

# LOT CRIPPLE MANAGEMENT EVALUATION TO REDUCE THE NUMBER OF LINE STOP USING 8 STEPS APPROACH AND 7 TOOLS

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## ABSTRACT

PT. IGP is a sub assembly vendor of PT. IAMI, which has the highest number of line stop at 56.64% as compared with the other sub-assembly and the assembly plant. Therefore, management should be improved so that the process of robbing Cripple lot can be more effectively and efficiently by using analysis of eight steps approach, and 7 tools that will be known root causes line stop happening. Once the root of the problem is found it will be easier to make improvements so that the problem does not happen again and certainly reduce the number of line stops on the line. PT IGP who earlier reached 56.64%. Proposed Improvements Cripple Lot Management To Reduce The Number of Line Stop Method 8 Steps Approach & 7 Tools in PT. Isuzu Astra Motor Indonesia. Lot Cripple at PT. IAMI is inevitable and this can happen every day. This is because the parts are shipped from Japan CKD often shortage, wrong, or defective when done unboxing. In addition it also occurs frequently lost and damaged in the process of production lines. Therefore, there needs to be done robbing part of a whole lot of production to complement the Cripple lot.

**KEY WORDS:** Line Stop, Lot cripple, 8 Steps Approach

## 1. INTRODUCTION

Completely Knock Down (CKD) parts can be defined as material or raw material that is crucial for a company, especially in manufacturing. Because CKD to be one important factor in the assembly process. PT. Isuzu Astra Motor Indonesia (IAM) is one of the automotive companies that have a vendor or a major supplier to the car frame assembly process. There are 2 vendors in the assembly process, the vendor CKD and local vendors. Ordered the CKD components containing such transmissions, engines, chassis, radiator, couplers, stabilizer and etcetera. CKD-shaped case containing an assortment of different components.

In the production process, IAM do sub count by Assembly Plant Pondok Ungu (APPU) as Assembly Plant 1 and PT. Style Motors (GM) as the Assembly Plant 2 and perform sub assembly with Inti Ganda Perdana (IGP), Inti Pantja Press Indonesia (IPPI), Mesin Isuzu Indonesia (MII), and Akebono Brake Astra Indonesia (AABI).

This is done to simplify the assembly process, minimizing the work station, minimizing space on the line production and also to reduce the cost of production. But sometimes there are wrong CKD lot orders, such as a shortage, or defective, and the part that is "Hilang Rusak Proses" (HRP) in the line production.

This results when available raw materials, production processes can not be done, and only process the existing material. Furthermore, what happens next is that the production schedule should be in accordance with the schedule must change and adapt production to do related to the availability of raw materials. PT. IGP is a sub assembly vendor PT. IAM, which has the highest number of line stop at 56.64% as compared with other sub-assembly and the assembly plant.

With the numbers of line stop are quite high, for that reason, IAM have to do some repairs, either from the addition of the line production, line production improvements, improved

management system lot Cripple (robbing), kanban supply system improvements, and others to reduce the number of line stop on the line production. PT IGP who earlier reached 56.64% CKD lot that needs are met and the processes will be run in accordance with a predetermined schedule to achieve the expected results and production targets can be achieved with a system that is more effective and efficient.

## 2. LITERATURES

8 Steps Approach and 7 Tools is a tool that can be used to identify and trace the possible causes of the problems in the existing system in the manufacturing industry. For further conducted remedial measures.

### 2.1 8 Steps Approach

8 Steps Approach (8 Step Approach To Repair) is eight successive steps in the management cycle or a cycle of work that is based on the spirit of continuing to make significant improvements. Humans have the ultimate call as much as possible in order to pursue perfection. Then there is the urgent to perform continuous self-improvement.

Also in terms of employment. Consistent and continuous small improvements sought. It can be done on an individual basis, but will be more effective if in groups and cooperation among the team members, the proceeds from the first step until the eighth step. The eight steps are also improvements in the implementation of quality control, Quality Circles (QCC). GKM deming wheel rotate with the Plan-Do-Check-Action (PDCA) and do the 8 steps by using seven quality control tools on an ongoing basis. Eight steps to improve it is to determine the priority of the problem, gathering data, examining the causes of the most influential, formulate corrective measures, implementing corrective measures, examined the repair, prevent recurrence of the problem, and solve the next problem.

### 2.2 The 7 tools

The seven tools are the tools which are used to map the problem, organize the data to be more easily understood, and browse the various possible causes of the problem. The 7 tools widely known in the public sphere quality, it can not be denied because of assistive devices is

growing use in the process of quality improvement activities or problem solving is usually done in the context of QC Circle or the Quality Improvement Team, and others.

The seven tools are tools that are useful to map out the scope of the problem, the data compiled in the form of diagrams that are easier to understand, trace the various possible causes of the issues and clarify the facts or phenomena in an authentic problem. Ability 7 powerful tools in to the fact / phenomenon that causes the experts in each process of quality improvement activities depend on these assistive devices. Nevertheless, success in using 7 tools greatly influenced by how massive knowledge of the users will be the tools he uses.

The better the knowledge, the more precise in choosing the tools that will be used. That is why, there are two main things that need to be guidelines, before using 7 tools, namely efficient (right) and effective (right). Efficient, the point is accuracy in choosing tools that match the characteristics of the issues to be discussed. Effectively, it means that the use of these tools is done properly, so the issue becomes clearer, easier to understand and provide an opportunity for repair. The function of the seven tools there are check sheet (Check Sheet), the separation of problem (stratification), histogram, Pareto chart, control chart, scatter diagrams, and cause and effect diagrams.

## 3. RESULT

The results of this study there are, PT. IAMI in the production process using a lot system, this is done by PT. IAMI production process, produce only small amounts. So that using the system will be lot easier PT. IAMI in the production process and production control systems. Each type of car manufactured by PT. IAMI has a lot with the number of units different according to the needs of the market demand for the product itself.

The more demand for the product, the more units in the lot unit. Lot for type N-Series are as many as 12 units, lot F-Series is 6 units, and a lot for the type of TBR is 30 units. As for the types of cars manufactured by PT. IAMI can be seen in the table on below:

**Table 1. Types of Cars Produced PT. IAMI**

No.	Types of cars	Class of Cars
1	Panther	Smart – H
		Smart – FFH
		LV – H
		LV FF – H
		Adventure – H
		Touring – H
		Grand Touring - H
2	D-Max	Single Cab
		Double Cab
		Rodeo
3	Pick Up	Pick Up Turbo
		Pick Up Turbo Flat Deck
		Pick Uo GD 3 WAY
4	Elf	NHR55 C/C E2,95 PS
		NHR55 C/O E2,95 PS
		NKR55 C/O E2, 95 PS
		NKR55 C/O E2, LWB
		NKR55L C/O E2 100 PS
		NKR 71 C/C E2 120 PS
		NKR55 C/O E2 LWB
		NKR55L C/O E2 100 PS
		NKR71 C/C E2 120 PS
		NKR71 HD E2 120 PS
5	Giga	FRR 90 Q (4X2)
		FVZ 34 P (6X4)
6	Bison	Bison STD
		Bison FB
		Bison BC
7	C - Series	-

And to be able to find out a comparison between the total plan units production by the number of production units produced over the past 5 months, there are January, February, March, April and May can be seen in the table below:

**Table 2. Data of Planning and Production Figures PT. IAMI January-May 2012**

No	Type	Month										
		January		February		March		April		May		
		Plan	Prod	Plan	Prod	Plan	Prod	Plan	Prod	Plan	Prod	
<b>N-Series</b>												
1	NHR55	CC	60	60	120	120	84	84	96	96	72	72
		CO	120	96	240	192	252	216	60	60	86	86
2	NKR55	CC	240	228	120	108	132	96	240	216	120	120
		CO	120	84	84	84	96	96	72	72	48	48
		LWB	72	72	48	48	72	60	60	36	240	180
3	NKR55-6LT		48	48	36	36	48	48	84	84	216	168
4	NKR71T		240	204	360	300	216	216	204	168	360	312
5	NKR71THD		720	660	720	660	720	720	540	504	720	680
<b>TOTAL N-SERIES</b>			<b>1620</b>	<b>1452</b>	<b>1728</b>	<b>1548</b>	<b>1620</b>	<b>1536</b>	<b>1356</b>	<b>1236</b>	<b>1862</b>	<b>1666</b>
<b>F-Series</b>												
1	FRR90QIN		12	12	12	12	6	6	12	12	6	6
2	FVZ34PDIN		36	36	48	36	24	24	48	36	48	48
3	FVR34LDIN		0	0	0	0	0	0	0	0	0	
4	FVR34PDIN		0	0	0	0	0	0	0	0	0	
5	FVR34SDIN		0	6	6	36	24	12	12	12	12	
6	FTR90LDIN		0	0	0	0	0	0	0	0	0	
7	FTR90PDIN		0	0	0	0	0	0	6	6	6	
8	FTR90SDIN		0	0	12	12	12	12	6	12	6	
9	FVM34QDIN		0	0	0	0	0	0	0	0	0	
10	FVM34WDIN		0	0	0	0	0	0	0	6	6	
<b>TOTAL F-SERIES</b>			<b>48</b>	<b>48</b>	<b>66</b>	<b>54</b>	<b>78</b>	<b>66</b>	<b>84</b>	<b>72</b>	<b>90</b>	<b>84</b>
<b>TBR54</b>												
1	TBR54 P/UP	LOW DECK	210	210	180	120	180	120	180	180	180	120
		FLAT DECK	60	30	60	60	90	90	60	60	90	60
		GD 3 WAY	30	30	30	30	60	30	30	30	30	30
<b>TOTAL TBR54</b>			<b>300</b>	<b>270</b>	<b>270</b>	<b>210</b>	<b>330</b>	<b>240</b>	<b>270</b>	<b>270</b>	<b>300</b>	<b>210</b>
<b>TBR165P (WAGON)</b>												
1	NSP		30	30	0	0	30	30	0	0	30	30
			0	0	30	30	60	60	60	60	0	0
2	RYL		0	0	30	30	0	0	30	30	0	0
			0	0	30	30	60	60	0	0	0	0
3	SMF	HMT	180	150	120	90	30	30	180	120	180	180
		RYN	30	30	0	0	0	0	0	0	30	30
		SMF	30	30	0	0	30	30	30	30	0	0
	SMN	120	90	210	180	210	180	210	210	210	180	
<b>TOTAL TBR165P</b>			<b>390</b>	<b>330</b>	<b>420</b>	<b>360</b>	<b>420</b>	<b>390</b>	<b>510</b>	<b>450</b>	<b>450</b>	<b>420</b>

From the above table it can be seen a comparison of the production plan and the number of points produced by PT. IAMI the period January to May 2012 in accordance with each type of car, such as: type N-Series, F-Series, and TBR. From the above table can also be known that the amount of production plan production rate does not reach the amount as expected, so that production targets are not achieved.

In the sub-assembly process is only done partial assembly processes and material provided by PT. IAMI. The process is when it comes CKD, CKD is directly sent to the warehouse CKD, in the warehouse, CKD is only seen and checked

for its physical state case without seen whether the part is in accordance with the packing list. Once CKD examined the conditions of his case, and CKD is sent to the sub-assembly to be dismantled in the production line for views and examined whether the components contained in the case of CKD according to the quantity, part number, part name, case number, box number, and the need parts according to the packing list for the next do the assembly process. However, the assembly process is often found problems Cripple CKD, both when unboxing case as well as the production process, which is like the wrong CKD, shortage, defective (original defect), or "Hilang Rusak Proses" (HRP) in the line production.

So that it causes lack CKD parts to be processed. To overcome this problem, the first thing to do is to robbing or taking a lot of others to complete the troubled lot in order to keep the production process can be done without any line stop in the production line. With the stop on a sub assembly line it will affect the process of finishing the Assembly Plant, the Assembly Plant Pondok Ungu (APPU) as Assembly Plant 1 and PT. Style Motors (GM) as the Assembly Plant 2, which will affect the number of units produced an impact on production, the production target is not reached.

With the problem Cripple CKD is accompanied by a significant increase in production capacity, it is necessary to repair the lot management system, especially in the process of robbing Cripple. Therefore the analysis must be performed to find the problem to solving the most common and the most influential in increasing the number line stop using the method 8 Steps Approach to seven tools 7 Tools to minimize the number line in order to stop the production line production targets can be achieved in accordance with the plan. To be able to see more clearly the total number of stops on the sub-assembly line and assembly plant at PT. IAMI, can be seen in the following the table:

**Table 3. Sub-Assembly Data Of PT. IAMI**

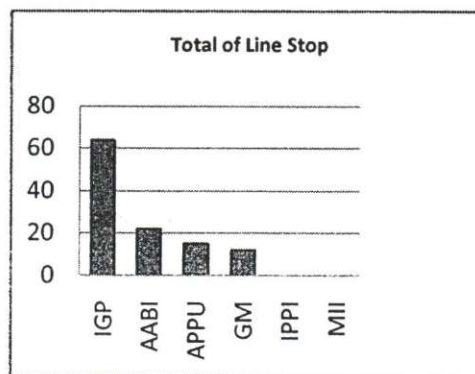
No.	Sub Assembly	Total Number Of Line Stop					Total Line Stop
		Jan	Feb	Mar	Apr	Mei	
1	Inti Ganda Perdana	8	11	12	15	18	64
2	Inti Pantja Press Indonesia	-	-	-	-	-	-
3	Mesin Isuzu Indonesia	-	-	-	-	-	-
4	Akebono Astra Brake Indonesia	4	3	7	3	5	22

**Table 4. Line Stop Data of Assembly Plant PT. IAMI**

No.	Assembly Plant	Number of Line Stop					Total Line Stop
		Jan	Feb	Mar	Apr	Mei	
1	Assembly Plant Pondok Ungu (APPU)	3	4	2	4	2	15
2	Gaya Motor (GM)	2	4	2	2	2	12

Note that the total number of line stop most common in sub-assembly Inti Ganda Perdana (IGP). This is because so many CKD Cripple lot unmet needs in the line production. For sub-assembly IPPI and MII, unheard of numbers line stop in the line production, as if the presence of CKD Cripple IAMI party does not control and handle the claim, but the IPPI and MII alone that makes a claim directly to the Isuzu Japan.

While the number line stop on AABI, APPU, and GM is relatively small, because the production is done there bit and also control the APPU and GM very well if there Cripple CKD. Data on the number line stop numbers are taken from the collection of the data within the period of 5 months by PT PPC department. IAMI. For more details can be seen in the figure below:



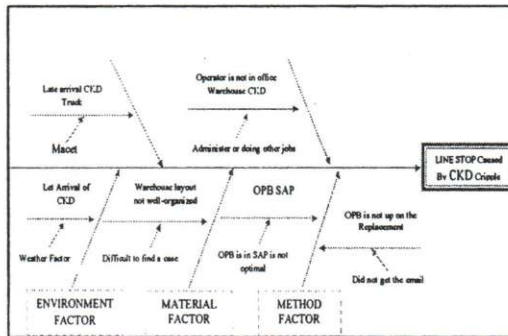
**Figure 1. Graph Number Number Line Stop In APPU, GM and IGP**

**Table 5.** Total Number *Line Stop* in PT. IGP

No.	Line Stop (Per / Month)	Time (Minutes)
1	Januari	204
2	Februari	325
3	Maret	281
4	April	135
5	Mei	428
Total of times		1373

From Picture 1 and Table 5 it can be seen that the number of the line stop is more common in sub assembly IGP, as many as 64 times over the past 5 months. With a percentage of 56.64% and as much as can be known figure line stop on the IGP for 5 months, with a total time of 1373 minutes. IGP then be analyzed further on the issue or cause number of line stop on the production line.

With the highest percentage of line stop, then the IGP used as a sub-assembly that can be searched root of the problem. Here are the issues that have been collected, and analyzed using the tools of 7 QC tools fish bone diagram. Here are the problems that have been analyzed using the fish bone diagram.



**Figure 2.** Fish Bone Diagram

From Picture 2 it can be seen mapping problems that occurred in the sub-assembly tools IGP derived from tools factor, that is the congestion that causes truck come late causing delays late CKD come in on storage until the effect on the production process. Man factors, namely the lack of a clear desk job, so sometimes the operator is not in office at the warehouse CKD

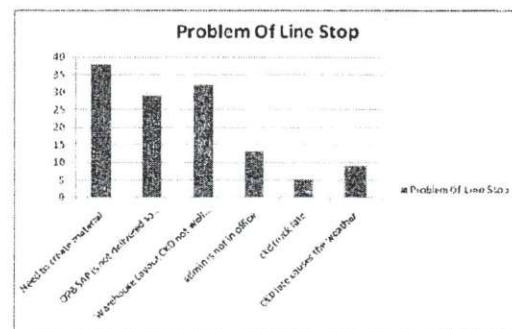
urgent circumstances for taking another job, environment factors, namely the weather such as rain, storms, and so forth, causing delays or damage that CKD uninterrupted production process.

The material, namely layout CKD warehouse operator who has not tidy so difficult to find the case that will be produced. And method factors namely, the problem pembedan OPB (Order Request Goods) are not up to the replacement of not getting emails for demand for goods, and the use of OPB SAP is not optimal so that the required staff who are able to apply SAP software very well.

**Table 6.** Problem Cause Number Line Stop

No.	Causes	Month					Total	%	
		Des	Jan	Feb	Mar	Apr			Mei
1	Problematic of OPB SAP	6	5	6	7	7	7	38	30.16
	OPB SAP isn't passed to the replacement section	2	4	6	6	5	6	29	23.02
2	Warehouse layout CKD not well organized	4	6	5	4	5	8	32	25.40
3	Operators who are not on CKD Warehouse office	-	2	2	2	4	3	13	10.32
4	Late CKD Trucks	-	-	1	2	1	1	5	3.97
5	Late CKD Caused by the weather	1	-	2	2	2	2	9	7.14
Cumulative Total		13	17	22	23	24	11	126	

In the table above, it is known that the problems that caused the numbers of line stop on sub assembly plant IGP. Among them is a problematic issue SAP OPB, OPB SAP are not up to the replacement, warehouse layout CKD are not tidy so elusive case, the absence of operators in the CKD warehouse office, late CKD truck and CKD late because of the weather. This data was also obtained from the results of research conducted by the department of PPC in the span of 5 months.



**Figure 3.** Diagram Problems of Line Stop

From the picture above it can be seen that once the data is analyzed and made performed the

reduction data, it can be concluded that, the problem is most influential in determining the stop line is OPB SAP is problematic, due to the employees who do not have the ability to apply SAP software properly so that there is constraints in the use of OPB SAP, OPB SAP not delivered to the replacement because it does not get the email, and warehouse layout CKD are not tidy so hard to find case.

#### **A. Proposed Improvements Problems Cripple CKD**

Based on data analysis that has been done can be seen that the problems that greatly affect the Cripple CKD is as follows:

1. OPB SAP problematic.
2. OPB SAP not delivered to the replacement.
3. CKD warehouse layout not well organized.

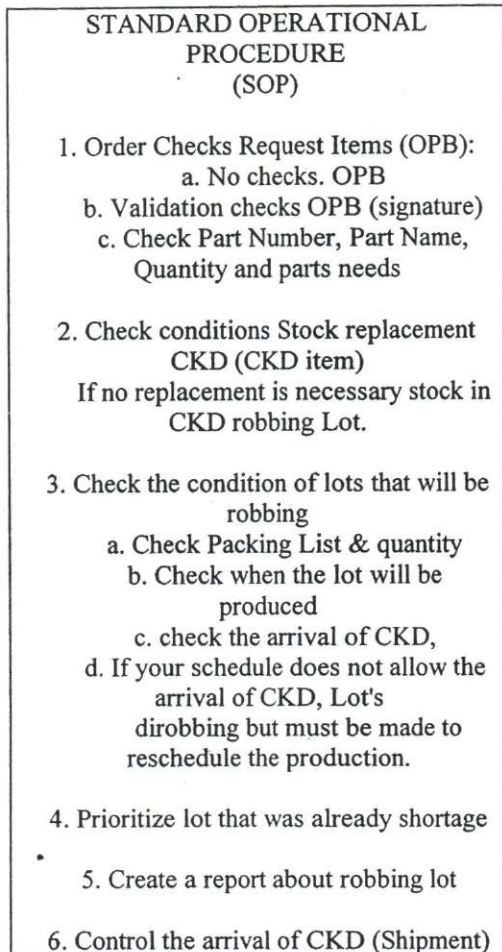
The third major problem is a problem that often occurs in the line production that caused the Cripple CKD resulting figure line stop so not achieving production targets. In addition to these three problems, issues management system Cripple lot with robbing methods are still obstacles in the replacement or the removal of other lots that are still intact to complete the Cripple lot or problematic. To that end, it will be proposed improvements are expected to reduce the number of line stop so that production can be run according to plan and the expected target.

#### **B. Proposed Improvements Cripple Lot Management System (robbing)**

Cripple lot Management (robbing) is the management of a set of lot CKD is problematic due to the wrong lot CKD, shortage, or defective part and the missing-broken-process (HRP) in the production line. This is necessary

because the management to reduce production line stop on the line. But with this system, it can not directly take part of the lot or lots CKD pull the other without any calculation and proper management.

In doing robbing CKD, the replacement will take stock in the warehouse last CKD. This is so easy to take control of the lot. Therefore, we must have a standard operational procedure to regulate lot management Cripple (robbing) so as expected. Following standard operational procedures (sop) Cripple lot management (robbing).

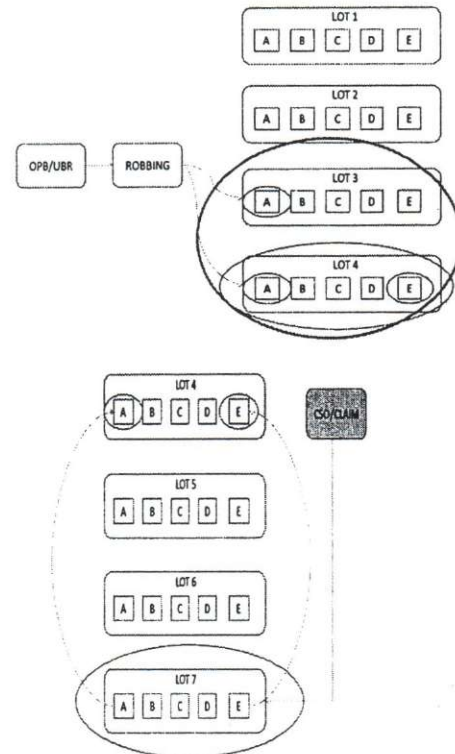


**Figure 4.** Standard Operational Procedure (SOP)

The above picture can be seen that with the establishment of the Standard Operational Procedure (SOP) Cripple lot management will be more orderly and controlled so as to minimize the occurrence of errors in the delivery of CKD to the production lot. So that the production process will not interfere with the ranking of lots that have been determined.

But with the current system, the system of robbing is still experiencing problems. It is caused due to an error in making the lot. Here are the proposed improvements in the system for decision-robbing is not Cripple lot. The proposed improvements are given in the form of flow robbing, displacement lot Cripple CKD and how to complete the lot in order to more effectively without having to destroy or disrupt

lots that are not problematic. For more details can be seen in the image below:



**Figure 5.** Proposed Flow Robbing

From the picture above can be explained as follows:

- when there is a UBR or HRP then the replacement will do the robbing part in case the last lot in the warehouse.
- If there UBR / HRP again on the line production, it will be robbing parts back. If, however, points to the same part with a UBR or HRP before and on the lot is not part again. it must be taken from another lot, the lots that are in it.
- When there is a lot of the new CKD CKD go into the warehouse, the lot numbers of the Cripple CKD will be replaced with the last lot available in the warehouse CKD. This is done because it is not possible to do a lot Cripple compliance using the new CKD entry. This was done so that the process of robbing parts more efficiently and effectively. However, if the lot Cripple long and not done rolling, it will affect the

occurrence of corrosion on CKD lot containing the parts to be produced. Rolling on a lot of CKD is usually done routinely every 3 months, this is done so that lots CKD not damaged.

- Fulfillment Cripple lot done when part claim and part Confirmation Special Order (CSO) entry. And after a complete lot, the lot can already be produced.

### C. Improvements Proposed Order Request Item

Order Request Items (OPB) is a certificate that use SAP applications, to ask for a whole lot of CKD, CKD Cripple lot to complete, where in the letter include the manufacture, part number, quantity, and the plant will be shipped parts proficiency level. OPB is required for the manufacture of basic preparation in advance, in the form of data-Hilang Rusak Proses (HRP), Unboxing Report (UBR), Component Part Order (CPO), and production needs.

The file will be received by the department to be made OPB PPC him. For HRP, UBR, and CPO, PPC department will soon make his OPB using SAP applications, to include the manufacture, part number, quantity, and the plant will be shipped parts proficiency level. Also needs a signature OPB maker, checker and approved by the PPC manager. After all full signature, OPB is scanned and sent to the warehouse CKD via email. Once received by the warehouse CKD, the administration will check OPB warehouse, and if it is checked OK, then it will be handed over to the replacement of CKD that can be done robbing CKD. However, by using SAP OPB, sometimes there are problems that cause CKD Cripple, this is because for not skilled staff in the use of SAP software program, and therefore the company should have staff who are proficient or master SAP program well.

### D. Proposed Improvement Warehouse Layout CKD

Based on the analysis, warehouse layout CKD is an issue that is affecting the occurrence of CKD Cripple causing the stop line numbers. This is because the layout of the warehouse layout or CKD not yet organized, so the placement of CKD is not well-structured, between CKD were intact or not mixed with CKD Cripple problematic, causing the operator to taking difficult to find a case or a lot of material that

will be CKD produced. These images CKD warehouse layout:

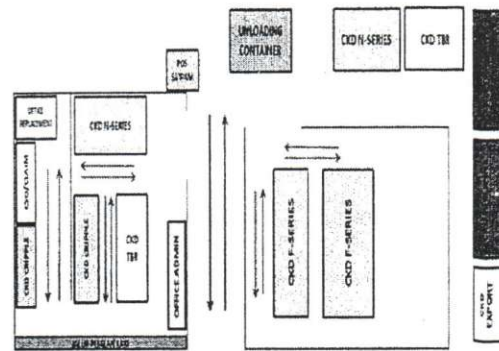


Figure 6. CKD Warehouse Layout

From the picture above it can be seen that the arrangement of warehouse layout CKD at PT. IAMI not neatly arranged, due to the placement of CKD, the parts for production, and the Cripple CKD placed in an adjacent area so difficult for the operator to find the necessary case, disruption of the process of making the material to be produced, are at risk for CKD lot tertukarnya the Cripple with a whole lot CKD and have the parts are complete, and also hinder the process of the replacement of CKD Cripple lot.

These proposed improvements made to the layout of the warehouse CKD at PT. IAMI. For more details can be seen in the image below:

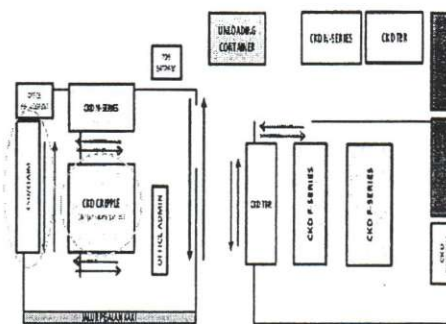


Figure 7. Warehouse Layout CKD After Repairs

From the above layout drawing comparisons to known before placement adjacent to Cripple CKD CKD whole or complete. After the repair, Cripple separated with CKD CKD is still intact, so when the operator took the case, part or material production necessary no trouble and



prevent part are swapped so that the numbers can be reduced and the line stop at the time of taking the material to replace the lot with CKD Cripple robbing system it is convenient, fast, and effective.

#### E. Estimated Number Of Line Stop of the proposed improvements

The estimated decrease in the number of line stop can be calculated from the percentage of the net proceeds from the stop line percentage improvement proposals that have been proposed. Here is the percentage of sub-assembly line stops :

**Table 7. Percentage of Line Stop In Sub-Assembly**

No.	Sub Assembly & Final Assembly	Total Number of Line Stop					Total	Average	Percentage
		Jan	Feb	Mar	Apr	May			
1	Inti Ganda Perdana	8	11	12	15	18	64	13	56,64%
2	Akebono Astra Brake Indonesia	4	3	7	3	5	22	4	19,47%
3	Assembly Plant Pondok Ungu	3	4	2	4	2	15	3	13,27%
4	Gaya Motor	2	4	2	2	2	12	2	10,62
5	Mesin Isuzu Indonesia	0	0	0	0	0	0	0	0
6	Inti Panja Press Indonesia	0	0	0	0	0	0	0	0
Total Of Line Stop		17	22	23	24	27	113	22	100%

It can be seen that the percentage of sub-assembly IGP has the highest number of line stop. Amounting to 56.64% in the period January-May Month 2012.

**Table 8. Decrease Percentage Number Of Line Stop**

No.	Masalah Penyebab Line Stop	Average	Decrease Number Of Line Stop	Decrease Percentage Of Line Stop (%)
1	Problems Caused By OPB SAP	7	2	71.43
2	Problems Caused by CKD Warehouse Layout	7	2	71.43
3	OPB SAP Not Delivered To Replacement	6	0	100

From the above table it can be seen the percentage of the total number of line stop which reduced after the repair. From the results of improvements made, the attrition line stop the problem be caused by OPB SAP amounted to 71.43%, the warehouse layout problem caused by CKD was 71.43%, and OPB SAP Replacement is not up to 100%. Then the next step is looking for value estimates of the number line stop on the IGP.

**Table 9. Decrease Estimated Number Of Line Stop**

No.	Sub Assembly & Final Assembly	Average	Decrease Estimated After Repairs			
			Jun	Jul	Agst	Sep
1	Inti Ganda Perdana	13	10	8	5	3
2	Akebono Astra Brake Indonesia	4	4	4	3	2
3	Assembly Plant Pondok Ungu	3	3	3	2	1
4	Gaya Motor	2	2	2	2	1
5	Mesin Isuzu Indonesia	0	0	0	0	0
6	Inti Panja Press Indonesia	0	0	0	0	0
Total of Line Stop		22	19	17	12	7

**Table 10. Decrease Estimated Percentage Number Of Line Stop**

No.	Sub Assembly & Assembly Plant	Average	Decrease Estimated After Repairs				Decrease Percentage
			Jun	Jul	Agst	Sep	
1	Inti Ganda Perdana	13	10	8	5	3	23,08%
2	Akebono Astra Brake Indonesia	4	4	4	3	2	50,00%
3	Assembly Plant Pondok Ungu	3	3	3	2	1	33,33%
4	Gaya Motor	2	2	2	2	1	50,00%
5	Mesin Isuzu Indonesia	0	0	0	0	0	0
6	Inti Panja Press Indonesia	0	0	0	0	0	0
Total of Line Stop		22	19	17	12	7	-

Be Seen that to estimate the percentage reduction in line stop on each sub-assembly and assembly plant from June to September period of 2012. IGP the original line-average number of stops 13 times to 3 times, with a decrease in the percentage of 23, 08%. With an estimated quit line number, the production process will be run according to a set schedule, yield and production targets can be achieved as expected.

#### 4. CONCLUSION

So, after the repair of the three proposals and evaluation to reduce the number of line stop on the line production at the PT. IAMI using steps 8 & 7 tools can be summarized as follows:

- With the staff who are experts or proficient in use of SAP software, the problems that occur in SAP OPB will not happen again, that is not going to happen constraints in the construction process so that the process of robbing the SAP software part becomes faster. so the sooner the process of robbing the more it will minimize the line stop.
- By doing relayout CKD warehouse, it will be easier to find a case that would do the robbing. So, the whole lot Cripple & lot in a separate area. It also prevents the occurrence lot Cripple sent to the line production. In addition to the relayout was confirmed robbing process will be more

effective and efficient because it does not need to search case would do the robbing. That way, it can also minimize the line stop and definitely will reduce the number of line stop so that production targets can be achieved as expected.

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