CW Cylinder Bore Measurement Record

Block # / Run # : CW9 **/ 6th**

Test Number: 93-0-26

Date: 1/28/2016

Tech:

Cylinder Bore Measurements w/o Stress Plate

Finish Target: (9- 13 Ra) µin
Bore Gauge Set: 87.5 mm

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

Instrument Cntrl # 175

Cylinder Number	Location	Longitudinal Diameter (mm)	Transverse Diameter (mm)
	Top	87.534	87.532
1	Middle	87.530	87.532
	Bottom	87.526	87.530
	Top	87.534	87.536
2	Middle	87.534	87.532
	Bottom	87.532	87.528
	Top	87.520	87.536
3	Middle	87.528	87.532
	Bottom	87.528	87.522
	Top	87.528	87.528
4	Middle	87.524	87.530
	Bottom	87.518	87.524

Instrument Cntrl # CW6

Surface Finish (µin)	Piston Diameter (mm)	Piston Clearance (mm)
ra	87486	0.044
ra	87485	0.043
ra	87486	0.036
ra	87484	0.04

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	0.073
2	0.067	0.072
3	0.067	0.073
4	0.067	0.073

Approved

CW Engine Measurment Record

Engine Number: CW9 **Date:** 1/27/2016

Test Number: 93-0-26 **Technician:**

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
1	51.983	51.983	52.014	0.031
2	51.983	51.983	52.026	0.043
3	51.983	51.983	52.020	0.037
4	51.984	51.984	52.026	0.042
5	51.984	51.984	52.020	0.036

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
1	51.986	51.986	52.034	0.048
2	51.986	51.986	52.032	0.046
3	51.988	51.988	52.030	0.042
4	51.986	51.986	52.034	0.048

Instrument Cntrl # (Endplay) CW03

Crankshaft End Play (0.22 mm - 0.45 mm) 0.255

[redacted] HEAD DATA SHEET

HEAD # CW9
HEAD RUN # 6th
DATE: 1/27/2016

Engine # CW9
Test # 93-0-26
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	5.526	5.476	0.05
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	5.47	0.058
4A Intake	5.53	5.478	0.052
4B Intake	5.528	5.473	0.055

	Valve Guide Diameter (5.51) mm	Valve Stem Diameter (5.5) mm	Clearance (0.03-0.07) mm
1A Exhaust	5.528	5.467	0.061
1B Exhaust	5.518	5.463	0.055
2A Exhaust	5.524	5.464	0.06
2B Exhaust	5.528	5.466	0.062
3A Exhaust	5.524	5.465	0.059
3B Exhaust	5.522	5.464	0.058
4A Exhaust	5.528	5.466	0.062
4B Exhaust	5.518	5.465	0.053

Instrument Cntrl # (Length) 1

	SPRING FREE LENGTH (47mm)	SPRING TENSION (@28.5 mm)
1A Intake	47.12	45 Kilos
1B Intake	47.12	46 Kilos
2A Intake	47.53	45 Kilos
2B Intake	47.7	46 Kilos
3A Intake	47.72	46 Kilos
3B Intake	47.98	46 Kilos
4A Intake	47.67	46 Kilos
4B Intake	47.04	45 Kilos

Instrument Cntrl # (Tension) Y1580

	SPRING FREE LENGTH (47mm)	SPRING TENSION (@28.5 mm)
1A Exhaust	47.09	45 Kilos
1B Exhaust	47.06	46 Kilos
2A Exhaust	47.45	45 Kilos
2B Exhaust	47.09	46 Kilos
3A Exhaust	47.09	46 Kilos
3B Exhaust	47.45	46 Kilos
4A Exhaust	47.27	46 Kilos
4B Exhaust	47.18	46 Kilos

Instrument Cntrl # (Lash) 148

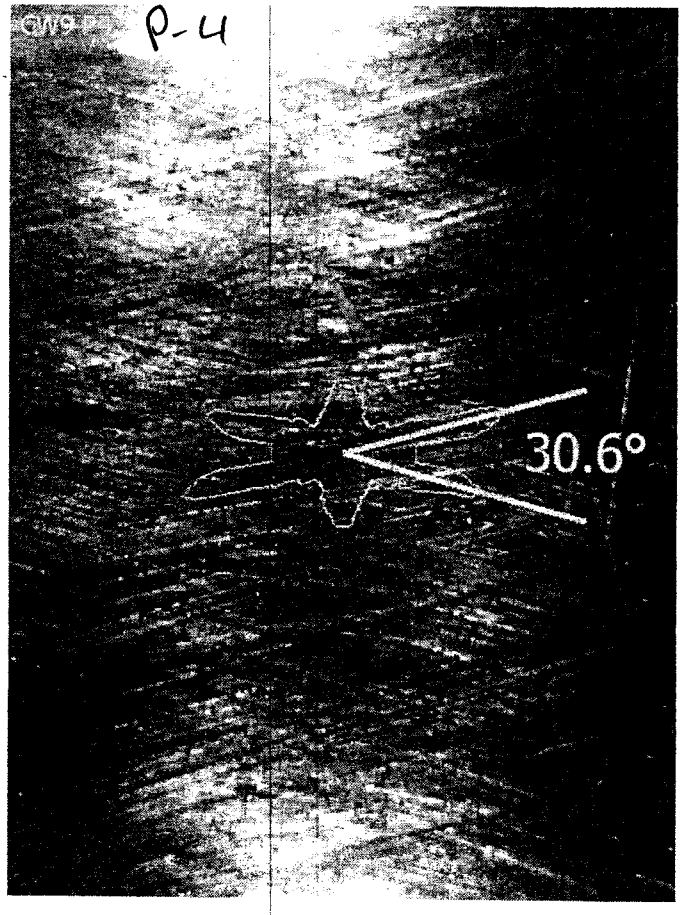
Intake Valve Lash Measurement (.19 - .31) mm	
1F	0.17
1R	0.2
2F	0.2
2R	0.2
3F	0.2
3R	0.2
4F	0.2
4R	0.2

Exhaust Valve Lash Measurement (.30 - .42) mm	
1F	0.33
1R	0.33
2F	0.3
2R	0.3
3F	0.3
3R	0.3
4F	0.3
4R	0.3

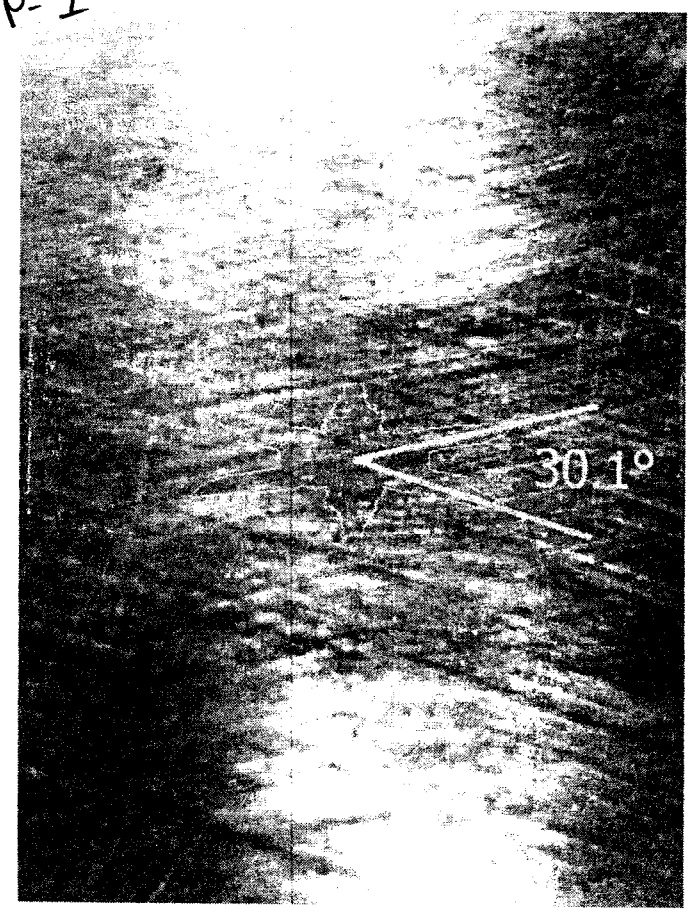
Head Flatness: good

Initials: [redacted]

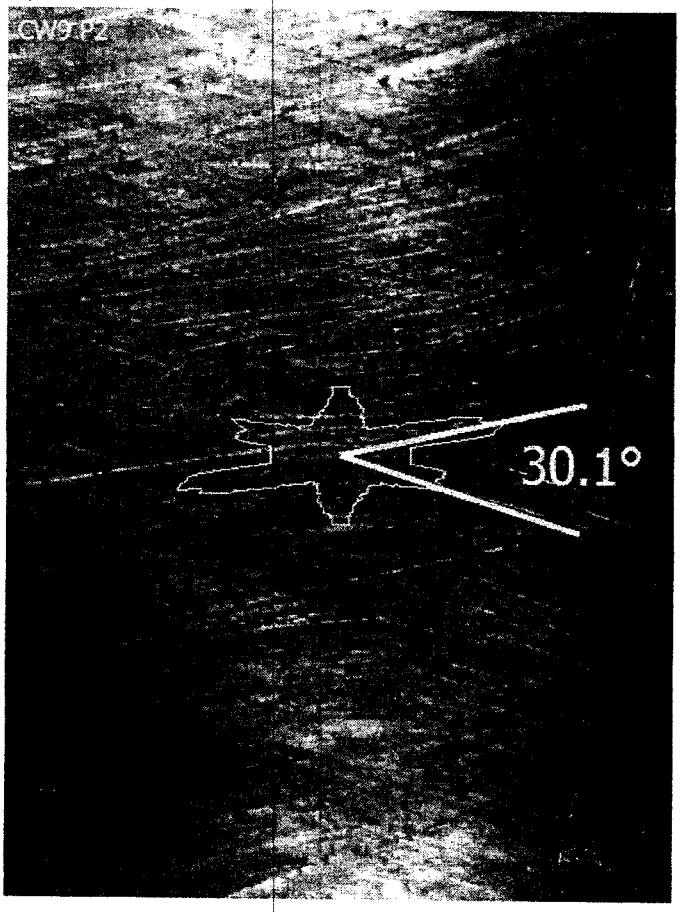
P-4



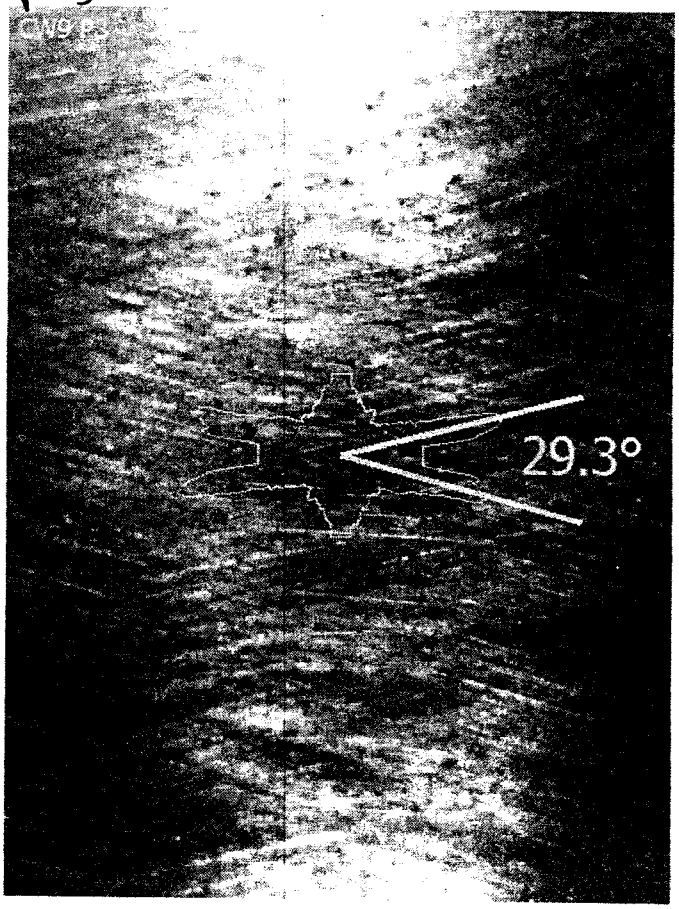
P-1



P-2



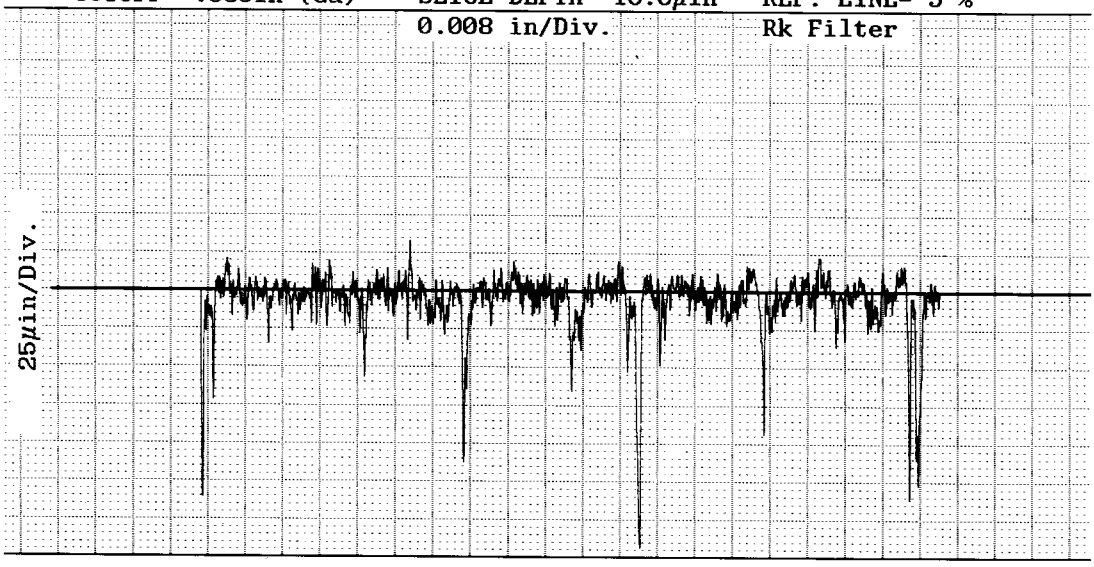
P-3



[redacted] 93-0-026 P1

PDA-325kd SURFOMETER 7:04:50 AM 1/29/16

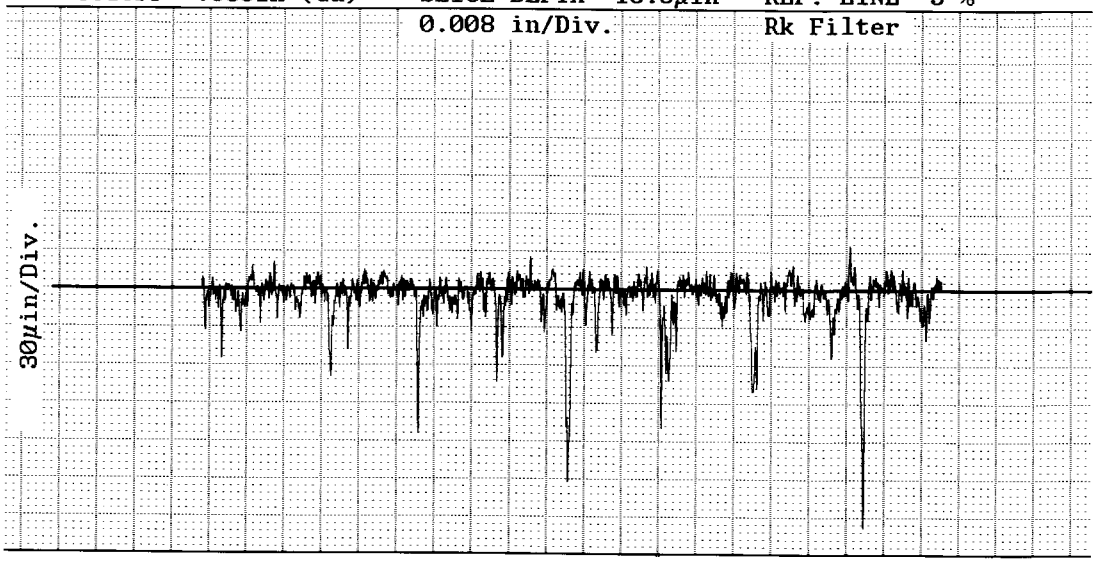
Ra= 11.0µin	Rt= 196.9µin	Tp= 32.5 %
Rq= 19.4µin	Rtm= 151.3µin	Sk= -3.74
Rmax3= 188.8µin	Rz5= 89.2µin	Sm= 901µin
Rk= 23.6µin	Rpk= 10.6µin	Rvk= 49.2µin
Mr1= 8.5 %	Mr2= 83.0 %	
CUTOFF= .030in (Ga)	SLICE DEPTH= 10.0µin	REF. LINE= 5 %
	0.008 in/Div.	Rk Filter



[redacted] 93-0-026 P2

PDA-325kd SURFOMETER 7:06:12 AM 1/29/16

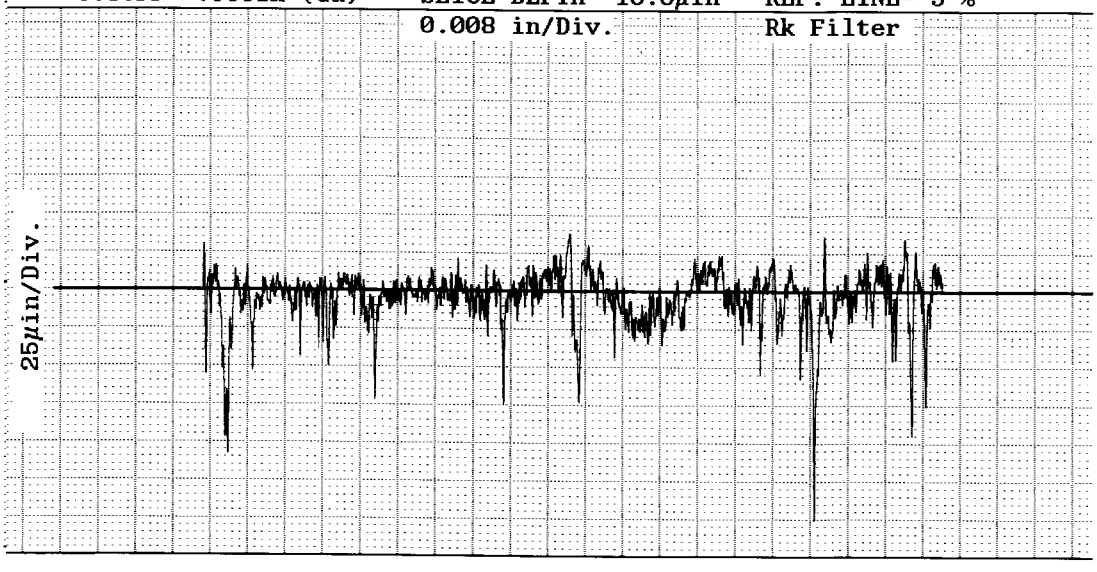
Ra= 11.8µin	Rt= 225.4µin	Tp= 37.0 %
Rq= 19.7µin	Rtm= 150.4µin	Sk= -3.46
Rmax5= 225.4µin	Rz5= 89.1µin	Sm= 1058µin
Rk= 24.0µin	Rpk= 9.5µin	Rvk= 49.6µin
Mr1= 7.5 %	Mr2= 82.0 %	
CUTOFF= .030in (Ga)	SLICE DEPTH= 10.0µin	REF. LINE= 5 %
	0.008 in/Div.	Rk Filter



93-0-026 P3

PDA-325kd SURFOMETER 7:07:11 AM 1/29/16

Ra= 12.2µin	Rt= 190.5µin	Tp= 22.5 %
Rq= 17.7µin	Rtm= 123.5µin	Sk= -1.75
Rmax5= 190.5µin	Rz5= 115.3µin	Sm= 1028µin
Rk= 30.2µin	Rpk= 13.0µin	Rvk= 39.3µin
Mr1= 10.0 %	Mr2= 83.0 %	
CUTOFF= .030in (Ga)	SLICE DEPTH= 10.0µin	REF. LINE= 5 %
	0.008 in/Div.	Rk Filter



93-0-026 P4

PDA-325kd SURFOMETER 7:08:03 AM 1/29/16

Ra= 10.2µin	Rt= 132.9µin	Tp= 26.0 %
Rq= 13.8µin	Rtm= 97.6µin	Sk= -1.14
Rmax3= 119.4µin	Rz3= 92.8µin	Sm= 948µin
Rk= 30.4µin	Rpk= 11.2µin	Rvk= 25.3µin
Mr1= 8.5 %	Mr2= 86.0 %	
CUTOFF= .030in (Ga)	SLICE DEPTH= 10.0µin	REF. LINE= 5 %
	0.008 in/Div.	Rk Filter