REPORT OF STATIC TEST OF GAX-1 CHASSIS

(AIRPLANE SECTION, S. & A. BRANCH)

Prepared by Engineering Division, Air Service
McCook Field, November 3, 1920

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REPORT OF STATIC TEST OF CA-1 CHASSIS
REPORT OF STATIC TEST OF GAX-1 CHASSIS.

OBJECT.
The object of this test was to determine the strength of the GAX-1 chassis.

DATE AND PLACE OF TEST.
The test was made August 19, 1920, at McCook field, Dayton, Ohio.

GENERAL DESCRIPTION.
The chassis tested was part of the GAX-1 airplane constructed at McCook field for static test. The airplane is a three-seater, twin-engined, armored triplane for ground attack (type VI).

The chassis consists of a laminated spruce V strut under each nacelle, braced by a steel tube running from the axle to the center of the bottom of the armored body. Each unit carries two wheels. Only one unit was tested.

Details of the construction may be obtained from the chassis assembly drawing No. GAX-18250.

The weight of the two units complete is 358 pounds and the total weight of the airplane upon which the loading is based is 9,820 pounds.

PROCEDURE.
The arrangement for the test is shown diagrammatically in the sketch below.

The V strut was inclined so as to represent the conditions in landing in which the resultant force on the wheel is in a line passing through the center of gravity of the airplane.

RESULTS.
The log of the test was as follows:

<table>
<thead>
<tr>
<th>Load factor</th>
<th>Total load</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.0</td>
<td>14,730</td>
<td>O. K.</td>
</tr>
<tr>
<td>4.0</td>
<td>19,540</td>
<td>O. K.</td>
</tr>
<tr>
<td>4.5</td>
<td>22,140</td>
<td>Slight bow in diagonal tube.</td>
</tr>
<tr>
<td>5.0</td>
<td>24,550</td>
<td>Both struts failed.</td>
</tr>
</tbody>
</table>

The shock absorber was not quite fully extended when the struts failed. The axle and diagonal tube showed no permanent set.

DISCUSSION.
The required strength for shock absorber, axle, and struts for type VI is as follows:

<table>
<thead>
<tr>
<th>Axle.</th>
<th>Shock absorber</th>
<th>Struts.</th>
</tr>
</thead>
<tbody>
<tr>
<td>L. F. 4.5</td>
<td>L. F. 4.5</td>
<td>L. F. 5.0</td>
</tr>
</tbody>
</table>

Comparison of results with these requirements shows that the axle and struts are satisfactory. The shock absorber is too stiff, however, and should be made more flexible, preferably by decreasing the initial tension with which the chord is wound on the spindles. With the type of shock absorber unit used this tension can be very readily controlled.

CONCLUSION.
With the decrease in the tension in the shock absorber the chassis will be entirely satisfactory from the standpoint of strength.