

SkillsUSA

2014 Contest Projects

Technical Drafting

Click the “Print this Section” button above to automatically print the specifications for this contest. Make sure your printer is turned on before pressing the button.

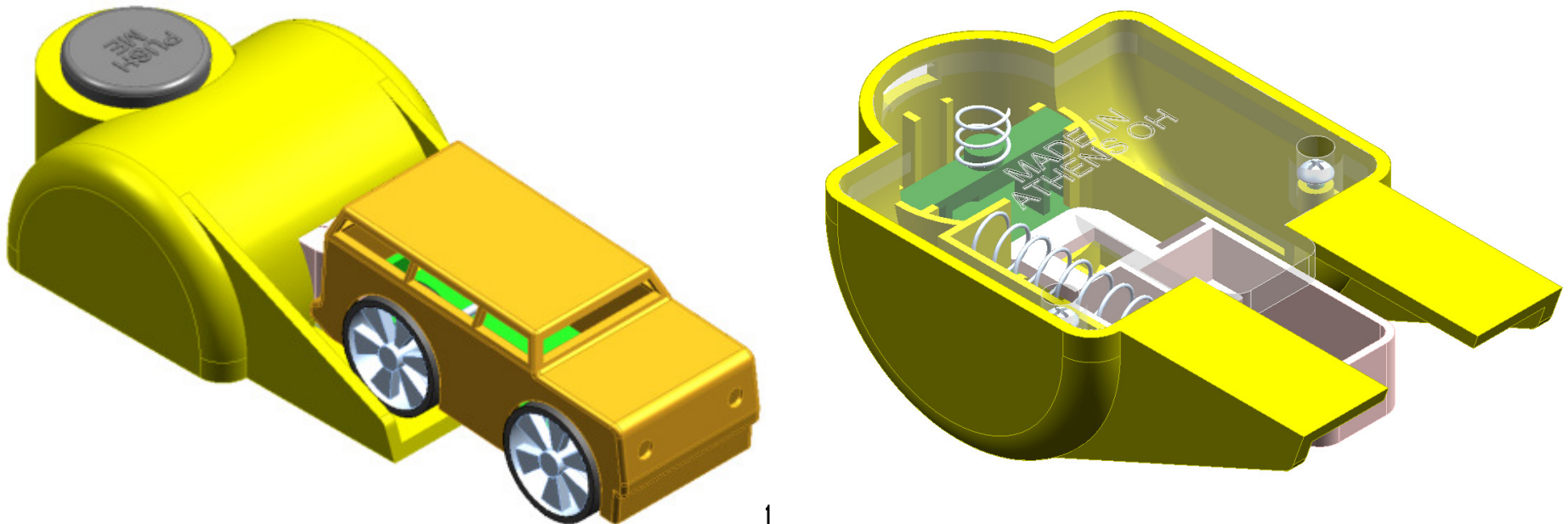
2014 TECHNICAL DRAFTING PROJECT

The following is excerpted from the Contest Descriptions on the SkillsUSA website: *"This contest evaluates contestant's preparation for employment and recognizes outstanding students for excellence and professionalism in the field of technical drafting. The contest will focus on the solution of industry-developed problems by applying appropriate technical drafting skills and tools including computer-aided drafting (CAD)."*

The project this year is a Toy Car Launcher shown on this page (drawing the vehicle is optional). The view on the left shows the Car Launcher cocked with the car in position ready to be launched by pushing the "PUSH ME" Button (2). The up-side-down view on the right shows the clear Bottom Cover (5) to provide an un-cocked internal view. The mechanism is effective at propelling a toy car about three feet on a smooth flat surface.

When the Car Launcher (4) is cocked, the Long Spring (7) is compressed. As the inclined surface on the Car Launcher engages the Button Lock (3), the Short Spring (8) is compressed. The Button Lock holds the Car Launcher in position until released by pressing the Button (2).

Project prepared by: Patrick McCuiston, Ohio University



TOY CAR LAUNCHER

The drawings on page 3 show a sectioned assembly, an exploded assembly and a parts list. The drawings on pages 4-9 show 2D and 3D views of the assembled parts. The instructions are to draw the following:

3D geometry for all the parts,

fully dimensioned detail drawings of the parts listed in the parts lists except the screw and springs,

FINAL exploded isometric assembly drawing including item balloons and parts lists.

All drawings must be on proper drawing formats and include completed title blocks.

Draw the parts in this order:

- 1 - Button (2)
- 2 - Bottom Cover (5)
- 3 - Button Lock (3)
- 4 - Car Launcher (4)
- 5 - Launch Base (1)
- 6 - Screw (6)
- 7 - Springs (7) & (8)
- 8 - Assembly

Except for the Screws and Springs all the parts are made with high impact polystyrene plastic.

PART SPECIFICATIONS

All dimensions are in inches.

SCREW, SELF-TAPPING (6)

#3(.099) – 28 X .18, Type B, Type 1A Cross Recessed Pan Head, .0005 thick chrome plate

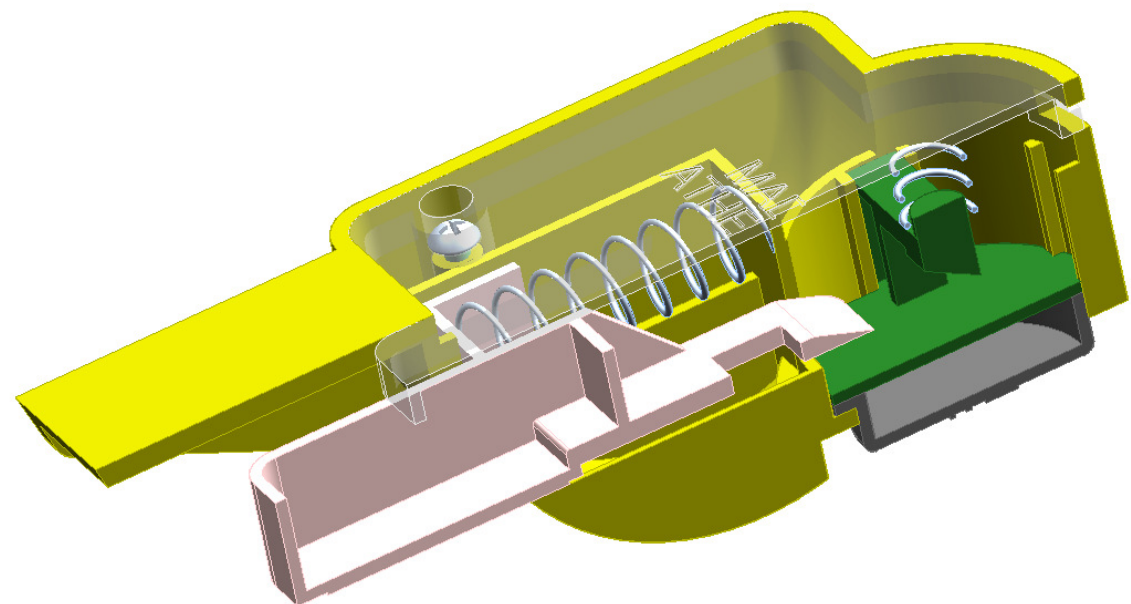
SPRING, SHORT (8)

Material	-	UNS G10660
Wire diameter	-	.02
Inside diameter	-	.20
Free length	-	.32
No. of coils	-	3
End treatment	-	Closed

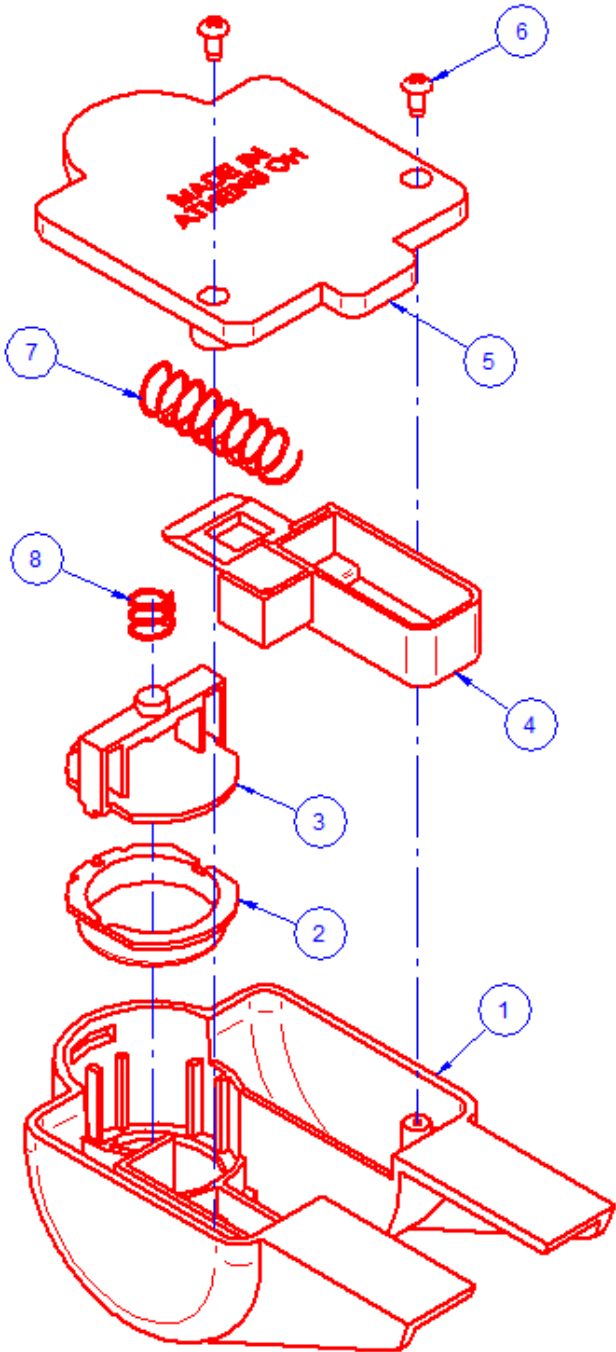
SPRING, LONG (7)

Material	-	UNS G10660
Wire diameter	-	.02
Outside diameter	-	.28
Free length	-	1.00
No. of coils	-	7
End treatment	-	Closed

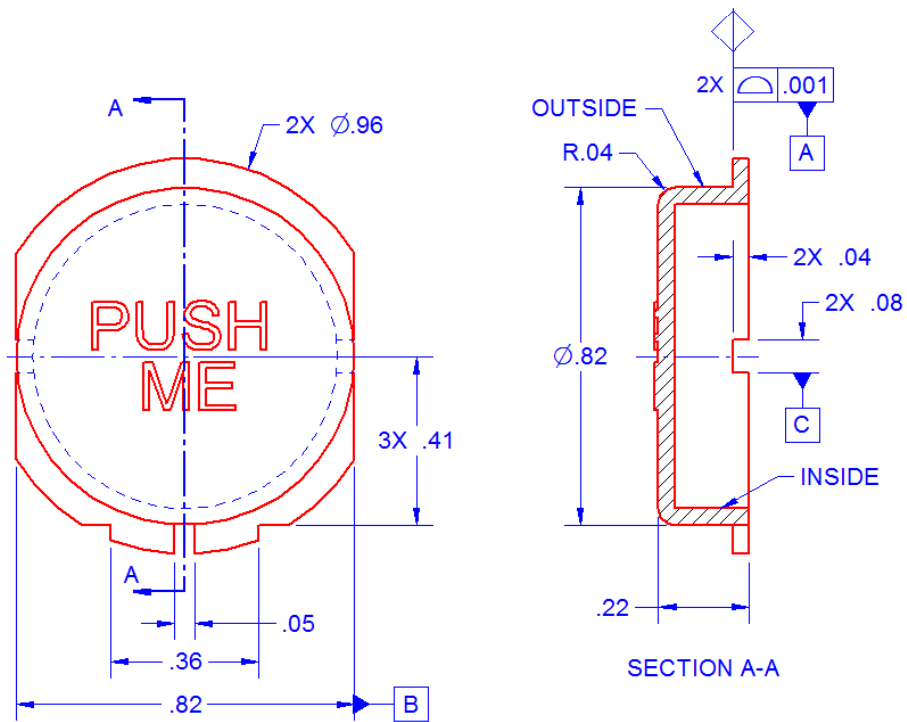
FINAL ASSEMBLY



8	7901XX07	SPRING, SHORT	1
7	7901XX06	SPRING, LONG	1
6	FSST2-32	SCREW	2
5	7901XX05	COVER, BOTTOM	1
4	7901XX04	LAUNCHER, CAR	1
3	7901XX01	LOCK, BUTTON	1
2	7901XX02	BUTTON	1
1	7901XX003	BASE, LAUNCH	1
ITEM	NUMBER	NAME	QTY
PARTS LIST			



BUTTON (2)

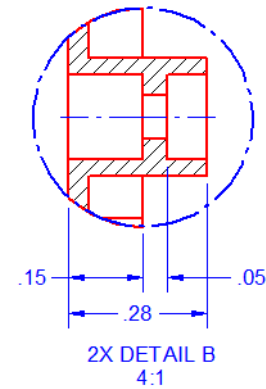
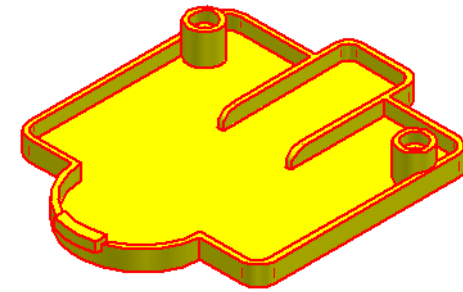
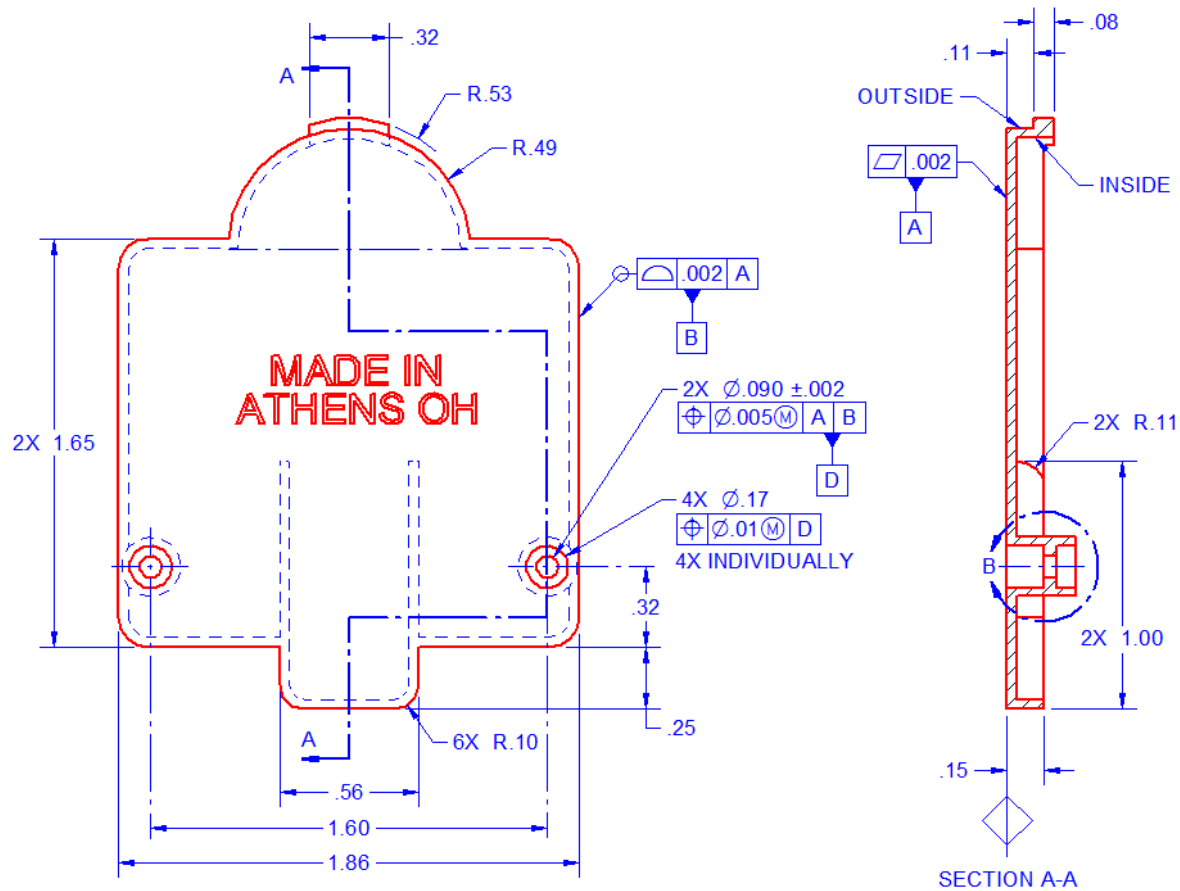


NOTES:

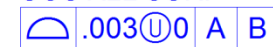
- 1 - UOS ALL WALL THK .04
- 2 - MAX FLASH .002
- 3 - $.5^{\circ}$ - 1° DRAFT OUTSIDE
- 4 - 0° MAX DRAFT INSIDE
- 5 - LETTERS .10 TALL .01
RAISED LOCATED AS SHOWN
- 6 - SURFACE FINISH SPI A-1
- 7 - ALL DIM BASIC
- 8 - UOS ALL SURF

\varnothing	.003	⓪	A	B	C
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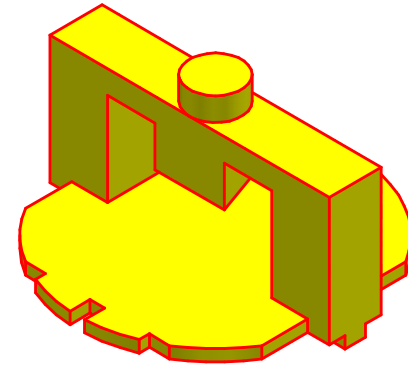
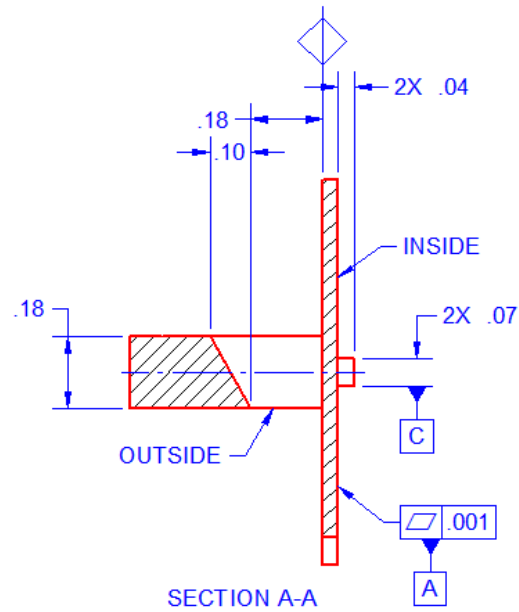
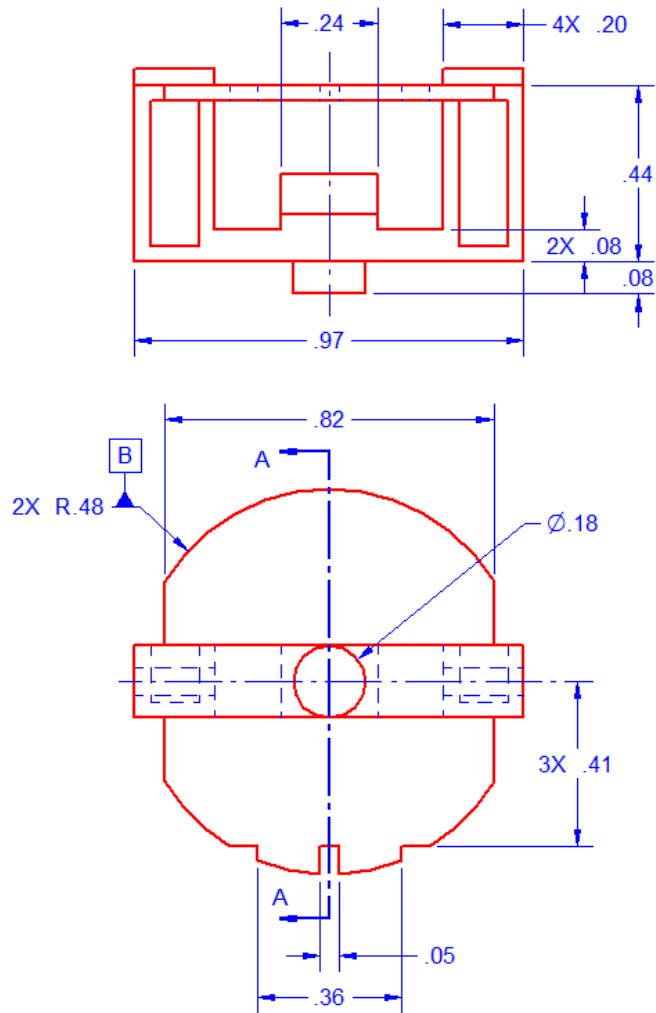
BOTTOM COVER (5)



- NOTES:
- 1 - UOS ALL WALL THK .04
 - 2 - MAX FLASH .002
 - 3 - .5°-1° DRAFT OUTSIDE
 - 4 - 0° MAX DRAFT INSIDE
 - 5 - LETTERS .12 TALL .01 RECESSED AND LOCATED AS SHOWN
 - 6 - SURFACE FINISH SPI A-1
 - 7 - UOS ALL DIM BASIC
 - 8 - UOS ALL SURF



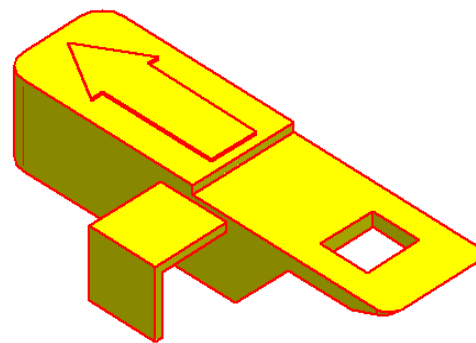
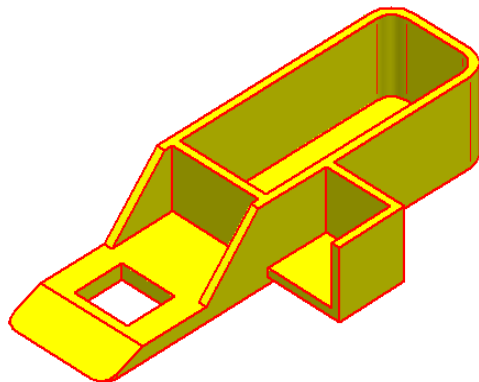
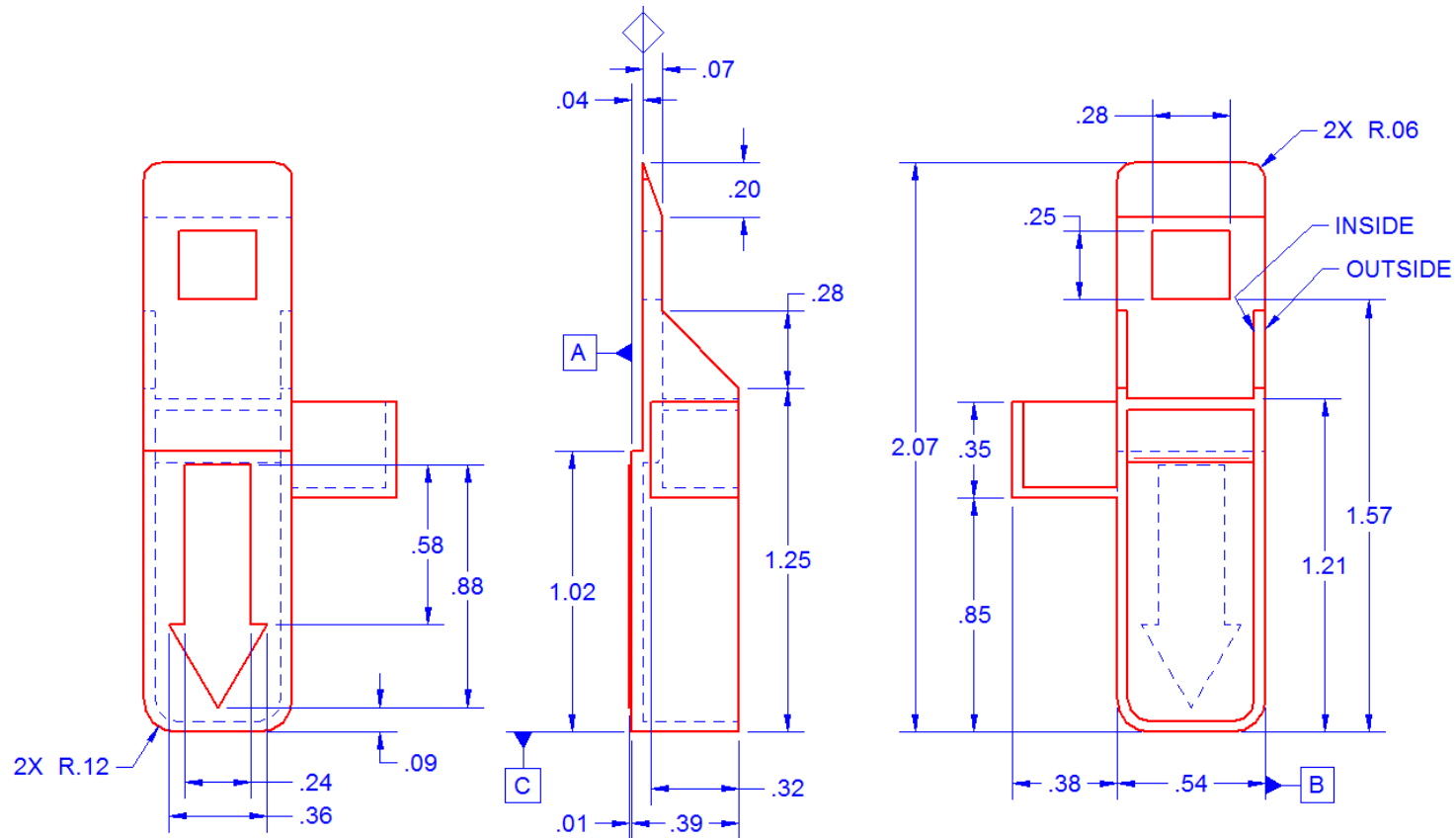
BUTTON LOCK (3)



- NOTES:
- 1 - UOS ALL WALL THK .04
 - 2 - MAX FLASH .002
 - 3 - 1° MAX DRAFT INSIDE
 - 4 - .5° MAX DRAFT OUTSIDE
 - 5 - MAX DIE MISMATCH .005
 - 6 - SURFACE FINISH SPI A-1
 - 7 - UOS ALL DIM BASIC


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CAR LAUNCHER (4)

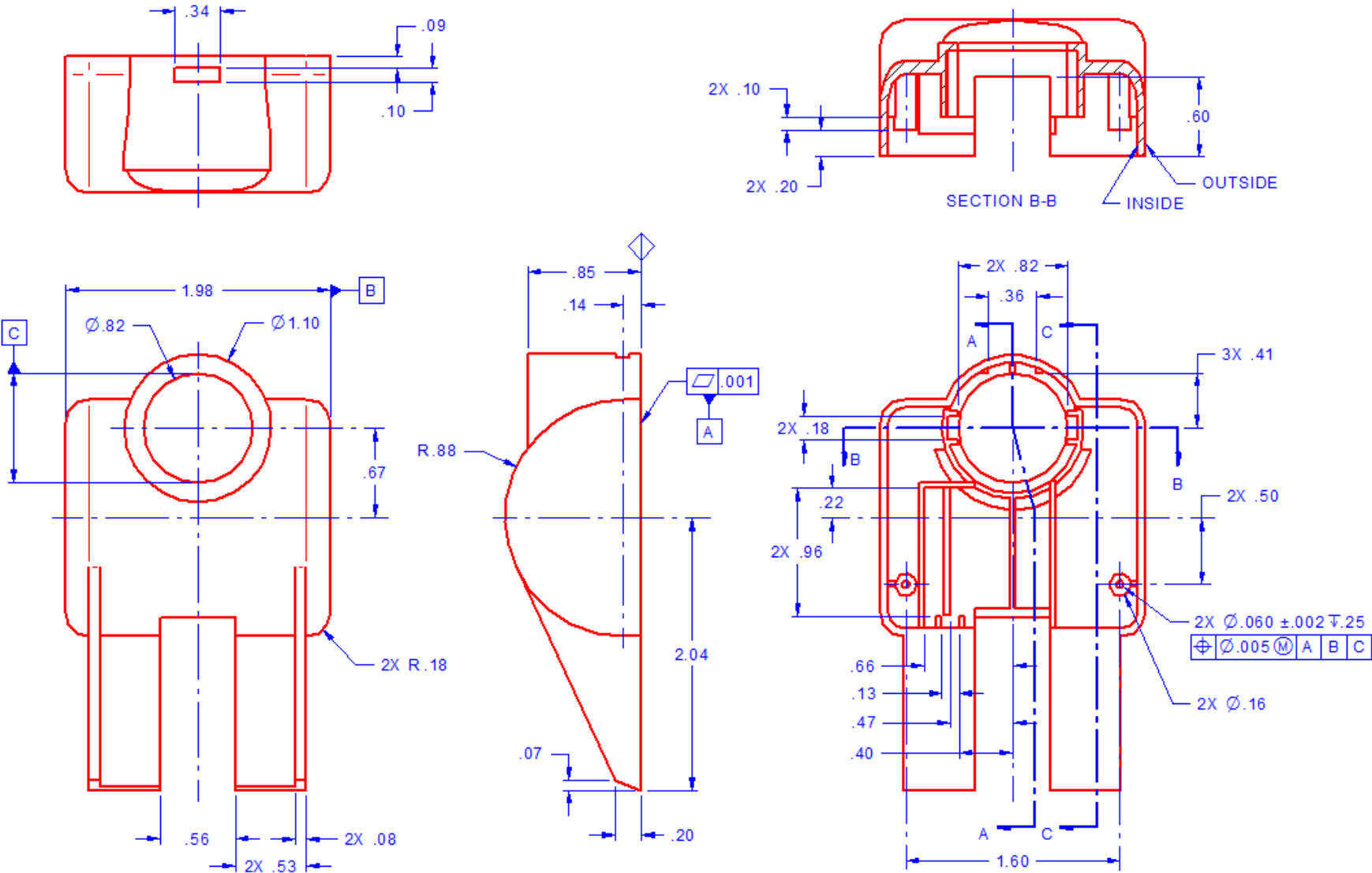


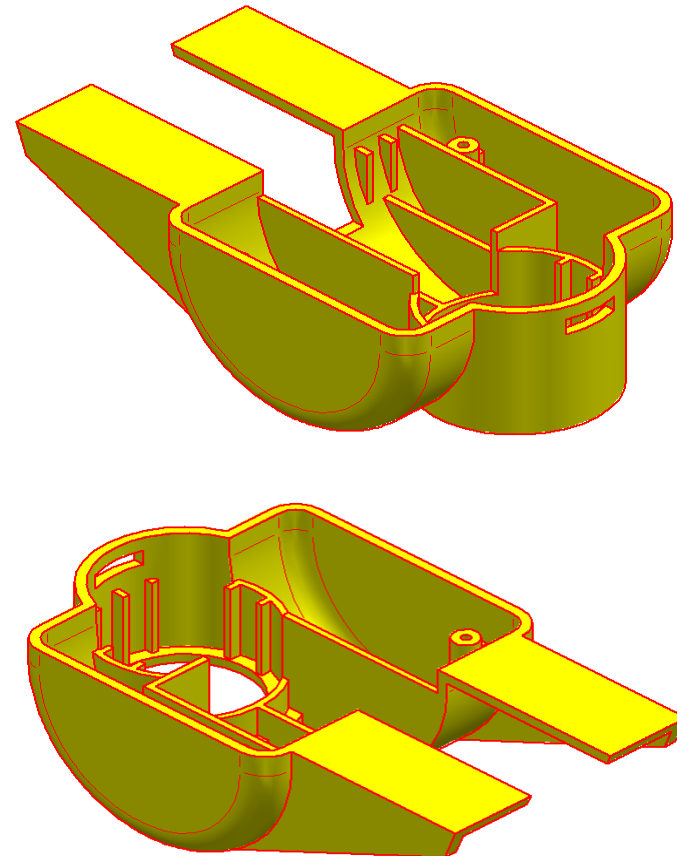
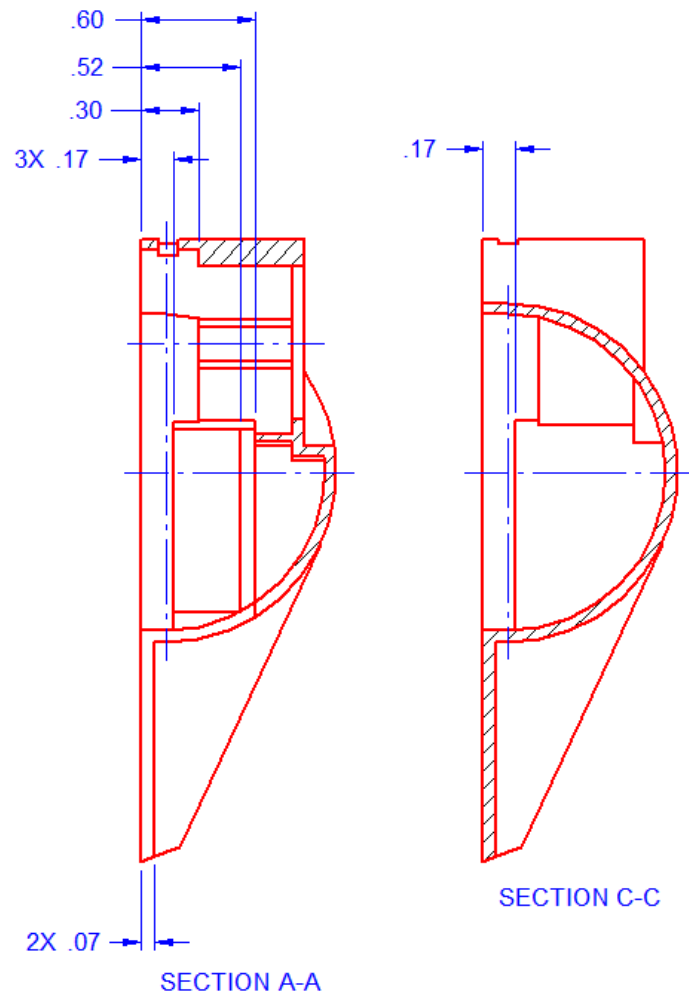
NOTES:

- 1 - UOS ALL WALL THK .04
- 2 - MAX FLASH .002
- 3 - .5°-1° DRAFT OUTSIDE
- 4 - 0° DRAFT INSIDE
- 5 - LETTERS .10 TALL .01 RAISED LOCATED AS SHOWN
- 6 - SURFACE FINISH SPI A-1
- 7 - ALL DIM BASIC
- 8 - ALL SURF

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LAUNCH BASE (1)





- NOTES:
- 1 - UOS ALL WALL THK .04
 - 2 - MAX FLASH .002
 - 3 - .5°-1° DRAFT OUTSIDE
 - 4 - 0° DRAFT INSIDE
 - 5 - SURFACE FINISH SPI A-1
 - 5 - UOS ALL DIM BASIC
 - 6 - UOS ALL SURF

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