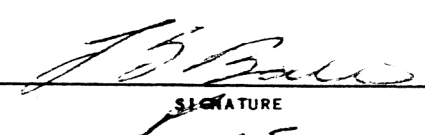
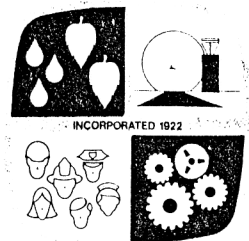


FORM ACA-2417 (7-56) U.S. DEPARTMENT OF COMMERCE CIVIL AERONAUTICS ADMINISTRATION		Form Approved, Budget Bureau No. 41-21823	
SUPPLEMENTAL TYPE CERTIFICATE		INSTRUCTIONS - Submit in triplicate to local CAA Flight Operations and Airworthiness Inspector. Copy will be returned to applicant upon issuance.	
1. NAME AND ADDRESS OF APPLICANT Bates Aircraft Inc. Hawthorne Municipal Airport Hawthorne, California		2. SUPPLEMENTAL TYPE CERTIFICATE APPLIED FOR: ☒ AIRCRAFT ☐ ENGINE ☐ PROPELLER ORIGINAL MODEL DESIGNATION PIPER PA-30 NEW MODEL DESIGNATION (If desired) None	
3. DESCRIPTION OF CHANGE Modification to include 3 pairs of seat belts (on rear seat) to accommodate three passengers on the rear seat in accordance with Bates Aircraft Inc. Report No. 10 (Pages 2-5, inclusive). <u>LIMITATION OF APPLICABILITY.</u> 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 these other previously approved modifications will introduce no adverse effect upon the airworthiness of that airplane. FAA Approved Airplane Flight Manual Supplement dated August 17, 1964 required with this installation. NOTE: A loading schedule is required for each aircraft which is modified in accordance with this STC. CERTIFICATION BASIS: CAR 3.			
4a. WILL DATA BE AVAILABLE FOR SALE OR RELEASE TO OTHER PERSONS?		☒ YES ☐ NO	
4b. WILL PARTS BE MANUFACTURED FOR SALE (Ref. CAR 1.55)?		☒ YES ☐ NO	
5. SIGNATURE AND TITLE OF APPLICANT <u>July 7, 1964</u> DATE OF APPLICATION  _____ SIGNATURE <u>L. C. S.</u> TITLE			
6. TO BE COMPLETED BY CAA			
NATURE AND LOCATION OF DATA Bates Aviation Inc. Report No. 10, revised May 8, 1961. Form ACA-1600, (LA-129), dated October 17, 1959. Supplement No. 1 to Bates Aircraft Inc. Report No. 10 Form FAA-1600 dated July 6, 1964 (LA-129). Data are on file in the Aircraft Engineering Division, FAA, Western Region, Los Angeles, California			
ORIGINAL TYPE CERTIFICATE NO. A1EA		CAA APPROVAL Charles E. Hawks, _____ SIGNATURE Chief, Aircraft Engineering Division _____ TITLE signed by L. Lippis	
SUPPLEMENTAL TYPE CERTIFICATE NO. SA767WE			
DATE OF APPROVAL August 17, 1964			

CITY OF HAWTHORNE



4455 West 126th Street • Hawthorne, California 90250

AIRPORT DEPARTMENT

(213) 970-7215

"CITY OF GOOD NEIGHBORS"

March 30, 1990

Hans Neubert
6057 Prado Street
Anaheim, California 92807

Dear Mr. Neubert;

This letter is in response to your request for the status of Bates Aviation. Bates Aviation was purchased by Hawthorne Aviation Services Inc. in 1981. Hawthorne Aviation subsequently went out of business in 1988 and declared bankruptcy, their whereabouts are unknown at this time.

If you have any questions or desire more information, please contact me at the Airport Office.

Sincerely,


Robert Trimborn
Airport Manager

RT/lc

HAWTHORNE



CALIFORNIA

"CITY OF GOOD NEIGHBORS"

ROBERT D. TRIMBORN
Airport Manager C.A.E.

**HAWTHORNE
MUNICIPAL AIRPORT**
12101 SOUTH CRENSHAW BLVD.
HAWTHORNE, CALIF. 90250
(213) 970-7215

H.D. NEUBERT & ASSOCIATES, INC.

ADVANCED COMPOSITE APPLICATIONS

MATERIALS, DESIGN & STRUCTURAL ANALYSIS,
PROTOTYPE FABRICATION DEVELOPMENT,
COMPOSITE ANALYSIS SOFTWARE

24 March 1997

Federal Aviation Administration
Northwest Mountain Region, LA ACO
ATTN: Michael A. Murphy
Tech. & Admin. Support Staff, ANM-103L
3960 Paramount Boulevard
Lakewood, CA 90712-4137

Dear Mr. Murphy,

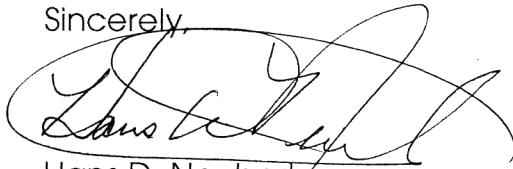
During 1990, I had a personal interest in STC SA767WE as a means of providing documentation in support of race rules for the CAFE 400 efficiency races held yearly in Santa Rosa. A copy of Form ACA-2417, obtained from Jim Wang during 1990, is attached. This STC is held by Bates Aircraft Inc., which is no longer in business. A letter from the Hawthorne Airport Manager, attesting that the assets of Bates Aviation were purchased by Hawthorne Aviation Services, which subsequently declared bankruptcy, is attached for your information.

This particular STC is of interest to International Comanche Society members since it permits the addition of a third seat belt in the rear bench seat on certain models of Piper PA-24 and Piper PA-30 aircraft. The intent of this STC is to permit owners to carry small adults and grandchildren.

In order to make this STC available to ICS members, the approved supporting data is required. Per the provisions of the Freedom of Information Act, I hereby request that the FAA search its records and provide the supporting data to me.

Please call me at (714) 701-7330 should there be any questions.

Sincerely,



Hans D. Neubert
President
FAA DER NM-536

cc: Maurice Cook, Airframe
2 attch.

By _____
Job No. _____

BATES AIRCRAFT STC SA767WE
CONFORMITY REVALIDATION

Sht 1 of 1
Date 3/12/97

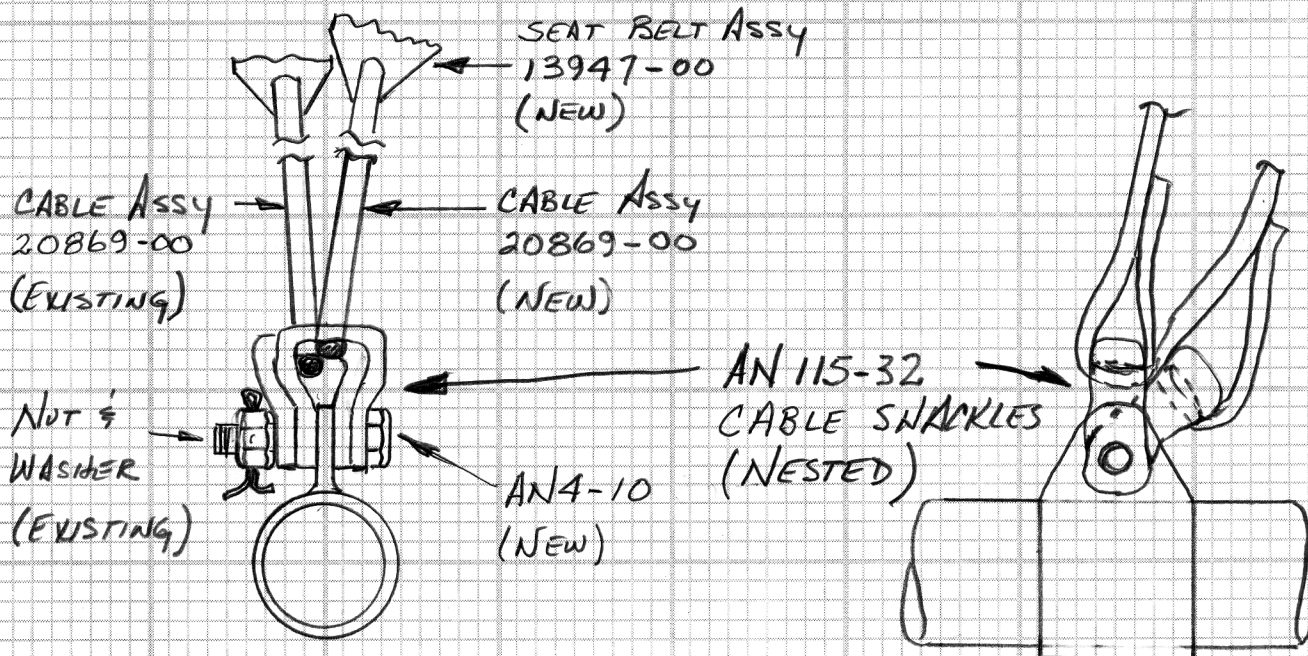
L.D. NEUBERT & ASSOC, INC REPORT 97123

I. PURPOSE

THIS REPORT RECREATES THE ANALYSIS AND CONFORMITY DATA FOR STC SA767WE TO PERMIT ITS USE ON APPLICABLE PIPER AIRCRAFT MODELS PA-24 AND PA-30.

THE ORIGINAL STC HOLDER, BATES AIRCRAFT, HAWTHORNE, CA HAS NOT BEEN IN BUSINESS FOR OVER 15 YEARS. THIS ALTERATION IS APPLICABLE TO S/N'S HAVING REAR BENCH SEAT.

II. INSTALLATION



REAR VIEW

SIDE VIEW

III. SEE ATTACHMENT A FOR SUBST'N ANALYSIS

ATTACHMENT A

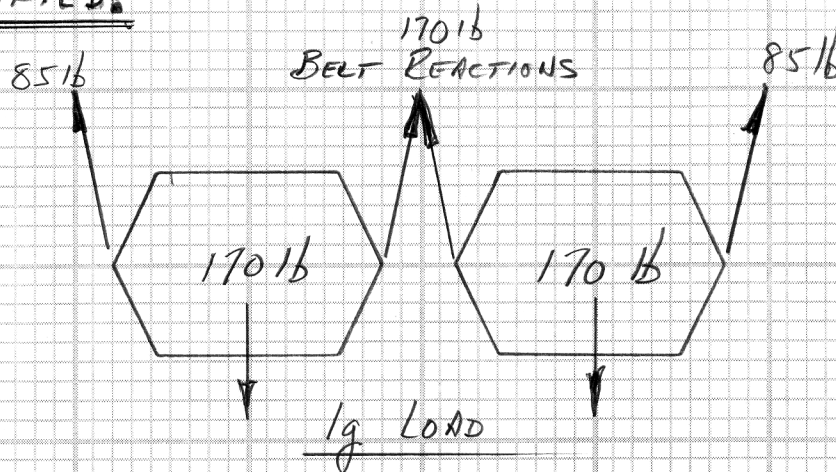
By LBN
Job No. _____

REAR SEAT BELT ANALYSIS

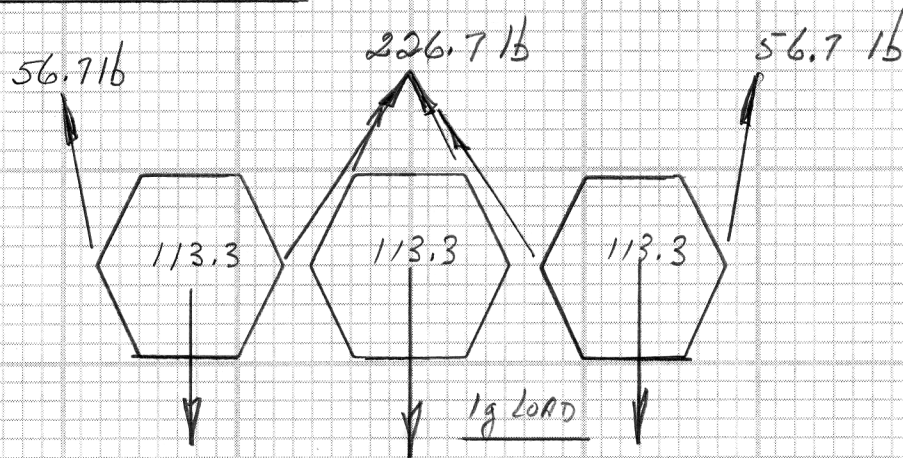
Sht 1 of 7
Date 3/12/97

AS CERTIFIED:

CAR3



STC SA767WE



FOR NO CHANGE IN C.G. ALLOCATION —

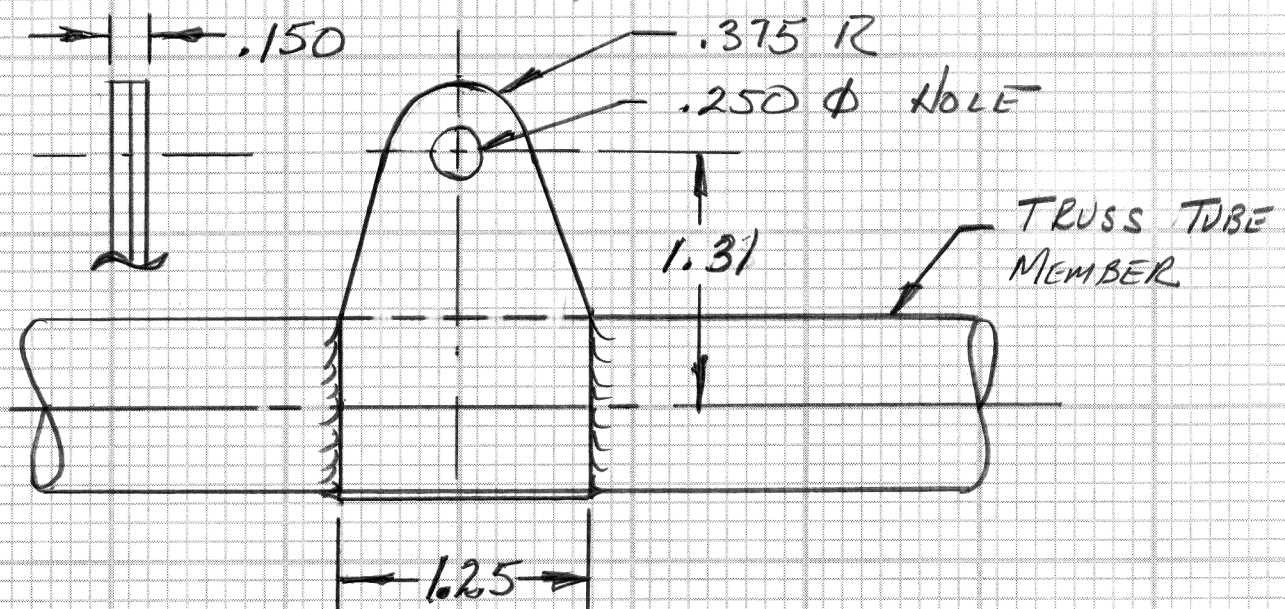
$$3 \text{ FAX} \times \text{Wt} = 2 \times 170 \text{ lb}$$

$$\text{Wt} = 113.3 \text{ lb}$$

$$\begin{aligned} \text{LOAD AT REAR TRUSS FITTING} &= \frac{1}{2} 113.3 + 113.3 + \frac{1}{2} 113.3 \\ &= 226.7 \text{ lb @ 1g} \end{aligned}$$



TRUSS REAR FITTING DETAIL



REF: "ANALYSIS OF FLIGHT VEHICLE STRUCTURES," BROWN, SECT D
BOLT & MATERIAL PROPERTIES - MIL-HDBK-5E

1. BOLT IN SHEAR

$$\text{LOAD} = 226.7 \times 9g = 2040 \text{ lb ULT.}$$

$$\text{ALLOWABLE SHEAR LOAD (SINGLE)} = 3680 \text{ lb}$$

MIL-HDBK-5E

$$M.S. = \frac{3680}{2040} - 1 = .80$$

2. LUG TENSION

$$\begin{aligned} P_{ULT} (\text{ALLOWABLE}) &= F_{tu} (2R - D)t = 90,000 (.75 - .25) .150 \\ &= 6750 \text{ lb} \end{aligned}$$

$$\text{FITTING FACTOR} = 1.33 \quad (Re: 23.625)$$

$$\text{ALLOWABLE LOAD} = \frac{6750}{1.33} = 5075 \text{ lb}$$

$$M.S. = \frac{5075}{2040} - 1 = \underline{1.48}$$

3. LUG SHEAR OUT

$$\begin{aligned} P_{ULT} (\text{ALLOWABLE}) &= F_{su} 2t \left(l - \frac{D}{2} \right) \\ &= 57,000 (2)(.150) \left(.375 - \frac{.25}{2} \right) \\ &= 4275 \text{ lb} \end{aligned}$$

$$\text{FITTING FACTOR} = 1.33 \quad (Re: 23.625)$$

$$\text{ALLOWABLE LOAD} = \frac{4275}{1.33} = 3214 \text{ lb}$$

$$M.S. = \frac{3214}{2040} - 1 = \underline{.57}$$

4. LUG BEARING

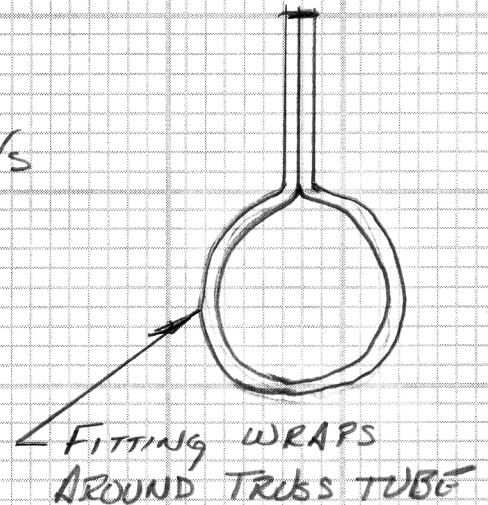
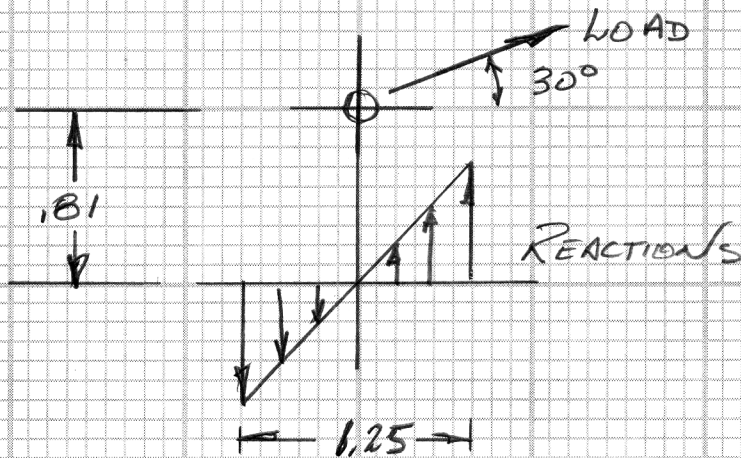
$$\begin{aligned} P_{ULT} (\text{ALLOWABLE}) &= F_{BR} D t \\ e/D &= .150 \\ &= 180,000 (.25)(.15) \\ &= 6750 \text{ lb} \end{aligned}$$

$$\text{SAFETY FACTOR} = 1.50$$

$$P_{ULT} (\text{ALLOWABLE}) = \frac{6750}{1.50} = 4500 \text{ lb}$$

$$M.S. = \frac{4500}{2040} - 1 = 1.20$$

5. LUG TENSION & BENDING



VERTICAL COMPONENT

$$P_V = 2040 \sin 30 = 1020 \text{ lb}$$

HORIZONTAL COMPONENT

$$P_H = 2040 \cos 30 = 1767 \text{ lb}$$

TENSION DUE TO VERTICAL LOAD

$$\frac{P}{A} = \frac{1020}{1.25(.150)} = \underline{5440 \text{ PSI}}$$

SHEAR DUE TO HORIZONTAL LOAD

$$\tau = \frac{V}{ht} = \frac{1767}{1.25(.15)} = 9425 \text{ PSI}$$

$$\text{SHEAR PEAKING FACTOR} = 2.0$$

$$\tau_{\text{MAX}} = 9425(2.0) = \underline{18,848 \text{ PSI}}$$

BENDING DUE TO HORIZONTAL LOAD

$$\sigma = \frac{1767(.81)}{\frac{.15(1.25)^3}{12}} \left(\frac{1.25}{2} \right) = \underline{36,640 \text{ PSI}}$$

MAXIMUM PRINCIPAL STRESS

$$\begin{aligned} \sigma_{\text{MAX}} &= \frac{(5440 + 36,640)}{2} + \sqrt{\left(\frac{36,640 - 5440}{2} \right)^2 + 18,848^2} \\ &= \underline{45,506 \text{ PSI}} \end{aligned}$$

$$M.S. = \frac{90,000}{45,506} - 1 = \underline{.97}$$

6. LATERAL BUCKLING OF FITTING

$$P_{CR} = \frac{4.01 \sqrt{CEIL}}{L^2}$$

REF: "ENGINEERING DESIGN", FAUPEL, JOHN WILEY, 1ST ED, P. 530

$$C = \text{CONSTANT OF INTEGRATION} = \frac{M}{F} = \frac{1767(.81)}{2040}$$

$$E = 27.5 \times 10^6 \text{ PSI}$$

$$I = \frac{bh^3}{12} = \frac{.15(1.25)^3}{12} = .024$$

$$L = .81$$

$$P_{CR} = \frac{4.01 \sqrt{.701(27.5 \times 10^6)(.024)(.81)}}{.81^2}$$
$$= 3775 \text{ lb}$$

$$M.S. = \frac{3775}{2040} - 1 = .85$$

By _____
Job No. _____

Sht 7 of 7
Date _____

SUMMARY OF ANALYSIS

<u>CONDITION</u>	<u>M.S.</u>
BOLT SHEAR	.80
LUG TENSION	1.48
LUG SHEAR OUT	.57
LUG BEARING	1.20
TENSION, BENDING, SHEAR MAX STRESS	.97
LATERAL BUCKLING	.85

CONFIGURATION SATISFIES ALL LOADS & CONDITIONS

HANS NEUBERT

DER NM-536

(Now DERT-605393-NM)

NOTE: THIS ALTERATION IS APPLICABLE TO
PA-24 & PA30 AIRPLANE MODELS
HAVING REAR SEAT BENCH
INSTALLATIONS.

