

ADVANCED CLASS INSPECTION CHECKLIST

General, Technical and Safety-2017

TEAM NUMBER: _____

TEAM NAME: _____

With the exception of a standard tape measure and official test blocks and gauges, team must provide any materials and/or tools required to demonstrate compliance with Technical Inspection requirements.

	PASS	FAIL	Rule
Video Documentation of Proven Operational Ability			8.1
(Summon SAE official to view video documentation)			8.1.2
Video must show a successful takeoff, payload drop and landing	_____	_____	8.1.1
Team provided video display unit clearly shows all required flight activities	_____	_____	8.1.4
SAE official must initial the two items above. Discontinue inspection if video proof does not meet requirements			

FPV and Telemetry equipment type and frequencies

FPV system model and manufacturer: _____

FPV: Exact frequency or channel being used _____

Telemetry system model and manufacturer _____

Telemetry: Exact frequencies or channels being used _____

Note: giving the frequency band is not enough. We must have the exact frequency or channel details.

General Aircraft Requirements

Aircraft Identification

			2.1
University Name and address on inside or outside of aircraft	_____	_____	2.1.1
3" minimum size team number on top and bottom of the wing	_____	_____	2.1/2.1.2
3" minimum size team number on sides of aircraft (tail or fuselage)	_____	_____	2.1/2.1.2
University name or initials clearly displayed on the wings or fuselage	_____	_____	2.1.3/4

Empty CG Design Requirement and Empty CG Markings

			2.3
Aircraft empty CG is located in a safe flyable position	_____	_____	2.3.1
All aircraft have the fuselage clearly marked on both sides with a classic CG symbol (at least .5" in dia.) centered on the Empty CG location	_____	_____	2.3.2
Empty CG position on aircraft matches submitted drawing	_____	_____	2.3.3/6.1.3

Aircraft Conformance to 2D Drawing

			6.1
Aircraft length, wingspan and height measured and compared to 2D drawing			6.1.1
Tolerance +/- .25". Any other measurement on the drawing may be inspected. Deviation from drawing requires Eng. Change Request (ECR)	_____	_____	6.1.3

Aircraft uses a 2.4 GHz radio control system _____

Spinner or model aircraft type safety nut installed _____

No metal prop _____

No lead used in any portion of the aircraft or payload _____

2.6
2.7
2.8
2.9

	PASS	FAIL	Rule
Payload does not contribute to the structural integrity of the airframe	_____	_____	2.1
Aircraft Ballast			2.11
Ballast not installed in closed payload bay	_____	_____	2.11.1/.4
Ballast stations must be indicated on 2D drawing (if ballast is used)	_____	_____	2.11.2
Ballast must be properly secured to avoid shifting or falling off the aircraft	_____	_____	2.11.3
Aircraft is powered only by the Engines/Motors installed in aircraft			
No other forms of stored potential or kinetic energy may power the aircraft in flight	_____	_____	2.12
Control surfaces, hinges and control horns secure and free from slop	_____	_____	2.13
All servos properly sized for aircraft	_____	_____	2.14
All linkages secure. If a clevis is used, it must have a keeper	_____	_____	2.15
Safety equipment			
Team must present at least two pairs of safety glasses for inspection	_____	_____	1.17.5
Advanced Class Requirements			
Engine Displacement			8.3
Total engine displacement is .46 cubic inches or less	_____	_____	8.3.1
Teams must confirm that the displacement of the engine has not been modified	_____	_____	8.3.3
Payload Requirements			
Static Payload Requirements			
Support assembly must adequately secure static payload to airframe	_____	_____	Safety
Static payload bay completely closed off and completely separate from releasable payload	_____	_____	8.6.23.9
Releasable Payload Requirements			8.6.23
Releasable Payload is sand enclosed by a sewn woven fabric material			
Placing the sand inside a thin plastic bag inside the woven fabric is allowed	_____	_____	8.6.23.4
Each Releasable Payload measures no more than 10" in any linear dimension, not including streamer	_____	_____	8.6.23.7
All Releasable Payloads have a flexible and high visibility streamer attached that is 54" +/-6" long and 2.5" +/- .5" wide	_____	_____	8.6.23.10/.11
Streamer must be able to support the entire weight of the Releasable Payload	_____	_____	8.6.23.14
Releasable Payloads must be labeled with team number: 2" min size numbers (Numbers located on payload in three places: container and both ends of streamer)	_____	_____	8.6.23.15
All Releasable Payloads must weigh between 2 and 2.25 lbs.	_____	_____	8.6.23.5
All Releasable Payload packages inspected and weight checked	_____	_____	8.6.23.6
The CG of each mounted Releasable Payload may not exceed a distance 6" laterally or longitudinally from the Empty CG of the aircraft	_____	_____	8.6.23.8
Payload streamers must be stowed when in/on the aircraft and must deploy at release	_____	_____	8.6.23.13
Each Releasable Payload is independent of all others on the aircraft (No releasable payload physically attached to any other releasable payload)	_____	_____	8.6.23.2

	PASS	FAIL	Rule
Releasable Payload System and Payload Specialist			8.12
The primary pilot may not have access to or activate the releasable payload(s)	_____	_____	8.12.1
The Releasable Payload mechanism cannot be controlled from or connected to the primary pilot's transmitter in any way	_____	_____	8.12.4
Payload release uses a second 2.4 GHz radio system or some other method based on their DAS or telemetry system	_____	_____	8.12.5
If payload release is automatic, the payload specialist must have a manual override	_____	_____	8.12.3
Each Releasable Payload mechanism is reliable and functional	_____	_____	Safety
No Autonomous Flight Systems			8.10.
Autonomous flight systems that cause the aircraft to navigate without direct pilot control input are not allowed. Gyros and stability assist are allowed	_____	_____	8.8/8.7
Data Acquisition System (DAS)			8.9
DAS provides real time altitude reading in feet on ground station and registers a change when the model is lifted into the air	_____	_____	8.9.1/.4
DAS records exact altitude on the ground station when payload release is activated	_____	_____	8.9.2
DAS recording must be stored on ground station and ground station must support playback on demand	_____	_____	8.9.3
DAS altitude measurement must have a precision of at least 1 foot.	_____	_____	8.9.4
DAS system must use a red arming plug to power up electronics-	_____	_____	8.9.5
Discrete removable red arming plug must be on top of aircraft and at least 12" from prop	_____	_____	8.9.5
DAS arming/reset switch (optional). If manual, it must be located at least 12" from prop. Wireless remote arming/reset switch is allowed	_____	_____	8.9.6
DAS does not use 2.4 GHz unless it is part of the RC system being used	_____	_____	8.9.7
Functional test of DAS	_____	_____	8.11
First Person View System (FPV)			8.10
FPV system must transmit a live real time video signal to the ground station	_____	_____	8.10.3
FPV system does not transmit on 2.4 GHz	_____	_____	8.10.4
FPV system must use a Red arming plug to power up FPV system	_____	_____	8.10.5
(Discrete removable Red arming plug must be on top of aircraft and at least 12" from prop)			

Note: the aircraft can use one red arming plug for both the FPV and the DAS systems, if desired

	PASS	FAIL	Rule
Radio Control System			
All servos installed properly and securely	_____	_____	6.4
Power switch installed properly	_____	_____	Safety
1000 mAh minimum radio battery, properly secured. If NiCad or NiMH, pack must be 5 cells. Lipo or LiFE must be at least 2 cells. Regulator allowed.	_____	_____	8.4/Safety
Receiver mounted securely and vibration protected	_____	_____	6.4
All flight control, throttle and ground steering servos operate correctly and without clashing or overloading	_____	_____	6.4
Throttle operation correct: idle to full	_____	_____	6.4
Throttle kill set (low throttle, switch or trim kill)	_____	_____	Safety
Test radio fail safe functional: Throttle must go to idle if TX signal lost	_____	_____	2.6
Engine(s) and Gear Boxes (if applicable)			
Properly mounted and secure	_____	_____	6.4
Prop and prop nut tight	_____	_____	6.4
Wings and tail assemblies free of warps and mounted securely.	_____	_____	6.4
Landing Gear and Wheels			
Landing gear mounted securely	_____	_____	6.4
Wheel collars secure	_____	_____	6.4
Aircraft does not use rubber bands for wing retention	_____	_____	8.5
Inspection Sticker(s)			
All airframe parts stickered after technical inspection (wings, fuselage, tail if removable, expellable cargo, spare airframe parts, if any)	_____	_____	

First Inspection _____

Second Inspection _____

Instructions: First inspector notes pass or fail items. If anything does not pass, that item must be corrected by the team and re-inspected by the second inspector.