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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: 15-Jan-2016

Time: 20:51:03 File: *.dat

Cartridge / Caliber

10 mm Auto (SAAMI)

Bullet

.400, 155, MG

Maximum Average Pressure, allowed

37500 psi. 2586 bar (Piezo SAAMI)

with flatbase

Groove Caliber

0.400 in. 10.16 mm

Bullet Weight

155.0 gr. 10.04 gm

Case Capacity, overflow

24.0 gr. H₂O 1.558 cm³

Bullet Length

0.555 in. 14.1 mm

Case Length

0.990 in. 25.15 mm

Bullet Seating Depth

0.290 in. 7.37 mm

Cartridge O.A. Length

1.255 in. 31.88 mm

Barrel/Tube Length

5.15 in. 130.81 mm

Shot Start / Init Pressure

1740 psi. 119.97 bar

Cross Section Area of Bore

0.1233 in.² 0.7955 cm²**Propellant type**

Hodgdon Longshot

Charge Weight

9.0 gr. 0.583 gm

Load Density

153.5 gr./in.³ 0.607 gm/cm³

Heat of Explosion, Potential

259.2 J/gr. 4000 J/gm

Energy Density of Charge

39804 J/in.³ 2429 J/cm³

Propellant Solid Density

402.1 gr./in.³ 1.59 gm/cm³

Used Ratio of Specific Heats cp/cv

1.224

Burning Rate Factor Ba

2.59 1/s

Weighting Factor

0.75

Burning Function Limit Z1

0.224

Prog.-/ Degressivity Factor a0

0.476

Factor b

1.195

Bulk Density

233.9 gr./in.³ 0.925 gm/cm³**Calculated and Estimated Data:**

Bullet Shank Seating Depth

0.29 in. 7.37 mm

Capacity Displaced by Seated Bullet

0.0365 in.³ 0.599 cm³

Useable Case Capacity

0.0586 in.³ 0.96 cm³

Bullet Travel at Muzzle Exit

4.45 in. 113.03 mm

Loading Ratio("Density") / Filling

65.7 %

Charge Fraction Burnt at Shot Start

1.36 %

Predicted Data:

Maximum Chamber Pressure

26850 psi. 1851 bar

Bullet Travel at Pmax

0.28 in. 7.0 mm

at Muzzle Exit:

Bullet Velocity

1231 fps. 375.1 m/s

Pressure at Muzzle

4802 psi. 331 bar

Bullet Energy

521 ft.lbs. 707 Joule

Bullet Barrel Time

0.532 ms

Propellant Burnt

95.0 %

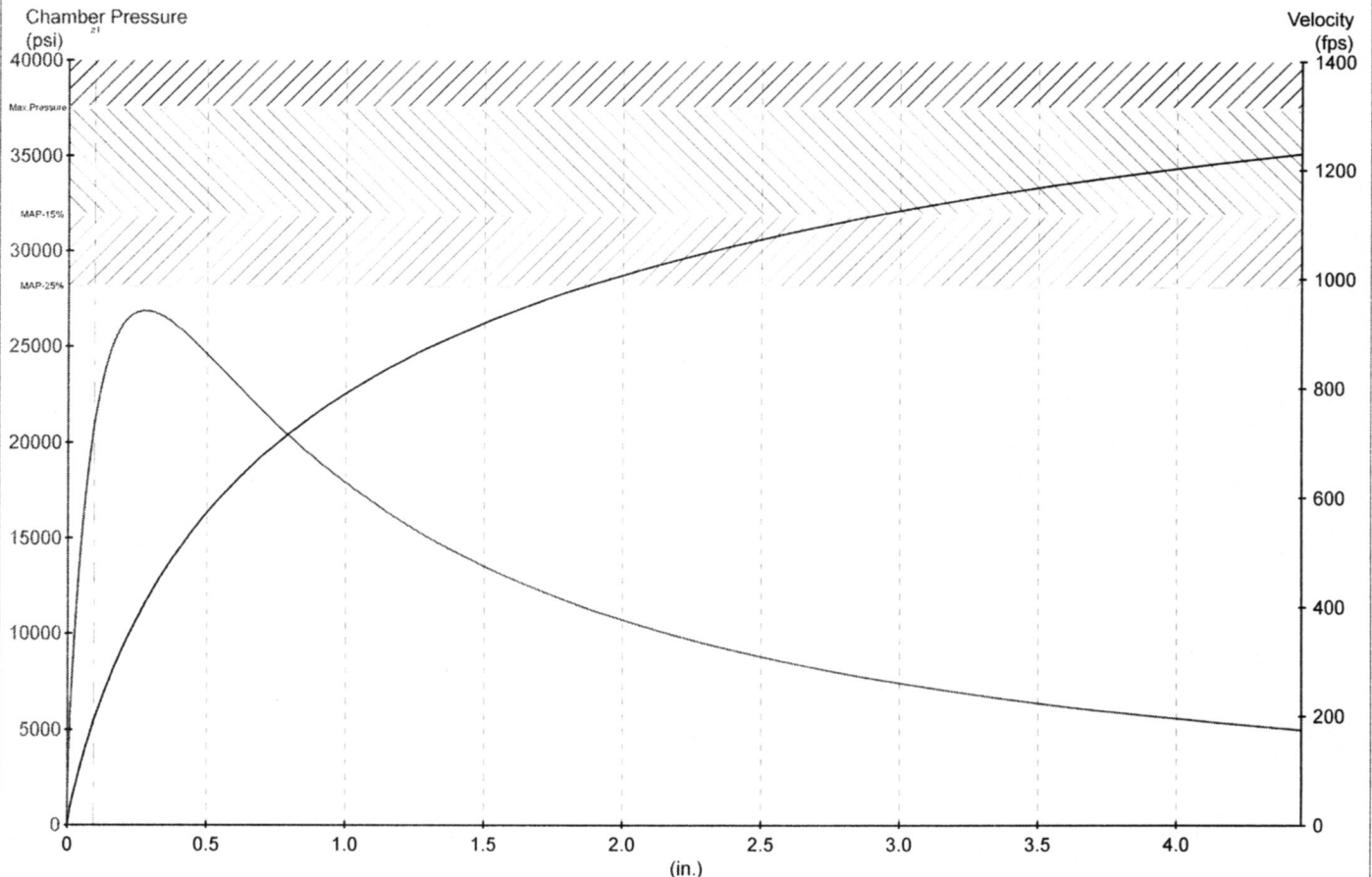
Ballistic Efficiency

30.3 %

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.



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User Data:**Cartridge / Caliber**

Maximum Average Pressure, allowed
Groove Caliber
Case Capacity, overflow
Case Length
Cartridge O.A. Length
Shot Start / Init Pressure

Date:15-Jan-2016

10 mm Auto (SAAMI)

37500 psi. 2586 bar (Piezo
0.400 in. 10.16 mm
23.34 gr. H₂O 1.515 cm³
0.990 in. 25.15 mm
1.255 in. 31.88 mm
1740 psi. 119.97 bar

Time:20:51:25 File: *.dat

Bullet

Bullet Weight
Bullet Length
Bullet Seating Depth
Barrel/Tube Length
Cross Section Area of Bore

.400, 155, MG

with flatbase
155.0 gr. 10.04 gm
0.555 in. 14.1 mm
0.290 in. 7.37 mm
5.15 in. 130.81 mm
0.1233 in.² 0.7955 cm²

Propellant type

Charge Weight
Heat of Explosion, Potential
Propellant Solid Density
Burning Rate Factor Ba
Burning Function Limit Z1
Factor b

Hodgdon Longshot

9.0 gr. 0.583 gm
259.2 J/gr. 4000 J/gm
402.1 gr./in.³ 1.59 gm/cm³
2.59 1/s
0.224
1.195

Load Density
Energy Density of Charge
Used Ratio of Specific Heats cp/cv
Weighting Factor
Prog.-/ Degressivity Factor a0
Bulk Density

160.8 gr./in.³ 0.636 gm/cm³
41672 J/in.³ 2543 J/cm³
1.224
0.75
0.476
233.9 gr./in.³ 0.925 gm/cm³

Calculated and Estimated Data:

Bullet Shank Seating Depth
Useable Case Capacity
Loading Ratio("Density") / Filling

0.29 in. 7.37 mm
0.0559 in.³ 0.917 cm³
68.7 %

Capacity Displaced by Seated Bullet
Bullet Travel at Muzzle Exit
Charge Fraction Burnt at Shot Start

0.0365 in.³ 0.599 cm³
4.45 in. 113.03 mm
1.26 %

Predicted Data:

Maximum Chamber Pressure
at Muzzle Exit:

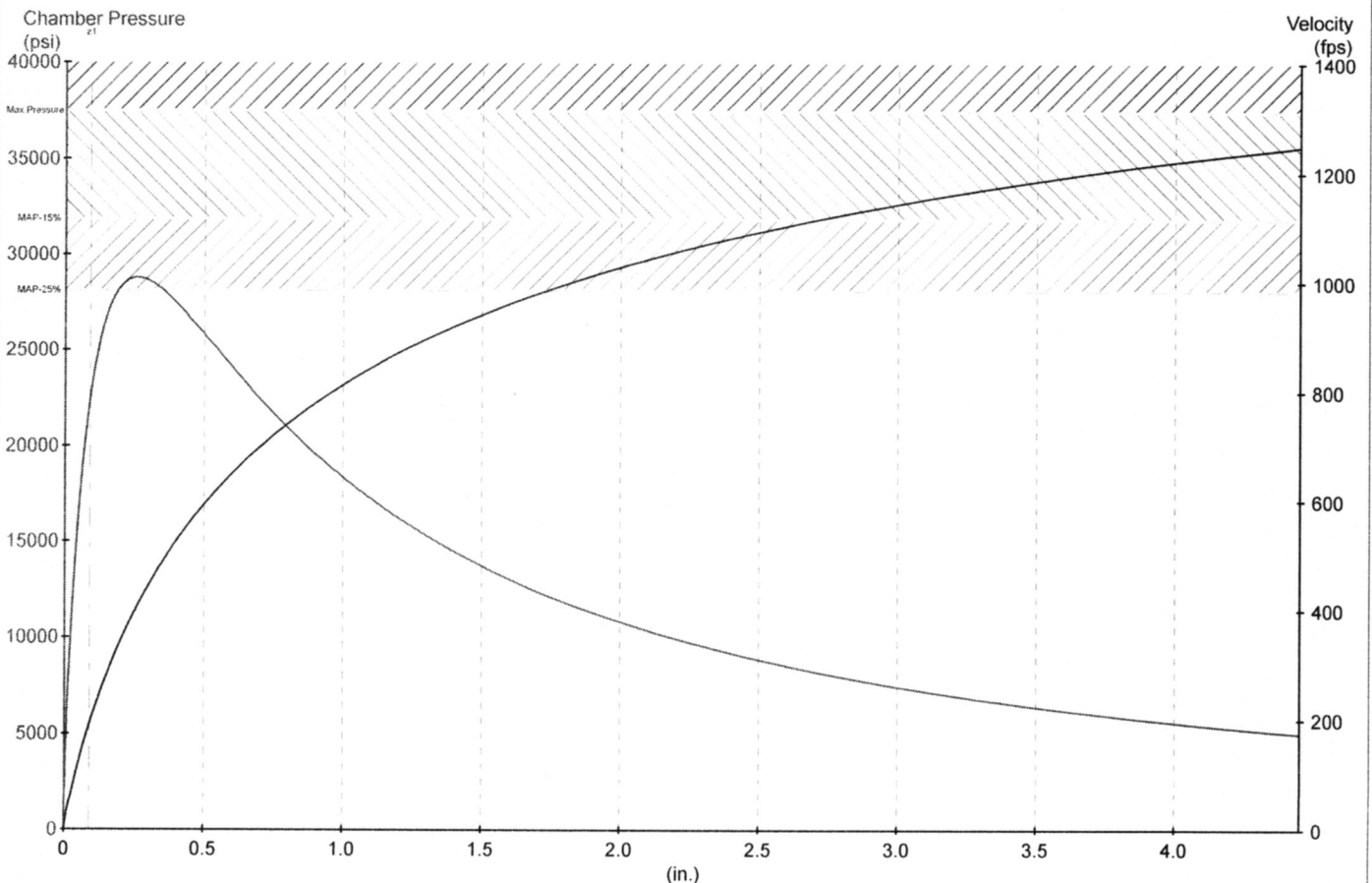
Bullet Velocity
Bullet Energy
Propellant Burnt

28792 psi. 1985 bar
1249 fps. 380.7 m/s
537 ft.lbs. 728 Joule
95.4 %

Bullet Travel at Pmax
Pressure at Muzzle
Bullet Barrel Time
Ballistic Efficiency

0.26 in. 6.6 mm
4788 psi. 330 bar
0.516 ms
31.2 %

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.



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User Data:**Cartridge / Caliber**

Maximum Average Pressure, allowed
Groove Caliber
Case Capacity, overflow
Case Length
Cartridge O.A. Length
Shot Start / Init Pressure

Date:15-Jan-2016

10 mm Auto (SAAMI)

37500 psi. 2586 bar (Piezo
0.400 in. 10.16 mm
23.82 gr. H2O 1.547 cm³
0.990 in. 25.15 mm
1.255 in. 31.88 mm
1740 psi. 119.97 bar

Time:20:51:46

File: *.dat

Bullet

Bullet Weight
Bullet Length
Bullet Seating Depth
Barrel/Tube Length
Cross Section Area of Bore

.400, 155, MG

with flatbase
155.0 gr. 10.04 gm
0.555 in. 14.1 mm
0.290 in. 7.37 mm
5.15 in. 130.81 mm
0.1233 in.² 0.7955 cm²

Propellant type

Charge Weight
Heat of Explosion, Potential
Propellant Solid Density
Burning Rate Factor Ba
Burning Function Limit Z1
Factor b

Hodgdon Longshot

9.0 gr. 0.583 gm
259.2 J/gr. 4000 J/gm
402.1 gr./in.³ 1.59 gm/cm³
2.59 1/s
0.224
1.195

Load Density
Energy Density of Charge
Used Ratio of Specific Heats cp/cv
Weighting Factor
Prog./ Degressivity Factor a0
Bulk Density

155.5 gr./in.³ 0.615 gm/cm³
40312 J/in.³ 2460 J/cm³
1.224
0.75
0.476
233.9 gr./in.³ 0.925 gm/cm³

Calculated and Estimated Data:

Bullet Shank Seating Depth
Useable Case Capacity
Loading Ratio("Density") / Filling

0.29 in. 7.37 mm
0.0578 in.³ 0.948 cm³
66.5 %

Capacity Displaced by Seated Bullet
Bullet Travel at Muzzle Exit
Charge Fraction Burnt at Shot Start

0.0365 in.³ 0.599 cm³
4.45 in. 113.03 mm
1.33 %

Predicted Data:

Maximum Chamber Pressure
at Muzzle Exit:

Bullet Velocity
Bullet Energy
Propellant Burnt

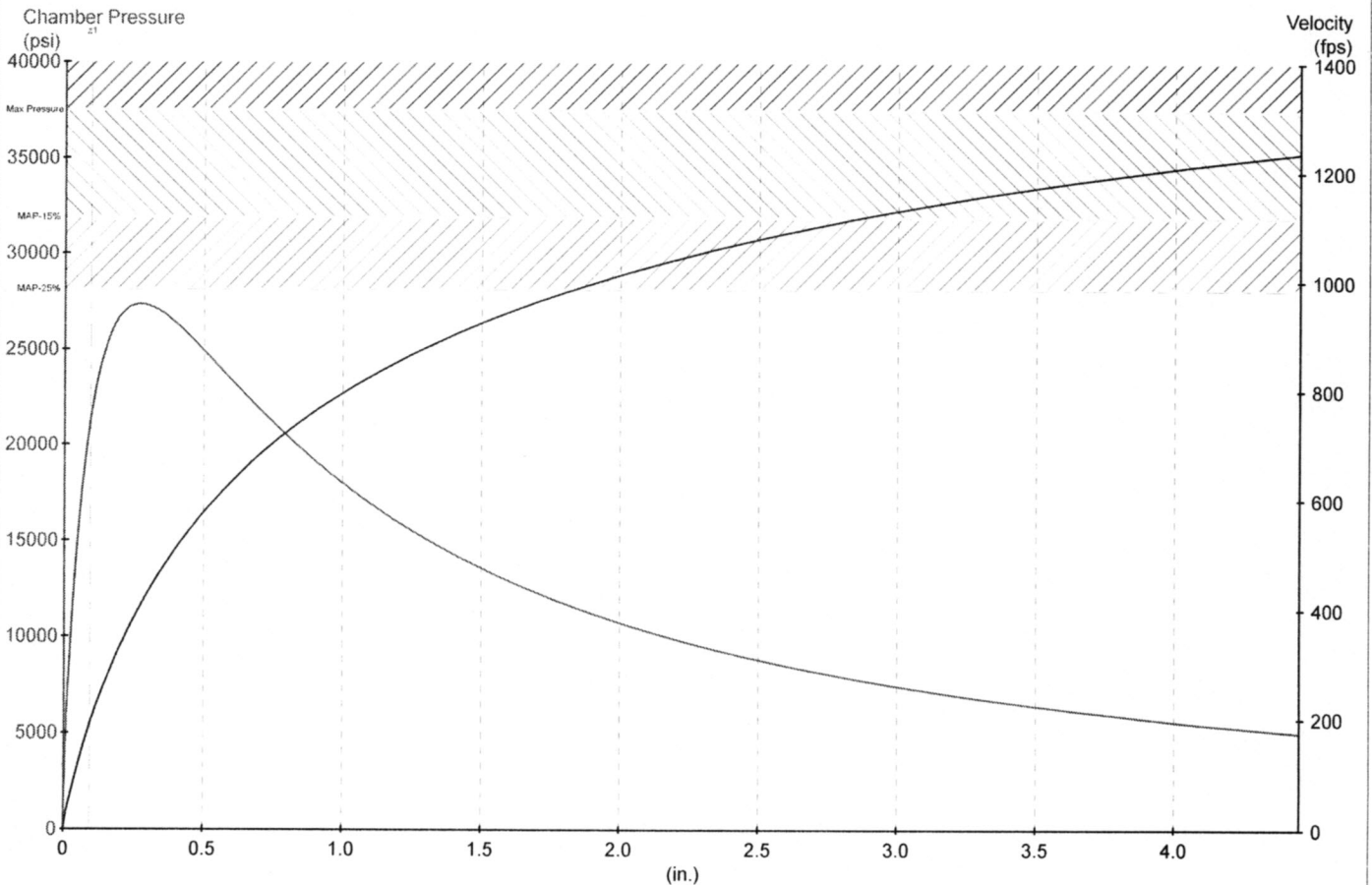
27351 psi. 1886 bar
1236 fps. 376.6 m/s
525 ft.lbs. 712 Joule
95.1 %

Bullet Travel at Pmax

Pressure at Muzzle
Bullet Barrel Time
Ballistic Efficiency

0.27 in. 6.9 mm
4799 psi. 331 bar
0.528 ms
30.5 %

Check Loading Manuals for Safe Minimum Charge Weight to Avoid Hazardous Ignition Conditions like Secondary Explosion Effects !
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User Data:

Date: 15-Jan-2016

Time: 20:52:01 File: *.dat

Cartridge / Caliber

10 mm Auto (SAAMI)

Bullet**.400, 155, MG**

Maximum Average Pressure, allowed

37500 psi.

2586 bar (Piezo SAAMI)

with flatbase

Groove Caliber

0.400 in.

10.16 mm

Bullet Weight

155.0 gr.

10.04 gm

Case Capacity, overflow

22.96 gr. H₂O1.491 cm³

Bullet Length

0.555 in.

14.1 mm

Case Length

0.990 in.

25.15 mm

Bullet Seating Depth

0.290 in.

7.37 mm

Cartridge O.A. Length

1.255 in.

31.88 mm

Barrel/Tube Length

5.15 in.

130.81 mm

Shot Start / Init Pressure

1740 psi.

119.97 bar

Cross Section Area of Bore

0.1233 in.²0.7955 cm²**Propellant type**

Hodgdon Longshot

Charge Weight

9.0 gr.

0.583 gm

Load Density

165.4 gr./in.³0.654 gm/cm³

Heat of Explosion, Potential

259.2 J/gr.

4000 J/gm

Energy Density of Charge

42836 J/in.³2614 J/cm³

Propellant Solid Density

402.1 gr./in.³1.59 gm/cm³

Used Ratio of Specific Heats cp/cv

1.224

Burning Rate Factor Ba

2.59 1/s

Weighting Factor

0.75

Burning Function Limit Z1

0.224

Prog.-/ Degressivity Factor a0

0.476

Factor b

1.195

Bulk Density

233.9 gr./in.³0.925 gm/cm³**Calculated and Estimated Data:**

Bullet Shank Seating Depth

0.29 in.

7.37 mm

Capacity Displaced by Seated Bullet

0.0365 in.³0.599 cm³

Useable Case Capacity

0.0544 in.³0.892 cm³

Bullet Travel at Muzzle Exit

4.45 in.

113.03 mm

Loading Ratio("Density") / Filling

70.7 %

Charge Fraction Burnt at Shot Start

1.21 %

Predicted Data:

Maximum Chamber Pressure

30053 psi.

2072 bar

Bullet Travel at Pmax

0.25 in.

6.3 mm

at Muzzle Exit:

Bullet Velocity

1260 fps.

384.1 m/s

Pressure at Muzzle

4778 psi.

329 bar

Bullet Energy

546 ft.lbs.

741 Joule

Bullet Barrel Time

0.506 ms

Propellant Burnt

95.7 %

Ballistic Efficiency

31.8 %

Check Loading Manuals for Safe Minimum Charge Weight to Avoid Hazardous Ignition Conditions like Secondary Explosion Effects !

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