Skills Ontario CAM Competition 2021
Secondary

Chair: Mariana Lendel
Co-Chair: George Vassilev

Judges:
Mariana Lendel

In-House Solutions

Please read the instructions carefully before you start work on the contest
Competition drawings and instructions are not to leave the competition site
If you get stuck with something move on!

Submission Link:

https://www.dropbox.com/request/z3N1jRdrNMigJD9BUN9l

Save the files including your name, school board name, part name and contest name as shown:

John Doe_ WRDSB_Drone Leg Frame_ CAM
John Doe_ WRDSB_Drone Top Frame_ CAM
John Doe_ WRDSB_Drone Top Cover_ CAM
Time allowed for contest is **5 hours**.
For additional help with submissions, email skills.help@humber.ca

The parts are being machined on a vertical spindle machine with a maximum RPM of 15000.

Unless stated otherwise internal corners will have radii of 0.0625 that result from machining. **No need to add them in the geometry.**

Part 1 – Drone Leg Frame:

1. The part blank has the bottom face pre-machined.
2. The size of the blank material: 15.75” in X, 3.0” in Y and 0.55” in Z from which 0.05” extra stock is at the top.
3. Offset material in Job Setup accordingly.
4. Material: Aluminum 2024
5. **Part is secured to a fixture that is not shown in drawing.**
6. The origin is at the center of the 0.55 diameter hole located in the middle.
7. Z zero = top of the finish part.
8. Ensure you have the appropriate clearance, retract, feed planes, depth, and top of the stock set throughout your toolpaths.
9. Use appropriate tools for roughing and finishing the part. You will be evaluated on the size, depth of cut and type of tools you use to machine this part.
10. Use appropriate toolpaths to rough and finish the part.
11. You will decide on the sequence of machining operations.
12. Spot drill and drill the holes as required.

Part 2 –Drone Top Frame:

13. The part blank has bottom face pre-machined.
14. The size of the blank material: 13.0” in Diameter and 0.725 in Z. Extra stock in Z at the top of the part should be 0.05.
15. Offset material in Job Setup accordingly.
16. Material: Aluminum 2024
17. **Part is secured to a fixture that is not shown in drawing.**
18. The origin is located at the center of the part.
19. Z zero = top of the finish part.
20. Ensure you have the appropriate clearance, retract, feed planes, depth, and top of the stock set throughout your toolpaths.
21. Use appropriate tools for roughing and finishing this part. You will be evaluated on the size, depth of cut and type of tools you use to machine this part.
22. Use appropriate toolpaths to rough and finish the part.
23. You will decide on the sequence of machining operations.
24. Spot drill and drill the holes as required.

Part 3 – Drone Top Cover:

1. The part blank has the bottom and top face pre-machined.
2. The size of the blank material: 36.0” in X, 28.0” in Y and 2.55” in Z. Extra stock in Z at the top of the part should be 0.05.
3. Offset material in Job Setup accordingly.
4. Material: Aluminum 2024.
5. **Part is secured to a fixture that is not shown in drawing.**
6. The origin is located at the center of the part.
7. Z zero = top of the finish part.

8. Ensure you have the appropriate clearance, retract, feed planes, depth, and top of the stock set throughout your toolpaths.
9. Use appropriate tools for roughing and finishing this part. You will be evaluated on the size, depth of cut and type of tools you use to machine this part.
10. Use appropriate toolpaths to rough and finish the part.
11. You will decide on the sequence of machining operations.

Tool List:

2” Face Mill

1/16” Flat Endmill

¼” Flat Endmill

3/8” Flat Endmill

½” Flat Endmill

1” Flat Endmill

½” Chamfer Mill

¾ Spot Drill

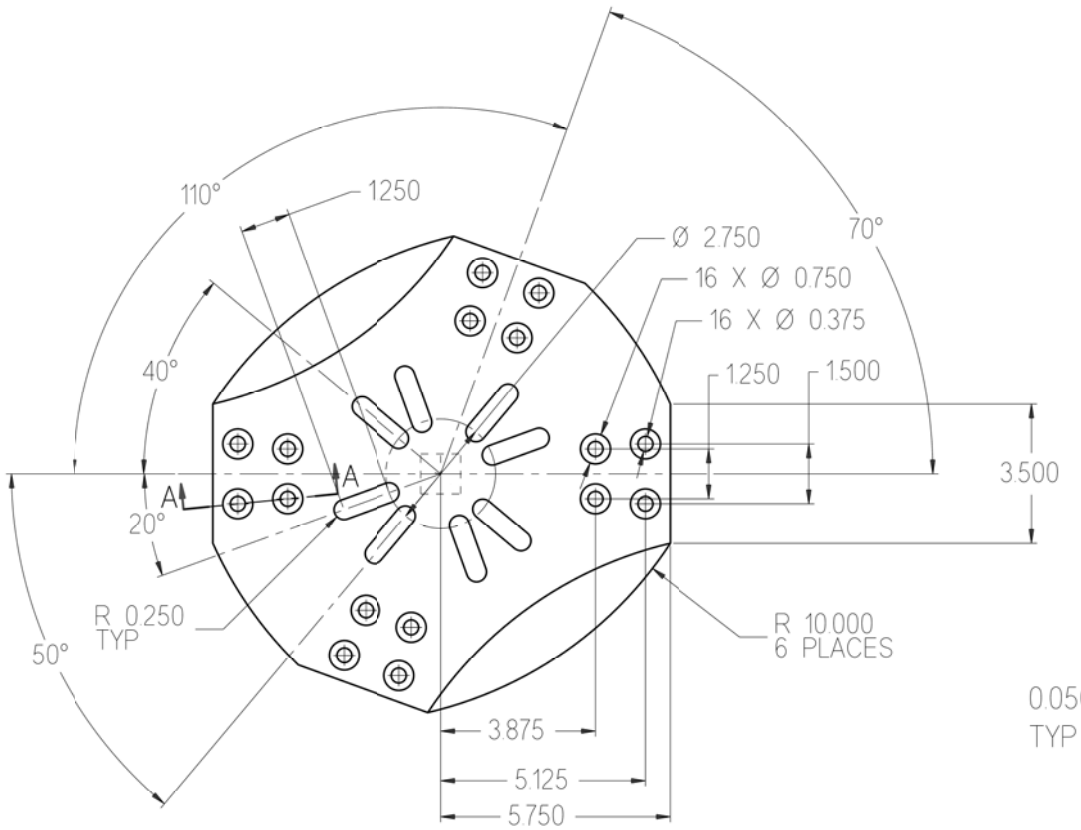
¼” Drill

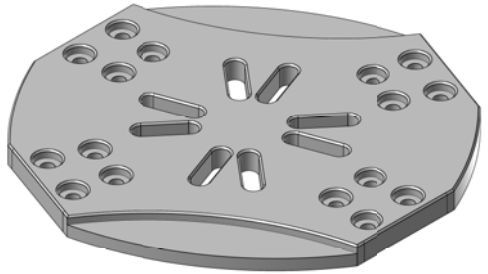
3/8” Drill

1/8” 30 degree 0.005 Tip

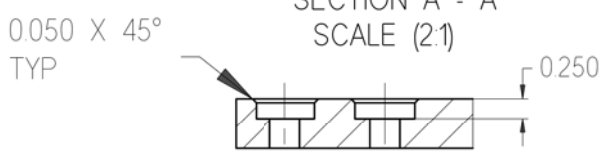
ALL DIMENSIONS IN INCHES

TOP VIEW

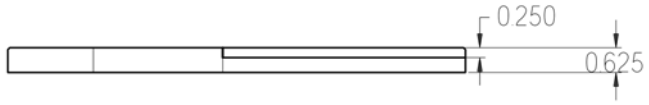




SECTION A - A
SCALE (2:1)



FRONT VIEW

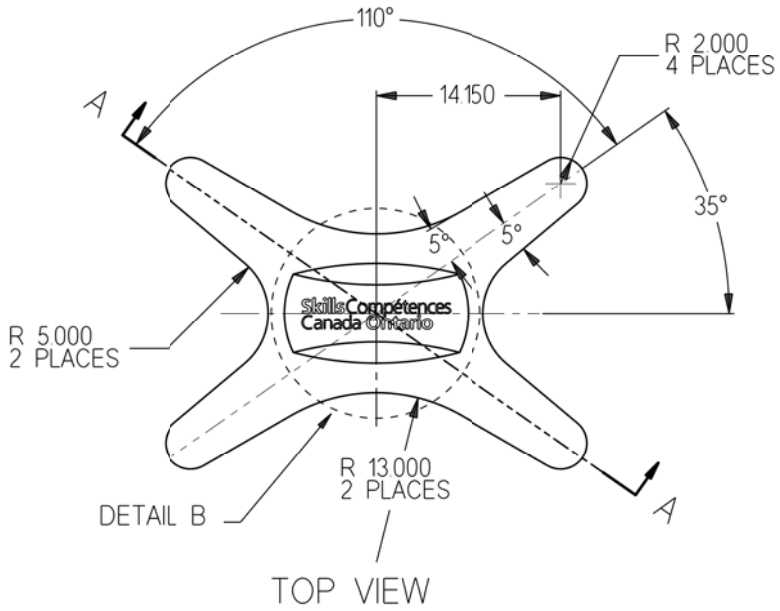


8 SLOTS ARE THROUGH

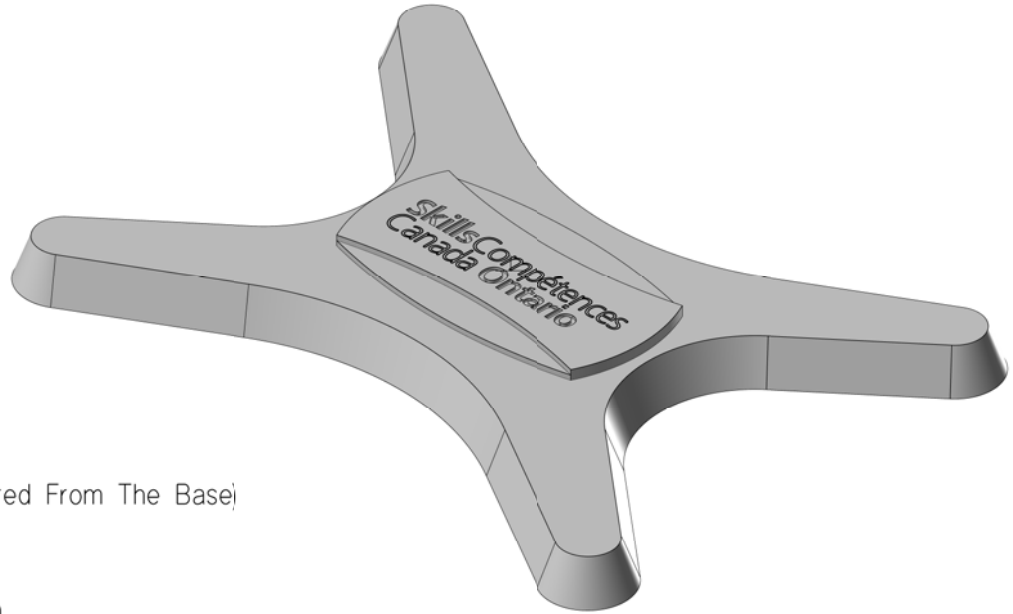
BREAK ALL UNSPECIFIED EDGES AT THE TOP OF THE PART WITH A 0.05 X 45° CHAMFER

CAM Competition Secondary	
Title: DRONE TOP FRAME	
Drawn By: ML	
Date: May 2, 2020	SHEET: 2 OF 3

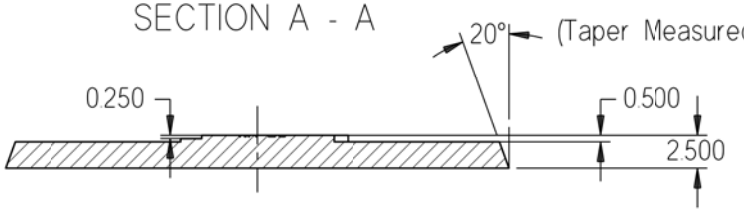
ALL DIMENSIONS IN INCHES

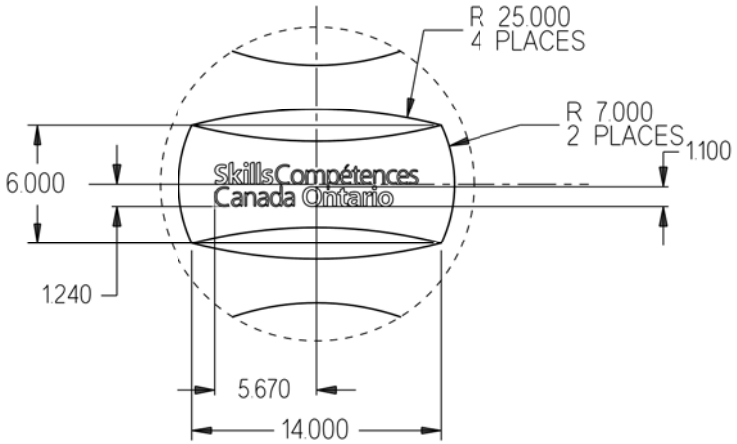


TOP VIEW



SECTION A - A





DETAIL B
(SCALE 1.5:1)

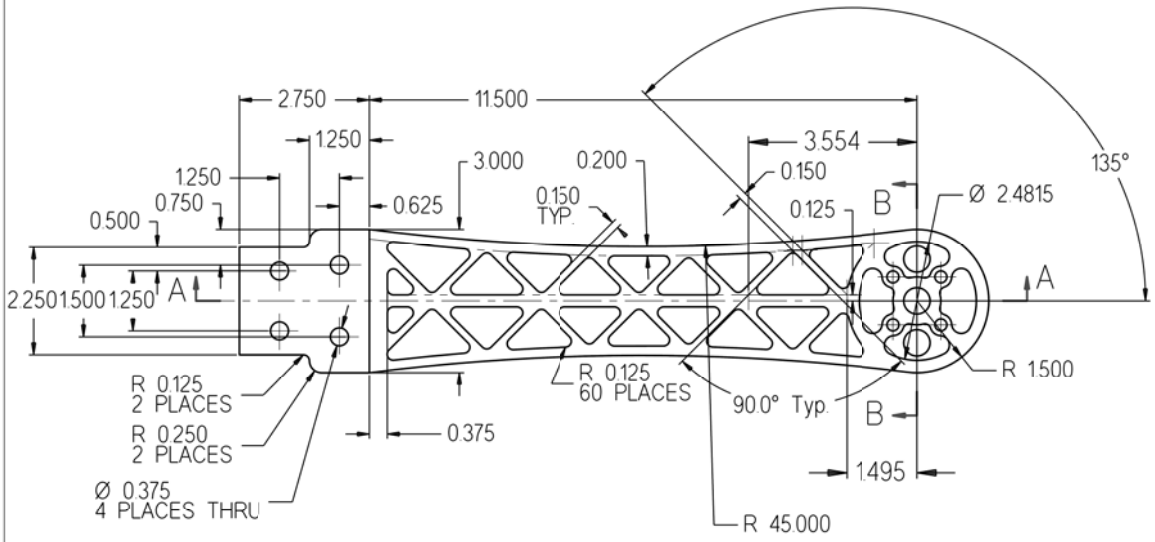
Merge the LOGO_sec. file

Machine the Skills and Ontario words as pockets at 0.125 depth

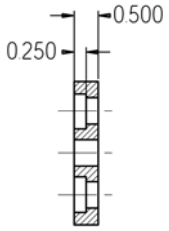
Engrave the rest of the words at 0.05 depth

CAM Competition Secondary	
Title: DRONE COVER	
Drawn By: ML	
Date: May 2, 2020	SHEET: 3 OF 3

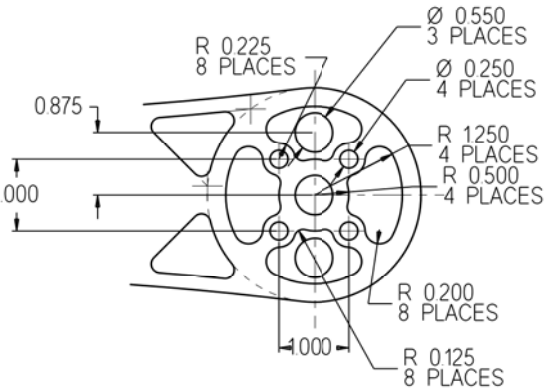
ALL DIMENSIONS IN INCHES



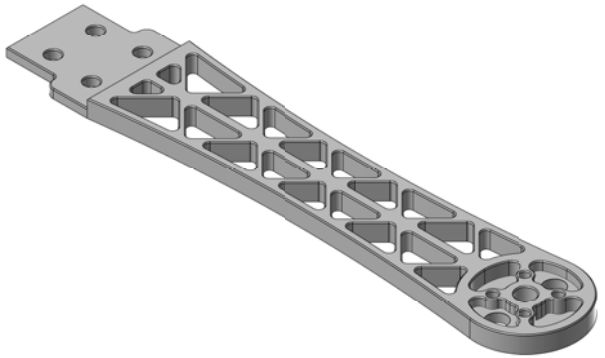
SECTION B - B



DETAIL C
(SCALE 1.5 :1)



SECTION A - A



BREAK ALL UNSPECIFIED EDGES AT THE TOP OF THE PART WITH A 0.025 X 45° CHAMFER

CAM Competition Secondary	
Title:	Drone Leg Frame
Drawn By:	ML
Date: May 2, 2020	SHEET: 1 OF 3