

**Design Graphics Team Project**  
**Fall 2020**

**Reverse Engineering a Toy Nerf Gun**

**Nerf Rebelle**

Audrey Pick - *Team Leader*  
17295  
(audreygpick@gmail.com)

Owen Mann  
17350  
(owen.mann@utexas.edu)

Keri Christian  
17350  
(keri.em.christian@gmail.com)

Justin Campbell  
17350  
(campbelljustin989@gmail.com)

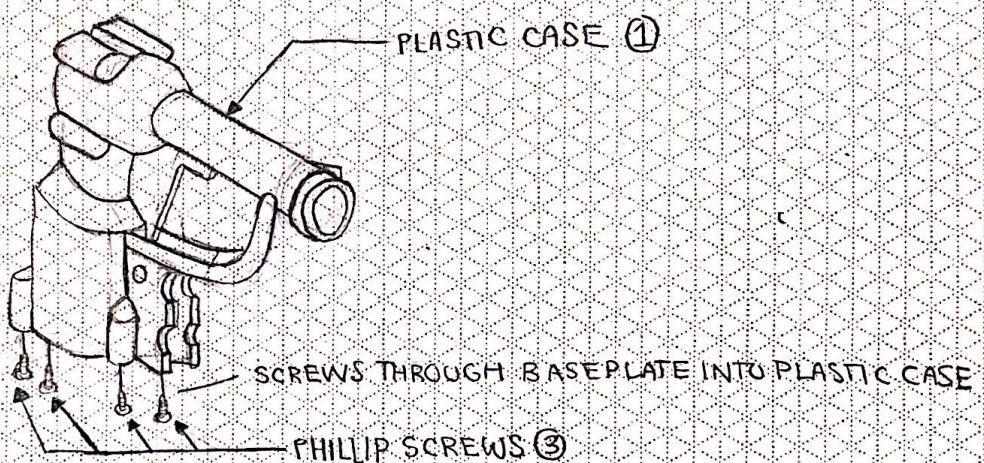
Brenna Hurley  
17295  
(hurleybren@gmail.com)



Lab Instructor: Mark Chiarello

## HOUSING ASSEMBLY

PART NO.	PART NAME	QTY	MATERIAL
1	PLASTIC CASE	1	PLASTIC
3	PHILLIP SCREW	4	STEEL



SCALE:  
1:0.35 IN

GRID DIVISION: 0.20"

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## DESIGN PROJECT SKETCHES

**ENGINEERING DESIGN GRAPHICS**

NAME: NERF REBELLE

DESK: 2 SEC: 17350

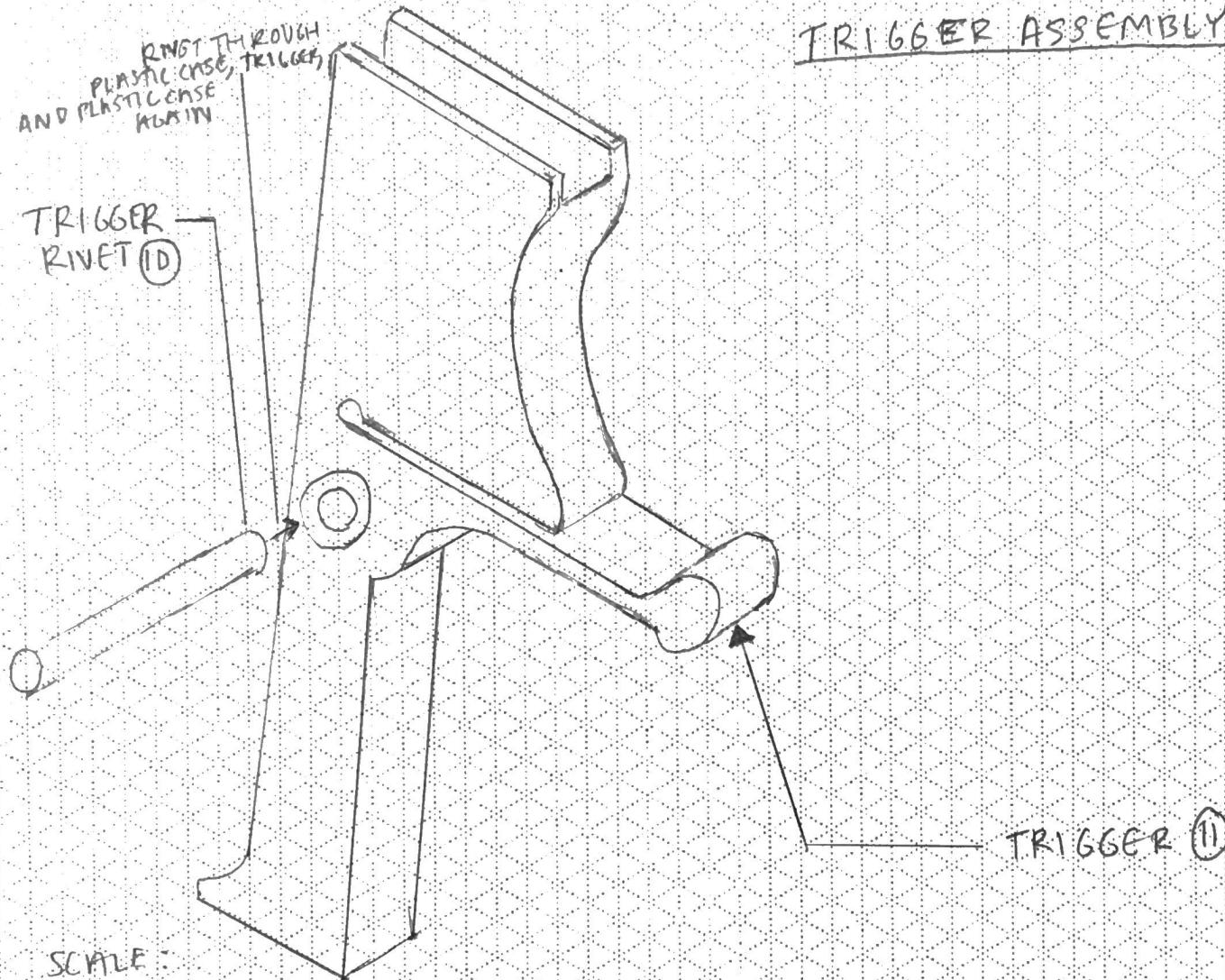
GRADE:

RIVET THROU  
AND PLASTIC CASE, TRIGGER  
PLASTIC LENS  
ALUMIN

TRIGGER  
RIVET (1)

## TRIGGER ASSEMBLY

PART NO.	PART NAME	QTY	MATERIAL
I0	TRIGGER RIVET	1	STEEL
I1	TRIGGER	1	PLASTIC



SCALE:  
2.5:1 IN

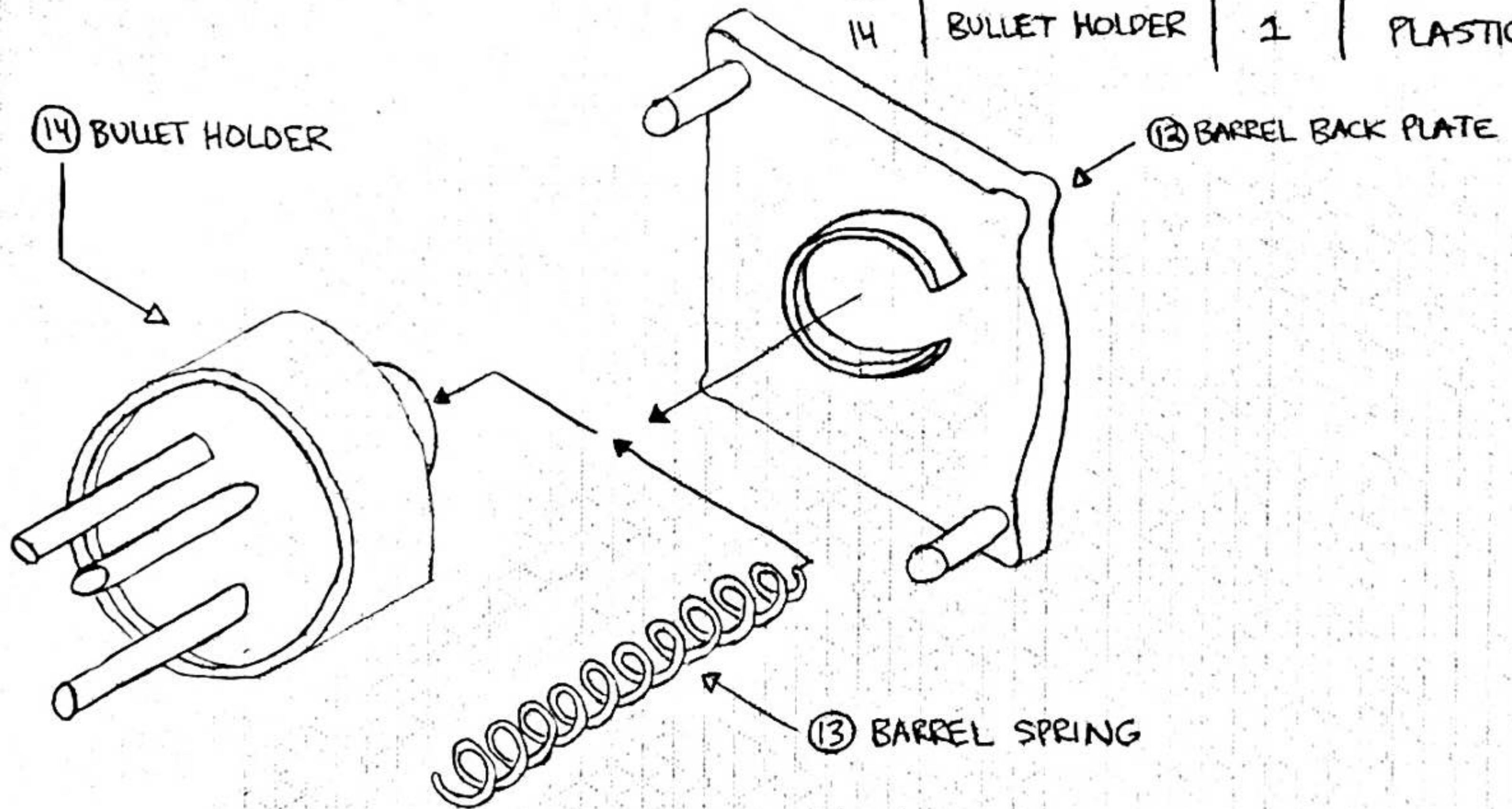
GRID DIVISION: 0.20"

## DESIGN PROJECT SKETCHES

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## FIRING BARREL ASSEMBLY

PART NO.	PART NAME	QTY	MATERIAL
12	BARREL BACK PLATE	1	PLASTIC
13	BARREL SPRING	1	STEEL
14	BULLET HOLDER	1	PLASTIC



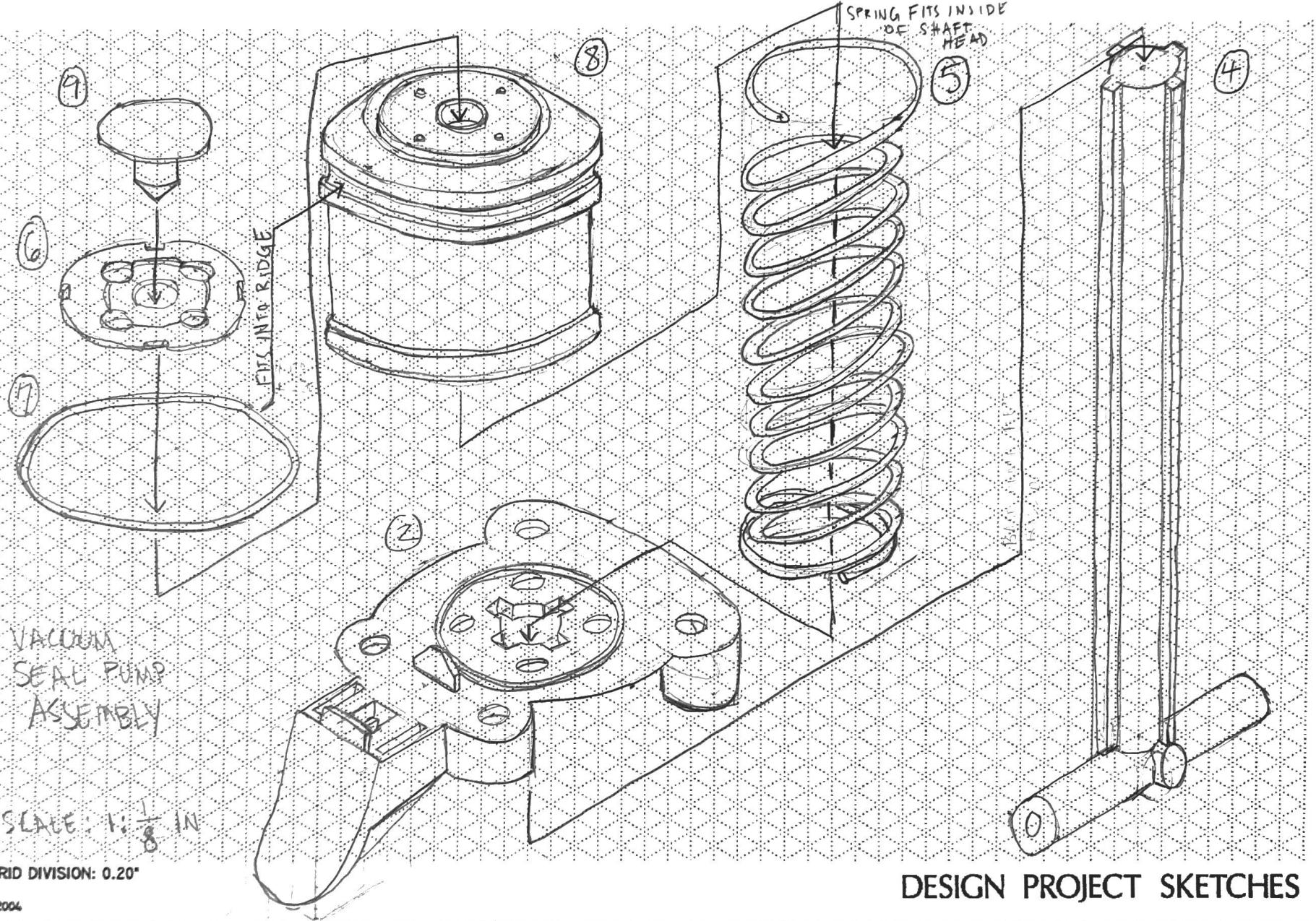
SCALE:

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GRID DIVISION: 0.20"

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DESIGN PROJECT SKETCHES



SCALE: 1:8 IN

GRID DIVISION: 0.20"

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## DESIGN PROJECT SKETCHES

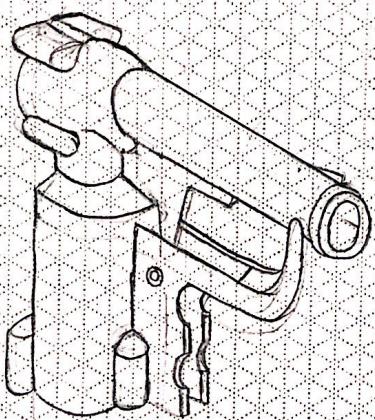
## Parts List

Parts List			
Nerf Gun			
Part No.	Part Name	No. Required	Material
1	Plastic Case	1	Plastic
2	Baseplate	1	Plastic
3	Philips Screw	4	Steel
4	Shaft	1	Plastic
5	Vacuum Spring	1	Steel
6	Rubber Seal	1	Rubber
7	Rubber O-Ring	1	Rubber
8	Shaft Head	1	Plastic
9	Shaft Head Rivet	1	Steel
10	Trigger Rivet	1	Steel
11	Trigger	1	Plastic
12	Barrel Back Panel	1	Plastic
13	Barrel Spring	1	Steel
14	Bullet Holder	1	Plastic

**Figure 1.5** Parts List for the Nerf Gun, lists out every part in order of disassembly

including how many of them are used and what material they are made of.

① PART 1: PLASTIC CASE QTY: x1 MATERIAL: PLASTIC



SCALE:  
1 : 0.30 IN

**GRID DIVISION: 0.20°**

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## DESIGN PROJECT SKETCHES

**ENGINEERING DESIGN GRAPHICS**

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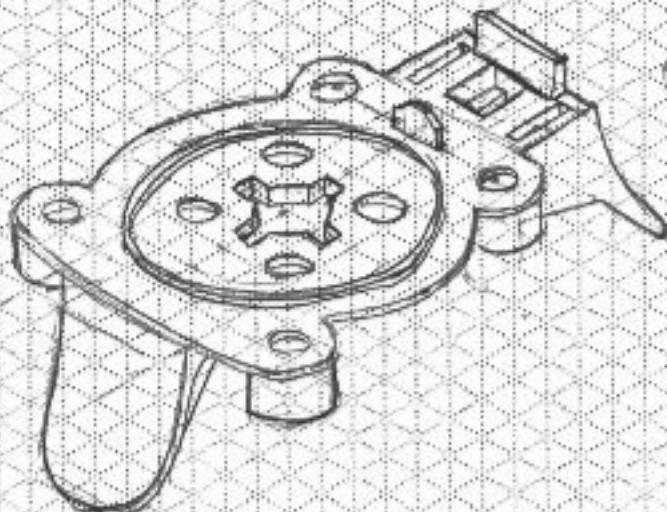
DESK: - SEC: 173 SO

GRADE

② PART 2 : PLUNGER ASSEMBLY BASEPLATE

QTY: X1

MATERIAL: PLASTIC



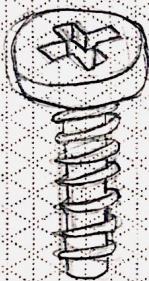
SCALE : 1:  $\frac{1}{8}$  IN

GRID DIVISION: 0.20"

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③ PART 3: PHILLIPS SCREW      QTY: 4 MATERIAL: STEEL



SCALE:  
1:0.04 IN

GRID DIVISION: 0.20"

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DESIGN PROJECT SKETCHES

ENGINEERING DESIGN GRAPHICS

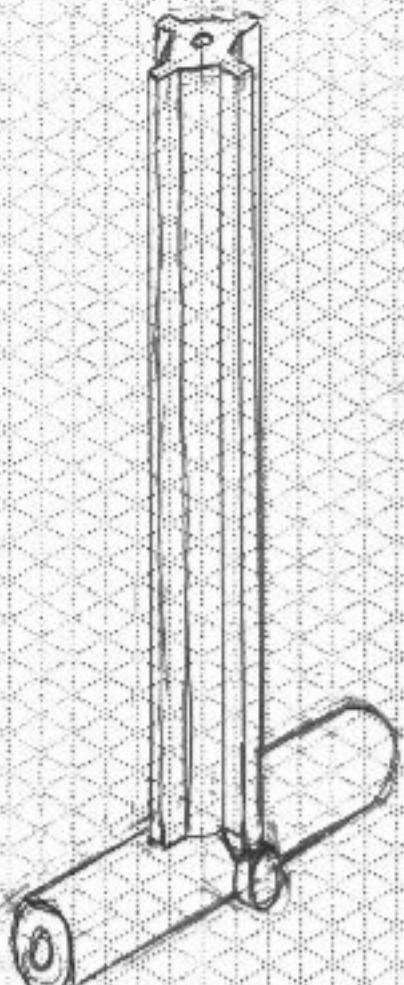
NAME: NERF REBELLE

DESK:   

SEC: D350

GRADE:

4) PART 4 : SHAFT QTY: X1 MATERIAL: PLASTIC



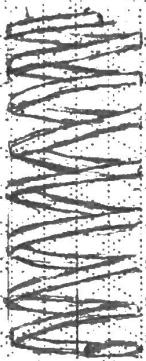
SCALE

1: 0.152 in

GRID DIVISION: 0.20"

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(5) PART 5: VACUUM SPRING QTY: X1 MATERIAL:  
STEEL

SCALE:  
1:1 IN

GRID DIVISION: 0.20"

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ENGINEERING DESIGN GRAPHICS

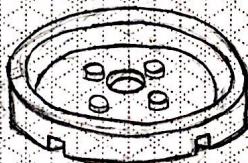
NAME: NERF REBELLE

DESK:

SEC: 17295

GRADE:

⑥ PART G: RUBBER SEAL QTY: x1 MATERIAL: RUBBER



SCALE  
1:0.10IN

GRID DIVISION: 0.20"

DESIGN PROJECT SKETCHES

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**ENGINEERING DESIGN GRAPHICS**

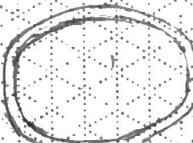
NAME: NERF REBELLE

DESK: SEC: E350

GRADE:

⑦ PART 7: RUBBER O-RING QTY:  
X 1

MATERIAL:  
RUBBER



SCALE:  
1:1 IN

GRID DIVISION: 0.20"

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ENGINEERING DESIGN GRAPHICS

NAME: NERF REBELLE

DESIGN PROJECT SKETCHES

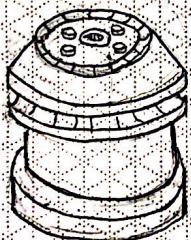
DESK:

SEC: 17295

GRADE:

⑧ PART 8: SHAFT HEAD

QTY: x1 MATERIAL:  
PLASTIC



SCALE  
1:0.20IN

GRID DIVISION: 0.20"

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**ENGINEERING DESIGN GRAPHICS**

NAME: NERF REBELLE

**DESIGN PROJECT SKETCHES**

DESK:   

SEC: D350

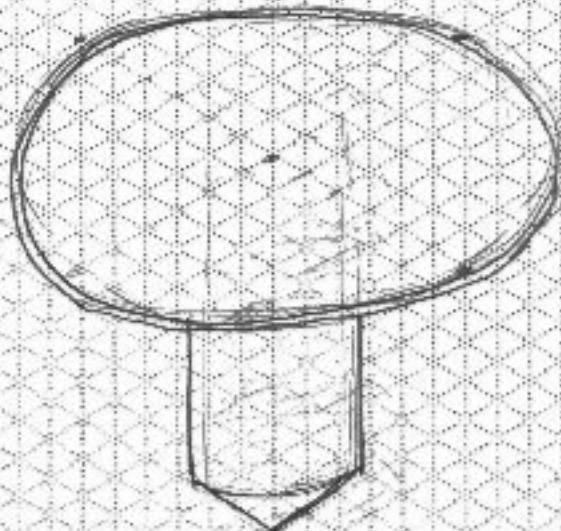
GRADE:

PART 9

9

# SHAFT HEAD RIVET

QTY: 1 MATERIAL: STEEL



16 IN

GRID DIVISION: 0.20"

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ENGINEERING DESIGN GRAPHICS

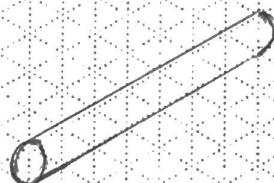
NAME: NERF REBELLE

DESIGN PROJECT SKETCHES

DESK: SEC: 17240

GRADE:

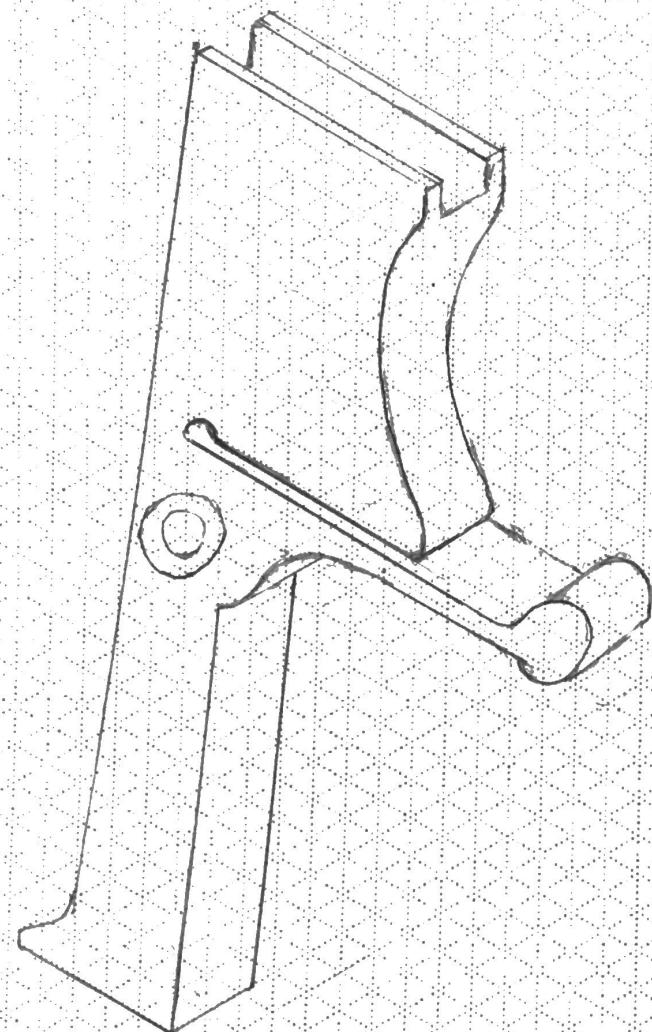
⑩ PART 10: TRIGGER RIVET QTY: XI MATERIAL: STEEL



SCALE  
2.5 : 1 IN

**GRID DIVISION: 0.20"**

## DESIGN PROJECT SKETCHES



⑪ PART II: TRIGGER QTY: X1 MATERIAL:  
PLASTIC

SCALE:  
2.5:1 IN

GRID DIVISION: 0.20"

## DESIGN PROJECT SKETCHES

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**ENGINEERING DESIGN GRAPHICS**

NAME: NERF REBELLE

DESK:

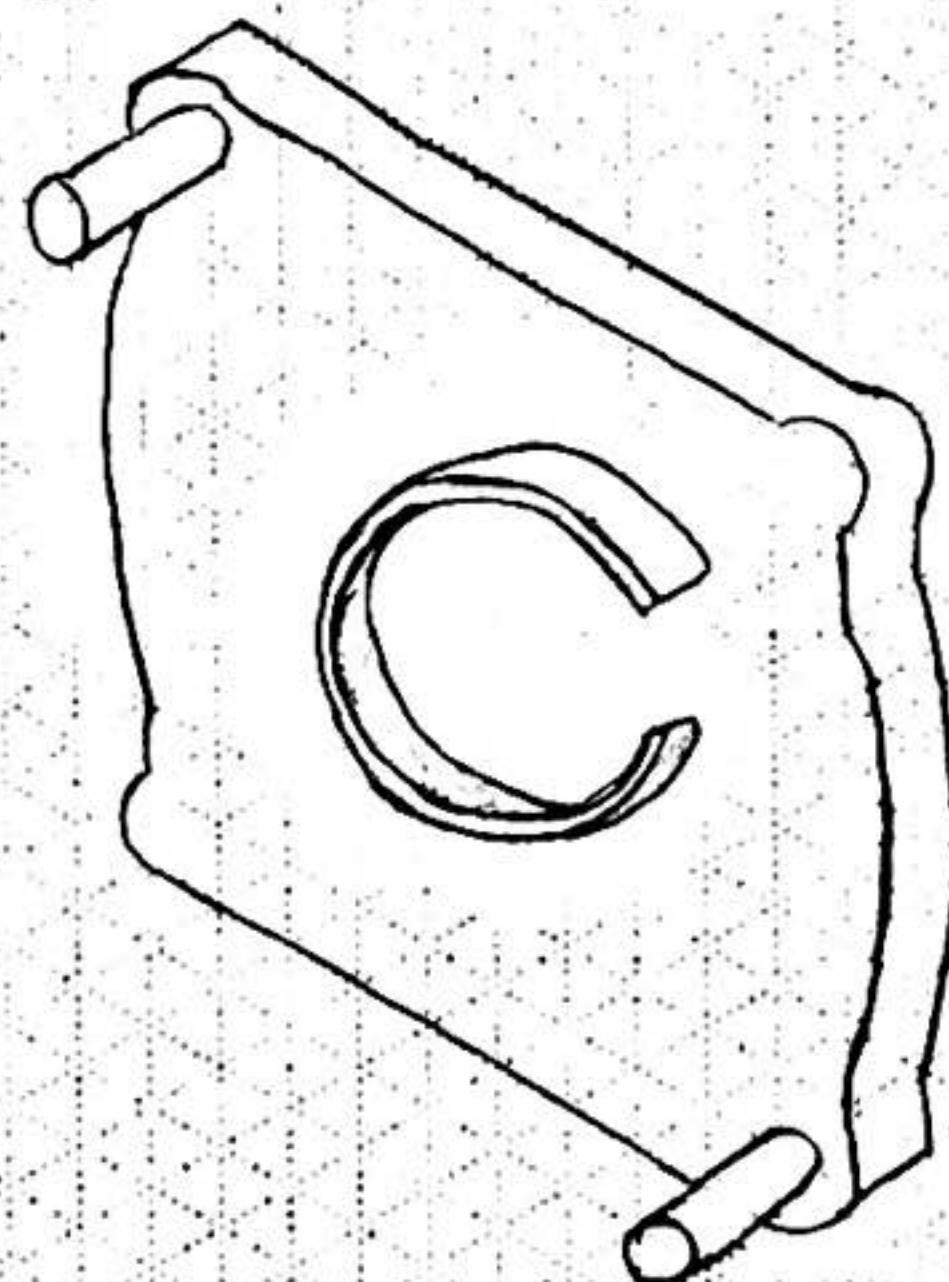
SEC:  7295

GRADE:

⑫ PART 12 : BARREL BACK PLATE

QTY:  
x1

MATERIAL:  
PLASTIC



SCALE:  
1:0.075 IN.

GRID DIVISION: 0.20"

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## DESIGN PROJECT SKETCHES

(13) PART 13 : BARREL SPRING

QTY: MATERIAL:  
x1 STEEL



SCALE :

1:0.05 IN.

GRID DIVISION: 0.20"

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**ENGINEERING DESIGN GRAPHICS**

NAME: NERF REBELLE

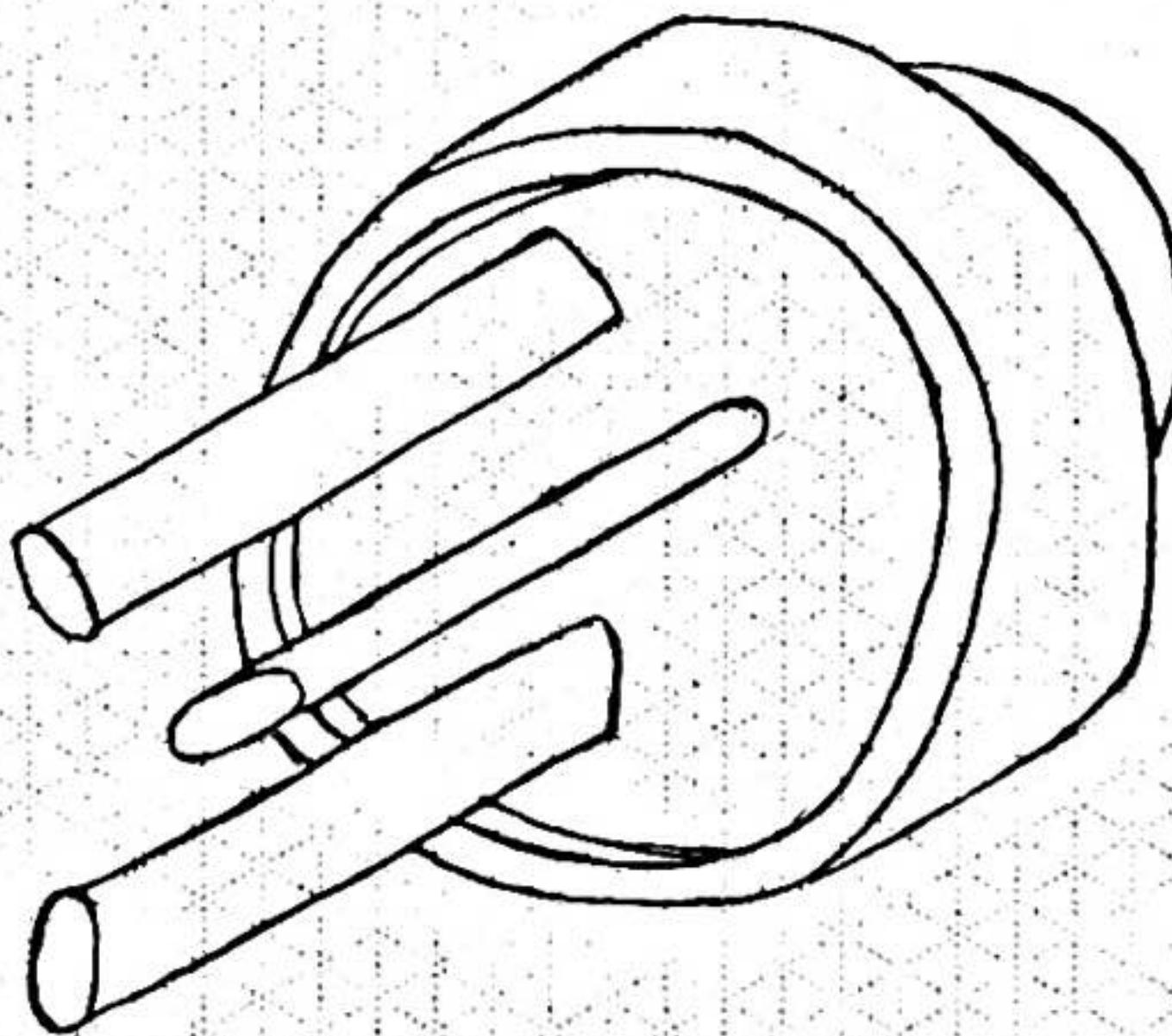
**DESIGN PROJECT SKETCHES**

DESK:

SEC: [7350]

⑯ PART 14: BULLET HOLDER

QTY: X1 MATERIAL:  
PLASTIC



SCALE:  
1: .05 IN.

GRID DIVISION: 0.20"

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Team Name \_\_\_\_\_ Unique No. \_\_\_\_\_

### **Design Check No. 3 Grading Form**

Grade

#### Cover Sheet (5 points)

1. Semester and Year
2. Project Title
3. Team Name and Logo
4. Team Members Names, Emails, Leader
5. Instructor Name and Section Unique No.

#### Assembly Sketch (10 points)

1. Assembly Layout
2. Assembly Connections
3. Sub-Assemblies Identified
4. All Parts Included
5. Parts Numbered
6. Use of Balloons and Leaders
7. Lettering Quality
8. Line Quality
9. Sketching Quality
10. Overall Graphical Quality

#### Individual Parts Sketches (10 points)

1. All Parts Included
2. Part Number
3. Part Name
4. Part Material
5. Part Scale
6. Lettering Quality
7. Line Quality
8. Sketching Quality
9. Use of Space and Page Layout
10. Overall Graphical Quality

Total Grade (25 max.)