22. (C) Memo Rpt. PES-M-33
9 June 1942
(File: Central Files)

Prod. Eng. Sect. (WF) stated that the configuration of the basic XA-26 was such that several combat versions could be built in a production line with comparatively little difficulty in changing from one version to another. The different versions considered were: (1) medium altitude bomber with bombardier nose, (2) tank destroyer and ground attack version with 75 mm. cannon and either telescopic or radio range finder, (3) tank destroyer and ground attack version mounting four 37 mm. high velocity cannon, (4) ground attack version with a six .50 cal. gun nose and pilot-controlled bombing installation, (5) night fighter version with either AGL or AI equipment, and (6) photographic or reconnaissance version with long range fuel tanks. Prod. Eng. Sect. believed it possible to provide each airplane with three noses which could be interchanged in twenty-four hours. The alternate configurations would be the bomber nose, the 75 mm. cannon installation, and a six .50 cal. gun nose. Engineering on the A-26 airplane was being accomplished at the Douglas plant at El Segundo (hereinafter referred to as Douglas-El Segundo), but the airplane was to be built at Douglas-Santa Monica.

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WAR DEPARTMENT
AIR CORPS, MATERIEL DIVISION

MEMORANDUM REPORT ON

45211

Date June 9, 1942

SUBJECT: A-26 Airplane Production of Various Configurations.

SECTION.... Production Engineering

Contract No. W535-ac-21393
Expenditure Order No. 427-4-28
Purchase Order No.

SERIAL No. PES-M-33

A. PURPOSE: To report on Discussions between Douglas Aircraft Company engineering and administration personnel and Production Engineering Section representatives pertaining to the A-26 type airplane.

B. FACTUAL DATA:

1. Personnel from Production Engineering and Experimental Engineering Sections proceeded to the Douglas Aircraft Company plant at El Segundo, California, on May 18, for inspection of the bombing installation and its functional operation in the prototype Model XA-26 airplane, for witnessing firing tests of the 75 mm cannon installation in the fuselage metal mock-up of the XA-26B airplane, and for discussing various combat versions of the basic airplane with respect to production requirements.

C. COMMENTS:

1. The operation of the bombing equipment and the firing tests of the 75 mm cannon were highly satisfactory. These will be the subject of separate reports prepared by the Experimental Engineering Section.

2. The configuration of the basic airplane is such that various combat versions of it can be built in a production line with comparatively little difficulty in changing from one version to another. The various versions so far considered are:

(a) Medium altitude bomber with bombardier in nose in conventional manner.
(b) Tank destroyer and ground attack version with 75 mm cannon in nose operated by gunner and with bombing installation operated by pilot for low altitude bombing.

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(c) Airplane destroyer version with 75 mm nose cannon with either telescopic or radio rangefinder. The configuration of the XA-26B airplane was arranged for use of a telescopic rangefinder. With this configuration no bombs would be carried due to the location of radio equipment in bomb bay as a result of the rangefinder and operator being located behind the pilot in the normal location of the radio equipment. However, since it now appears that a suitable radio rangefinder mounted in the nose will be developed, it would be practicable to combine the airplane destroyer version and the tank destroyer and ground attack version.
(d) Tank destroyer and ground attack version same as 2(b) except with four 37 mm high velocity cannon in nose instead of single 75 mm cannon.
(e) Ground attack version with a six .50 caliber gun nose and pilot-operation of bombing controls for low altitude bombing. A simplified bombsight could be provided.
(f) Night fighter version with either AGL or AI equipment same as present XA-26A.
(g) Photographic or reconnaissance version with long range fuel tanks.

3. The following general characteristics for the ground attack version were specified by the Director of Bombardment:

(a) Maximum performance at low altitude.
(b) Suitable armor protection from frontal fire.
(c) Alternate provisions for bomb load or long range fuel tanks.
(d) 75 mm nose cannon with either automatic feed or loading by gunner.
(e) An alternate .50 caliber multiple gun nose.
(f) Gun sight suitable for short range fire at targets such as tanks, gun installation and small boats.
(g) Pilot operated bombing controls with simplified bombsight for low altitude bombing only.
(h) Automatic pilot control.

4. Comments on the characteristics specified in paragraph 4 above are as follows:

(a) It is considered that the airplane has maximum performance at low altitude.
(b) Consideration is being given for adequate armor protection from frontal fire for the ground attack version.
(c) The airplane will have alternate provisions for a long range non-sealing fuel tank in the bomb bay of approximately 600 gallon capacity which should give a maximum range of about 3500 miles.

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(d) The 75 mm nose cannon will be hand loaded by the gunner and fired electrically by the pilot. Case ejection is automatic.
(e) It appears that an alternate .50 caliber multiple gun nose can be provided.
(f) Either a type N3A sight or a combination gun sight and torpedo director will be provided. The latter is a new development proposed by the Contractor which is undergoing tests.
(g) Pilot-operation of bombing controls can be provided for the attack versions. It will not be feasible to provide an intervalometer, but a simplified bombsight can be provided to improve the accuracy of low altitude bombing.
(h) APCR is now provided in the basic airplane.

5. It appears entirely feasible to provide three noses for each airplane which could be interchanged in about 24 hours time. These noses would be: (a) the bomber nose, (b) the 75 mm cannon nose, and (c) a six .50 caliber gun nose. Basic provisions would be made to install a simplified bombing control for the pilot when either of the fighter noses were installed. An intervalometer would not be provided, but bombs would be released by a thumb operated switch on the control wheel. Consideration will be given for a simplified bombsight for low altitude bombing to aid the pilot in dropping bombs by estimation.

6. It appears possible to obtain the 75 mm nose gun installation as original equipment in lieu of the bomber nose for a large percentage of the 500 A-26 airplanes now on contract provided this change is authorized within the very near future.

7. It appears possible to obtain three alternate noses for the 500 airplanes with one nose delivered concurrently with the airplanes and the other two noses either delivered concurrently with the airplanes or within a reasonable time thereafter.

8. The Contractor will submit tentative proposals for the 75 mm nose to be supplied on as many of the 500 airplanes as possible without delay in delivery, and for the three alternate noses with the bomber nose to be delivered with the airplanes and the two fighter noses to be delivered either with the airplanes or as soon thereafter as possible. Basic provisions in the airplanes for all three noses can be provided. These will consist of certain structural reinforcements and equipment rearrangement to accommodate the 75 mm and .50 caliber noses with provisions for transfer of bombing control from the bombardier to the pilot.

9. The 75 mm noses for the first 500 airplanes or less will not have provisions for the installation of the radio rangefinder since it is not expected that design information for this equipment can be released in time. However, radio rangefinder equipment can be provided in the 75 mm noses for airplanes on subsequent contracts if this equipment is successfully developed, which now appears likely.

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C. CONCLUSIONS:

1. It is concluded that if the performance of the A-26 airplane is as good as expected, the 75 mm nose tank destroyer version and the .50 caliber multiple gun nose attack version will make very useful weapons and their procurement should be expedited all possible.

2. The general design of the airplane appears to be very efficient and it is apparent that considerable thought has been given to detail designs suitable for mass production.

3. The arrangement of the airplane is such that many configurations can be developed from the basic airplane.

4. The engineering on this airplane is being accomplished at the El Segundo plant of the Douglas Company although the airplane will be built at the Santa Monica plant. The El Segundo plant is now very busy with certain Navy projects and is considered basically a Navy plant. Therefore if the need for A-26 airplanes, particularly the tank destroyer version, is deemed sufficiently urgent to warrant an increase in engineering schedules over those now in effect, it may be necessary to require the Contractor to transfer engineering personnel from Navy work for a period of time in order to accomplish the desired speed-up in engineering schedules. The Contractor lacks sufficient skilled engineering personnel to work all projects now in hand in the most effective manner at the same time, but it has been ascertained that the Contractor could expedite the A-26 engineering and production schedule appreciably if directed to do so by higher authority.

D. RECOMMENDATIONS:

1. The Contractor should be advised of the nose configurations required for the 500 airplanes now on contract at the earliest possible date.

2. Orders for additional A-26 airplanes of the various versions desired should be placed with the Contractor as soon as it shall have been established by flight tests on the prototype XA-26 that the basic airplane has satisfactory performance and will make a useful weapon.

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C.G., Mat.Com., Prod.Engr.Sec.
C.G., Mat.Com., Exp.Engr.Sec.
C.G., Mat.Com., Executive
Director Bombardment

Director Military Requirement
Exp.Engr.Sec., Airc. Proj.
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