

DATA	Veh 1:	Veh 2:
Veh Wt:	3346.00	2951.00
Pass Wt:	300.00	300.00
Hood Ht:	2.42	2.67
Ped Wt:	34.00	34.00
Ped Ht:	5.08	5.08
Ped F:	0.620	0.620
1. Ped C/M:	2.96	
1. Ped AirD:	22.30	
1. Ped Throw:	27.70	
1. Ped Slide:	5.40	
1. 1st Evid:	-7.50	
1. Braking?:	Y	
1. Imp - VFrt:	19.30	
1. VC Speed:	25.10	
1. VC Mu:	0.58	
1. VC Dist:	39.60	
1. Pre-Skid:	20.30	
1. Radar (Braking):		
1. Radar (Impact):		
2. Ped C/M:	3.17	
2. Ped AirD:	31.80	
2. Ped Throw:	38.30	
2. Ped Slide:	6.50	
2. 1st Evid:	15.30	
2. Braking?:	Y	
2. Imp - VFrt:	27.40	
2. VC Speed:	28.20	
2. VC Mu:	0.63	
2. VC Dist:	41.60	
2. Pre-Skid:	14.20	
2. Radar (Braking):	27.00	
2. Radar (Impact):	27.00	
3. Ped C/M:	3.25	
3. Ped AirD:	32.50	

Drag Tests:		
Weight:	34	lb
# Tests:	10	
Results:	22.5	20
	26	20.5
	22	20
	20	20
	21	19
Totals:	211	
Avg:	21.10	
Calc'd F:	0.621	

Instructor 1: Mike Reade, James Ronfeldt
Instructor 2: Chris Sanchez

Take-Off Angles:	
Minimum:	4 degrees
Maximum:	8 degrees

Carry Distances:	
Carry Test 1:	2.48 ft
Carry Test 2:	3.79 ft

Inches to Decimal Feet:	
1 inch =	0.08 feet
2 inches =	0.17 feet
3 inches =	0.25 feet
4 inches =	0.33 feet
5 inches =	0.42 feet
6 inches =	0.50 feet
7 inches =	0.58 feet
8 inches =	0.67 feet
9 inches =	0.75 feet
10 inches =	0.83 feet
11 inches =	0.92 feet
12 inches =	1.00 feet

3. Ped Throw:	51.00
3. Ped Slide:	18.50
3. 1st Evid:	32.50
3. Braking?:	Y
3. Imp - VFrt:	33.60
3. VC Speed:	
3. VC Mu:	
3. VC Dist:	33.60
3. Pre-Skid:	0.00
3. Radar (Braking):	29.00
3. Radar (Impact):	29.00
4. Ped C/M:	3.17
4. Ped AirD:	31.80
4. Ped Throw:	48.90
4. Ped Slide:	17.10
4. 1st Evid:	14.20
4. Braking?:	Y
4. Imp - VFrt:	34.80
4. VC Speed:	
4. VC Mu:	
4. VC Dist:	34.80
4. Pre-Skid:	0.00
4. Radar (Braking):	29.00
4. Radar (Impact):	29.00
5. Ped C/M:	3.25
5. Ped AirD:	36.00
5. Ped Throw:	70.50
5. Ped Slide:	34.50
5. 1st Evid:	10.60
5. Braking?:	Y
5. Imp - VFrt:	46.60
5. VC Speed:	30.60
5. VC Mu:	0.66
5. VC Dist:	46.70
5. Pre-Skid:	0.10
5. Radar (Braking):	30.00

Carry Test 3:	4.10 ft
Carry Test 4:	3.06 ft
Carry Test 5:	4.05 ft
Carry Test 6:	4.00 ft
Carry Test 7:	4.00 ft
Carry Test 8:	4.00 ft
Carry Test 9:	4.00 ft
Carry Test 10:	4.00 ft

Video/Actual Take-off Angles:	
Carry Test 1:	9 Degrees
Carry Test 2:	11 Degrees
Carry Test 3:	12 Degrees
Carry Test 4:	4 Degrees
Carry Test 5:	1 Degrees
Carry Test 6:	16 Degrees
Carry Test 7:	8 Degrees
Carry Test 8:	6 Degrees
Carry Test 9:	4 Degrees
Carry Test 10:	7 Degrees

5. Radar (Impact):	30.00
6. Ped C/M:	3.25
6. Ped AirD:	49.25
6. Ped Throw:	57.25
6. Ped Slide:	8.00
6. 1st Evid:	0.00
6. Braking?:	Y
6. Imp - VFrt:	46.33
6. VC Speed:	45.20
6. VC Mu:	0.80
6. VC Dist:	85.30
6. Pre-Skid:	38.97
6. Radar (Braking):	30.00
6. Radar (Impact):	30.00
7. Ped C/M:	3.25
7. Ped AirD:	36.90
7. Ped Throw:	47.50
7. Ped Slide:	10.60
7. 1st Evid:	-1.50
7. Braking?:	Y
7. Imp - VFrt:	37.30
7. VC Speed:	41.40
7. VC Mu:	0.75
7. VC Dist:	81.50
7. Pre-Skid:	44.20
7. Radar (Braking):	32.00
7. Radar (Impact):	32.00
8. Ped C/M:	3.25
8. Ped AirD:	39.90
8. Ped Throw:	61.50
8. Ped Slide:	21.60
8. 1st Evid:	0.00
8. Braking?:	Y
8. Imp - VFrt:	60.20
8. VC Speed:	49.20
8. VC Mu:	0.72

8. VC Dist:	121.40
8. Pre-Skid:	61.20
8. Radar (Braking):	
8. Radar (Impact):	
9. Ped C/M:	2.67
9. Ped AirD:	52.00
9. Ped Throw:	81.50
9. Ped Slide:	29.50
9. 1st Evid:	0.00
9. Braking?:	Y
9. Imp - VFrt:	79.50
9. VC Speed:	50.50
9. VC Mu:	0.74
9. VC Dist:	117.00
9. Pre-Skid:	37.50
9. Radar (Braking):	41.00
9. Radar (Impact):	41.00
10. Ped C/M:	3.17
10. Ped AirD:	54.66
10. Ped Throw:	91.25
10. Ped Slide:	36.59
10. 1st Evid:	1.50
10. Braking?:	Y
10. Imp - VFrt:	79.00
10. VC Speed:	50.30
10. VC Mu:	0.76
10. VC Dist:	114.60
10. Pre-Skid:	35.60
10. Radar (Braking):	
10. Radar (Impact):	



Pedestrian/Bicycle Crash Analysis



Instructors: Mike Reade, James Ronfeldt & Chris Sanchez

Date: 22-Oct-14

Place: Westover, MA

Veh One:	Veh Two:
03 Taurus	96 Buick Century
OL: 197.80 in	189.10 in
OW: 72.90 in	69.40 in
WB: 108.70 in	105.00 in
FOH: 41.80 in	
ROH: 47.70 in	
Weight: 3346.00 lb	2951.00 lb
Hood H: 2.42 in	2.67 in

Searle (Angle):

$$V = \frac{\sqrt{2 \times \mu \times g \times d}}{[\cos \theta + (\mu \times \sin \theta)]}$$

Searle Maximim:

$$V_{\max} = \sqrt{2 \times \mu \times g \times d}$$

Searle (Mass & Carry):

$$V_{\min} = \frac{M + m}{M} \sqrt{\frac{2\mu g(d - \text{Carry})}{1 + \mu^2}}$$

Searle Minimum:

$$V_{\min} = \sqrt{\frac{2 \times \mu \times g \times d}{1 + \mu^2}}$$

Crash Data:	Test 1	Test 2	Test 3	Test 4	Test 5	Test 6	Test 7	Test 8	Test 9	Test 10
Ped Ht (ft):	5.08	5.08	5.08	5.08	5.08	5.08	5.08	5.08	5.08	5.08
Ped C/M Ht (ft):	2.96	3.17	3.25	3.17	3.25	3.25	3.25	3.25	2.67	3.17
Ped Slide D (ft):	5.40	6.50	18.50	17.10	34.50	8.00	10.60	21.60	29.50	36.59
Airborne D (ft):	22.30	31.80	32.50	31.80	36.00	49.25	36.90	39.90	52.00	54.66
Ped f-Value:	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Throw D (ft):	27.70	38.30	51.00	48.90	70.50	57.25	47.50	61.50	81.50	91.25
Takeoff (Min):	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Takeoff (Max.):	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
1st Evid. (ft):	-7.50	15.30	32.50	14.20	10.60	0.00	-1.50	0.00	0.00	1.50
Ped Weight (lb):	34.00	34.00	34.00	34.00	34.00	34.00	34.00	34.00	34.00	34.00
Vehicle Data:										
Hood Height (ft):	2.42	2.42	2.42	2.42	2.42	2.42	2.42	2.42	2.42	2.42
C/M - Hood Change (ft):	0.54	0.75	0.83	0.75	0.58	0.58	0.83	0.83	0.25	0.75
Braking (Yes=Y/No=N):	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Skid Total (ft):	39.60	41.60	33.60	34.80	46.70	85.30	81.50	121.40	117.00	114.60
Skid to Impact (ft):	20.30	14.20	N/A	N/A	0.10	38.97	44.20	61.20	37.50	35.60
Road f-Value:	0.58	0.63	N/A	N/A	0.66	0.80	0.75	0.72	0.74	0.76
Impact Spd (mph):	16.62	22.92	N/A	N/A	30.57	33.30	26.82	33.04	41.49	41.52
Radar (Start Braking):	N/A	27.00	29.00	29.00	30.00	30.00	32.00	N/A	41.00	N/A
Radar (Impact):	N/A	27.00	29.00	29.00	30.00	30.00	32.00	N/A	41.00	N/A

Disclaimer: Documentaion is provided to supplement IPTM Crash Testing.
Additional training required to fully understand the technical analysis.



Pedestrian/Bicycle Crash Analysis



Instructors: Mike Reade, James Ronfeldt & Chris Sanchez

Test 1



Searle Analysis: (1983)

Searle (10 Degree) Takeoff:	21.81 mph
Searle (20 Degree) Takeoff:	21.08 mph
Searle Minimum Formula (80%):	15.43 mph
Searle Maximum Formula:	22.70 mph

NEW Searle Formulae Analysis:

Vehicle Weight: (M)	3,646.00 lb
Pedestrian Weight: (m)	34 lb
Ped C/M Height: (H)	2.96 feet

Vehicle Speed Analysis:

Vehicle Speed - Start of Braking:	25.10 mph
Vehicle Speed - Impact:	16.62 mph
Radar Speed - Start of Braking:	N/A mph
Radar Speed - Impact:	N/A mph
IMPACT SPEED To Be Used:	16.62 mph

Searle Minimum Analysis: (1993, 2009)

$$V_{\min} = \sqrt{\frac{2\mu g(d - \mu H)}{1 + \mu^2}}$$

$$= 14.91 \text{ mph}$$

Other Calculations:

Speed (With Adjusted Data):	19.97 mph
Throw Minus Carry Distance:	25.22 feet
Location of First Evidence:	-7.5 feet
% of Speed Attained (Ped):	93%
Difference (C/M vs. Hood H):	0.5 feet
Takeoff From Video (Degrees):	9 Degrees
Carry Distance:	2.48 feet

Searle Minimum Analysis: (2009)

$$V_{\min} = \frac{M + m}{M} \sqrt{\frac{2\mu g(d - \text{Carry})}{1 + \mu^2}}$$

$$= 14.86 \text{ mph}$$

(Percentage is determined by dividing Searle Minimum result by Vehicle Impact Speed)



Pedestrian/Bicycle Crash Analysis



Instructors: Mike Reade, James Ronfeldt & Chris Sanchez

Test 2



Searle Analysis: (1983)

Searle (10 Degree) Takeoff:	25.64 mph
Searle (20 Degree) Takeoff:	24.79 mph
Searle Minimum Formula:	22.68 mph
Searle Maximum Formula:	26.69 mph

Vehicle Speed Analysis:

Vehicle Speed - Start of Braking:	28.20 mph
Vehicle Speed - Impact:	22.92 mph
Radar Speed - Start of Braking:	27.00 mph
Radar Speed - Impact:	27.00 mph
IMPACT SPEED To Be Used:	22.92 mph

Other Calculations:

Speed (With Adjusted Data):	23.03 mph
Throw Minus Carry Distance:	34.51 feet
Location of First Evidence:	15.3 feet
% of Speed Attained (Ped):	99%
Difference (C/M vs. Hood H):	0.8 feet
Takeoff From Video (Degrees):	11 Degrees
Carry Distance:	3.79 feet

NEW Searle Formulae Analysis:

Vehicle Weight: (M)	3,646.00 lb
Pedestrian Weight: (m)	34 lb
Ped C/M Height: (H)	3.17 feet

Searle Minimum Analysis: (1993, 2009)

$$V_{\min} = \sqrt{\frac{2\mu g(d - \mu H)}{1 + \mu^2}}$$

$$= 22.10 \text{ mph}$$

Searle Minimum Analysis: (2009)

$$V_{\min} = \frac{M + m}{M} \sqrt{\frac{2\mu g(d - \text{Carry})}{1 + \mu^2}}$$

$$= 21.73 \text{ mph}$$

(Percentage is determined by dividing Searle Minimum result by Vehicle Impact Speed)

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Additional training required to fully understand the technical analysis.



Pedestrian/Bicycle Crash Analysis



Instructors: Mike Reade, James Ronfeldt & Chris Sanchez

Test 3



Searle Analysis: (1983)

Searle (10 Degree) Takeoff:	29.59 mph
Searle (20 Degree) Takeoff:	28.61 mph
Searle Minimum Formula:	26.18 mph
Searle Maximum Formula:	30.80 mph

Vehicle Speed Analysis:

Vehicle Speed - Start of Braking:	N/A mph
Vehicle Speed - Impact:	N/A mph
Radar Speed - Start of Braking:	29.00 mph
Radar Speed - Impact:	29.00 mph
IMPACT SPEED To Be Used:	29.00 mph

Other Calculations:

Speed (With Adjusted Data):	26.68 mph
Throw Minus Carry Distance:	46.90 feet
Location of First Evidence:	32.5 feet
% of Speed Attained (Ped):	90%
Difference (C/M vs. Hood H):	0.8 feet
Takeoff From Video (Degrees):	12 Degrees
Carry Distance:	4.10 feet

NEW Searle Formulae Analysis:

Vehicle Weight: (M)	3,646.00 lb
Pedestrian Weight: (m)	34 lb
Ped C/M Height: (H)	3.25 feet

Searle Minimum Analysis: (1993, 2009)

$$V_{\min} = \sqrt{\frac{2\mu g(d - \mu H)}{1 + \mu^2}}$$

$$= 25.65 \text{ mph}$$

Searle Minimum Analysis: (2009)

$$V_{\min} = \frac{M + m}{M} \sqrt{\frac{2\mu g(d - \text{Carry})}{1 + \mu^2}}$$

$$= 25.34 \text{ mph}$$

(Percentage is determined by dividing Searle Minimum result by Vehicle Impact Speed)

Disclaimer: Documentaion is provided to supplement IPTM Crash Testing.
Additional training required to fully understand the technical analysis.



Pedestrian/Bicycle Crash Analysis



Instructors: Mike Reade, James Ronfeldt & Chris Sanchez

Test 4



Searle Analysis: (1983)

Searle (10 Degree) Takeoff:	28.98 mph
Searle (20 Degree) Takeoff:	28.01 mph
Searle Minimum Formula:	25.63 mph
Searle Maximum Formula:	30.16 mph

Vehicle Speed Analysis:

Vehicle Speed - Start of Braking:	N/A mph
Vehicle Speed - Impact:	N/A mph
Radar Speed - Start of Braking:	29.00 mph
Radar Speed - Impact:	29.00 mph
IMPACT SPEED To Be Used:	29.00 mph

Other Calculations:

Speed (With Adjusted Data):	28.05 mph
Throw Minus Carry Distance:	45.84 feet
Location of First Evidence:	14.2 feet
% of Speed Attained (Ped):	88%
Difference (C/M vs. Hood H):	0.8 feet
Takeoff From Video (Degrees):	4 Degrees
Carry Distance:	3.06 feet

NEW Searle Formulae Analysis:

Vehicle Weight: (M)	3,646.00 lb
Pedestrian Weight: (m)	34 lb
Ped C/M Height: (H)	3.17 feet

Searle Minimum Analysis: (1993, 2009)

$$V_{\min} = \sqrt{\frac{2\mu g(d - \mu H)}{1 + \mu^2}}$$

$$= 25.11 \text{ mph}$$

Searle Minimum Analysis: (2009)

$$V_{\min} = \frac{M + m}{M} \sqrt{\frac{2\mu g(d - \text{Carry})}{1 + \mu^2}}$$

$$= 25.05 \text{ mph}$$

(Percentage is determined by dividing Searle Minimum result by Vehicle Impact Speed)



Pedestrian/Bicycle Crash Analysis



Instructors: Mike Reade, James Ronfeldt & Chris Sanchez

Test 5



Searle Analysis: (1983)

Searle (10 Degree) Takeoff:	34.79 mph
Searle (20 Degree) Takeoff:	33.64 mph
Searle Minimum Formula:	30.78 mph
Searle Maximum Formula:	36.21 mph

Vehicle Speed Analysis:

Vehicle Speed - Start of Braking:	30.60 mph
Vehicle Speed - Impact:	30.57 mph
Radar Speed - Start of Braking:	30.00 mph
Radar Speed - Impact:	30.00 mph
IMPACT SPEED To Be Used:	30.57 mph

Other Calculations:

Speed (With Adjusted Data):	34.79 mph
Throw Minus Carry Distance:	66.45 feet
Location of First Evidence:	10.6 feet
% of Speed Attained (Ped):	101%
Difference (C/M vs. Hood H):	0.8 feet
Takeoff From Video (Degrees):	1 Degrees
Carry Distance:	4.05 feet

NEW Searle Formulae Analysis:

Vehicle Weight: (M)	3,646.00 lb
Pedestrian Weight: (m)	34 lb
Ped C/M Height: (H)	3.25 feet

Searle Minimum Analysis: (1993, 2009)

$$V_{\min} = \sqrt{\frac{2\mu g(d - \mu H)}{1 + \mu^2}}$$

$$= 30.33 \text{ mph}$$

Searle Minimum Analysis: (2009)

$$V_{\min} = \frac{M + m}{M} \sqrt{\frac{2\mu g(d - \text{Carry})}{1 + \mu^2}}$$

$$= 30.16 \text{ mph}$$

(Percentage is determined by dividing Searle Minimum result by Vehicle Impact Speed)

Disclaimer: Documentaion is provided to supplement IPTM Crash Testing.
Additional training required to fully understand the technical analysis.



Pedestrian/Bicycle Crash Analysis



Instructors: Mike Reade, James Ronfeldt & Chris Sanchez

Test 6



Searle Analysis: (1983)

Searle (10 Degree) Takeoff:	31.35 mph
Searle (20 Degree) Takeoff:	30.31 mph
Searle Minimum Formula (80%):	22.19 mph
Searle Maximum Formula:	32.63 mph

Vehicle Speed Analysis:

Vehicle Speed - Start of Braking:	45.20 mph
Vehicle Speed - Impact:	33.30 mph
Radar Speed - Start of Braking:	30.00 mph
Radar Speed - Impact:	30.00 mph
IMPACT SPEED To Be Used:	33.30 mph

Other Calculations:

Speed (With Adjusted Data):	27.80 mph
Throw Minus Carry Distance:	53.25 feet
Location of First Evidence:	0.0 feet
% of Speed Attained (Ped):	67%
Difference (C/M vs. Hood H):	0.8 feet
Takeoff From Video (Degrees):	16 Degrees
Carry Distance:	4.00 feet

NEW Searle Formulae Analysis:

Vehicle Weight: (M)	3,251.00 lb
Pedestrian Weight: (m)	34 lb
Ped C/M Height: (H)	3.25 feet

Searle Minimum Analysis: (1993, 2009)

$$V_{\min} = \sqrt{\frac{2\mu g(d - \mu H)}{1 + \mu^2}}$$

$$= 21.79 \text{ mph}$$

Searle Minimum Analysis: (2009)

$$V_{\min} = \frac{M + m}{M} \sqrt{\frac{2\mu g(d - \text{Carry})}{1 + \mu^2}}$$

$$= 21.62 \text{ mph}$$

(Percentage is determined by dividing Searle Minimum result by Vehicle Impact Speed)

Disclaimer: Documentaion is provided to supplement IPTM Crash Testing.
Additional training required to fully understand the technical analysis.



Pedestrian/Bicycle Crash Analysis



Instructors: Mike Reade, James Ronfeldt & Chris Sanchez

Test 7



Searle Analysis: (1983)

Searle (10 Degree) Takeoff:	28.56 mph
Searle (20 Degree) Takeoff:	27.61 mph
Searle Minimum Formula:	25.26 mph
Searle Maximum Formula:	29.72 mph

NEW Searle Formulae Analysis:

Vehicle Weight: (M)	3,251.00 lb
Pedestrian Weight: (m)	34 lb
Ped C/M Height: (H)	3.25 feet

Vehicle Speed Analysis:

Vehicle Speed - Start of Braking:	41.40 mph
Vehicle Speed - Impact:	26.82 mph
Radar Speed - Start of Braking:	32.00 mph
Radar Speed - Impact:	32.00 mph
IMPACT SPEED To Be Used:	26.82 mph

Searle Minimum Analysis: (1993, 2009)

$$V_{\min} = \sqrt{\frac{2\mu g(d - \mu H)}{1 + \mu^2}}$$

$$= 24.72 \text{ mph}$$

Other Calculations:

Speed (With Adjusted Data):	26.42 mph
Throw Minus Carry Distance:	43.50 feet
Location of First Evidence:	-1.5 feet
% of Speed Attained (Ped):	94%
Difference (C/M vs. Hood H):	0.8 feet
Takeoff From Video (Degrees):	8 Degrees
Carry Distance:	4.00 feet

Searle Minimum Analysis: (2009)

$$V_{\min} = \frac{M + m}{M} \sqrt{\frac{2\mu g(d - \text{Carry})}{1 + \mu^2}}$$

$$= 24.43 \text{ mph}$$

(Percentage is determined by dividing Searle Minimum result by Vehicle Impact Speed)

Disclaimer: Documentaion is provided to supplement IPTM Crash Testing.
Additional training required to fully understand the technical analysis.



Pedestrian/Bicycle Crash Analysis



Instructors: Mike Reade, James Ronfeldt & Chris Sanchez

Test 8



Searle Analysis: (1983)

Searle (10 Degree) Takeoff:	32.50 mph
Searle (20 Degree) Takeoff:	31.42 mph
Searle Minimum Formula:	28.75 mph
Searle Maximum Formula:	33.82 mph

NEW Searle Formulae Analysis:

Vehicle Weight: (M)	3,251.00 lb
Pedestrian Weight: (m)	34 lb
Ped C/M Height: (H)	3.25 feet

Vehicle Speed Analysis:

Vehicle Speed - Start of Braking:	49.20 mph
Vehicle Speed - Impact:	33.04 mph
Radar Speed - Start of Braking:	N/A mph
Radar Speed - Impact:	N/A mph
IMPACT SPEED To Be Used:	33.04 mph

Searle Minimum Analysis: (1993, 2009)

$$V_{\min} = \sqrt{\frac{2\mu g(d - \mu H)}{1 + \mu^2}}$$

$$= 28.27 \text{ mph}$$

Other Calculations:

Speed (With Adjusted Data):	30.87 mph
Throw Minus Carry Distance:	57.50 feet
Location of First Evidence:	0.0 feet
% of Speed Attained (Ped):	87%
Difference (C/M vs. Hood H):	0.8 feet
Takeoff From Video (Degrees):	6 Degrees
Carry Distance:	4.00 feet

Searle Minimum Analysis: (2009)

$$V_{\min} = \frac{M + m}{M} \sqrt{\frac{2\mu g(d - \text{Carry})}{1 + \mu^2}}$$

$$= 28.09 \text{ mph}$$

(Percentage is determined by dividing Searle Minimum result by Vehicle Impact Speed)

Disclaimer: Documentaion is provided to supplement IPTM Crash Testing.
Additional training required to fully understand the technical analysis.



Pedestrian/Bicycle Crash Analysis



Instructors: Mike Reade, James Ronfeldt & Chris Sanchez

Test 9



Searle Analysis: (1983)

Searle (10 Degree) Takeoff:	37.41 mph
Searle (20 Degree) Takeoff:	36.17 mph
Searle Minimum Formula:	33.09 mph
Searle Maximum Formula:	38.93 mph

Vehicle Speed Analysis:

Vehicle Speed - Start of Braking:	50.50 mph
Vehicle Speed - Impact:	41.49 mph
Radar Speed - Start of Braking:	41.00 mph
Radar Speed - Impact:	41.00 mph
IMPACT SPEED To Be Used:	41.49 mph

Other Calculations:

Speed (With Adjusted Data):	36.48 mph
Throw Minus Carry Distance:	77.50 feet
Location of First Evidence:	0.0 feet
% of Speed Attained (Ped):	80%
Difference (C/M vs. Hood H):	0.3 feet
Takeoff From Video (Degrees):	4 Degrees
Carry Distance:	4.00 feet

NEW Searle Formulae Analysis:

Vehicle Weight: (M)	3,251.00 lb
Pedestrian Weight: (m)	34 lb
Ped C/M Height: (H)	2.67 feet

Searle Minimum Analysis: (1993, 2009)

$$V_{\min} = \sqrt{\frac{2\mu g(d - \mu H)}{1 + \mu^2}}$$

$$= 32.75 \text{ mph}$$

Searle Minimum Analysis: (2009)

$$V_{\min} = \frac{M + m}{M} \sqrt{\frac{2\mu g(d - \text{Carry})}{1 + \mu^2}}$$

$$= 32.61 \text{ mph}$$

(Percentage is determined by dividing Searle Minimum result by Vehicle Impact Speed)

Disclaimer: Documentaion is provided to supplement IPTM Crash Testing.
Additional training required to fully understand the technical analysis.



Pedestrian/Bicycle Crash Analysis



Instructors: Mike Reade, James Ronfeldt & Chris Sanchez

Test 10



Searle Analysis: (1983)

Searle (10 Degree) Takeoff:	39.58 mph
Searle (20 Degree) Takeoff:	38.27 mph
Searle Minimum Formula:	35.01 mph
Searle Maximum Formula:	41.20 mph

Vehicle Speed Analysis:

Vehicle Speed - Start of Braking:	50.30 mph
Vehicle Speed - Impact:	41.52 mph
Radar Speed - Start of Braking:	N/A mph
Radar Speed - Impact:	N/A mph
IMPACT SPEED To Be Used:	41.52 mph

Other Calculations:

Speed (With Adjusted Data):	37.72 mph
Throw Minus Carry Distance:	87.25 feet
Location of First Evidence:	1.5 feet
% of Speed Attained (Ped):	84%
Difference (C/M vs. Hood H):	0.8 feet
Takeoff From Video (Degrees):	7 Degrees
Carry Distance:	4.00 feet

NEW Searle Formulae Analysis:

Vehicle Weight: (M)	3,251.00 lb
Pedestrian Weight: (m)	34 lb
Ped C/M Height: (H)	2.67 feet

Searle Minimum Analysis: (1993, 2009)

$$V_{\min} = \sqrt{\frac{2\mu g(d - \mu H)}{1 + \mu^2}}$$

$$= 34.70 \text{ mph}$$

Searle Minimum Analysis: (2009)

$$V_{\min} = \frac{M + m}{M} \sqrt{\frac{2\mu g(d - \text{Carry})}{1 + \mu^2}}$$

$$= 34.60 \text{ mph}$$

(Percentage is determined by dividing Searle Minimum result by Vehicle Impact Speed)