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126 Lancer 850 - Landing Gear Design Modification

1 message

Tandy Walker <rdb435021@icloud.com> Mon, Apr 30, 2018 at 4:42 AM
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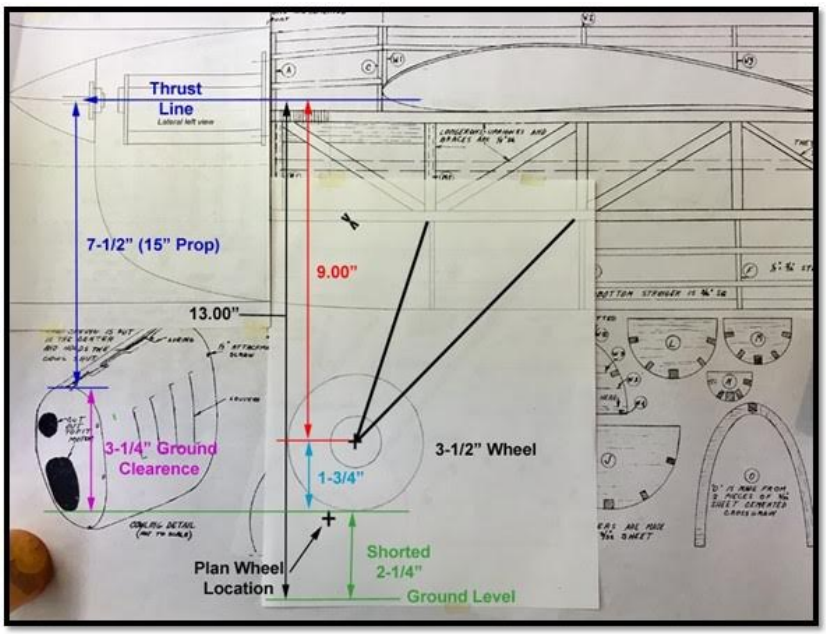
Report No. 126

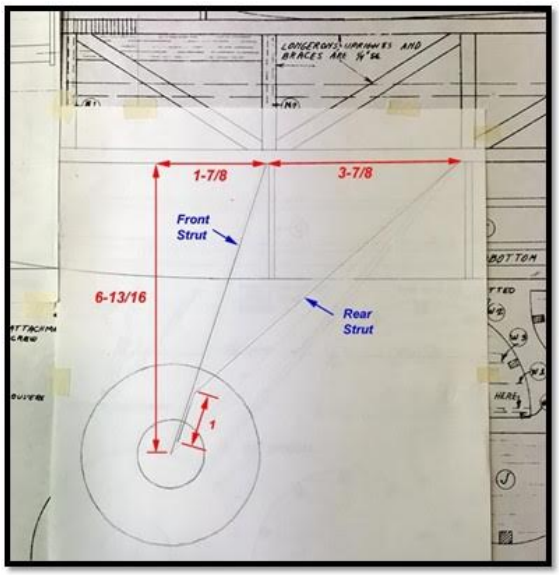
New Cyclone Lancer 850

April 29, 2018

The Lancer 850 plan has the thrust line 13" above the ground level. The landing gear (LG) is much too long for the electric powered Lancer 850 with a 15 X 8 APC prop as shown below. To compromise between functionality and "character of the model", a distance of 9" between the thrust line and the wheel axel was selected with a 3-1/2" wheel diameter as you see below. This provides for a prop ground clearance of 3-1/4". The 2-1/4" shortened LG doesn't have a noticeable effect on the character of the design.

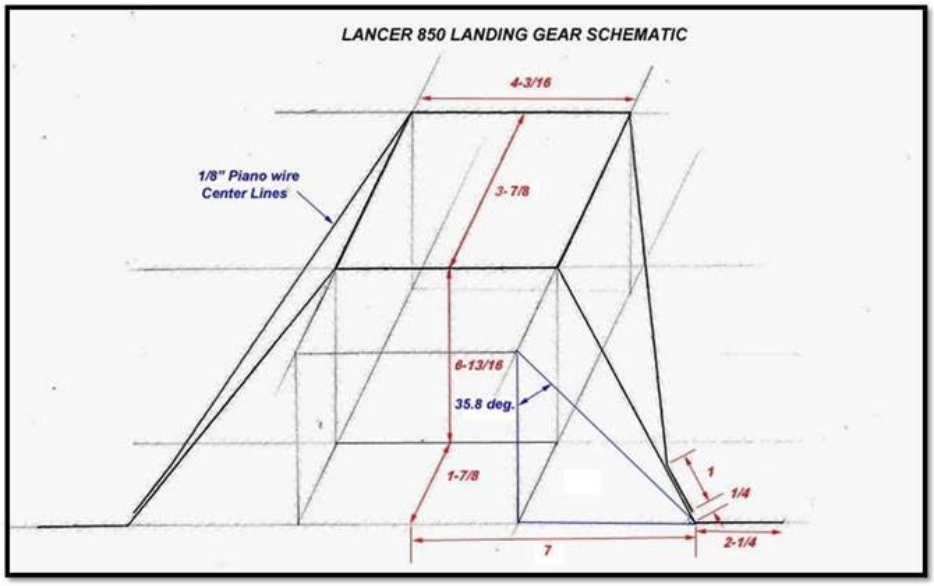


The sketch of the rear strut above was changed to provide a ~ 1" length for soft wire wrapping and soldering to attach the rear strut to the front strut shown below.



The picture below illustrated the wrapped and soldered attachment of the two struts on the Sailplane's LG below.

The LG will be made out of 1/8" piano wire. The best way to show the dimensions of the LG configuration was to sketch up a schematic of the LG's 1/8" wire center lines below to illustrate the LG geometry.



The points to be made about this schematic are as follows:

1. The width to the outside edges of the fuselage's bottom longerons is 4-5/16". Since the outside of the wire strut bends are to coincide with the outside edge of the bottom longeron, 1/16" was removed from each side of the 4-5/16" dimension resulting in the 4-3/16" dimension shown above.

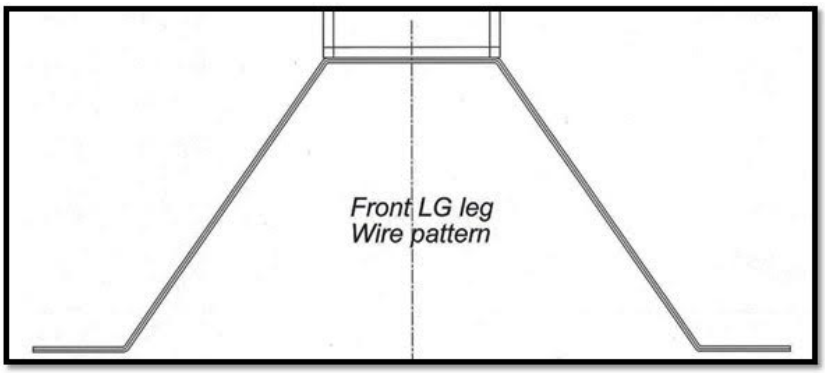
2. The only two critical dimensions are the 4-3/16" and the 3-7/8" center line measurements.

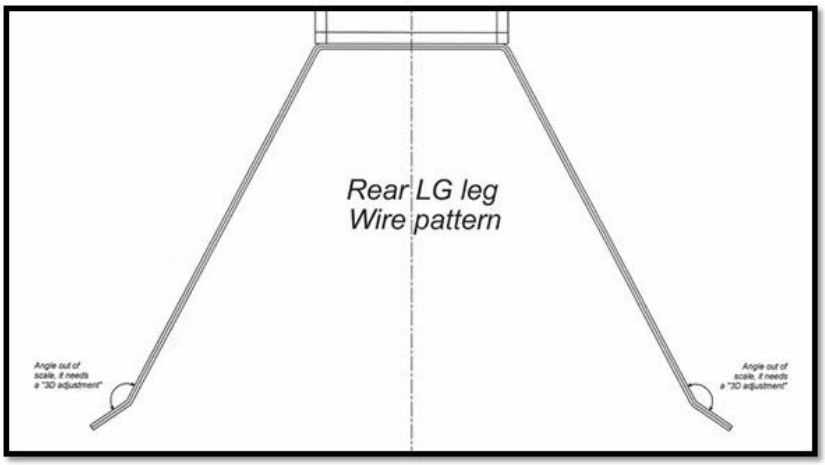
3. Notice that the wrapping and soldering of the two strut end up 1/4" above the axel bend.

4. The wheel axels are arbitrarily 2-1/4" long and will be trimmed off later based on wheel thickness after the selection of the wheels.

5. A narrow wheel track generally make take offs a bit dicey. So the 7" distance shown above (14" total distance between axel bends) was selected, which is a 35.8 degree landing gear side angle also shown above.

Yesterday Alfredo Herbon was provided with this information to create true view patterns for the LG's front and rear struts in his ACAD program so they can be made up out of 1/8" piano wire. Alfredo responded this morning with the two patterns below……Tandy




Rear LG leg
Wire pattern
Angle out of scale, it needs a "3D adjustment"
Angle out of scale, it needs a "3D adjustment"