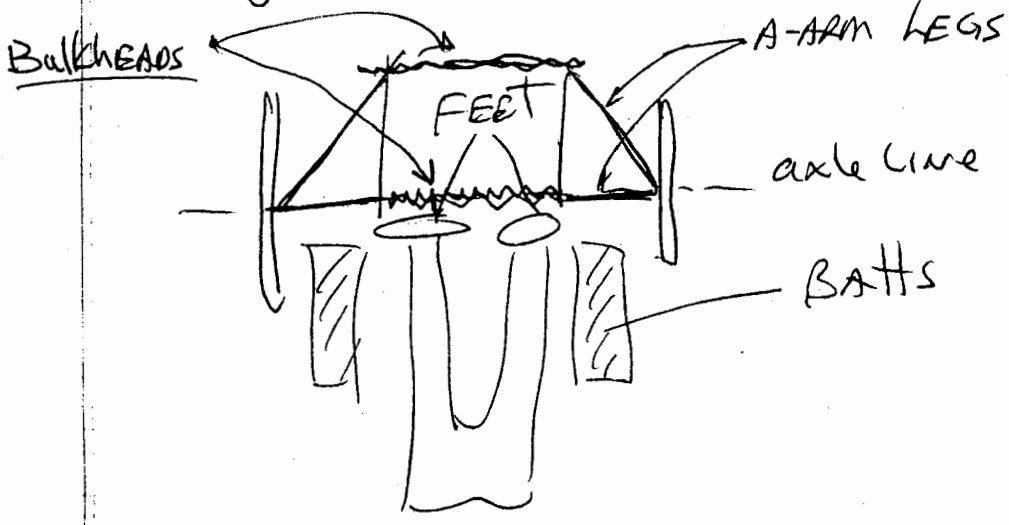
HANDOUT 11

NEW SUSPENSION LAYOUT FOR BOREALIS

WHY? we don't have a Bulkhead across the car at the drivers feet that is *also* about in-line with the axle — so the idea of having the A-arm legs *AHEAD* of the driver has changed —

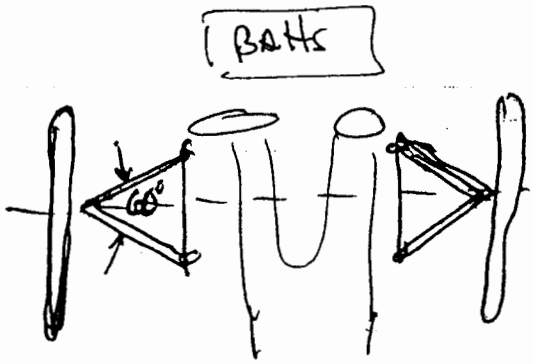


ALSO THERE NEEDED TO BE ROOM for BATTERIES near the axle, AHEAD of it and close BEHIND it to maintain the CG —

AGAIN we don't have batteries in this Location for BOREALIS —

This A-ARM layout produced larger *loads* in the A-arm leg along the axle line, But as they went directly into brackets that were "near" the BULKHEAD, the larger loads were considered O.K. —

For Borealis, we ① don't have bulkheads across the axle line — and ② have decided the axle line will pass thru ~~the car~~ the driver



This A-arm layout (60°)
① has smaller loads in the A-arms ★
② total arm length that is less or equal to the Aurora style, so lighter
see p.3

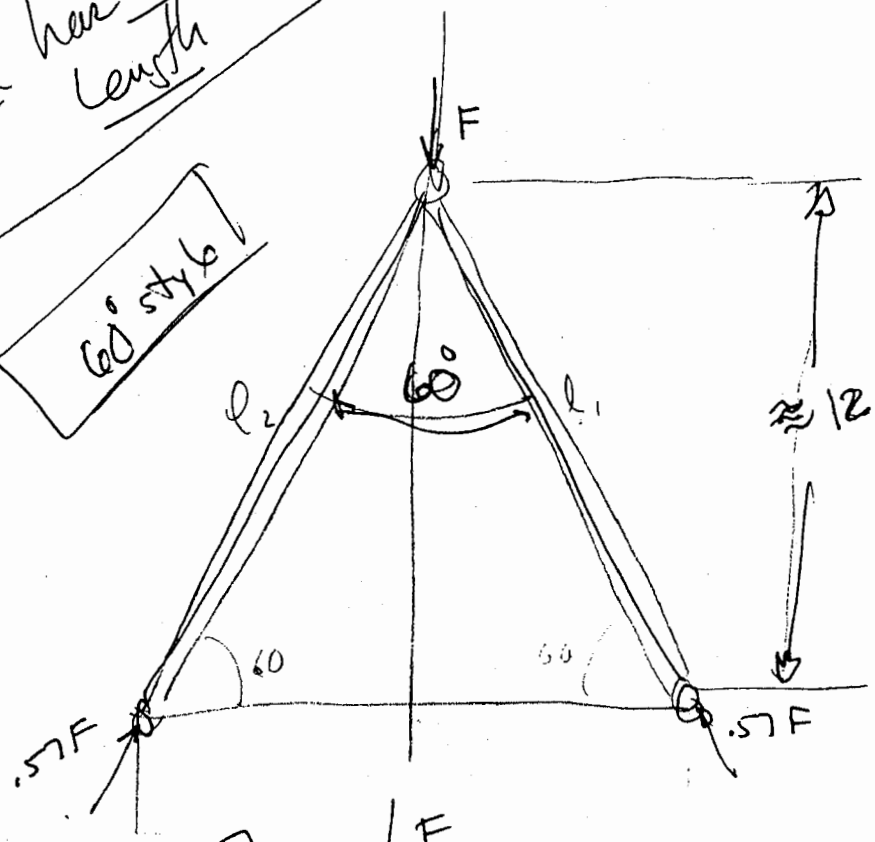
and ③ we don't need to place batteries close behind the axle line

★ CORNERING arm loads are about 57% of the load in the ~~tra~~ Transverse tube for the Aurora style
see p.3

So try 3/4" D TUBING —

Point → Each has same Length

60° style



Carrying Load = F

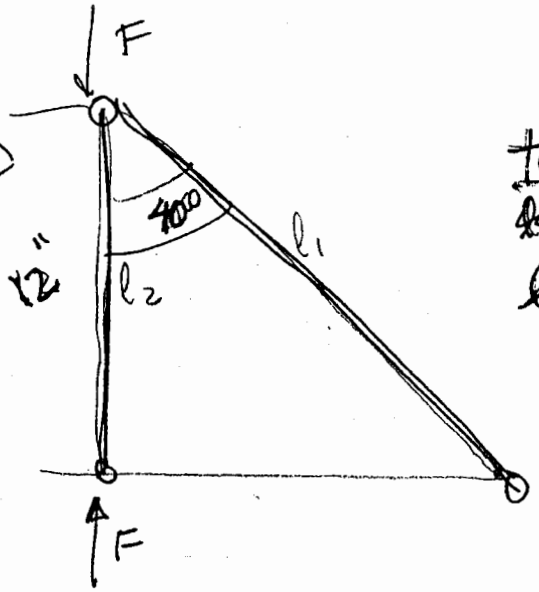
1 wire force = $\frac{F/2}{\cos 30} = .5$

total Length =

$2(12)\left(\frac{1}{\cos 30}\right)$

$= (2 \cdot 3)(12)$

Aurora style



total length:

~~$l_2 + l_2 \cos 40°$~~

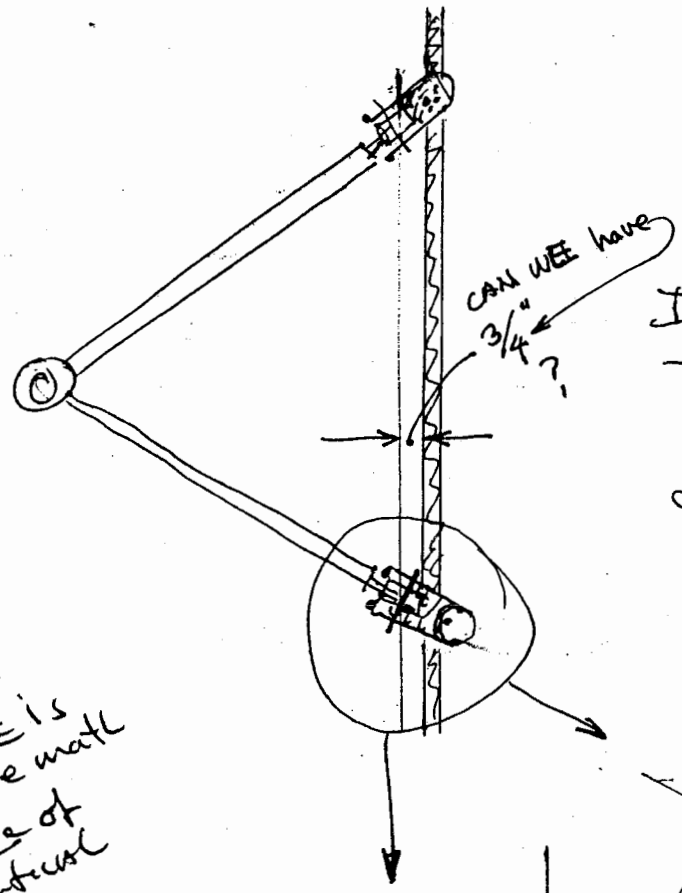
$l_2 + l_2/\cos 40$

$= l_2\left(1 + \frac{1}{\cos 40}\right)$ ← 1.305

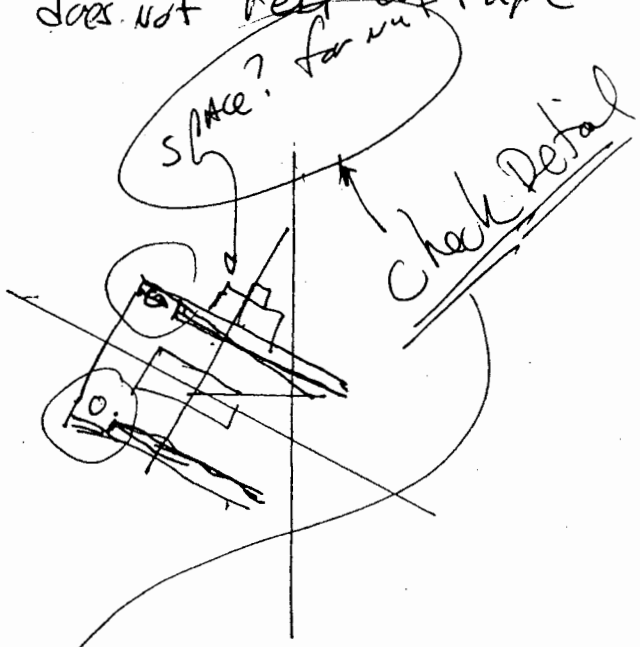
$= l_2[2.3]$

$= (12)(2.3)$

Lower ARM —
Brackets sticking thru the side panels —

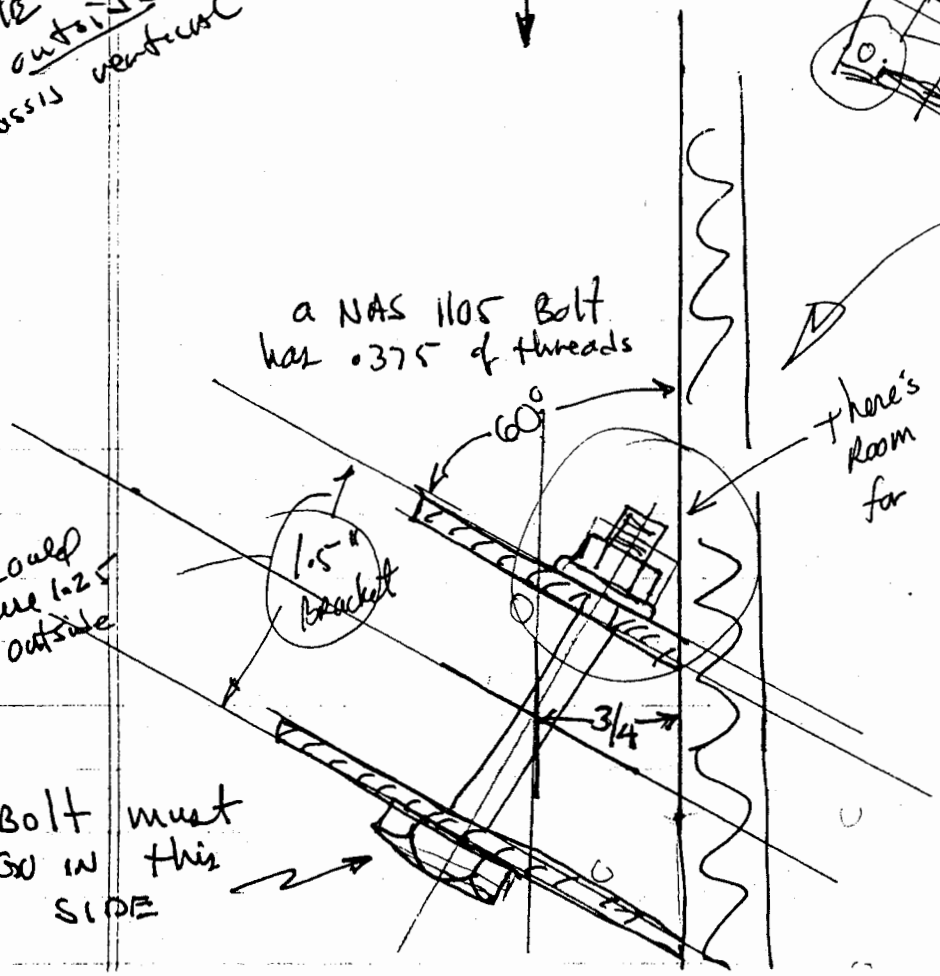


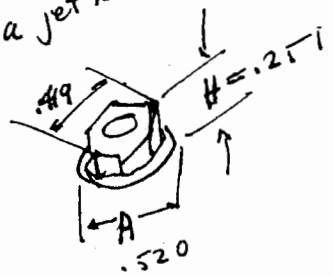
If holes are cut, the Taping needs to be thought out so the Bracket does or does not rest on tape



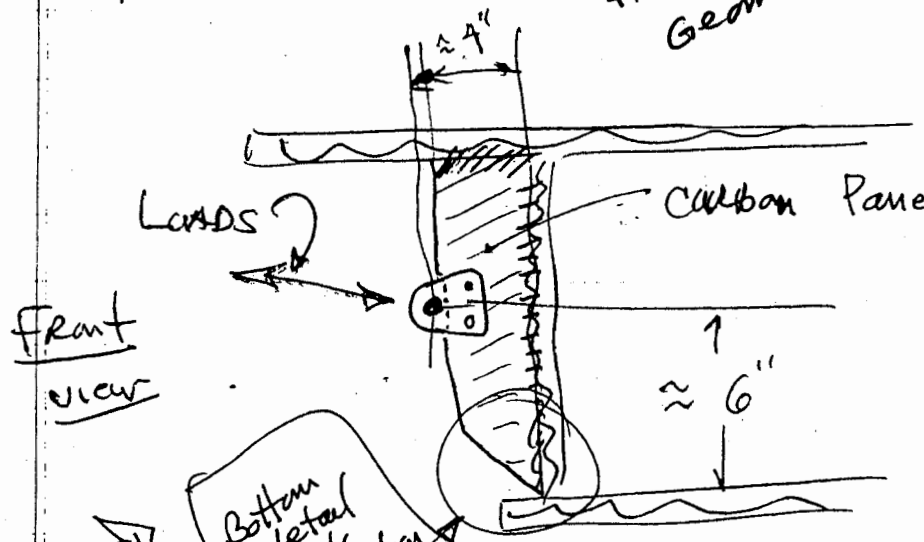
SINCE there is little case wall on outside of chassis vertical

a NAS 1105 Bolt has .375 of threads

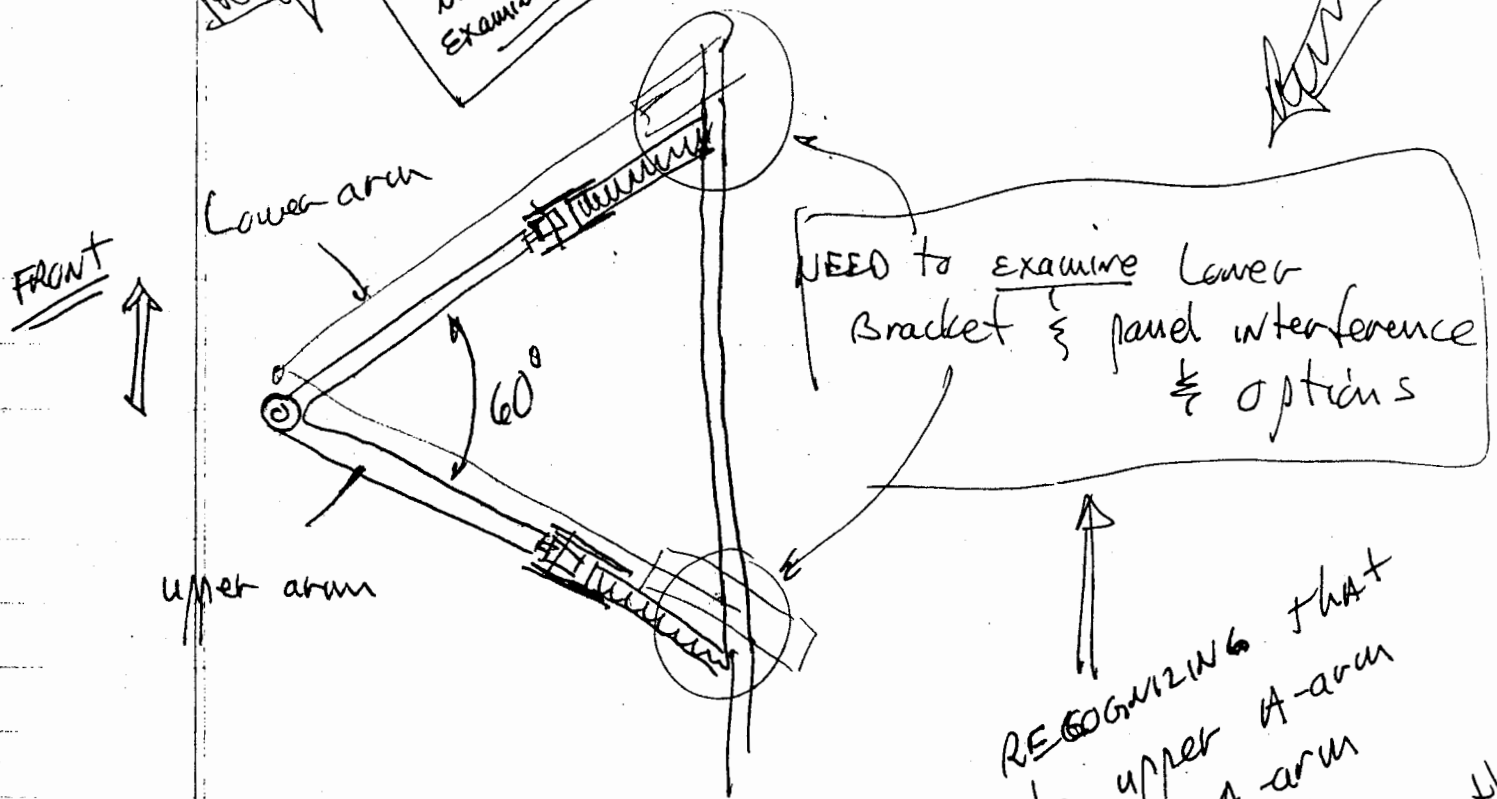




Upper arms (they will mount farther out than the Lower ones for Geometry reasons)



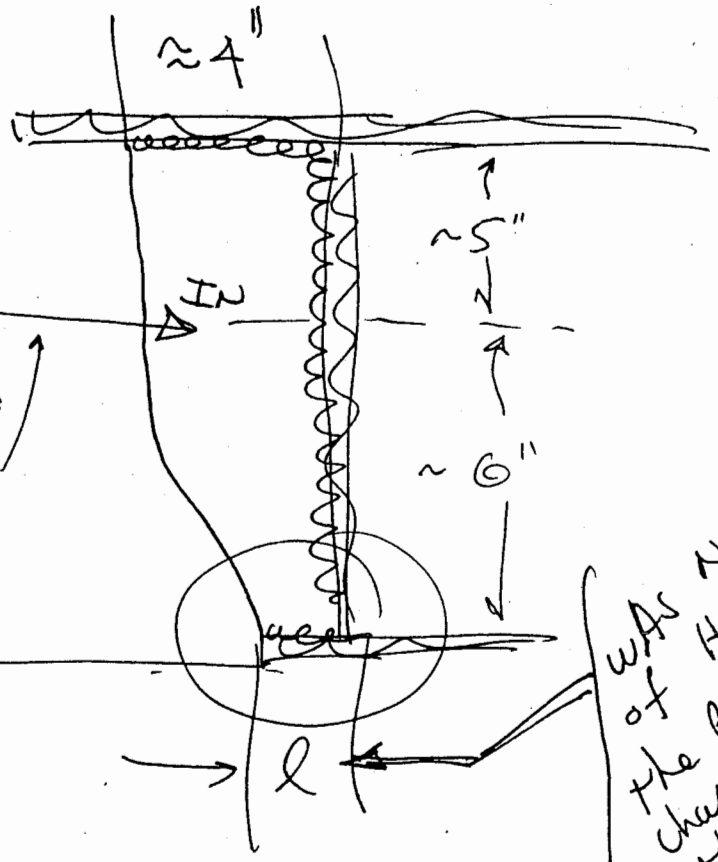
Bottom detail needs examination



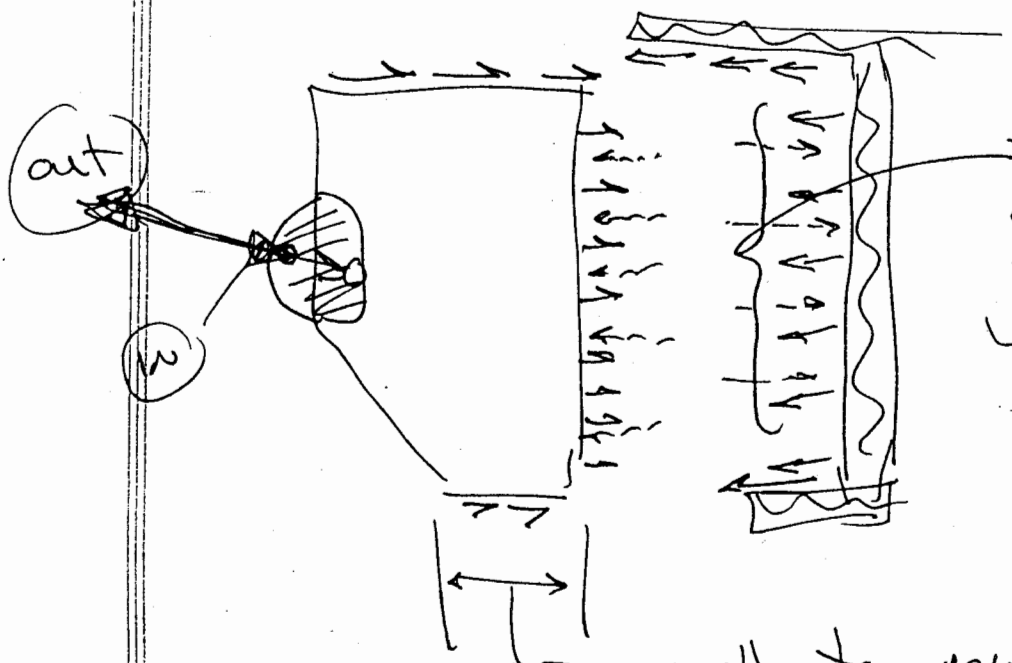
NEED to examine Lower Bracket & panel interference & options

RECOGNIZING that the upper A-arm and Lower A-arm Brackets could interfere OR assist with each other's attachment

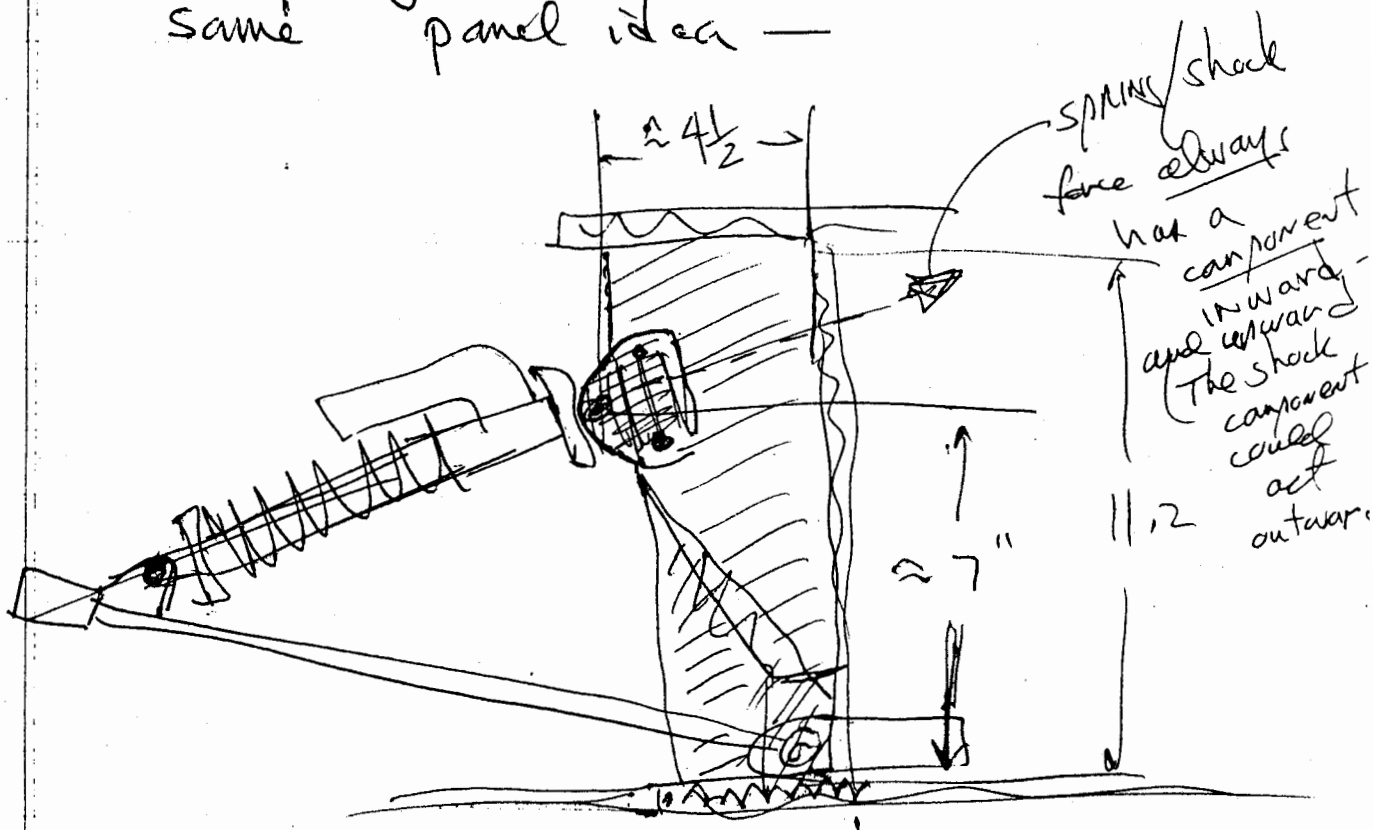
Problem



Look at panel

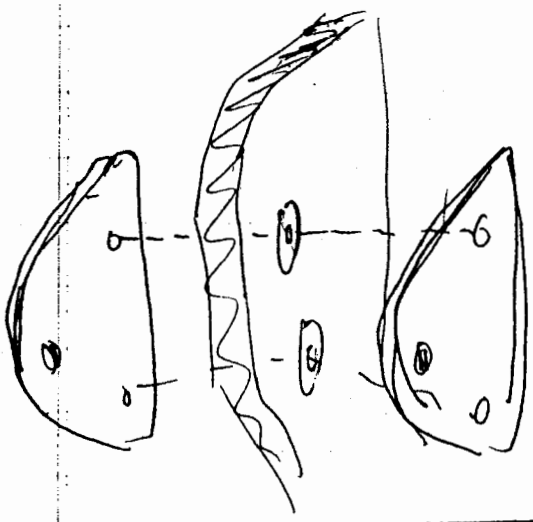


the spring mount can use the same panel idea —



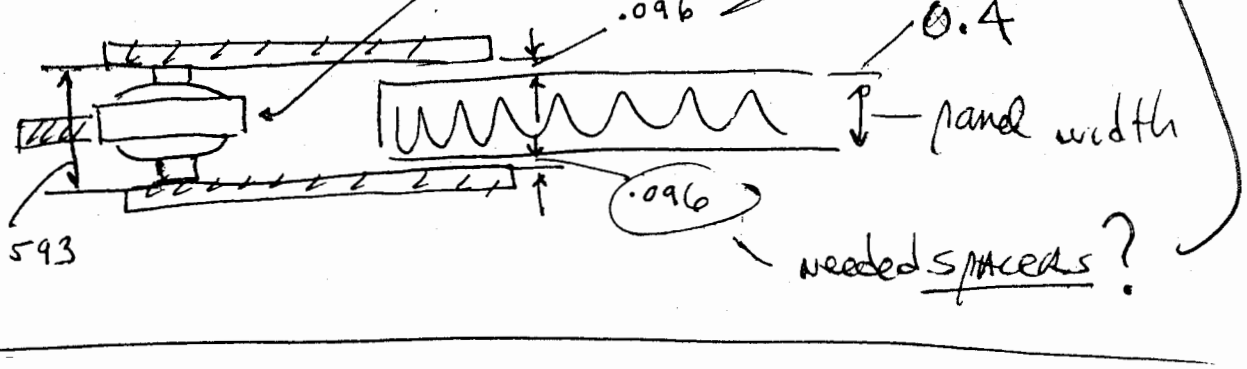
the panel for the spring may not need any lower support since there is a force component always inward and upward (the spring always acts upward — the shock can act both ways)

mounting Al ~~Brackets~~ Brackets on the panels



Grommets — with Bolts going All way thru —

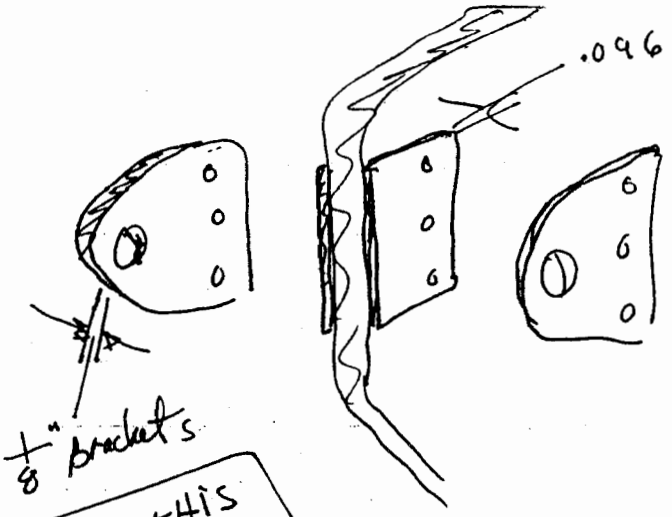
WE DID NOT NEED the HIGH ANGLE ROD ENDS for the UPPER A-arm SO NO SPACERS



NOTE WIDTH OF HIGH ANGLE 1/4" ROD END

needed spacers?

Suppose



WE DID THIS with the spring mounts

NO Grommets —

Glued on spacers of 0.096 thick

Then Bolt on the Brackets without grommets — the Glued on spacers play Role of Grommets