POLARIS INDY 500 -91 Stock

M.Performance
Tel: 0250-71321

Engine Basic Spec

Bore	72mm
Stroke	60mm
Con-Rod	112mm
Total cc	488.5cc
Bore/Stroke Ratio	1.2
Rpm Peak HP	7500 rpm
HP,max	72.4 hp
Rpm Peak Torque	7250 rpm
Torque,max	51.8 lb-ft
BMEP Hp Peak,Psi	126.5
BMEP Hp peak,Bar	8.72
Piston Speed,	14.93 m/s
Piston Speed,	2941fpm
Liter/Hk	150.25
Fuel Flow	46.2
Air Flow	133
A/F	13.2
BSFC	0.61
CCV	1.41
Used Cylinder gasket	0.45

Head Basic Spec

Geometric CR/1	11.67
Trapped CR/1	6.28
Used Head Gasket	1.75mm
Head Gasket Bore	74.3mm
Deck Clearance	0.2mm
Head Step Cut	0.9mm
Total Squish Clea.	2.85mm
Head Bore	71.9mm
Est. Octane R+M/2	88
Est. Crank Press	138 Psi

Head Volume

Gasket Volume	7.59cc
Deck Volume	0.81cc
Port Closed Vol.	120.92cc
Head cc Flat Plate	23.4cc
Head cc Installed	22.88cc

Head Design

Type	central
Bowl Width - ble.R	41.1mm
Bowl Width + ble.R	50.2mm
Bowl Radius	R 27
Squish Width-bl.R	11.1mm
Squish Angle	16°
SAR	0.521
Total deep	13.8mm

Head Squish Action

Squish Velocity	9.9 m/s
Squish Pressure Ratio	1.034
At deg btdc	13.75°
Kinetic Energy	0.89mj

Std. Piston Spec

Skirt Length	68mm
Width intake side	55.1mm
Pin c. to up length	38mm
Pin c. to down length	30mm
Pin c. to trans inlet	13.1mm
Wrist-Pin diameter	18mm
Thickness of Rings	2*1,5
Dome Height	4.10mm
Dome Ang under Sq.band	11.5°
Dome volyme	8.92cc
Weight Pist. & Ring	268g

Intake Port Spec

Port intake diam.	39.8mm
Length in port	29.8mm
Dist. to top	67.8mm
Dist. to bottom	97.6mm
Port open mm	29.6mm
Number of ports	2
Width of each	24.8mm
Width total	50mm
Upper right radius	R5
Upper left radius	R3,5
Lower right radius	R11
Lower left radius	R3,5
Port area	1449.7mm²
Time-Area	13.95
Angle-Area	6.28
Duration	162.4°
A.T.D.C	81.19°
% of bore width	69.44%
Est. Carb size on area	40.8mm
Est. Carb size on cc/rpm	37.4mm
Intake gas velocity est.	175
Estimated HP	75.8hp
Estimated BMEP,Psi	134.4Psi

Transfers Spec

Main port roof to top	47.8mm
M-port bottom to top	61.4mm
M-port liner width	28.16mm
M-port chordal width	24.5mm
M-port angle up	20°
5-Port roof to top	47.3mm
5-port bottom to top	62.3mm
5-port liner width	21.9mm
5-port chordal width	18.4mm
5-port angle up	28°
Total ch. area	993mm²
Time-Area	7.42
S-sg mm	1.81
Good to max bmep/hp	118 / 66.6
Opens	118.2°
Duration	123,6°
TAW T/B ratio (ch)	1,09
TAW T/B ratio liner	1,39
Trans Inlet	106mm
Inlet to port area ratio	1.55
Length of ports	69 + 13mm

Exhaust Spec.

Dist. to top	29.9mm
Upper radius	R15
Lower radius	R15
Max width	46.3mm
Blowdown width	45.6mm
% of bore width	64.2mm
Port type	rectangular
Port Opens	81.75°
Duration	196.5°
Blowdown deg.	36.5°
Total Area	1194mm²
Blowdown Area	714mm²
Lower Area	480mm²
Time-Area	13.96
S-sg mm	3.41
Angle-Area	6.29
Estimated HP	71hp
Estimated BMEP,Psi	126Psi
Est. Blowdown HP	79hp
Est. Blowdown BMEP	140Psi
Length of port	33.14mm
I.D of port	42.3mm
Estimated port i.d	39mm
Exh. gas velocity est.	142fps

Carburetor Spec

Type	Mikuni vm 38
Stock Main Jet	280
Main Jet on Dyno	260
Mj based on SAE Rad	104 %
Mj based on air temp,c	+ 4
Mj based of barometer	30,40
Mj based on vapor press.	0,10
Jet Needle	6F9-3
Needle Jet	247-Q-0
Throttle valve cut.	3,0
Pilot Jet	40
Air Screw	1,0

Ignition Spec

BTDC at 3000 rpm,mm	3,26
BTDC at 3000 rpm,deg	24°± 2
BTDC at 6500 rpm,mm	1,47
BTDC at 6500 rpm,deg	16°
Spark Plug	BR8ES
Plug Gap,mm	0,7
Cdi Box id. #	CU6412
Alternator Output	200 Watt

Data are width stock gasket.
Duration on transfer,exhaust intake are included with deck down clearance on 0,20mm.
Height on ports are from top of sleeve.
Head gasket bore are from a new cometic gasket
Length on main transfer port are to crank flywheel.
MULLE Tuesday 11 October 1994