

**Demonstrate Selecting and Using Caterpillar Service Literature**

Skill Number CO-OP15GN109

Full Name: Sulton Rayton z.A No ID: \_\_\_\_\_  
 Validation Date: 16 / 12 / 2025 School: SMKN 1 SINGGARI

**PERFORMANCE TASK:**

Given an Engine / Machine and service literatures. The Student must be able to perform task selecting and using Caterpillar service literature.

The student must be able to complete the following tasks:

- Select the correct service manual related to the job
- Find out some information about specification related to the job
- Find out some information about system operation related to the job
- Find out some information about disassembly & assembly related to the job
- Find out some information about testing & adjusting related to the job
- Select the correct part manual related to the job
- Find out correct part number using the component name index page
- Find out correct component name using the part number index page
- Explain some notification on the illustration page
- Order the part using Service Part Request form
- Return the part using Service Part Return form
- Perform close the job by ensuring all systems or conditions are in the standard condition
- Perform communication & etiquette manner

Safety and Contamination Control must be applied to this process. All literatures will be available.

Prerequisite	Completed		Hints
	Yes	No	
The Student must complete the knowledge assessment. Minimum passing grade 80%.	✓		

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

Tasks	Completed		Observation / Hints
	Yes	No	
Perform etiquette/manner when starting the job			
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	
Selecting and using correct service manual & part manual related to the job			
Select Service Manual. & Part book	✓		
Find information from service manual & parts book	✓		
Demonstrate understanding of explanation in the service manual and illustration in the Parts Book by answering assessor questions	✓		
Documentation:			
Take picture if needed			

Tasks	Completed		Observation / Hints
	Yes	No / N/A	
Demonstrate ordering and returning the part using correct form			
Ordering part by requesting assessor	✓		
Returning part by requesting assessor	✓		
Documentation:			
Take picture if needed			

Tasks	Completed		Observation / Hints
	Yes	No / N/A	
Perform final inspection			
Ensuring all systems or conditions are in the standard condition	✓		

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

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

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

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

General Comments

RESULT:  COMPETENT  NOT YET COMPETENT (please check (v))

Student: Sultan Poulman 2.A 16/12/2025  
Name Date Signature

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

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

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



**Demonstrate Selecting and Using Caterpillar Service Literature**

Skill Number CO-OP15GN109

Full Name: Sultan Rayhan Z-A No ID: SMKN 1 SINGAPORE  
 Validation Date: 16 / 12 / 2025 School: SMKN 1 SINGAPORE

**PERFORMANCE TASK:**

Given an Engine / Machine and service literatures. The Student must be able to perform task selecting and using Caterpillar service literature.

The student must be able to complete the following tasks:

- Select the correct service manual related to the job
- Find out some information about specification related to the job
- Find out some information about system operation related to the job
- Find out some information about disassembly & assembly related to the job
- Find out some information about testing & adjusting related to the job
- Select the correct part manual related to the job
- Find out correct part number using the component name index page
- Find out correct component name using the part number index page
- Explain some notification on the illustration page
- Order the part using Service Part Request form
- Return the part using Service Part Return form
- Perform close the job by ensuring all systems or conditions are in the standard condition
- Perform communication & etiquette manner

Safety and Contamination Control must be applied to this process. All literatures will be available.

Prerequisite	Yes	No	N/A	Hints
The Student must complete the knowledge assessment. Minimum passing grade 80%.	<input checked="" type="checkbox"/>			Score Caterpillar Literature Course or subject.

Tasks	Completed			Observation / Hints
	Yes	No	N/A	
<b>Preparation</b>				
Prepare related literature	<input checked="" type="checkbox"/>			Service Manual & Parts Manual related to an actual job Service Parts Request Form Service Parts Return Form
Prepare required equipment	<input checked="" type="checkbox"/>			Engine or Machine
Prepare related tools	<input checked="" type="checkbox"/>			
Prepare Safety & Contamination Control equipment	<input checked="" type="checkbox"/>			

Tasks	Completed			Observation / Hints
	Yes	No	N/A	
<b>Perform etiquette/manner when starting the job</b>				
Meet the customer / assessor	<input checked="" type="checkbox"/>			
Perform etiquette/manner when opening the interaction.	<input checked="" type="checkbox"/>			• Perform smile & greetings. • Introduce Student's identity
Explain the purpose of Student's activity.	<input checked="" type="checkbox"/>			
Ask permission to perform the job.	<input checked="" type="checkbox"/>			

Tasks	Completed			Observation / Hints
	Yes	No	N/A	
<b>Selecting and using correct service manual &amp; part manual related to the job</b>				
Select Service Manual & Part book	<input checked="" type="checkbox"/>			Select the correct Service Manual & Parts Book for a given Machine according the : - Sales model - Serial number - Arrangement number
Find information from service manual & parts book	<input checked="" type="checkbox"/>			This should be demonstrated by looking up various service information and components as instructed.
Demonstrate understanding of explanation in the service manual and illustration in the Parts Book by answering assessor questions	<input checked="" type="checkbox"/>			Such as (for sample only): - Service Manual - "What should we do to remove water pump" or

					"How to remove the cylinder head of the engine" - Part Book "How many clutch disc in the #3 clutch" or "Please point out the location of final drive bearings in parts book illustration."
<b>Documentation:</b>					
Take picture if needed					

Tasks	Completed			Observation / Hints
	Yes	No	N/A	
Demonstrate ordering and returning the part using correct form				
Ordering part by requesting assessor	✓			Given ordering part of the selection part/group components (engine/machine)
Returning part by requesting assessor	✓			Given returning part of the selection part/group components (engine/machine)
<b>Documentation:</b>				
Take picture if needed				

Tasks	Completed			Observation / Hints
	Yes	No	N/A	
Perform final inspection				
Ensuring all systems or conditions are in the standard condition	✓			<ul style="list-style-type: none"> <li>Find arrangement of the modules in the service manual is match, no folded sheet in service literature, service literature neat (for skill assessment purposes only)</li> <li>Communicate the finding to the customer and modules in the service manual is match, no folded sheet in service literature, service literature neat (for skill assessment purposes only)</li> <li>The action can be done at anytime</li> </ul>

Tasks	Completed			Observation / Hints
	Yes	No	N/A	
Reporting				
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	
Safety			
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>
Service man 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	✓		1. Waste is minimized, waste material, including sludge, solids and other wastes are sorted and stored in bins for recycling or disposal 2. Packaging of goods received is sorted and reused or disposed of by recycling 3. Materials that can be reused are cleaned and stored 4. Waste and scrap is removed following workplace procedures 5. All fluids are disposed of in accordance with enterprise policies and procedures

Tasks	Completed		Observation / Hints
	Yes	No	
<b>Perform etiquette/manner after completing the job</b> Perform etiquette/manner when closing the communication.	✓		• Perform smile & greetings. • Ask permission to leave or end the interaction.

General Comments

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

RESULT:  COMPETENT  NOT YET COMPETENT (please check (v))

Student: Sultan Rayhan 2-A 16/12/2025  
 Name Date Signature

Assessor: Sriawan 1/3 16/12/2025  
 Name Date Signature

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

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

WORK ORDER NO.	A/C NO.	CUSTOMER SMKN 1 SINGOSARI	MODEL	SERIAL NO.	1	WARRANTY
SEGMENT NO.					2	UNIT DOWN
					3	SCHEDULED

DELIVER TO	DATE/TIME OF DELIVERY	CATERPILLAR PART ? YES NO.	INITIAL SUPPLY PSO REF. NO.
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CUSTOMER REPRESENTATIVE NAME	CUSTOMER REPRESENTATION SIGNATURE	TOTAL PARTS ESTIMATE
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PREPARED BY Sultan Rayhoh zaki Ahmad	APPROVED BY	DATE/TIME APPROVED 15 Desember 2025
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ITEM	PART NUMBER	CHANGED TO	DESCRIPTION	QTY		APPROVAL	UNIT PRICE	EXTENDED PRICE	RECD
				ESTI MATED	ACTUAL				
1	7W-2326		Filter As - Oil	1	1				
2	212-1412		Filter & lines gp Fuel	1	1				
3	131-1812		Element water separator	1	1				
4	1C1-8878		Filter As - Hydraulic	1	1				
5	1								
6	113-0305		Filter cab Air	2	2				
7	130-3216		U-belt set	1	1				
8	9L-1557		U-belt set	1	1				
9	1P-3085		U-belt	1	1				
10	3E-9901		Engine oil						
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
TOTAL C/F									

\* APPROVAL CODES  
 C - CUSTOMER REQUEST      O - APPROVED BY CUSTOMER  
 I - FOUND BY INSPECTOR    X - NOT APPROVED BY CUSTOMER  
 R - FOUND DURING REPAIR

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

Pekerjaan / Task	PM 500	Nomor JSEA / JSEA Number	1	Halaman / Page	1	Dari / Of	
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Tanggal Pembuatan JSEA / Date of JSEA	15 / 12 / 2025	Departemen / Dept	SMKN 1 SBS	Tempat Kerja / Work Location	WorkShop TAB
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Disusun Oleh / Compiled By	Sultan	TTD / Sign		Review Oleh / Reviewed By		TTD / Sign		Atasan / Superior		TTD / Sign	
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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

Sapa 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	Rata
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Pengendalian Sumber Bahaya / Hazardous Energy Control	<input 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 dipertimbangan dalam mengidentifikasi bahaya / These to consider in identify hazards :

**1 Bahaya Keselamatan :** Kondisi tidak aman yang dapat menyebabkan injury atau kematian seperti terpeleceh, terpeleceh/terjatuh, tertimpa dll.  
Safety Hazard : unsafe conditions that can cause injury or even death, such as spill/falls, pinch point, struck by, etc.

**2 Bahaya Fisik :** Listrik, Apilekadan, 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.

**3 Bahaya Kimia :** Terhirup, terkena kulit, injeksi, tertelan, terserap.  
Chemical Hazards : Inhalation, skin contact, injection, ingestion, absorption.

**4 Bahaya Biologi :** Patogen yang ditularkan melalui darah, jamur, tanaman/serangga/hewan.  
Biological Hazards : bloodbone pathogens, mold, Plant/Insect/Animals

**5 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.

**6 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.	Walk Around Inspection	1.1 Tersandung wood block	1.1.1 pindahkan wood block diarea kerja 1.1.2 fokus Saat bekerja
		1.2 oli tercecer	1.2.1 lap menggunakan Absorbent pad
2.	Prepare tools	2.1 tertimpa tools	2.1.1 Letakkan tools pada box
		2.2 Tools kotor	2.2.1 Cuci atau lap menggunakan majun
		2.3 Tools berkarat	2.3.1 Ganti tools dengan yang baru
3	Donng preventif/2 Maintenance	3.1 Tersandung Baterai	3.1.1 Gunakan Safety gloves 3.1.2 Keringkan tangan jika basah
		3.2 Mata terciprat fluida	3.2.1 Gunakan Safety gloves
		3.3 Grease tercecer	3.3.1 lap menggunakan Absorbent pad
		3.4 Tersandung V-belt	3.4.1 letakkan v-belt pada box atau kontainer 3.4.2 Perhatikan peletakan di Area kerja 3.4.3 letakkan ditempat yang mudah terlihat
		3.5 Tertimpa Fuel Filter	3.5.1 Pastikan pemegangan yang benar 3.5.2 Pastikan prosedur pemasangan benar 3.5.3 Fokus saat bekerja 3.5.4 Gunakan Safety Shoes

## WI914G

1. Pada Unit WI 915G menggunakan FIP (EPVE) jelaskan pengertian EPVE pada Bosch Fuel Injection Pump?
2. Berapakah berat Engine 3054 pada unit WI 915G
3. Jelaskan tujuan dan fungsi dari testing Wastegate! Berapakah opening pressure untuk wastegate dengan stamp 2674A098?
4. Tuliskan Langkah dan spesifikasi untuk Compression test pada engine 3054
5. Tuliskan PN untuk liner projection tool group
6. Fluida apakah yang digunakan untuk melumasi splithalf bearing pada Cranksaft
7. Jelaskan jenis Transmisi yang digunakan pada unit WI 915G? jelaskan pula jenis pompanya?
8. Tuliskan SMCS code untuk installation procedure duo cone conventional seal!
9. Tuliskan komponen dari bucket positioner Group unit WI 915G!
10. Tuliskan Part NO Electric Hiydraulic pump yang digunakan pada Tilt link remove and Install!
11. Tuliskan berat unit WI 915G!
12. Tuliskan jenis dari Oli yang digunakan untuk : a. Engine, b. Hidrolik, c. Transmisi d. Final Drive Pada temperatur kerja di Indonesia (iklim tropis) +/- 27<sup>o</sup> C pada unit WI 915G!Jelaskan prosedur untuk Fanbelt inspect and adjustment pada unit WI 915G tuliskan media No nya!
13. Tuliskan refill capacity untuk a. Engine oil, b. Hidrolik oil dan c. Final Drive Pada unit WI 915G!
14. Pengkodean ter rendah pada satuan komponen sebuah alat berat disebut? Sedangkan dua tingkat diatasnya yg merupakan kumpulan dari part grup disebut?
15. Tuliskan Part No komponen yang dibutuhkan pada saat PM 500H (3 month) Unit WI 915G pada SPR!

Sultan Rayhan zaki.A 21/XI TAB 3

1. Note : bagian yang berada di dalam pompa injeksi bahan bakar hanya dapat diperbaiki oleh dealer bosch yang berwenang. Silakan merujuk ke buku suku cadang Anda untuk ketersediaan suku cadang di luar pompa yang tidak terkait dengan pengaturan pompa bahan bakar / kemungkinan opsi perakitan ulang.

Hub Nut (not shown)

Note: Jangan lepaskan Hub Nut dari pompa injeksi bahan bakar. Hub pump bahan bakar diposisikan pada poros pump untuk memastikan pump bahan bakar berada pada posisi yang benar / timing yang tepat. Jika hub dilepas, hub harus diposisikan dengan akurat pada poros pump. Pemosisian yang akurat memerlukan penggunaan peralatan khusus oleh dealer caterpillar.

2. The weight of the engine and pumps is 590 kg (1300 lb)

3. katup wastegate tidak beroperasi pada tekanan yang benar, kinerja mesin akan terganggu. Jika katup terbuka pada tekanan yang terlalu rendah, asap knalpot jadi hitam & kehilangan tenaga pada putaran mesin yang lebih rendah. Jika terlalu tinggi, tekanan silinder juga akan tinggi yang menyebabkan gasket rusak dan kerusakan bearing & piston ( $96 \pm 5$  Kpa ( $13.9 \pm 0.7$  psi))

4. Before the performance of the compression test, make sure that the following conditions exist:

- The battery is in good condition
- The battery is fully charged
- The starting motor operates correctly
- The valve lash is set correctly
- All fuel injection nozzles are remove
- The fuel supply is disconnected

1) Install gauge for measuring the cylinder compression in the hole for a fuel injection nozzle

2) Operate the starting motor in order to turn the engine. Record the maximum pressure which is indicated on the compression gauge

3) Repeat steps 1 and 2 for all cylinders

5. PN: 8T - 0455

6. Engine oil

7. Hydrostatic Transmission & variable displacement pump/motor

8. SMCS: 7561-012, 7561-016

9. bucket positioner : 4. lift cylinder to main frame

8. link to bucket

5. lever to lift Arms

9. lift Arms to bucket

7. lever to link

10. lift Arms

10. PN: 4C - 580g

11. Approximate weight: 7307 kg (16109 lb)

12. Engine: caterpillar multigrade DEO, API CG-4, API CF-4 (SAE 50)

Hydraulic & Transmission: caterpillar HYDO, --- DEO, --- TPTO, --- MITO, --- TO-4, API CG-4, API C API CF (SAE 15W40)

Final Drives: caterpillar TPTO, caterpillar TO-4 (SAE 15W40)

FAM BEAMS : > SMCS: 1357-025

1357-040

1357-510

1359-025-BE

1359-040-BE

1359-510-BE

1361 - " - "

1361 - " - "

1361 - " - "