

DEPARTMENT OF COMMERCE
CIVIL AERONAUTICS ADMINISTRATION
WASHINGTON 25, D.C.

April 23, 1945

Regional Administrators, All Regions
Attention: -270

Subject: Conversion of Piper TG-8 (Army TG-8) Taylorcraft ST-100
(Army TG-6 and Aeronca G-3 (Army TG-5) Gliders to
Powered Aircraft.

Reference: (a) Memorandum dated November 2, 1944 from Aircraft Engineering
Division to all Regions.

(b) Memorandum dated February 16, 1945 from Aircraft Engineering
Division to all Regions.

Subsequent to the issuance of the reference memoranda, the Aircraft Engineering Division has had considerable correspondence with the Piper, Taylorcraft and Aeronca Companies, concerning the best procedure for handling the certification of the subject model glider-airplane conversions. This memorandum therefore summarizes the results of such correspondence and will supersede and clarify those portions of the reference memoranda related to the fabrication of an airplane from the glider parts. The procedure outlined in those memoranda pertaining to the use of glider parts on certificated aircraft and the certification of the gliders thus remain in effect.

INSTRUCTIONS FOR CONVERSION OF PIPER TG-8 (ARMY TG-8) GLIDERS
TO PIPER J-3 SERIES AIRCRAFT

1. The Piper Aircraft Corporation has advised the Civil Aeronautics Administration that they are willing to release photostatic copies of their drawings to aid individuals in performing the subject conversion with the proviso that each drawing is to be marked:

"This photostatic reproduction of a Piper drawing is issued only for the purpose of converting Piper TG-8 gliders to J-3 series aircraft, and must be surrendered to a representative of the Civil Aeronautics Administration at the time of inspection of the conversion

2. The following parts of the Army TG-8 gliders are identical to the corresponding J-3 series parts structurally and need not be reworked:

- a. Tail groups
- b. Lift and jury struts
- c. Wheels and tires

The Army TG-8 wings are identical to J-3 series wings except for spoilers. These spoilers and spoiler controls must be removed and the spoiler opening covered with fabric prior to certification. The fuselage structure of the Army TG-8 is identical to the J-3 series fuselage aft of the front landing gear fittings. Forward of this point it must be completely rebuilt. The Piper drawings supplying the information necessary for rebuilding are as follows:

20932, D	Liner Installation - Fuselage
20992, F	Bearing Installation - Torque Tube Lower
21121, D	Tubes - Fuselage Liner
21272, O	Fitting Installation - Landing Gear Front
21346, AH	Frame Assembly - Fuselage
21402, J	Member Installation - Fuselage Removable
21966, AL	Fuselage Frame and Superstructure Assembly
22102, H	Tubes - Fuselage
23962, E	Fitting Installation - Landing Gear and Lift Strut
23985, C	Fittings Installation - Fuselage Wing Hinge
24006, E	Frame Assembly- Fuselage
80132, W	Tubes - Sheet I
82341, H	Bushing Assemblies

Photostatic reproductions of the above drawings may be obtained by writing to the Commerce Photo Printing Corporation, No. 1 Wall Street, New York City, Attention: Mr. John Werner. In writing to this company, a list of the drawings desired should be included. Necessary financial arrangements should be made directly with the Commerce Photo Printing Corporation and not through the Civil Aeronautics Administration. A copy of such letter should be forwarded to the Aircraft Engineering Branch Office, Civil Aeronautics Administration, 385 Madison Avenue, New York 17, N.Y.

3. Attached is a list of parts necessary for the conversion, which was prepared by the Piper Aircraft Corporation. It may be possible to purchase these parts from an authorized dealer of the Piper Aircraft Corporation.
4. To obtain approval of a converted glider, the local Civil Aeronautics Administration Inspector should be contacted prior to the actual conversion so that he may conduct an inspection for workmanship and conformity to the applicable drawings.

Repair and Alteration Form 337 (in triplicate) (forward one copy to 1-290 for reference and file) should be submitted to the Inspector for his approval; final approval being contingent on:

- a. An inspection of the altered structure for workmanship, materials and conformity before covering, metal priming or final finish is applied. All woodwork may be varnished.
- b. A final inspection of the complete aircraft.
- c. A check of a flight characteristics.

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Inasmuch as any conversion made in accordance with the above instructions will be in conformity with approved data, the pertinent Repair and Alteration Forms need not be submitted to the Aircraft Engineering Branch (1-290) for approval. In the event that the finished product is not in conformity with the Piper data, but such differences are in accord with the instructions of CAM 18, approval may also be granted without recourse to Aircraft Engineering.

5. The glider serial number should be used as the airplane serial number.
6. Depending on the engine installation, the converted gliders are eligible for approval under any one of the following Aircraft Specifications:

A-691 (J3C)

A-692 (J3F)

A-698 (J3L)

7. The log book and Form 337 should contain a statement in conformance with the following example: "Converted to Piper Model J3C under Approval No. _____ from Army TG-8 glider by John Doe, Chicago, Illinois, April 25, 1945."

This information should also appear under "Remarks" on Page 4 of Form 309 for the airplane.

8. A nameplate with the information of the example in item 7 should be installed in the airplane. In addition, it should contain the glider serial number. The glider nameplate need not be removed from the airplane.
9. The airplane should be weighed and the necessary weight and balance computations accomplished.

II. INSTRUCTIONS FOR CONVERSION OF TAYLORCRAFT ST-100 (ARMY TG-6) GLIDERS TO TAYLORCRAFT D SERIES AIRPLANES TO BE KNOWN AS THE MODEL TG-6 CONVERSION

When a glider is converted to an airplane by utilizing the available glider parts and all other parts are manufactured by the converter or purchased from a source other than the original manufacturer, the following procedure should be followed:

1. Submit Form 337 in triplicate (forward one copy to 1-290 for reference and file) (including any necessary additional sheets) to local Civil Aeronautics Administration Inspector outlining all changes to be made to original glider to make conversion. Inspector will forward for engineering approval only those items not identical to D series aircraft being constructed. Identity must be proven to Inspector's satisfaction by comparison or affidavit for purchased parts. Repairs made in accordance with CAM 18 will be considered acceptable without engineering approval.
2. If the parts manufactured are not equivalent to those used in the original model aircraft, approval should be handled the same as for a new airplane.
3. If deemed necessary by the local inspector, flight tests should be conducted in accordance with CAR 18.52.
4. The glider serial number should be used as the airplane serial number.
5. This type of conversion will not be included under the airplane manufacturer's Type Certificate. A separate approval number will be issued in the name of the converter.
6. The log book and Form 337 should contain a statement in conformance with the following example: "Converted to Taylorcraft Model DC-65 under approval No. _____ from Army TG-6 glider by John Doe, Chicago, Illinois, April 25, 1945." This information should also appear under "Remarks" on Page 4 of Form 309 for the airplane.
7. A nameplate with the information of the example in item 6 should be installed. In addition, it should contain the glider serial number. The glider nameplate need not be removed from the airplane.
8. The airplane should be weighed and the necessary weight and balance computation accomplished.

9. For reference purposes the converted aircraft shall be known as the "Model TG-6 Conversion".

III. INSTRUCTIONS FOR CERTIFICATING AERONCA G-3 (ARMY TG-5) GLIDERS

In order to acquaint interested individuals with the certificating procedure for these airplanes, we are releasing the following information;

1. Since the Aeronca Aircraft Corporation has not authorized the use of their engineering data to aid in the approval of Army TG-5 gliders converted to Aeronca O-58B series airplanes, any organization or individual wishing to obtain approval for such a conversion will be required to submit complete drawings, stress analysis, etc. in conformance with CAR 04 which covers the approval of the entire airplane.

In view of the fact that the preparation of the data required above will involve extensive effort, and since the actual conversion itself involves such extensive changes, the conversion of Army TG-5 gliders will probably prove to be neither practically or economically feasible.

2. On the basis of the above, it is suggested that no attempt be made to convert Army TG-5 gliders to airplanes. If desired, Army TG-5 gliders may be commercially certificated as gliders under the provisions of Glider Specification G-9.

The above information will be incorporated in a Safety Regulation Release. However, since the printing and distribution of the Release will involve some delay, we are taking this opportunity to provide you with advance notice of the above to expedite certification of these aircraft.

Your cooperation in arranging to duplicate this information and distribute it to all interested personnel in your region will be appreciated.

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Chief, Aircraft Engineering Division

Attachment