User Data:

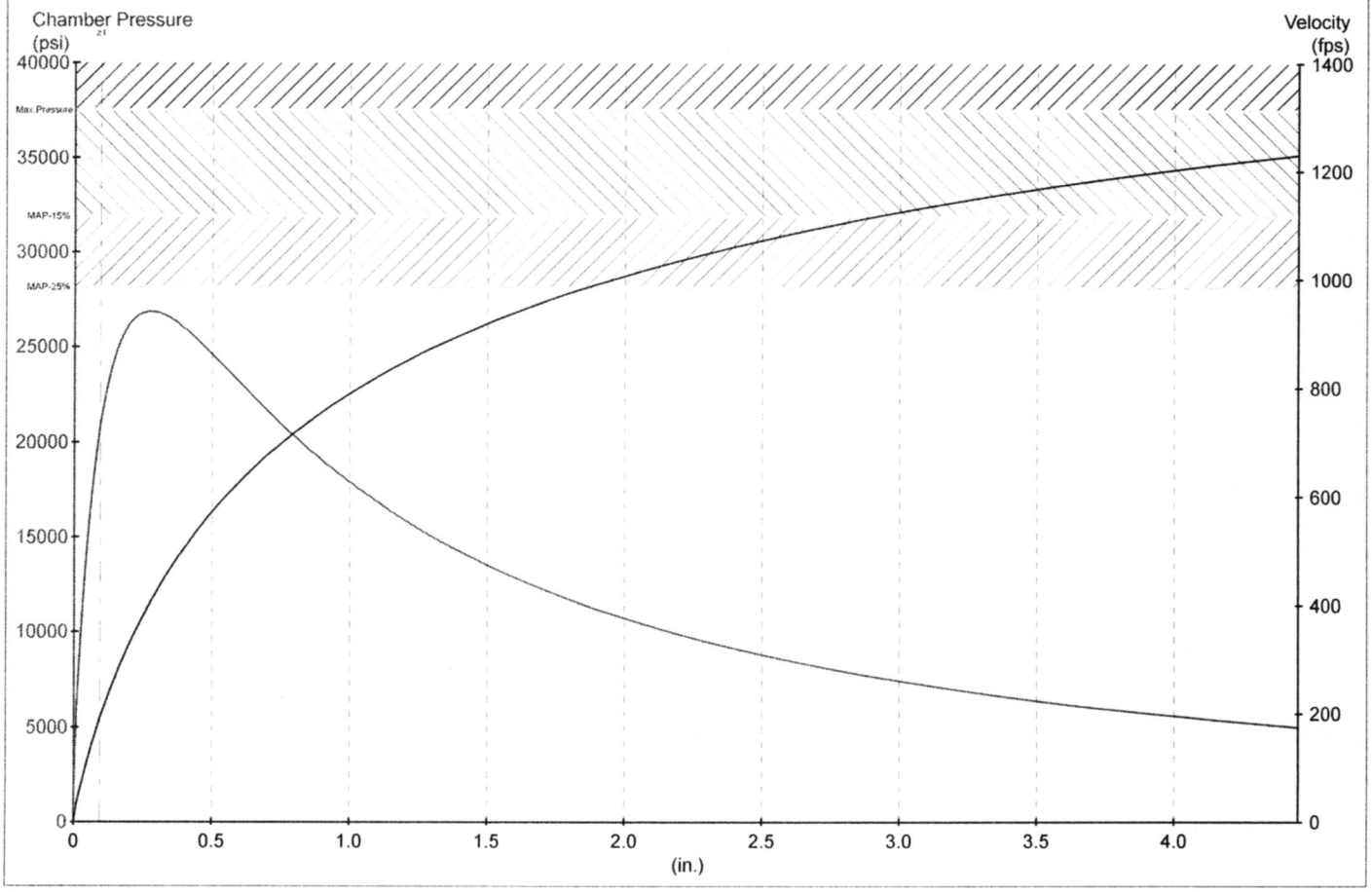
Date:15-Jan-2016 **Time:20:51:03** **File: *.dat**

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.



User Data:

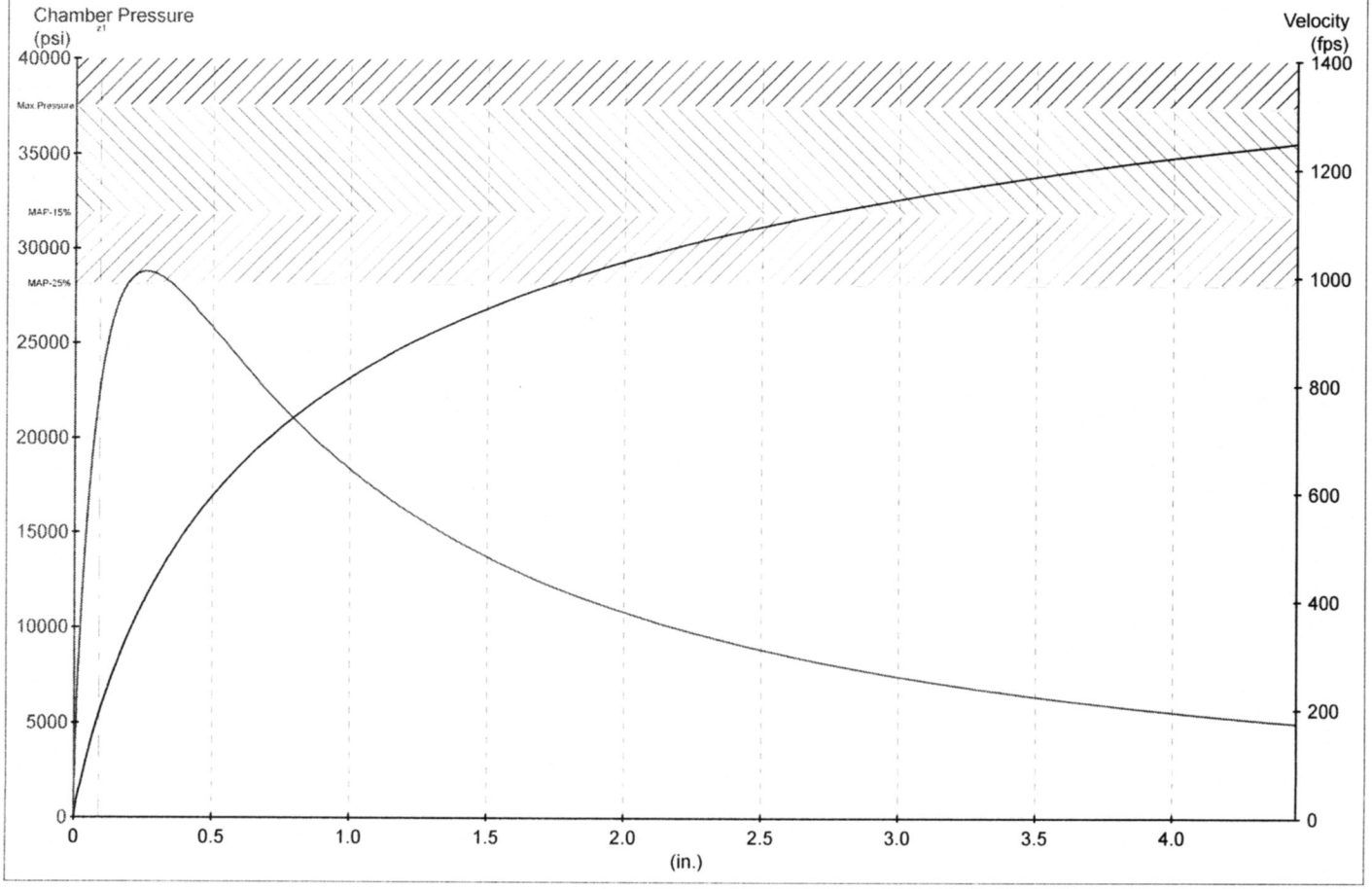
Date:15-Jan-2016 **Time:20:51:25** **File: *.dat**

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	23.34 gr. H2O	1.515 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	160.8 gr./in.³	0.636 gm/cm³
Heat of Explosion, Potential	259.2 J/gr.	4000 J/gm	Energy Density of Charge	41672 J/in.³	2543 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	0.0559 in.³	0.917 cm³	Bullet Travel at Muzzle Exit	4.45 in.	113.03 mm
Loading Ratio("Density") / Filling	68.7 %		Charge Fraction Burnt at Shot Start	1.26 %	
Predicted Data:					
Maximum Chamber Pressure	28792 psi.	1985 bar	Bullet Travel at Pmax	0.26 in.	6.6 mm
at Muzzle Exit:					
Bullet Velocity	1249 fps.	380.7 m/s	Pressure at Muzzle	4788 psi.	330 bar
Bullet Energy	537 ft.lbs.	728 Joule	Bullet Barrel Time	0.516 ms	
Propellant Burnt	95.4 %		Ballistic Efficiency	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.



User Data:

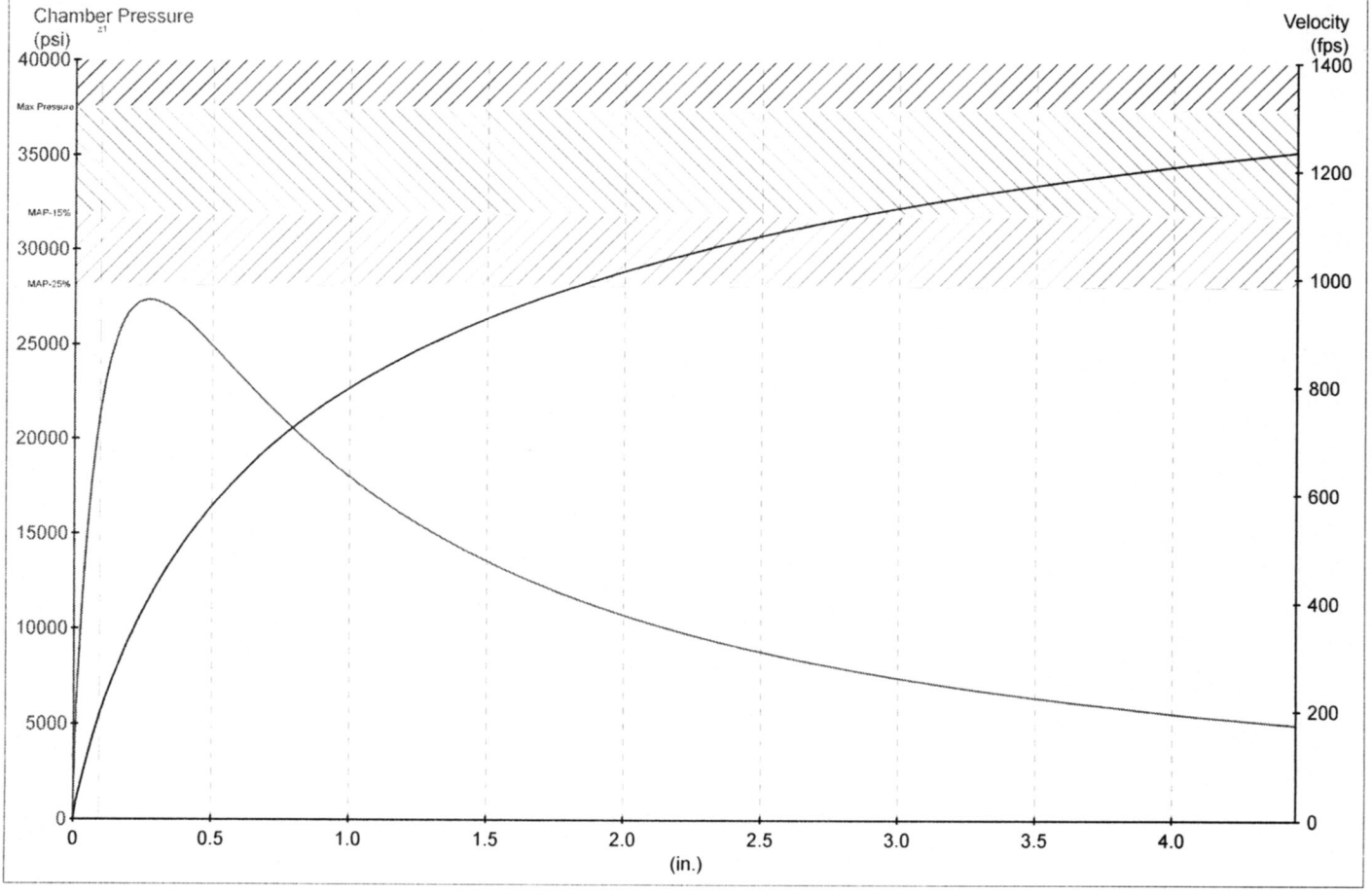
Date:15-Jan-2016 **Time:20:51:46** **File: *.dat**

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	23.82 gr. H2O	1.547 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	155.5 gr./in.³	0.615 gm/cm³
Heat of Explosion, Potential	259.2 J/gr.	4000 J/gm	Energy Density of Charge	40312 J/in.³	2460 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	0.0578 in.³	0.948 cm³	Bullet Travel at Muzzle Exit	4.45 in.	113.03 mm
Loading Ratio("Density") / Filling	66.5 %		Charge Fraction Burnt at Shot Start	1.33 %	
Predicted Data:					
Maximum Chamber Pressure	27351 psi.	1886 bar	Bullet Travel at Pmax	0.27 in.	6.9 mm
at Muzzle Exit:					
Bullet Velocity	1236 fps.	376.6 m/s	Pressure at Muzzle	4799 psi.	331 bar
Bullet Energy	525 ft.lbs.	712 Joule	Bullet Barrel Time	0.528 ms	
Propellant Burnt	95.1 %		Ballistic Efficiency	30.5 %	

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.



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. H2O	1.491 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.²	0.7955 cm²
Propellant type	**Hodgdon Longshot**				
Charge Weight	9.0 gr.	0.583 gm	Load Density	165.4 gr./in.³	0.654 gm/cm³
Heat of Explosion, Potential	259.2 J/gr.	4000 J/gm	Energy Density of Charge	42836 J/in.³	2614 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	0.0544 in.³	0.892 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 !
Real maximum (peak) of pressure is reached while bullet moves within barrel.
End of combustion occurs after the bullet's base passes muzzle.