

STORED ENERGY DATA

Date: 5/26/2005

BOW MFGR.- 3 RIVERS ARCHERY BRACE HEIGHT.= 7.13 INCHES
MODEL - TOMAHAWK THUNDER STORM ZERO INTERCEPT = 8.88 INCHES
DRAW LENGTH = 26.00 INCHES P.D.F. = 52.20 POUNDS

S.N. - 8298

| DR LNTH | FORCE | ^INCH | ^POUND | ELM. AREA | SUM AREA | SUM AREA |
|---------|--------|--------|--------|-----------|----------|----------|
| INCHES | POUNDS | INCHES | POUNDS | INCH LB. | INCH LB. | FT. LB. |
| 5.00 | | 1.00 | | | | 0.00 |
| 6.00 | | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7.00 | | 1.88 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8.88 | 0.0 | 0.13 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9.00 | 1.0 | 1.00 | 1.00 | 0.06 | 0.06 | 0.01 |
| 10.00 | 5.9 | 1.00 | 4.90 | 3.45 | 3.51 | 0.29 |
| 11.00 | 10.4 | 1.00 | 4.50 | 8.15 | 11.66 | 0.97 |
| 12.00 | 14.0 | 1.00 | 3.60 | 12.20 | 23.86 | 1.99 |
| 13.00 | 17.1 | 1.00 | 3.10 | 15.55 | 39.41 | 3.28 |
| 14.00 | 20.1 | 1.00 | 3.00 | 18.60 | 58.01 | 4.83 |
| 15.00 | 22.8 | 1.00 | 2.70 | 21.45 | 79.46 | 6.62 |
| 16.00 | 25.4 | 1.00 | 2.60 | 24.10 | 103.56 | 8.63 |
| 17.00 | 27.9 | 1.00 | 2.50 | 26.65 | 130.21 | 10.85 |
| 18.00 | 30.4 | 1.00 | 2.50 | 29.15 | 159.36 | 13.28 |
| 19.00 | 32.8 | 1.00 | 2.40 | 31.60 | 190.96 | 15.91 |
| 20.00 | 35.3 | 1.00 | 2.50 | 34.05 | 225.01 | 18.75 |
| 21.00 | 37.8 | 1.00 | 2.50 | 36.55 | 261.56 | 21.80 |
| 22.00 | 40.5 | 1.00 | 2.70 | 39.15 | 300.71 | 25.06 |
| 23.00 | 43.2 | 1.00 | 2.70 | 41.85 | 342.56 | 28.55 |
| 24.00 | 46.0 | 1.00 | 2.80 | 44.60 | 387.16 | 32.26 |
| 25.00 | 49.0 | 1.00 | 3.00 | 47.50 | 434.66 | 36.22 |
| 26.00 | 52.2 | 1.00 | 3.20 | 50.60 | 485.26 | 40.44 |
| 27.00 | | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 28.00 | | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 29.00 | | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30.00 | | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 31.00 | | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 32.00 | | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 33.00 | | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 34.00 | | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 35.00 | | | | | | 0.00 |

STORED ENERGY (S.E.) = 40.439 FT.LB
S.E./P.D.F. = 0.775 FT.LB./LB.
% OF LET-OFF OVERALL= 32.38 PERCENT
% OF LET-OFF AT 30 IN. = 100.00 PERCENT
ENERGY STORING EFFICIENCY = 35.75 PERCENT OVERALL
ENERGY STORING EFFICIENCY = 54.28 PERCENT POWERSTROKE
BOTTOM OF VALLEY AT INCHES << ENTER VALUE
DRAW FORCE @VALLEY BOTTOM = LB.. << ENTER VALUE
LET-OFF AT BOTTOM OF VALLEY = 100.00 PERCENT

LET-DOWN DATA

| DR LENGH INCHES | FORCE POUNDS | ^INCH INCHES | ^POUND POUNDS | ELM. AREA INCH LB. | SUM AREA INCH LB. | SUM AREA FT. LB. |
|--------------------|-----------------|-----------------|------------------|-----------------------|----------------------|---------------------|
| 5.00 | | 1.00 | | | | 0.00 |
| 6.00 | | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7.00 | | 1.88 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8.88 | 0.0 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9.00 | 0.9 | 1.00 | 0.90 | 0.05 | 0.05 | 0.00 |
| 10.00 | 5.7 | 1.00 | 4.80 | 3.30 | 3.35 | 0.28 |
| 11.00 | 10.3 | 1.00 | 4.60 | 8.00 | 11.35 | 0.95 |
| 12.00 | 13.9 | 1.00 | 3.60 | 12.10 | 23.45 | 1.95 |
| 13.00 | 16.5 | 1.00 | 2.60 | 15.20 | 38.65 | 3.22 |
| 14.00 | 19.5 | 1.00 | 3.00 | 18.00 | 56.65 | 4.72 |
| 15.00 | 22.0 | 1.00 | 2.50 | 20.75 | 77.40 | 6.45 |
| 16.00 | 24.7 | 1.00 | 2.70 | 23.35 | 100.75 | 8.40 |
| 17.00 | 27.1 | 1.00 | 2.40 | 25.90 | 126.65 | 10.55 |
| 18.00 | 29.6 | 1.00 | 2.50 | 28.35 | 155.00 | 12.92 |
| 19.00 | 32.0 | 1.00 | 2.40 | 30.80 | 185.80 | 15.48 |
| 20.00 | 34.5 | 1.00 | 2.50 | 33.25 | 219.05 | 18.25 |
| 21.00 | 37.0 | 1.00 | 2.50 | 35.75 | 254.80 | 21.23 |
| 22.00 | 39.7 | 1.00 | 2.70 | 38.35 | 293.15 | 24.43 |
| 23.00 | 42.4 | 1.00 | 2.70 | 41.05 | 334.20 | 27.85 |
| 24.00 | 45.3 | 1.00 | 2.90 | 43.85 | 378.05 | 31.50 |
| 25.00 | 48.4 | 1.00 | 3.10 | 46.85 | 424.90 | 35.41 |
| 26.00 | 51.6 | 1.00 | 3.20 | 50.00 | 474.90 | 39.58 |
| 27.00 | | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 28.00 | | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 29.00 | | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30.00 | | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 31.00 | | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 32.00 | | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 33.00 | | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 34.00 | | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 35.00 | | | | | | |

RECOVERED ENERGY = 39.575 FT.-LB

STATIC HYSTERESIS = 0.86 FT.-LB.

STATIC HYSTERESIS = 2.13 PERCENT OF STORED ENERGY

ARROW VELOCITY - TEST DATA

| ARROW TYPE | WEIGHT GRAINS | VELOCITY FT. / SEC. | KIN. ENRGY FT.-LB. | DYN. EFFNC\ PERCENT | VIRT. MASS GRAINS |
|------------------------------|---------------|---------------------|--------------------|---------------------|-------------------|
| 3-40/390 | 360.0 | 194.0 | 30.09 | 74.42 | 123.77 |
| 2300 | 407.0 | 185.7 | 31.17 | 77.09 | 120.98 |
| 2115 | 451.0 | 178.0 | 31.74 | 78.48 | 123.64 |
| 2315 | 495.0 | 170.0 | 31.77 | 78.57 | 135.00 |
| 2117 | 540.0 | 166.0 | 33.05 | 81.73 | 120.73 |
| XT 19-12 | 599.0 | 155.0 | 31.96 | 79.04 | 158.84 |
| 2419 | 654.0 | 152.4 | 33.74 | 83.43 | 129.92 |
| | | | 0 | 0.00 | 0.00 |
| | | | 0 | 0.00 | 0.00 |
| | | | 0 | 0.00 | 0.00 |
| | | | 0 | 0.00 | 0.00 |
| AVERAGE VIRTUAL MASS= | | | | | 130.41 |

ENTER NUMBER OF ARROWS > 7 < HERE

| ARO WGT. GRAINS | VIR MASS GRAINS | Wa ^2 | Wa*Wk | Wk ^2 | |
|-----------------|-----------------|------------|-----------|-----------|-----------------------|
| 360.0 | 123.77 | 129600.00 | 44556.06 | 15318.23 | |
| 407.0 | 120.98 | 165649.00 | 49238.01 | 14635.66 | |
| 451.0 | 123.64 | 203401.00 | 55763.85 | 15288.06 | |
| 495.0 | 135.00 | 245025.00 | 66825.84 | 18225.46 | A = 0.06789808 |
| 540.0 | 120.73 | 291600.00 | 65193.67 | 14575.50 | |
| 599.0 | 158.84 | 358801.00 | 95143.74 | 25229.39 | B = 96.4033599 |
| 654.0 | 129.92 | 427716.00 | 84965.18 | 16878.21 | |
| 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | |
| ----- | | | | | |
| 3506.0 | 912.87 | 1821792.00 | 461686.36 | 120150.51 | |

PERFORMANCE FROM REGRESSION CURVE

| ARO WGT. GRAINS | VIR MASS GRAINS | Wa+Wk GRAINS | VEL. FT./SEC. | DYN. EFF. PERCENT | KIN. ENERGY FT.-LB. |
|-----------------|-----------------|--------------|---------------|-------------------|---------------------|
| 150 | 106.59 | 256.59 | 266.38 | 58.46 | 23.64 |
| 175 | 108.29 | 283.29 | 253.52 | 61.78 | 24.98 |
| 200 | 109.98 | 309.98 | 242.35 | 64.52 | 26.09 |
| 225 | 111.68 | 336.68 | 232.55 | 66.83 | 27.02 |
| 250 | 113.38 | 363.38 | 223.84 | 68.80 | 27.82 |
| 275 | 115.08 | 390.08 | 216.05 | 70.50 | 28.51 |
| 300 | 116.77 | 416.77 | 209.01 | 71.98 | 29.11 |
| 325 | 118.47 | 443.47 | 202.62 | 73.29 | 29.64 |
| 350 | 120.17 | 470.17 | 196.79 | 74.44 | 30.10 |
| 375 | 121.87 | 496.87 | 191.43 | 75.47 | 30.52 |
| 400 | 123.56 | 523.56 | 186.48 | 76.40 | 30.89 |
| 425 | 125.26 | 550.26 | 181.90 | 77.24 | 31.23 |
| 450 | 126.96 | 576.96 | 177.64 | 78.00 | 31.54 |

| ARO WGT. | VIR MASS | Wa+Wk | VEL. | DYN. EFF. | KIN. ENERGY |
|-----------------|-----------------|---------------|-----------------|------------------|--------------------|
| GRAINS | GRAINS | GRAINS | FT./SEC. | PERCENT | FT.-LB. |
| 475 | 128.65 | 603.65 | 173.67 | 78.69 | 31.82 |
| 500 | 130.35 | 630.35 | 169.95 | 79.32 | 32.08 |
| 525 | 132.05 | 657.05 | 166.46 | 79.90 | 32.31 |
| 550 | 133.75 | 683.75 | 163.18 | 80.44 | 32.53 |
| 575 | 135.44 | 710.44 | 160.09 | 80.94 | 32.73 |
| 600 | 137.14 | 737.14 | 157.16 | 81.40 | 32.92 |
| 625 | 138.84 | 763.84 | 154.39 | 81.82 | 33.09 |
| 650 | 140.54 | 790.54 | 151.76 | 82.22 | 33.25 |
| 675 | 142.23 | 817.23 | 149.26 | 82.60 | 33.40 |
| 700 | 143.93 | 843.93 | 146.88 | 82.95 | 33.54 |
| 360 | 120.85 | 480.85 | 194.59 | 74.87 | 30.28 |
| 540 | 133.07 | 673.07 | 164.47 | 80.23 | 32.44 |

RATING VELOCITY WITH 360 GRAIN ARROW (60#--30"-360 GR.) :

RATING VELOCITY WITH 540 GRAIN ARROW (60#-30"-540 GR.) :

ONLY THOSE ARROW WEIGHT VALUES CORRESPONDING TO THE ACCEPTABLE SPINE RANGE FOR THE TEST BOW AND WITHIN THE GENERAL RANGE OF ARROW WEIGHT TESTED SHOULD BE USED WITH COMPLETE CONFIDENCE. EXTRAPOLATING DATA FOR VERY LOW WEIGHT ARROWS ON HEAVIER BOWS MAY BE SUBJECT TO ERROR.