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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:18:07:00 | 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 S341 | | | |
| Charge Weight | 43.0 gr. | 2.786 gm | Load Density | 238.5 gr./in. ³ 0.943 gm/cm ³ |
| Heat of Explosion, Potential | 237.2 J/gr. | 3660 J/gm | Energy Density of Charge | 56568 J/in. ³ 3452 J/cm ³ |
| Propellant Solid Density | 409.68 gr./in. ³ | 1.62 gm/cm ³ | Used Ratio of Specific Heats cp/cv | 1.242 |
| Burning Rate Factor Ba | 0.56 1/s | | Weighting Factor | 0.5 |
| Burning Function Limit Z1 | 0.45 | | Prog.-/ Degressivity Factor a0 | 0.74 |
| Factor b | 1.557 | | 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 | 95.3 % | | Charge Fraction Burnt at Shot Start | 1.25 % |

Predicted Data:

| | | | | |
|--------------------------|--------------|------------|-----------------------|-------------------|
| Maximum Chamber Pressure | 40611 psi. | 2800 bar | Bullet Travel at Pmax | 1.24 in. 31.4 mm |
| at Muzzle Exit: | | | | |
| Bullet Velocity | 2671 fps. | 814.0 m/s | Pressure at Muzzle | 6270 psi. 432 bar |
| Bullet Energy | 2106 ft.lbs. | 2856 Joule | Bullet Barrel Time | 1.206 ms |
| Propellant Burnt | 90.6 % | | Ballistic Efficiency | 28.0 % |

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.

