NAR OFFICIAL CERTIFICATION LABORATORY

HIGH POWER ROCKET ENGINE TESTING REPORT

Manufacturer and Type: AMW L1100

Effective Dates: NAR Certification: 4/1/04

Certified Total Impulse (N-Sec): 2600 Delay Times: Pluged

Propellant Type: Red Rhino Propellant Mass (GM): 1346

Casing Diameter (MM): 54 Casing Length (MM): 728

- - - - - - - - - - - - - - - - STATIC TEST DATA - - - - - - - - - - - - -

Number Tested: 3 Casing Date Codes: None

Date Tested: 3/27/04 Test Temp (°c): 17 Elevation (FT): 200

Total Impulse (N-Sec): 2576.19 std. deviation: 31.06

Peak Thrust (Newtons): 1340.23 std. deviation: 8.73

Burn Time (Seconds): 2.35 std. deviation: 0.06

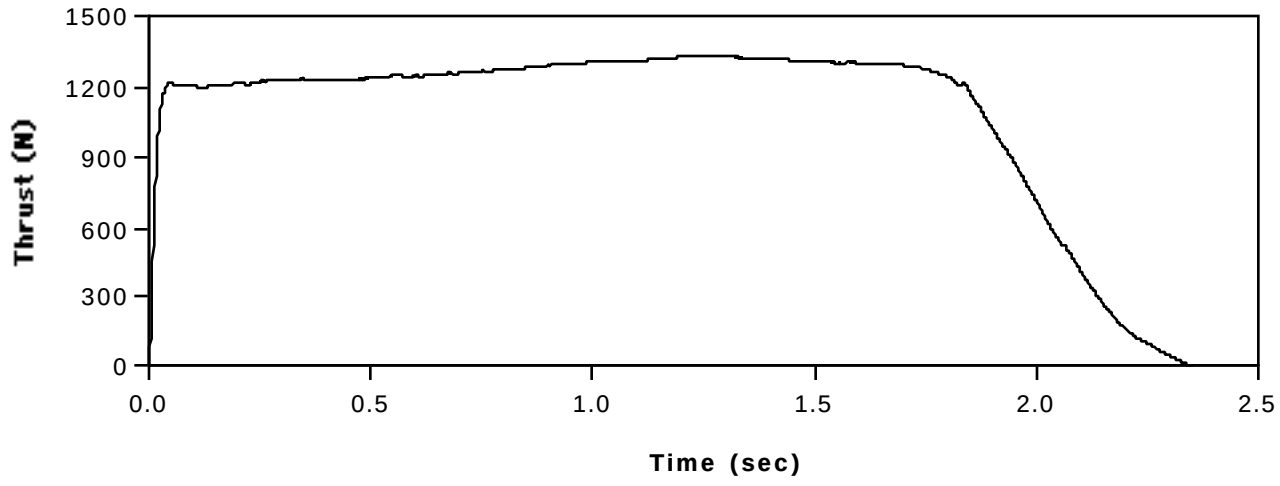
Casing Burnt Mass (GM): 1207.0 Max Casing External Temp (°c): under 200

Delay Time (sec)	Plugged
Initial Mass (gm)	2588.1
Avg. Measured Delay	None

Remarks:

Uses the 54-2550 motor and produces about 10 to 15 sec of smoke

Typical Thrust - Time Curve:



John Crane

NAR S&T Committee Chairman

; AMW L1100 RASP.ENG file made from NAR published data
; File produced April 19, 2004
; The total impulse, peak thrust, average thrust and burn time are
; the same as the averaged static test data on the NAR web site in
; the certification file. The curve drawn with these data points is as
; close to the certification curve as can be with such a limited
; number of points (32) allowed with wRASP up to v1.6.
L1100 54 728 P 1.346 2.5881 AMW
0.013 681.489
0.029 1116.882
0.041 1196.301
0.079 1210.375
0.147 1203.338
0.257 1218.417
0.366 1225.454
0.567 1254.608
0.824 1282.756
1.059 1311.909
1.267 1340.230
1.459 1311.909
1.622 1297.835
1.713 1290.798
1.785 1268.682
1.830 1218.417
1.886 1080.692
1.969 819.214
2.048 558.240
2.108 376.985
2.156 246.498
2.205 144.963
2.269 72.501
2.350 0.000