



# TASK CARD AMC-Fleet

TaskCard: Precision Measurements	Date: Feb 2020	Aircraft: N/A
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E/C:	P/N:	S/N:	A/C Pos:	NLA Pos:
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**Description:** This is a 4-person team task worth a maximum of 100 points. The time period to complete the task is 30 minutes. The team will work together to determine nominal measurements and airworthiness of given components utilizing the equipment and procedures outlined below.

Area:	Labor Hours:	W/O Phase:
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**Skills:** Precision Measurements

ITEM:	INSTRUCTIONS	MECH:	QC
	<p><b>OBJECTIVE:</b> Given aircraft engine components, selection of precision measurement tools, and appropriate Overhaul Manual and Service Table of Limits, perform the following with zero assistance from non-team members:</p> <ol style="list-style-type: none"> <li>(1) Determine the actual measurements of the given components as listed in below procedures, and</li> <li>(2) Determine if the given components are dimensionally airworthy in accordance with approved data.</li> </ol> <p><b>TOOLS AND EQUIPMENT:</b></p> <ul style="list-style-type: none"> <li>• Continental IO-520 Cylinder and Piston</li> <li>• Dial Bore Gauge Set</li> <li>• Telescoping Gauge Set</li> <li>• Outside Micrometer Set</li> <li>• Feeler Gauge Set</li> <li>• Table Clamp</li> <li>• Steel Ruler/Straight Edge</li> <li>• Continental IO-520 Overhaul Manual</li> </ul> <p><b>EVALUATION CRITERIA:</b> Each team will be evaluated on the following skills, abilities, and outcomes:</p> <ol style="list-style-type: none"> <li>(1) Demonstrate proper procedure for acquiring requested measurement.</li> <li>(2) Choose and configure the appropriate measuring tool or device.</li> <li>(4) Obtain the desired measurement within the required tolerances.</li> <li>(3) Utilize approved maintenance data to determine dimensional airworthiness.</li> <li>(4) Demonstrate effective communication and teamwork</li> <li>(5) Demonstrate proper use of tools and safety procedures</li> </ol>		



ITEM:	INSTRUCTIONS	MECH:	QC
	<p><b>PROCEDURES:</b></p> <p>Utilizing the given engine components, you must determine their actual dimensions with the required precision using the appropriate precision measurement tools. Once the actual dimension as are determined, compare those measurements and determine if the component is dimensionally airworthy.</p> <p><b>Note:</b> Other conditions of the components, such as damage, distortion, etc., are <u>not</u> considered to affect airworthiness for the purposes of this event.</p> <p>Refer to CONTINENTAL IO-520 OVERHAUL MANUAL (paragraphs 6-7, 6-8, 6-9, 6-22, 6-23, and Table of Limits (Table XII)) and use PRECISION MEASUREMENTS WORKSHEET to perform the following dimensional measurements:</p> <ol style="list-style-type: none"> <li>1. Measure piston diameter clearance (Ref. No. 25)</li> <li>2. Measure piston ring side clearance of top compression ring (Ref No 27) Note: Assume gap clearance measurement is normal and within limits</li> <li>3. Measure cylinder barrel bore Diameter near lower end of the barrel (Ref No 1)</li> <li>4. Measure cylinder bore diameter 5.25 inches from open barrel end near top of piston ring travel limit (Ref No 2)</li> <li>5. Use cylinder barrel measurements obtained above to determine cylinder bore out-of-round limit (Ref No 3)</li> <li>6. Use cylinder barrel measurements obtained above to determine cylinder bore choke/taper limit (Ref No 2)</li> <li>7. Use Piston diameter and cylinder barrel measurements obtained above to determine piston-in-cylinder clearance limit (Ref No 25)</li> <li>8. Record above dimensional measurements on PRECISION MEASUREMENTS WORKSHEET and submit completed worksheet to judge for scoring.</li> </ol> <p style="text-align: center;">----- END -----</p>		

## PRECISION MEASUREMENT SCORE CARD

School/Team Name: \_\_\_\_\_

Judge Name: \_\_\_\_\_

Each item below has a maximum point value and consists of two or more sub items. Assign points to each corresponding sub-item as indicated in the center column in table below. The sub items are added together and entered in the right-hand column in table below. The total team score is determined by adding all entries in the right-hand column and entered in the box at the bottom of that column.

ITEM	EVALUATION CRITERIA	SCORE
1	Proper use of Bore Dial Gauge for cylinder measurements Correct location at bottom of barrel (5 Points) _____ Correct location at top of barrel (5 Points) _____ Measurements at thrust line and 90 degree line (5 Points) _____ Correct use of inside caliper gauge (5 Points) _____	20 points max.
2	Proper use of Feeler Gauge for cylinder measurements Piston ring placed in flush position (5 Points) _____ Correct measurement location (5 Points) _____	10 points max.
3	Proper use of Inside Caliper Gauge for piston measurements Correct location below 3 <sup>rd</sup> ring groove (5 Points) _____ Measurement at thrust line and 90 degree line (5 Points) _____	10 points max.
4	Cylinder Measurements Within Table of Limits Cylinder bore diameter lower end [Ref#1] (10 points) _____ Cylinder bore taper/choke at 5.75" [Ref#2] (10 points) _____ Cylinder bore out-of-round [Ref#3] (10 points) _____	30 points max.
5	Piston Measurements Piston diameter in cylinder [Ref#25] (10 points) _____ Top piston ring side clearance [Ref#27] (10 points) _____	20 points max
6	Effective Team Work and Communication Equal Participation of all team members (5 points) _____ Clear communication between team members (5 points) _____	10 points max.
<b>TOTAL TEAM SCORE:</b>		