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1. (U) Ltr. 5 Nov. 1940
Fr: Maj. F.O. Carroll
Chief, Exp. Eng. Sect., WF
To: Douglas Aircraft Co., Inc.
Santa Monica, Cal.
(File: Bomb. Br., Eng. Div.)

Exp. Eng. Sect. (WF) indicated priorities for the preliminary design studies being made by Douglas Aircraft Company, Inc., (hereinafter referred to as Douglas) giving the new and improved model of a light bomber first priority. To aid Douglas in its conception of a new light bomber, Exp. Eng. Sect. outlined the following characteristics of the A-20 series which had failed to meet the latest combat requirements in the war in Europe: no interchangeability of crew, insufficient defensive armament, too small design strength, and too great landing and take-off distances. While the speed of the A-20 was considered excellent for the type and size, Exp. Eng. Sect. believed that greater speed would be required for airplanes to be produced in 1942-43.

Address Reply to Assistant
Chief, Materiel Division
Reference: TAS:aj - 50

Wright Field, Dayton, Ohio
November 5, 1940.

Research and Development.

Douglas Aircraft Company, Inc.,
Santa Monica,
California.

1. Reference is made to a recent verbal request on the part of Mr. A. E. Raymond to Captain D. L. Pratt that the Air Corps indicate officially their desires as to priority of experimental development between several very preliminary design studies being undertaken by the Douglas Company, such as the DC-6, new light bomber, new medium bomber, and new dive bomber. This letter is written to indicate such priorities, with the hope that it will be of some assistance in scheduling the tasks now confronting your preliminary design group.

2. Taking the uncompleted portion of the Research and Development Program F.Y. 1941 into consideration, the following priorities are indicated for the Douglas Company:

- a. New and improved model of a Light Bomber,
- b. New and improved model of a Medium Bomber.

3. This makes no mention of a Dive Bomber or of the DC-6, the reasons being that due to the higher priority of other projects and also to lack of funds, any completely new development of a Dive Bomber to meet Army requirements, rather than purely Navy requirements, will probably be postponed until the next Fiscal Year, and that the Air Corps will rely on purely Navy Developments in this category for the time being. As to the DC-6, it has long been an established policy of the Air Corps to spend Research and Development Funds on Combat Type airplanes only, and to rely on the commercial industry for articles that approximate their needs for Cargo or Transport; therefore, if you undertake such a development, it will have to be as a commercial venture, at least until it becomes a relatively proven article.

4. The latest Air Corps specification for a Medium Bomber was completed ahead of the specification for a Light Bomber. This specification on a Medium Bomber, XC-219, was air mailed to the Air Corps Representative at your plant several days ago. Specification for the Light Bomber is under

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preparation and should be issued within about two weeks. To aid you in your conception of a new Light Bomber, the following characteristics of the A-20 series airplanes, viewed in the light of the present war in Europe, fail to meet the latest requirements:

- a. No interchangeability of crew. This is generally considered the most serious of all.
- b. Insufficient defensive armament. Guns should be in powered turrets for all around defense, .50 calibre guns preferable, if not mandatory, and ammunition supplies should be increased.
- c. The design strength of 6.00 G ultimate which is reduced to 5.25 G when the gross weight is increased by modernization is too little for safety in the maneuvers now contemplated. Shallow glide bombing will be attempted with the A-20B, but there is no possibility of accomplishing a moderate form of dive bomber attack which the Chief of the Air Corps has repeatedly asked for in this type.
- d. Landing and take-off distances are considered too great for close support airplane, which is required to operate from relatively unimproved fields within 100 miles of the ground forces.
- e. Speed now considered excellent for this size and type, but it will probably have to be increased for airplanes to be produced in 1942-43, particularly the speed at intermediate altitude.

It is suggested that your design studies on the Light Bomber include studies of the above tentative requirements until such time as a specification is available.

5. In addition to the above new basic projects, your company will in the near future receive an official request to submit a quotation and proposal to modify one A-20 series airplane to permit utilization of this modified airplane as a night pursuit weapon. The project involves the use of certain radio reflection wave devices to gain visual contact with the

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target under conditions of darkness and of poor visibility. It will probably be a three-place airplane, with one man up in the nose operating the radio devices, then when visual contact is gained operating a turret in the upper forward quartersphere; a man in the rear operating a turret in the upper rear quartersphere; and the pilot flying the airplane. The additional radio devices weight about 250 pounds. It is suggested that you send a representative to the Materiel Division to look at certain design studies now being accomplished, and to discuss this project in more detail, as it may require a completely new fuselage.

For the Assistant Chief of the Materiel Division:

F. O. CARROLL,
Major, Air Corps,
Chief, Experimental
Engineering Section.

cc: A. C. Factory Repr., Douglas Co.
Production Engineering Section
Bombardment Projects
Pursuit Projects