Federal Aviation Agency

Supplemental Type Certificate

Number SA270WE

This certificate, issued to Frenco Company
1849 Airport Drive
Bakersfield, California 93308

certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of Part 8 *of the* ~~Civil Aeronautics~~ Civil Air *Regulations.*

Original Product — Type Certificate Number: 1A16
Make: GRUMMAN
Model: G-164 and G-164A

Description of Type Design Change:

Installation of Pratt and Whitney R-1340 engine and Hamilton Standard 12D40/6101A-12 propeller in accordance with Frenco Company Installation Instructions No. 2000.

Supplemental Type Certificate Data Sheet No. SA270WE is part of this Supplemental Type Certificate.

Limitations and Conditions:

This approval should not be extended to other specific airplanes of this model on which other previously approved modifications are incorporated unless it is determined that the interrelationship between this change and any of those other previously approved modifications will introduce no adverse effect upon the airworthiness of that airplane.

This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked, or a termination date is otherwise established by the Administrator of the Federal Aviation Agency.

Date of application: February 9, 1962 *Date reissued:*

Date of issuance: November 30, 1962 *Date amended:* February 27, 1964 and JUL 1 1 1968

By direction of the Administrator

Original signed by RICHARD F. BACHE *(Signature)* Original signed by RICHARD F. BACHE

Chief, Aircraft Engineering Division
(Title)

Any alteration of this certificate is punishable by a fine of not exceeding $1,000, or imprisonment not exceeding 3 years, or both.

This certificate may be transferred in accordance with FAR 21.47.

FAA Form 8110-2 (1-66) 0052-657-6000

FEDERAL AVIATION ADMINISTRATION

SUPPLEMENTAL TYPE CERTIFICATE DATA SHEET

SA270WE Approved JUL 11 1968

FOR

INSTALLATION OF PRATT AND WHITNEY R-1340 ENGINE
AND HAMILTON STANDARD 12D40/6101A-12 PROPELLER

ON

GRUMMAN G-164 AND G-164A AIRPLANES

This Data Sheet, which is part of Supplemental Type Certificate No. SA270WE, prescribes conditions and limitations under which the product for which the Supplemental Type Certificate was issued meets the airworthiness requirements of the Civil Air Regulations.

Supplemental Type Certificate Holder: Frenco Company
1849 Airport Drive
Bakersfield, California 93308

The Conditions and Limitations prescribed by FAA Type Certificate Data Sheet No. 1A16 remain the same except as superseded by the following:

ENGINE: Pratt and Whitney R-1340-AN-1, -36, -47, -49, -49M1 or -51

ENGINE LIMITS: Take-off only (1 minute):
2250 RPM @ 36.0 in. Hg., @ Sea Level (600 H.P.)

For All Operations:
2200 RPM @ 34.0 in. Hg. @ Sea Level (550 H.P.)
2200 RPM @ 32.5 in. Hg. 5000 Ft. (550 H.P.)
Straight Line Variation Between Points.

FUEL: 80/87 Minimum Octane Aviation Gasoline

OIL CAPACITY: 8 Gallons at Station (+ 94)

PROPELLER: Hamilton Standard 12D40/6101A-12 175 lb. (+ 55.1)
Hub Model: 12D40
Blade Model: 6101A-12
Diameter: Maximum: 108 inches
Minimum: 108 inches
Pitch Settings at the 42-inch Station:
High: $18\frac{1}{2}°$
Low: $11°$

POWERPLANT INSTRUMENT MARKINGS: Tachometer: 2250 RPM (Radial Red Line)
Manifold Pressure Gage: 36.0 in. Hg. (Radial Red Line)

POWERPLANT INSTRUMENT MARKINGS: (Continued)

Cylinder Head Temperature Gage: 500°F (Red Line)
Oil Temperature Gage: 200°F (Radial Red Line)
Oil Pressure Gage: Minimum: 70 psi (Red Line)
Maximum: 90 psi (Red Line)
Green Arc between 70 and 90 psi.
Fuel Pressure: Minimum: 3 psi
Maximum: 6 psi
Green Arc between 3 and 6 psi.

MAXIMUM WEIGHT:

Model G-164 - 3750 Lbs.
Model G-164A - 4500 Lbs.

SERIAL NUMBERS ELIGIBLE:

Model G-164: Ser. No. 1 thru 400
Model G-164A: Ser. No. 401 and up

EQUIPMENT:

In addition to the equipment applicable and required by Type Certificate Data Sheet No. 1A16, the following equipment must be installed:

(1) Cylinder head temperature gage.
(2) Manifold Pressure Gage.

NOTE 1. Current Weight and Balance Report including list of equipment included in the certificated empty weight, and loading instructions when necessary, must be provided.

The certificated empty weight and corresponding center of gravity locations must include unusable residual fluids of:

System oil	15 lbs. (+ 90)
Unusable Fuel	1.8 lb. (+ 123.0)

NOTE 2. (a) The following placard must be installed in front of and in clear view of the pilot:

"ENGINE OPERATING LIMITS

Take-off only (1 minute) 2250 RPM @ 36 in. Hg. at Sea Level (600 H.P.)

For All Operations
Sea Level - 2200 RPM @ 34.0 in. Hg. (550 H.P.)
5000 Ft. - 2200 RPM @ 32.5 in. Hg. (550 H.P.)"

(b) Delete Placards (a)(4), (a)(5), (a)(6), (a)(8) and (a)(9) which are not applicable to this installation. (These placards are specified on Type Certificate Data Sheet No. 1A16.)

NOTE 3. For Aircraft operating with approved FAA Flight Manual dated April 17, 1959, Revised July 29, 1960, March 7, 1961 and September 6, 1961 (as noted under Note 5 of Type Certificate Data Sheet 1A16) Frenco Company. FAA Approved Airplane Flight Manual Supplement dated June 17, 1968.

-*END*-