



اَوْنُوْرَسِيْوِيْ تِكْنُوْلُوْجِيْ مَارَا  
UNIVERSITI  
TEKNOLOGI  
MARA

**KURODA**

## INDUSTRIAL TRAINING REPORT

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LI Duration                17 weeks (22<sup>st</sup> March 2021 – 16<sup>th</sup> July 2021)

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## **Acknowledgement**

First of all, I want to thank En Ama bin Maruf for accepting me to undergo internship at Minda Jaya Resources. It's a great company for internship. I'm also want to take this opportunity to say thank you to my precious parents, family and my beloved members who helped me and always giving me ideas and support while I am completing this report. I also would like to thanks all of the lecturers in UiTM Pasir Gudang, especially the lecturers in Chemical Engineering Department that had helped me in giving a guide in writing this industrial training report and sharing all their knowledge with me while I am a student in there.

## **Abstract**

This report outlines the duties of an internship that undergo at Kuroda Precision Malaysia (KPM), Bukit Raja, Selangor via Minda Jaya Resources as an employee agent. KPM is a company that provide high quality stator for DYSON vacuum and hairdryer product which is one of the worldwide brands. There are four department which is Press, department that creating the product from coil, Offline, department that confirm the product quality, Quality control, department that ensure the product quality is meet the customer satisfaction and Maintenance, department that ensure all equipment and important tools are always in top condition.

# TABLE OF CONTENT

<b>1.0 Introduction</b> .....	1
<b>2.0 Background of Company</b> .....	2
2.1 History of Company .....	2
2.2 Company's Location .....	3
2.3 Organizational Chart.....	4
2.4 Vision.....	4
2.5 Mission .....	4
2.6 Quality Objectives .....	4
<b>3.0 Process Flow</b> .....	5
<b>4.0 Description of Weekly Activities</b> .....	8
<b>5.0 Description of Task at Offline Department</b> .....	9
5.2 Stack Height Adjustment .....	11
5.3 Appearance Check .....	12
5.4 V10 Inspection Automation .....	13
5.5 Visual Inspection.....	14
5.6 CV Inspection .....	14
5.7 Straightness Check .....	15
<b>6.0 Practice of Occupational Safety and Health</b> .....	16
6.1 Covid-19 SOP.....	16
6.2 Wearing suitable Personal Protective Equipment (PPE).....	17
6.3 Warning Signs .....	17
6.4 5S Practice and Schedule Waste Management .....	17
<b>7.0 Conclusion and Recommendation</b> .....	19
<b>8.0 Appendices</b> .....	20

## **1.0 Introduction**

Industrial Training (CHE353) is a final subject that need to be taken by diploma student of Chemical Engineering (EH110). The Industrial Training is important for student to apply the theories learned during all semester in a real working environment. The students can choose the internship company to undergoes the internship according to the allowance provided, location of the company and the relevance to career path. During the Industrial Training, student will be able to perform the basic engineering practice and improving their career skills such as communication skill, leadership skill and problem-solving skill. Students also be able to learn about the work ethics, disciplinary, punctuality and have a high level of integrity. All of this skill will be needed when the student wants to pursue their career in the future. The duration for Industrial Training is 17 weeks with 7 credit hours.

I believe that this opportunity has provided me with many valuable experiences and expertise in the workplace. From March to July 2021, I worked as an internship student at Kuroda Precision Industries (M) Sdn Bhd. It was a memorable experience that I would like to share. I have developed a variety of talents including communication skills, active listening skills, problem solving skills and flexibility which I believe will shape and impact my professional life for the rest of my life while I also promoting my personal growth and development.

## 2.0 Background of Company

### 2.1 History of Company



*Figure 1: Logo of Kuroda Precision Industries (M) Sdn Bhd*

Saburo Kuroda established Kuroda Gauge Manufacturing Co. Ltd in January 1925 for both the manufacturing and sale of various sorts of gauges. Kuroda Precision Industries (KPM) was founded in Shah Alam on December 5, 1996. KPM was founded 71 years after the founding of Kuroda Japan. KPM is regarded as Japan's first gauge expert manufacturer. The company began by creating dies and moulds for a Japanese electronics corporation. After six months, they began manufacturing Motor Core Lamination using the Laser Fastec System. Kuroda Precision Industries manufactured motor core lamination core for Iphone vibrating plate in 1997. Then, in 2005, Kuroda Precision Industries began their expansion for Core Coating Plant for Electro deposition. To fulfil client expectations, the company will diversify from the ED coating method to the Barrel Coating process in 2010. In August 2013, they relocated to the new Bukit Raja Industrial Area Klang. In 2014, Kuroda Precision Industries began collaborating with the Italian Euro Group, creating a joint venture in Tennessee, USA. On NHK Special, Kuroda Precision Industries was showcased as a single post-war rehabilitation firm. Currently, Kuroda Precision Industries is producing model V10 stator goods for Dyson vacuums, which will be sent to Dyson consumers.

## 2.2 Company's Location

Kuroda Precision Industries (M) Sdn Bhd is located at Block C & D, Lot 3, Solok Waja 3, Bukit Raja Industrial Park, 41050, Klang, Selangor, Malaysia.

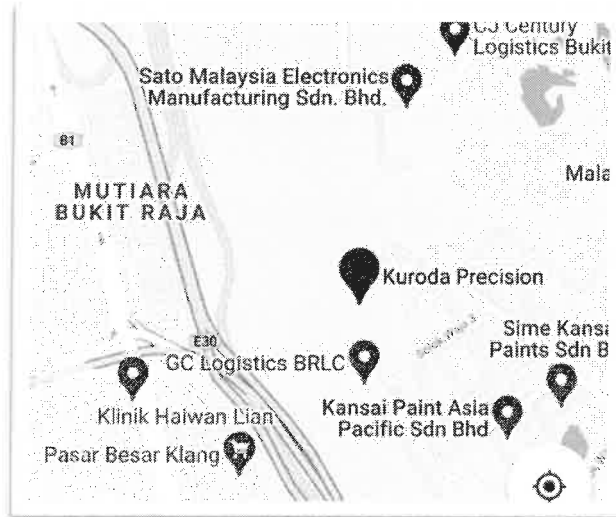


Figure 2: Location of Kuroda Precision Industries (M) Sdn Bhd based on Google Maps



Figure 3: Building of Kuroda Precision Industries (M) Sdn Bhd

### 2.3 Organizational Chart

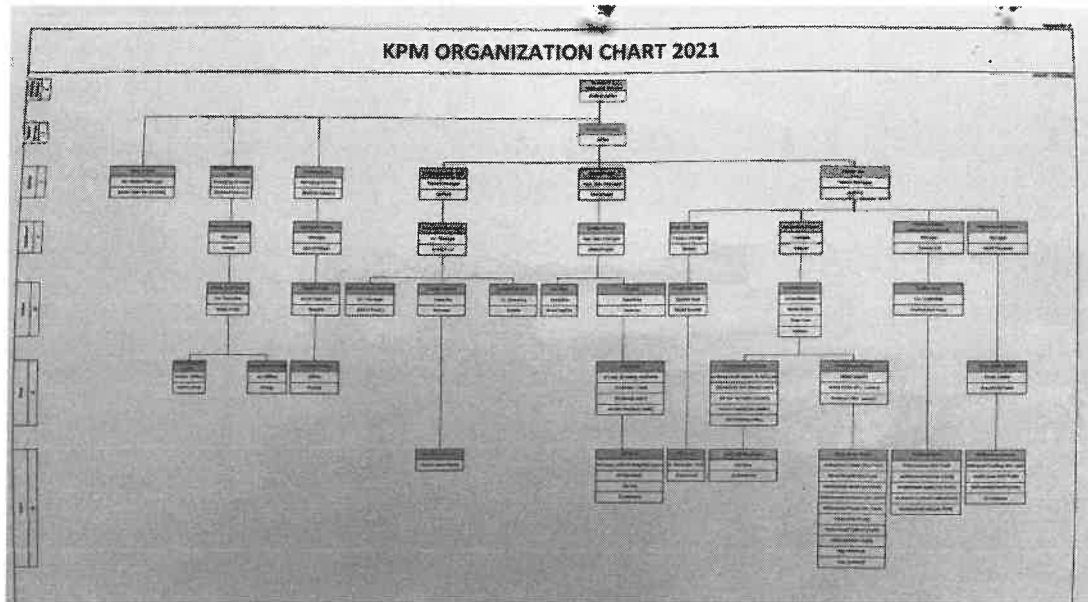


Figure 4: Organizational Chart of Kuroda Precision Industries (M) Sdn Bhd

### 2.4 Vision

To ensure Customer's Trust by placing priority with The Quality base on unification quality system.

### 2.5 Mission

1. All function organization fast action for improve customer satisfaction.
2. Internal loss reduction to provide high quality product.
3. Continuously promote and develop quality management system.
4. Compliance to related Regulatory & Statutory.

### 2.6 Quality Objectives

1. Agent worker attendance control above 85% for Human Resource Department.
2. V10 FG stock minimum 2 million pieces for Sale/Purchasing Department.
3. 15% cost purchasing reduce for budget Year 2021 for Sale/Purchasing Department.
4. Total production defective ratio below 10% for Production Engineering.
5. Zero customer claims (ZCC) for Quality Control Department.
6. Press machine operation ratio above 70% for Production Department.
7. Reduce the Die Maintenance lost time below 3% for Die Maintenance Department.
8. Reduce machine lost time below 1% for Maintenance Department.



### 3.0 Process Flow

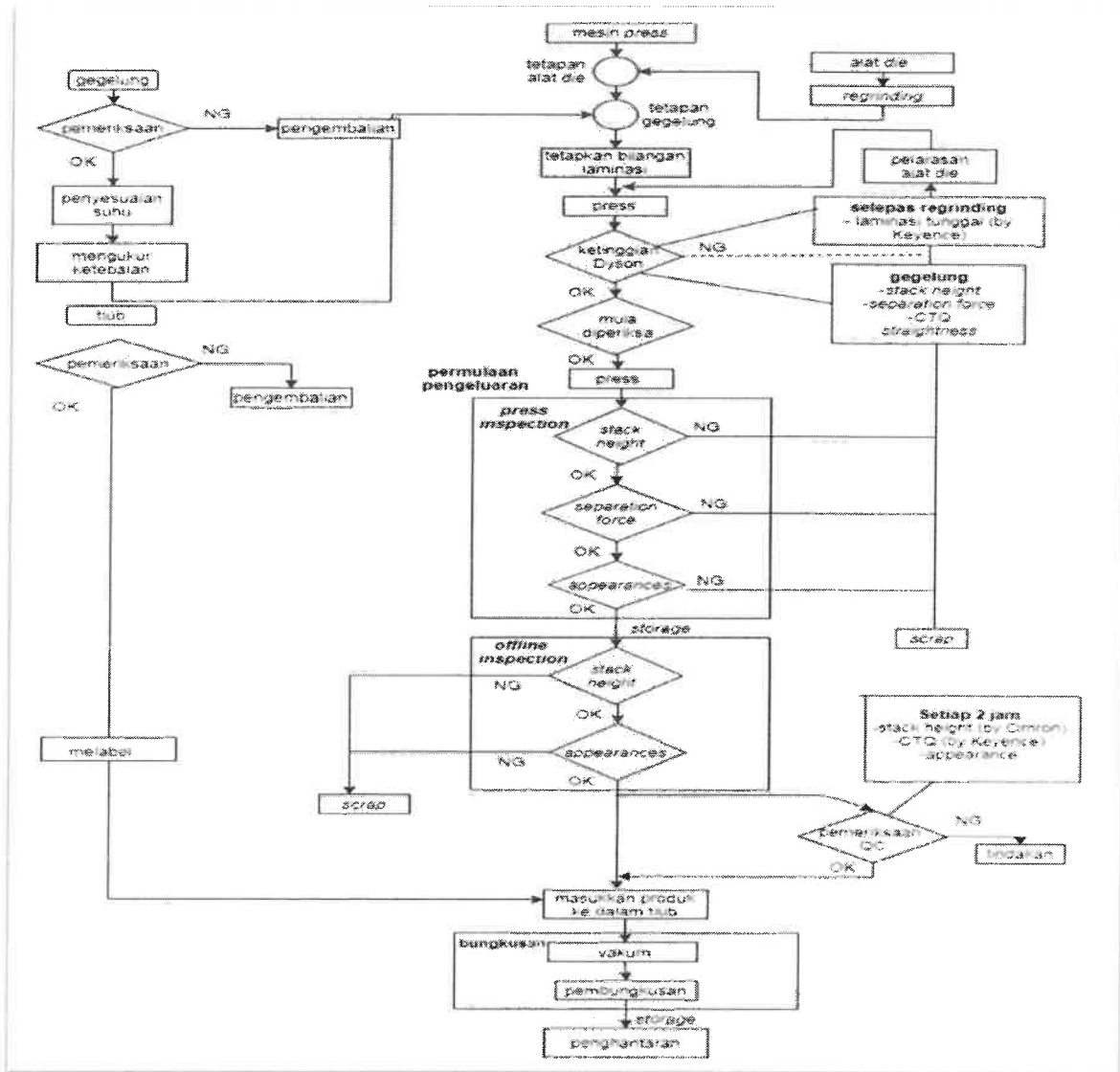


Figure 5: Production Flow

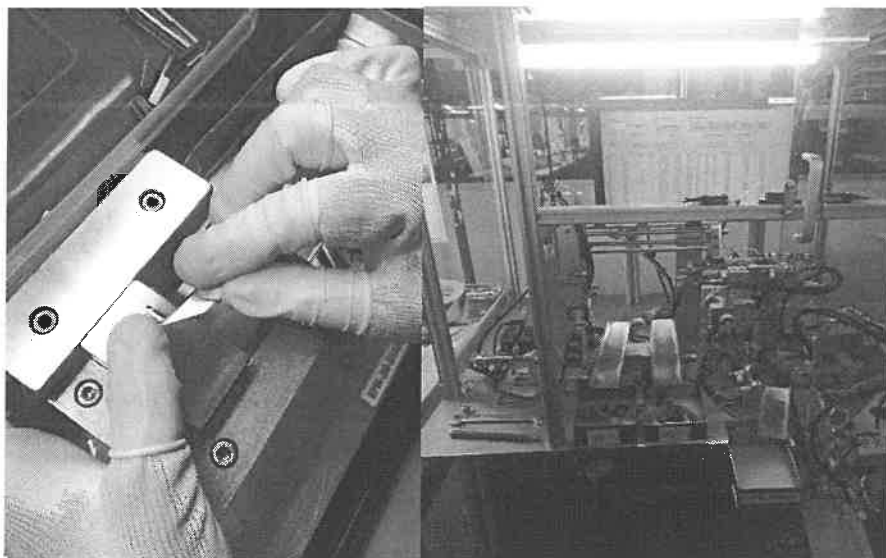
In Kuroda Precision Industries (M), there are four department which are Press Production Department, Offline Inspection Department, Quality Control Department and Packaging Department.

Press production department is a department where the product "V10" was been produced from the coil. The V10 produthe will be observe usin microscope to check whether there is an NG (not good) products or not. All the NG product will be separate from OK products. Next, the OK product need to be peel off the extra layer before send it to Offline inspection department. At Offline inspection department, the products will

undergoes stack height adjustment to make sure the height of the product is precise. The excess layer of the product will be cut using a cutting jig. Then, the product will be inspect by using microscope per pieces. The NG product will be separated and recorded. Next the ok product will be inserted to V10 Inspection Automation machine to spot whether there is any NG on the height of the product. Then the will be put into a tube. Each tube contain 30 pcs V10 product. The OK product in the tube will undergo visual inspection first before it send to packing department to put it into dryer before been export to the customers.



*Figure 6: Press Production Department*



*Figure 7 Offline Inspection Department*



*Figure 8: Quality Control Department*



*Figure 9: Packaging Department*

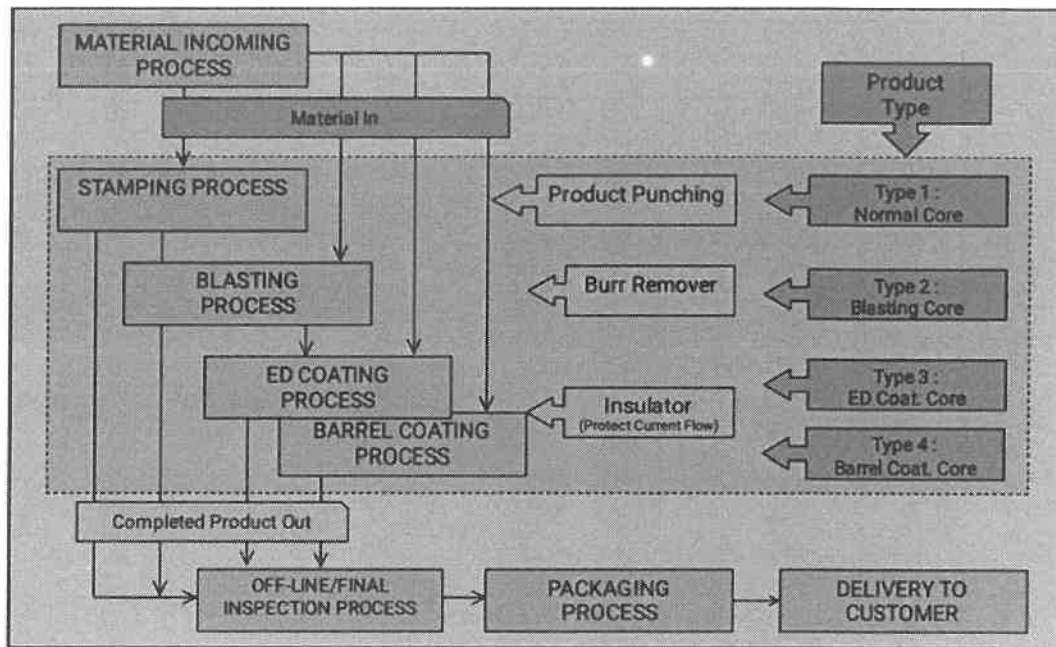


Figure 10: Flowchart of Product Exportation

#### 4.0 Description of Weekly Activities

On the first week of the students were given an introduction to the company by HR executives. The content of the introduction was to explain about the background of the Kuroda Precision Industries (M) and review the flow of production process. The following week were given various task in the offline department. During the 17 weeks of internship take place, student received 1 week off for Hari Raya Aidilfitri and 2 weeks working from home (3 July 2021 – 16 July 2021) due to Movement Control Order (MCO). Student were given task by supervisor. During the MCO, factory operates with 60% capacity of workers so staff will attend to workplace by turn.

#### ACTIVITIES

- Offline Inspection
- Introduction of NG product & Appearance Check
- Stack Height Adjustment
- Calculate the Incoming Product
- Making of Barcode
- Visual Inspection
- CV Inspection
- Training handling V10 Inspection Machine
- Straightness Check
- Insert Product into Tube Manually
- Stack height Adjustment
- Appearance Check

Figure 11 Schedule during MCO

7/6/2021	8/6/2021	9/6/2021	10/6/2021	11/6/2021
ISNIN	SELASA	RABU	KHAMIS	JUMAAAT
OFF LINE	OFF LINE	OFF LINE	OFF LINE	OFF LINE
NURHAZIQAH	AMIRAH AQILAH	AMIRAH AQILAH	NURFATHAH BT LAFTI	NURFATEHA ABD WAHAD
AMIRAH AQILAH	AMIRA SYAZLEEN	AMIRA SYAZLEEN	NURFATEHA ABD WAHAD	ARINA SYAMIMI
AMIRA SYAZLEEN	NADIAH NADHIRAH	HASNIZA	HANA AFRIDA	EZATUL ASYKIN
NADIAH NADHIRAH	EZATUL ASYKIN	SITI NUR HAZIQAH	HASNIZA	NURFARIZAN
EZATUL ASYKIN	NORFARIZAN	ARINA SYAMIMI	SITI NUR HAZIQAH	HASNIZA
NORFARIZAN	NURFATHAH BT LAFTI	WAN AISYAH	ARINA SYAMIMI	SITI NUR HAZIQAH
NURFATHAH BT LAFTI	HANA AFRIDA	NADIAH NADHIRAH	WAN AISYAH	SYAZWANI
HANA AFRIDA	NORFATEHA BT ABD WAHAD	PRESS/FM	NURUL SYAZWANI	WAN AISYAH
NORFATEHA BT ABD WAHAD	NURUL SYAZWANI	AMIRUL	PRESS/FM	AMIRA SYAZLEEN
WAN AISYAH	PRESS/FM	ZAINAL	AMIRUL	PRESS/FM
PRESS/FM	ZAINAL	FIKRI	HAZIQ	HAZIQ
ZAINAL	FIKRI	AMIRUL SHAFIK	JAMILUL	JAMILUL
FIKRI	AMIRUL SHAFIK	QC	QC	REAGAN
AMIRUL SHAFIK	QC		NORAIN	
QC	NORAIN			
NORAIN				

### 5.0 Description of Task at Offline Department



Figure 12 Offline Inspection Department

At offline department, it operates by line called LCA. It has total of 15 line in offline department (LCA 1-15). Each line will process different DIE (A~Z). There are few sections in offline department. Each line consists stack height measure section, appearance check section, V10 inspection machine section and visual inspection section. There are also double visual section CV inspection and reconfirm area. Every day, around 4000 pieces of V10 product will be process in offline. All the product that will process on that day will be recorded on incoming product paper. The operation is conducted after the product V10 produced. These operations purposely to examine the measurement of the product, defects, straightness and strength of the product. In

offline department, trainee is required to write the incoming V10 product that will be examined and sent to the packaging department. Each line was assigned with given DIE.

5.1 Calculate Incoming Product



Figure 13 V10 product storeroom

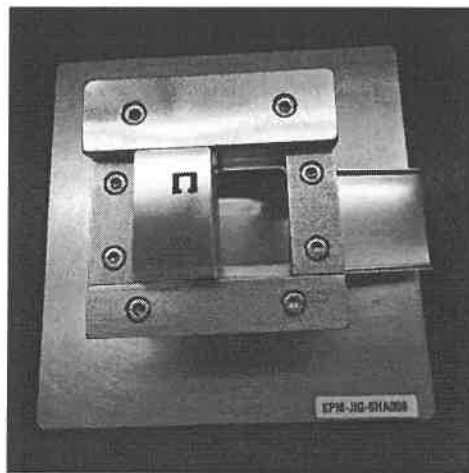
Every product manufactured by the press department will be moved into a container box and stored within a dry and cool store to monitor the temperature and prevent rust on the product. The longer the coil is exposed to damp air, the faster it corrodes. Depending on the info on the press transfer card (line number, date of production, row number, coil lot, shift, batch product, and amount of product), the oldest products will be taken to stack height adjustment. Each piece of information will be recorded in the form of an incoming product. The total number of parts will be determined, and it must be greater than 4200 due to defective items.

INCOMING INSPECTION LINE PRODUCT OUTPUT RECORD							
LINE	DATE	TIME	REVISION	QTY	REMARKS	QTY	REMARKS
1	10/10/11	08:00:00	01	100		100	
2	10/10/11	08:00:00	01	100		100	
3	10/10/11	08:00:00	01	100		100	
4	10/10/11	08:00:00	01	100		100	
5	10/10/11	08:00:00	01	100		100	
6	10/10/11	08:00:00	01	100		100	
7	10/10/11	08:00:00	01	100		100	
8	10/10/11	08:00:00	01	100		100	
9	10/10/11	08:00:00	01	100		100	
10	10/10/11	08:00:00	01	100		100	
11	10/10/11	08:00:00	01	100		100	
12	10/10/11	08:00:00	01	100		100	
13	10/10/11	08:00:00	01	100		100	
14	10/10/11	08:00:00	01	100		100	
15	10/10/11	08:00:00	01	100		100	
16	10/10/11	08:00:00	01	100		100	
17	10/10/11	08:00:00	01	100		100	
18	10/10/11	08:00:00	01	100		100	
19	10/10/11	08:00:00	01	100		100	
20	10/10/11	08:00:00	01	100		100	
21	10/10/11	08:00:00	01	100		100	
22	10/10/11	08:00:00	01	100		100	
23	10/10/11	08:00:00	01	100		100	
24	10/10/11	08:00:00	01	100		100	
25	10/10/11	08:00:00	01	100		100	
26	10/10/11	08:00:00	01	100		100	
27	10/10/11	08:00:00	01	100		100	
28	10/10/11	08:00:00	01	100		100	
29	10/10/11	08:00:00	01	100		100	
30	10/10/11	08:00:00	01	100		100	

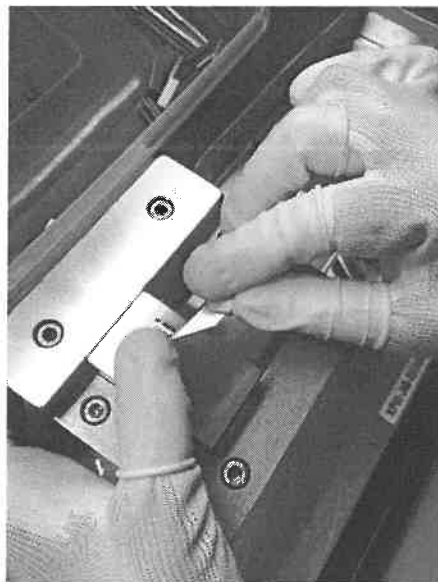
Figure 14 Incoming form

## 5.2 Stack Height Adjustment

The trainee is needed to wear appropriate clothing, gloves, and finger coats to avoid unwanted injuries and to help prevent sweat from corroding the V10 model product. The product was delivered to the stack height adjustment section. The trainee must use a jig and knife to remove the extra layer from the product to attain the desired height. This procedure is required to obtain precise product measurements. 4400 pieces of products from the press department will be cut and placed in a container labelled "after stack height adjustments." The daily objective for the items supplied to consumers is 4150 pieces. As a result of faulty goods, the trainee is obliged to cut extra as a backup.



*Figure 15: Cutting Jig*



*Figure 16: The process of cutting the excess layer of V10 product*

### 5.3 Appearance Check

The V10 model product will be transferred to the Appearance Check section. The V10 model product will be examined using a SW10X microscope to determine product flaws. The lens angle and elevation can be modified.



*Figure 17: Using SW10X microscope*

There are various type of defect of product such as:-

- NG twist (uneven product legs)
- NG sabi (rust)
- NG yama (small bump on laser)
- NG dakon (dent)
- NG kajiri (scratch)
- NG layer gap (gap between layer)
- NG hagare (crack on laser)
- NG burr (excess pieces on layer)

Too much oil within the stamping machine might create laser brown. Rust occurs when items are stored in a store for an extended period of time or when one person holds it without protection (gloves). Because of the laser, there was a hagare (crack on the laser) and a layer gap. The laser needs to be adjusted on a regular basis using a laser indicator. Surplus bits on the layer will be removed carefully using a knife. The product will be loaded in the V10 Inspection Automation machine.



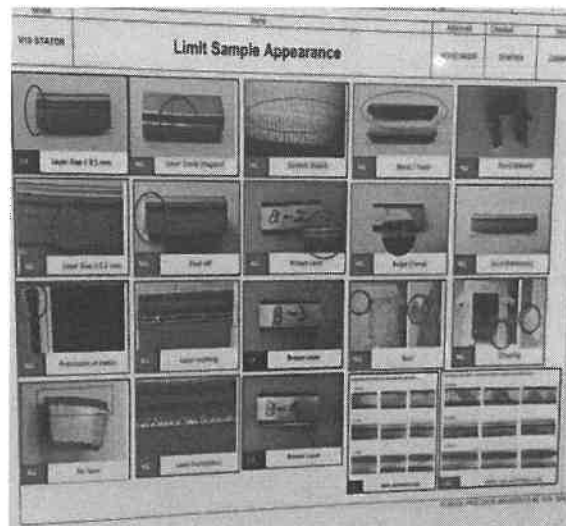


Figure 18: Sample of NG products

#### 5.4 V10 Inspection Automation

The machine-made use of a pneumatic system, which utilized compressed air to regulate the mechanical and automated operations. Compressed air from the atmosphere, which has had its volume lowered by compression, may have its pressure increased. The force generated by the pressurised air may be used to push, lift, and hold the V10 model product. Omron stack height will be used to measure the V10 model product.

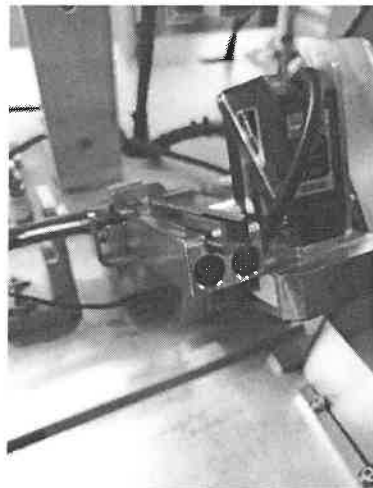


Figure 19: Stack height Omron (smart sensor)

The stack height Omron utilised a photoelectric sensor to calculate distance using a light transmitter. The sensor is used to compute the product measurement for the V10 model. If the product is in a great quality, the machine will raise it and go to the next stage. The minus and over product will be placed into a stack height NG container. The OK product will be placed in the tube. If a V10 model product becomes trapped or

damaged inside the machine, the trainee needs to wear goggles before fixing or removing the product. Before removing the product from the machine, the trainee must remove the valve to relieve the pressure, enabling air to escape from the tank.

After the sensor has recorded the product's measurement, the machine will raise the product to proceed to the next phase. If the machine is loose or unable to raise the product, the screw must be adjusted. The screw had to be adjusted based on the breadth of the product so that the machine could pick it up. Before doing the maintenance, the machine must be turned off.

### 5.5 Visual Inspection

At the Visual Inspection section, the barcode label had to be prepared ahead of time according to the die and imprinted at each tube. The barcode will be produced depending on the number of items in each box. However, because of some defective items, the number of products required to be approximated at about 70% for each row. For instance, if a row has 300 products, only 270 of them are accepted. If each tube contained 30 products, the trainee would need to print nine barcodes for that row. The barcode will be produced based on the incoming press transfer card. The V10 model product in the tube will be examined with the naked eye. Any defective item will be replaced with a new one. The separated deficiencies of minus (less than 21.850mm), over (greater than 22.15mm), and straightness (bent) will be recorded and forwarded to CV Inspection for the next phase. Every hour, staff from Quality Control Department will come to inspect the product after visual inspection. They will take 5 pcs sample from tube every hour to make sure the product in a good quality before sending to packaging department.

### 5.6 CV Inspection

The computer is utilised during CV Inspection to detect over and minus product that is still acceptable. To achieve an accurate result, the 'tool stack height master' is used to identify the master reading before examining the product. After operating the machine, the NG product will be placed in the designated location, and the reading are shown on the screen.



*Figure20: Computer with tool stack height master software and measurement camera*

- Reading less than or equal to 21.85mm = NG Minus
- Reading greater than or equal to 22.15mm = NG Over
- Reading 21.85mm-22.15mm = OK

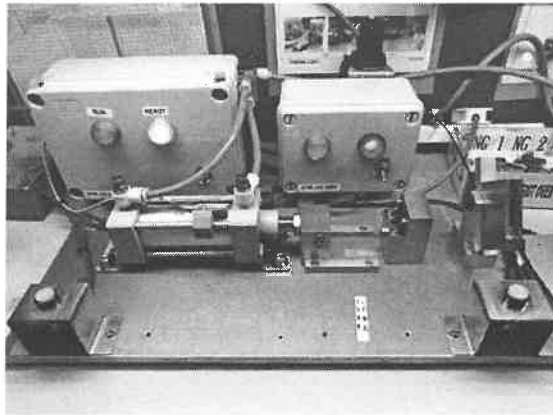
The OK product will be transferred to the Straightness Check area for inspection, while the over product will be returned to the Stack Height Adjustment section for cutting. The minus product will be separated and placed in the NG box.

#### 5.7 Straightness Check

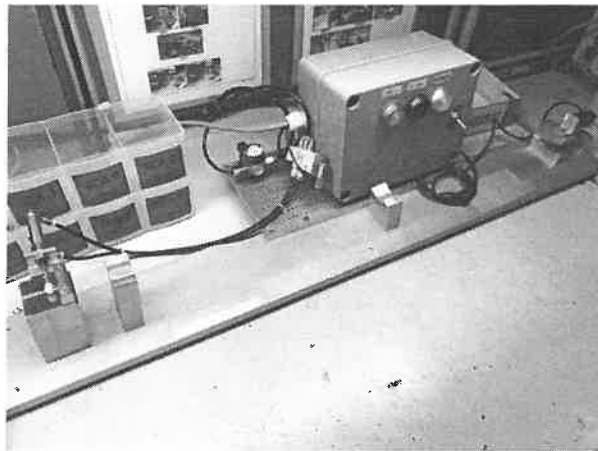
CV Inspection's V10 model product will be placed in a straightness jig utilising the free fall method (gravity).

- If NG (not straight), the red lamp will activate.
- If OK (straight), the green lamp will activate

The tube will be placed in the tube jig. Assure that the barcode and tube position are accurate. If the tube is positioned improperly, the red-light lamp will activate, whereas the green light lamp will activate when the position is correct. OK product will be inserted into the tube, while NG product will be separated and placed in the NG box.



*Figure 21: Straightness Jig*



*Figure 22: Tube Jig*

## **6.0 Practice of Occupational Safety and Health**

### **6.1 Covid-19 SOP**

Since the pandemic of Covid-19, all staff required to wash and sanitize their hand first at the very time entering KPM and doing body temperature check before scanning the thumbprint for attendance. All the staff temperature were recorded daily. Face mask needed to be worn and always maintain the social distancing between the people at least one meter to prevent the spreadness of Covid-19 at work place. If any symptoms shows before coming to work all staff are required to seek medical check immediately. Standard recommendations to prevent the spread of Covid-19, it is needed to avoiding the close contact with anyone that has a fever and cough.

## 6.2 Wearing suitable Personal Protective Equipment (PPE)

Gloves and finger coats needed to wear before hold on to the V10 model products to avoid the product from rust. This also to prevent from hurting the individual because it might cause injury if touching it barehanded. If workers need to use air gun, eye protection needed to wear before using the air gun due to high pressure that can damage the eyes. Safety shoes and ear protection needed to wear while in press department. Safety shoes can effectively prevent crushing injuries to the feet especially when transporting the coil to the machine and to protect from electrical hazards. Ear protection is requirement to prevent noise induced hearing loss. The purpose is to reduce the noise energy reaching and causing damage to the inner ear.

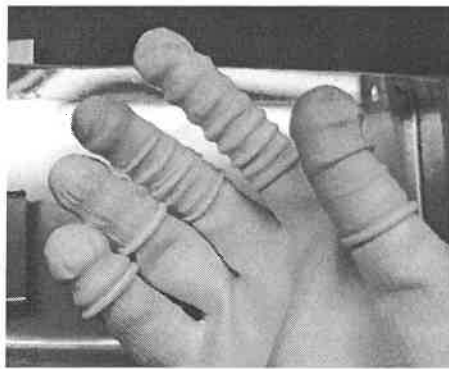


Figure 23: gloves and finger coats

## 6.3 Warning Signs

Last but not least, whenever the machine stucked or need maintenance, the workers need to stop the machine or push the stop emergency button before doing any process. If the machine cannot be fixed, the machine will be in by technicians and engineers that on duty.

## 6.4 5S Practice and Schedule Waste Management

KPM practice 5s activity for the purpose of safety and healthy workplace, to increase quality improvement and also for productivity improvement. 5s activity is included :

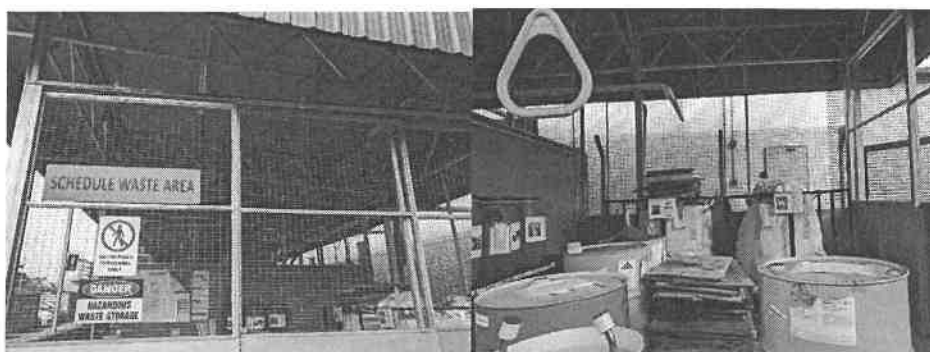
1. SEIRI – Throw away any items that unneeded.
2. SEITON – Decide the item location and placement.
3. SEISO – Clean to avoid dust and dirt.
4. SEIKETSU – Always practice 3S (SEIRI, SEITON, SEISO)
5. SHITSUKE – Follow the rules given.

Kuroda Precision (M) Sdn Bhd practice the schedule waste management. All the waste will separate based on waste properties. There are gloves and finger coats trash bin, general waste bin, metal scrap bin and also different trash been provided for cans and

bottle waste. Box also store separately. And all the waste will be stored at schedule waste area before it been picked up.



*Figure 24: Labelled waste area*



*Figure 25: Schedule waste area*



## **7.0 Conclusion and Recommendation**

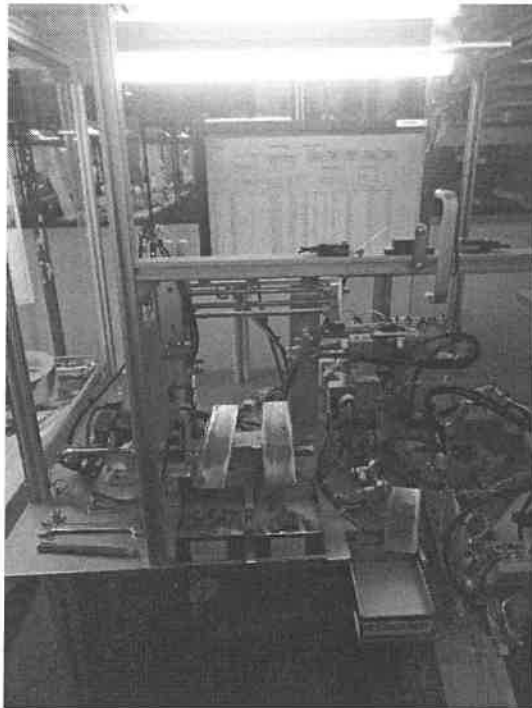
During the internship, student must know every responsibility and role in the company. Exposure to real working environment is good for student as trainers, especially to open the minds and brains to be more creative and highly knowledgeable, students can also identify and address issues that often arise in real work situations. It will further enhance the student's ability to think, learn independently and solve problems effectively and more importantly can produce creative work and quality.

In order to become a successful engineer, trainee need to continue learning, acquire more technical knowledge and develop various technical skills. Learning to communicate with different types of people can also affect and improve the work quality. Learning to be responsible and become self-confident can eventually improve to adapt in working environment

In conclusion, even though it was only 17 weeks and it is very short time to learn and gain skills, the industrial training was achieved but also improving punctuality and attitude-discipline.

The company should provide assignment that can increase employment opportunities to students. The Covid-19 has caused negative impact to economy putting at risk the jobs and incomes of people around the world. Unemployment rates during the Covid-19 pandemic is increasing and gives significant effect to many sectors. The company also should provide any form of reward on the work done by them. Most company treated trainee like workers but unlikely grant them a reward or credits that they should supposed to receive. With the reward and pleasant treat from the company can spur the students and attract them to the field and increase their reputation. Last but not least, company should deliver tasks that related to student's course so that student does not deviate from the course because some company does not really understand the scope of some courses.

## 8.0 Appendices

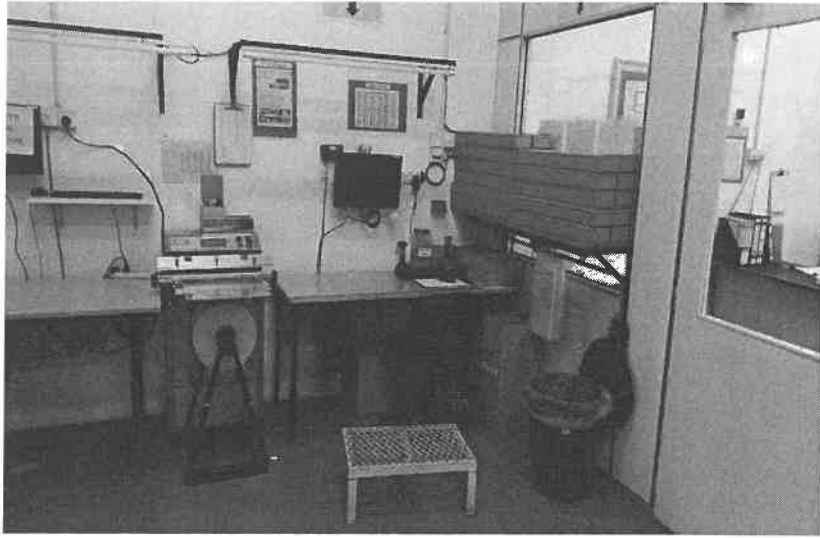


*Figure 6: V10 Automation Inspection Machine*

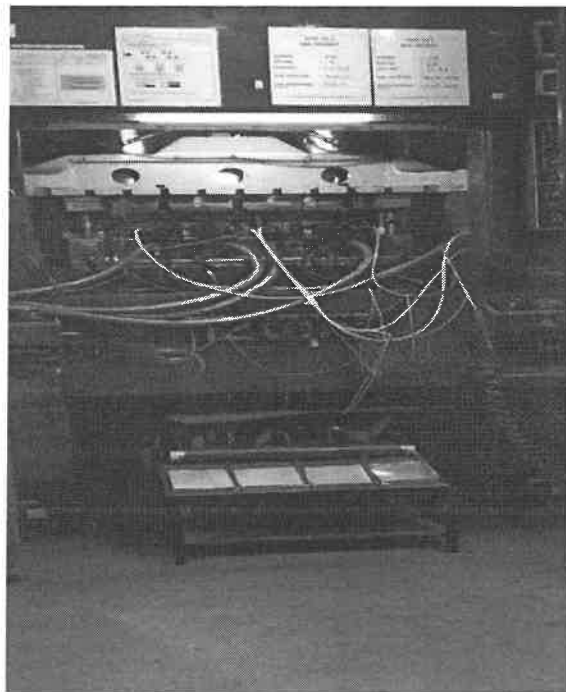


*Figure 7: Straightness Check (Reconfirm Area)*





*Figure 8: One of area of Packaging Department*



*Figure 9: Press Stamping Machine*



*Figure 10: Product Storing Room*