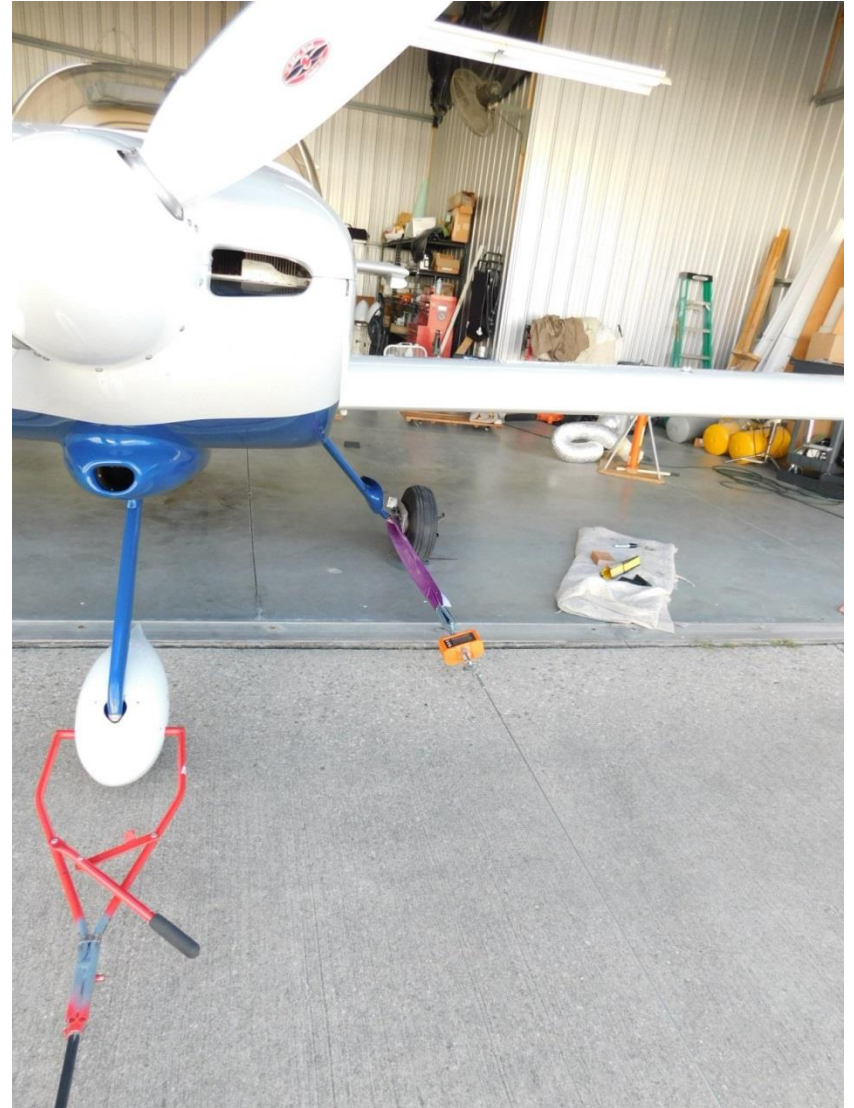


# Small Wheel Chock Test

- Problem: Wheel chock unwanted sliding during high power runup
- Purpose of test: To understand the load stopping capability of a wheel chock and type of surface interaction
- Objective: Improve the wheel chock by 3D printing

# Test Arrangement



In the highest loading condition, the wheel and chock contour have the same center points

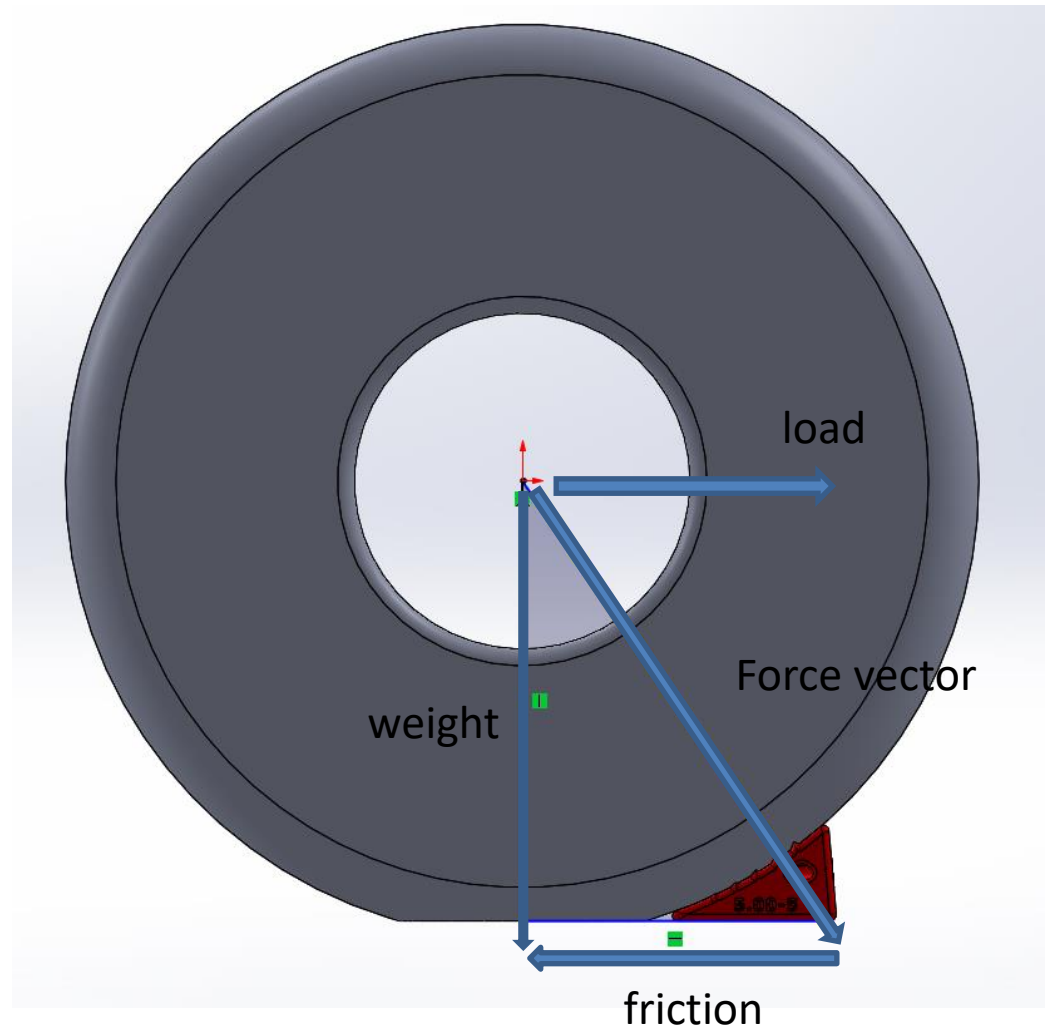
The Force vector is aligned to the forward edge of the chock to maximize loading there

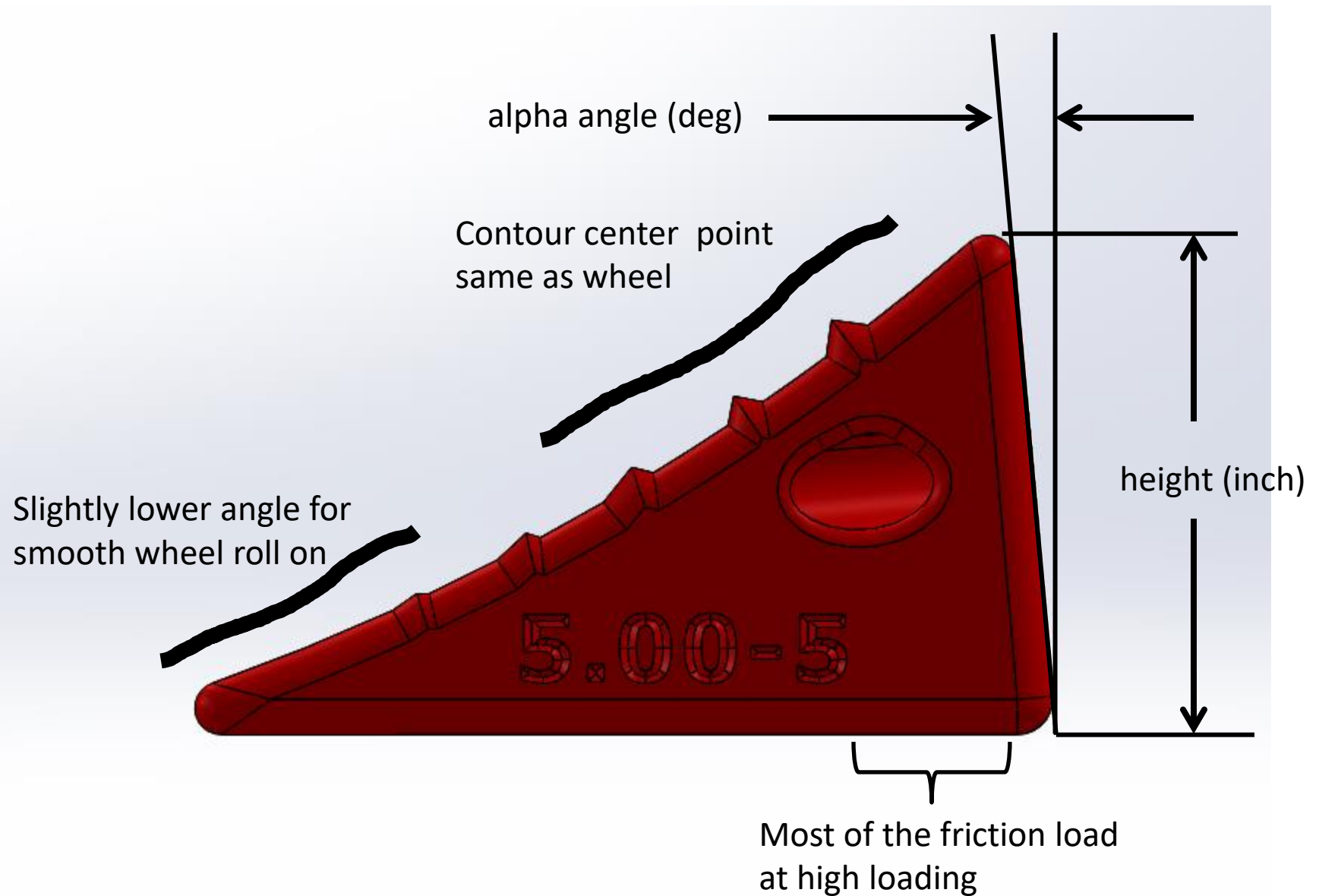
The wheel chock is tall enough to lift the wheel from the pavement to obtain the full weight of the wheel for maximum loading

When the wheel is lifted from the pavement no further increase in load can be applied and the wheel will begin to rotate over the forward edge of the chock

Minimal distortion of the tire at maximum loading

Getting the most from a small wheel chock





# RV-9A Wheel Chock Test Data

## July 2020

### Temperature 90F

Weight Empty RV-9A (fuel half tanks)

Left wheel (lb) 450  
 Right wheel (lb) 470  
 Nose (lb) 300  
 Total (lb) 1220

					max avg load (lbs)	max avg load (lbs)	max avg load (lbs)	max avg load (lbs)	
test number	chock article	tire pressure (psi)	chock height (inch)	chock alpha angle (deg)	smooth hangar concrete	smooth hangar with oil	rough concrete	worn asphalt	notes
1	3D printed	45	1.5	10	200				slip
1A	3D printed	45	1.5	10					fast winch travel pulls wheel over chock and chock bangs against lowered flap, no damage
2	2x4	45	1.5	0	240				no slip, tire abrupt deformation
3	3D printed	45	1	10	130				rolls over chock
4	yellow hollow	45	1.5	10	135				chock buckles, load decreases rapidly
5	3D printed	45	1.5	10		180			slip
6	3D printed	45	1.5	5	220	185			slip
7	3D printed	45	1.5	5			240		no slip, highest load 250 lb
8	3D printed	45	1.5	5				235	no slip, highest load 237 lb, asphalt has slightly different slope than rough concrete for drainage

## Roll on geometry





Maximum loading attained for all testing, rough concrete

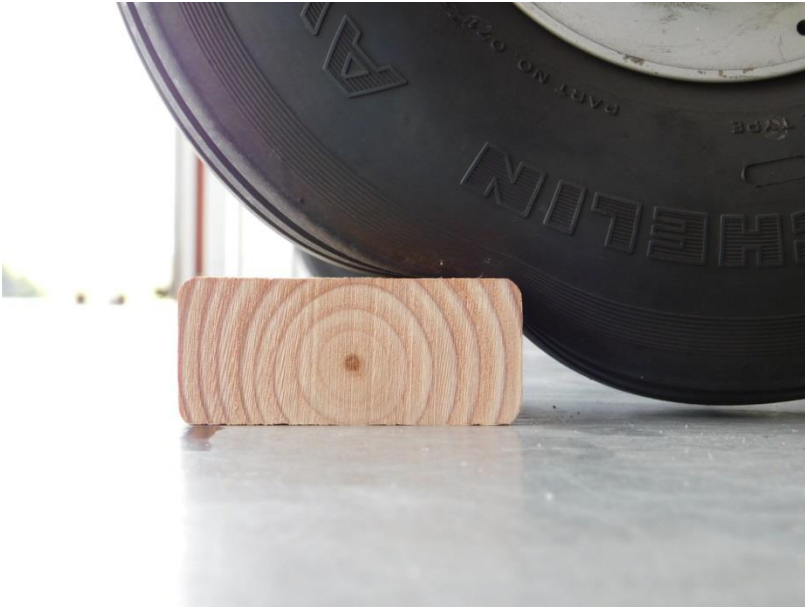


## Engine oil test, smooth hangar concrete





2x4 wood and hollow plastic, smooth hangar concrete



Friction load is at the chock forward edge

