Demonstrate Selecting and Using Caterpillar Service Literature

Skill Number CO-OP15GN109

Full Name: Reroldin Wahyu.M **No ID:** _____

Validation Date: 12 / 1 / 2026. **School:** _____

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%.	✓			Score Caterpillar Literature Course or subject.

Tasks	Completed			Observation / Hints
	Yes	No	N/A	
Preparation				
Prepare related literature	✓			Service Manual & Parts Manual related to an actual job Service Parts Request Form Service Parts Return Form
Prepare required equipment	✓			Engine or Machine
Prepare related tools	✓			
Prepare Safety & Contamination Control equipment	✓			

Tasks	Completed			Observation / Hints
	Yes	No	N/A	
Perform etiquette/manner when starting the job				
Meet the customer / assessor	✓			
Perform etiquette/manner when opening the interaction.	✓			• Perform smile & greetings. • Introduce Student's identity
Explain the purpose of Student's activity.	✓			
Ask permission to perform the job.				

Tasks	Completed			Observation / Hints
	Yes	No	N/A	
Selecting and using correct service manual & part manual related to the job				
Select Service Manual & Part book	✓			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	✓			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	✓			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."
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	✓			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)
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	✓			• 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) • 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) • The action can be done at anytime

Tasks	Completed			Observation / Hints
	Yes	No	N/A	
Reporting				
All relevant documentation completed correctly, and approved by customer (if required).	✓			• Completing the Task List • Completing Measurement Form/Related Check Sheet, if required • Create Service Report (SIMS), if required • Create SPR, if required • Documenting the failed or damaged parts, if required • Provide Technical Analysis Report/Failure Analysis Report, if required.

Tasks	Completed		Observation / Hints
	Yes	No	
Safety			
Using APD related to the job	✓		
Follows relevant workplace safety guidelines (tag out, safety equipment)	✓		• Comply with safety regulation that applied on the workplace
State and follow safety precautions	✓		• Create Job Safety Analysis • Student must follow safety procedure refer to service manual or SIS related to job
Serviceman completes job without accident due to incorrect procedure using hand tools.	✓		• Correct working position • Correct hand tool related to the job
Tasks completed without damage equipment and tools			

Tasks	Completed		Observation / Hints
	Yes	No	
Contamination Control			
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	N/A	
Perform etiquette/manner after completing the job				
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 (√))

Student:	Revoldin Wahyu .M Name	9/2/2026 Date	[signature] Signature
Assessor:	Setiawan TB Name	9/2/2018 Date	[signature] Signature
Supervisor:	Name	Date	Signature
Data Recorded:	Name	Date	Signature

Demonstrate Selecting and Using Caterpillar Service Literature

Skill Number CO-OP15GN109

Full Name: Rebobin wahyu .N\ **No ID:** _____

Validation Date: _____ **School:** _____

PERFORMANCE TASK:

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- 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%.	√			

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

Tasks	Completed			Observation / Hints
	Yes	No	N/A	
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	N/A	
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	V			
Returning part by requesting assessor	V			
Documentation:				
Take picture if needed	V			

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

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

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

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

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 (√))

Student:	Name: Beroldin Wahyu.M	Date: 9/2/2026	Signature
Assessor:	Name: Sebastian TB	Date: 9/2/2026	Signature
Supervisor:	Name	Date	Signature
Data Recorded:	Name	Date	Signature

D5E & D5B Tractors.

1. Unit D5B Tractors menggunakan engine 3306 dengan jenis fuel system.....

2. Cat 3306engine ini memiliki sperifikasi sebagai berikut:
   a. Bore ..... mm
   b. Stroke ..... mm.
   C. Cylinder Arrangement. ....
   d. displacement ..... l.

3. fuel hyechious pump pada engine 3306 memiliki bypass valve springs dengan PN ..... dan untuk jenis Later memiliki coil sebanyak.

4. Tuliskan Parts NO (PN) untuk Diesel Engine Timing Indicator group tuliskan pula foorm NO untuk Instruksinya.

5. Berapa derajat toleransi dari fuel system timing tuliskan cara measuring piston Travel..

6. Tuliskan part NO (PN) untuk ~~Valve Guide Gauge~~ Group. dan Nozzle Testing Group.

7. Unit D5B 23x1-UP memiliki Torque Converter dengan spesifikasi clearance between Stator & Turbin untuk torque converter baru sebesar ..... mm.

8. Power shift transmission pada D5B 23x1-UP memiliki ..... pasang clutch.

9 Tuliskan PN Disconnect switch Assembly untuk unit 48x1.

10. Pada unit Road Lighting (3475 35 OI/S). berapa Ampere fuse untuk: a. flasher unit, b. Bakup Lamp switch. c. Dimmer Switch.

V11. Berat unit DSE adalah ....

V12. pada unit DSB Tuliskan pengebab dan penyelesaian jika : a. Alternator tidak dapat mengisi batery.
b. Pengisian Alternator tidak normal.

13. Pada unit DSE. tuliskan jenis oli untuk:
a. Engine oil pada temperatur kerja -20 + 40°C.
b. Power Train oil pada temperatur 0 -; +35 °C.
c. Hydraulik oil pada temp -20 + 40 °C.
d Sealed and lubricated track, pins.

14. Berapa volume pengisian : a. Engine crankcase;
b. Power Train. System. c. Cooling system.

15. Tuliskan kebutuhan parts saat PM 500. unit DSE pada Service Parts Requisition. (SPK).

~~Fuel Injection~~ pump FIP karena ~~a~~ engine tsb menggunakan mekanikal FIP
~~Direct Injection~~

$\frac{1}{4} \pi D = \frac{1}{4} \times 3,14 \times 12,07 = $ ~~866~~ 389 cm²
9,47495 cm²
15,24
1441,398238 cm³
14,4 dm³

A.) Bore 120.7 mm (4.75 in) 12,07 cm
B.) ~~star~~ stroke 152.4 mm (6.00 in) 15,24 cm
C.) cylinder Arrangement In line 6.
D.) displacement ~~liter (9 gal)~~ (10,5 liter) l.
~~481 Liter (131,25 gal) (109,7 imperial gal)~~

. ,012 to ,018 in.
(0,30 to 0,46 mm)

. Part number : 8T5300
Form no : SEHS8580

. valve guide gauge Grup PN : 5P3536
nozzle testing group PN : 5P4150

8. 5 pasang clutches

5. derajat toleransi fuel system timing

- D7G (special Application) 8°30' ± 1°
- All others 13°30' ± 1°

} sleeve metering - PC

- Engines with turbo charger 23 ± 1°
- Engines without turbo charger 29 ± 1°

Cara measuring piston travel

1. posisikan piston pd titik tengah atas (TC) pd langkah kompresi. lihat cara menemukan posisi kompresi titik tengah atas untuk piston
2. lepaskan nosel bahan bakar dari ruang pra-pembakaran untuk cylinder
3. oleskan sedikit oli bersih pd batang & ~~masukkan~~ masukkan batang ke dlm adaptor
4. masukkan adaptor ke dlm ruang pra-pembakaran & kencangkan adaptor dg tangan
5. ~~ma~~ pasang titik kontak yg benar & penjepit collet pd indikator dial
6. masukkan indikator yg telah dirakit ke dlm adaptor. Posisikan indikator putar (atas/bawah) sehingga penunjuk kecil berada pd + 300 inci (7,62 mm) ~~kencangkan~~ & kencangkan penjepit
7. kendurkan sekrup yg mengunci permukaan jarum penunjuk. gerakkan permukaan jarum penunjuk hingga jarum besar berada pd angka "0" (nol) & kencangkan sekrup pengunci
8. putar poros engkol minimal 30° searah jarum jam
9. putar poros engkol berlawanan arah jarum jam hingga indikator putaran menunjukkan pergerakan piston maksimum. lakukan penyesuaian pd indikator putaran, jika perlu, untuk menempatkan kedua titik indikator putaran pd "0" (nol) ... pompa injeksi. pd rumah pompa injeksi. pasang grup adaptor pd pompa injeksi

11. lepaskan saluran bahan bakar dr filter bahan bakar. gunakan adaptor untuk mengkuangkan tekanan selang ke saluran bahan bakar. lepaskan & saluran pengembalian bahan bakar dari sisi saluran keluar pd manifold bahan bakar menuju rumah pompa injeksi. pasang sumbat pd sisi saluran keluar

12. putar poros engkol sekitar 45° searah jarum jam

13. masukkan 1 galon AS (4 liter) bahan bakar bersih ke dlm tekanan tangki. pindahkan tuas pengatur ke posisi "bahan bakar aktif" pesan. masukkan tekanan udara 15 psi (105 kPa) ke dlm tangki dg menggunakan pompa tangan / udara bengkel

14. letakkan ponci dibawah ujung bebas tabung untuk bahan bakar yg keluar

15. putar poros engkol perlahan searah putaran normal. lakukan ini sampai aliran bahan bakar yg keluar dari ujung tabung adalah 6 - 12 tetes per menit

16. hentikan putaran poros engkol ketika aliran bahan bakar mencapai 6 - 12 tetes per menit. catat hasil pengukuran pd indikator dial

17. untuk memeriksa ketepatan pengaturan waktu sistem bahan bakar, bandingkan pengukuran pd indikator dial dg pengukuran pd salah satu grafik berikut

18. jika pembacaan pd indikator dial sama dg grafik, maka pengaturan waktu sistem bahan bakar sudah benar. Jika pembacaan pd indikator dial berbeda dari grafik lebih dari 1°, lakukan penyesuaian pd pengaturan waktu. lihat bagian memeriksa pengaturan waktu dg metode pin pengaturan waktu untuk metode yg benar dlm menyesuaikan pengaturan waktu sistem bahan bakar

19. PN : Disconnect switch : 1411-10

20. A. 5 A

B. 2 A

C. 15 A

21. weight : 10 836 kg (23,840 lb)

23. A. SAE 10W30

B. SAE 30

C. SAE 10W

D. SAE 80W90

24. A. 27.5 liters (7,25 gal)

B. 77 liters (20,5 gal)

C. 34 liters (9)

25. A. penyebab

- sabuk penggerak alternator kendur
- sirkuit pengisian daya/sirkuit pengembalian ground/koneksi baterai mengalami kerusakan
- kabel sudah aus/rusak

penyelesaian

- lakukan penyesuaian untuk memberikan tegangan yg tepat pd sabuk penggerak
- periksa semua kabel & sambungan. bersihkan & kencangkan semua sambungan. ganti komponen yg rusak
- pasang kabel baru

B.

- sabuk penggerak alternator kendur
- sirkuit pengisian daya/sirkuit pengembalian ground/koneksi baterai mengalami kerusakan
- regulator alternator mengalami kerusakan

- lakukan penyesuaian untuk memberikan tegangan yg tepat pd sabuk penggerak
- periksa semua kabel & sambungan. bersihkan & kencangkan semua sambungan. ganti komponen yg rusak
- lakukan penyetelan/ganti regulator alternator

23. bypass valve springs PN : 6N6053

Trakindo CAT

PT. Trakindo Utama

SERVICE PARTS REQUISITION 4.3

WORK ORDER NO.	A/C NO.	CUSTOMER	MODEL	SERIAL NO.		
		SMKN 1 SINGOSARI	D5E	8MB	1	WARRANTY
					2	UNIT DOWN
					3	SCHEDULE

SEG NO. | OPR NO. | JOB OUT LINE COMMENT : | SMU :

DELIVER TO :	DATE/TIME OF DELIVERY :	CATERPILLAR PARTS ?		INITIAL SUPPLY PSO REF. NO.
SMKN 1 Singosari	27 Januari 19.42	YES	NO	

CUSTOMER REPRESENTATIVE NAME	CUSTOMER REPRESENTATIVE SIGNATURE	TOTAL PARTS ESTIMATE
Stephan Tuhu Basuki		

PREPARED BY: SN : 24183/1076.018	APPROVED BY :	DATE/TIME APPROVED
NAME : Revaldin Wahyu M.		

NO.	PART NO.	CHANGED TO	DESCRIPTION	QTY EST	QTY ACT	APPRO VAL	PRICE UNIT	PRICE EXTENDED	RECD
1	9M-9740	9M-9740	Filter element AS-oil	1	1				
2	1R-0750	1R-0750	Filter - fuel	1	1				
3	1R-1807	1R-1807	Filter AS- Engine oil	1	1				
4	4J-0816	4J-0816	Filter element - oil	1	1				
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
							TOTAL C/F	0,00	

* **APPROVAL CODES**

C = CUSTOMER REQUEST

I = FOUND BY INSPECTOR

R = FOUND DURING REPAIR

O = APPROVED BY CUSTOMER

X = NOT APPROVED BY CUSTOMER

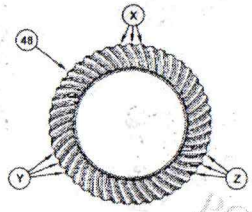

Illustration 39 g03871429

(48) Bevel gear

k. To check the tooth contact between pinion shaft (14) and bevel gear (48), coat bevel gear (48) with a suitable rouge compound in three locations that are 120 degrees apart, as indicated by Locations (X) (Y), and (Z).

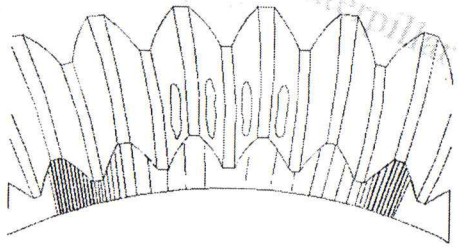

Illustration 40 g02659550

Acceptable tooth contact pattern

l. Rotate the pinion shaft in both directions. The acceptable bevel gear contact pattern percentages are 60 percent from heel for convex, and 55 percent from heel for concave. Refer to Illustration 40 .

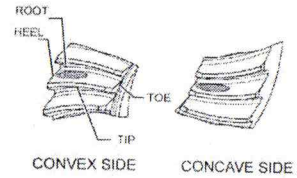

Illustration 41 g03871720

Unacceptable tooth contact pattern

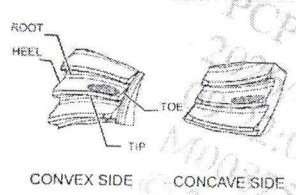

Illustration 42 g03871722

Unacceptable tooth contact pattern

m. Inspect the tooth contact pattern. If the tooth contact pattern appears like the tooth contact pattern in Illustration 41 , then some shims will need to be added and the tooth contact pattern will need to be rechecked. If the tooth contact pattern appears like the tooth contact pattern in Illustration 42 , then some shims will need to be removed.

Note: If the shims are adjusted, repeat Step 33 through Step 37m .