



2024-25 Design, Build, Fly Q&A #6

Beechcraft

Cessna

Textron Aviation

TEXTRON AVIATION

Raytheon
Missiles & Defense

AIAA
FOUNDATION

General Questions

1. If we construct an in-house telemetry system using a micro processor (arduino, raspberry pi), also separate from the RC control circuit, would that be allowable?

Answer: Telemetry over the pilot's RC controller is allowed. A stand alone telemetry system is not allowed. On board data recorders, commercial or custom in-house construction, are allowed.

2. Can you clarify on the legality of using tape as a nonpermanent method of covering up the holes in the wing for the pylon/fuel tank attachment?

Answer: Holes not exceeding 0.25 inch diameter may be covered with tape at the team's discretion. Openings that exceed the 0.25 inch diameter limit require a separate cover that cannot be tape, it must be a piece that represents the wing surface skin.

3. While installing the fuel tank adapters and clamps before ground mission, do the clamps have to be fully extended/tightened? And if so, can they be loosened during GM to install the tanks?

Answer: The adapter must be installed onto the fuel tank in the flight configuration prior to entering the staging box for M2 and M3 and prior to the start of the ground mission. The only attachment allowed if using an adapter is between the adapter and pylon.

4. Is the X-1 allowed to stow/unstow an aerodynamic surface for flight? This surface would not depart the X-1 at any point in time?

Answer: The stowing and then unstowing of an aero surface or component of the basic X-1 test vehicle airframe configuration after release is allowed.

5. Can the blocks be designed to also serve as guide rails for the GM components (assuming all rules of block height are met)?

Answer: The blocks can only be used to elevate the airplane off of the ground; any other features or functions of the blocks are not allowed.

6. If a clamp such as a hose clamp is used to hold the adapter to the bottle, does the clamping feature on the clamp (the worm drive in the case of the hose clamp), need to meet the size requirements placed on the adapter?

Answer: The clamp and it's locking features are not subject to the adapter dimensional limits.

7. If using a mechanism which is located inside the wing and flush with the lower surface, with two holes larger than 0.25in, could taping it be considered an acceptable cover type for M1?

Answer: Tape would be applied on top of the surface and by definition, would not be acceptable as a cover for the opening. If the opening is greater than the allowed 0.25 inch diameter, then it must be by a removable cover to be placed over it and flush with the wing surface.

8. When inserting a pylon mechanism into the wing, considering it completely covers the holes inside the mechanism in the wing, which is flush with the lower surface, leaving a gap of about 0.3in between the pylon top surface and the wing lower surface, would this be allowed?

Answer: There are no requirements or restrictions on gaps between the wing/fuselage surface and pylon components.

9. [Are] permanent fasteners a necessary feature of the fuel pylon, or if a non-fastener based pylon retainment method is legal?

Answer: Fasteners are not a requirement for attachment of a permanent component as long as it is determined to be adequately secured to the vehicle as required in the rules during tech inspection.

10. Is the Ground Crew member allowed to reposition payloads inside the staging box during the paused time period of the ground mission? Actions might include repositioning the fuel tanks and X-1 test vehicle now that the pylons have been installed. Are there any limitations on the tools that can be used for installing the payloads?

Answer: The ground crew member may position the airplane, tools, payloads, etc in any configuration as desired prior to the start of the GM. Once the timed mission has started, the crew member is not allowed to do any work of any kind while the clock is stopped between the assembly steps. There are no limitations on tools, fixtures, aides, etc that teams may use during the ground mission or in the flight line staging box.

11. Would [a] system [that] has no bomb bay door, but only a small hole (larger than 0.25" diameter) for a hook that would be covered as per the rules when the X-1 is not attached [be valid]?

If an internal release mechanism which is installed flush with the lower fuselage, containing two openings larger than 0.25in, in which two smaller pylons attached to the X-1 are inserted and secured via transmitter, is it mandatory to use a bomb bay door following the requirements of the pre-tech checklist or could just a single cover for the holes be installed for M1 as per the rules? The statements seem to contradict one another.

Answer: As described in both questions, an opening greater than 0.25 inch diameter to access an internal release mechanism has been created, which is allowed by the rules. Further, since you chose to create this allowed opening, you are now required to cover it with a non-removable bomb bay door or cover for M1 and GM that must be flush with the external fuselage surface as required by the rules. The door must be opened, not removed, to access the internal release mechanism for attaching the X-1 test vehicle during the GM and for M2 and M3 flights. The rules, Q&A and Pre-tech requirements are consistent.