USEFUL DATA

COMPRESSION RATIO CALCULATOR

85mm x 88mm, B34 Engine
Amount of Liquid

Engine Size	62cc	63cc	64cc	65cc	66cc	68cc	70cc	72cc	73cc	
Std = 499cc	9.0:1	8.9:1	8.8:1	8.6:1	8.5:1	8.3:1	8.1:1	7.9:1	7.8:1	C/Ratio
+20 = 505cc	9.1:1	9.0:1	8.9:1	8.7:1	8.6:1	8.4:1	8.2:1	8.0:1	7.9:1	C/Ratio
+40 = 511cc	9.2:1	9.1:1	8.9:1	8.8:1	8.7:1	8.5:1	8.3:1	8.1:1	8.0:1	C/Ratio
+60 = 517cc	9.3:1	9.2:1	9.0:1	8.9:1	8.8:1	8.6:1	8.4:1	8.2:1	8.1:1	C/Ratio

71mm x 88mm, B32 Engine
Amount of Liquid

Engine Size	43cc	44cc	45cc	46cc	47cc	48cc	49cc	50cc	51cc	
Std = 348cc	9.1:1	8.9:1	8.7:1	8.5:1	8.4:1	8.2:1	8.1:1	7.9:1	7.8:1	C/Ratio
+20= 353cc	9.2:1	9.0:1	8.8:1	8.6:1	8.5:1	8.3:1	8.2:1	8.0:1	7.9:1	C/Ratio
+40= 358cc	9.3:1	9.1:1	8.9:1	8.8:1	8.6:1	8.4:1	8.3:1	8.1:1	8.0:1	C/Ratio
+60= 363cc	9.4:1	9.2:1	9.0:1	8.9:1	8.7:1	8.5:1	8.4:1	8.2:1	8.1:1	C/Ratio

Position engine on floor or bench with spark plug hole vertical and uppermost and piston at TDC on compression stroke. Pour oil from a measuring jug until the oil level is half up the plug hole. You need to take note of the start and finish levels of oil in the measuring jug so that you can work out how much oil has been poured into the engine.
From the charts above, you can immediately see your compression ratio, providing you know what bore you are on (i.e. Std, +20", +40", or +60").
This chart is based on calculation and experimentation and is approximately one decimal place of compression ratio.

ENGINE SPECIFICATIONS

Engine Capacity	348cc & 499cc	Con-rod Centres	6 15/32 in
Cylinder Bore (nominal)	71mm & 85mm	Con-rod small end Dia.	0.7505 in
Cylinder Bore (actual)	2.794-2.793 3.345-3.344	Rocker Spindle Dia.	0.561 in
Stroke	88mm =3.462 in	Cam Spindle Dia	0.6235 in
Rocker Spindle Dia	0.561 in	Cam Bush size	0.625 in
Valve stem Dia	(inlet 0.309 in)	Gudgeon Pin Dia	0.750 in
Valve stem Dia	(exhaust 0.348 in)		

Valve Spring	(outer free length)	1.670 in
Valve Spring	(outer fitted length)	1.312 in
Valve Spring	(inner free length)	1.500 in
Valve Spring	(inner fitted length)	1.218 in

Inlet Valve Timing (with 0.018 valve clearance)

Cam		O.B.T.D.C		C.A.B.D.C.		Lift	
	65-2442		65º		85º		0.442 in
"	65-2446	" "	63º	" "	72º	"	0.404 in
"	65-2448	" "	43º	" "	73º	"	0.380 in
"	65-2420	" "	25º	" "	65º	"	0.300 in
"	65-2444	" "	60º	" "	85º	"	0.422 in

Exhaust Valve Timing (with 0.018 valve clearance)

Cam		O.B.B.D.C		C.A.T.D.C		Lift	
	65-2446		80º		55º		0.404 in
"	65-2450	" "	70º	" "	45º	"	0.380 in
"	65-2452	" "	64º	" "	34º	"	0.370 in
"	65-2491	" "	95º	" "	50º	"	0.421 in
"	65-1891	" "	85º	" "	60º	"	0.423 in
"	65-2420	" "	65º	" "	25º	"	0.300 in

Magneto Points Gap	0.010 in - 0.012 in	Valve stem guide clearance	0.001-0.003
Ignition Timing Fully Advanced	39º = (15/32).	Valve clearances	0.006
Spark Plug Gap	0.018-0.020	Flywheel balance factor	58%
Push Rod Standard Length	9.0625 excluding spigot	Valve Seat Angle	45º
Flywheel run out maximum	0.002		