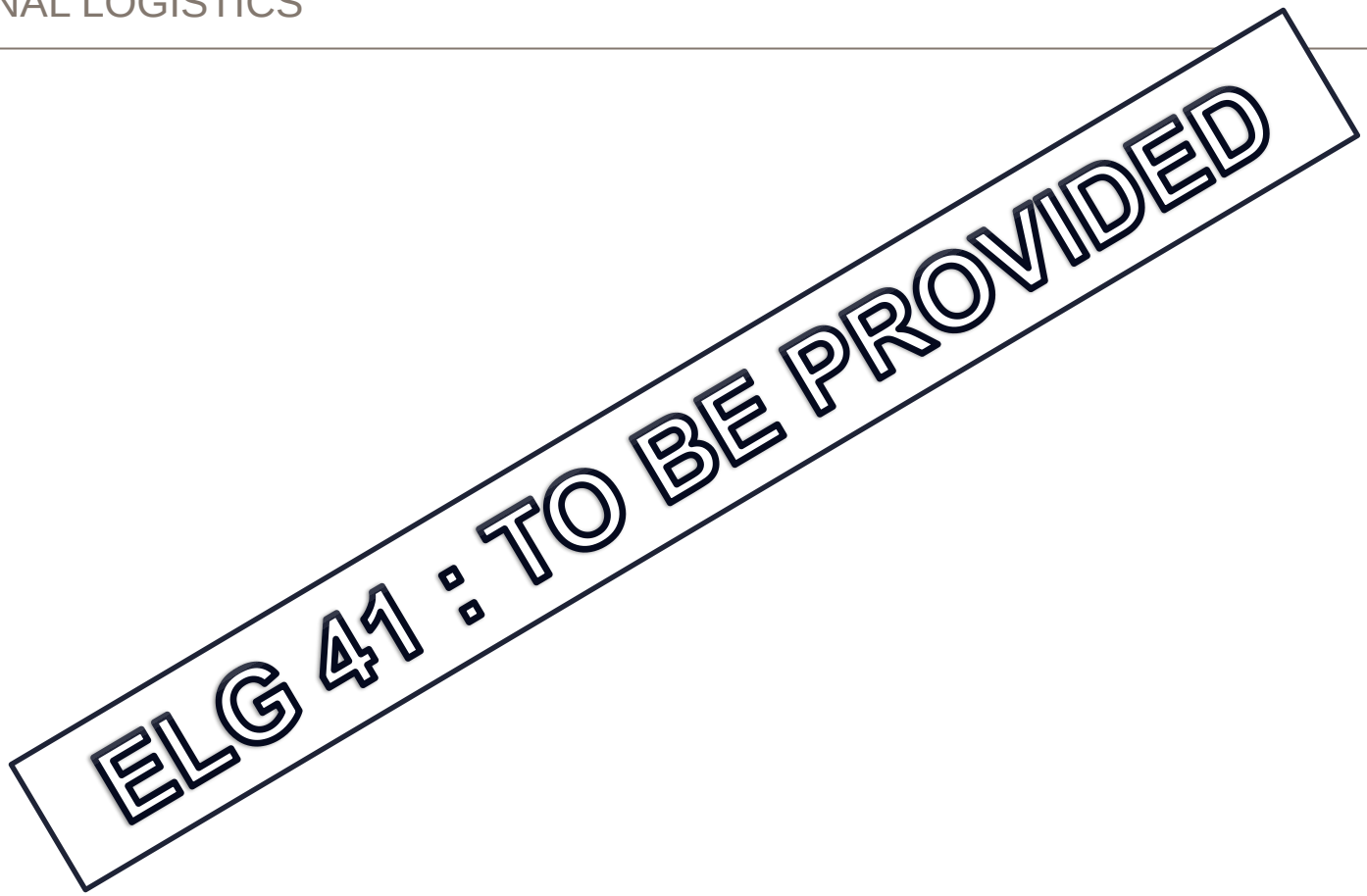
Process Flow, PFMEA and Process Control

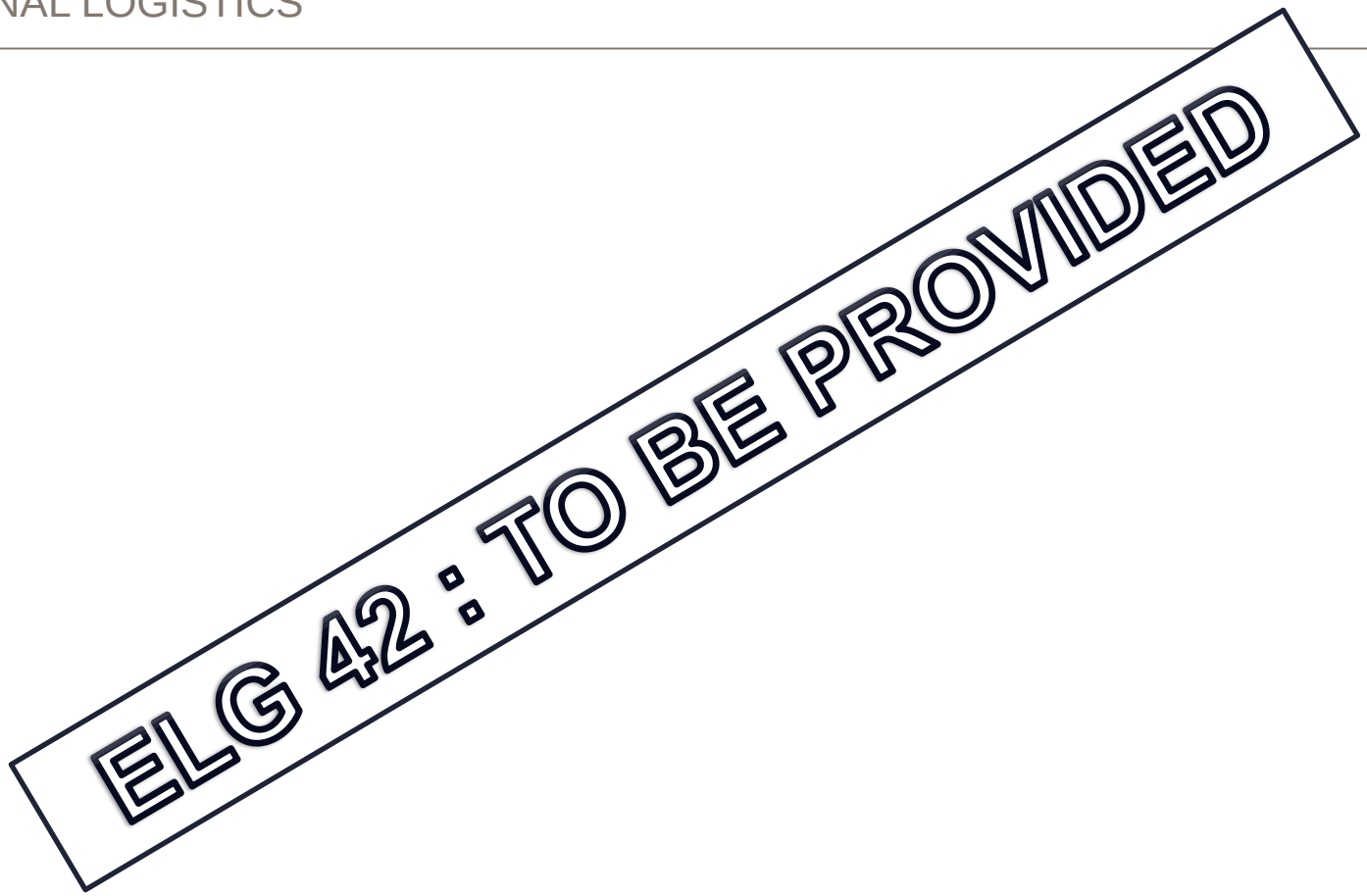


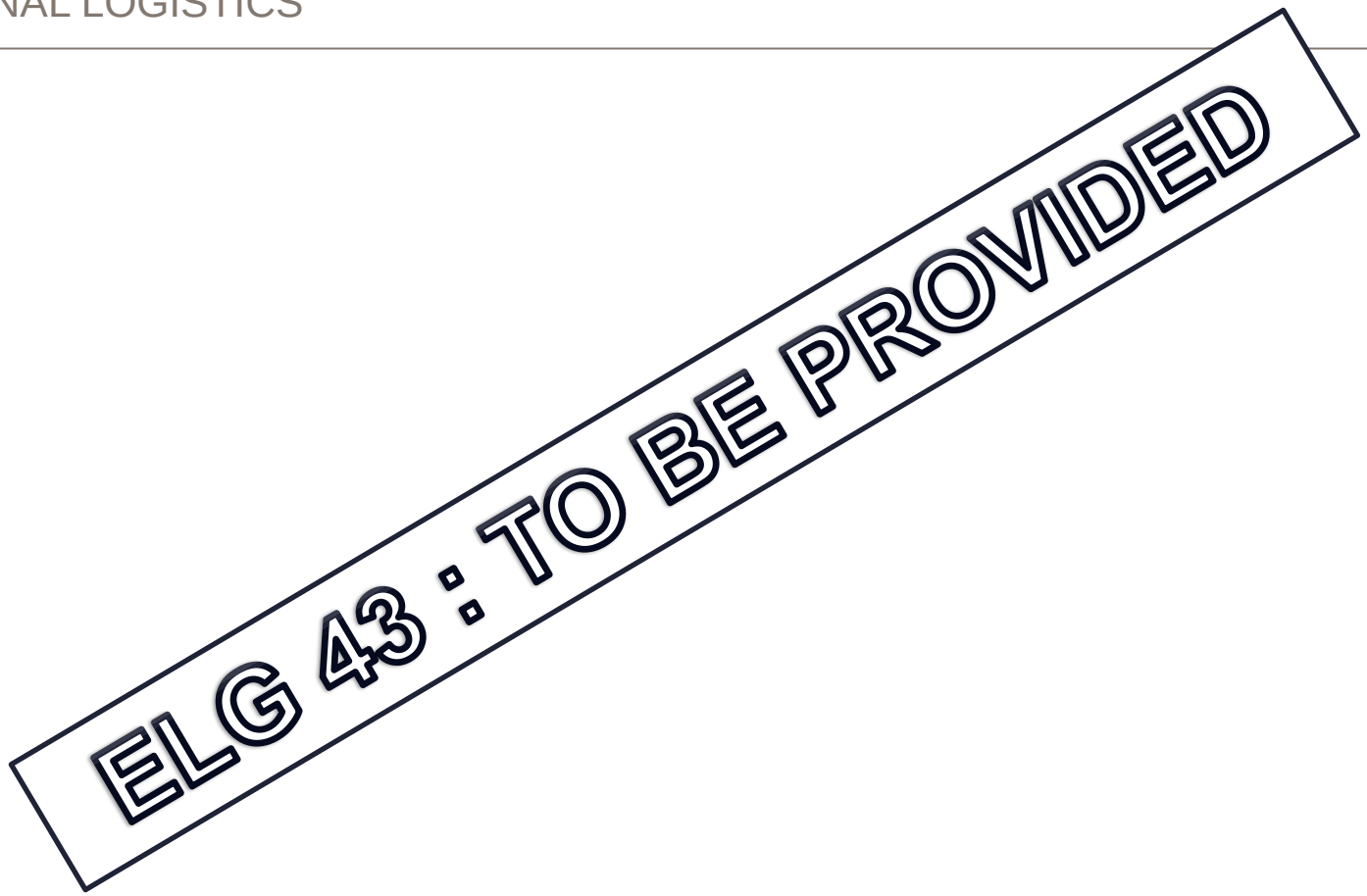




- Labeling should be included in flow diagram, PFMEA and control plan
- Parts are considered as 100% defective if labeling is incorrect
- The labeling step must be considered as critical as a KPC


ELG 41 : TO BE PROVIDED

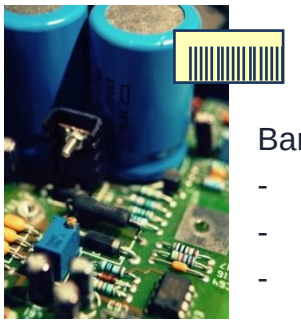

ELG 42 : TO BE PROVIDED


ELG 43 : TO BE PROVIDED

Assembly Component Verification

Component Parts Scanned:

- Correct value
- Correct quantity



Barcode on subassembly for:

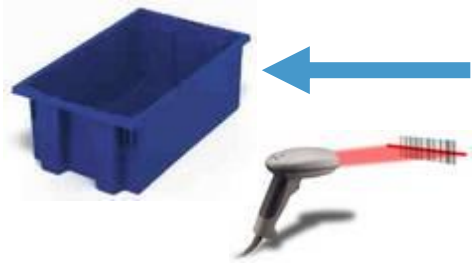
- unique identification
- count
- assembly status

Final assembly is built using scanned sub-assemblies

Part Identification Label

123456789

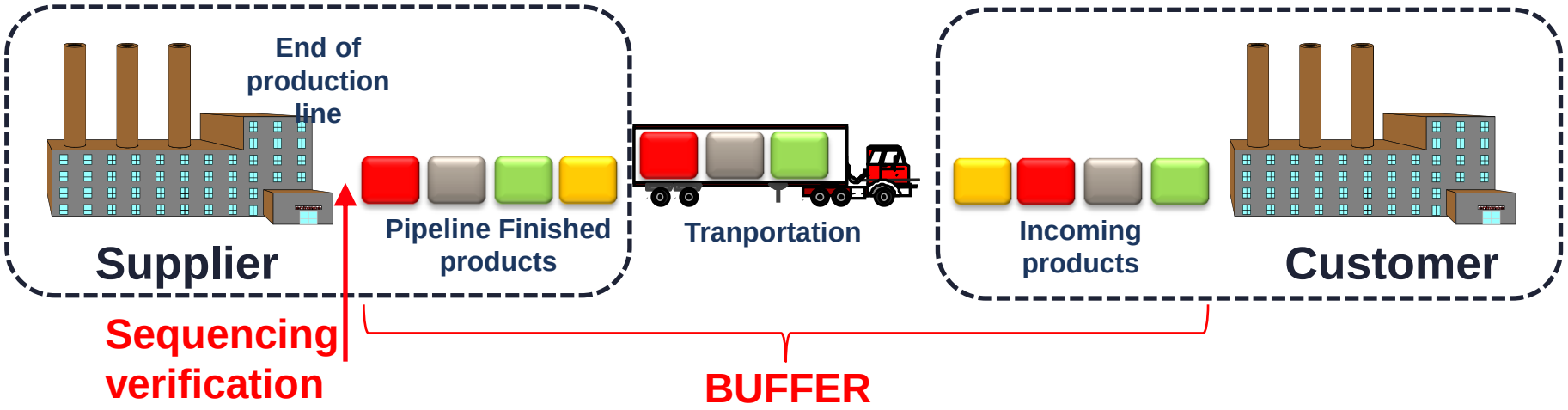
Each bar coded part is scanned as it is packed. When the correct quantity is reached the shipping label is printed and applied



Container shipping label is applied upon printing

FROM SUPPLIER ID: 3396676 LAKEVIEW PRODUCTS ANYWHERE, MI	TO OEM Manufacturer N/A ASSEMBLY PLANT ANYWHERE, MI 45678 PLANT DOCK DB 18B	
QUANTITY 6	MATERIAL HANDLING CODE B8-124	REFERENCE G1155
PART NUMBER	123456789	
LICENSE PLATE (1J) UN 123456789 A2B4C6D8E		PACK DATE: 12AUG2004 CONTAINER TYPE BTT1445
Distribution module		

Synchronous / Just In Time Flows



- The Sequence of finished products is verified by error proofing systems
- The size of the buffer is followed in real time (electronic dashboard)
- An escalation process is defined

- Buffer « jam »: stop production
- Buffer is almost full: nominal situation
- Buffer is low. No impact on customer: increased production
- Buffer is critically low. Impact on customer: increased production & emergency transportation. Alert the customer.

EDI, what are we searching for?

Item	Requirement	#Criteria	Criteria requirement
ELG5	The Electronic Data Exchange (EDI) network is fully operational and a logistic Protocol is managed according to customer needs.	ELG51	EDI communication is installed and is validated with the customer. Qualified people are permanently available on the site to manage EDI.
		ELG52	Back-up solutions are defined, validated with the customer and are periodically tested.
		ELG53	A Logistic protocol is established together with the carrier (transporter) and the customer. It is continuously updated to take into account changes during current production (change of customer site, change of schedule, etc.).
		ELG54	Resources responsible for the protocol management on site are identified.

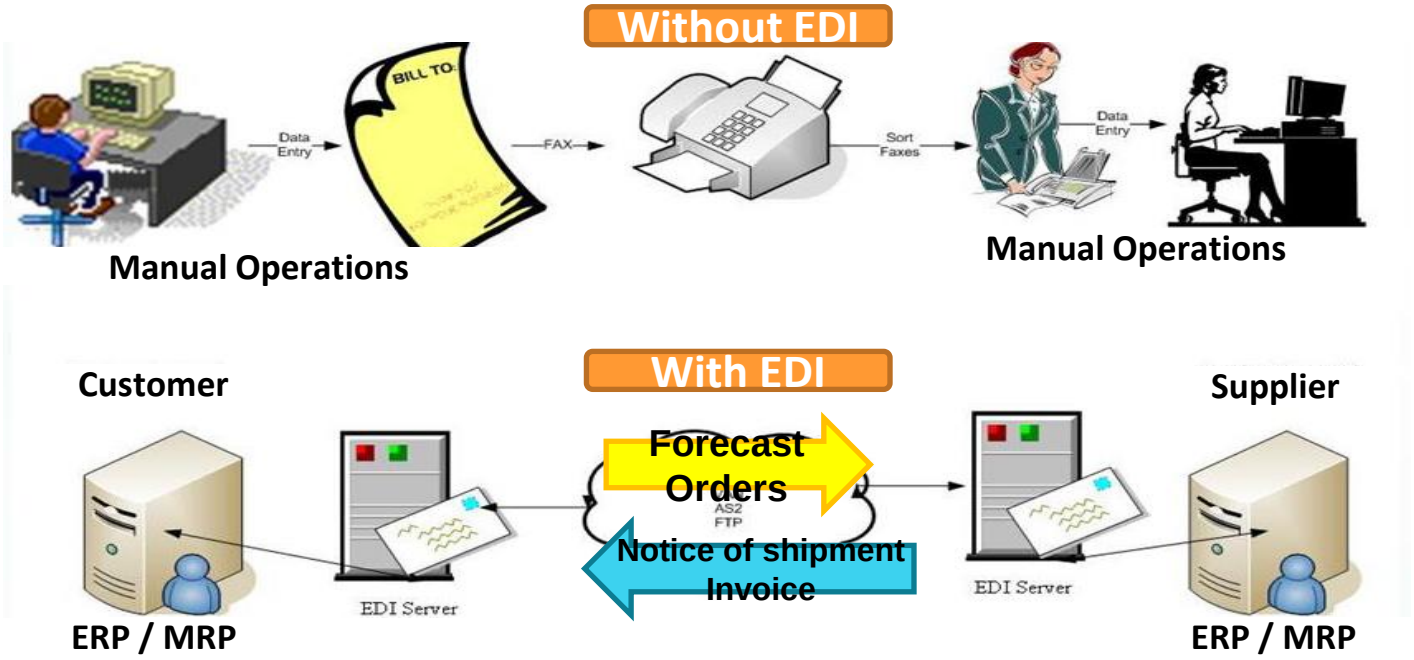
Criteria of Requirement

51 – page 58 - 60
52 – page 60
53 – page 61 - 62
54 – page 38
Auditor Hints – page 63

Prev. Requirement Next Requirement

Electronic Data Interchange (EDI)

- EDI: standardized communication link between supplier & customer
- Supplier MRP ⇔ Customer MRP



Electronic Data Interchange (EDI): Benefits

- Improves Quality
  - Improves Supplier Performance (GSC Rating)
  - Prevents Problem Report/Resolution (PRRs) for the supplier
  - Provides Accurate and Timely Communication
  - Provides Industry Standard Communication Tool
  - Reduces errors by manual input
- Decreases Cost
  - Can Eliminate Data Entry (Electronic Interface)
- Reduces Cycle Time
  - Eliminates Mail Time (There Is No Mail)
  - Streamlines Organization - Entire Supply Chain

Electronic Data Interchange (EDI): Validation, Resource and Backup

- Organization shall have the EDI installed and validated with Customer
- Qualified people must be permanently available to handle with EDI in all shifts
- In case of issues with EDI, a back up solution shall be established and validated by Customer. This back up shall be tested periodically in order to assure it is working properly
  - Example of back up: email, fax, etc.
- Any upgrade of EDI communications must be considered as significant change – refer Managing Change

Logistic Protocol

- **What**
  - Contractual document that describes all characteristics of the flow
  - Locations of the points of departure & arrival
  - Standard for the data exchange / Standard of orders
  - Frequency and timing of transport
- **Who**
  - Between Tier X and Tier 1 and between Tier 1 and customer
  - Carrier
- **Where**
  - Protocol is formalized through an information system
- **When**
  - 1st validation: before the 1st mass production delivery
  - Updated & verified regularly
- Organization shall identify the proper resources needed for the protocol management on site. Any deviation in the protocol application shall be treated and managed with action plan (alternative transportation mode, alternative packaging, etc.).

Logistic Protocol

(Example)

PSA Site		Buyer	
Code ISO	: 5 00023510055820017	Iso / Odette (EN)	:
supplier code	: 26859U 06	supplier code	: 78001H S0
Site de (EN)	: SEVEL NORD	Head Office	: PEUGEOT CITROEN AUTOMOBILE SA
Head Office	: SOCIETE DE VEHIC. LEGERS DU NORD	Address	:
Address	:	ROUTE DE GIZY	
AVENUE JEAN MONNET		78140 VELIZY VILLACOUBLAY - FRANCE	
ZI N 3			
59111 LIEU ST AMAND - FRANCE			
Sender of parts			
Code Odette	: 10 093138944297100021		
supplier code	: [illegible]		
Head Office	: [illegible]		
Address	:		
[illegible]			
Receiving site - empty		**Production Site**	
Iso / Odette (EN)	:	Code Odette	: 10 093138944297100021
supplier code	: [illegible]	supplier code	: [illegible]
Head Office	: [illegible]	Head Office	: [illegible]
Address	:	Address	:
[illegible]		[illegible]	

Identification of the flow:
- Customer plant
- Buyer
- Seller
- Sender of parts
- Receiving of empty packaging
- Manufacturing plant

Container Type	Durable - Perishable
security plan	General Conditions 5 days- EEC

Procurement rules

frequency of delivery info		Order system	
periodique	: yes	coordonné Synchrone	: no
weekly	: no	coordonné Modulé	: no
daily	: no	coordonné Journalier	: yes
		KANBAN	: no
		Autre	: no

Procurement rules:
- Deliveries freqency
- Order System
- EDI characteristics

Data exchange solution	EDI							
Communication Partners	**function partner**	**Senders mailbox**	**Qualif**	**V**	**receivers mailbox**	**Qualif**	**V**
DELINS/DELFOR	EXPEDITEUR	1351005582SNDE		4	009310000087545015 7HORAIRE		4
KANBAN/DELJIT		1351005582SNCE		2	009310000087545015 7HORAIRE		2
AVIEXP/DESAVD	EXPEDITEUR	009310000087545015 7HORAIRE		52	1351005582SN00		52

Supplier receiving platform						
Lorry type				Loading type		auto loading
trailer	Articulated vehicle	Artic H>2550	other	back	lateral	no
no	yes	no	no	yes	yes	
PSA shipping platform						
Lorry type				offloading type		auto offloading
trailer	Articulated vehicle	Artic H>2550	other	back	lateral	no
no	yes	no	no	no	yes	

Deliveries planning (day / time)
Characteristic of the shipping / receiving dock

Marker :

	Quai(s) de déchargement / chargement (EN)	Thursday HH MM / D-X						
Transmission des Horaires de Transport		09:00	3					
Enlevement des Emballages	PAV.....	04:05	2					
Dechargement des Emballages		13:30						

Numero de route :

Quai(s) de déchargement / chargement (EN)	Thursday HH MM / D-X					
U9 PAV						

Auditor hints

During the audit check:

- Training records for EDI training.
- Several Logistic Protocols and verify their status.
- Coherence between different Logistic Protocols and shipping schedules.
- Verify back-up solutions for EDI system failed.
- Customer site contact list .

- To complete with last AH 1

Effectiveness, what are we searching for ?

Item	Requirement	#Criteria	Criteria requirement
ELGE	Indicators are defined and tracked to ensure effectiveness of External logistic processes	**ELGE1**	**The performances of tier n supplier is tracked in order to avoid disturbance of the production program of the plant.** **Example of indicators concerning the supply process:** **- Fill rate of the trucks,** **- Service rate of tier n Suppliers,** **- Tracking of Logistic issues with tier n Suppliers.**
		ELGE2	**It exists a logistic follow-up of the performances of the supplier in order to avoid disturbance of the customer production program.** **Example of indicators concerning the shipping process:** **- Shipping lead time,** **- Customer service rate,** **- Tracking of customer Log issues,** **- Pareto of failures (customer line stops / stock out),** **- Rate of mislabelling.**
		ELGE3	**Level of empty packaging available for production**
		ELGE4	Level of internal empty packaging available for production
		ELGE5	Level of specific stocks to secure risky components / materials

Criteria of Requirement

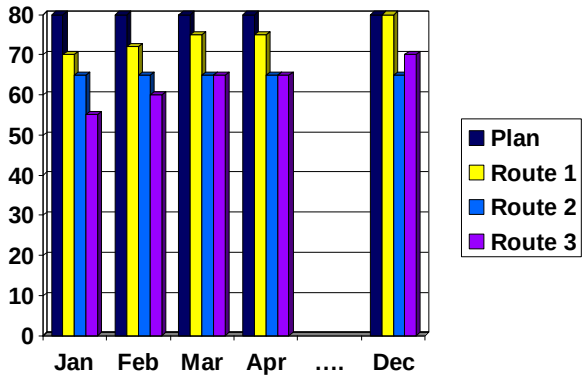
E1 – page 65-67
E2 – page 66
E3 – page 70

Prev. Requirement
What goes wrong ?

Fill Rate

- **Fill Rate(%) = $\frac{Weight\ of\ the\ delivered\ material}{Truck\ maximum\ load}$ x 100**

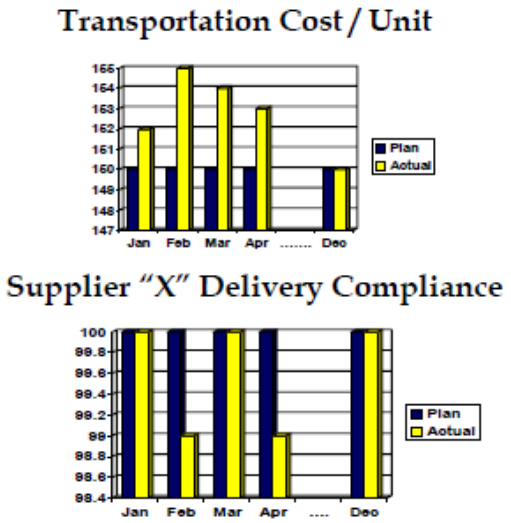
Fill Rate (Cube Util.%) by Route



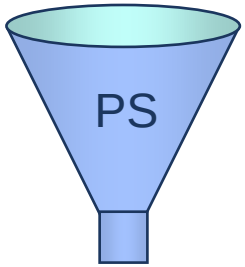
Service Rate

- Organization shall establish and monitor service rates of Tiers
- Performance reviews should be conducted in order to:
  - Identify key critical Tiers
  - Identify the root causes
  - Establish action plans and review status

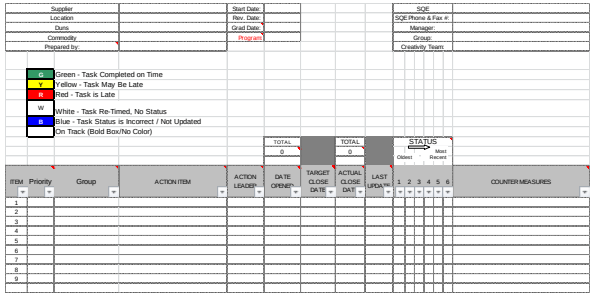
Metrics



Problem Solving



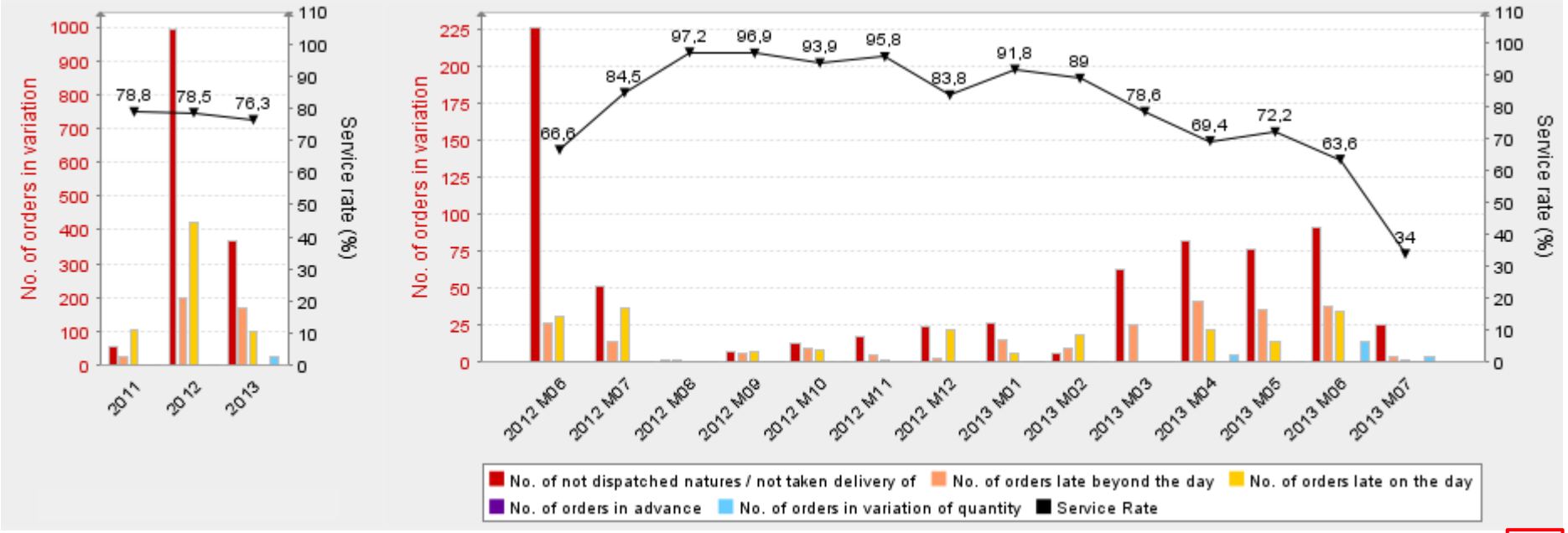
Action Plan



Service Rate

- **Service Rate(%) = $\frac{Nb\ of\ non\ compliant\ orders}{Nb\ of\ orders\ over\ the\ period}$ x 100**

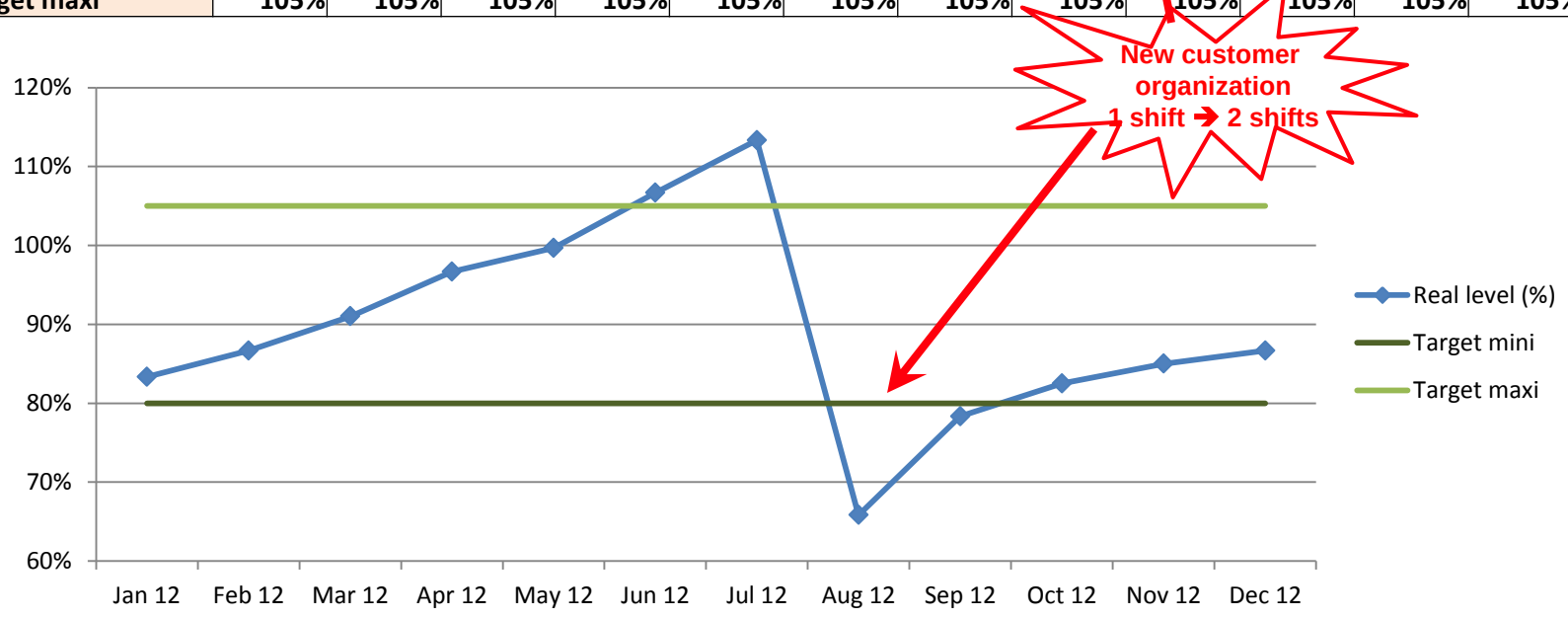
- **Service Rate can be used:**
- **- Upstream with Tier X supplier**
- **- Downstream with OEM Customer**



Stock level

- **Examples of storage management indicators (safety stock)**

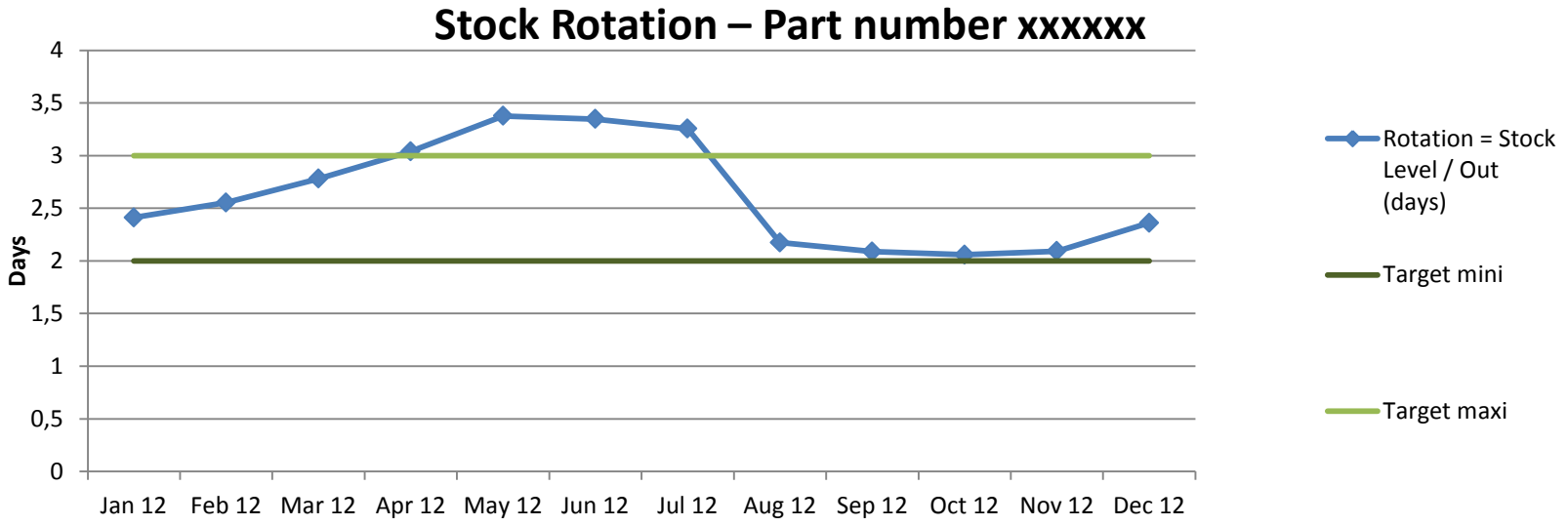
		Jan 12	Feb 12	Mar 12	Apr 12	May 12	Jun 12	Jul 12	Aug 12	Sep 12	Oct 12	Nov 12	Dec 12
Stock Level	Nominal level (Nb parts)	3000	3000	3000	3000	3000	3000	3000	6000	6000	6000	6000	6000
	Real level (Nb Parts)	2500	2600	2730	2900	2990	3200	3400	3950	4700	4950	5100	5200
	Real level (%)	83%	87%	91%	97%	100%	107%	113%	66%	78%	83%	85%	87%
	Target mini	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%
	Target maxi	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%



Stock Rotation

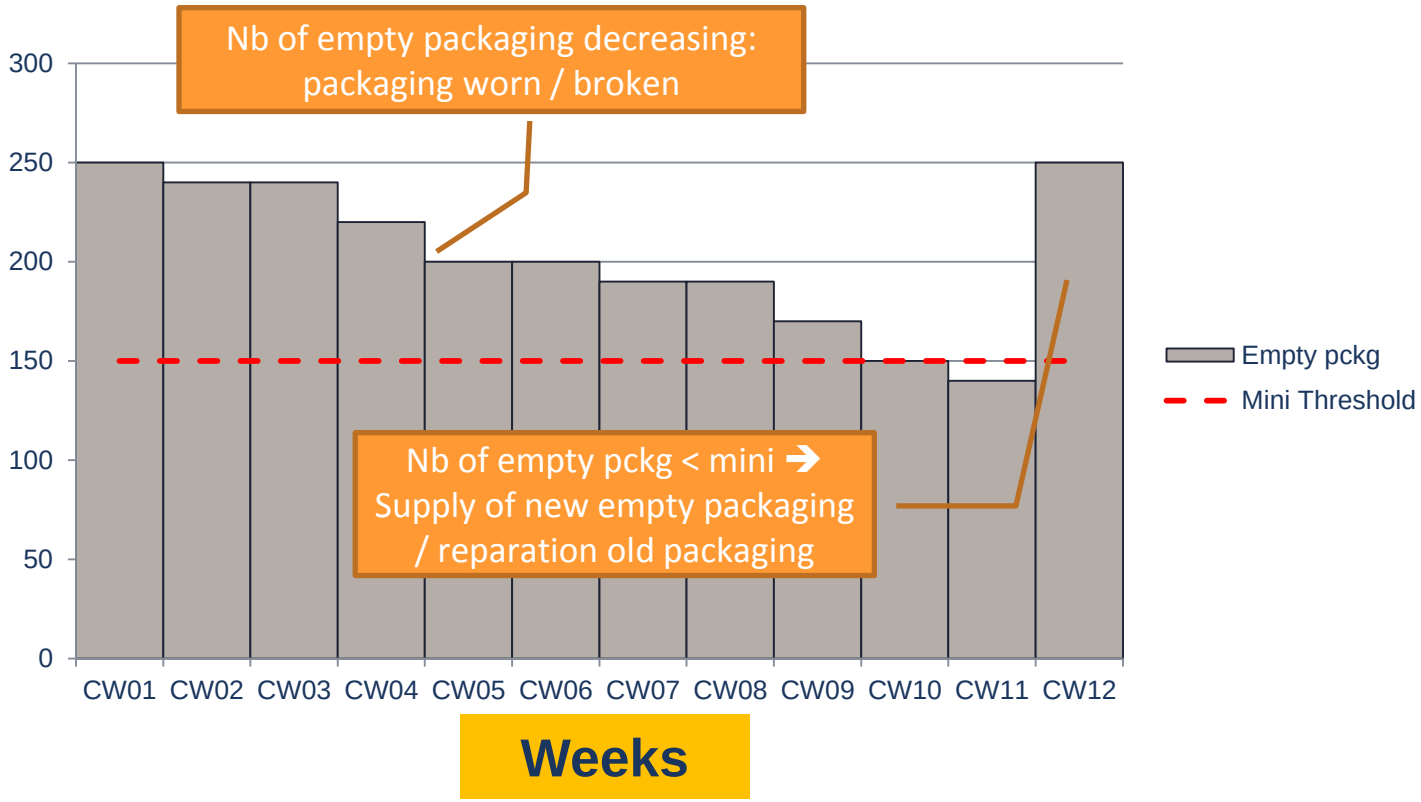
- **Examples of storage management indicators**

	Jan 12	Feb 12	Mar 12	Apr 12	May 12	Jun 12	Jul 12	Aug 12	Sep 12	Oct 12	Nov 12	Dec 12
In (parts/day)	6000	5000	5000	5000	4000	4000	3500	0	3500	3700	3900	4000
Out (parts/day)	4750	4630	4450	4300	3900	3950	3930	4030	3970	3920	3870	3600
Stock Level (parts)	11450	11820	12370	13070	13170	13220	12790	8760	8290	8070	8100	8500
Rotation = Stock Level / Out (days)	2,4	2,6	2,8	3,0	3,4	3,3	3,3	2,2	2,1	2,1	2,1	2,4
Target mini	2	2	2	2	2	2	2	2	2	2	2	2
Target maxi	3	3	3	3	3	3	3	3	3	3	3	3



Packaging flow organization

- Tracking of the number of empty packaging



What goes wrong ?

ELG1-ELG2 : Supply process

- Activity is not levelled (peak of activity in the morning…)
- Activity not synchronized with manufacturing: Lots of line stockout
- Trucks are waiting to unload
- Reception area is not organized: pallets and forklifts everywhere
- Problems of safety in the reception area (crossflows, lot of people)
- People feeding the line work directly in reception area

What goes wrong ?

ELG3-ELG4 : Shipping process

- Low customer service rate
- Activity is not synchronized with manufacturing (parts reference missing in the finished product stock)
- Activity not levelled, activity is managed by emergency
- Lots of premium transportation
- Trucks are waiting to load
- The area is not organized, risk of mixing the pallets between customers
- Problem of safety
- Palletizing operations are not done according to customer requirements
- Parts are damaged during shipping process (bad palletizing, bad handling conditions…)