pointcol.xls

ver. 3.0 8/10/2012

Skid To Rest Collision Reconstruction

UNIT CONVERSION

US

frictional drag factors

f_1:	0.70
f_2:	0.70

vehicle weights, lb

W_1	3738.3
W_2	3524.4

mass, lb-s²/ft

m_1	116.19
m_2	109.54
g	32.17
conv	1.47
det	1.27E+04
R1	1.14E+04
R2	6.48E+03

ΔV_1:	58.52	ft/s
ΔV_2:	62.07	ft/s
coeff, e	0.06	
coeff, μ	-0.59	
coeff, μ_0	-0.57	

postimpact skid distances, ft

d_1:	70.70	x_1	60.0	y_1	37.4
d_2:	80.10	x_2	71.2	y_2	36.7

postmpact speeds, ft/s & mph

V_1:	56.43	38.48		
V_2:	60.07	40.96		
V_{1x}	47.89	V_{1y}	29.85	
V_{2x}	53.39	V_{2y}	27.52	

postimpact angles

	deg	rad
ϕ_1	31.9	0.56
ϕ_2	27.3	0.48

preimpact speeds, ft/s & mph

v_1:	98.23	67.0		
v_2:	59.18	40.4		
v_{1x}	98.23	v_{1y}	0.00	
v_{2x}	0.00	v_{2y}	59.18	

preimpact angles

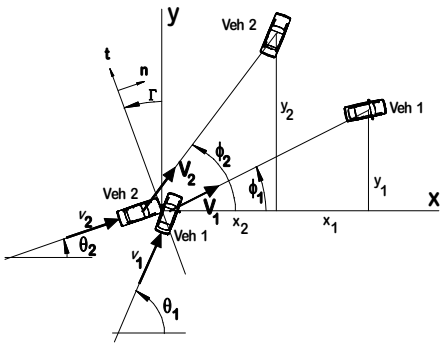
	deg	rad
θ_1	0.0	0.00
θ_2	90.0	1.57

System Energy

Initial, ft-lb	752,391.8
Final, ft-lb	382,631.5
Loss	369,760.3
%	49.1

Γ = 0.0

sinΓ	0.000	cosΓ	1.000
v_{1n}	98.23	v_{1t}	0.00
v_{2n}	0.00	v_{2t}	59.18
V_{1n}	47.89	V_{1t}	29.85
V_{2n}	53.39	V_{2t}	27.52



NOTE: This method is valid only for oblique collisions. In-line, collinear collisions ($\theta_1 = \pm \theta_2$) can give inaccurate results.

Brach Engineering

VCRware™

Vehicle Crash Reconstruction Software

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SOLVER INSTRUCTIONS

Enter all cell references as an absolute reference w/o equal sign: C5.
To Maximize: put a 1 in cell P10, a 0 in cell R10 and 0.000 in cell T10.
To Minimize: put a 0 in cell P10, a 1 in cell R10 and 0.000 in cell T10.
To optimize to a Value: put a 0 in cell P10, a 0 in cell R10, and the numerical value to optimize to in cell T10.
Enter Multiple Change Cells separated by a comma: C3, D5
Constraint Relation can be only: >=, =, or <=.

Solver Block

Target Cell:	F22					
Equal to:	**Max:**	0	**Min:**	0	**Value of:**	22.00
By changing cells:	B6,I26					

Subject to constraints:	Left Side	Relation	Right Side
Constraint #1:	B26	>=	0.0
Constraint #2:	B26	<=	0.3
Constraint #3:			
Constraint #4:			
Constraint #5:			
Constraint #6:			
Constraint #7:			
Constraint #8:			
Constraint #9:			
Constraint #10:			