

APPENDIX "I"

September 19, 1939

The basic principle of the lifting fuselage as developed by V. J. Burnelli since 1919 is now in such an advanced stage that it is extremely important for the Air Corps to experiment further with it with a view to reducing it to military practice.

From studies of the research made by the Burnelli Co., the NACA and the Air Corps, the military adaptability of the basic design has the following advantage over the orthodox streamlined deadweight fuselage.

1. The coefficient of drag is the lowest known for any useful airplane today.
2. The coefficient of lift is greater.
3. The lifting fuselage has distinct advantages for the installation of power plants, bombs, armament and all other accessories over the streamlined fuselage.
4. From wind tunnel tests already conducted by the NACA and NYU the performance is exceptionally good in every phase.
5. The design embodies extremely good factors of safety--considerably higher than the streamlined fuselage type.
6. The design is simple of construction and in the opinion of the Air Corps lends itself to high speed production better than any design and therefore the valuable time element involved in all production contracts can be taken advantage of to its fullest extent.
7. It is apparently a cheaper airplane to build because of the time element referred to in 6 above.

It is to be remembered that Mr. Burnelli was the first to reduce to practice the use of smooth skin surface on airplanes in cooperation with the Material Division under Maj. Carl Green's supervision.

We understand that the present company has no affiliation with the British Company manufacturing under the Burnelli patents. We are informed by the company that the British have built one commercial article under the designs of a ship built by Mr. Burnelli in 1929, and that this design only resembles the designs submitted to the Air Corps in basic principles. We also understand that this airplane was tested at Farnborough by the RFC with excellent results, substantiated by a cable from the British manufacturer, a copy of which we have.

We have also seen articles in various British technical magazines that are extremely flattering to the basic design involved and the report of the test pilot, Mr. Clyde Pangborn, would indicate that the design embodies extremely good flying qualities under all conditions of a very severe flight test required by the RFC.

It is, therefore, the opinion of the Air Corps that this project should be carried through to its fullest experimental possibilities and probably to the ultimate conclusion for the purchase of a prototype.

I am informed by the Burnelli Company that in an effort to cooperate with the Air Corps they have proceeded with the required work and at this moment it is seventy percent completed.

In my opinion it is essential, in the interest of the national defense, that this procurement be authorized.

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COPY of letter prepared by officers of Engineering Division at Washington for signature of General Arnold to Secretary of War.