

# CW Cylinder Bore Measurement Record

Block # / Run # : CW9 / 5th

Date: 11/30/2015

Test Number: 93-0-024

Tech: C.M.F.

## 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 )
	Top	87.528	87.530
1	Middle	87.526	87.528
	Bottom	87.520	87.526
	Top	87.526	87.532
2	Middle	87.528	87.528
	Bottom	87.526	87.524
	Top	87.518	87.528
3	Middle	87.526	87.526
	Bottom	87.524	87.518
	Top	87.520	87.526
4	Middle	87.518	87.526
	Bottom	87.512	87.520

### Instrument Cntrl # CW6

Surface Finish ( $\mu$ in )	Piston Diameter ( mm )	Piston Clearance ( mm )
10.0 ra	87.480	0.046
10.4 ra	87.481	0.043
10.3 ra	87.481	0.037
10.0 ra	87.480	0.040

### 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	0.067	0.072
2	0.068	0.072
3	0.068	0.073
4	0.068	0.072

Approved \_\_\_\_\_

# CW Engine Measurement Record

Engine Number: CW9

Date: 1/26/2016

Test Number: 93-0-024

Technician: C.M.F.

Instrument Cntrl # (Journal) CW02

Instrument Cntrl # (Bearing) FD-02

## Main Bearing Journals (mm)

Diameter: (51.978mm - 52.002mm)

Journal Number	Horizontal Diameter	Vertical Diameter	Bearing Inside Diameter	Clearance .027mm - .052mm
1	51.984	51.984	52.012	0.028
2	51.984	51.984	52.016	0.032
3	51.984	51.984	52.012	0.028
4	51.984	51.984	52.016	0.032
5	51.984	51.984	52.016	0.032

Instrument Cntrl # (Journal) CW02

Instrument Cntrl # (Bearing) FD-02

## Rod Bearing Journals (mm)

Diameter: (51.978mm - 52.002mm)

Journal Number	Horizontal Diameter	Vertical Diameter	Bearing Inside Diameter	Clearance .027mm - .052mm
1	51.985	51.985	52.034	0.049
2	51.988	51.988	52.034	0.046
3	51.988	51.988	52.034	0.046
4	51.986	51.986	52.036	0.05

Instrument Cntrl # (Endplay) CW03

Crankshaft End Play (0.22 mm - 0.45 mm)

0.254

# HEAD DATA SHEET

**HEAD #** CW9

**HEAD RUN #** 5th

**DATE:** 11/30/2015

**Engine #** CW9

**Test #** 93-0-024

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

**Instrument Cntrl # (Valve Stem)** CW05

	Valve Guide Diameter (5.51) mm	Valve Stem Diameter (5.5) mm	Clearance (0.03-0.07) mm
1A Intake	5.526	5.477	0.049
1B Intake	5.522	5.481	0.041
2A Intake	5.528	5.481	0.047
2B Intake	5.524	5.478	0.046
3A Intake	5.526	5.478	0.048
3B Intake	5.528	5.468	0.060
4A Intake	5.530	5.479	0.051
4B Intake	5.522	5.474	0.048

	Valve Guide Diameter (5.51) mm	Valve Stem Diameter (5.5) mm	Clearance (0.03-0.07) mm
1A Exhaust	5.524	5.469	0.055
1B Exhaust	5.518	5.466	0.052
2A Exhaust	5.524	5.468	0.056
2B Exhaust	5.522	5.467	0.055
3A Exhaust	5.524	5.468	0.056
3B Exhaust	5.522	5.467	0.055
4A Exhaust	5.528	5.468	0.060
4B Exhaust	5.518	5.467	0.051

**Instrument Cntrl # (Length)** CW04

**Instrument Cntrl # (Tension)** Y1580

	SPRING FREE LENGTH (47mm)	SPRING TENSION (@28.5 mm)
1A Intake	47.1 mm	45 Kilos
1B Intake	47.0 mm	46 Kilos
2A Intake	47.4 mm	45 Kilos
2B Intake	46.9 mm	46 Kilos
3A Intake	47.5 mm	47 Kilos
3B Intake	46.9 mm	46 Kilos
4A Intake	47.6 mm	47 Kilos
4B Intake	47.0 mm	46 Kilos

	SPRING FREE LENGTH (47mm)	SPRING TENSION (@28.5 mm)
1A Exhaust	47.0 mm	46 Kilos
1B Exhaust	46.9 mm	46 Kilos
2A Exhaust	47.3 mm	46 Kilos
2B Exhaust	47.0 mm	46 Kilos
3A Exhaust	46.9 mm	46 Kilos
3B Exhaust	47.3 mm	47 Kilos
4A Exhaust	47.1 mm	47 Kilos
4B Exhaust	47.0 mm	47 Kilos

**Instrument Cntrl # (Lash)** 131

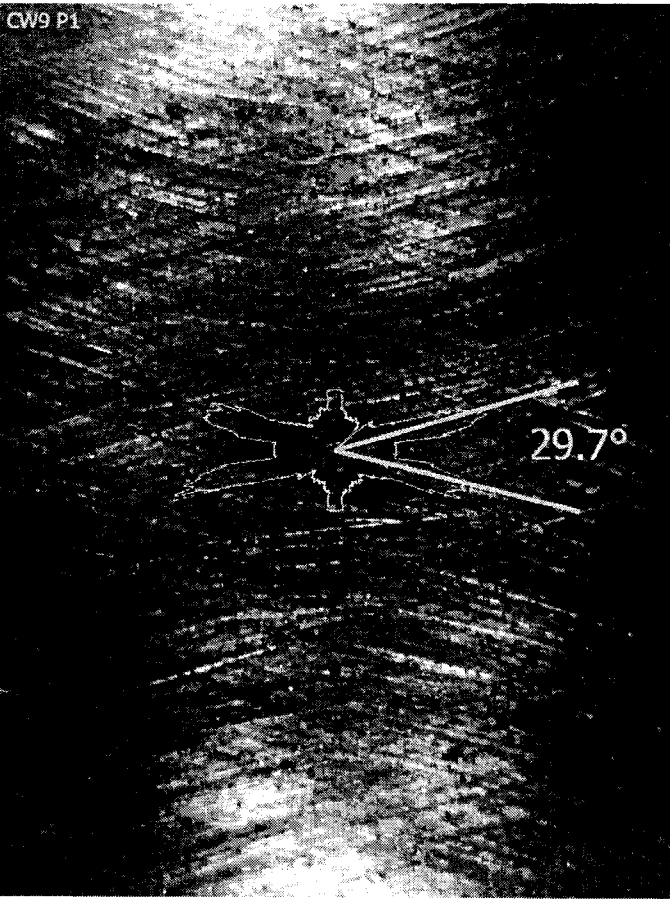
Intake Valve Lash Measurement (.19 - .31) mm	
1F	0.20
1R	0.20
2F	0.22
2R	0.20
3F	0.20
3R	0.20
4F	0.20
4R	0.20

Exhaust Valve Lash Measurement (.30 - .42) mm	
1F	0.33
1R	0.33
2F	0.33
2R	0.33
3F	0.33
3R	0.30
4F	0.33
4R	0.33

**Head Flatness:**

**Initials:** D.C.

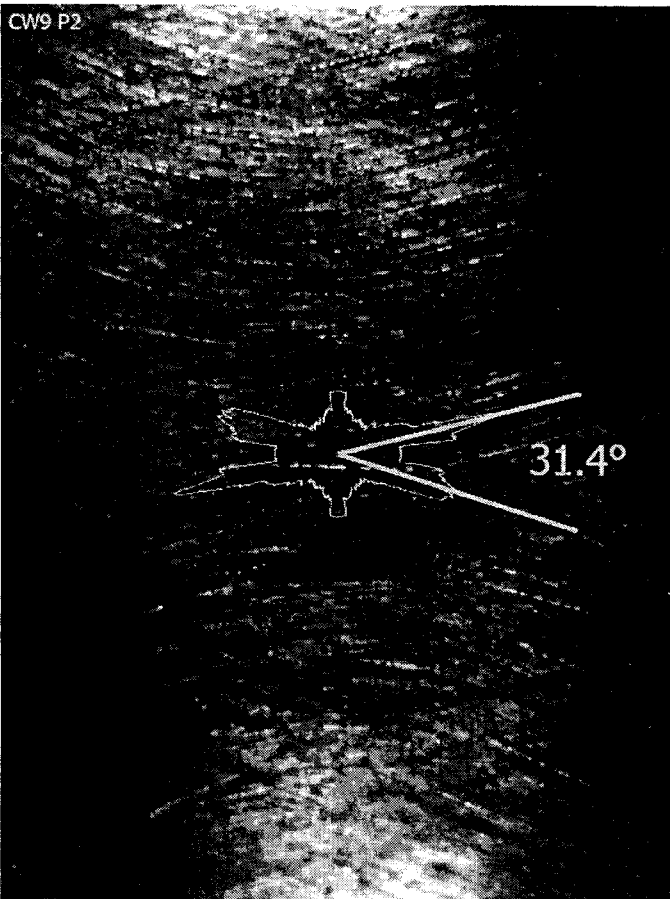
CW9 P1



Q30-024

P1

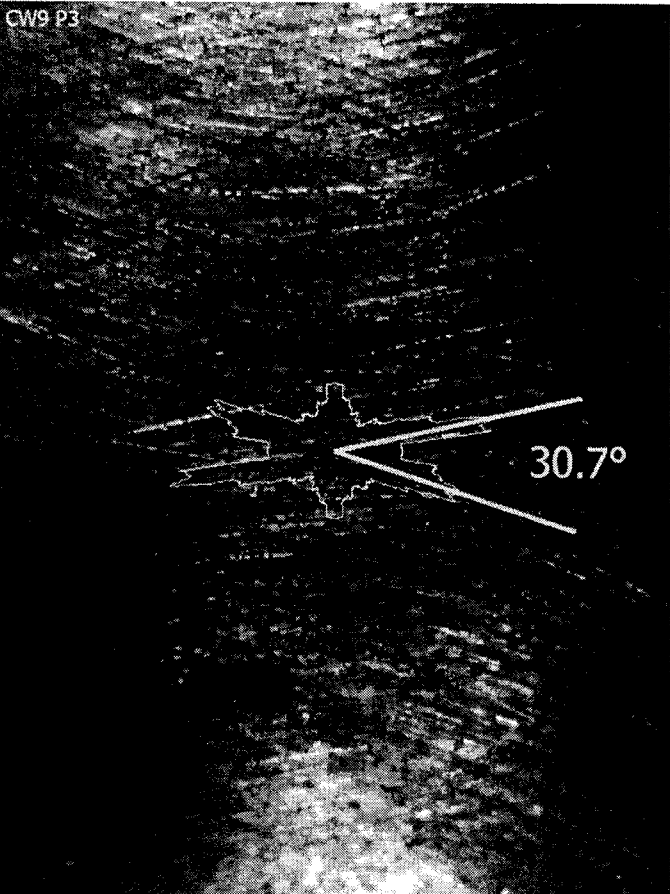
CW9 P2



G.M.F.

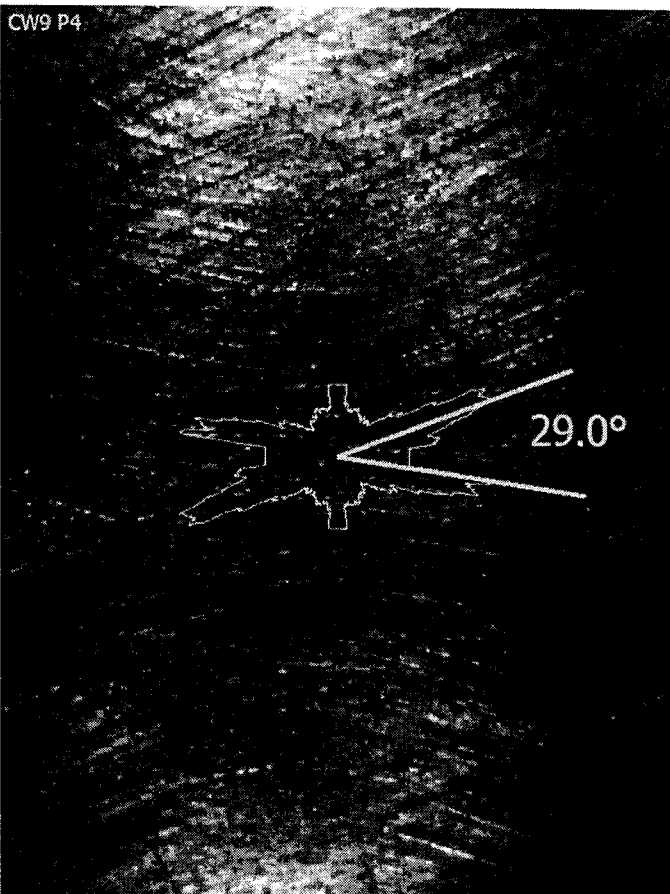
P2

CW9 P3



P3

CW9 P4



P4

P-1

930-024

PDA-325kd

SURFOMETER

1:48:13 PM 11/30/15

Ra= 10.0µin

Rt= 166.4µin

Tp= 24.5 %

Rq= 15.0µin

Rtm= 98.7µin

Sk= -2.49

Rmax5= 152.1µin

Rz4= 68.5µin

Sm= 1228µin

Rk= 27.3µin

Rpk= 11.6µin

Rvk= 30.2µin

Mr1= 9.5 %

Mr2= 83.5 %

CUTOFF= .030in (Ga)

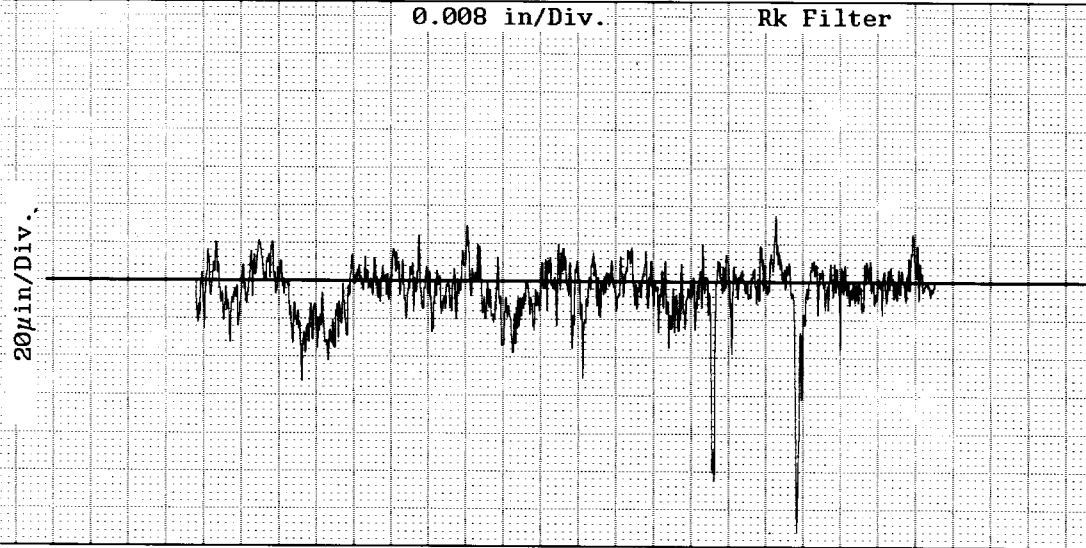
SLICE DEPTH= 10.0µin

REF. LINE= 5 %

0.008 in/Div.

Rk Filter

20µin/Div.



306

P2

PDA-325kd

SURFOMETER

1:51:28 PM 11/30/15

Ra= 10.4µin

Rt= 124.4µin

Tp= 27.0 %

Rq= 13.9µin

Rtm= 87.4µin

Sk= -1.00

Rmax5= 115.9µin

Rz5= 64.4µin

Sm= 1367µin

Rk= 34.7µin

Rpk= 10.7µin

Rvk= 26.7µin

Mr1= 7.0 %

Mr2= 88.5 %

CUTOFF= .030in (Ga)

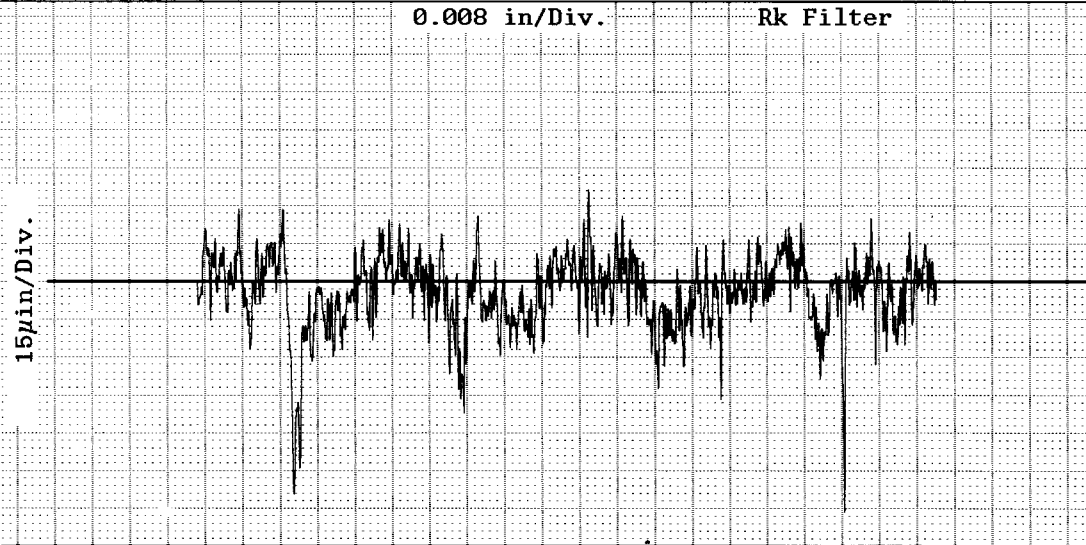
SLICE DEPTH= 10.0µin

REF. LINE= 5 %

0.008 in/Div.

Rk Filter

15µin/Div.



P-3

PDA-325kd

SURFOMETER

1:54:13 PM 11/30/15

Ra= 10.3µin

Rt= 167.2µin

Tp= 28.0 %

Rq= 14.5µin

Rtm= 103.9µin

Sk= -2.03

Rmax1= 167.2µin

Rz1= 81.3µin

Sm= 1305µin

Rk= 29.9µin

Rpk= 8.6µin

Rvk= 32.4µin

Mr1= 8.0 %

Mr2= 87.5 %

CUTOFF= .030in (Ga)

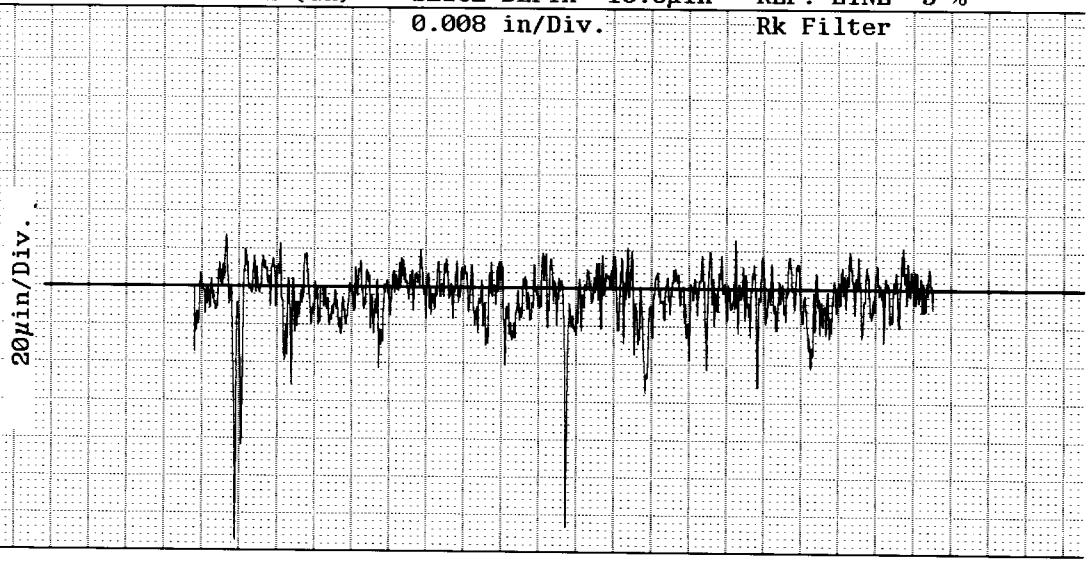
SLICE DEPTH= 10.0µin

REF. LINE= 5 %

0.008 in/Div.

Rk Filter

20µin/Div.



P-4

PDA-325kd

SURFOMETER

1:57:58 PM 11/30/15

Ra= 10.0µin

Rt= 157.9µin

Tp= 23.0 %

Rq= 14.1µin

Rtm= 100.1µin

Sk= -1.34

Rmax3= 157.9µin

Rz3= 89.4µin

Sm= 1105µin

Rk= 29.1µin

Rpk= 13.0µin

Rvk= 30.3µin

Mr1= 10.5 %

Mr2= 88.0 %

CUTOFF= .030in (Ga)

SLICE DEPTH= 10.0µin

REF. LINE= 5 %

0.008 in/Div.

Rk Filter

20µin/Div.

