

Demonstrate Selecting, Using and Maintaining a range of Precision and Non-Precision Tools to Accurately Measure

Skill Number CO-OP15GN105

Full Name: Niko Andrian P

No ID: _____

Validation Date: 16/12/2025

School: SMKN 1 SINGOSARI

PERFORMANCE TASK:

Given some measuring tools, the student is requested to perform the following tasks on various measuring tools:

- Selecting
- Using
- Recording
- Maintaining

The student will be instructed to measure with a non-precision gauge such as: steel ruler, feeler gauge and precision tools such as vernier calipers, outside, inside and depth micrometer the dimension of some given parts. Literature and measuring tools will be made available but will not be provided directly to the student.

The student must be able to perform the following task:

- Demonstrate using various measuring tools on an engine or other system components.

Safety and Contamination Control must be always applied to this process.

| 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, Using and Maintaining a range of Precision and Non-Precision Tools | | | | |
| 1. Inspect the measuring tool before using | ✓ | | | |
| 2. Clean tool and component | ✓ | | | |
| 3. Calibrate measuring tools before using | ✓ | | | |
| 4. Measure component use measuring tools with tolerance allowance 0.5 mm (0.02" or 1/25") for non-precision measuring tools and 0.025 mm (0.001") for precision measuring tools. | ✓ | | | |
| 5. Tasks completed without damage to equipment and tools | ✓ | | | |
| 6. Equipment and tooling are cleaned and returned to its correct location | ✓ | | | |
| 7. Record the reading of the measurements | ✓ | | | |
| Documentation: | | | | |
| Take picture if needed | | | | |

| Tasks | Completed | | | Observation / Hints |
|---|-----------|----|-----|---------------------|
| | Yes | No | N/A | |
| Perform close the job by ensuring all systems or conditions is in the standard condition | | | | |
| Ensure all systems or conditions are in 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 PPE related to the job | ✓ | | |
| Follows relevant Workplace Safety Guidelines (LOTO, 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 (√))

Student: Niko Andrian P
Name

16/12/2025
Date


Signature

Assessor: Sebastian JB
Name

22/12/2024
Date


Signature

Supervisor: _____
Name

Date

Signature

Data Recorded: _____
Name

Date

Signature

| Tasks | Completed | | Observation / Hints |
|--|-------------------------------------|----------|--|
| | Yes | No / N/A | |
| Perform etiquette/manner when starting the job | <input checked="" type="checkbox"/> | | |
| Meet the customer / assessor | <input checked="" type="checkbox"/> | | |
| Perform etiquette/manner when opening the interaction. | <input checked="" type="checkbox"/> | | <ul style="list-style-type: none"> 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 | |
| Selecting, Using and Maintaining a range of Precision and Non-Precision Tools | | | |
| 1. Inspect the measuring tool before using | <input checked="" type="checkbox"/> | | Visual inspection of the measuring tool for wear, cracks, damage |
| 2. Clean tool and component | <input checked="" type="checkbox"/> | | Using of consumables CC tools |
| 3. Calibrate measuring tools before using | <input checked="" type="checkbox"/> | | Tools should be calibrated as given procedure |
| 4. Measure component use measuring tools with tolerance allowance 0.5 mm (0.02" or 1/25") for non-precision measuring tools and 0.025 mm (0.001") for precision measuring tools. | <input checked="" type="checkbox"/> | | Thread identification gauge and tire pressure gauge without tolerance |
| 5. Tasks completed without damage to equipment and tools | <input checked="" type="checkbox"/> | | Component and tooling are cleaned and assembled as given procedure |
| 6. Equipment and tooling are cleaned and returned to its correct location | <input checked="" type="checkbox"/> | | Cleaned and stored equipment tools on the right place. |
| 7. Record the reading of the measurements | <input checked="" type="checkbox"/> | | Write the actual reading on the paper given by the assessor |
| Documentation: | | | |
| Take picture if needed | | | |

Demonstrate Selecting, Using and Maintaining a range of Precision and Non-Precision Tools to Accurately Measure

Skill Number CO-OP15GN105

Full Name: Niko Anderson P No ID: _____
 Validation Date: 15/12/2025 School: SKKIN (Singosori)

PERFORMANCE TASK:

Given some measuring tools, the student is requested to perform the following tasks on various measuring tools:

- Selecting
- Using
- Recording
- Maintaining

The student will be instructed to measure with a non-precision gauge such as: steel ruler, feeler gauge and precision tools such as vernier calipers, outside, inside and depth micrometer the dimension of some given parts. Literature and measuring tools will be made available but will not be provided directly to the student.

The student must be able to perform the following task:

- Demonstrate using various measuring tools on an engine or other system components.

Safety and Contamination Control must be always applied to this process.

| Prerequisite | Yes | No | N/A | Hints |
|--|-----|----|-----|--|
| The student must complete the knowledge assessment. Minimum passing grade 80%. | | | | Score measuring tools Course or subject. |

| Tasks | Completed | | Observation / Hints |
|--|-------------------------------------|----------|---------------------|
| | Yes | No / N/A | |
| Preparation | | | |
| Prepare related literature | <input checked="" type="checkbox"/> | | |
| Prepare required equipment | <input checked="" type="checkbox"/> | | |
| Prepare related tools | <input checked="" type="checkbox"/> | | |
| Prepare Safety & Contamination Control equipment | <input checked="" type="checkbox"/> | | |

| 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 are removed following workplace procedures 5. All fluids are disposed of in accordance with enterprise policies and procedures |

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

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

| Tasks | Completed | | Observation / Hints |
|--|-----------|----|---|
| | Yes | No | |
| Reporting All relevant documentation completed correctly and approved by customer (if required). | ✓ | | <ul style="list-style-type: none"> 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 PPE related to the job | ✓ | | |
| Follows relevant Workplace Safety Guidelines (LOTO, Safety Equipment) | ✓ | | Comply with safety regulation that applied on the workplace |
| State and follow Safety Precautions | ✓ | | <ul style="list-style-type: none"> 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. | ✓ | | <ul style="list-style-type: none"> Correct working position Correct hand tool related to the job |
| Tasks completed without damage equipment and tools | ✓ | | |

General Comments

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

Student: Niko Andriar P Name 16/12/2025 Date

[Signature]
Signature

Assessor: Schawen TB Name 12/12/2025 Date

[Signature]
Signature

Supervisor: _____ Name _____ Date _____ Signature _____

Data Recorded: _____ Name _____ Date _____ Signature _____

$$\begin{array}{r} 82,50 \\ 10 \\ \hline 82,58 \end{array}$$

82,58

$$\begin{array}{r} 99,99 \\ 66,66 \\ \hline 99,50 \\ + 99 \\ \hline 66 \end{array}$$

$$5010 =$$

$$1,95 \times 2 = 3,9$$

$$\frac{1}{16}$$

$$\frac{39 \text{ mm}}{1,95} = 20$$

20



$$\frac{1}{100} \times 100 = 1$$

$$\frac{1}{10} \times 10 = 1$$

$$\frac{1}{10} \times 10 = 1$$

$$\frac{1}{10} \times 10 = 1$$

$$\frac{1}{10} \times 10 = 1$$

$$\frac{1}{10} \times 10 = 1$$

$$\frac{1}{10} \times 10 = 1$$

$$\frac{1}{10} \times 10 = 1$$

$$5010 = \frac{100}{3} = 33,33$$

$$\frac{1}{10} \times 10 = 1$$

$$\frac{1}{10} \times 10 = 1$$

$$\frac{1}{16}$$



$$\frac{1}{16}$$



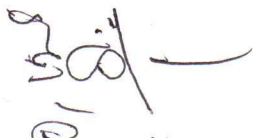
$$\frac{1}{16}$$

$$\frac{1}{16}$$

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$$\frac{1}{16}$$

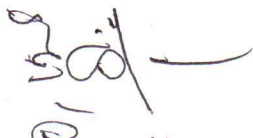


$$\frac{1}{16}$$

$$\frac{1}{16}$$

$$\frac{1}{128}$$

=



$$\frac{1}{16}$$

$$\frac{1}{16}$$

on boat

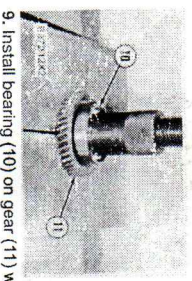
$$\frac{1}{16}$$

$$\frac{1}{16}$$

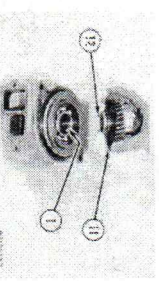
$$\frac{1}{128}$$

$$\frac{1}{16}$$

~~Shaft = 1.2237~~



9. Install bearing (10) on gear (11) with a press.



10. Make an alignment of pins (12) on gear (11) and the holes in shaft (1). Put the gear and bearing in position on the shaft, and install the washer and bolt that hold them together.

END BY:

a. install water pump

PCP-00022950
2025/12/16
02:45:56+07:00
SENR2800057
© 2025 Caterpillar Inc.

ps/ris2.cat.com/#print?view=service&no=93045-861-48&u=8750-02&O=1&R2B

Prm

Shaft = 1.2237 } $\phi: 0.0143$

Diameter dk gear = 1.2380

Housing gear = 2.794

Diameter luar gear = 2.790

} 0.004

Bolt 1 = 1D-4566 (4 biji)
Bolt 2 = 0L-1143 (1 biji)

1.23
1.23
0.0

01/06/1572

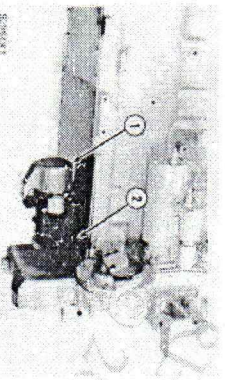
Oil Pump (REG01172)

SMCS - 1304

Remove Oil Pump

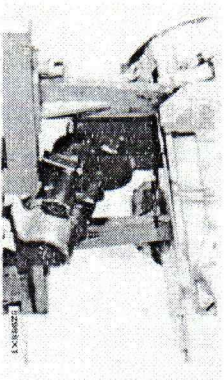
start by:

- a) remove engine
- b) remove oil pan



1. Remove the oil pump mounting bolts (2) and locks.
2. Remove the oil pump (1). Weight 55 lbs. (25 kg).

Install Oil Pump



1. Put the oil pump on the engine.
2. Install the oil pump mounting bolts and locks.

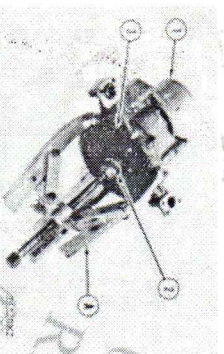
- end by:
- a) install oil pan
 - b) install engine

Disassemble Oil Pump

| Tools Needed | | A |
|--------------|----------------|---|
| 1P2322 | Puller (8H705) | 1 |
| 887560 | Step Plate | 1 |

start by:

- a) remove oil pump

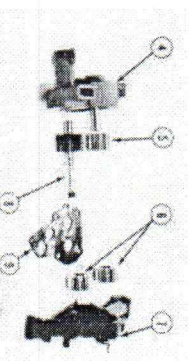


1. Remove the cotter pin and loosen gear retaining nut (2). Using tool setup (A) the oil pump drive gear (3) from shaft. Remove tool setup (A), nut, washer and the woodruff key from shaft.
2. Remove the suction bell (1). Remove the oil pump bypass valve cover and s...

NOTICE

Loosen the cover mounting bolts slowly until spring tension is relieved.

3. Remove the bypass valve spring and plunger.

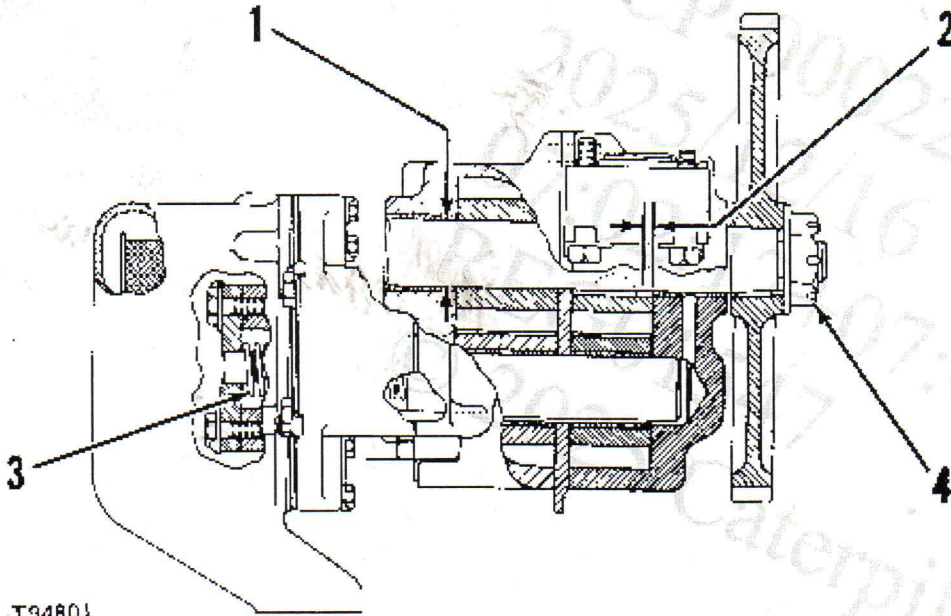


4. Remove the pump housing mounting bolts and separate housings (4) and (7) two oil pump gears (6) and woodruff key from the oil pump shafts. Remove spa (9), shaft (8) and gear (5).

01/08/1985

Engine Oil Pump (9S1195 and 9S1575) (REG01547)

SMCS -



T94804

9S1195 SHOWN

(1) Diameter of shaft ... $1.2278 \pm .0003$ in. (31.186 ± 0.008 mm)Bore in bearings ... $1.2305 \pm .0005$ in. (31.255 ± 0.013 mm)Maximum permissible clearance between bearings and shaft (worn) ... $.005$ in. (0.13 mm)(2) Clearance between gear and cover ... $.003 \pm .001$ in. (0.08 ± 0.03 mm)(3) Oil pressure to open relief valve ... 72 ± 4 psi (5.0 ± 0.3 kg/cm²)

(3) 2S2760 Spring for relief valve:

Length under test force ... 4.64 in. (117.86 mm)Test force ... 110 ± 5.5 lb. (49.9 ± 2.5 kg)Free length after test ... 6.02 in. (152.9 mm)Outside diameter ... 1.063 in. (27.00 mm)(4) Torque for nut (9S1195 Pump) ... 100 lb. ft. (13.8 mkg)

Tighten more to get alignment for cotten pin.

Traktindo 017

ANALISIS SINGKAPAN KESELAMATAN KERJA (JOB SAFETY EMPLOYMENT ANALISE)

Pekerjaan: **DK 01 Engine Fuel** Nomor Job: **1**
 Tanggal: **14/11/2018** Durasi: **1 AB** Lokasi: **Workshop Teknik Axi Bred**
 Nama: **...** No. Absen: **...**
 Nama: **...** No. Absen: **...**

Pekerjaan: **...** Durasi: **...** Lokasi: **...**
 Nama: **...** No. Absen: **...**

Nama: **...** No. Absen: **...**
 Pekerjaan: **...** Durasi: **...** Lokasi: **...**
 Nama: **...** No. Absen: **...**

| No | Daftar Isi | Daftar Yang Telah / Akan Dilakukan | Spesifikasi / Detail / Keterangan |
|----|----------------------------|--|---|
| 1 | Presipit Axi (Packing etc) | Empotensi | 1.1. Perawatan fuel system 1.2. Perawatan sistem 1.3. Laboran perbaikan sistem 1.4. Perawatan sistem |
| 2 | Presipit Axi (Injection) | Tinjau yang terkait Tinjau bagian lain yang terkait | 1.1. Perawatan sistem 1.2. Perawatan sistem 1.3. Laboran perbaikan sistem 1.4. Perawatan sistem |
| 3 | Presipit Axi (Fuel pump) | Empotensi | 1.1. Perawatan sistem 1.2. Perawatan sistem 1.3. Laboran perbaikan sistem 1.4. Perawatan sistem |
| 4 | Presipit Axi (Fuel pump) | Tinjau yang terkait Tinjau bagian lain yang terkait | 1.1. Perawatan sistem 1.2. Perawatan sistem 1.3. Laboran perbaikan sistem 1.4. Perawatan sistem |

