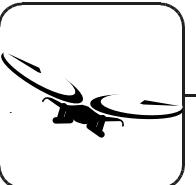


**Industrial drone with a wing outboard loading structure  
and suspended payload by tension braces.**



**NOTES:**

- A. This design is for the invention of an outboard wing loaded drone with collision-friendly capabilities and a suspended freighter section for industrial aerial operational purposes.
- B. The design is not to scale. Any dimensions given are nominal values and do not account for variations in material, design, manufacturing or assembling purposes
- C. Components depicted may vary in final design shape, size or form. However, the designed functions remain relatively unchanged.
- D. Drawings are not detailed therefore do not warrant the concept layout to be differable as depicted, nor that, should it be differable, it is an exact and fully accurate representation of the final configuration. The assemblies have sub-components not shown.
- E. Electrical and other relevant schematic drawings are not included in this drawing set.

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Description		Mat'l	Qty
1.	Wing Structure - circular or polygon-shaped	wood/ AL/ CFR/ plastic/ bamboo/ other	1
2.	Motors and Prop Blades	brushless(counter rot.) / elec. propulsors	18+
3.	Cargo Straps & Brace Assemblies	polyester webbing	10+
4.	Battery & Battery Platform	lithium-ion/ soild fuel/ hybrid	1
5.	Freighter + servo + controls Compartments	thermoplastic moulded	1
6.	Computer flight controller	breadboard/ 3rd party product	1
7.	Hose + Bleed Valves	pressurized thermoplastic tubing	4+
8.	VTOL landing gear + anti-skid plate	CFR and abrasion resistant rubber	4
9.	Sump (pressure) Assembly	glass fibre/ CFR/ alloy cast	1
10.	Spray Boom Pipes	thermoplastic/ polyester	2+
11.	Quick-Disconnect Plug	monomer/ filament/ composite 3D-print	2+
12.	Shear (dowel) pin	TBA (w/ frangible quality)	2+
13.	Collapsible Ribbed & Perforated Housing	paper filament + composite reinforcement	2+
14.	Multi-Jettison 'Flex' Nozzle	monomer/ filament/ composite 3D-print	2+
15.	Retractor servor + engine actuators	3rd party product(s)	TBD
16.	RC Controller/ Control Station	3rd party product	1

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PRESPECTIVE VIEW

SIZE	DWG NO	REV
B	MP1357 - 0001	A
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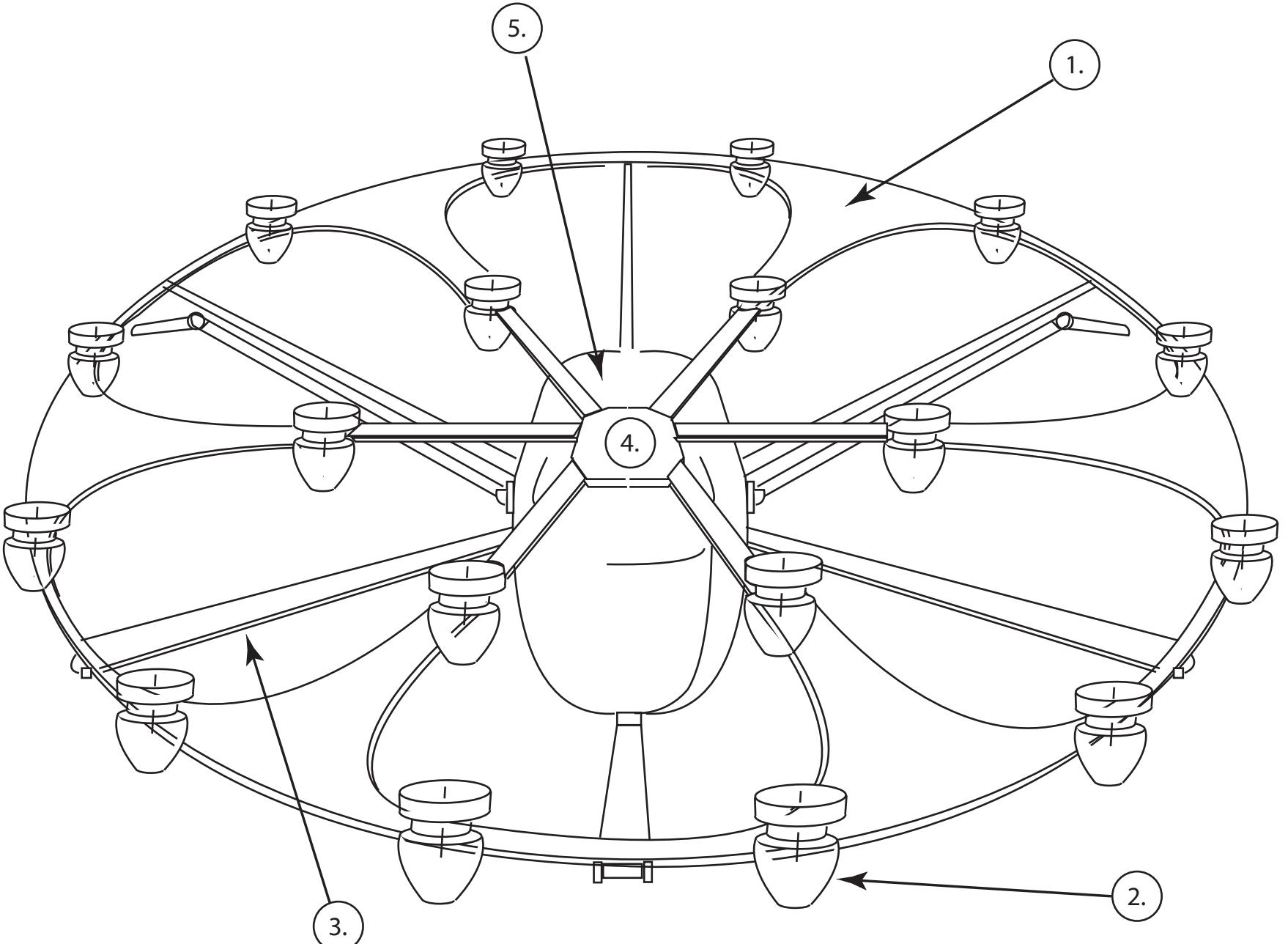
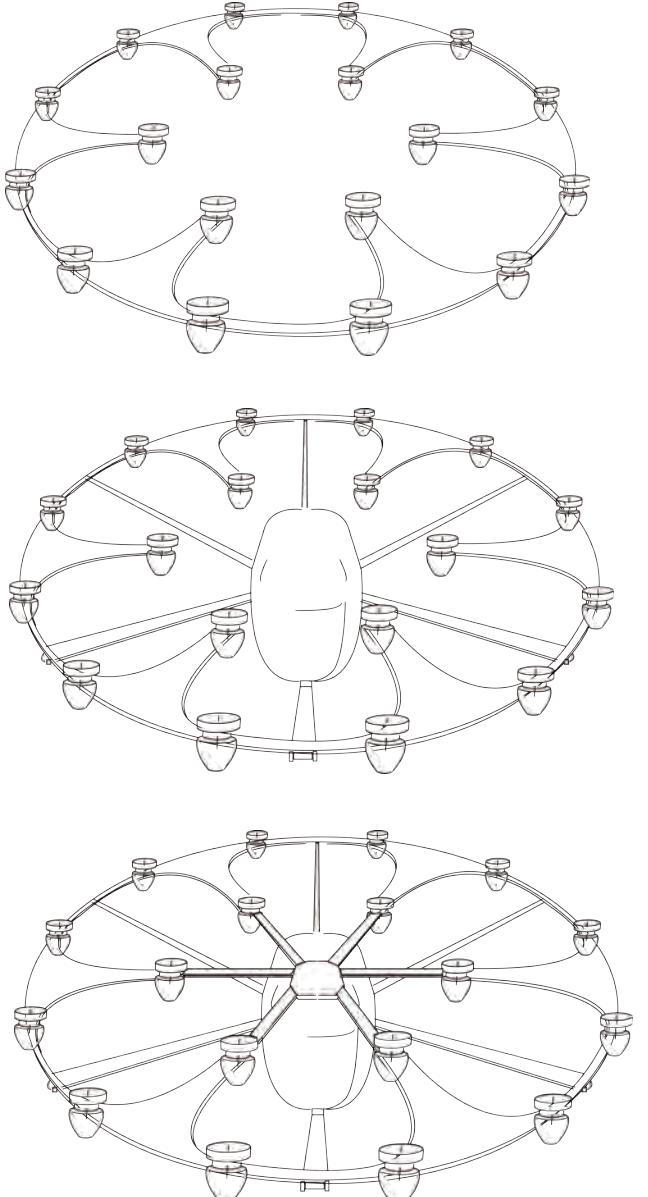
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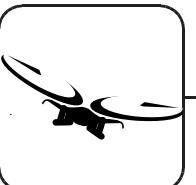
# PERSPECTIVE VIEW

## NOTES:

- A. Refer to cover page for general notes, symbols, legend and item number call-outs.
- B. Layouts show typical accessories with limited specifications and design style details.
- C.



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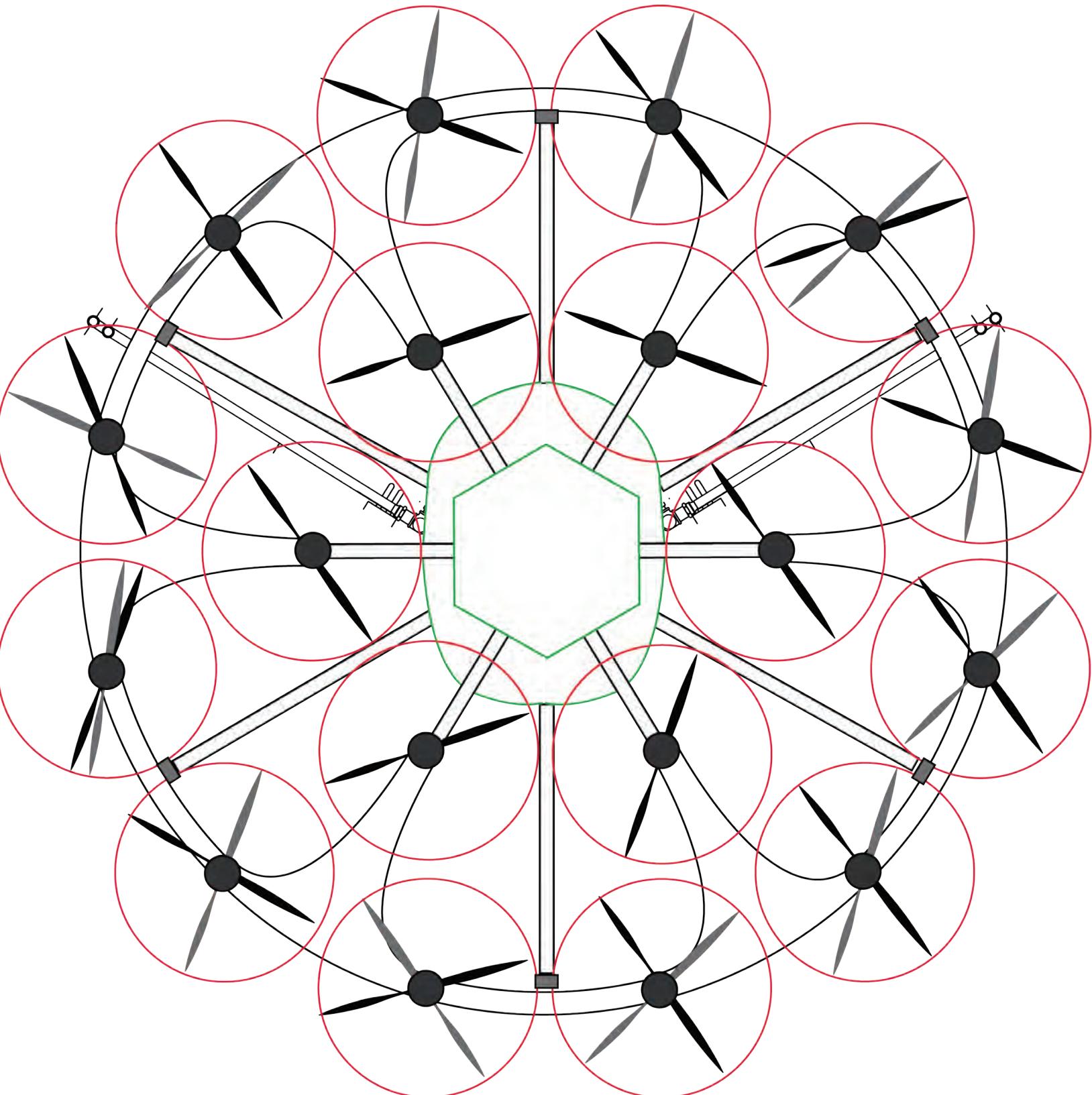
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SHEET: 1 OF X		



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NOTES:

- A. Refer to cover page for general notes, symbols, legend and item number call-outs.
- B. in prior art claims, the propellers are required to be as large as possible in order to achieve the efficient lift and stability needed in flight.
- C. Prior art also claims the props should have the smallest possible moment of inertia to achieve a quick change in attitude when required by the pilot-in-command.
- D. For this invention, the selected brushless outrunner motor and the optimal size for the free-running swivel propellers, these conflicting requirements need to be examined through bench testing at some given angular accelerations the aircraft could be subjected to during operations.



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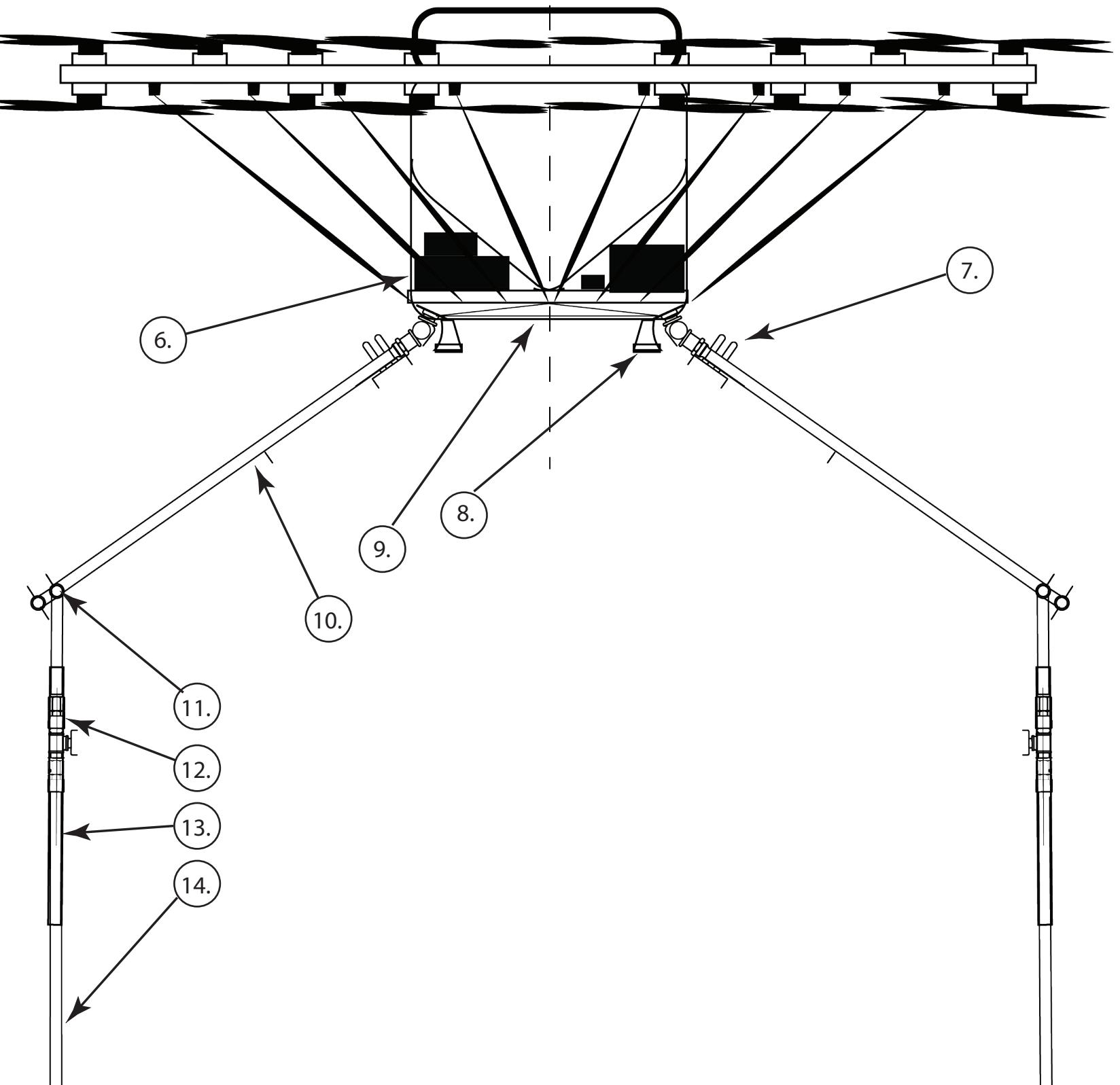


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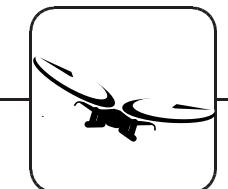
# FRONT VIEW

## NOTES:

- A. Refer to cover page for general notes, symbols, legend and item number call-outs.
- B. This design makes aerial robots 'collision friendly'.
- C. The (iPollen8) extension boom accessory can have physical interaction with static object(s) on the ground without compromising flight handling qualities of aerial robot.
- D. Once the iPollen8 system is turned on the pressure extends the collapsible hose and nozzles into the crop canopies below.



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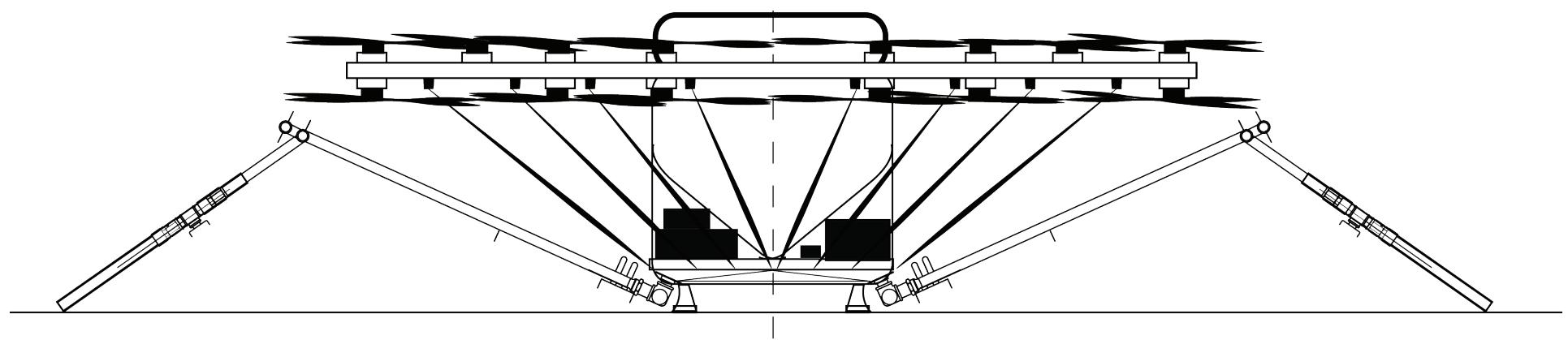
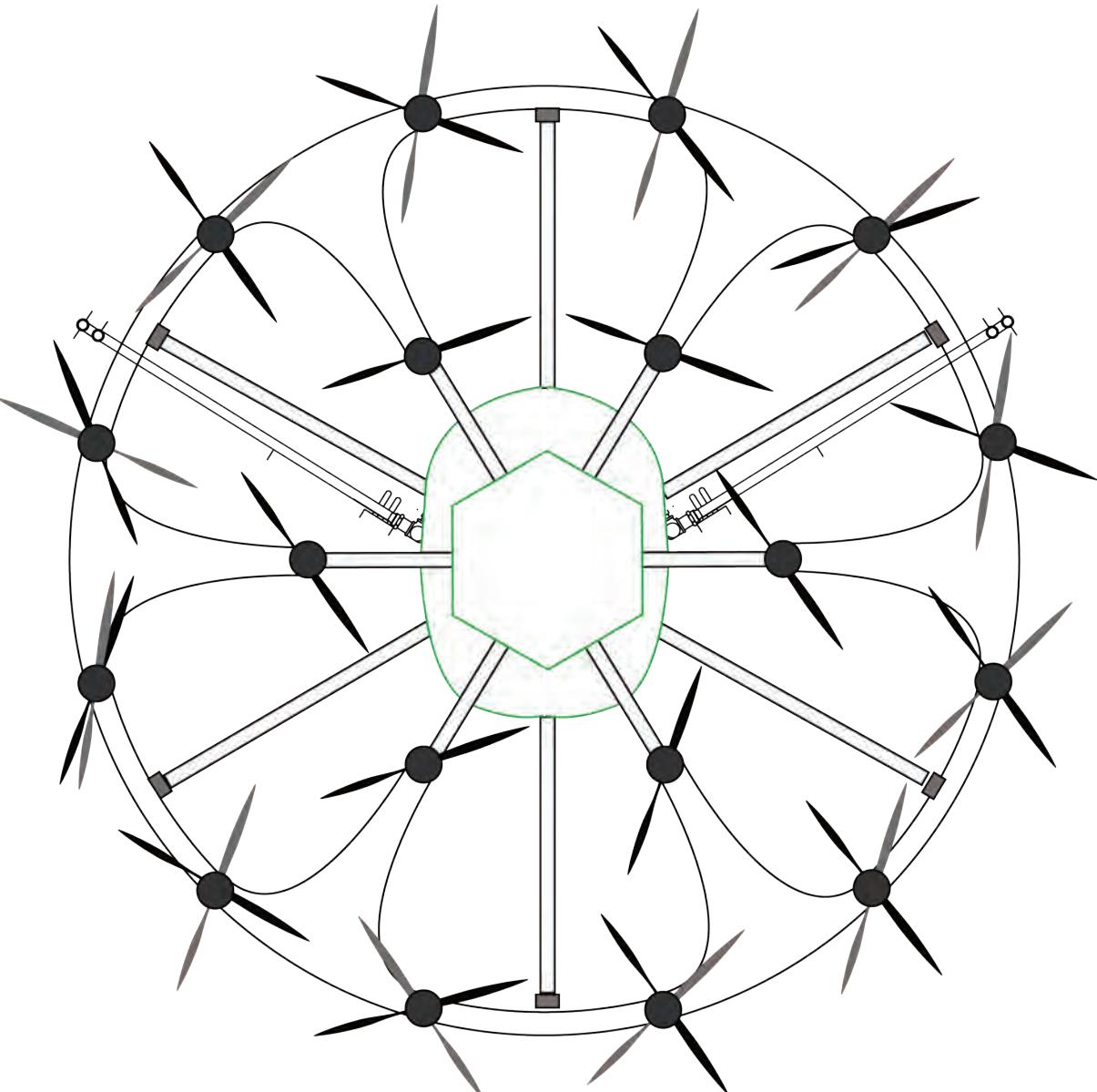


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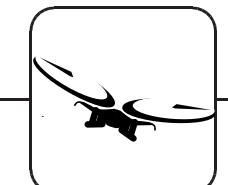
## ORTHOGONAL VIEW

### NOTES:

- A. Refer to cover page for general notes, symbols, legend and item number call-outs.
- B. The electric engines/ propulsors(2) are symmetrically mounted on the wing structure(1). Also attached to the outer ring/ area of the wing are a series of cargo-braces(3). A set of the braces are suspended attaching to the freighter(5) at its base while the other set run horizontally attaching to the top section of the freighter. Fitted in its compartments at the top of the freighter are the flight controller(6) and the partitioned batteries(4) with electrical wires providing circuitry to the engines. The bleed hose assemblies(7) run air to the iPollen8 aerial dispersal system. Also at the bottom of the freighter is the retractor servor(15), the landing gear assembly(8) and the sump assembly(9). Attached to the sump are the thermo-plastic pipes(10) that extend outward and are controlled by the servor. At the other end of the Thermo-pipes is a quick-disconnect assembly(11) that attaches the nozzle housing(14). Inside this housing is the collapsible hose(13) that completes this entire invention.



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NOTES:

- A. Refer to cover page for general notes, symbols, legend and item number call-outs.
- B. The boom extension servos retract the boom at a specific angle limiter ensuring no conflict with the spinning blades. Similarly, at a specific downward angle the servo positions the sprayer boom with the nozzle housing dangling beneath
- C. The nozzle housing assembly will detach at the quick disconnect plug once its the frangible crease along the dowel pin is overloaded and snaps at a collision force higher than designed.



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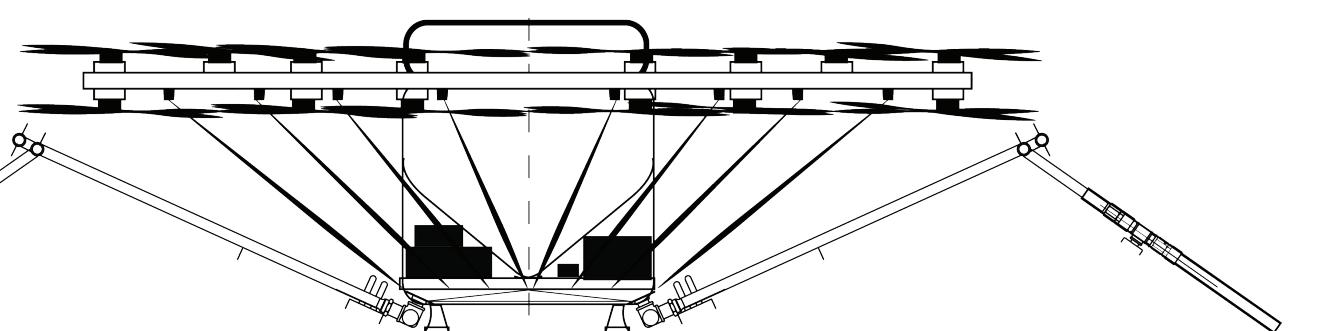
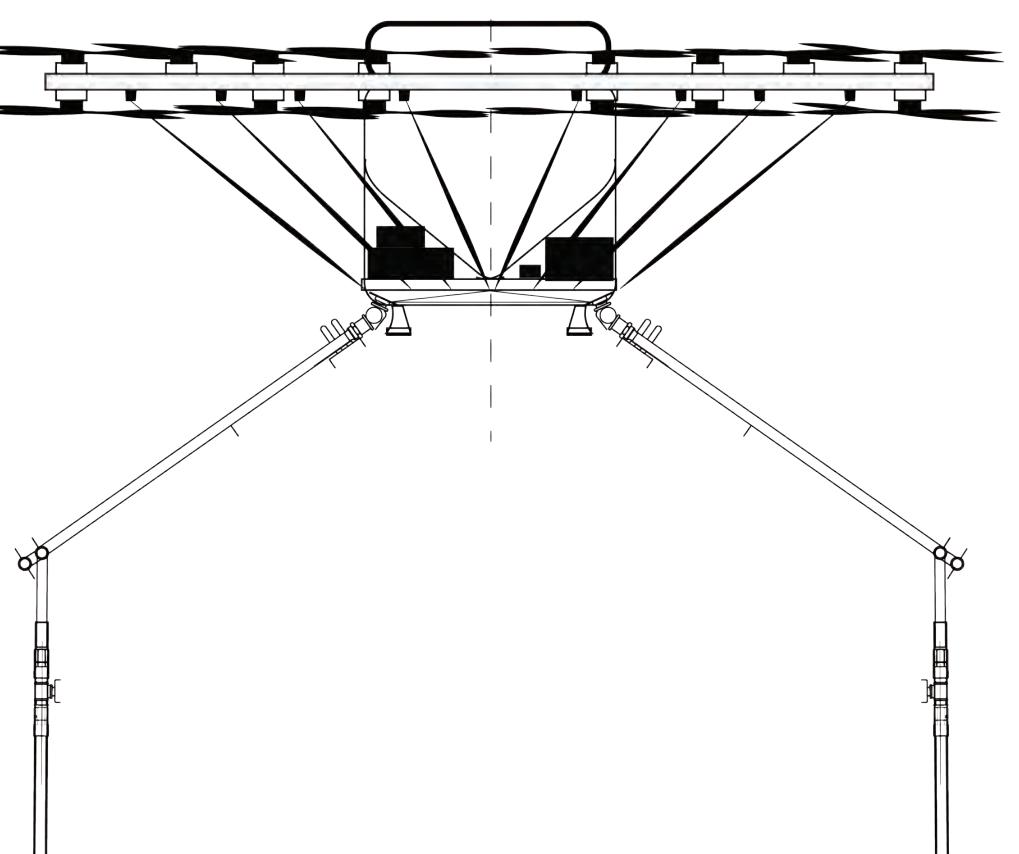
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B	MP1357 - 0006	A
MOD: 9989	SCALE: 1 : XX	
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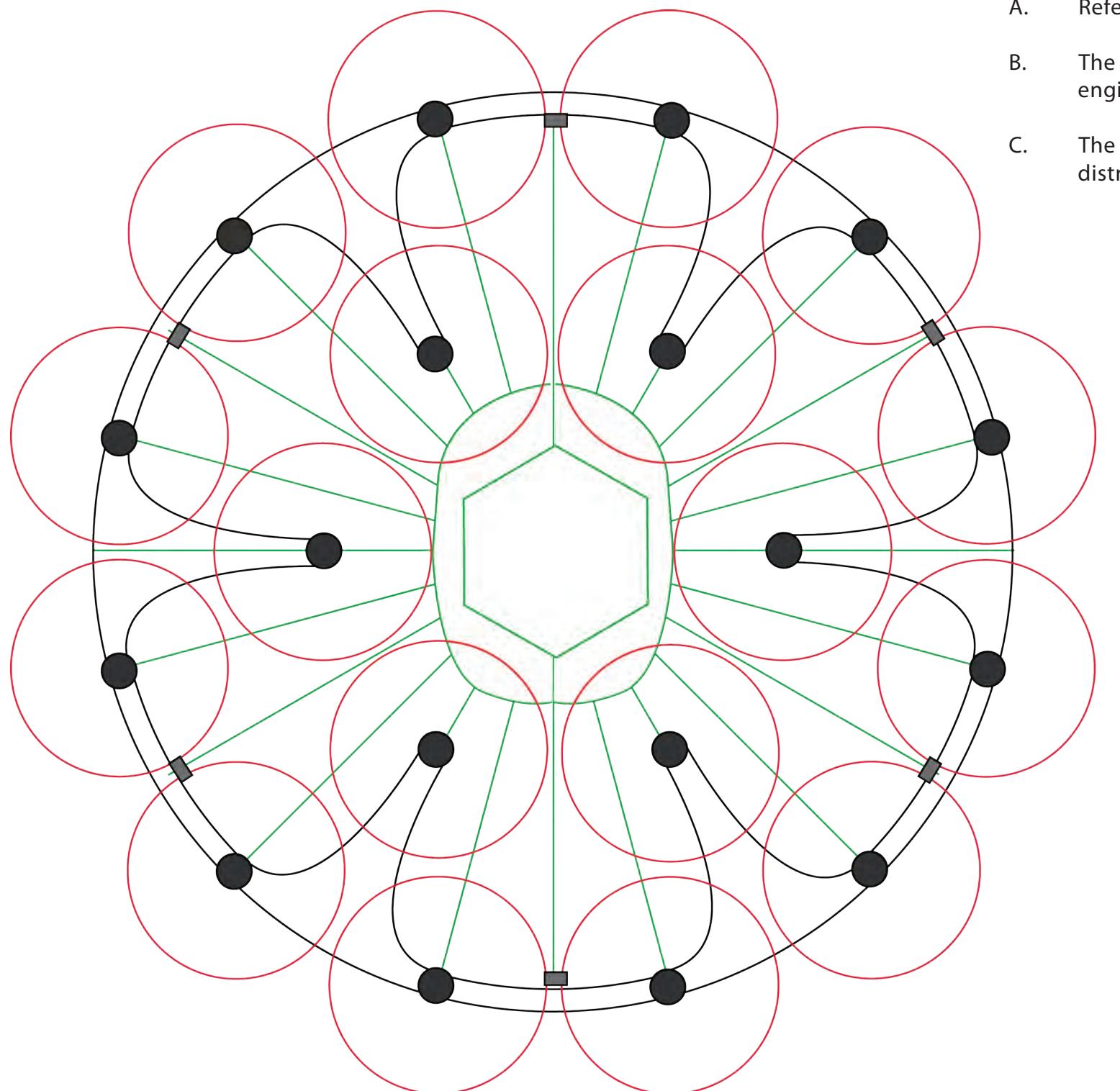


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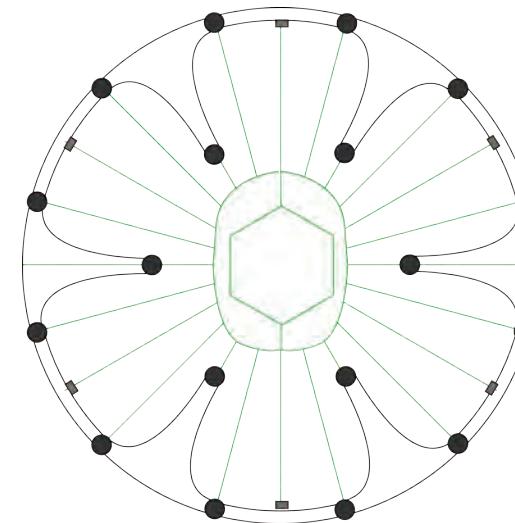
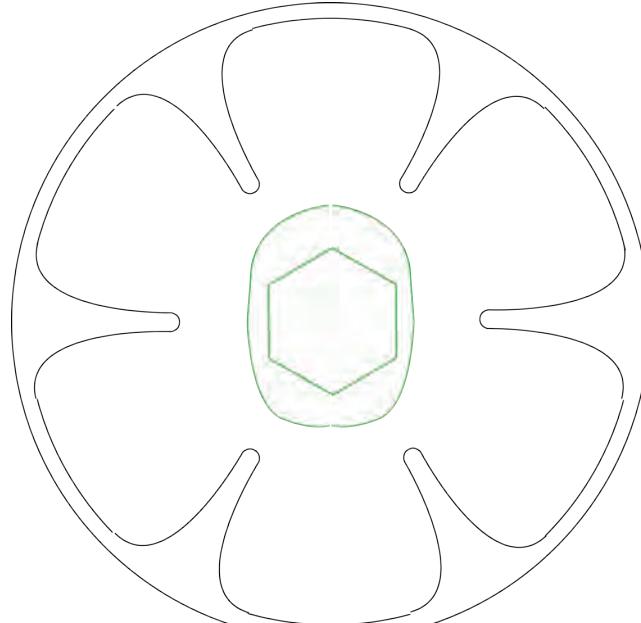
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## DESIGN TOP VIEW



### NOTES:

- A. Refer to cover page for general notes, symbols, legend and item number call-outs.
- B. The circular/ polygon-shaped wing structure is the load bearing frame where the engines are also mounted directly.
- C. The 18+ brushless motors with prop blades/ electric propulsion engines are evenly distributed across the wing frame, they provide the lift power for the drone.

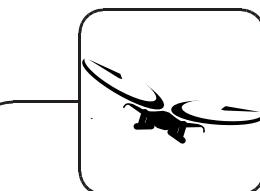


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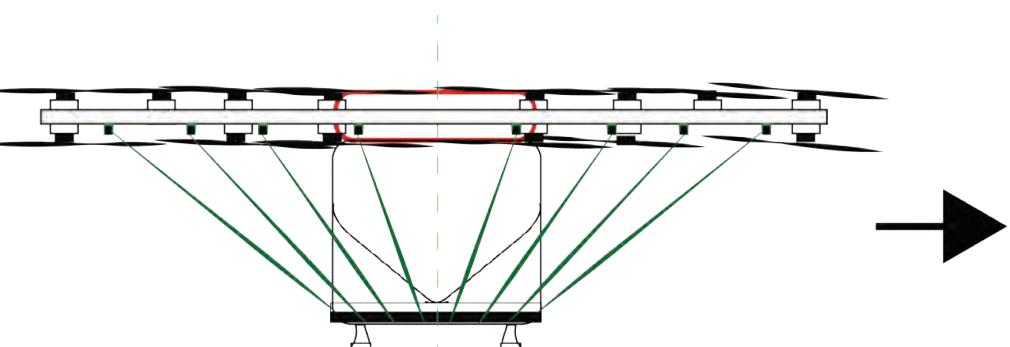
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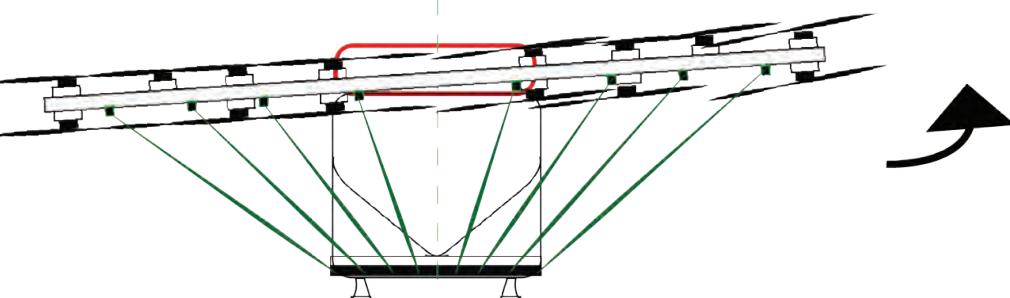
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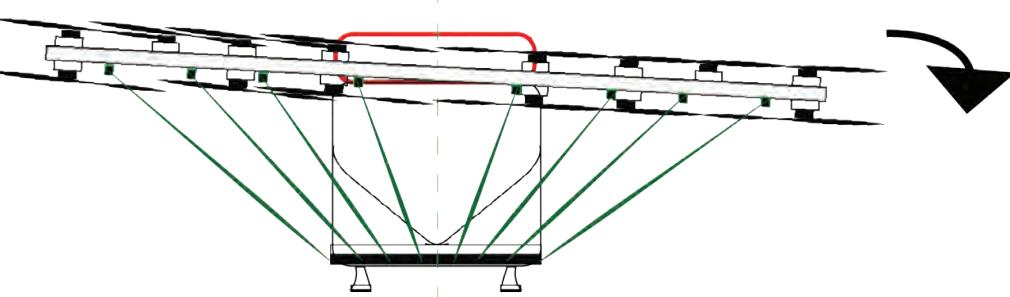
- A. Refer to cover page for general notes, symbols, legend and item number call-outs.
- B. To reduce excessive sloshing of liquids within the freighter/container, the suspended braces form a 'SpillNot' feature for better stability and control quality.
- C. This feature evenly distributes net forces in the direction of motion in flight with respect to gravity.
- D. The redundancy of the design ensures that even at a failed flight controller scenario, the tension braces can apply the required throttle power to relevant distributed electric engines for immediate recovery from any extreme flight attitude the drone is subjected to.



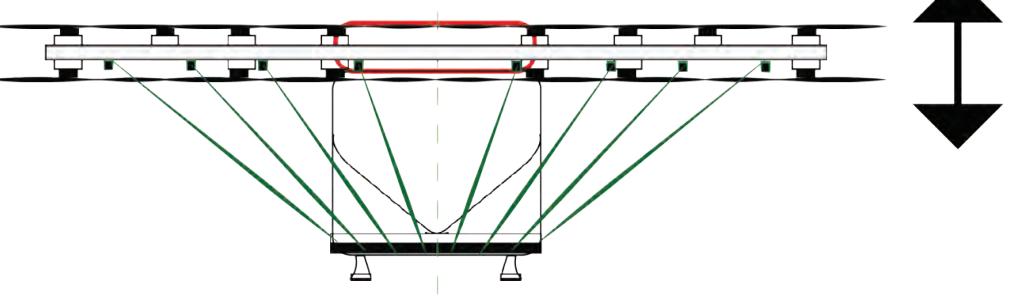
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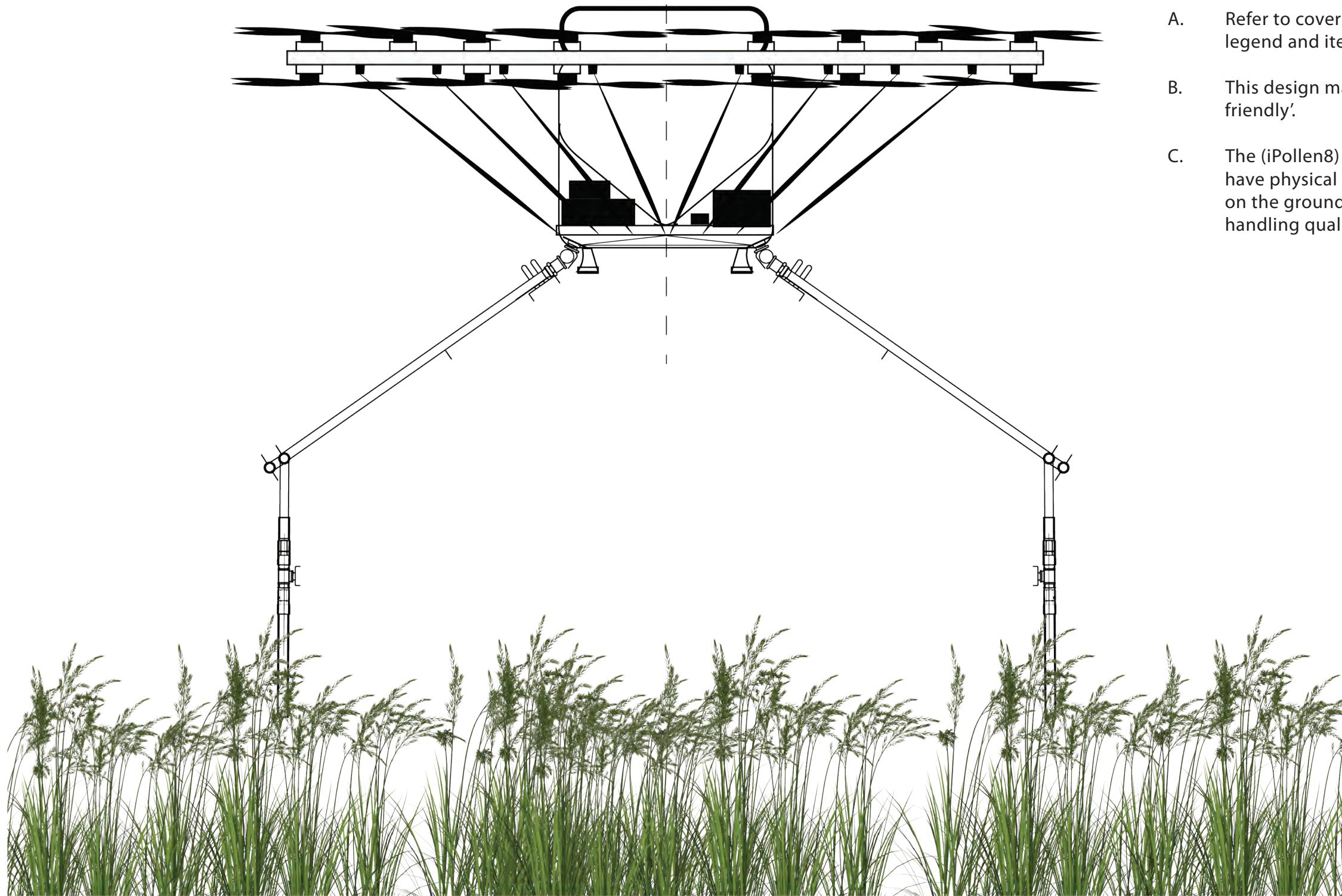


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NOTES:

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- B. This design makes aerial robots 'collision friendly'.
- C. The (iPollen8) extension boom accessory can have physical interaction with static object(s) on the ground without compromising flight handling qualities of aerial robot.



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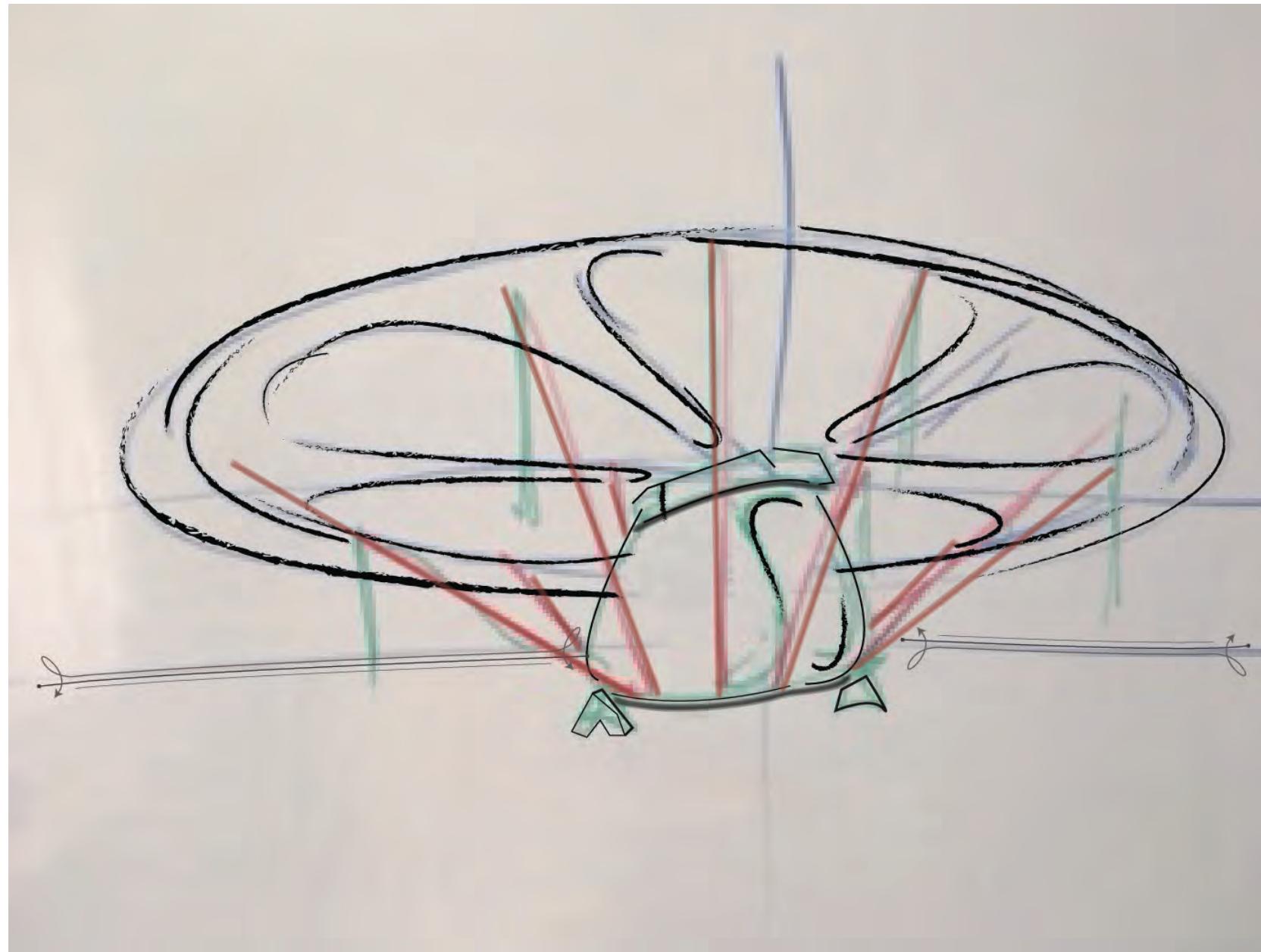


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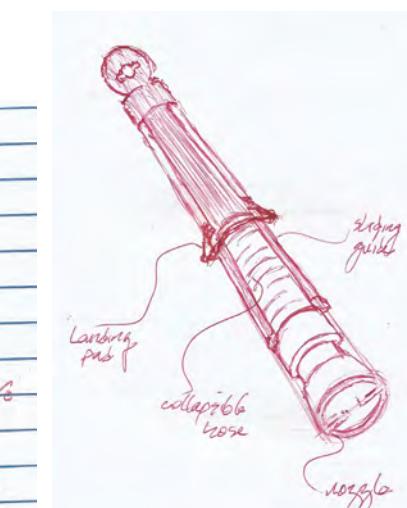
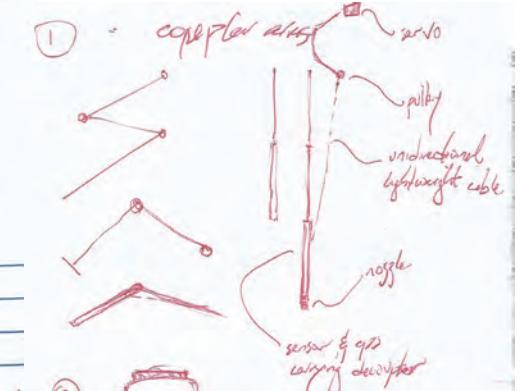
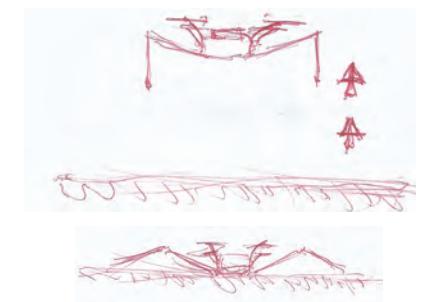
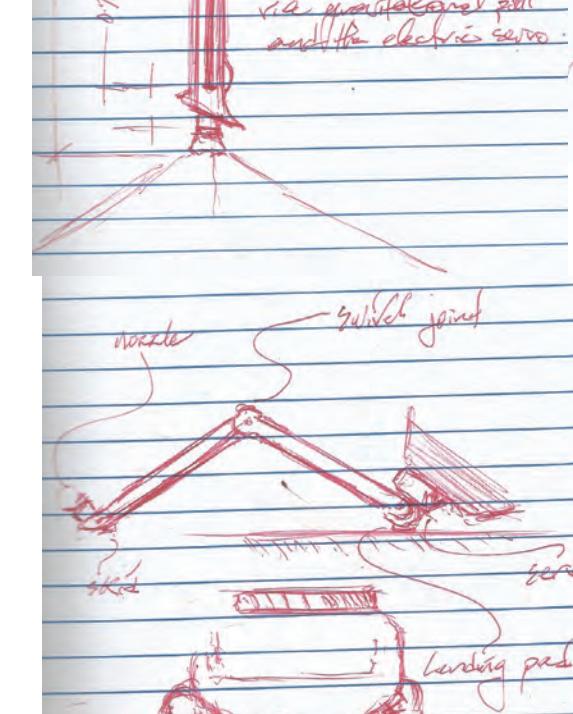
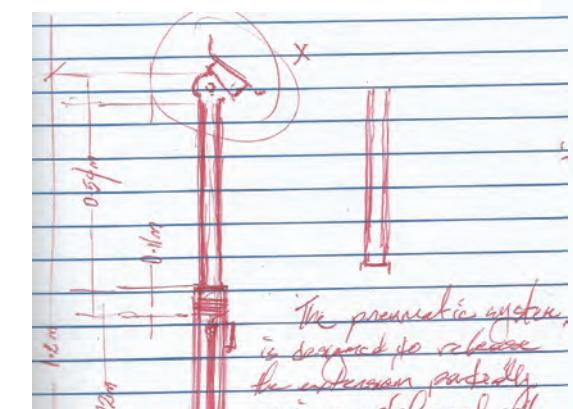
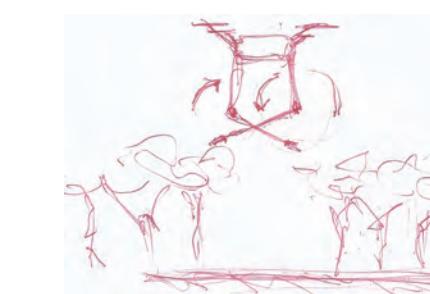
# SKETCHES 01

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SIZE/DWG NO	REV
B MP1357 - 0010	A
MOD: 9989	SCALE: 1 : XX
SHEET: 1 OF X	



AERIAL  
INDUSTRIES