List of Materials

A: 1 - 6” of 3” Pipe, 1 – 2 to 3” of 1 ½” Pipe

B: 1 - 3” Drain

C: 4 - Small Cable Ties

D: 1 - 4” Pipe Clamp

E: 1- 2” Pipe Clamp

F: 1 – White Wax Pencil

G: 2 – 2”x 5” Plastic Board

H: 1 - Predrilled Craft Stick

I: 1 – Spring Clamp

J: Hardware (2 #6-32 ½” screws, 1 #12 x 1” hex screw with Wing Nut, 1 4mm x 1/2” screw)

J: 1 – Spring Style Electrical Connector

K: 1- AC Cord with Switch

L: 1 – 12 V AC Motor with Brass Attachment

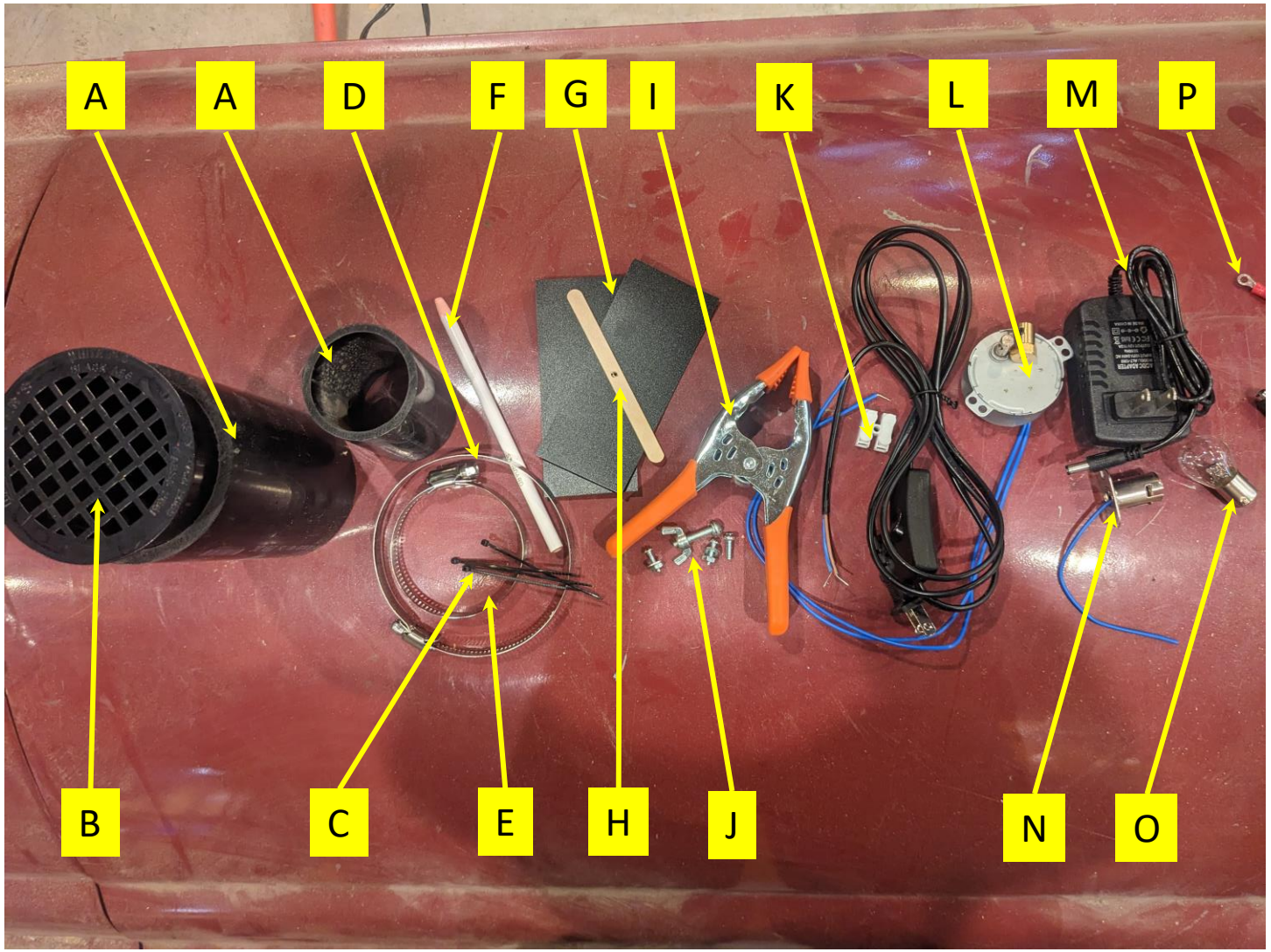
M: 1 – 12 V DC Power Supply

N: 1 – Single Filament Taillight Socket

O: 1- 1 12 V DC Single Filament Taillight

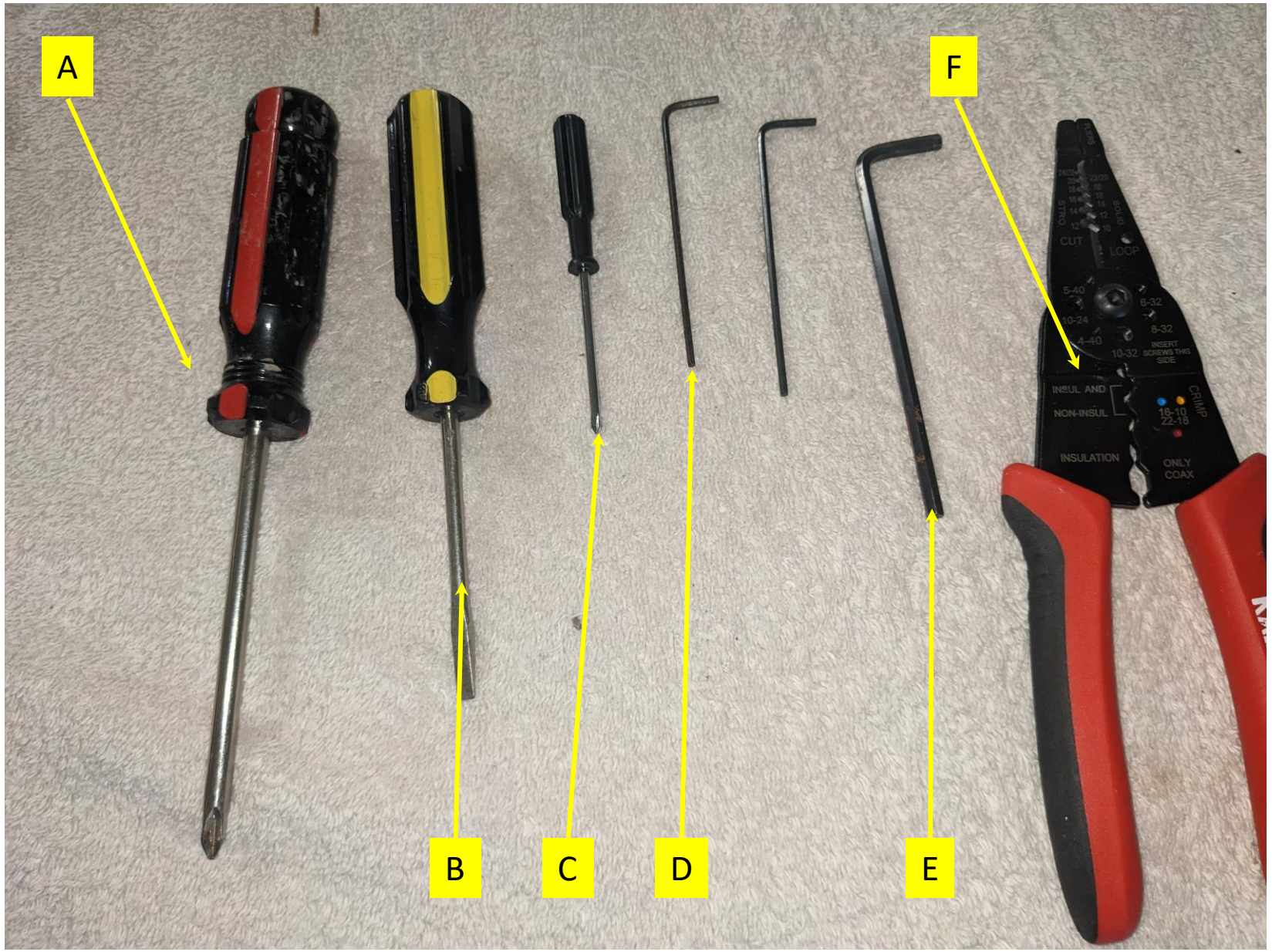
P: 1 – Wire with Attached Ring Connector (Barely Shown)

R: 1 – DC Plug (Female) Not Shown



Tools Needed

A: #2 Phillips Screwdriver
B: Flat screwdriver or a 7 mm nut driver
C: Small Phillips
D: 2 mm or 5/64" Allen Wrench
E: 5/32" Allen Wrench
F: Wire Strippers
G: Glue gun
H: Scissors or a Craft Cutting Knife
I: 5/16” Nut Driver



Build the following as shown in Figure 1

List of Materials

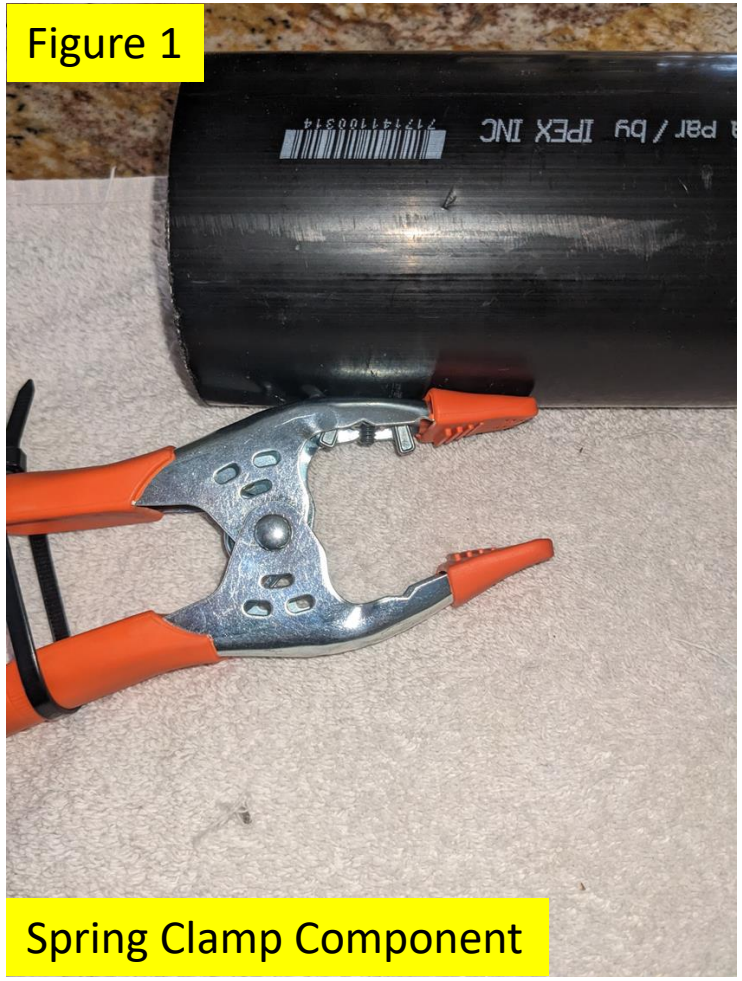
A: 1 - 6” of 3” Pipe

I: 1 – Spring Clamp

J: Hardware 1 #12 x 1” allen screw with Wing Nut

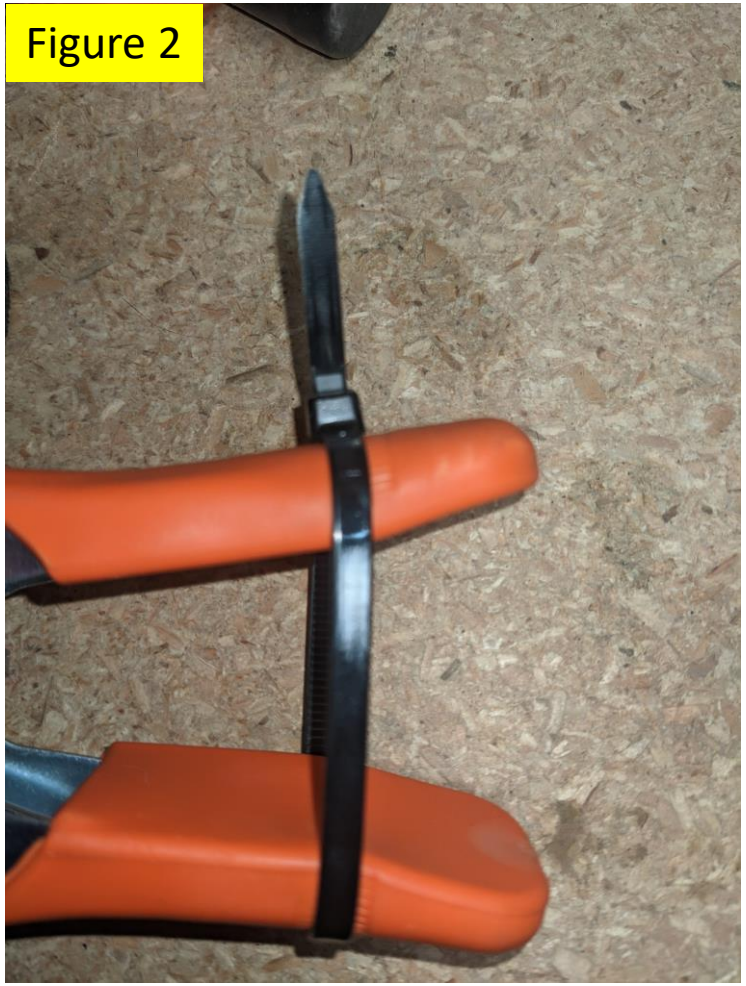
Tools:
5/32" Allen Wrench

Figure 1



Spring Clamp Component

Figure 2



Notes:

- It is easier to attach the wing nut if you remove the rubber slide and put it back on right before you tighten the wing nut
- It is easier to attach the wing nut if you hold the spring clamp open as shown in Figure 2. These cable ties will be available at the gathering.
- Insert the screw through the front slot of the spring clamp

Build the following as (almost) shown in Figure 3

List of Materials
C: 4 - Small Cable Ties
D: 1 - 4” Pipe Clamp
E: 1- 2” Pipe Clamp

Tools:
Flat screwdriver or a 7 mm nut driver

Notes:

- The picture is not quite accurate. One cable should face the way it is shown and the other cable tie should face the other direction. When this done the two ABS pipes will be close to parallel.
- Using the screwdriver/nut driver size the two pipe clamps so they will just fit over the respective ABS pipes (3” and 1 ½”).

Figure 3 Pipe Clamp Component

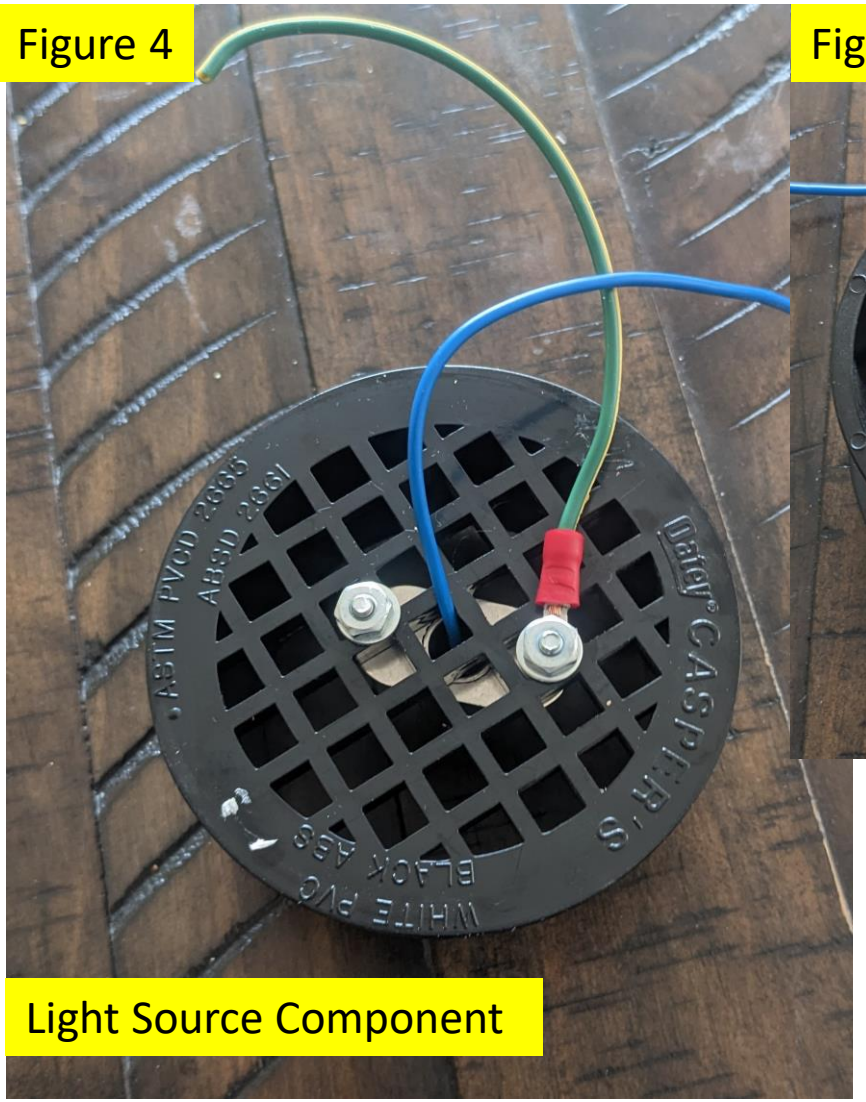
Build the following as shown in Figures 4 and 5

List of Materials
B: 1 - 3” Drain
J: Hardware 2 #6-32 ½” screws, washer, nut
N: 1 – Single Filament Taillight Socket
O: 1- 1 12 V DC Single Filament Taillight
P: 1 – Wire with Attached Ring Connector

Tools:
Phillips screwdriver
5/16” Nut Driver

Notes:
- The blue wire should go through the center hole of the drain.
- The flat washers go against the drain
- Install the taillight after the socket is installed

Figure 4



Light Source Component

Figure 5

Build the following as shown in Figures 6

List of Materials

A: 1 – 2 to 3” of 1 ½” Pipe
L: 1 – 12 V AC Motor with Brass Attachment

Tools:
Glue gun
2 mm or 5/64" Allen Wrench

Notes:

- Hot glue the motor into the 1 ½” ABS Pipe
- Attach the brass fitting using the Allen wrench

Figure 6

Motor Component

Assemble the Components Built as shown in Figures 7 and 8

List of Materials
Four previously built assemblies

Tools:
Phillips screwdriver
5/16” Nut Driver

Notes:

- Place the pipe clamp component over spring clamp assembly and loosely tighten.
- Place the motor component into the pipe clamp component and loosely tighten. The motor spindle should be aligned on the imaginary center line of the 3” ABS pipe.
- Adjust the ends of the two pipes so they are about even
- Insert the light source component into the other end of the spring clamp assembly.

Figure 7

Figure 8

Wiring the AC Motor and the DC Light Source (Figures 9 and 10)

List of Materials

Tools:
Small Phillips
Wire Strippers

Notes:

- Strip the wires from the motor and insert into spring style connector. Insert the leads from the AC power cord into the other side.
- Strip the wires from the DC light and insert into female plug and tighten. Plug into DC power supply.

Figure 9

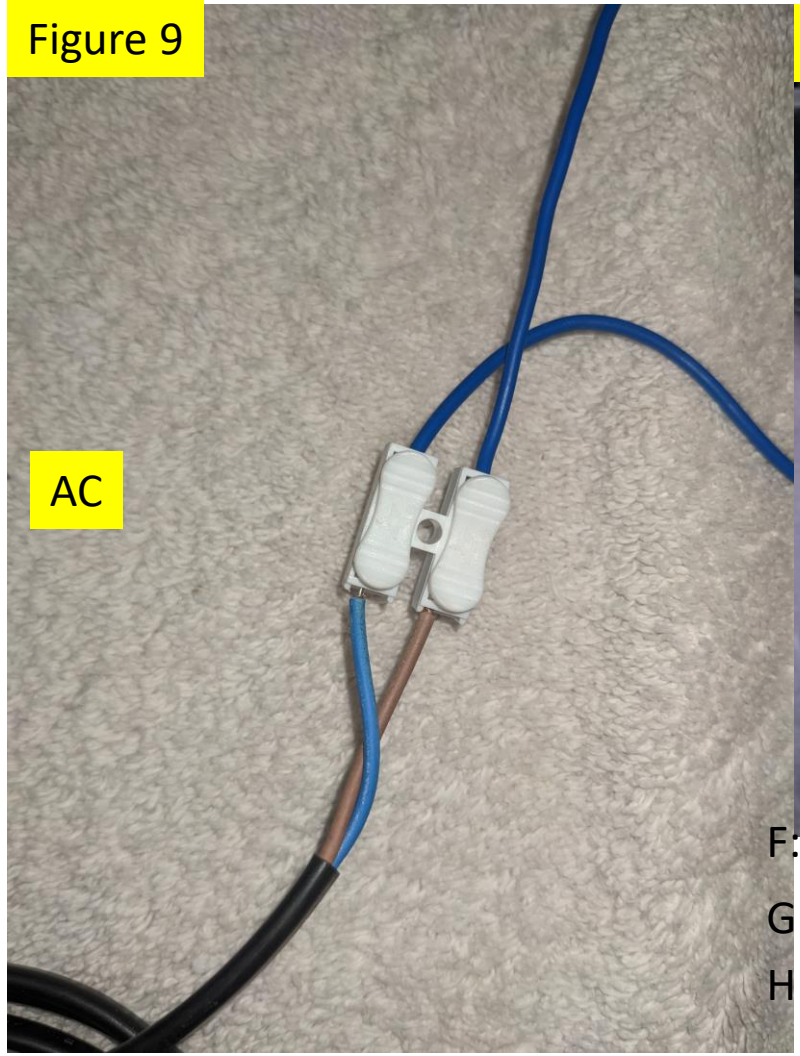


Figure 10

F: 1 – White Wax Pencil

G: 2 – 2”x 5” Plastic Board

H: 1 - Predrilled Craft Stick

J: Hardware (2 #6-32 ½” screws, 1 #12
1” hex screw with Wing Nut, 1 4mm x
1/2” screw)

Adding the Hands

List of Materials

F: 1 – White Grease Pencil

G: 2 – 2”x 5” Plastic Board

H: 1 - Predrilled Craft Stick

J: 1 4mm x 1/2” screw)

Tools:
Ruler
Phillips Screwdriver
Scissors

Figure 11

Figure 12

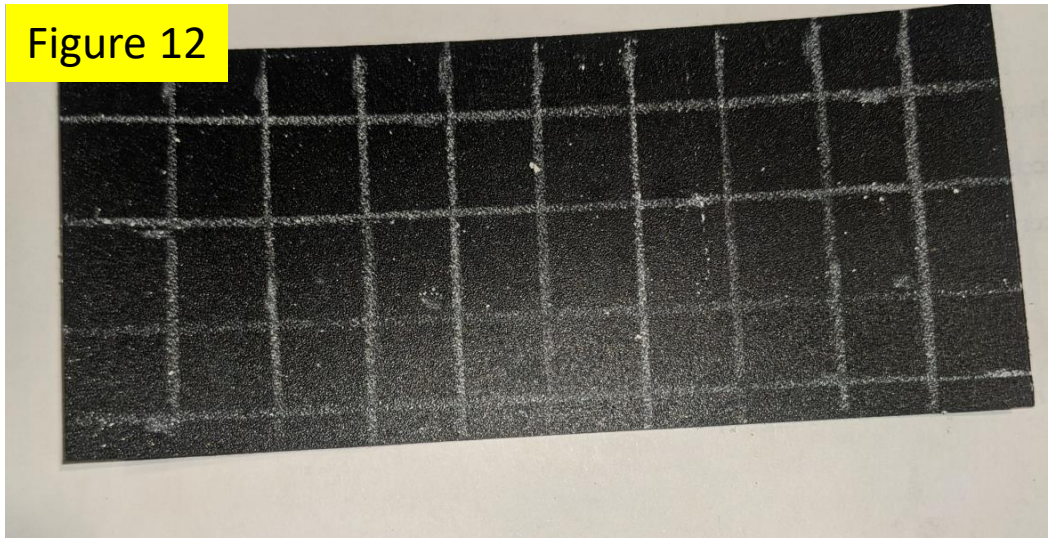
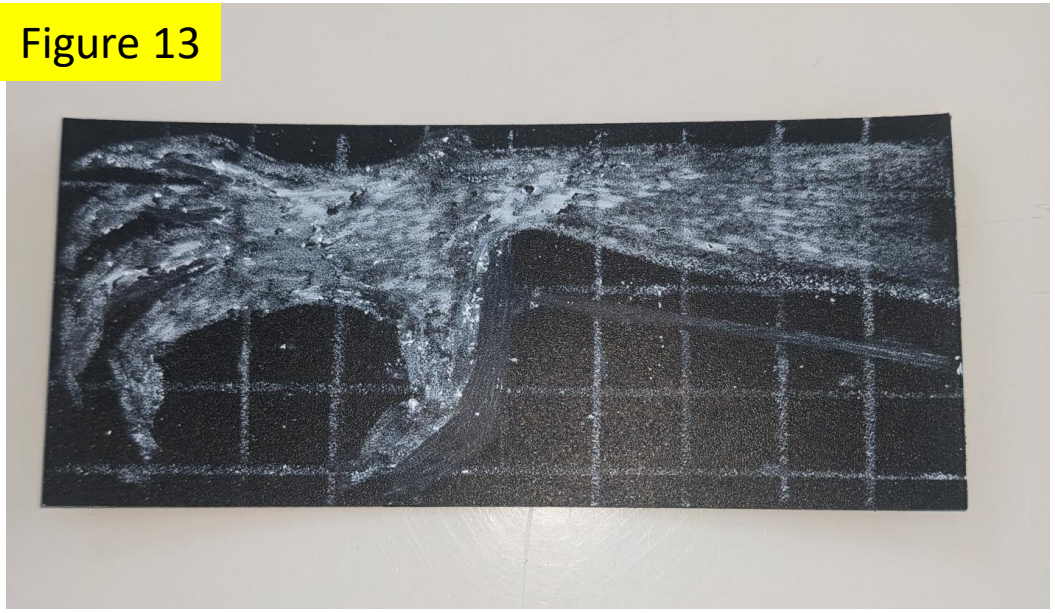


Figure 13



Notes:

- Attach the craft stick to the motor using the 4mm screw (Figure 11)
- Measure and mark ½” squares on the plastic board (Figure 12)
- Sketch the hand onto the plastic board (Figure 13)

- **No more pictures -----**
- Cut out the hand as sketched
- Trace the hand onto the second plastic board or draw a new hand
- Cut out the second hand
- Using glue strips (I will bring these) glue the two hands to the craft stick