

**CO-OP**

CO-OP-15GN102 – Candidate Performance Guide

**Demonstrate Selecting, Using and Maintaining Various Hand Tools Correctly**

Skill Number CO-OP-15GN102

Full Name: Basil Kurniawan

No ID: 03

Validation Date: 18 November 2015

School: SMKN 1 SIMPOSARI

**PERFORMANCE TASK:**

Given some common hand tools, the student is requested to perform the following tasks:

- Selecting, using, maintaining various hand tools in the installation of machine components.
- Perform close the job by ensuring all systems or conditions is in the standard condition.

Safety and contamination control must be applied in this process. All literatures will be available.

Prerequisite	Yes	No	Hints
The student must complete the Hand Tools knowledge assessment.	✓		

Tasks	Completed			Observation / Hints
	Yes	No	N/A	
Preparation				
Prepare related literature	✓			
Prepare required equipment	✓			
Prepare related tools	✓			
Prepare Safety & Contamination Control equipment	✓			

**CO-OP**

CO-OP-15GN102 – Candidate Performance Guide

Tasks	Completed			Observation / Hints
	Yes	No	N/A	
<b>Perform etiquette/manner when starting the job</b>				
Meet the customer / assessor	✓			
Perform etiquette/manner when opening the interaction.	✓			
Explain the purpose of Student's activity.	✓			
Ask permission to perform the job.	✓			

Tasks	Completed			Observation / Hints
	Yes	No	N/A	
<b>Selecting Using and Maintaining Various Hand Tools</b>				
1. Inspect hand tools before using	✓			
2. Remove and install or disassemble and assemble conducted according to correct procedures	✓			
3. Tasks completed without damage to equipment and tools	✓			
4. Equipment and tooling are cleaned and returned to its correct location	✓			
5. Work area left clean and tidy	✓			
<b>Documentation:</b>				
Take picture if needed				

Tasks	Completed			Observation / Hints
	Yes	No	N/A	
<b>Perform close the job by ensuring all systems or conditions is in the standard condition</b>				
Ensure all systems or conditions are in standard condition.	✓			

**CO-OP**

CO-OP 15GN102 - Candidate Performance Guide

Tasks	Completed			Observation / Hints
	Yes	No	N/A	
<b>Reporting</b> All relevant documentation completed correctly and approved by customer (if required).	✓			

Tasks	Completed		Observation / Hints
	Yes	No	
<b>Safety</b> Using APD related to the job	✓		
Follows relevant workplace safety guidelines (tag out, safety equipment)	✓		
State and follow safety precautions	✓		
Student completes job without accident due to incorrect procedure using hand tools.	✓		
Tasks completed without damage equipment and tools	✓		

Tasks	Completed		Observation / Hints
	Yes	No	
<b>Contamination Control</b> Environmental Practices & Housekeeping	✓		

Tasks	Completed			Observation / Hints
	Yes	No	N/A	
<b>Perform etiquette/manner after completing the job</b> Perform etiquette/manner when closing the communication	✓			

**CO-OP**

CO-OP 15GN102 - Candidate Performance Guide

**General Comments**

RESULT: **COMPETENT**  **NOT YET COMPETENT**  (Please check (✓))

Student: Name Shawan TB Date 19/11/2015 Signature 

Assessor: Name \_\_\_\_\_ Date \_\_\_\_\_ Signature \_\_\_\_\_

Supervisor: Name \_\_\_\_\_ Date \_\_\_\_\_ Signature \_\_\_\_\_

Data Recorded: Name \_\_\_\_\_ Date \_\_\_\_\_ Signature \_\_\_\_\_



## Demonstrate Selecting, Using and Maintaining Various Hand Tools Correctly

Skill Number CO-OP15GN102

Full Name: Bahit Kurniawan

No ID: 03

Validation Date: 18 November 2025

School: SMKN 1 Cingosari

**PERFORMANCE TASK:**

Given some common hand tools, the student is requested to perform the following tasks:

- Selecting, using, maintaining various hand tools in the installation of machine components.
- Perform close the job by ensuring all systems or conditions is in the standard condition.

Safety and contamination control must be applied in this process. All literatures will be available.

Prerequisite	Yes	No	Hints
The student must complete the Hand Tools knowledge assessment.	✓		Score hand tools Course or subject.

Tasks	Completed			Observation / Hints
	Yes	No	N/A	
<b>Preparation</b>				
Prepare related literature	✓			
Prepare required equipment	✓			
Prepare related tools	✓			
Prepare Safety & Contamination Control equipment	✓			

Tasks	Completed			Observation / Hints
	Yes	No	N/A	
<b>Perform etiquette/manner when starting the job</b>				
Meet the customer / assessor	✓			
Perform etiquette/manner when opening the interaction.	✓			<ul style="list-style-type: none"> <li>• Perform smile &amp; greetings.</li> <li>• Introduce Student's identity</li> </ul>
Explain the purpose of Student's activity.	✓			
Ask permission to perform the job.	✓			

Tasks	Completed			Observation / Hints
	Yes	No	N/A	
<b>Selecting, Using and Maintaining Various Hand Tools</b>				
1. Inspect hand tools before using	✓			Visual inspection of hands tool for wear, cracks, damage
2. Remove and install or disassemble and assemble conducted according to correct procedures	✓			Equipment and tooling are identified and checked for correct, safe, and effective operation and must refer to the Literatures
3. Tasks completed without damage to equipment and tools	✓			Component and tooling are cleaned and stored on the right place
4. Equipment and tooling are cleaned and returned to its correct location	✓			Cleaned and stored equipment tools on the right place.
5. Work area left clean and tidy	✓			Area cleaned from spills and wastes.
<b>Documentation:</b>				
Take picture if needed				

Tasks	Completed			Observation / Hints
	Yes	No	N/A	
<b>Perform close the job by ensuring all systems or conditions is in the standard condition</b>				
Ensure all systems or conditions are in standard condition.	✓			<ul style="list-style-type: none"> <li>• Find the improper condition.</li> <li>• Communicate the finding to the customer/assessor.</li> </ul>

Tasks	Completed			Observation / Hints
	Yes	No	N/A	
<b>Reporting</b>				
All relevant documentation completed correctly and approved by customer (if required).	✓			<ul style="list-style-type: none"> <li>• Completing the Task List</li> <li>• Completing Measurement Form/Related Check Sheet, if required</li> <li>• Create Service Report (SIMS), if required</li> <li>• Create SPR, if required</li> <li>• Documenting the failed or damaged parts, if required</li> <li>• Provide Technical Analysis Report/Failure Analysis Report, if required.</li> </ul>

Tasks	Completed		Observation / Hints
	Yes	No	
<b>Safety</b>			
Using APD related to the job	✓		
Follows relevant workplace safety guidelines (tag out, safety equipment)	✓		<ul style="list-style-type: none"> <li>• Comply with safety regulation that applied on the workplace</li> </ul>
State and follow safety precautions	✓		<ul style="list-style-type: none"> <li>• Create Job Safety Analysis</li> <li>• Student must follow safety procedure refer to service manual or SIS related to job</li> </ul>
Student completes job without accident due to incorrect procedure using hand tools.	✓		<ul style="list-style-type: none"> <li>• Correct working position</li> <li>• Correct hand tool related to the job</li> </ul>
Tasks completed without damage equipment and tools	✓		

Tasks	Completed		Observation / Hints
	Yes	No	
<b>Contamination Control</b>			
Environmental Practices & Housekeeping	✓		<ol style="list-style-type: none"> <li>1. Waste is minimized, waste material, including sludge; solids and other wastes are sorted and stored in bins for recycling or disposal</li> <li>2. Packaging of goods received is sorted and reused or disposed of by recycling</li> <li>3. Materials that can be reused are cleaned and stored</li> <li>4. Waste and scrap is removed following workplace procedures</li> <li>5. All fluids are disposed of in accordance with enterprise policies and procedures</li> </ol>

Tasks	Completed			Observation / Hints
	Yes	No	N/A	
<b>Perform etiquette/manner after completing the job</b>				
Perform etiquette/manner when closing the communication.	✓			<ul style="list-style-type: none"> <li>• Perform smile &amp; greetings.</li> <li>• Ask permission to leave or end the interaction.</li> </ul>



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### Removal Procedure

Start By:

- a. Remove the valve mechanism cover base. Refer to Disassembly and Assembly, "Valve Mechanism Cover Base - Remove and Install"
- b. Remove the rocker shaft and pushrods. Refer to Disassembly and Assembly, "Rocker Shaft and Pushrods - Remove"
- c. Remove the electronic unit injectors. Refer to Disassembly and Assembly, "Electronic Unit Injector - Remove"
- d. If necessary, remove the exhaust manifold. Refer to Disassembly and Assembly, "Exhaust Manifold - Remove and Install"
- e. If necessary, remove the inlet manifold. Refer to Disassembly and Assembly, "Inlet Manifold - Remove and Install"
- f. If necessary, remove the water temperature regulator. Refer to Disassembly and Assembly, "Water Temperature Regulator - Remove and Install"

#### NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

#### NOTICE

Care must be taken to ensure that fluids are contained during performance of inspection, maintenance, testing, adjusting, and repair of the product. Be prepared to collect the fluid with suitable containers before opening any compartment or disassembling any component containing fluids.

Refer to Special Publication, NENG2500, "Dealer Service Tool Catalog" for tools and supplies suitable to collect and contain

fluids on Cat products.  
Dispose of all fluids according to local regulations and mandates.

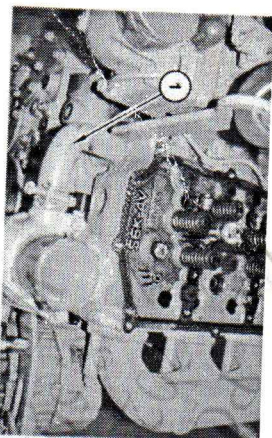


Illustration 1

g01375619

- 1. Disconnect hose (1).

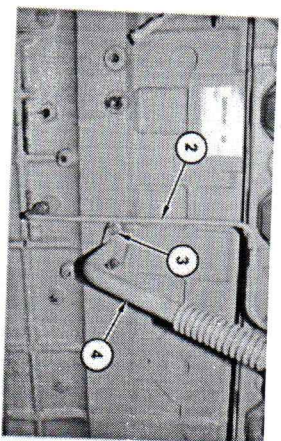


Illustration 2

g01375622

- 2. Disconnect tube assembly (2).
- 3. Remove bolts (3). Disconnect tube assembly (4) and remove the gasket.

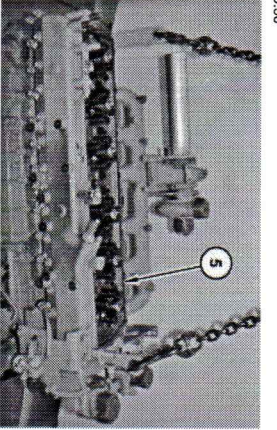


Illustration 3

g01375641

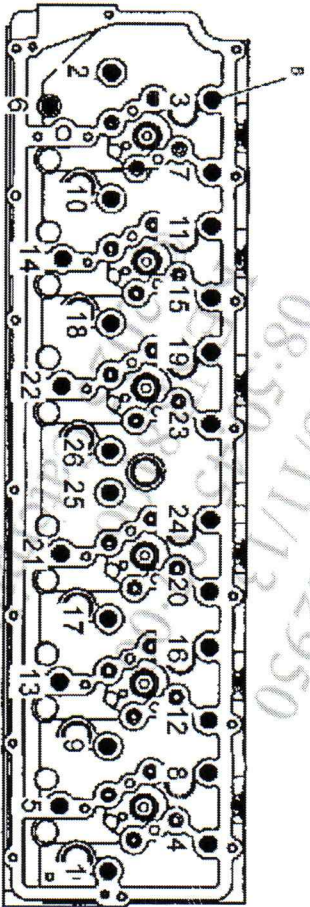


Illustration 4

g01375653

4. Attach a suitable lifting device to cylinder head (5). The weight of cylinder head (5) is approximately 113 kg (250 lb).
5. Loosen cylinder head bolts (6) in the sequence that is shown in Illustration 4.
6. Use the suitable lifting device in order to remove cylinder head (5) and the gasket.

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### Installation Procedure

#### NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

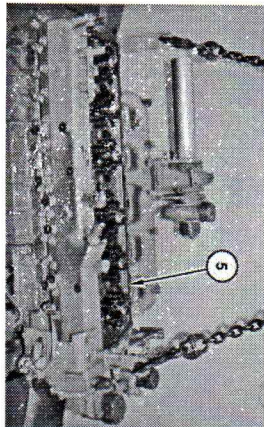


Illustration 1

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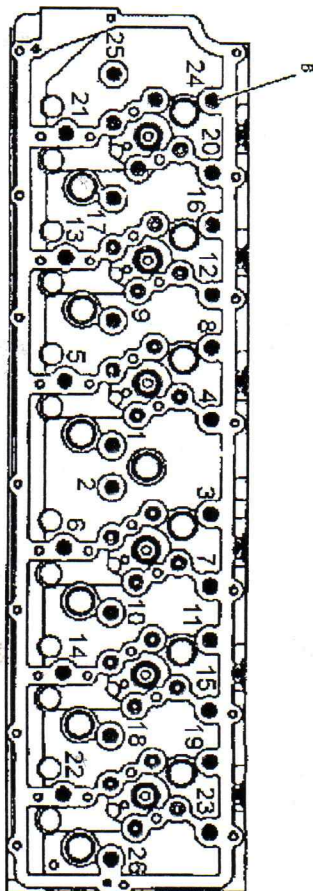


Illustration 2

g01375708

1. Install a new gasket. Attach a suitable lifting device to cylinder head (5). The weight head (5) is approximately 113 kg (250 lb). Use the suitable lifting device in order to cylinder head (5) on the engine block.

2. Tighten bolts (6) in the sequence that is shown in Illustration 2 to a torque of 137 ± (101 ± 4 lb ft).

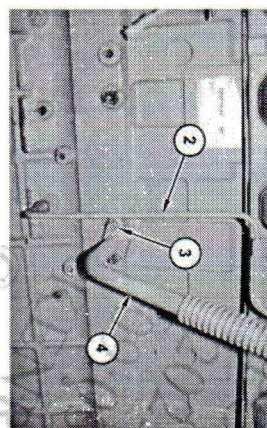


Illustration 3

g01375622

3. Install a new gasket and connect tube assembly (4). Install bolts (3).
4. Connect tube assembly (2).

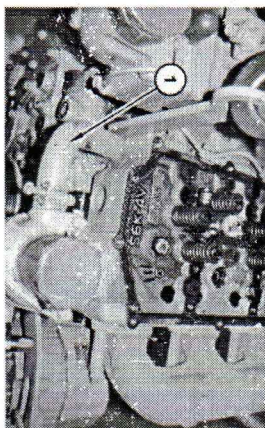


Illustration 4

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5. Connect hose (1).

#### End By:

- a. If necessary, install the water temperature regulator. Refer to Disassembly and Assembly "Water Temperature Regulator - Remove and Install".

- b. If necessary, install the inlet manifold. Refer to Disassembly and Assembly "Inlet Manifold - Remove and Install".

c. If necessary, install the exhaust manifold. Refer to Disassembly and Assembly, "Exhaust Manifold - Remove and Install".

d. Install the electronic unit injectors. Refer to Disassembly and Assembly, "Electronic Unit Injector - Install".

e. Install the rocker shaft and pushrods. Refer to Disassembly and Assembly, "Rocker Shaft and Pushrods - Install".

f. Install the valve mechanism cover base. Refer to Disassembly and Assembly, "Valve Mechanism Cover Base - Remove and Install".

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KEND

**ANALISIS LINGKUNGAN KESELAMATAN KERJA / JOB SAFETY ENVIRONMENT ANALYSIS**

Pekerjaan / Task	RI Cylinder Head C6.4	Nomor JSEA / JSEA Number		Halaman / Page	1	Dari / Of	2
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Tanggal Pembuatan JSEA / Date of JSEA	13 November 2015	Departemen / Dept	Service	Tempat Kerja / Work Location	Workshop TAB
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Disusun Oleh / Compiled By	Bahril	TTD Sign	[Signature]	Review Oleh / Reviewed By	SHE	TTD Sign	[Signature]	Atasan Superior	[Signature]	TTD Sign	[Signature]
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Apakah Anda sudah terlatih untuk melakukan pekerjaan ini? / Are you properly trained to complete these task?  Ya / Yes  Tidak / No

Apa yang Anda perlukan untuk memastikan bahwa pekerjaan selesai tanpa adanya kecelakaan kerja? / What do you need to ensure this job is completed incident free?

Tools yang digunakan sudah sesuai dengan Manual

Siapa yang bertanggung jawab untuk menghentikan pekerjaan jika terjadi perubahan pekerjaan atau gangguan kondisi lingkungan kerja? / Who is responsible for Stop Work Authority if change job or workplace distraction could?

ABCD-1 (Technician Leader) / Mr. X (Customer)

Apakah Anda memerlukan peralatan LOTO? / Are you need LOTO Equipments?  Ya / Yes  Tidak / No

Apakah Anda mengetahui ERP/MERP dari pekerjaan yang sedang dilakukan?  Ya / Yes  Tidak / No *Jika tidak, silahkan tambahkan dalam urutan langkah tugas diawal*

Kondisi Lingkungan / Environmental Conditions	Cuaca / Weather	Cerah	Medan / Terrain	Bata
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Pengendalian Sumber Bahaya / Hazardous Energy Control	<input checked="" type="checkbox"/> Listrik / Electrical	<input checked="" type="checkbox"/> Gravitasi (Benda jatuh, tertimpa) / Gravitation (Falling objects, struck down)	<input type="checkbox"/> Pneumatik / Pneumatic
	<input type="checkbox"/> Hidraulik / Hydraulic	<input checked="" type="checkbox"/> Mekanis / Mechanical	<input type="checkbox"/> Panas / Thermal

APD yang diperlukan / Required PPE	<input checked="" type="checkbox"/> Helm / Safety Helm	<input type="checkbox"/> Pelindung Muka / Face shield	<input checked="" type="checkbox"/> Kacamata / Safety Glass
	<input checked="" type="checkbox"/> Sarung Tangan / Hand Gloves	<input type="checkbox"/> Pelindung Pernafasan / Respiratory Protection	<input type="checkbox"/> Perlindungan Kejatuhan / Fall Protection
	<input checked="" type="checkbox"/> Sepatu / Safety Shoes	<input type="checkbox"/> Pelindung Telinga / Hearing Protection	<input type="checkbox"/> Lain-Lain / Other .....

Hal yang perlu dipertimbangkan dalam mengidentifikasi bahaya / These to consider in identify hazards :

- Bahaya Keselamatan** : Kondisi tidak aman yang dapat menyebabkan injury atau kematian seperti terpelesep, terjatuh, tertimpa dll.  
Safety Hazard : unsafe conditions that can cause injury or even death, such as spill/falls, pinch point, struck by, etc.
- Bahaya Fisik** : Listrik, Api/ledakan, Kebisingan, Radiasi, Panas, Tekanan, Terjepit, Tersandung/Terjatuh, Tertimpa, Getaran.  
Physical Hazards : Electrical, Fire/Explosion, Noise, Radiations, Thermal, Pressure, Pinch Point, Slips/Falls, Struck by, Vibration.
- Bahaya Kimia** : Terhirup, terkena kulit, injeksi, tertelan, terserap.  
Chemical Hazards : Inhalation, skin contact, injection, ingestion, absorption.
- Bahaya Biologi** : Patogen yang ditularkan melalui darah, jamur, tanaman/serangga/hewan.  
Biological Hazards : bloodborne pathogens, mold, Plant/Insect/Animals
- Bahaya Ergonomi** : Gerakan berulang-ulang, beban yang berlebihan, Postur Janggal, Durasi kerja, Desain area kerja.  
Ergonomic Hazards : Repetitions, Forcefull extention, Awkward Posture, Duration, Work area desain.
- Bahaya Organisasi** : stres atau bahaya terkait dengan masalah tempat kerja yang menyebabkan efek jangka panjang atau pendek, beban kerja yang berat dan kekerasan ditempat kerja.  
Organizational hazards: stressors or hazards associated with workplace issues that cause long or short term effects heavy workloads, stressful interactions and workplaces violence.

No	Urutan Dasar Langkah Tugas / Job Steps (* Maksimum 15 Langkah / Maximum 15 Steps)	Bahaya Yang Terkait / Potential Hazard(s)	Tindakan Perbaikan / Recommended Action
1.	Prapara APD	1.1 Tersandung kotak listrik di sebelah rak helm 1.2 Kepala tertimpa Helm	1.1.1 Hindari area High voltage 1.2.1 Hati-hati saat pengambilan helm
2.	walk around inspection	2.1 kaki tersandung pallet kayu 2.2 Kepala terbentur baki crane 2.3 Tangan terseret komponen tajam 2.4 Kepala terbentur komponen	2.1.1 Fokus saat inspection 2.1.2 Gunakan safety shoes 2.2.1 Berhati-hati saat inspection 2.2.2 menggunakan safety helm 2.3.1 Hindari komponen tajam 2.3.2 memakai safety gloves 2.4.1 Hindari komponen di atas kepala 2.4.2 pakai safety helm
3.	Prapara Tools	3.1 Kaki terjepit toolbox 3.2 Kaki tertimpa tools 3.3 Tangan terseret toolbox	3.1.1 Berhati-hati saat pemindahan toolbox 3.1.2 gunakan safety shoes 3.2.1 tidak beracanda saat bekerja 3.2.2 pakai safety shoes 3.3.1 hindari area jepit 3.3.2 memakai safety gloves
4.	Doing remove cylinder Head C6.4	4.1 Tangan terjepit valve cover	4.1.1 Hati-hati saat pengambilan

**ANALISIS LINGKUNGAN KESELAMATAN KERJA / JOB SAFETY ENVIRONMENT ANALYSIS**

Pekerjaan  
Task

RI Cylinder Head Cb.4

Nomor JSEA  
SEA Number

Halaman  
Page

2

Dari  
Of

2

No	Urutan Dasar Langkah Tugas / Job Steps	Bahaya Yang Terkait / Potential Hazard(s)	Tindakan Perbaikan / Recommended Action
		4.2 kaki tertimpa valve cover	4.1.2 Gunakan safety gloves 4.2.1 Berhati-hati saat pemindahan 4.2.2 Pakai safety shoes
		4.3 Tangan terjepit rocker shaft	4.3.1 Fokus saat bekerja 4.3.2 menggunakan safety gloves
		4.4 kaki tertimpa push rod	4.4.1 Tidak beranda saat bekerja 4.4.2 memakai safety shoes dan gloves
		4.5 tangan terjepit injector	4.5.1 hindari titik meet 4.5.2 pakai safety gloves
		4.6 kaki tertimpa exhaust dan inlet manifold	4.6.1 Hati-hati saat bekerja 4.6.2 menggunakan safety shoes
		4.7 tertimpa cylinder head	4.7.1 lifting sesuai dengan SOP 4.7.2 memakai APD lengkap
5	Install cylinder head	5.1 Tertimpa cylinder head	5.1.1 Pastikan Attachment terpasang dengan benar 5.1.2 Gunakan APD lengkap
		5.2 kaki tertimpa exhaust and intake manifold	5.2.1 Tidak beranda saat bekerja 5.2.2 Pakai safety shoes
		5.3 posisi badan salah saat pemasangan	5.3.1 Posisikan badan dengan benar
		5.4 tangan terjepit injector	5.4.1 Berhati-hati saat pemasangan 5.4.2 menggunakan safety gloves
		5.5 kaki tertimpa push rod	5.5.1 lakukan pemasangan dengan benar 5.5.2 gunakan safety gloves
		5.6 Tangan terjepit rocker shaft	5.6.1 Berhati-hati saat pemasangan 5.6.2 menggunakan safety gloves
		5.7. Tangan terjepit valve cover	5.7.1 fokus saat bekerja 5.7.2 memakai safety gloves
6	House keeping	6.1 Posisi badan salah saat pengambilan tools	6.1.1 Membawa tools sesuai kemampuan
		6.2 tertimpa fluida yang beresapan	6.2.1 bersihkan fluida yang beresapan
		6.3 tersandung toolbox	6.3.1 Berhati-hati saat pengambilan 6.3.2 Perhatikan jalur 6.3.3 menggunakan safety shoes

Bukti sosialisasi / Evidence of socialization :

No	Nama / Name	TTD / Sign
1	Bahri kurniawan	
2		
3	Saka Alzena	
4		
5		

No	Nama / Name	TTD / Sign

No	Nama / Name	TTD / Sign