

# CW Cylinder Bore Measurement Record

Block # / Run # : **CW12 2nd**  
 Test Number: **95-0-034**

Date: **1/26/2016**  
 Tech: *[Signature]*

## Cylinder Bore Measurements w/o Stress Plate

Finish Target: ( 9- 13 Ra )  $\mu$ in  
 Bore Gauge Set: 87.5 mm

Piston to Wall Clearance: (.0225 - .0475 ) mm  
 Cylinder Cross Hatch Target: ( 25°-35° ) Deg

### Instrument Cntrl # 175

Cylinder Number	Location	Longitudinal Diameter ( mm )	Transverse Diameter ( mm )
1	Top	87.524	87.522
	Middle	87.20	87.520
	Bottom	87.512	87.518
2	Top	87.52	87.528
	Middle	87.526	87.520
	Bottom	87.522	87.518
3	Top	87.514	87.520
	Middle	87.516	87.516
	Bottom	87.514	87.512
4	Top	87.514	87.524
	Middle	87.514	87.522
	Bottom	87.510	87.518

### Instrument Cntrl # CW6

Surface Finish ( $\mu$ in )	Piston Diameter ( mm )	Piston Clearance ( mm )
ra	87491	0.027
ra	87493	0.025
ra	87483	0.029
ra	87487	0.031

### Instrument Cntrl # 135

Cylinder Number	Top Ring Gap	Second Ring Gap
1	0.065	0.070
2	0.065	0.070
3	0.065	0.070
4	0.065	0.070

### REGAP/EOT

Cylinder Number	Top Ring Gap	Second Ring Gap
1	0.066	0.074
2	0.066	0.073
3	0.066	0.074
4	0.068	0.075

Approved *[Signature]*

# HEAD DATA SHEET

**HEAD #** CW12

**HEAD RUN #** 6th

**DATE:** 1/27/2016

**Engine #** CW12

**Test #** 95-0-034

**Instrument Cntrl # (Valve Guide)** 172

**Instrument Cntrl # (Valve Stem)** 133

	Valve Guide Diameter (5.51) mm	Valve Stem Diameter (5.5) mm	Clearance (0.03-0.07) mm
1A Intake	5.514	5.477	0.037
1B Intake	5.52	5.477	0.043
2A Intake	5.514	5.474	0.040
2B Intake	5.518	5.467	0.051
3A Intake	5.524	5.473	0.051
3B Intake	5.522	5.469	0.053
4A Intake	5.522	5.469	0.053
4B Intake	5.522	5.470	0.052

	Valve Guide Diameter (5.51) mm	Valve Stem Diameter (5.5) mm	Clearance (0.03-0.07) mm
1A Exhaust	5.518	5.465	0.053
1B Exhaust	5.516	5.461	0.055
2A Exhaust	5.518	5.459	0.059
2B Exhaust	5.516	5.462	0.054
3A Exhaust	5.526	5.462	0.064
3B Exhaust	5.518	5.462	0.056
4A Exhaust	5.518	5.460	0.058
4B Exhaust	5.520	5.461	0.059

**Instrument Cntrl # (Length) 1**

	SPRING FREE LENGTH (47mm)	SPRING TENSION (@28.5 mm)
1A Intake	47.24	46 Kilos
1B Intake	47.27	46 Kilos
2A Intake	47.33	47 Kilos
2B Intake	46.94	46 Kilos
3A Intake	47.15	46 Kilos
3B Intake	47.2	47 Kilos
4A Intake	47.01	47 Kilos
4B Intake	47.23	47 Kilos

**Instrument Cntrl # (Tension) Y1580**

	SPRING FREE LENGTH (47mm)	SPRING TENSION (@28.5 mm)
1A Exhaust	47.1	46 Kilos
1B Exhaust	47.03	47 Kilos
2A Exhaust	47.89	47 Kilos
2B Exhaust	47.17	46 Kilos
3A Exhaust	47.22	47 Kilos
3B Exhaust	47.16	47 Kilos
4A Exhaust	47.06	46 Kilos
4B Exhaust	47.27	46 Kilos

**Instrument Cntrl # (Lash) 148**

Intake Valve Lash Measurement	
(.19 - .31) mm	
1F	0.2
1R	0.2
2F	0.22
2R	0.2
3F	0.22
3R	0.25
4F	0.2
4R	0.22

Exhaust Valve Lash Measurement	
(.30 - .42) mm	
1F	0.35
1R	0.35
2F	0.33
2R	0.33
3F	0.33
3R	0.33
4F	0.35
4R	0.33

**Head Flatness:** *good*

**Initials:** *[Signature]*

## CW Engine Measurement Record

Engine Number: **CW12**                      Date: **1/26/2016**

Test Number: **95-0-034**

Technician: *[Signature]*

Instrument Cntrl # (Journal) **CW02**

Instrument Cntrl # (Bearing) **179**

### Main Bearing Journals (mm)

*Diameter: (51.978mm - 52.002mm)*

Journal Number	Horizontal Diameter	Vertical Diameter	Bearing Inside Diameter	Clearance .027mm - .052mm
<b>1</b>	51.986	51.986	52.022	0.036
<b>2</b>	51.985	51.985	52.022	0.037
<b>3</b>	51.985	51.985	52.022	0.037
<b>4</b>	51.983	51.983	52.022	0.039
<b>5</b>	51.983	51.983	52.014	0.031

Instrument Cntrl # (Journal) **CW02**

Instrument Cntrl # (Bearing)

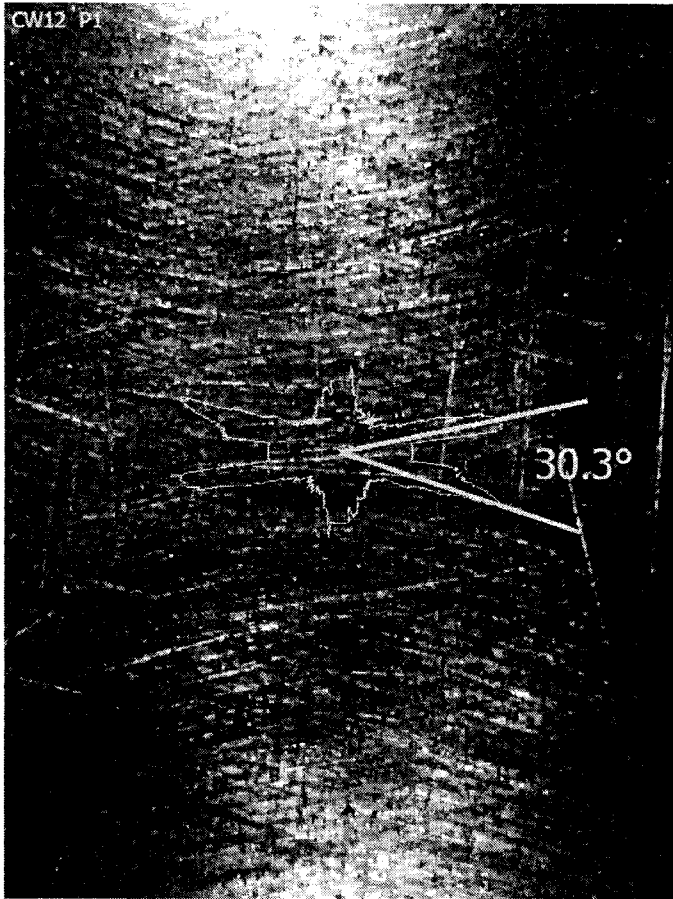
### Rod Bearing Journals (mm)

*Diameter: (51.978mm - 52.002mm)*

Journal Number	Horizontal Diameter	Vertical Diameter	Bearing Inside Diameter	Clearance .027mm - .052mm
<b>1</b>	51.987	51.987	52.038	0.051
<b>2</b>	51.986	51.986	52.028	0.042
<b>3</b>	51.986	51.986	52.028	0.042
<b>4</b>	51.987	51.987	52.038	0.051

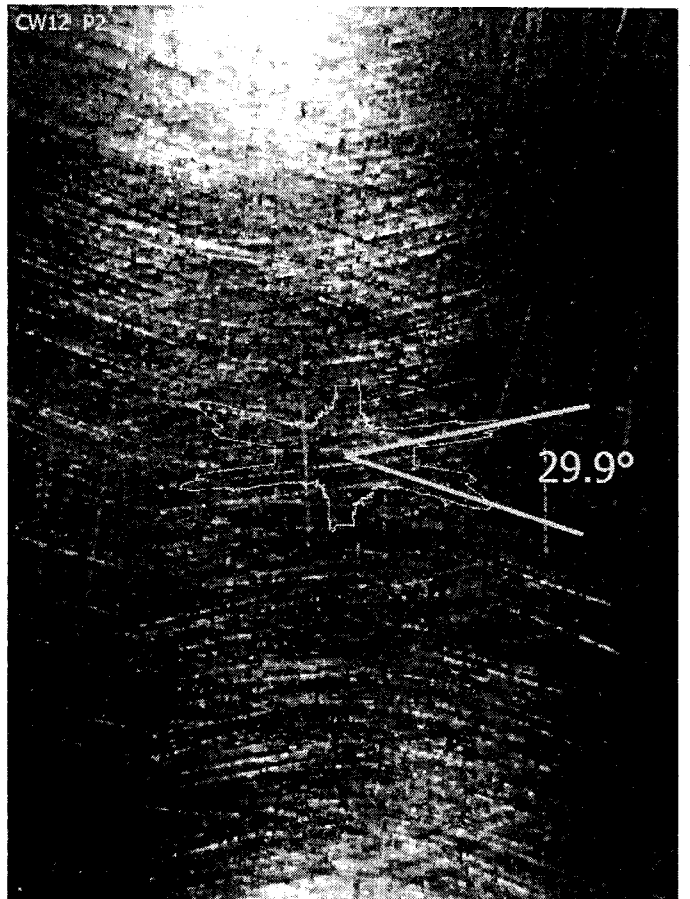
Instrument Cntrl # (Endplay) **CW03**

Crankshaft End Play (0.22 mm - 0.45 mm)                .28mm



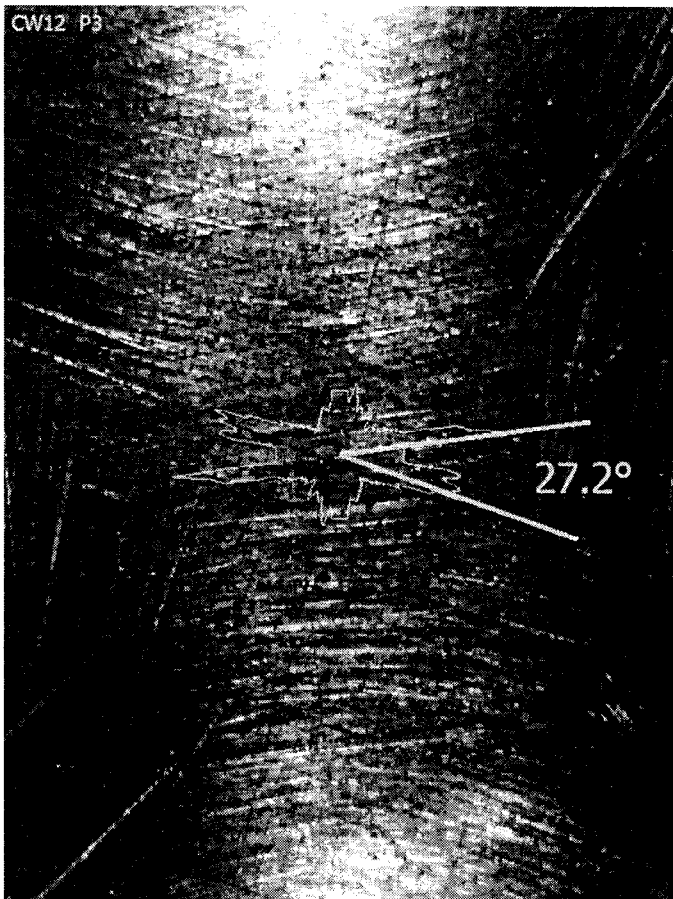
95-0834

P1

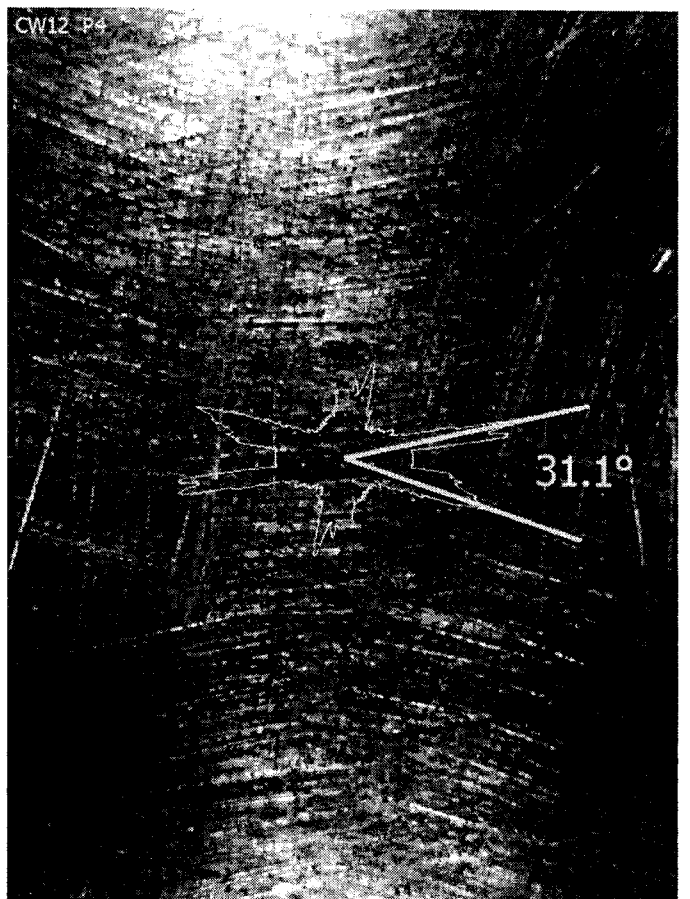


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P4

P-1 TEST # 95-0-034

PDA-325kd

SURFOMETER

11:43:58 AM

1/27/16

Ra= 10.7µin

Rt= 121.1µin

Tp= 20.5 %

Rq= 14.5µin

Rtm= 101.3µin

Sk= -1.02

Rmax3= 121.1µin

Rz2= 71.1µin

Sm= 1139µin

Rk= 34.5µin

Rpk= 11.5µin

Rvk= 27.5µin

Mr1= 10.5 %

Mr2= 88.0 %

CUTOFF= .030in (Ga)

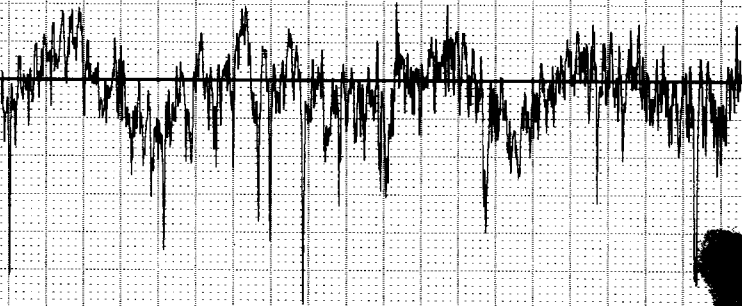
SLICE DEPTH= 10.0µin

REF. LINE= 5 %

0.008 in/Div.

Rk Filter

15µin



P-2 TEST # 95-0-034

PDA-325kd

SURFOMETER

11:45:06 AM

1/27/16

Ra= 10.5µin

Rt= 137.4µin

Tp= 27.5 %

Rq= 14.2µin

Rtm= 102.5µin

Sk= -1.28

Rmax4= 132.5µin

Rz4= 73.4µin

Sm= 1220µin

Rk= 30.1µin

Rpk= 10.9µin

Rvk= 25.2µin

Mr1= 8.5 %

Mr2= 84.0 %

CUTOFF= .030in (Ga)

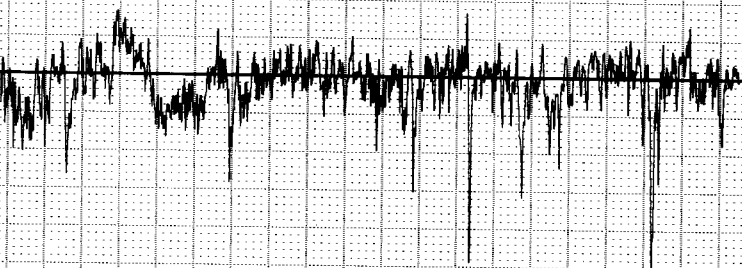
SLICE DEPTH= 10.0µin

REF. LINE= 5 %

0.008 in/Div.

Rk Filter

20µin/Div.



P-3- 95-0-034

PDA-325kd

SURFOMETER

11:46:32 AM 1/27/16

Ra= 10.0 $\mu$ in

Rt= 120.9 $\mu$ in

Tp= 22.5 %

Rq= 13.0 $\mu$ in

Rtm= 86.8 $\mu$ in

Sk= -0.49

Rmax2= 110.0 $\mu$ in

Rz2= 60.0 $\mu$ in

Sm= 1062 $\mu$ in

Rk= 30.7 $\mu$ in

Rpk= 11.0 $\mu$ in

Rvk= 22.7 $\mu$ in

Mr1= 10.0 %

Mr2= 86.0 %

CUTOFF= .030in (Ga)

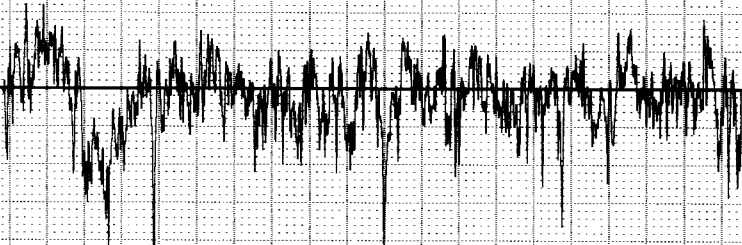
SLICE DEPTH= 10.0 $\mu$ in

REF. LINE= 5 %

0.008 in/Div.

Rk Filter

15 $\mu$ in/Div.



P4 95-0-034

PDA-325kd

SURFOMETER

11:47:28 AM 1/27/16

Ra= 10.3 $\mu$ in

Rt= 131.5 $\mu$ in

Tp= 25.0 %

Rq= 14.0 $\mu$ in

Rtm= 96.6 $\mu$ in

Sk= -0.96

Rmax3= 121.1 $\mu$ in

Rz1= 69.9 $\mu$ in

Sm= 1070 $\mu$ in

Rk= 29.7 $\mu$ in

Rpk= 13.9 $\mu$ in

Rvk= 28.0 $\mu$ in

Mr1= 9.0 %

Mr2= 85.0 %

CUTOFF= .030in (Ga)

SLICE DEPTH= 10.0 $\mu$ in

REF. LINE= 5 %

0.008 in/Div.

Rk Filter

15 $\mu$ in/Div.

