

## STANDARD AIRWORTHINESS CERTIFICATE

1 NATIONALITY AND REGISTRATION MARKS  N1887S	2 MANUFACTURER AND MODEL SOCATA TB 20	3 AIRCRAFT SERIAL NUMBER 1887	4 CATEGORY Normal
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## 5 AUTHORITY AND BASIS FOR ISSUANCE

This airworthiness certificate is issued pursuant to the Federal Aviation Act of 1958 and certifies that, as of the date of issuance, the aircraft to which issued has been inspected and found to conform to the type certificate therefor, to be in condition for safe operation, and has been shown to meet the requirements of the applicable comprehensive and detailed airworthiness code as provided by Annex 8 to the Convention on International Civil Aviation, except as noted herein.

Exceptions:

None



## 6. TERMS AND CONDITIONS

Unless sooner surrendered, suspended, revoked, or a termination date is otherwise established by the Administrator, this airworthiness certificate is effective as long as the maintenance, preventative maintenance, and alterations are performed in accordance with Parts 21, 43, and 91 of the Federal Aviation Regulations, as appropriate, and the aircraft is registered in the United States.

DATE OF ISSUANCE APRIL 23, 1999	FAA REPRESENTATIVE <i>Michael B. FraDETTE</i> MICHAEL B. FRADETTE	DESIGNATION NUMBER AEU-100
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Any alteration, reproduction, or misuse of this certificate may be punishable by a fine not exceeding \$1,000, or imprisonment not exceeding 3 years, or both. THIS CERTIFICATE MUST BE DISPLAYED IN THE AIRCRAFT IN ACCORDANCE WITH APPLICABLE FEDERAL AVIATION REGULATIONS.

**REGISTRATION NOT TRANSFERABLE**

UNITED STATES OF AMERICA DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION CERTIFICATE OF AIRCRAFT REGISTRATION		This certificate must be in the aircraft when operated.
NATIONALITY AND REGISTRATION MARKS <b>N</b> 1887S	AIRCRAFT SERIAL NO. 1887	
MANUFACTURER AND MANUFACTURER'S DESIGNATION OF AIRCRAFT SOCATA TB-20 TRINIDAD ICAO Aircraft Address Code: 50260702		
ISSUED TO	UNIVERSITY OF DUBUQUE 2000 UNIVERSITY AVE DUBUQUE IA 52001-5050 <i>Airaction</i>	This certificate is issued for registration purposes only and is not a certificate of title. The Federal Aviation Administration does not determine rights of ownership as between private persons.
	CORPORATION It is certified that the above described aircraft has been entered on the register of the Federal Aviation Administration, United States of America, in accordance with the Convention on International Civil Aviation dated December 7, 1944, and with the Federal Aviation Act of 1958, and regulations issued thereunder.	
DATE OF ISSUE September 11, 2002	 ADMINISTRATOR	 U.S. Department of Transportation <b>Federal Aviation Administration</b>

AC Form 8050-3(8/97) Supersedes previous editions

U.S. Department of Transportation  
**Federal Aviation Administration**

Civil Aviation Registry  
 P.O. Box 25504  
 Oklahoma City, OK 73125-0504

OKLAHOMA CITY  
 SEP 13 2002  
 OK

U.S. OFFICIAL MAIL  
 PENALTY FOR PRIVATE USE \$300  
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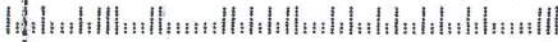
0.37

Official Business  
 Penalty for Private Use \$300

AC Form 8050-3(8/97) Supersedes previous editions **1887S**

**TO:** UNIVERSITY OF DUBUQUE  
 2000 UNIVERSITY AVE  
 DUBUQUE IA 52001-5050

CUT ON DOTTED LINE



University of Dubuque  
2000 University Ave, Dubuque, IA 52001-5099

## Weight and Balance Change

and  
Equipment List Revision

A/C Registration Number: N1887S  
A/C Serial Number: 1887  
A/C Make: Socota  
A/C Model: TB-20  
A/C Year: 1999  
WB Date: 1-Sep-09

*copy*

Previous data taken from document dated: 27-Jul-09

Description of work: W/B adjusted after reinstallation of standby attitude indicator and Insight GEM 610

		WEIGHT	ARM	MOMENT
Previous data:	27-Jul-09	1961.43	38.40	75264.31
Items removed:				
Items installed:				
Electric Attitude Indicator		2.69	23.62	63.54
Insight GEM 610		2.64	3.94	10.4
		<u>1966.76</u>		<u>75338.25</u>

Aircraft gross weight: 3097.0 Maximum Ramp Weight (Max take off weight 3086.0)  
New A/C empty weight: 1966.76  
New A/C empty weight CG: 38.31  
New A/C useful load: 1130.24

AP:

  
Joshua Kieler AP2774600

*copy*

## Weight And Balance Change and Equipment List Revision

DATE: 7 / 27 / 2009

A/C Make: Socata

Year: 1999

Model: TB-20

OWNER: University of Dubuque

Serial No.: 1887

Registration: N1887

Revises W & B Dated: 5-30-2009

DESCRIPTION OF WORK Installed L.P. Aero Plastics, Inc. Acrylic Windshield

	WEIGHT	ARM	MOMENT
Previous A/C Empty Weight	<u>1953.05</u>		<u>75033.36</u>

### ITEMS REMOVED

<u>Original Socata Windshield</u>	<u>- 11.02</u>	<u>27.56</u>	<u>-303.71</u>
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### ITEMS INSTALLED

<u>L.P. Aero Plastic Windshield</u> <u>P/N 967250</u>	<u>19.40</u>	<u>27.56</u>	<u>534.66</u>
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<u>1961.43</u>	<u>75264.31</u>
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AIRCRAFT GROSS WGT.: 3097.0 Max Ramp Weight

(Max Take Off 3086.0)

NEW A/C EMPTY.WGT.: 1961.43

NEW A/C E.W.C.G.: 38.4

NEW A/C USEFUL LOAD.: 1135.57

INSPECTOR Paul M. Kanne

NUMBER # YQYR 343B

*w/c 75175*

*Weight checked by  
01 Sept 2009*

**University of Dubuque**  
**2000 University Ave, Dubuque, IA 52001-5099**

# Weight and Balance Change

and  
 Equipment List Revision

*Supervised COPY 2009*

A/C Registration Number: N1887S  
 A/C Serial Number: 1887  
 A/C Make: Socota  
 A/C Model: TB-20  
 A/C Year: 1999  
 WB Date: 30-May-09

Previous data taken from document dated: 17-Apr-07

Description of work: Removed Standby Electronic Attitude Indicator and Insight GEM 610

		WEIGHT	ARM	MOMENT
Previous data:	17-Apr-09	1958.38	38.40	75107.30
<b>Items removed:</b>				
Electric Attitude Indicator		-2.69	23.62	-63.54
Insight GEM 610		-2.64	3.94	-10.40
<b>Items installed:</b>				
		<u>1953.05</u>		<u>75033.36</u>

Aircraft gross weight: 3097.0 Maximum Ramp Weight (Max take off weight 3086.0)  
 New A/C empty weight: 1953.05  
 New A/C empty weight CG: 38.42  
 New A/C useful load: 1143.95

AP: *Joshua M. Kieler*  
 Joshua Kieler AP2774600

University of Dubuque  
2000 University Ave, Dubuque, IA 52001-5099

# Weight and Balance Change

and  
Equipment List Revision

A/C Registration Number: N2887S  
A/C Serial Number: 1887  
A/C Make: Socota  
A/C Model: TB-20  
A/C Year: 1999  
WB Date: 17-Apr-07

Previous data taken from document dated: 15-Feb-05

Description of work: W/B updated to utilize max ramp weight in lieu of max take off weight.

		WEIGHT	ARM	MOMENT
Previous data:	15-Feb-05	1958.38	38.40	75107.30
Items removed:				
Items installed:				


1958.38

75107.30

Aircraft gross weight: 3097.0 Maximum Ramp Weight  
New A/C empty weight: 1958.38  
New A/C empty weight CG: 38.40  
New A/C useful load: 1138.62

(Max take off weight 3086.0)

AP:

  
James S. Jenkins AP3015266

*Supersedes 5-30-09*  
*copy*



copy

# FLYING SERVICE INC.

10800 Airport Road • Dubuque, IA 52003 • Phone: 563-582-1293

## Weight And Balance Change and Equipment List Revision

DATE: 2 / 15 / 2005

A/C Make: Socata

Year: 1999

Model: TB-20

OWNER: University of Dubuque

Serial No.: 1887

Registration: N1887

Revises W & B Dated: 1-19-2000

DESCRIPTION OF WORK Installed Tanis Engine Heater

	WEIGHT	ARM	MOMENT
Previous A/C Empty Weight	1956.88	38.4	75137.3

### ITEMS REMOVED


### ITEMS INSTALLED

TAS-100-05W	1.5	- 20.0	- 30.0
	1958.38		75107.3

Superseded  
4-17-07

AIRCRAFT GROSS WGT.: 3086

NEW A/C EMPTY WGT.: 1958.38

NEW A/C E.W.C.G.: 38.4

NEW A/C USEFUL LOAD.: 1127.62

INSPECTOR [Signature] AP2147232

W/O NUMBER 71074

# Weight / Balance & Equipment List Revision

**TIM McCANDLESS, INC. - CRS# RO2R142L**

2720 Betsworth Dr. Waterloo IA 50703

319-232-1234

**WB ID # :** 270

**A/C Tail # :** N1887S

**Register Name :** UNIVERSITY OF DUBUQUE

**Address :** 2000 University

**City, State, PC :** DUBUQUE, IA 52001

**A/C Make :** SOCATA

**A/C Model :** TB20

**A/C Serial # :** L887

**WO Ref # :**

**WB Date :** Oct-14-2004

Previous data taken from document dated Oct-01-2004 Previous useful load = 1128.22

Model / Part #	Description	Weight	CG/Arm	Moment
	Previous data ->	1955.98	38.40	75117.50
* REMOVED KC-192	AUTOPILOT COMPUTER	2.30	22.00	50.60
REMOVED	1 Items @	2.30	22.00	50.60
NO ITEMS INSTALLED				
NEW DATA >>	NEW USEFUL LOAD = 1130.52	1953.68	38.42	75066.90

It is the operators responsibility to determine that the aircraft remains within safe Weight and Balance limits. Refer to weight and balance data sheet and loading schedule and center of gravity chart for proper loading.

Temporary Weight and Balance

  
\_\_\_\_\_  
**Authorized Individual :**

*copy* → *Temp*



# Cav-Air, Inc.

## Weight & Balance and Installed Equipment Data

Date	Model	Registration Number	Serial Number
01/19/00	Socata TB20	N 1887S	1887

Item		Weight	Arm	Moment
Previous Aircraft empty dated : 10/01/99		1953.38	38.19	74599.81
WX 500 Rec	In	2.5	139.0	347.5
WX 500 Ant	In	1.0	190.0	190

*Superseded 2-15-05*

*copy*


copy

$$\begin{array}{rccccccc} 75137.3 & \text{divided by} & 1956.88 & = & 38.40 \\ \text{(Total Moment)} & & \text{(Total Weight)} & & \text{(Total C.G)} \end{array}$$

The new empty weight is 1956.88 pounds.

The new empty C.G. is 38.4 inches AFT of the datum line.

**SEE AIRCRAFT FLIGHT MANUAL FOR CENTER OF GRAVITY LIMITS**

  
Authorized Signature

**Cav-Air, Inc.**  
**F.A.A. Approved Repair Station QC0R536Y**

**Date:** 01/19/2000

*Superseded 2-15-05*

PS 2





**MAJOR REPAIR AND ALTERATION  
(Airframe, Powerplant, Propeller, or Appliance)**

Form Approved  
OMB No. 2120-0020

**For FAA Use Only**

Office Identification

INSTRUCTIONS: Print or type all entries. See FAR 43.9, FAR 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C. 1421). Failure to report can result in a civil penalty not to exceed \$1,000 for each such violation (Section 901 Federal Aviation Act of 1958).

1. Aircraft	Make <b>SOCATA</b>	Model <b>TB20</b>
	Serial No. <b>1887</b>	Nationality and Registration Mark <b>USA N1887S</b>
2. Owner	Name (As shown on registration certificate) <b>VICTOR CHARLIE PARTNERS</b>	Address (As shown on registration certificate) <b>3003 9th STREET NORTH NAPLES, FL. 34103</b>

**3. For FAA Use Only**

The data identified herein complies with the applicable airworthiness requirements and is approved only for the above described aircraft, subject to conformity inspection by a person authorized in FAR 43, Section 43.7.

*Aloyd A. Marger* 80-17 18 OCT 1999

**4. Unit Identification**

**5. Type**

Unit	Make	Model	Serial No.	Repair	Alteration
AIRFRAME	~~~~~ (As described in Item 1 above) ~~~~~				X
POWERPLANT					
PROPELLER					
APPLIANCE	Type				
	Manufacturer				

**6. Conformity Statement**

A. Agency's Name and Address  <b>CAV-AIR, INC 5500 N.W. 21st TERRACE FT. LAUDERDALE, FL. 33309</b>	B. Kind of Agency	C. Certificate No.  <b>QCOR536Y</b>
	U.S. Certificated Mechanic	
	Foreign Certificated Mechanic	
	<input checked="" type="checkbox"/> Certificated Repair Station	
	Manufacturer	

D. I certify that the repair and/or alteration made to the unit(s) identified in item 4 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

Date <b>10-18-99</b>	Signature of Authorized Individual <i>Raymond Benford</i>
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**7. Approval for Return To Service**

Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is  APPROVED  REJECTED

BY	FAA Fit. Standards Inspector	Manufacturer	<input checked="" type="checkbox"/>	Inspection Authorization	Other (Specify)
	FAA Designee	Repair Station		Person Approved by Transport Canada Airworthiness Group	
Date of Approval or Rejection <b>10-18-99</b>	Certificate or Designation No. <b>2013413 IA</b>	Signature of Authorized Individual <i>Ferry Kase</i>			

## NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

### 8. Description of Work Accomplished

(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

REMOVED KX155 NAV/COM  
KLN90B GPS  
KI203 VOR IND  
MD41 GPS ANNUNCIATOR  
KA92 GPS ANTENNA

INSTALLED GARMIN GNS430 AS A IFR SYSTEM.

THE GPS RECEIVER IS INSTALLED IN THE CENTER PANEL AT STATION 23.0. THE GPS ANTENNA WAS INSTALLED IN THE SAME POSITION AS THE KA92 ANTENNA WAS REMOVED FROM, AT STATION 47.5 USING FACTORY PROVIDED DOUBLER. THE GNS430 IS DISPLAYED ON THE KI525A HSI. A MD41 GPS/NAV SELECTOR/ANNUNCIATOR IS INSTALLED IN THE PILOTS INSTRUMENT PANEL AT STATION 25.0.

#### INSTALLATION MANUALS USED:

GARMIN GNS430 P/N 190-00140-02 REV.E. JUNE 1999  
MID-CONTINENT MD41 P/N 8016883 REV.O. JAN19,1999

SEE ATTACHED DRAWINGS FOR DETAILS. A COPY OF THE ORIGINAL STC SA00705WI IS ALSO ATTACHED.

SYSTEM INSTALLED I/A/W AC20-138, 8C(2) IV(A), 8C(2) IV(B), 8C(2) IV(C), 8C(2) IV(D), 8C(2) IV(E), 8C(2) IV(F), 8C(2) IV(G), 8C(2) IV(I), 8C(2) IV(J), 8C(2) IV(K).

ALL WORK DONE I/A/W AC43-13-1B CHAPT.11 AND AC43-13-2A CHAPT.1, 2,3,11 AND 13.

PERIODIC MAINTENANCE OF GNS430 IS NOT REQUIRED FOR CONTINUED AIRWORTHINESS.

A FLIGHT MANUAL SUPPLEMENT HAS BEEN PROVIDED.

THE WEIGHT AND BALANCE AND EQUIPMENT LIST HAS BEEN REVISED.

-----END-----

Additional Sheets Are Attached

United States of America  
Department of Transportation -- Federal Aviation Administration  
**Supplemental Type Certificate**

*Number* SA00705W1

*This certificate issued to* Garmin International  
1200 E 51st St.  
Olathe, KS 66062

*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 3 of the Civil Air Regulations.*

*Original Product - Type Certificate Number:* A350  
*Make:* Piper  
*Model:* PA-32

*Description of Type Design Change:*

Installation of GARMIN GNS 430 VHF Communication Transceiver / VOR/ILS Receiver / GPS Receiver in accordance with (1) Garmin Corporation Master Drawing List, Drawing No. 005-00051-00, Revision H, dated September 22, 1998, and (2) FAA Approved Airplane Flight Manual Supplement for Piper PA32 with GARMIN GNS 430 VHF Communication Transceiver / VOR/ILS Receiver / GPS Receiver, Document No. 190-00140-03, Revision A, dated October 2, 1998, or later FAA approved revision to (1) or (2).

*Limitations and Conditions:*

Compatibility of this design change with previously approved modifications must be determined by the installer.

If the holder agrees to permit another person to use this certificate to alter the product, the holder shall give the other person written evidence of that permission.

*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 Administration.*

*Date of application:* November 26, 1997

*Date received:*

*Date of issuance:* October 02, 1998

*Date amended:*



*By direction of the Administrator*

*C. Dale Bleakney*  
(Signature)

C. Dale Bleakney  
Program Manager  
Wichita Aircraft Certification Office

(Title)

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

FAA FORM 8110-2(10-68) PAGE 1 of 1 PAGES

This certificate may be transferred in accordance with FAR 21.47.



54.24  
see AF Log  
9-8-1999

**SUPPLEMENTAL WEIGHT AND BALANCE**

TB 20	S/N 1887	N1887S	
	Weight	Arm	Moment
Previous Empty Weight and C.G.:	1953.08	38.44	74686.63
<b>Item Installed:</b>			
Aero Safe Standby Vacuum System:	8.59	-2.00	-17.18
New Empty Weight and C.G.:	1961.67	38.06	74669.45
Aircraft Gross Weight:	3086.00		
Aircraft New Useful Load:	1124.33		

Note: It is the Pilot's responsibility to load the aircraft correctly at all time.

Signature *Dean Fantinato* Dean Fantinato  
CRS # URZR891L

10/1/99  
FAA APPROVED REPAIR STATION  
FORT LAUDERDALE EXECUTIVE AIRPORT  
FORT LAUDERDALE, FLORIDA  
CAV-AIR INC. CCOR5364

*CS 23*



U.S. Department  
of Transportation  
Federal Aviation  
Administration

## MAJOR REPAIR AND ALTERATION (Airframe, Powerplant, Propeller, or Appliance)

Form Approved  
OMB No. 2120-0020

**For FAA Use Only**

Office Identification

INSTRUCTIONS: Print or type all entries. See FAR 43.9, FAR 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C.1421). Failure to report can result in a civil penalty not to exceed \$1,000 for each such violation (Section 901 Federal Aviation Act 1958)

1. Aircraft	Make Socata	Model TB 20
	Serial No. 1887	Nationality and Registration Mark USA N1887S
2. Owner	Name <i>(As shown on registration certificate)</i> Victor Charlie Partners, LLC	Address <i>(As shown on registration certificate)</i> 3003 9th Street North Naples, Florida 34103

### 3. For FAA Use Only

4. Unit Identification				5. Type	
Unit	Make	Model	Serial No.	Repair	Alteration
AIRFRAME	~~~~~ (As described in item 1 above) ~~~~~				X
POWERPLANT					
PROPELLER					
APPLIANCE	Type				
	Manufacturer				

### 6. Conformity Statement

<b>A. Agency's Name and Address</b> Rallye Corporation d/b/a Socata Aircraft 7501 Pembroke Road Pembroke Pines, FL 33023	<b>B. Kind of Agency</b> <input type="checkbox"/> U.S. Certificated Mechanic <input type="checkbox"/> Foreign Certificated Mechanic <input checked="" type="checkbox"/> Certificated Repair Station <input type="checkbox"/> Manufacturer	<b>C. Certificate No.</b> URZR891L
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D. I certify that the repair and/or alteration made to the unit(s) identified in item 4 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

Date September 8, 1999	Signature of Authorized Individual Stewart England <i>Stewart England</i>
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### 7. Approval for Return To Service

Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is  APPROVED  REJECTED

BY	FAA Fit. Standards Inspector		Manufacturer	Inspection Authorization	Other <i>(Specify)</i>
	FAA Designee	X	Repair Station	Person Approved by Transport Canada Airworthiness Group	
Date of Approval or Rejection September 8, 1999		Certificate or Designation No. URZR891L		Signature of Authorized Individual <i>Dean Fantinato</i> <b>DEAN FANTINATO</b>	



**NOTICE**

*Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.*

**8. Description of Work Accomplished**

*(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)*

Installed Aero Safe Corporation Standby Vacuum system in accordance with STC # SA7628SW and Aero Safe installation drawing list No. 820921 dated 6/21/89. This data has been recorded and filed with W/O # 1419 at repair station URZR891L. Aircraft weight and balance has been revised by calculation.

\*\*\*\*\*End\*\*\*\*\*

Additional Sheets Are Attached

United States of America  
Department of Transportation — Federal Aviation Administration  
**Supplemental Type Certificate**

Number SA7628SW

This certificate, issued to AERO SAFE CORP.  
P. O. Box 10206  
Ft Worth, Tx 76114

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 23 of the Federal Aviation Regulations.

Original Product — Type Certificate Number: A51EU  
Make: Socata  
Model: TB9, 10, 20, 21

*Description of Type Design Change:*

Installation of a Standby Vacuum System in accordance with Aero Safe Installation Drawing List No. 820920 dated June 21, 1989.

*Limitations and Conditions:*

Compatibility of this modification with previously installed equipment must be determined by installer.

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 Administration.

Date of application: June 28, 1989

Date issued:

Date of issuance: August 2, 1989

Date amended:

By direction of the Administrator



A. C. Caviness  
A. C. Caviness, <sup>Signature</sup> Manager  
Special Programs Office

(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.

POH Supplement NOT called for in STC  
 for Standby VAC Sys. thus No supplement in  
INSTRUCTIONS FOR CONTINUED AIRWORTHINESS POH

A/C Make:

S/N

Revision:

Date:

This sixteen item checklist are Instructions for Continued Airworthiness (ICA), to comply with FAA Handbook Bulletin for Airworthiness (HBAW 92-18 Dated October 7, 1992), are applicable to the aircraft listed above when the following equipment is installed:

SYSTEM: Electrically driven vacuum pump as a standby auxiliary pump to existing pump STC No.

ITEM	CHECKLIST INFORMATION
1.	<p><b>Introduction:</b> This section briefly describes the aircraft, engine, propeller, or component that has been altered. Include any other information on the content, scope, purpose, arrangement, applicability, definitions, abbreviations, precautions, units of measurement, referenced publications, and distribution of the ICA as applicable.</p> <p><b>Comment:</b> Installation of a standby vacuum system. The Guardian I standby vacuum system is connected to the existing aircraft vacuum system to provide vacuum in case of primary pump failure. The system is electric and is a continuous operational system.</p>
2.	<p><b>Description:</b> Of the major alteration, its functions, including an explanation of its interface with other systems, if any.</p> <p><b>Comment:</b> To provide a vacuum source for the vacuum operated instruments in the event of a primary pump failure.</p>
3.	<p><b>Control:</b> Operation information: Or special procedures, if any.</p> <p><b>Comment:</b> The Guardian I should be operated in accordance to the operational procedures provided by Aero Safe Corporation. The Guardian I should be on during ICM flight conditions.</p>
4.	<p><b>Servicing information:</b> Such as types of fluids used, servicing points, and location of access panels, as appropriate.</p> <p><b>Comment:</b> The motordrive/pump/base plate assembly is located on the firewall. Annual/100 hour inspection instructions are provided by Aero Safe Corporation.</p>
5.	<p><b>Maintenance instructions:</b> Such as recommended inspection/maintenance periods in which each of the major alteration components are inspected, cleaned, lubricated, adjusted, tested, including applicable wear tolerances and work recommended at each scheduled maintenance period. This section can refer to the manufacturers' instructions for the equipment installed where appropriate (e.g., functional checks, repairs, inspections.) It should also include any special notes, cautions, or warnings, as applicable.</p> <p><b>Comment:</b> Aero Safe Corporation recommends that the system be activated and run continuously for a minimum of 20 minutes every quarter ( 3 to 4 months ) Ref. Aero Safe Corporation Annual/100 hour inspection provided.</p>
6.	<p><b>Trouble shooting information:</b> Information describing probable malfunctions, how to recognize those malfunctions, and the remedial actions to be taken.</p> <p><b>Comment:</b> System fails to operate (1) check fuse (2) rotate drive shaft connecting the motordrive to vacuum pump ( turns freely ). If system continues to malfunction call Aero Safe Corporation for evaluation.</p>

## INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

7.	<p><b>Removal and replacement information:</b> This section describes the order and method of removing and replacing products, parts and any necessary precautions. This section should also describe or refer to manufacturer's instructions to make required tests, trim checks, alignment, calibrations, center of gravity changes, lifting or shoring, etc., if any.</p> <p><b>Comment:</b> Removal and replacement: refer to Installation Manual and contact Aero Safe Corporation.</p>
8.	<p><b>Diagrams:</b> Of access plates and information, if needed, to gain access for inspection.</p> <p><b>Comment:</b> The Guardian I is installed on the aircraft firewall. Remove upper and lower cowling for access.</p>
9.	<p><b>Special inspection requirements:</b> Such as X-ray, ultrasonic testing, or magnetic particle inspection, if required.</p> <p><b>Comment:</b> No special inspection required other than the Annual/100 hour inspection provided.</p>
10.	<p><b>Application of protective treatments:</b> To the affected area after inspection and/or maintenance, if any.</p> <p><b>Comment:</b> None required.</p>
11.	<p><b>Data:</b> Relative to structural fasteners such as type, torque, and installation requirements, if any.</p> <p><b>Comment:</b> None required: See installation manual.</p>
12.	<p><b>List of special tools:</b> Special tools that are required, if any.</p> <p><b>Comment:</b> No special tools required.</p>
13.	<p><b>For commuter category aircraft:</b> The following additional information must be furnished, as applicable:</p> <ul style="list-style-type: none"><li>A. Electrical loads</li><li>B. Methods of balancing flight controls</li><li>C. Identification of primary and secondary structures</li><li>D. Special repair methods applicable to the airplane.</li></ul> <p><b>Comment:</b> N/A</p>
14.	<p><b>Recommended overhaul periods:</b> Are required to be noted on the ICA when an overhaul period has been set by the manufacturer of a component, or equipment. If there is no overhaul period, the ICA should state for item 14: "No additional overhaul time limitations."</p> <p><b>Comment:</b> No additional overhaul time limitations.</p>

## INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

15.	<p><b>Airworthiness Limitation Section:</b> Include any "approved" airworthiness limitations identified by the manufacturer or FAA Type Certificate Holding Office (e.g., An STC incorporated in a larger field approved major alteration may have an airworthiness limitation.) The FAA inspector should not establish, alter, or cancel airworthiness limitations without coordinating with the appropriate FAA Type Certificate Holding Office. If there are no changes to the airworthiness limitations, the ICA should state for item 15: "No additional airworthiness limitations" or "Not Applicable."</p> <p><b>Comment:</b> No additional airworthiness limitations.</p>
16.	<p><b>Revision:</b> This section should include information on how to revise the ICA. For example, a letter will be submitted to the local FSDO with a copy of the revised FAA Form 337 and revised ICA. The FAA inspector accepts the change by signing Block 3 and including the following statement: "The attached revised/new Instructions for Continued Airworthiness (date _____) for the above aircraft or component major alteration have been accepted by the FAA, superseding the Instructions for Continued Airworthiness (date _____)." Once the revision has been accepted, a maintenance record entry will be made, identifying the revision, its location, date of the Form 337.</p> <p><b>Comment:</b> Any revision of the ICA will be made/approved by Aero Safe Corporation.</p>

**Note:**

**Implementation and Record Keeping:** For major alterations performed in accordance with FAA Field Approval policy, the owner/operator operating under part 91 is responsible for ensuring that the ICA is made part of the applicable section 91.409 inspection program for their aircraft. This is accomplished when a maintenance entry is made in the aircraft's maintenance record in accordance with section 43.9. This entry records the major alteration and identifies the original ICA location (e.g., Block 8 of FAA Form 337, dated 5/28/98) along with a statement that the ICA is now part of the aircraft's inspection/maintenance requirements.

For major alterations performed in accordance with a field approval on air carrier aircraft, the air carrier operator is responsible for ensuring that the ICA is made part of the applicable inspection/maintenance program for their aircraft. If a procedure is not currently included in the operator's manual to incorporate ICA, this process will need to be appropriately addressed (i.e. the operator submits a revision to its maintenance program to the applicable certificate-holding district office (CHDO).

For aircraft inspected under an Approved Aircraft Inspection Program (AAIP), the operator will submit a change to the CHDO in accordance with section 135.419 b).

For air carrier aircraft inspected using an annual/100 hour inspection program, a reference to the new ICA will be made in the aircraft's maintenance record in accordance with section 43.9. This entry records the major alteration and identifies the original ICA location (e.g., ICA are located/attached to Block 8 of FAA Form 337, dated 5/28/98). In addition, the operator will request a revision to the operator's Operations Specifications, additional maintenance requirements, which incorporates the ICA into the inspection program.

# LEAD WIRE INSTALLATION

1. Leads have staggered connecting terminals on one end. Connect this end to the probe which also has staggered terminals. NOTE: if multiple leads are being installed, make sure that identifying cylinder numbers are attached to each end. Make sure thermocouple colors match to that of the probe.
2. Care should be exercised in routing and securing the lead wire(s) to the instrument panel following good aircraft practices in the installation; treat it like any other current-carrying wire. All work should be performed in accordance with AC 43.13-1A.
3. The indicator reading is affected by the lead resistance. If the lead length is altered for any reason, the indicator must be recalibrated in order to maintain the same relative pointer position. (NOTE: The exact length or resistance of the lead wire is unimportant for electronically amplified indicators, such as the multi-channel analyzers. After installing probes and lead wires, excess wires may be cut off to ease installation; however, take care to retain cylinder markers and terminals.)
4. When installation is made in pressurized aircraft, it will be necessary to route the lead wires into the pressurized hull by means approved by the airframe manufacturer. Suitable existing bulkhead fittings with spare positions may already be available on the aircraft.
5. If possible, do not route lead wires next to or limit the amount routed next to other electrical system wires to avoid possibility of current induction that will affect instrument readings.
6. Coil excess lead wire behind instrument panel or in engine compartment. Any questions which arise with respect to the installation and which are not covered in these instructions should be directed to the manufacturer. (NOTE: For electronically amplified indicators refer to NOTE in item 3 above.)
7. CAUTION: Avoid attaching or supporting the lead wire from electrical bus cables or attach to flammable fluid-carrying lines. Maintain at least one inch (1") clearance from both of these items as shown. This same spacing should be maintained with respect to controls and cables. (See Figures 1 and 2)
8. After twin engine installation, it should be checked out to determine that the mixture controls are in approximately the same position when the indicators are at the same setting. Check the completed installation for good shop practices.
9. Perform an adequate inspection of the completed installation and close up the areas that were opened.
10. Weight: 90" - 0.1 lbs.; 144" - 0.2 lbs.; 240" - 0.3 lbs.

FAA-PMA/STC SA522-SW -- This product is FAA approved for installation on piston engine aircraft. After installation of complete system, return aircraft to service via Form 337 referencing STC SA522-SW (this is not required for replacement parts).

**Department of Transportation - Federal Aviation Administration**  
**Supplemental Type Certificate**

*November* SA522SW

*This certificate issued to* ALCOR Aviation, Inc.  
12043 Colwick  
San Antonio, TX 78216

*certifies that the changes in the type design for the following product with the limitations and conditions therein as specified hereunder, the amendments requirements of Part 23 of the Federal Aviation Regulations, Parts 3, 4a, 4b of the Civil Air Regulations*

*Original Product - Type Certificate Number:* See Limitations and Conditions  
*Make:* See Limitations and Conditions  
*Model:* See Limitations and Conditions

*Description of Type Design Change:*  
Installation of Exhaust Gas Temperature (EGT), Cylinder Head Temperature (CHT) Components/Systems in accordance with Master Drawing List titled "Alcor Master Drawing List for STC SA522SW dated November 14, 1984." or later FAA approved revisions.

*Limitations and Conditions:*  
All aircraft equipped with reciprocating engines are eligible for the installation of the Alcor EGT and CHT Component/Systems.

Compatibility of this modification with previously installed equipment must be determined by installer.

*This certificate and the supporting data which is the basis for approval shall remain in effect until such a time as a subsequent amendment, modification, or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.*

*Date of application:* April 15, 1965      *Date issued:* 7/5/94  
*Date of issuance:* May 26, 1965      *Date reissued:* 4/30/92 Rev. 15

*By Director of the Administration*  
*Mark A. Schilling, Manager*  
Special Certification Office

This alteration of this certificate is punishable by a fine not exceeding \$1,000, or imprisonment not exceeding 1 year, or both.

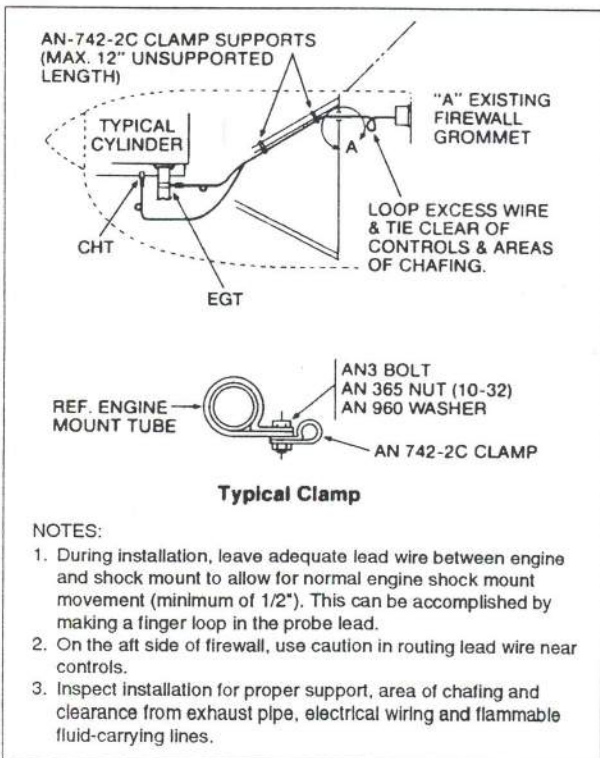


Figure 1. Typical Single Engine Installation

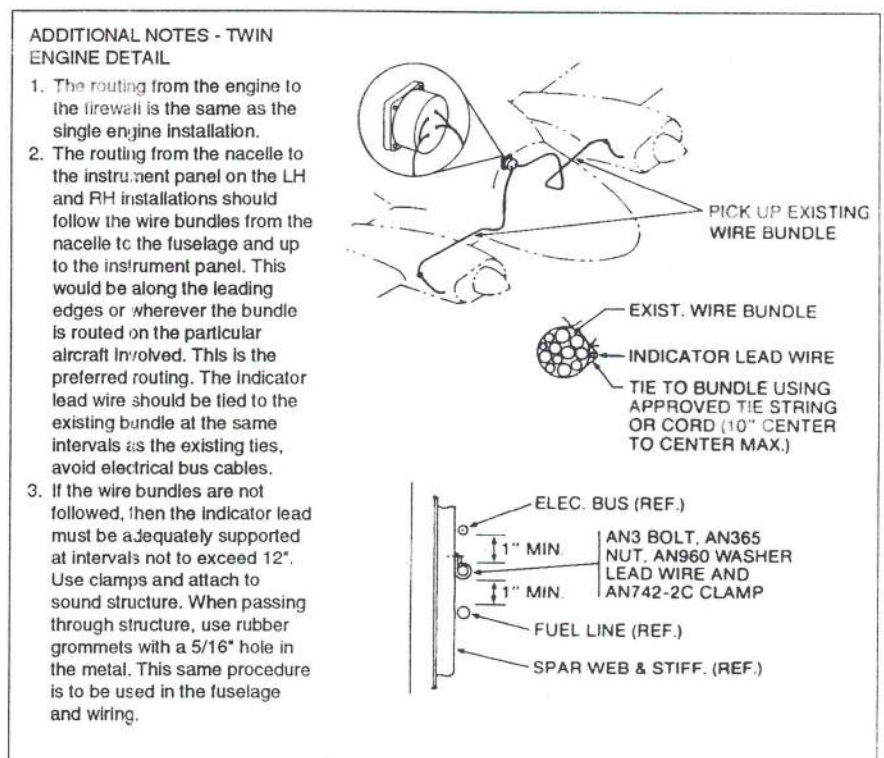


Figure 2. Typical Twin Engine Installation



**SUPPLEMENTAL WEIGHT AND BALANCE**

**TB 20                      S/N 1887                      N 1887S**

	<b>Weight</b>	<b>Arm</b>	<b>Moment</b>
Previous Empty Weight and C.G. :	1927.75	38.50	74612.69
Item Installed :			
Insight GEM 610	2.64	3.94	10.40
Electrical attitude gyro indicator	2.69	23.62	63.54
New Empty weight and C.G. :	1943.08	38.44	74686.63
Aircraft Gross Weight :	3086.00		
Aircraft new Useful Load :	1142.92		

*Supersedes*  
*9/8/99*

**Note . It is Pilot's responsibility to load the aircraft correctly at all time.**

Signature *K. Phongsavath* Kam Phongsavath  
CRS URZR891L

Date calculated July 15, 1999



U.S. Department  
of Transportation  
Federal Aviation  
Administration

## MAJOR REPAIR AND ALTERATION (Airframe, Powerplant, Propeller, or Appliance)

Form Approved  
OMB No. 2120-0020

**For FAA Use Only**

Office Identification

INSTRUCTIONS: Print or type all entries. See FAR 43.9, FAR 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C.1421). Failure to report can result in a civil penalty not to exceed \$1,000 for each such violation (Section 901 Federal Aviation Act 1958)

1. Aircraft	Make SOCATA	Model TB 20
	Serial No. 1887	Nationality and Registration Mark N 1887S
2. Owner	Name (As shown on registration certificate) SOCATA AIRCRAFT	Address (As shown on registration certificate) 7501 Pembroke Road Pembroke Pines, FL 33023-2579

### 3. For FAA Use Only

4. Unit Identification				5. Type	
Unit	Make	Model	Serial No.	Repair	Alteration
AIRFRAME	~~~~~ (As described in item 1 above) ~~~~~				X
POWERPLANT					
PROPELLER					
APPLIANCE	Type				
	Manufacturer				

### 6. Conformity Statement

<b>A. Agency's Name and Address</b> Rallye Corporation D/B/A Socata Aircraft 7501 Pembroke Road Pembroke Pines, FL 33023-2579	<b>B. Kind of Agency</b> <input type="checkbox"/> U.S. Certificated Mechanic <input type="checkbox"/> Foreign Certificated Mechanic <input checked="" type="checkbox"/> Certificated Repair Station <input type="checkbox"/> Manufacturer	<b>C. Certificate No.</b> URZR891L
---	---	---------------------------------------

D. I certify that the repair and/or alteration made to the unit(s) identified in item 4 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

<b>Date</b> July 15, 1999	<b>Signature of Authorized Individual</b> Randall Scott Ross
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### 7. Approval for Return To Service

Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is

APPROVED       REJECTED

BY	FAA Fit. Standards Inspector		Manufacturer	Inspection Authorization	Other (Specify)
	FAA Designee	X	Repair Station	Person Approved by Transport Canada Airworthiness Group	
<b>Date of Approval or Rejection</b> July 15, 1999		<b>Certificate or Designation No.</b> URZR891L		<b>Signature of Authorized Individual</b>  <b>KAM PHONGSAVATH</b>	



Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

**8. Description of Work Accomplished**

*(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)*

Installed Insight Graphic Engine Monitor (G.E.M) temperature probes (6) at station 3.94. This system is TSO'd under TSO # C43b. All temperature probes and electrical wiring harnesses were installed, wired and secured in accordance with instructions provided within Insight Instrument Corporation Installation Manual Dwg. 8258 Version 3.0, and this installation has used STC # SA157NE as a reference.

The alteration was performed in accordance with AC 43.13-1B, chapter 11, Paragraphs 446 through 448, 450, 451, 464 through 466, 514 through 518. Acceptable Methods, Techniques and Practices, Aircraft Alterations.

The installation was inspected, operational checked the system and flight testing in accordance with GEM Series Installation Manual, Drawing 8258 Version 3.0, Pages 9 and 12.

Pilot's Guide Graphic Engine Monitor Data Logging System Gem Series 602, 603, 610 and 1200 is available for flight crew.

This data has been recorded and filed with W/O # 1395 at Repair Station URZR891L.

Aircraft weight and balance has been updated by calculation this date July 15, 1999.

\*\*\*\*\*End\*\*\*\*\*

Additional Sheets Are Attached

**SOCATA**

Groupe Aerospatiale

FRANCE

**REGISTRE INDIVIDUEL DE CONTROLE**

**INDIVIDUAL INSPECTION RECORD**

**PROCES VERBAL DE PESEE ET DE CENTRAGE**

**WEIGHT AND BALANCE REPORT**

AVION TYPE **TB20**

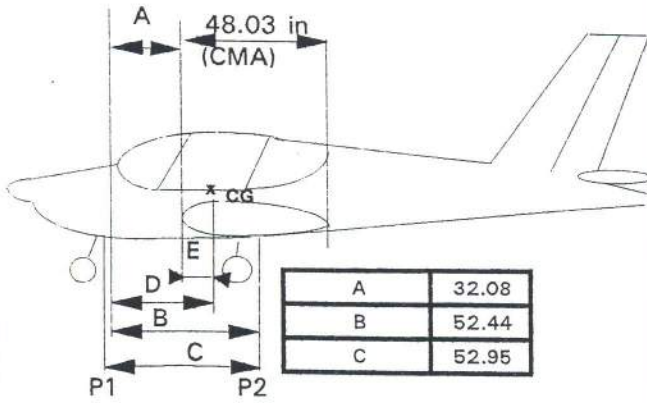
NUMERO de SERIE **1887**

serial number

F:6

Levelling: "Door step" horizontal

Datum: forward face of fire wall

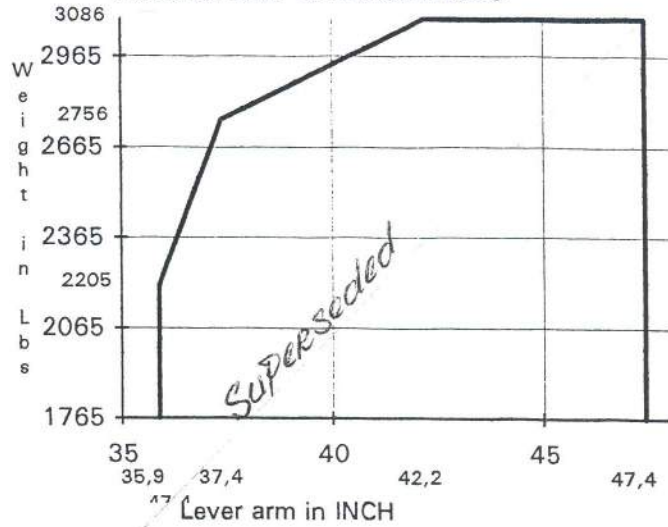


A	32.08
B	52.44
C	52.95

P1 Front jack point

P2 Left and right jack point

**LOADING AND BALANCE LIMITS**



**WEIGHING EFFECTED ON JACK POINTS**

Aircraft painted, with engine oil

	read weight (lb)	tare (lb)	net weight (lb)
Left point	674.42	0	674.42
Right point	740.54	0	740.54
Fore point	506.92	0	506.92
WEIGHT P (lb) =			1921.88

**DISTANCE OF C.G. TO C.G. LOCATION DATUM**

$$d(m) = B - (C * P1) / P$$

$$52.44 - (52.95 * 506.92) / 1921.88 = 38.47$$

**CORRECTIONS**

	read weight (lb)	arm (in)	moment
Weight P	1921.88	d = 38.47	73934.72
Painting	0.00	0.00	0.00
Engine oil	0.00	0.00	0.00
Non usable fuel	15.87	42.72	677.97
EMPTY WEIGHT	1937.75	38.50	74612.69
		= D	

**EMPTY C.G. POSITION (in % of the CMA)**

$$((D-A) * 100) / 48.03 =$$

$$(100 * 6.42) / 48.03 = 13.37 \%$$

**EXAMPLES OF LOADING**

	Forward C.G location			Rear C.G location		
	read weight (lb)	arm (in)	moment	read weight (lb)	arm (in)	moment
Empty weight	1937.75	38.50	74612.69	1937.75	38.50	74603.38
Fuel	----	42.72	----	55.1	42.72	2353.87
Pilot.Front passenger	169.71	45.47	7716.71	339.42	45.47	15433.43
Rear passengers	----	80.12	----	339.42	80.12	27194.33
Baggage ( 143 lbs maxi )	----	102.36	----	128.33	102.36	13136.02
RESULTS	2107.46	39.07	82329.40	2800.02	47.40	132721.03

Date and stamp

3 AVR. 1999

