

**INDUSTRIAL PRACTICE REPORT**  
**PT KERETA API INDONESIA (PERSERO)**



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The industrial practice report which is written based on the industrial practice at PT Kereta Api Indonesia (Persero) during the period at June 25, 2018 until July 27, 2018 by :

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Author

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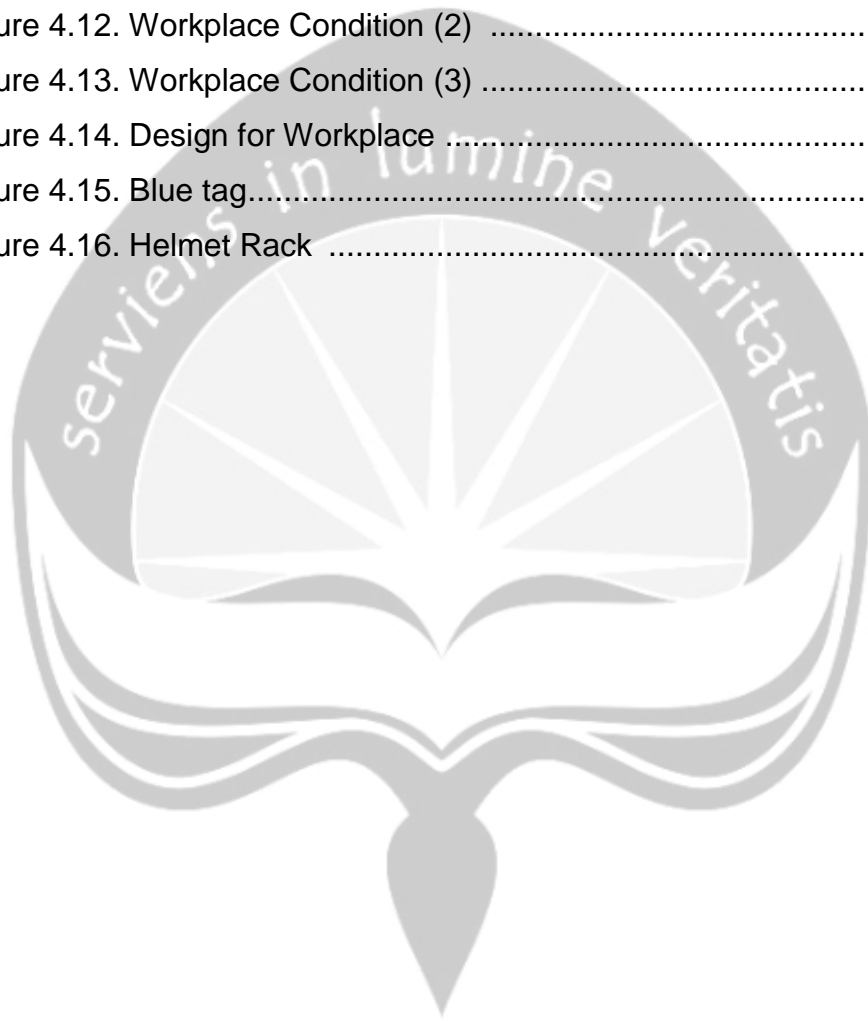
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# CHAPTER I

## INTRODUCTION

This chapter discusses about the background, goals of technical practice, and also brief explanation about the duration and place to do technical practice.

### 1.1. Background

Department of Industrial Engineering (PSTI), Faculty of Industrial Technology, University of Atma Jaya Yogyakarta (PSTI UAJY), commands all students to do technical practice along with the stated curriculum in department. PSTI UAJY sees industrial practice as a media for students to know the environment of work, industry, and also grow, elevate, and innovate the ethic of professional working, as an Industrial Engineering graduate ahead.

Industrial practice can be said as a professional simulation for Industrial Engineering students. The paradigm is that within technical practice working days, students work in their chosen company. Work, in this statement includes planning, designing, improvement, implementation, and solution. Therefore, in technical practice, the activities done by students are:

- a. Recognizing the scoop of company.
- b. following the business process continuously of a company.
- c. Doing the assignments given by supervisor or field coach.
- d. Observing the system.
- e. Compiling written report.
- f. Doing technical practice's examination.

Industrial Engineering is a field of study related with planning, designing, improvement, and installation of an integrated system, consists of Man, Machine, Material, Method, Money, Energy, Environment, and Information. In addition, scope of Industrial Engineer are an integrated system between aspects mentioned above (Man, Machine, Material, Method, Money, Energy, Environment, and Information). This means that in doing the responsibilities, Industrial Engineer has to see the activities based on its integrated system's point of view.

Area of competencies for Industrial Engineer are including:

1. Work System Design and Analysis.
2. Production Planning and Controlling.

3. Inventory Management.
4. Quality Control System.
5. Material System.
6. Logistics and Supply Chain Management.
7. Product Design and Improvement.
8. Occupational Safety and Health.
9. Manufacturing Facility Planning.
10. Organizational Management.
11. Cost Analysis.
12. Industrial Feasibility Analysis.
13. CAD/CAM and Process Design, and others.

### **1.2. Purpose**

Things to be achieved through the implementation of industrial practice are:

- a. Practice self-discipline
- b. Practice the ability to interact with employees
- c. Practice the ability to adapt with working environment
- d. Observe directly the activity of company in running the production and business
- e. Complete the theories in college with the real condition in factory
- f. Enhance the knowledge about production and business system

### **1.3. Date and Place**

This industrial practice started from June 25 2018, up to July 27 2018, in Dipo Lokomotif Purwokerto, PT Kereta Api Indonesia (Persero) on Stasiun street No 1. Kober, Purwokerto Timur, Banyumas. The performance of this technical practice will be continued with preparation of report, assessment, and also examination of technical practice. In this technical practice activity, student was placed in maintenance department.

## CHAPTER II

### OVERVIEW OF COMPANY

#### 2.1. Company's History and Company's Profile

Train is one of the land transportation facilities favored by the public, because the train can carry many passengers and besides, it is easy, cheap, fast and comfortable. Train has been the most priority choice for public because of those aspects.

Train was first built by the Governor-General of the Dutch East Indies, Mr. L.A.J Baron Sloet van de Beele on June 17, 1864 with the start of the first embankment of the Semarang - Solo - Yogyakarta railway line. On April 8, 1875, the Dutch East Indies Government built the first route, Surabaya - Pasuruan - Malang. After that another line was built on the island of Java. In addition to Java, the construction of railway lines was carried out in Aceh (1876), North Sumatra (1889), West Sumatra (1891), South Sumatra (1914), and Sulawesi (1922). Until the end of 1928, the length of railroad and tramway in Indonesia reached 7,464 kilometers.

In 1942 the Indonesian railway was taken over by Japan and changed its name to *Rikuyu Sokyuku (Dinas Kereta Api)*. After Indonesia proclaimed independence on August 17, 1945, and few days later it was taken over the train station and headquarters which were controlled by Japan. The highlight was the takeover of the Bandung Railway Headquarters on September 28, 1945. This also marked the establishment of *Djawatan Kereta Api Republik Indonesia (DKARI)*.

On May 25, DKA changed to *Perusahaan Negara Kereta Api (PNKA)*. Furthermore, the government changed the structure of PNKA into *Perusahaan Jawatan Kereta Api (PJKA)* in 1971. In order to improve transportation services, PJKA changed its form to *Perusahaan Umum Kereta Api (Perumka)* in 1991. Perumka changed to Limited Liability Company, PT. Kereta Api (Persero) in 1998. In 2011 the name of the company PT. Kereta Api (Persero) changed to PT. Kereta Api Indonesia (Persero).

PT Kereta Api Indonesia (Persero) continues to innovate so as to meet community's satisfaction such as passengers who can enter the station must be in accordance with the identity listed, trains that are currently clean, using Air Conditioner, many types of trains available, etc. So that PT Kereta Api Indonesia (Persero) received many awards such as:

- a. The Most Promising Company in Strategic Marketing (BUMN Marketeers Award)
- b. The Most Promising Company in Marketing 3.0 (BUMN Marketeers Award)
- c. The Most Promising Company in Branding Campaign (BUMN Marketeers Award)
- d. Third place in *Keterbukaan Informasi Publik* Year 2017
- e. Business Practitioner from International Council for Small Business
- f. First place of *Unit Kearsipan Terbaik Nasional* year 2017
- g. Get 16 achievement on Indonesia Contact Center Associations Award 2017
- h. The first rank of Indonesia Most Creative Company 2017
- i. Excellent Service Performance on Contact Center Service Excellence Award 2016
- j. And many more

PT Kereta Api Indonesia (Persero) serves passenger and goods transportation. For passengers, type of transportations itself are divided into several classes such as economy, business, executive, premium, tourist trains and sleeper trains. For freight trains themselves are divided into fuel transportation, logistics (sacks), and coal.

PT Kereta Api Indonesia (Persero) has services on the islands of Java and Sumatra. For the location of the Head Office located on Jl. Perintis Kemerdekaan No.1 Bandung 40117. PT Kereta Api Indonesia (Persero) has 9 Operational Areas on the island of Java and 4 Regional Divisions on the island of Sumatra. Following are division of the Operational Area and Regional Division:

- a. Operational Area I : Jakarta
- b. Operational Area II : Bandung
- c. Operational Area III : Cirebon
- d. Operational Area IV : Semarang
- e. Operational Area V : Purwokerto
- f. Operational Area VI : Yogyakarta
- g. Operational Area VII : Madiun
- h. Operational Area VIII : Surabaya
- i. Operational Area IX : Jember
- j. Regional Division I : North Sumatera and Aceh
- k. Regional Division II : West Sumatera

- l. Regional Division III : Palembang
- m. Regional Division IV : Tanjungkarang

PT Kereta Api Indonesia (Persero) has six (6) subsidiaries those are :

- a. PT Reska Multi Usaha
- b. PT Kereta Commuter Indonesia
- c. PT KA Pariwisata
- d. PT Railink
- e. PT KA Logistik
- f. PT KA Property Management

Purwokerto locomotive depot is one of the railway supporting facilities in the locomotive section. Dipo is a part of the company PT Kereta Api Indonesia (Persero) which is spread throughout the train operation area. For the Operational Area 5 Purwokerto has 1 Depot namely Purwokerto and 3 Sub Depot in Kroya, Cilacap, and Kutoarjo.

## **2.2. Organizational Structure and Job Description**

### **2.2.1 Organizational Structure of Company**

Purwokerto locomotive depot is located in Operational Area V (five). Purwokerto locomotive depot is responsible for periodic maintenance of locomotives owned by Purwokerto Locomotive Depot, locomotive checking that has been completed, and repairs for damaged locomotives. This is the organization structure in purwokerto locomotive depot :

**STRUKTUR ORGANISASI**  
**DEPO LOKOMOTIF PURWOKERTO**

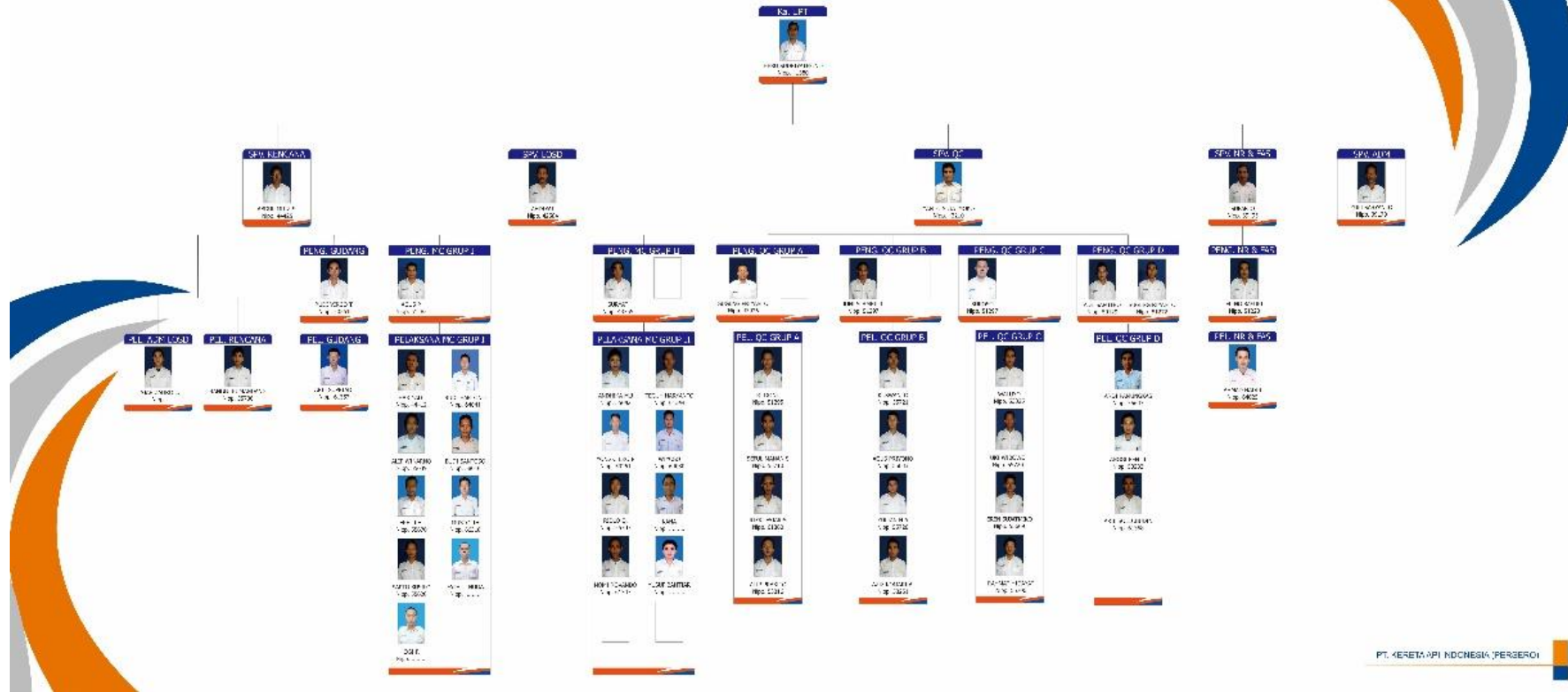


Figure 2.1. Organizational Structure

## **2.2.2. Job Descriptions and Authorities**

### **a. Head of Locomotive Depot**

Job :

Implement utilization and quality control / daily inspection of locomotives, preparation of locomotives, maintenance and repair of locomotives, maintenance and repair of NR, mechanical, electrical facilities, work tools and building of the depot as well as the implementation of administration of locomotive depot.

Authorities:

- i. Make official correspondence and telegrams
- ii. Archive correspondence
- iii. Make an emolument submission
- iv. Submission of G43 and TS payments
- v. Make RAPI employees

### **b. Forecast Department**

Job :

- i. Make a Depot Daily Situation Report
- ii. Make a Go and No Go Item condition report
- iii. Make a Wheel Size Report
- iv. Fuel & Lubricant Usage Monitor on Cross
- v. Make a LOK PA / SPA Plan
- vi. Make the Lok MC program
- vii. Create a Wheel Lathe Lok program
- viii. Make the KM program take place
- ix. Make a procurement program
- x. Make report on the realization of locomotive KM travel
- xi. Make report on MC localization realization
- xii. Make a report on PA / SPA localization realization
- xiii. Make a report on the realization of wheel lathe
- xiv. Make reports T.32, T.32 B, T.33, T.35, T.58, T.59, C 8, B.19, B.20, B.21, B.22
- xv. Make an item mutation analysis report
- xvi. Make a lubricant oil mutation analysis report
- xvii. Make reports of locomotive disruptions themselves
- xviii. Make reports of disturbances in guest locomotives
- xix. Make reports on the realization of locomotive laundry
- xx. Completion of G.61 Jobs (Journal)

- xxi. Completion of G.61 (UMDT)
- xxii. Completion of G.61 (cleanliness)

Authorities :

- i. Issue Work Orders (Wo)
- ii. Supervise Warehousing
- iii. Determine Locomotive PA / SPA
- iv. Develop Locomotive & NR maintenance plans and programs as well as managing inventory of spare parts and lubricants as well as technical data

#### **c. Maintenance Department**

Job in this department are carrying out maintenance, repairing locomotives (P1, P3, P6 & P12 / PB) and test the quality of maintenance and repairs.

Authorities :

Carry out supervision of maintenance / inspection and repair of locomotives.

#### **d. Quality Control Department**

Job:

- i. Utilize and controlling quality / daily inspection of locomotives
- ii. Make a Locomotive Position.

Authorities:

- i. Set up Locomotives and troubleshooters
- ii. Determine the SO Locomotive (Ready for Operation)
- iii. Conduct Supervision of Daily Locomotive Checks

#### **e. Administration Department**

Job:

- i. Carry out personnel administration activities, training planning, finance and general purwokerto locomotive depots
- ii. Make official correspondence and telegram
- iii. Archive correspondence
- iv. Make RAPI employees

Authorities:

- i. Submission of emolument payments
- ii. Submission of G43 and TS payments



#### **f. NR & Facility Department**

Job:

- i. Carry out maintenance, repair, preparation and use of buildings, NR along with its equipment facilities and maintenance / repair of mechanical, electrical and work tools.
- ii. Create a maintenance and maintenance program for work tools
- iii. Make an environmental monitoring program

Authorities:

- i. Carry out supervision of the use and maintenance of NR and its equipment facilities
- ii. Carry out supervision of the use and completeness of work tools
- iii. Carry out environmental monitor supervision

### **2.3. Company's Management**

#### **2.3.1. Vision and Mission of PT Kereta Api Indonesia (Persero)**

Company's vision is to become the best rail service provider that focuses on services and meets the expectations of stakeholders.

Company's mission is to organize railroad business and support business businesses, through the best business practices and organizational models to provide high added value for stakeholders and environmental sustainability based on 4 main pillars: safety, timeliness, service, and comfort.

#### **2.3.2. Quality Objectives and Quality Policy Purwokerto Locomotive Depot**

Quality Objectives of Purwokerto Locomotive Depot are:

- a. The number of locomotives ready for operation is reached 90%
- b. Disturbance of locomotive strike no more than 30 times / 1 million / km
- c. Utilities Facility, target > 90%
- d. Dipo production against the plan, target > 100%
- e. Fulfillment of spare parts, target > 99%
- f. Calibration of Measuring Instruments, Target > 25%

Another principle in this locomotive specifically in quality in Purwokerto Locomotive Depot has a main quality policy, it is to be committed in providing reliable and ready operation locomotives and repairs by adhering to the five main values: Integrity, Professional, Safety, Innovation, and Service with continuous improvement.

### **2.3.3. Information System and Documentaion**

An information system is on of the most important thing for every company that is useful in conveying information from one department to another. Documentation of important things from the department is also needed to support the company's operations. Documented matters such as maintenance data regarding locomotives, data on ordering parts and other equipment, locomotive maintenance schedules, etc.

The information system at PT Kereta Api Indonesia (Persero) itself uses SAP software that is connected to all departments throughout Indonesia. SAP itself is used to transfer information needed, such as ordering spare parts from locomotive depots to balai yasa, locomotive maintenance schedules to headquarters, etc.

### **2.3.4. Employment**

The number of employees in Purwokerto locomotive depot is 55 workers and is divided into two groups, those are:

- a. Permanent Employees: All employees in the Railway
- b. Non-permanent Employees: Cleaning Service and Security

For recruitment and placement of employees in Purwokerto Locomotive Depot, it is regulated by the Head Office of PT Kereta Api Indonesia (Persero). Recruitment itself has several stages, those are :

- a. Administration Stage
- b. Psycho-test Stage
- c. Interview Stage
- d. Education

For placement even employees can be assigned to other facilities such as locomotives and trains (carriages) wherever and according to the assigned position.

The welfare of employees in the Railway area is very much considered. Employees will earn income every month including:

- a. Basic salary
- b. Holiday allowance
- c. Medical Benefits
- d. Death Allowance
- e. The labor insurance

- f. Pension
- g. Rice Allowances
- h. Wife / husband allowances
- i. Child Benefits
- j. Positional allowance

#### **2.3.5. Working Hours or Shift**

Locomotive depot is never a holiday because it continues to serve train transportation readiness. Therefore the workers carried out a shift system and division of work time and holidays. The shift itself is divided as follows:

- a. Morning: 07.00 - 15.00
- b. Day: 15.00 - 23.00
- c. Night: 23.00 - 07.00

For Quality Control department is divided into 3 shifts. But for other departments enter the morning shift. For the maintenance department has 3 teams and the working time is divided so that every day there is a team that enters and carries out maintenance. Supervisors also divide the time off so that every day there is a supervisor on guard.

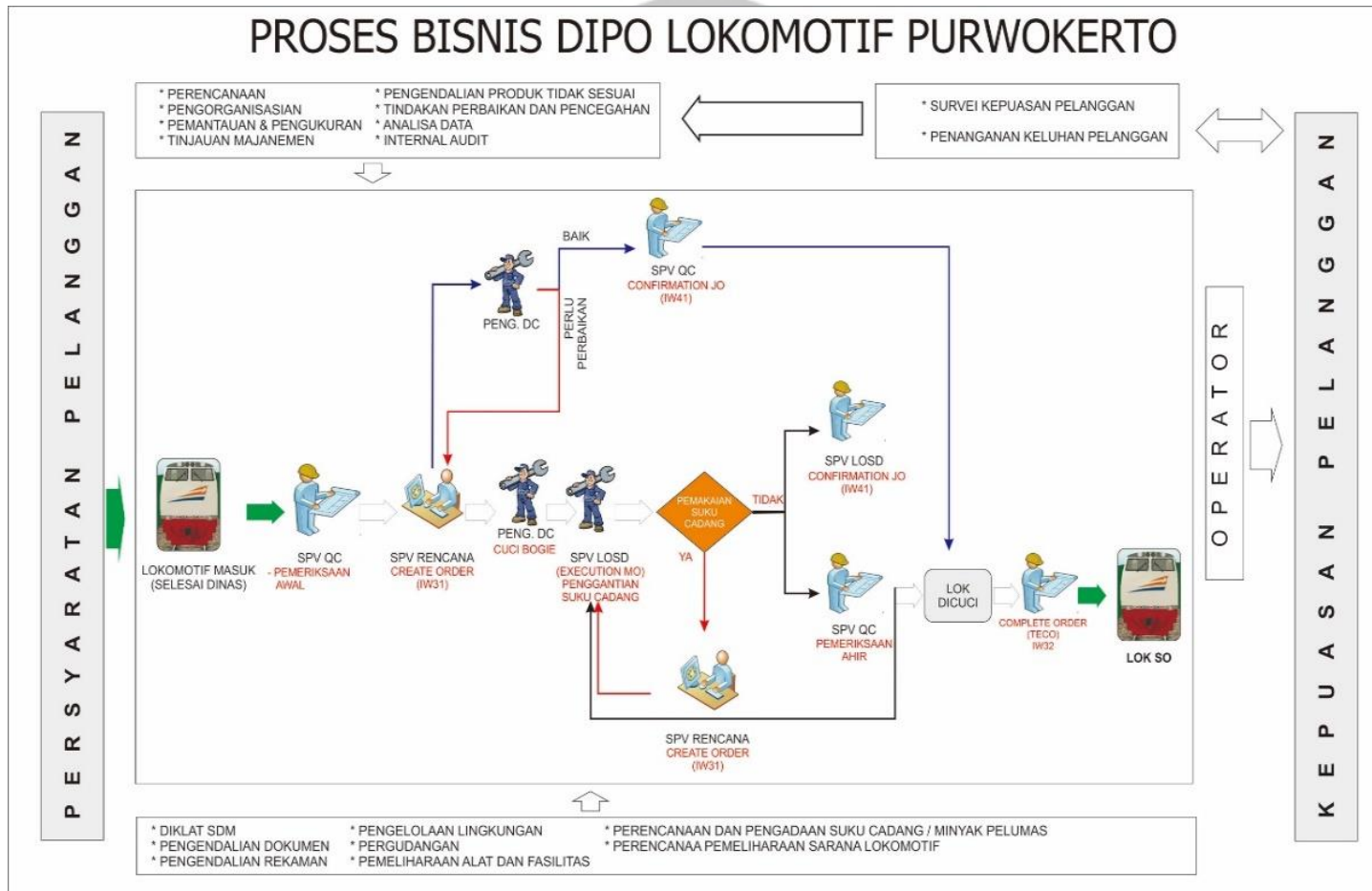
## CHAPTER III

### REVIEW OF ENTERPRISE SYSTEM

#### 3.1. Company's Business Process

Business processes from locomotive depots can be seen as shown in the Figure 3.1. Based on the Figure above, the steps of running the business in Purwokerto Locomotive Depot are:

1. The locomotive enters Purwokerto locomotive depot after service
2. Quality Control conducts Daily Check to the Locomotive
3. Quality Control reports to Planning to determine whether to repair what is not and whether the maintenance schedule or not. If locomotive need to repair and get schedule maintenance, go to step 4, if not go to step 8.
4. Quality Control department will do bogie washing
5. Maintenance Department will make repairs or maintenance of the locomotive
6. When using Spare Parts, it is reported to the Forecast Department.
7. If it is not, the Quality Control department will conduct locomotive checks such as Daily Check
8. Locomotive is washed
9. Locomotive Ready for Operation



**Figure 3.1. Business Process**

### 3.2. Services Provided

Locomotive Depot provides services that is to maintain locomotives on a regular basis, those are 1 month, 3 months, 6 months, and 12 months. In addition, it also carried out repairs for locomotives that experienced interference.

Here are list of locomotives that carry out the stature in Purwokerto Locomotive Depot :

- |                  |                  |
|------------------|------------------|
| 1. CC 201 83 13  | 17. CC 203 95 08 |
| 2. CC 201 83 14  | 18. CC 203 95 09 |
| 3. CC 201 83 15  | 19. CC 203 95 12 |
| 4. CC 201 83 16  | 20. CC 203 98 01 |
| 5. CC 201 83 17  | 21. CC 206 13 22 |
| 6. CC 201 83 18  | 22. CC 206 13 23 |
| 7. CC 201 83 19  | 23. CC 206 13 28 |
| 8. CC 201 83 20  | 24. CC 206 13 43 |
| 9. CC 201 83 21  | 25. CC 206 13 44 |
| 10. CC 201 83 22 | 26. CC 206 13 57 |
| 11. CC 201 83 23 | 27. CC 206 13 58 |
| 12. CC 201 83 24 | 28. CC 206 13 62 |
| 13. CC 201 83 25 | 29. CC 206 13 63 |
| 14. CC 201 83 26 | 30. CC 206 15 06 |
| 15. CC 201 83 27 | 31. CC 206 15 07 |
| 16. CC 203 95 07 | 32. CC 206 15 08 |

### 3.3. Operation Process

In the maintenance process the locomotive is divided into 4 teams namely Air, Diesel, Electric, and Mechanical. And this is the Figure about work area for every teams.



Figure 3.2. Work area for the team

### **3.3.1. Air**

The Air Team is responsible for caring for and repairing those who deal with the air. But the locomotive is often located at the rear of the locomotive. Examples of work: checking the compressor, fan, air system on the brakes, etc.

### **3.3.2. Diesel**

The Diesel Team is responsible for maintaining and repairing those dealing with diesel. Diesel location is in the middle of a locomotive. Examples of work: changing oil on the engine, checking diesel engines, etc.

### **3.3.3. Electric**

The Electric Team is responsible for maintaining and repairing those dealing with electricity. The electric position itself is in the cabin and behind the cabin. Examples of work: Check the battery water, check the cable connector, check the current, etc.

### **3.3.4. Mechanic**

For mechanics it is located in the lower frame. It deals with everything that deals with mechanics such as bogies, brakes, drives, etc. Examples of work: measuring thickness, wheel diameter, checking the brakes, etc.

The treatment itself is divided into 4, namely 1 month, 3 months, 6 months and 12 months. For each type of treatment has a predetermined thing. For example, in first month, it does not change engine oil, but on the third month the engine oil changes.

For CC 206 there is no 1-month treatment, there are treatments 3 months, 6 months, and 12 months. CC 201, CC 203 and CC 206 have various differences.

The following are the differences in each type of locomotive in general:

- a. CC 201
  - i. Generates DC current and drives it from DC current
  - ii. All components are still manual
  - iii. One Cabin



**Figure 3.3. CC 201**

b. CC 203

For the same engine as CC 201, which is different only in the form of the cabin.



**Figure 3.4. CC 203**

c. CC 206

- i. Produces AC current then converts it to DC current
- ii. All components are connected to the system so that checking using a computer
- iii. Two cabins

For CC 206 the maintenance and repair process is still handled by the General Electric company because PT KAI is still cooperating with PT GE.





Figure 3.5. CC 206

### 3.4. Operation Facility

The following is the layout of the Purwokerto Locomotive Depot and its supporting:

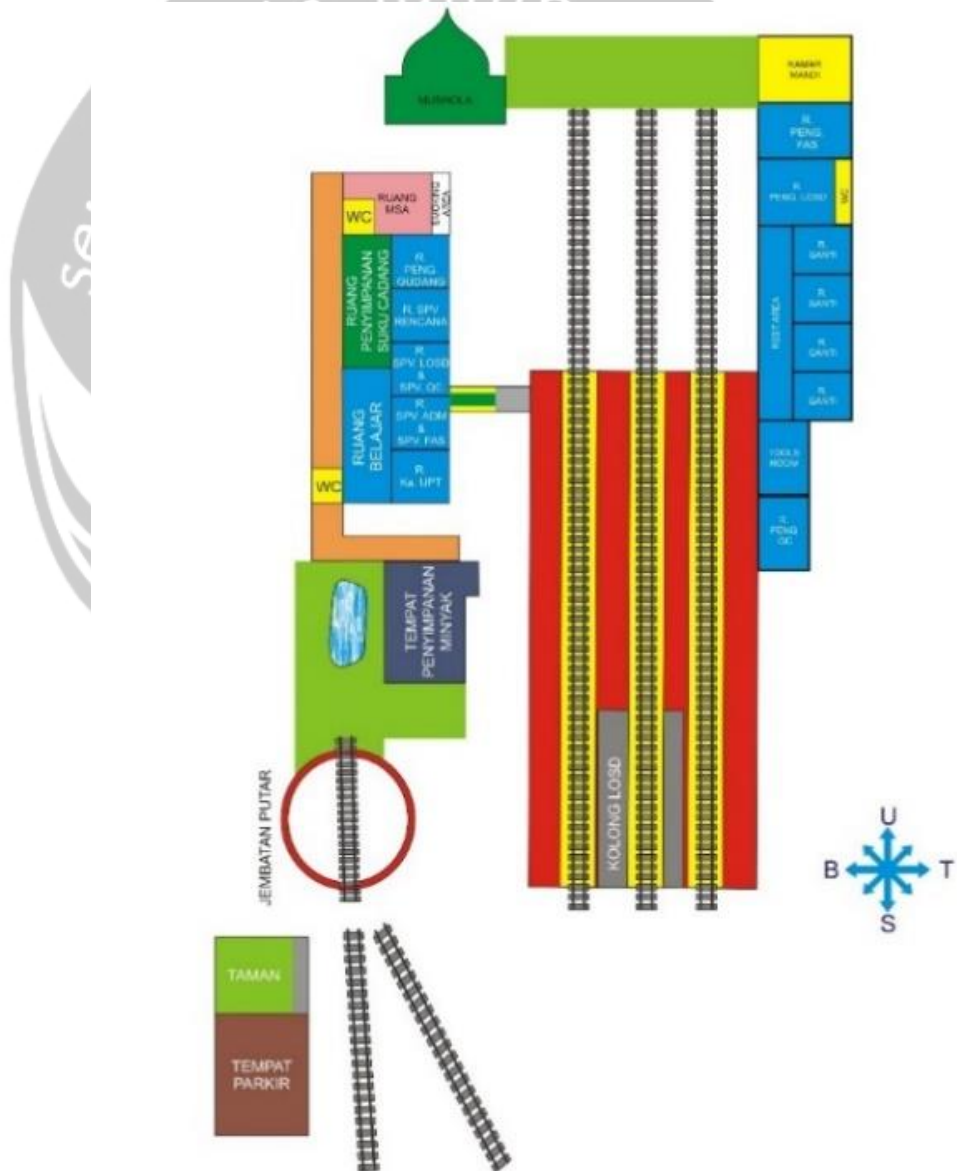


Figure 3.6. Layout of Purwokerto Locomotive Depot

### 3.4.1. Facility

#### a. Mushola



Figure 3.7. Mushola

#### b. Rest Room



Figure 3.8. Rest Room

#### c. Recreation Room



Figure 3.9. Recreation Room

d. Smoking Area



Figure 3.10. Smoking Area

e. Park



Figure 3.11. Park

f. Toilet

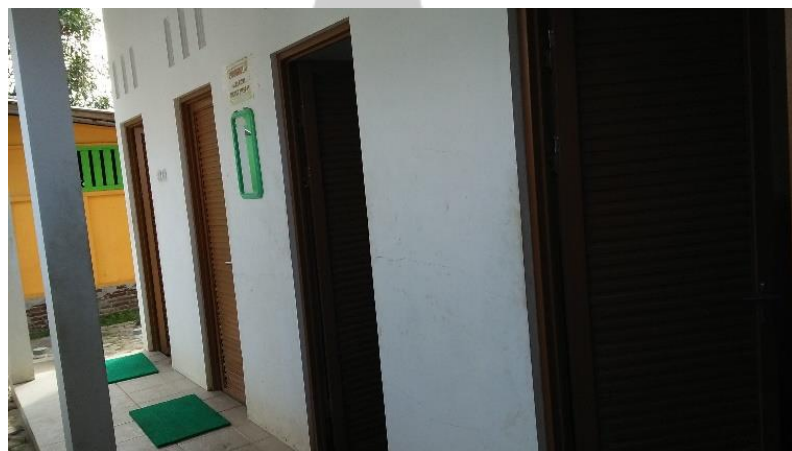


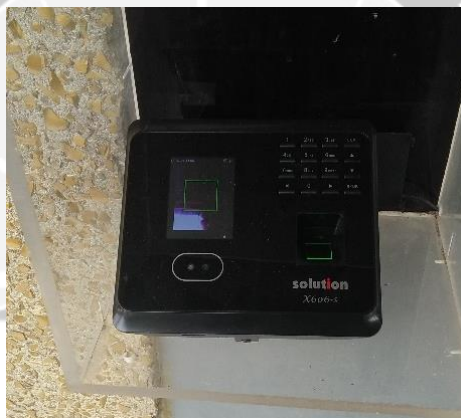
Figure 3.12. Toilet

g. Laundry Room



**Figure 3.13. Laundry Room**

h. Attendance Machine



**Figure 3.14. Attendance Machine**

i. Parking Area



**Figure 3.15. Parking Area**

j. Meeting Room



**Figure 3.16. Meeting Room**

k. Warehouse room



**Figure 3.17. Warehouse Room**

l. Security Pos



**Figure 3.18. Security Pos**

### 3.4.2. Equipment



Figure 3.19. Equipment (1)



Figure 3.20. Equipment (2)

#### a. Crane Stahl SWL



Figure 3.21. Crane Stahl SWL

b. Electric Jack Marubeni



Figure 3.22. Electric Jack Marubeni

c. Forklift



Figure 3.23. Forklift

d. Rolling Stock



Figure 3.24. Rolling Stock

e. Wastewater Treatment Plant



**Figure 3.25. Wastewater Treatment Plant**

- f. Water Separator
- g. Dongkrak Lucas
- h. Genset
- i. Pump
- j. Compressor
- k. Grind Machine
- l. Welding Machine
- m. Drilling Machine
- n. Air Dryer SMC
- o. Test Nozzle
- p. Wick Assy Wash Machine
- q. Wick Assy Dryer Machine
- r. Nilfisk Alto Neptune
- s. Lombs
- t. Vacum Cleaner
- u. Jet Cleaner Krisbow
- v. Gerbong NR
- w. Inspection Tool WT
- x. Water Treatment



## CHAPTER IV

### AREA OF STUDENT

#### 4.1. Area of Student

Student carried out practical work at PT Kereta Api Indonesia (Persero) Purwokerto locomotive depot from Monday to Friday 07.00 - 15.00. Student was assigned to the maintenance and checking of locomotives. In this section students are given the task to participate in the work of the maintenance department, which was to carry out regular maintenance of locomotives and repair locomotives if they experience interference. Although assigned to locomotive maintenance, students are allowed to observe other departments. Students are allowed to know the work, business processes, the process of operation from the start of the locomotive to be ready for operation, etc. So that students are also allowed to implement in other departments, even though they focus on maintenance department.

#### 4.2. Responsibilities and Authorities in Work

During the implementation of practical work, students have opportunities to observe, collect data, and interview, but still maintain company secrets. Students are assigned to follow the work of the maintenance department because the locomotive depot itself has the main task of preparing a locomotive that is ready for operation as stated in the purwokerto locomotive depot quality target. The maintenance department carries out maintenance on locomotives on a regular basis, namely 1 month, 3 months, 6 months, and 12 months. In addition, it also implements repairs to locomotives in the event of a disturbance. For the Operating Process, the maintenance itself has been explained in chapter 3 of the operation process.

Students are given the authority to attend locomotive maintenance in accordance with the predetermined maintenance schedule. Students are given the opportunity to ask questions, collect data, etc. But still pay attention to occupational health and safety that has been determined.

#### 4.3. Methodology of Work Implementation

The method used in the execution of the work itself is divided into two main parts, namely regarding the tasks given by the company and regarding the proposed

improvements in the company. The following are the methods carried out in carrying out the tasks assigned by the company:

a. Assignment of duties by the company

Supervisors give direction to students about the assignments given at the company. In this case the company assigns them to attend the maintenance department. After that, the supervisor explained about the tasks in the department.

b. Observation of the task

Students make observations by looking at how other workers do their work and doing a few job-related interviews so there are no mistakes

c. Implementation

Students do the tasks given but remain under the guidance of other workers and supervisors.

The following are the methods used to provide suggestions for improvement in the company :

a. Observation

Students paid attention to all activities such as preparation, implementation, checking during maintenance and what equipment is needed. From this stage students can find out what problems occur in the department to make improvements.

b. Discussion and Interview

After finding the problem to be corrected, students discuss with the supervisor and workers to achieve the best improvement.

c. Data Retrieval

Data retrieval is done to make improvements and data from outside literature in order to get a lot of references to support the improvement of these problems.

#### **4.4. Result of Work**

##### **4.4.1. The Main Task**

###### **a. Daily Check and Monthly Check of Locomotive**

The main task of Purwokerto Locomotive Depot is to periodically check and maintain locomotives. Checking is done by the Quality Control Department as Daily Check. And Locomotive Maintenance is carried out by the maintenance department as Monthly Check.

Daily Check is a job to check the locomotive after it has finished its duty or will be on duty. Daily Check is carried out by 4 workers and 1 supervisor. 4 workers are divided into 4 parts of locomotives that have a checklist that has been determined. Locomotives with no problems will then be washed and ready to operate. If there is simple damage, it will be repaired immediately. If the damage is too large, it will be transferred to the maintenance department.

Monthly Check is routine locomotive maintenance work. Treatment is divided into 1 month, 3 months, 6 months, and 12 months. Every day the locomotives which are treated only 1 locomotive. For Monthly Check, 4 teams are carried out, namely Air, Diesel, Electric, and Mechanical. Locomotives that will do certain maintenance through Daily Check and after checking, the Daily Check returns. For the CC 206, the maintenance will be held by General Electric because PT Kereta Api is still establishing Memorandum of Understanding (MOU) with General Electric. For Monthly Check itself, follow the procedure from the head office.

The following is the schedule of checking and maintenance activities during industrial practice and the list of locomotives treated are:

- i. Week 1 (26 – 29 June) : Air
  - 26 June : P1 CC 201 83 23
  - 27 June : P1 CC 201 83 13
  - 28 June : P3 CC 201 83 24
  - 29 June : P3 CC 201 83 13
- ii. Week 2 (2 – 6 July) : Diesel
  - 2 July : P3 CC 201 83 22
  - 3 July : P1 CC 203 95 08
  - 4 July : P3 CC 206 13 23
  - 5 July : P1 CC 203 95 09
  - 6 July : P3 CC 201 83 27
- iii. Week 3 (9 – 13 July) : Electric
  - 9 July : P1 CC 203 95 07
  - 10 July : P3 CC 201 83 26
  - 11 July : P1 CC 201 83 15
  - 12 July : P6 CC 201 83 14
  - 13 July : P3 CC 206 15 06
- iv. Week 4 (16 – 20 July) : Mechanic
  - 16 July : P1 CC 201 83 25

17 July : P3 CC 206 15 07  
 18 July : P1 CC 201 83 17  
 19 July : P3 CC 206 13 57  
 20 July : P1 CC 201 83 18

v. Week 5 (23 – 27 July) : Daily Check

**b. Checking and maintenance of equipment**

One of the supports in doing work is equipment. Equipment is mandatory and must be in good condition. Therefore the equipment is recycled and re-treated. The following is a data table to record available equipment as shown.

Figure 4.1. Check Sheet



Figure 4.2. Tools (1)



**Figure 4.3. Tools (2)**

The fire extinguisher is one of the mandatory equipment that must be available and ready to use when it comes to machinery, fuel, etc. Therefore, maintenance for fire extinguisher is very important, there are 6 step that are carried out in performing maintenance by Purwokerto locomotive depot, those are:

- Check the expiration date
- Check the needle position for pressure guidance
- Check safety seals
- Check the hose and funnel
- Check the condition of the entire tube
- Turn the tube back 5 times so it doesn't freeze

Each fire extinguisher is available checklist for easy checkup as shown in the Figure

PT. KERETA API INDONESIA (Persero)  
UNIT KESEHATAN AREA 5 PURWOKERTO

**KARTU KONTROL PEMERIKSAAN APAR**

Stasiun/Unit Kerja: Depot Purwokerto  
No. Id APAR: 7.6.1.12 Pemilik: KD/2011/11-11

TANGGAL PENGISIAN: 04-08-2017 BANGGAL KADALUARASA: 04-08-2017

No.	Tanggal Pengisian	Tabel Pemeriksaan					Keterangan	Paraf
		1	2	3	4	5		
1	22-12-16	✓	✓	✓	✓	✓		
2	01-11-16	✓	✓	✓	✓	✓		
3	27-10-17	✓	✓	✓	✓	✓		
4	11-11-16	✓	✓	✓	✓	✓		
5	23-12-16	✓	✓	✓	✓	✓		
6	23-01-17	✓	✓	✓	✓	✓		
7	28-02-18	✓	✓	✓	✓	✓		
8	03-03-18	✓	✓	✓	✓	✓		
9	28-04-18	✓	✓	✓	✓	✓		
10	22-05-18	✓	✓	✓	✓	✓		
11	20-06-18	✓	✓	✓	✓	✓		
12								
13								
14								
15								

BAIK / YA = ✓      RUSAK / BOCOR = X

**Petunjuk Pemeriksaan APAR Bulanan**

- Periksa tanggal kedaluwarsa, apakah masih berlaku?
- Periksa posisi jarum penunjuk tekanan, apakah berada pada zona hijau?
- Periksa seal pengaman, apakah masih utuh?
- Periksa selang dan nozzle, apakah kondisinya baik?
- Periksa seluruh kondisi tabung, apakah kondisinya baik dan tidak ada kebocoran korosi lainnya?
- Periksa semua perlengkapan APAR, apakah lengkap?
- Periksa tekanan yang tertera, apakah kimia (dry chemical powder), baik baik isi tabung sebanyak 3.5 L/l agar posisi tabung tidak terbalik, memeriksa.
- Kembalikan APAR keposisi semula.

**Figure 4.4. Control Card**

#### 4.4.2. Improvement

##### a. Improve work posture

Work posture is important in the work process. If there is a mistake or a good work posture mismatch, the worker can experience fatigue until he reaches sickness. Therefore the researchers want to analyze body posture when working using Rapid Entire Body Assessment (REBA) Analysis. The analysis focused on when workers started carrying work equipment from the equipment room to the workplace as shown.

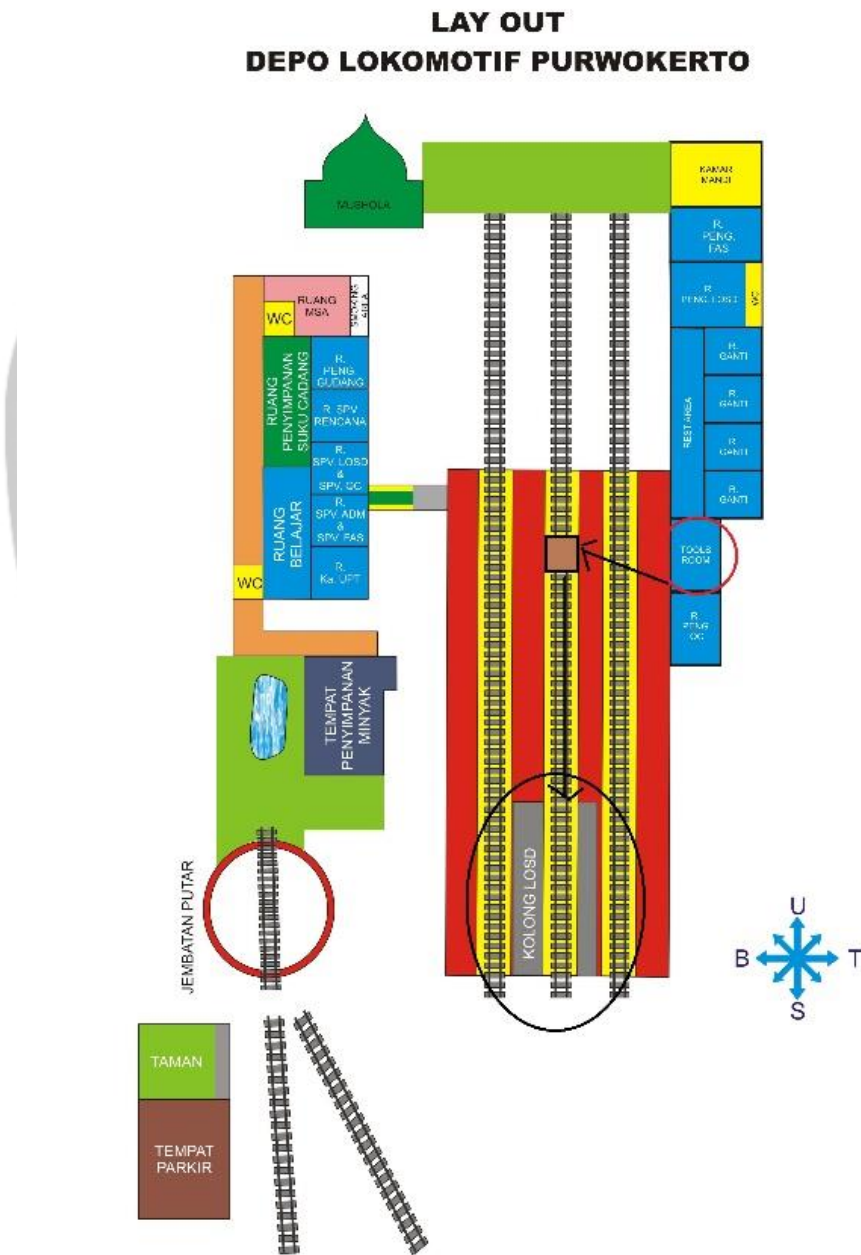


Figure 4.5. Layout of Purwokerto Locomotive Depot

To bring equipment is using the lorries that are placed in the rail. The distance between rail and lorries is about 10 meters. Then pushed toward the workplace. After approaching the equipment, it was brought back at a distance of about 5 meters and climbed the stairs as high as 1.5 meters.



**Figure 4.6. Crane placement in front of Tools Room**



**Figure 4.7. Lorry**



**Figure 4.8. The Condition between Lorry and Workplace**

For the tools themselves have varying weight but the heaviest weight of the box is around 5 kg. Tools carried is as shown.



**Figure 4.9. Tools for Work**



For the work posture to be analyzed is the position of the worker when picking up the equipment at the end of the lorries and the heaviest. Based on the calculation of REBA analysis, the results are 9. The results mean high risk, investigate and implement change.



**Figure 4.10. Worker take the tool**

Because of the need to make improvements to work posture, the student proposed to make the lorry that can be pushed on the floor and can be carried using a crane because the position of the crane when it is not operating is in front of the workshop room and operated when starting work towards the workplace. The Lorry is expected to be pushed out of the workshop room and transported using cranes. After the lorry goes to the work area, the equipment is lowered from the lorry and the empty lorry can be used to transport other equipment and after that is placed in an empty area that has been prepared. Based on the proposal, a REBA re-analysis is performed and the results are 2, low risk and change may be needed. Based on these results the proposal is good to do. Here are the differences between before being repaired and after being repaired:

**Table 4.1. Job Analysis before Implementation**

No	Job	Explanation
1	Workers carry equipment from the tool room to the lorry	Workers carry the load
2	Workers encourage lorry to work area	Workers push the load
3	The crane was moved from the front of the tool room to the work area	Crane do not carry loads
4	Workers move equipment from lorry to work area	Workers carry load and up stairs

**Table 4.2. Job Analysis after Implementation**

No	Job	Explanation
1	Trucks contain equipment driven towards the front of the workshop room	Workers push the load
2	Crane is used to lift the lorry from the front of the tool room to the work area	Cranes carry loads
3	Workers drop equipment from lorry to work area	Workers carry the load

**b. Designing Workplaces To Be More Organized**

Arranging work areas is very important because it can make it easier for us to do work and keep us from work accidents. The work area of the care department has a limited area. The self-care work area has a length of about 15 meters and the width on both sides of locomotives is 1.5 meters each. Conditions before repairing the work area are as shown.



**Figure 4.11. Workplace Condition (1)**

Students want to divide the area into three (3) areas, namely the work area, the area for placing equipment and goods, and the pedestrian area. For the work area itself is above the iron part of the available area which is about 30 cm plus the existing side of the road is localized about 30 cm. For the

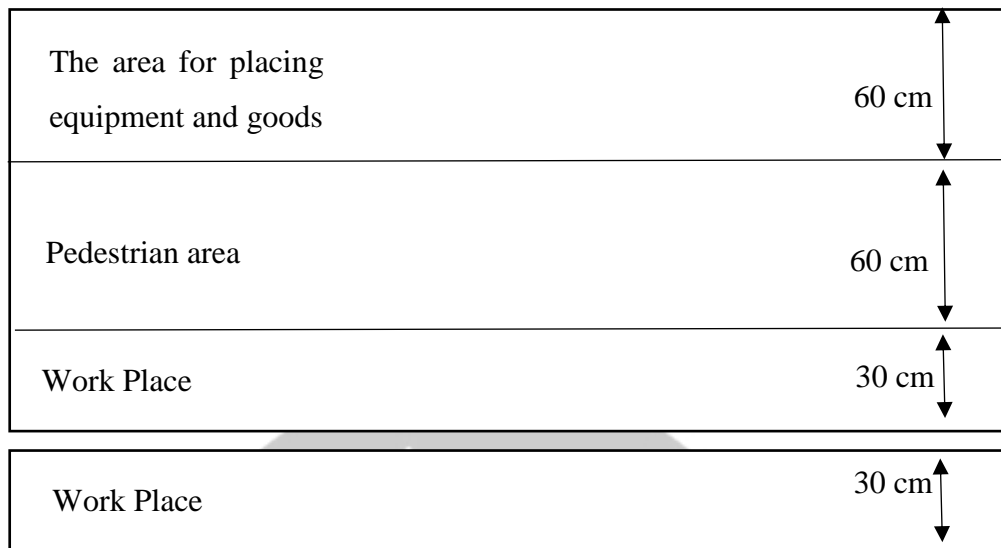
middle side the work area is for pedestrians. The width size for pedestrians is adjusted with anthropometric data, namely the width of the side of the shoulder with the 95th percentile which is 54.51 cm and is given a leeway of 60 cm. The outer side is for the area of placing equipment and goods, for the size is the remaining calculation of the reduction of work area and pedestrian area that is equal to 60 cm.



**Figure 4.12. Workplace Condition (2)**



**Figure 4.13. Workplace Condition (3)**



**Figure 4.14. Design for Workplace**

**c. Occupational Health and Safety**

Occupational Health and Safety is a mandatory thing to do when you want to do work. Occupational accidents can come at any time without expectation, and illness due to disobeying the rules can come at any time. Locomotive maintenance is also full of dangerous aspects. Starting with accidents that occur such as being hit by oil spills, falling objects hit the body, fires, ears become sick due to noisy sounds, and much more. Therefore fulfilling the stipulated rules for the realization of occupational health and safety is very obligatory. The workers sometimes often forget one aspect that is regulated in regulations such as forgetting to use glasses, masks, earplugs, etc. Even though the equipment is available but because of its location far from the workshop and must first report to the administrative supervisor, the workers choose not to wear it. Besides that, the use of Blue Tag as applied by General Electric when caring for CC 206 is very necessary so we know who is still working on the locomotive. The following is the blue tag that General Electric applies as shown.



**Figure 4.15. Blue tag**

Before heading to the workshop, workers go to the protective helmet rack as the final equipment before working. The following conditions are protective helmet shelves as shown.



**Figure 4.16. Helmet Rack**

Student propose that one box is owned by one worker. Workers are also expected to maintain the equipment properly. Every box must have ear plug, glasses, nametag for blue tag, and protective helmet. To top the rack, there is also a reminder that what equipment must be worn is mandatory. After that, the two rightmost shelves will be placed with new masks and gloves so that workers do not need to contact the administrative supervisor and the Blue tag. The reminders themselves consist of the following

- a. Field clothes
- b. Safety shoes

- c. Gloves
- d. Mask
- e. Ear Plug
- f. Glasses
- g. Protective helmet
- h. Blue Tag



## CHAPTER 5

### SUMMARY

#### 5.1. Summary

- a. The locomotive depot is responsible for periodically maintaining and repairing locomotives
- b. The locomotive depot consists of 5 departments, namely: planning, maintenance, quality control, administration, and facility & NR.
- c. The maintenance department is divided into 4 parts, those are Air, Diesel, Electric, and Mechanical
- d. Maintenance of CC 201 and CC 203 consists of 1 month, 3 months, 6 months and 12 months care. And the one responsible is the Locomotive depot itself.
- e. Maintenance of CC 206 consists of treatment 3 months, 6 months and 12 months. And the maintenance are responsibility of PT General Electric.

#### 5.2. Recommendation

- a. Improve work systems are very useful to reduce fatigue and work accidents.
- b. Divide areas between workplaces, equipment places, and for pedestrians can make work easier because it does not interfere with other activities.
- c. Prevent work accidents is very important so that workers should be facilitated in using personal protective equipment during work.

## REFERENCES

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[https://www.kai.id/corporate/about\\_kai/](https://www.kai.id/corporate/about_kai/)  
<https://www.kai.id/corporate/organization/>  
All website open in 28 August 2018





**A. Neck, Trunk and Leg Analysis**

**Step 1: Locate Neck Position**



Step 1a: Adjust...  
If neck is twisted: +1  
If neck is side bending: +1

2  
Neck Score

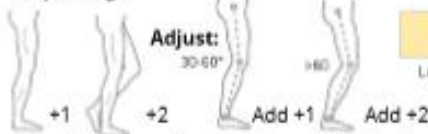
**Step 2: Locate Trunk Position**



Step 2a: Adjust...  
If trunk is twisted: +1  
If trunk is side bending: +1

4  
Trunk Score

**Step 3: Legs**



**Step 4: Look-up Posture Score in Table A**

Using values from steps 1-3 above,  
Locate score in Table A

8  
Posture Score A

**Step 5: Add Force/Load Score**

If load < 11 lbs.: +0  
If load 11 to 22 lbs.: +1  
If load > 22 lbs.: +2

Adjust: If shock or rapid build up of force: add +1 Force / Load Score

0  
Force / Load Score

**Step 6: Score A, Find Row in Table C**

Add values from steps 4 & 5 to obtain Score A.  
Find Row in Table C.

8  
Score A

**Scoring**

- 1 = Negligible Risk
- 2-3 = Low Risk. Change may be needed.
- 4-7 = Medium Risk. Further Investigate. Change Soon.
- 8-10 = High Risk. Investigate and Implement Change
- 11+ = Very High Risk. Implement Change

**Scores**

Table A		Neck											
		1				2				3			
Legs		1	2	3	4	1	2	3	4	1	2	3	4
Trunk	1	1	2	3	4	1	2	3	4	3	3	5	6
Posture	2	2	3	4	5	3	4	5	6	4	5	6	7
Score	3	2	4	5	6	4	5	6	7	5	6	7	8
	4	3	5	6	7	5	6	7	8	6	7	8	9
	5	4	6	7	8	6	7	8	9	7	8	9	9

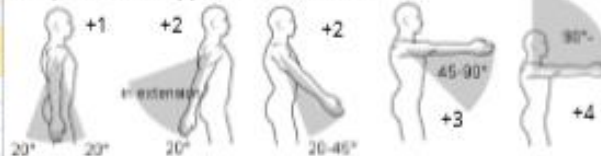
Table B		Lower Arm					
		1			2		
Wrist		1	2	3	1	2	3
Upper Arm Score	1	1	2	2	1	2	3
	2	1	2	3	2	3	4
	3	3	4	5	4	5	5
	4	4	5	5	5	6	7
	5	6	7	8	7	8	8
	6	7	8	8	8	9	9

Score A	Table C											
	Score B											
1	1	1	1	2	3	3	4	5	6	7	7	7
2	1	2	2	3	4	4	5	6	6	7	7	8
3	2	3	3	3	4	5	6	7	7	8	8	8
4	3	4	4	4	5	6	7	8	8	9	9	9
5	4	4	4	5	6	7	8	8	9	9	9	9
6	6	6	6	7	8	8	9	9	10	10	10	10
7	7	7	7	8	9	9	9	10	10	11	11	11
8	8	8	8	9	10	10	10	10	10	11	11	11
9	9	9	9	10	10	10	11	11	11	12	12	12
10	10	10	10	11	11	11	12	12	12	12	12	12
11	11	11	11	11	12	12	12	12	12	12	12	12
12	12	12	12	12	12	12	12	12	12	12	12	12

8 + 1 = 9  
Table C Score      Activity Score      REBA Score

**B. Arm and Wrist Analysis**

**Step 7: Locate Upper Arm Position:**



Step 7a: Adjust...  
If shoulder is raised: +1  
If upper arm is abducted: +1  
If arm is supported or person is leaning: -1

3  
Upper Arm Score

**Step 8: Locate Lower Arm Position:**



1  
Lower Arm Score

**Step 9: Locate Wrist Position:**



1  
Wrist Score

Step 9a: Adjust...  
If wrist is bent from midline or twisted: Add +1

**Step 10: Look-up Posture Score in Table B**

Using values from steps 7-9 above, locate score in Table B

3  
Posture Score B

**Step 11: Add Coupling Score**

Well fitting Handle and mid rang power grip, **good: +0**  
Acceptable but not ideal hand hold or coupling acceptable with another body part, **fair: +1**  
Hand hold not acceptable but possible, **poor: +2**  
No handles, awkward, unsafe with any body part, **Unacceptable: +3**

1  
Coupling Score

**Step 12: Score B, Find Column in Table C**

Add values from steps 10 & 11 to obtain Score B. Find column in Table C and match with Score A in row from step 6 to obtain Table C Score.

3  
Score B

**Step 13: Activity Score**

+1 1 or more body parts are held for longer than 1 minute (static)  
+1 Repeated small range actions (more than 4x per minute)  
+1 Action causes rapid large range changes in postures or unstable base

**A. Neck, Trunk and Leg Analysis**

**Step 1: Locate Neck Position**

Neck Score: 1

Step 1a: Adjust...  
If neck is twisted: +1  
If neck is side bending: +1

**Step 2: Locate Trunk Position**

Trunk Score: 2

Step 2a: Adjust...  
If trunk is twisted: +1  
If trunk is side bending: +1

**Step 3: Legs**

Leg Score: 1

Adjust: 30-60° Add +1, >60° Add +2

**Step 4: Look-up Posture Score in Table A**

Using values from steps 1-3 above, Locate score in Table A

Posture Score A: 2

**Step 5: Add Force/Load Score**

If load < 11 lbs.: +0  
If load 11 to 22 lbs.: +1  
If load > 22 lbs.: +2  
Adjust: If shock or rapid build up of force: add +1

Force / Load Score: 0

**Step 6: Score A, Find Row in Table C**

Add values from steps 4 & 5 to obtain Score A. Find Row in Table C.

Score A: 2

**Scoring**

- 1 = Negligible Risk
- 2-3 = Low Risk. Change may be needed.
- 4-7 = Medium Risk. Further Investigate. Change Soon.
- 8-10 = High Risk. Investigate and Implement Change
- 11+ = Very High Risk. Implement Change

**Scores**

Table A		Neck											
		1				2				3			
Legs		1	2	3	4	1	2	3	4	1	2	3	4
Trunk	1	1	2	3	4	1	2	3	4	3	3	5	6
Posture	2	2	3	4	5	3	4	5	6	4	4	5	6
Score	3	2	4	5	6	4	5	6	7	5	6	7	8
	4	3	5	6	7	5	6	7	8	6	7	8	9
	5	4	6	7	8	6	7	8	9	7	8	9	9

Table B		Lower Arm					
		1			2		
Wrist		1	2	3	1	2	3
Upper Arm Score	1	1	2	2	1	2	3
	2	1	2	3	2	3	4
	3	3	4	5	4	5	5
	4	4	5	5	5	6	7
	5	6	7	8	7	8	8
	6	7	8	8	8	9	9

Score A	Table C											
	Score B											
1	1	1	1	2	3	3	4	5	6	7	7	7
2	1	2	2	3	4	4	5	6	6	7	7	8
3	2	3	3	3	4	5	6	7	7	8	8	8
4	3	4	4	4	5	6	7	8	8	9	9	9
5	4	4	4	5	6	7	8	8	9	9	9	9
6	6	6	6	7	8	8	9	9	10	10	10	10
7	7	7	7	8	9	9	9	10	10	11	11	11
8	8	8	8	9	10	10	10	10	10	11	11	11
9	9	9	9	10	10	10	11	11	11	12	12	12
10	10	10	10	11	11	11	12	12	12	12	12	12
11	11	11	11	11	12	12	12	12	12	12	12	12
12	12	12	12	12	12	12	12	12	12	12	12	12

2 + 1 = 3

Table C Score + Activity Score = REBA Score

**B. Arm and Wrist Analysis**

**Step 7: Locate Upper Arm Position:**

Upper Arm Score: 3

Step 7a: Adjust...  
If shoulder is raised: +1  
If upper arm is abducted: +1  
If arm is supported or person is leaning: -1

**Step 8: Locate Lower Arm Position:**

Lower Arm Score: 1

**Step 9: Locate Wrist Position:**

Wrist Score: 1

Step 9a: Adjust...  
If wrist is bent from midline or twisted: Add +1

**Step 10: Look-up Posture Score in Table B**

Using values from steps 7-9 above, locate score in Table B

Posture Score B: 3

**Step 11: Add Coupling Score**

Well fitting Handle and mid rang power grip, **good: +0**  
Acceptable but not ideal hand hold or coupling acceptable with another body part, **fair: +1**  
Hand hold not acceptable but possible, **poor: +2**  
No handles, awkward, unsafe with any body part, **Unacceptable: +3**

Coupling Score: 0

**Step 12: Score B, Find Column in Table C**


Add values from steps 10 & 11 to obtain Score B. Find column in Table C and match with Score A in row from step 6 to obtain Table C Score.

Score B: 3

**Step 13: Activity Score**



- +1 1 or more body parts are held for longer than 1 minute (static)
- +1 Repeated small range actions (more than 4x per minute)
- +1 Action causes rapid large range changes in postures or unstable base

**Program Studi Teknik Industri Universitas Atma Jaya Yogyakarta  
Catatan Harian Pelaksanaan Kerja Praktek/ Magang**

No.	HARI, TANGGAL	JAM	KEGIATAN	TANDA TANGAN & STEMPEL PERUSAHAAN
1.	Senin, 25 Juni 2018	07.30 - 08.00	Apel Pay:	
		08.00 - 12.00	Pengenalan Fasilitas, Struktur Organisasi, Perawatan, dll.	
		12.00 - 13.00	Istirahat	
		13.00 - 15.00	Melanjutkan Pengenalan	
Catatan penting harian:				
Catatan dari pembimbing lapangan:				





**Program Studi Teknik Industri Universitas Atma Jaya Yogyakarta**  
**Catatan Harian Pelaksanaan Kerja Praktek/ Magang**


No.	HARI, TANGGAL	JAM	KEGIATAN	TANDA TANGAN & STEMPEL PERUSAHAAN
3.	Rabu, 27 Jani 2018	07.00 -	Apel Pagi	 
		07.30 -	Perawatan CC201 0313 PI dengan tim Angin	
07.30 -				
10.00 -				
Catatan penting harian:				
Catatan dari pembimbing lapangan:				



**Program Studi Teknik Industri Universitas Atma Jaya Yogyakarta  
Catatan Harian Pelaksanaan Kerja Praktek/ Magang**


No.	HARI, TANGGAL	JAM	KEGIATAN	TANDA TANGAN & STEMPEL PERUSAHAAN
5.	Jumat, 24 Juni 2018	07.30 - 08.00	Apel Pagi	 
		08.00 - 12.00	Perawatan P3 CC 201 8313 bersama tim Angin	
		12.00 - 13.00	Istirahat	
Catatan penting harian:				
Catatan dari pembimbing lapangan:				

**Program Studi Teknik Industri Universitas Atma Jaya Yogyakarta  
Catatan Harian Pelaksanaan Kerja Praktek/ Magang**



No.	HARI, TANGGAL	JAM	KEGIATAN	TANDA TANGAN & STEMPEL PERUSAHAAN
6.	Senin, 2 Juli 2018	07.30 -	Apel Pagi	
		08.00 -	Perawatan P3 C12018322 bersama tim Diesel	
		12.00 -	Istirahat	
		13.00 -	Observasi	
		15.00		
Catatan penting harian:				
Catatan dari pembimbing lapangan:				




**Program Studi Teknik Industri Universitas Atma Jaya Yogyakarta**  
**Catatan Harian Pelaksanaan Kerja Praktek/ Magang**

No.	HARI, TANGGAL	JAM	KEGIATAN	TANDA TANGAN & STEMPEL PERUSAHAAN
7.	Selasa, 3 Juli 2018	07.30 -	Ape! Pagi	
		08.00		
		08.00 -	Melakukan Perawatan P1 CC 203 g5 08 bersama tim Diesel	
		12.00 -	Istirahat	
		13.00 -	Observasi	
		15.00		
Catatan penting harian:				
Catatan dari pembimbing lapangan:				

**Program Studi Teknik Industri Universitas Atma Jaya Yogyakarta  
Catatan Harian Pelaksanaan Kerja Praktek/ Magang**



No.	HARI, TANGGAL	JAM	KEGIATAN	TANDA TANGAN & STEMPEL PERUSAHAAN
8.	Rabu, 4 Juli 2018	07.30 -	Apel Pagi	 Sutiyah NIP 47926 
		08.00 -	Perawatan P3 CC 2061323 bersama Tim Diesel	
		12.00 -	Istirahat	
		13.00 -	Observasi	
		15.00		
Catatan penting harian:				
Catatan dari pembimbing lapangan:				

**Program Studi Teknik Industri Universitas Atma Jaya Yogyakarta  
Catatan Harian Pelaksanaan Kerja Praktek/ Magang**



No.	HARI, TANGGAL	JAM	KEGIATAN	TANDA TANGAN & STEMPEL PERUSAHAAN
9.	Kamis, 5 Juli 2018	07.30 -	Apel Pagi	
		08.00		
		08.00 -	Perawatan PI CC2039509 bersama tim Diesel	
		17.00		
		12.00 -	Istirahat	
13.00				
13.00 -	Observasi			
15.00				
Catatan penting harian:				 Suryadi NIP. 47926
Catatan dari pembimbing lapangan:				





**Program Studi Teknik Industri Universitas Atma Jaya Yogyakarta  
Catatan Harian Pelaksanaan Kerja Praktek/ Magang**

No.	HARI, TANGGAL	JAM	KEGIATAN	TANDA TANGAN & STEMPEL PERUSAHAAN	
10.	Jumat, 6 Juli 2018	07.30 - 08.00	Apl Pagi	 Suryat NIP 47926 	
08.00 - 12.00	Perawatan P3 CC 201 8327 bersama tim Diesel	12.00 - 13.00	Istirahat		
13.00 - 15.00	Observasi				
Catatan penting harian:					
Catatan dari pembimbing lapangan:					



Program Studi Teknik Industri Universitas Atma Jaya Yogyakarta  
Catatan Harian Pelaksanaan Kerja Praktek/ Magang

No.	HARI, TANGGAL	JAM	KEGIATAN	TANDA TANGAN & STEMPEL PERUSAHAAN
11.	Senin, 9 Juli 2018	07.30 - 08.00	Apel Pagi	 SUEYAT HIMPUNAN 47926 
		08.00 - 12.00	Perawatan P1 CC 203 95 07 bersama tim Eldkerik	
		12.00 - 13.00	Istirahat	
		13.00 - 15.00	Observasi	
Catatan penting harian:				
Catatan dari pembimbing lapangan:				



**Program Studi Teknik Industri Universitas Atma Jaya Yogyakarta  
Catatan Harian Pelaksanaan Kerja Praktek/ Magang**

No.	HARI, TANGGAL	JAM	KEGIATAN	TANDA TANGAN & STEMPEL PERUSAHAAN
12.	Selasa, 10 Juli 2018	07.30 - 08.00	Apel Pagi	 AGUS 
		08.00 12.00	Pirawaton P3 CC 2018326 bercama tim elekerik	
		12.00 - 13.00	Istirahat	
		13.00 - 15.00	Observasi	
Catatan penting harian:				
Catatan dari pembimbing lapangan:				

**Program Studi Teknik Industri Universitas Atma Jaya Yogyakarta  
Catatan Harian Pelaksanaan Kerja Praktek/ Magang**



No.	HARI, TANGGAL	JAM	KEGIATAN	TANDA TANGAN & STEMPEL PERUSAHAAN
13.	Rabu, 11 Juli 2018	07.30 - 08.00	Apel Pagi	 
08.00 - 12.00	Perawatan PI C1 201 83 15 bersama tim elektrik	12.00 - 13.00	Istirahat	
13.00 - 15.00	Pendataan dan Checking Peralatan Perawatan			
Catatan penting harian:				
Catatan dari pembimbing lapangan:				

**Program Studi Teknik Industri Universitas Atma Jaya Yogyakarta  
Catatan Harian Pelaksanaan Kerja Praktek/ Magang**

No.	HARI, TANGGAL	JAM	KEGIATAN	TANDA TANGAN & STEMPEL PERUSAHAAN
14.	Kamis, 12 Juli 2018	07.30 - 08.00	Apel Pagi	 Agus 
08.00 - 12.00	Perawatan P6 CC201 83 14 bersama tim Elektro	12.00 - 13.00	Istirahat	
13.00 - 15.00	Test Nozzle			
Catatan penting harian:				
Catatan dari pembimbing lapangan:				




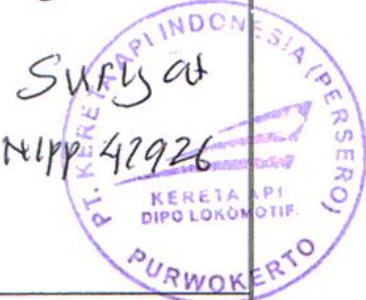
**Program Studi Teknik Industri Universitas Atma Jaya Yogyakarta  
Catatan Harian Pelaksanaan Kerja Praktek/ Magang**

No.	HARI, TANGGAL	JAM	KEGIATAN	TANDA TANGAN & STEMPEL PERUSAHAAN
15	Jumat, 13 Juli 2018	07.30 -	Apel Pagi	 AGUS 51287 
		08.00 -	Perawatan P3 C1206 1506	
		17.00	bersama tim Elektrik	
		12.00 -	Istirahat	
		13.00 -	13.00	
13.00 -	15.00	Observasi		


Catatan penting harian:

Catatan dari pembimbing lapangan:


**Program Studi Teknik Industri Universitas Atma Jaya Yogyakarta  
Catatan Harian Pelaksanaan Kerja Praktek/ Magang**

No.	HARI, TANGGAL	JAM	KEGIATAN	TANDA TANGAN & STEMPEL PERUSAHAAN
16.	Senin, 16 Juli 2018	07.30 -	Apel Pagi	  SUKSES NIPP 42926
		08.00 -	Perawatan PI CC 2018325 bersama Tim Mekanik	
		12.00 -	Istirahat	
		13.00 -	Observasi	
		15.00		
Catatan penting harian: .				
Catatan dari pembimbing lapangan:				


**Program Studi Teknik Industri Universitas Atma Jaya Yogyakarta**  
**Catatan Harian Pelaksanaan Kerja Praktek/ Magang**

No.	HARI, TANGGAL	JAM	KEGIATAN	TANDA TANGAN & STEMPEL PERUSAHAAN
17.	Selasa, 17 Juli 2018	07.30 - 08.00	Apel Pagi	
		08.00 - 12.00	Perawatan P3 CC206 1507 bersama tim Mekanik	
		12.00 - 13.00	Istirahat	
		13.00 - 15.00	Observasi + Interview	
Catatan penting harian:				
Catatan dari pembimbing lapangan:				


**Program Studi Teknik Industri Universitas Atma Jaya Yogyakarta**  
**Catatan Harian Pelaksanaan Kerja Praktek/ Magang**

No.	HARI, TANGGAL	JAM	KEGIATAN	TANDA TANGAN & STEMPEL PERUSAHAAN
18.	Rabu, 18 Juli 2018	07.30 - 08.00	Apel Pagi	
		08.00 - 12.00	Perawatan PI CC201 8317 bersama Tim Mekanik	
		12.00 - 13.00	Istirahat	
		13.00 - 15.00	Observasi + Interview	
Catatan penting harian:				
Catatan dari pembimbing lapangan:				



**Program Studi Teknik Industri Universitas Atma Jaya Yogyakarta  
Catatan Harian Pelaksanaan Kerja Praktek/ Magang**

No.	HARI, TANGGAL	JAM	KEGIATAN	TANDA TANGAN & STEMPEL PERUSAHAAN
19.	Kamis, 19 Juli 2018	07.00 - 08.00	Apel Pagi	
		08.00 - 12.00	Perawatan P3 CC 206 1357 bersama Tim Mekanik	
		12.00 - 13.00	Istirahat	
		13.00 - 15.00	Observasi + Interview	
Catatan penting harian:				
Catatan dari pembimbing lapangan:				


**Program Studi Teknik Industri Universitas Atma Jaya Yogyakarta  
Catatan Harian Pelaksanaan Kerja Praktek/ Magang**

No.	HARI, TANGGAL	JAM	KEGIATAN	TANDA TANGAN & STEMPEL PERUSAHAAN
22	Jumat, 20 Juli 2018	07.30 - 08.00	Apel Pagi	
		08.00 - 12.00	Perawatan PI C201 8318 bersama Tim Mekanik	
		12.00 - 13.00	Istirahat	
Catatan penting harian:				
Catatan dari pembimbing lapangan:				

**Program Studi Teknik Industri Universitas Atma Jaya Yogyakarta  
Catatan Harian Pelaksanaan Kerja Praktek/ Magang**


No.	HARI, TANGGAL	JAM	KEGIATAN	TANDA TANGAN & STEMPEL PERUSAHAAN
21.	Senin, 23 Juli 2018	07.30 - 08.00	Apol Pagi	 SUPYOD TIIPR 47926 
08.00 - 12.00	Perawatan PI CC 201 03 23 dan Daily Check	12.00 - 13.00	Istirahat	
13.00 - 15.00	Observasi + Interview			
Catatan penting harian:				
Catatan dari pembimbing lapangan:				

**Program Studi Teknik Industri Universitas Atma Jaya Yogyakarta  
Catatan Harian Pelaksanaan Kerja Praktek/ Magang**



No.	HARI, TANGGAL	JAM	KEGIATAN	TANDA TANGAN & STEMPEL PERUSAHAAN
22	Selasa, 24 Juli 2018.	07.30 - 08.00	Apel Pagi	
		08.00 - 12.00	Daily Check	
		12.00 - 13.00	Istirahat	
		13.00 - 15.00	Observasi & Interview	
Catatan penting harian:				
Catatan dari pembimbing lapangan:				



**Program Studi Teknik Industri Universitas Atma Jaya Yogyakarta**  
**Catatan Harian Pelaksanaan Kerja Praktek/ Magang**

No.	HARI, TANGGAL	JAM	KEGIATAN	TANDA TANGAN & STEMPEL PERUSAHAAN
23.	Rabu, 25 Juli 2018	07.30 - 08.00	Apel Pagi	
		08.00 - 12.00	Daily Check	
		12.00 - 13.00	Istirahat	
		13.00 - 15.00	Observasi + Interview	
Catatan penting harian:				
Catatan dari pembimbing lapangan:				


**Program Studi Teknik Industri Universitas Atma Jaya Yogyakarta  
Catatan Harian Pelaksanaan Kerja Praktek/ Magang**

No.	HARI, TANGGAL	JAM	KEGIATAN	TANDA TANGAN & STEMPEL PERUSAHAAN
29.	Kamis, 26 Juli 2018	07.00 -	Apil Pagi	 
		08.00 -	Daily Check & Perawatan P3 (206-1500)	
		12.00 -	Istirahat	
		13.00 -	Observasi + Interview	
		15.00		

Catatan penting harian:

Catatan dari pembimbing lapangan:

**Program Studi Teknik Industri Universitas Atma Jaya Yogyakarta  
Catatan Harian Pelaksanaan Kerja Praktek/ Magang**

No.	HARI, TANGGAL	JAM	KEGIATAN	TANDA TANGAN & STEMPEL PERUSAHAAN
25	Jumat, 27 Juli 2018	07.30 -	Apel Pagi	
		08.00 -	Daily Check & Perawatan PI CC2018324	
		12.00 -	Istirahat	
		13.00 -	Pengelolaan Administrasi	
		15.00		
Catatan penting harian:				
Catatan dari pembimbing lapangan:				