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WARNING: Since we have no control over equipment or data which may be used with this program, no responsibility is implied or assumed for results obtained through its use. Input data and results may be incorrect or wrong. Therefore the use of this data for loading ammunition can cause serious injury to personnel and material. The computer-results had to be checked against data available in current loading manuals.

LOT-TO-LOT VARIATIONS OF POWDERS, PRIMER SUBSTITUTION AND COMPONENT CHANGE OFTEN RAISE PRESSURES TO UNSAFE LEVELS. THE USER MUST ASSUME THE ENTIRE RISK OF USING THIS DATA FOR LOADING PURPOSES.

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User Data:	Date:9-Apr-2015	Time:18:06:12	File: xpert 303 brit 133gr.dat	
Cartridge / Caliber	.303 British	Bullet	.312, 133GR XPERT TARGET	
Maximum Average Pressure, allowed	52939 psi.	3650 bar (Piezo CIP)	with flatbase	
Groove Caliber	0.314 in.	7.98 mm	Bullet Weight	133.0 gr. 8.62 gm
Case Capacity, overflow	56.0 gr. H2O	3.636 cm ³	Bullet Length	1.236 in. 31.4 mm
Case Length	2.213 in.	56.21 mm	Bullet Seating Depth	0.536 in. 13.61 mm
Cartridge O.A. Length	2.913 in.	74.0 mm	Barrel/Tube Length	24.0 in. 609.6 mm
Shot Start / Init Pressure	3625 psi.	249.94 bar	Cross Section Area of Bore	0.07473 in. ² 0.4821 cm ²
Propellant type	Somchem S321			
Charge Weight	41.0 gr.	2.657 gm	Load Density	227.3 gr./in. ³ 0.899 gm/cm ³
Heat of Explosion, Potential	259.8 J/gr.	4010 J/gm	Energy Density of Charge	59108 J/in. ³ 3607 J/cm ³
Propellant Solid Density	409.68 gr./in. ³	1.62 gm/cm ³	Used Ratio of Specific Heats cp/cv	1.221
Burning Rate Factor Ba	0.56 1/s		Weighting Factor	0.5
Burning Function Limit Z1	0.39		Prog.-/ Degressivity Factor a0	1.649
Factor b	1.641		Bulk Density	250.4 gr./in. ³ 0.990 gm/cm ³

Calculated and Estimated Data:

Bullet Shank Seating Depth	0.536 in.	13.61 mm	Capacity Displaced by Seated Bullet	0.0416 in. ³	0.682 cm ³
Useable Case Capacity	0.1803 in. ³	2.954 cm ³	Bullet Travel at Muzzle Exit	22.32 in.	567.0 mm
Loading Ratio("Density") / Filling	90.9 %		Charge Fraction Burnt at Shot Start	1.39 %	

Predicted Data:

Maximum Chamber Pressure	39742 psi.	2740 bar	Bullet Travel at Pmax	1.42 in.	36.2 mm
at Muzzle Exit:					
Bullet Velocity	2675 fps.	815.5 m/s	Pressure at Muzzle	6414 psi.	442 bar
Bullet Energy	2114 ft.lbs.	2866 Joule	Bullet Barrel Time	1.226 ms	
Propellant Burnt	93.1 %		Ballistic Efficiency	26.9 %	

Check Loading Manuals for Safe Minimum Charge Weight to Avoid Hazardous Ignition Conditions like Secondary Explosion Effects !
 Real maximum (peak) of pressure is reached while bullet moves within barrel.
 End of combustion occurs after the bullet's base passes muzzle.

