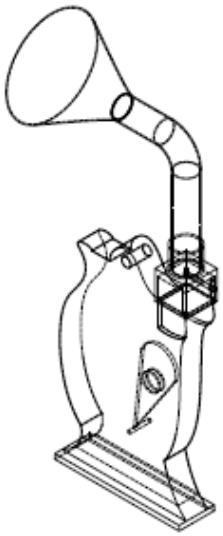
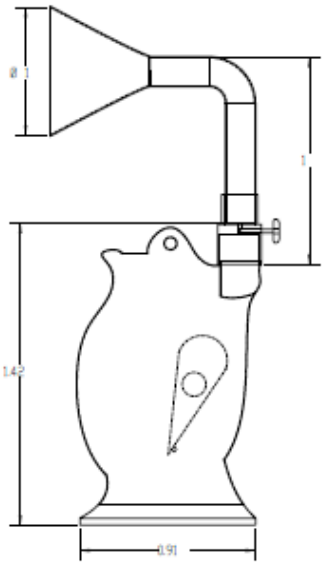
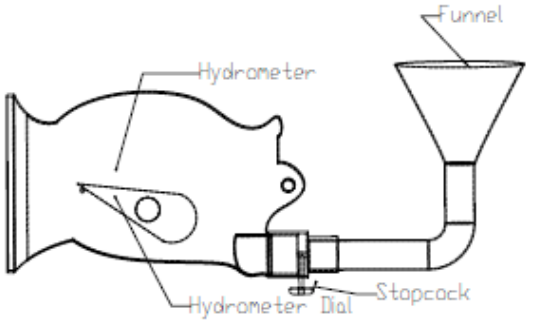




Physics of Hydrometer
-Density
ρ= Mass of fluid/Volume of Fluid

-Specific Gravity is the ratio of a substance density to the density of water
Specific Gravity= ρ Substance ρ/Water

-Buoyant Force
Buoyant Force= ρ substancex gravity x height x area= ρ substance x volume x gravity= masssubstance x gravity = weight of fluid displaced



		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN CENTIMETERS	DRAWN	JERRY	10/3/10
		TOLERANCES:	CHECKED		
		FRACTIONAL ±	ENG APPR.		
		ANGULAR: MACH ± BEND ±	MFG APPR.		
		TWO PLACE DECIMAL ±			
		THREE PLACE DECIMAL ±	Q.A.		
		INTERPRET GEOMETRIC TOLERANCING PER:	COMMENTS:		
		MATERIAL: Plastic			
		FINISH			
NEXT ASSY	USED ON	DO NOT SCALE DRAWING			
APPLICATION					

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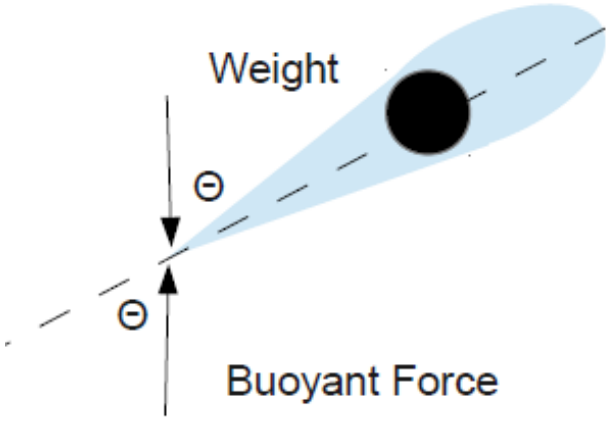
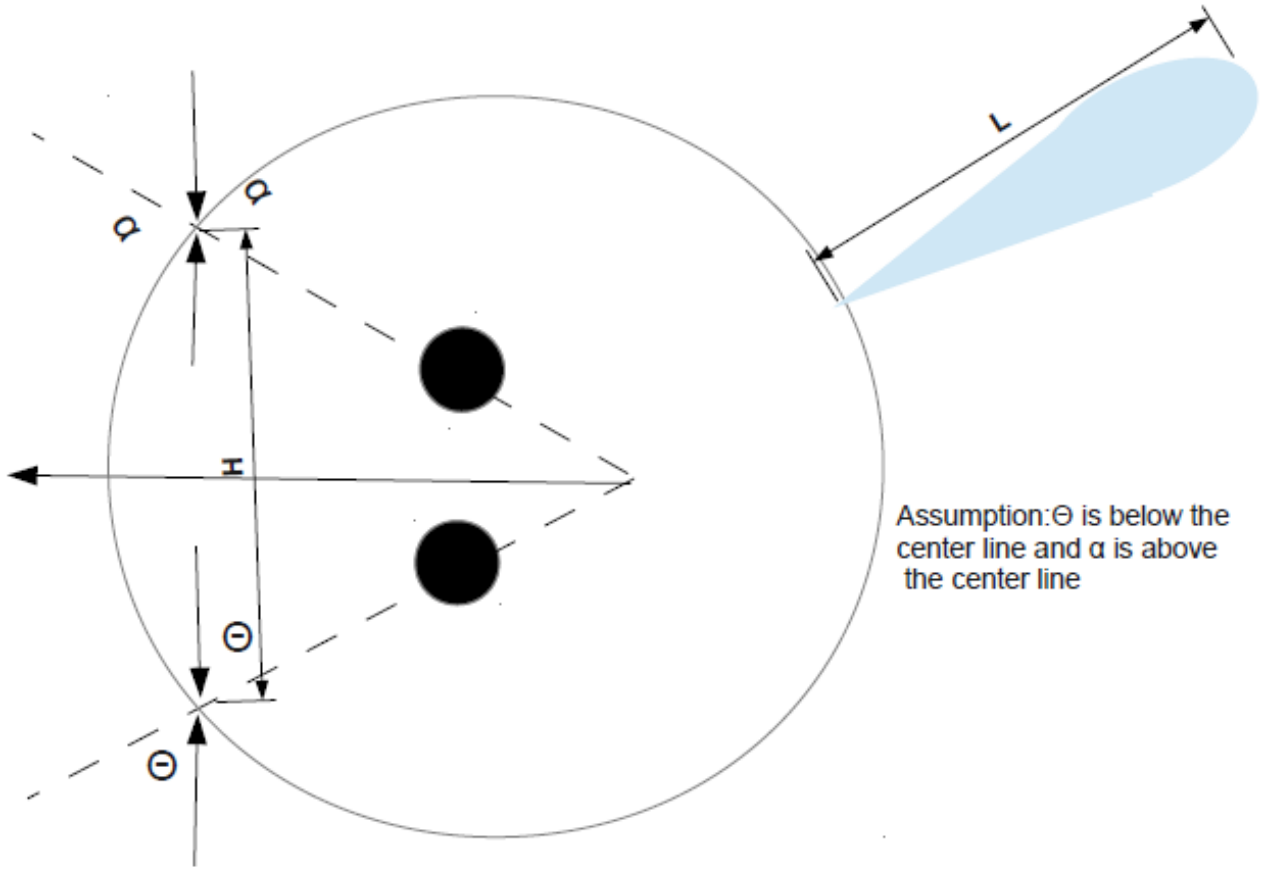
TITLE: HYDROMETER

SIZE	DWG. NO.	REV
C	1	A

SCALE: 1:2 WEIGHT: 5 SHEET 1 OF 1



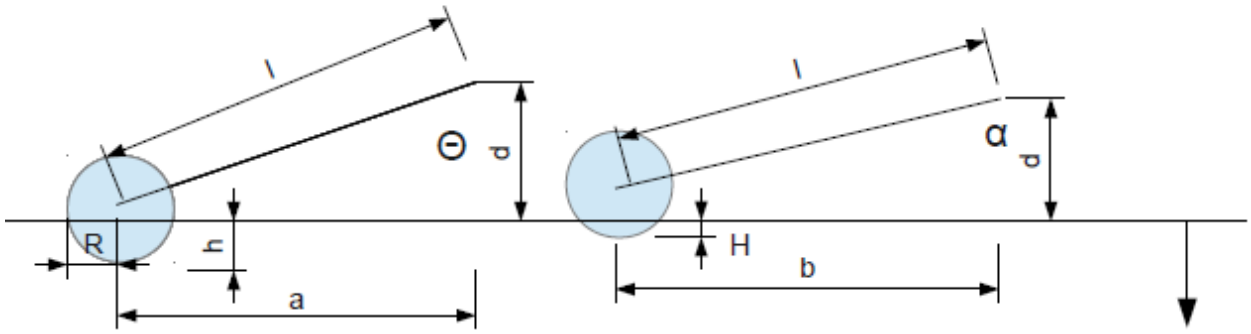
$$F_w \sin(\Theta) = F_B \sin(\Theta) = \rho_{sub} ghA = \rho_{sub} Vg = m_{sub} g$$



Assumption:Θ is below the center line and α is above the center line

$$H = \sqrt{(2L^2 x(1-\cos[(90-\Theta)+(\alpha-90)])}$$

We are assuming that the center of mass is neglible; therefore,
The new model is represented as a string and ball.



Since mass is constant, only the density and volume can change.
Density changes with the different solutions.
The volume changes with the change of angle between the string and the perpendicular vector to the liquid.
Or in other words, the height of the mass in the liquid.

H<h so the volume of sketch 1 is greater that the volume of sketch 2

ρ is proportional to 1/V and V is proportional to R-(d-lcosΘ)