



CHASSIS ROLL FORCE EACH SIDE FROM 1.0 K UNIT LOAD EACH WHEEL:

INNER WHEEL:

$$U = 1.00K \times 7.314" / 9.895" = 0.73K$$

$$L = 1.00K \times 17.209" / 9.895" = 1.72K$$

OUTER WHEEL:

$$U = 1.00K \times 7.559" / 10.020" = 0.75K$$

$$L = 1.00K \times 17.579" / 10.020" = 1.75K$$

MOMENT ABOUT CENTER OF GRAVITY

$$MCG = -0.73K \times 1.043" = -0.76 \text{ IN K}$$

$$+1.72K \times 9.981" = +17.17 \text{ IN K}$$

$$= +16.41 \text{ IN K}$$

PER 1K LATERAL THIS SIDE (CCW IS +)

$$MCG = -0.85K \times 11.748" = -9.99 \text{ IN K}$$

$$+1.76K \times 13.114" = +23.08 \text{ IN K}$$

$$= +13.09 \text{ IN K}$$

PER 1K LATERAL THIS SIDE (CCW IS +)

CHASSIS ROLL FORCE FOR WHEEL LOADS SHOWN ON "FORCES AT TIRE FOOTPRINT"

INNER WHEEL:

$$\text{LATERAL LOAD} = 150 \text{ LB} = 0.15 \text{ K}$$

$$MCG = 0.15 \text{ K} \times 16.41 \text{ IN K} = 2.46 \text{ IN K}$$

OUTER WHEEL:

$$\text{LATERAL LOAD} = 1838 \text{ LB} = 1.84 \text{ K}$$

$$MCG = 1.84 \text{ K} \times 13.09 \text{ IN K} = 24.06 \text{ IN K}$$

$$\text{TOTAL CHASSIS ROLL FORCE ABOUT C.G. (MCG)} = 2.46 \text{ IN K} + 24.06 \text{ IN K} = 26.52 \text{ IN K}$$

$$= 26,520 \text{ IN LB}$$

$$\text{CHASSIS ROLL FORCE RATE} = 26,520 \text{ IN LB} / 5 \text{ DEGREES} = 5,304 \text{ IN LB PER DEGREE}$$

$$= 442 \text{ FT LB PER DEGREE}$$

$$\text{SPRING/ARB RATE AT THE WHEEL TO SUPPLY THIS ROLL RATE} =$$

$$1375 \times 442 \text{ FT LB PER DEGREE} / 60.126^2 = 168 \text{ LB PER IN}$$

FOR CHASSIS POSITION AND WHEEL LOADS SHOWN

FORCE VECTORS AND CHASSIS ROLL FORCE FOR SUSPENSION WITH 5° ROLL, 0" EXTENSION/COMPRESSION

$$\text{FULCRUM (ROLL CENTER) DISTANCE FROM C.G.} = 26,520 \text{ IN LB} / 1,988 \text{ LB} = 13.34 \text{ IN}$$