Academy of Model Aeronautics

5161 East Memorial Drive, Muncie, Indiana 47302
(765) 287-1256 – Voice • Competitions Fax (765) 286-3303
www.modelaircraft.org

EXHIBIT A   RULES CHANGE PROPOSAL FORM

PROPOSAL NO. _____   **RECEIVED DATE** _____
(To be inserted by Headquarters)   (To be inserted by Headquarters)

REVISE DATE _____   **VERSION NUMBER** _____

RULES CHANGE PROPOSAL FORM

Send to AMA Headquarters via email at **ruleschanges@modelaircraft.org.**   A copy will be forwarded to the appropriate Contest Board Chairman.

~~The responsibase of Competition Regulations explained~~

PROPOSAL TYPE (Check One): **X** Basic ☐ Cross Indicate Original Proposal Number _____

☐ Urgent/Safety/Emergency   ☐ Interpretation

☐ General Section ☐ Executive Council ☐ Outdoor Free Flight ☐ Indoor Free Flight ☐ CL Speed

☐ CL Racing ☐ CL Navy Carrier ☐ CL Aerobatics ☐ CL Combat ☐ CL Special Events **X** RC Aerobatics

☐ RC Scale Aerobatics ☐ RC Pylon Racing ☐ RC Helicopter ☐ RC Soaring ☐ Scale ☐ Electric

☐ Special Events ☐ RC Combat

Brief summary of the proposed change.

Modify and replace the equipment rule 4.4 so that telemetry may be used to communicate safety information to the pilot and to clarify what is permitted in terms of engine control systems

Exact wording proposed for the rule book. (List paragraph numbers where applicable. Example: Change "quote present rule book wording" to "exact wording required".

<u>ORIGINAL WORDING OF EQUIPMENT RULE 4.4:</u>

"**4.4: Equipment Functions.** Radio control equipment shall be of the open loop type (i.e. no electronic feedback from the model to the ground). Auto pilot control utilizing inertia, light, gravity, or any other type of terrestrial reference is prohibited. Automatic control sequencing (preprogramming) or automatic control timing devices are prohibited.

Examples of control functions permitted:
    1) Control rate or control movement limit devices that are manually switched by the contestant.
    2) Any type of button, dial switch, or lever control that is initiated and terminated by the contestant.
    3) Manually operated switches to couple control functions.

Examples of control functions not permitted:
    1) Snap buttons with automatic timing mode.
    2) Preprogramming devices to automatically perform a series of commands.
    3) Automatic leveling or stabilization in any axis (gyros, etc.).
    4) Propeller pitch change with automatic timing mode.
    5) Any type voice recognition system.
    6) Any type of learning function involving maneuver to maneuver or flight to flight analysis.

7) Model navigation or positioning systems (GPS, distance, or height sensors, etc.).

8) Electronic or other signal or feedback from the model of any kind.

9) Engine management systems that coordinate power output with model performance, position, or attitude."

CHANGE TO FOLLOWING REVISED WORDING OF EQUIPMENT RULE 4.4:

"4.4: Equipment Functions. Authorized radio control equipment functions shall be of two types: (1) the open loop type intended solely for the control of the flight path of the model (i.e. no electronic feedback from the model to the ground), and (2) the telemetry type intended solely to convey safety information to the pilot (e.g. monitoring of battery voltage, motor temperature). Any form of automatic flight control loop that utilizes aircraft flight parameter feedback whether onboard the model or through the transmitter is prohibited. The use of automatic flight control sequencing (preprogramming) or automatic flight control timing devices is prohibited. Telemetry or feedback mechanisms intended for use as safety functions may not be used to create an unfair advantage over other competitors. The final determination of whether or not the use of telemetry information constitutes an unfair advantage is left to the discretion of the CD.

Examples of control functions permitted:

1) Control rate or control movement limit devices that are manually switched by the contestant.

2) Any type of button, dial switch, or lever control that is initiated and terminated by the contestant.

3) Manually operated switches to couple control functions.

4) Alerts to the pilot through telemetry that provides a safety function such as out of range battery voltage, current and temperature.

5) Engine management systems that control RPM directly from throttle position.

Examples of control functions not permitted:

1) Snap buttons with automatic timing mode.

2) Preprogramming devices to automatically perform a series of commands.

3) Automatic leveling or stabilization in any axis (gyros, etc.).

4) Propeller pitch change with automatic timing mode.

5) Any type voice recognition system.

6) Any type of learning function involving maneuver to maneuver or flight to flight analysis.

7) Model navigation or positioning systems (GPS, distance, or height sensors, etc.).

8) Electronic or other signal or feedback from the model of aircraft data such as position and velocity

9) Engine management systems that coordinate power output with model performance, position, or attitude."

Logic behind proposed change, including alleged shortcomings of the present rules. State intent for future reference.

Modern radio control equipment on board the model currently has the capability to transmit model data to either the transmitter or to a separate receiving device on the ground. The intent of this rule revision is to allow telemetry download of information which would serve solely as a safety function that could be passed to the pilot, most likely as an alert. Closed loop or telemetry information that could assist the pilot in controlling the flight path of the model remains prohibited. Modifications to the examples of permitted control functions specifically permit safety information downloads and related pilot alerts and also permit engine/motor control systems that use RPM as a feedback. ESCs that provide a direct relationship between throttle position and RPM will be on the market before long, certainly before the next rules cycle. Since this control loop coordinates throttle position with RPM, it is not excluded in the current rule. The Example 5 in the permitted functions is a clarification of the current rule.

New event test data/information (new events only), please provide what testing of this new event has taken place to include number of participants and number of contests.

_____**N/A**_____

_____

_____

_____

_____

_____

Effect, if any, on current AMA records.

_____**N/A**_____

_____

_____

Note: The Contest Board Chairman may, in coordination with the submitter of the proposal, at any time prior to submitting a proposal to the Contest Board for Final Vote, edit proposal wording to increase clarity and to avoid ambiguity provided the proposal intent is not changed.

1. Proposer__NSRCA Sponsored proposal / Scott McHarg_____ AMA #___7511_____

   Street Address_3819 Stony Creek Ln._ _____

   City__College Station_____ State___TX_____ Zip__77845_____

   Day Telephone (979) 595-7990 _____Evening Telephone (_____)_____SAME_____

   Date of Signature_____Scott A. McHarg 03.07.12_____