United States of America

Department of Transportation — Federal Aviation Administration

Supplemental Type Certificate

Number SA1673NM

This certificate, issued to Madras Air Service

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: A7SO

Make: Piper

Model: PA-34-200, -200T and -220T

Description of Type Design Change: Installation of Demers Super Tips in accordance with Madras Air Service Installation Instructions for Piper PA-34 series and Aircraft Drawing, MAS 109.

Limitations and Conditions: Approval of this change in type design applies basically to the above model aircraft only. This approval should not be extended to other aircraft 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, including changes in type design, will introduce no adverse effect upon the airworthiness of that aircraft.

See "Continuation Sheet" Page 3

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: March 22, 1982

Date reissued:

Date of issuance: July 13, 1982

Date amended:

By direction of the Administrator

(Signature)

ACTING Manager, Seattle 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.

This certificate may be transferred in accordance with FAR 21.47.

FAA Form 8110-2 (10-68)

United States of America

Department of Transportation—Federal Aviation Administration

Supplemental Type Certificate

(Continuation Sheet)

July 13, 1982 *Number* SA1673NM

Limitations and Conditions (continued):

A copy of this Certificate, Madras Air Service Installation Instructions and Drawing MAS 109, and FAA Approved Airplane Flight Manual Supplement shall be maintained as part of the permanent records for the modified aircraft.

NOTE: The modified aircraft is limited to a V_{ne} of 212 m.p.h. (IAS).

- END -

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 8110-2-1 (10-69) *This certificate may be transferred in accordance with FAR 21.47.*

C FAA AC 73-2651

MADRAS AIR SERVICE

FAA APPROVED AIRPLANE FLIGHT MANUAL SUPPLEMENT

TO

PIPER PA 34-200, PA 34-200T, AND PA 34-220T

FAA APPROVED AIRPLANE FLIGHT MANUAL

The information in this document is FAA approved material which, together with the basic FAA Approved Airplane Flight Manual, is applicable and must be carried in the basic manual when the airplane is modified by the installation of Demers Super Tips in accordance with Supplemental Type Certificate SA1673NM.

The information in this document supersedes the basic manual only where covered by items contained in this supplement. For Limitations, Procedures, and Performance not contained in this supplement, consult the basic manual.

I. LIMITATIONS

V_{ne} = 212 m.p.h. (IAS)

II. PROCEDURES

No change.

III. PERFORMANCE

The aircraft performance with Demers Super Tips as installed by STC SA1673NM is equal to or better than the original.

IV. LOADING

No change.

FAA APPROVED: James W Hart Jr

Acting Manager, Seattle Aircraft Certification Office

DATE July 13, 1982

No certificate may be issued unless a completed application form has been received (14 C.F.R. 21)

SEE REVERSE FOR FURTHER INSTRUCTIONS!

3/25/82

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

APPLICATION FOR TYPE CERTIFICATE, PRODUCTION CERTIFICATE, OR SUPPLEMENTAL TYPE CERTIFICATE

FORM APPROVED
O.M.B. No. 04-R0078

1. Name and address of applicant
MADRAS AIR SERVICE
1914 N.W. DEMERS DRIVE(New Address)
MADRAS,OREGON 97741

2. Application made for –
- [ ] Type Certificate
- [ ] Production Certificate
- [X] Supplemental Type Certificate

3. Product involved
- [X] Aircraft
- [ ] Engine
- [ ] Propeller

4. TYPE CERTIFICATE *(Complete item 4a below)*

a. Model designation(s) *(All models listed are to be completely described in the required technical data, including drawings representing the design, material, specifications, construction, and performance of the aircraft, aircraft engine, propeller which is the subject of this application.)*

N/A

BED
4

5. PRODUCTION CERTIFICATE *(Complete items 5a–c below. Submit with this form, in manual form, one copy of quality control data or changes thereto covering new products, as required by applicable FAR.)*

a. Factory address *(If different from 1 above)*

N/A

b. Application is for –
- [ ] New Production Certificate
- [ ] Additions to Production Certificate *(Give P.C. No.)*

P.C. No.

c. Applicant is holder of or a licensee under a Type Certificate or a Supplemental Type Certificate *(Attach evidence of licensing agreement and give certificate number)* →

T.C./S.T.C. No. SA549NW

6. SUPPLEMENTAL TYPE CERTIFICATE *(Complete items 6a–d below)*

a. Make and model designation of product to be modified
OWNER, ALLEN ABRAMOW
Model (~~SENACA~~)2400 Southeastern Av Manufacturer Piper SENECA-1 PA 34-200 Serial Number 34-725-0328 Registration Number N1480T
Indianapolis, Ind. 46201

b. Description of modification
PA-34-200

c. Will data be available for sale or release to other persons?
- [ ] YES
- [X] NO

d. Will parts be manufactured for sale? *(Ref. FAR 21.303)*
- [X] YES
- [ ] NO

CERTIFICATION – I certify that the above statements are true.

Signature of ~~XXXXXXXXXXXX~~ APPLICANT OR ~~AGENT~~
MADRAS AIR SERVICE. Leo J. Demers PRES.

Date 3-22-82

FAA Form 8110-12 (3-80) SUPERSEDES PREVIOUS EDITION

TYPE INSPECTION AUTHORIZATION

PROJECT NO. SA3758NM-S

DATE

[X] FLIGHT _____ (Routing Symbol) [ ] MANUFACTURING _____ (Routing Symbol)

NAME OF APPLICANT: MADRAS AIR SERVICE

ADDRESS (Number, street, city, state, and ZIP code): Route 2, Box 1225; Madras, Oregon 97741

1. INSPECTION AUTHORIZED FOR

X AIRPLANE	OTHER (Specify)	NEW MODEL (Give model no.)	
ENGINE			
PROPELLER		ALTERED MODEL (Give name of original manufacturer and model no.) Piper PA 34-200	ORIGINAL T.C. DATA SHEET NO. A7SO
ROTORCRAFT			

2. CERTIFICATION BASIS

CAR 23

N-1480T
S/N 34-7250328

3. CATEGORY—FOR AIRCRAFT ONLY (Check all applicable items)

X	NORMAL		UTILITY		ACROBATIC		TRANSPORT		RESTRICTED		OTHER (Specify)

4. DESCRIPTION OF ALTERATION

Installation of Madras Air Service Model 104 Wing Tips

5. DESIGN SPEEDS - MPH (EAS) – SEE PAGE V_{NE} -217 MPH	6. MAXIMUM MACH NO. (DESIGN) – SEE PAGE N/A	7. DESIGN WEIGHTS – SEE PAGE 4000
8. MAXIMUM OPERATING ALTITUDE (Feet) N/A	9. MAXIMUM CABIN PRESSURE DIFFERENTIAL (p.s.i.) N/A	10. CG. LIMITS (+86.4) to (+94.6) SEE PAGE _____
11. CARGO AND BAGGAGE COMPARTMENTS - LOCATION AND MAXIMUM LOADS – SEE PAGE _____	12. STRUCTURAL/MANEUVERING LIMITS – at 4000 lbs. SEE PAGE _____	

13. OPERATION LIMITATIONS

ENGINE MAKE AND MODEL (FOR TURBINE ENGINE SEE PAGE _____): Lycoming LIO-360-CIE6 & IO-360-CIE6

ENGINE DATA SHEET NO.

ITEM	ON TAKEOFF (Specify) (Minutes)	LOW RATIO SUPERCHARGER SEA LEVEL	LOW RATIO SUPERCHARGER ALT. HEIGHT (Specify) (Feet)	HIGH RATIO SUPERCHARGER ALT. (MIN) (Specify) (Feet)	HIGH RATIO SUPERCHARGER ALT. (MAX) (Specify) (Feet)
IN. HG.					
RPM					
HP					

MAXIMUM ALLOWABLE TEMPERATURE		°F.
CYLINDER HEAD (OR COOLANT OUTLET)	WASHER	
	BAYONET	
CYLINDER BASE		
OIL INLET		
MINIMUM CARBURETOR HEAT RISE REQUIRED AT _____ % MC POWER		

14. PROPELLER

MAKE AND MODEL	DATA SHEET NO.	DIAMETER
HUB MODEL NO. / BLADE MODEL NO.	LIMITATIONS – SEE PAGE _____	

15. ROTORCRAFT

	MAXIMUM	MINIMUM
POWER ON ROTOR LIMITS–RPM N/A		
POWER OFF ROTOR LIMITS–RPM		

16. INSPECTION REPORT

100-HOUR INSPECTION COMPLETED	X	YES
		NO

17. EQUIPMENT LIST

IS EQUIPMENT LIST CORRECT AS TO WEIGHT AND ARM OF EACH ITEM		YES
		NO
EQUIPMENT LIST ATTACHED		YES
		NO

MFGR. REPORT NO.

18. TYPE INSPECTION REPORT

X	COMPLETE APPLICABLE PORTIONS OF TYPE INSPECTION REPORT, PART 1
X	COMPLETE APPLICABLE PORTIONS OF TYPE INSPECTION REPORT, PART 2
X	SEE ATTACHED PAGES FOR INSTRUCTIONS
X	SEE ATTACHED PAGES FOR SPECIAL TESTS (Define divisions of responsibilities)

ORIGINATED BY	CONCURRENCES					
ROUTING SYMBOL	ROUTING SYMBOL	INITIALS	ROUTING SYMBOL	INITIALS	ROUTING SYMBOL	INITIALS
ANM-190S	ANM-190S					

APPROVAL

DATE 3/25/82	TITLE Chief, Aircraft Modification Branch, ANM-190S	SIGNATURE RICHARD H. ULM

TYPE INSPECTION AUTHORIZATION

PAGE 1 OF 1 PAGES 2

PROJECT NO. SA3758NM-S

DATE

[X] FLIGHT _____ (Routing Symbol) [ ] MANUFACTURING _____ (Routing Symbol)

NAME OF APPLICANT: MADRAS AIR SERVICE

ADDRESS (Number, street, city, state, and ZIP code): Route 2, Box 1225; Madras, Oregon 97741

1. INSPECTION AUTHORIZED FOR

[ ] AIRPLANE	OTHER (Specify)		NEW MODEL (Give model no.)	
[ ] ENGINE				
[ ] PROPELLER			ALTERED MODEL (Give name of original manufacturer and model no.)	ORIGINAL T.C. DATA SHEET NO.
[ ] ROTORCRAFT			Piper PA 34-200	A7SO

2. CERTIFICATION BASIS

CAR 23

N-1480T
S/N 34-7250328

3. CATEGORY—FOR AIRCRAFT ONLY (Check all applicable items)

X	NORMAL		UTILITY		ACROBATIC		TRANSPORT		RESTRICTED		OTHER (Specify)

4. DESCRIPTION OF ALTERATION

Installation of Madras Air Service Model 104 Wing Tips

5. DESIGN SPEEDS - MPH (EAS) — SEE PAGE V_{NE} -217 MPH	6. MAXIMUM MACH NO. (DESIGN) — SEE PAGE N/A	7. DESIGN WEIGHTS — SEE PAGE 4000
8. MAXIMUM OPERATING ALTITUDE (Feet) N/A	9. MAXIMUM CABIN PRESSURE DIFFERENTIAL (p.s.i.) N/A	10. CG. LIMITS (+86.4) to (+94.6) SEE PAGE _____
11. CARGO AND BAGGAGE COMPARTMENTS - LOCATION AND MAXIMUM LOADS — SEE PAGE _____	12. STRUCTURAL/MANEUVERING LIMITS — at 4000 lbs. SEE PAGE _____	

13. OPERATION LIMITATIONS

ENGINE MAKE AND MODEL (FOR TURBINE ENGINE SEE PAGE _____): Lycoming LIO-360-CIE6 & IO-360-CIE6

ENGINE DATA SHEET NO.

ITEM	ON TAKEOFF (Specify) (Minutes)	LOW RATIO SUPERCHARGER SEA LEVEL	LOW RATIO SUPERCHARGER ALT. HEIGHT (Specify) (Feet)	HIGH RATIO SUPERCHARGER ALT. (MIN) (Specify) (Feet)	HIGH RATIO SUPERCHARGER ALT. (MAX) (Specify) (Feet)
IN. HG.					
RPM					
HP					

MAXIMUM ALLOWABLE TEMPERATURE		°F.
CYLINDER HEAD (OR COOLANT OUTLET)	WASHER	
	BAYONET	
CYLINDER BASE		
OIL INLET		
MINIMUM CARBURETOR HEAT RISE REQUIRED AT _____ % MC POWER		

14. PROPELLER

MAKE AND MODEL		DATA SHEET NO.	DIAMETER
HUB MODEL NO.	BLADE MODEL NO.	LIMITATIONS — SEE PAGE _____	

15. ROTORCRAFT	MAXIMUM	MINIMUM
POWER ON ROTOR LIMITS—RPM		
POWER OFF ROTOR LIMITS—RPM		

16. INSPECTION REPORT		
100-HOUR INSPECTION COMPLETED	X	YES
		NO

17. EQUIPMENT LIST		
IS EQUIPMENT LIST CORRECT AS TO WEIGHT AND ARM OF EACH ITEM		YES
		NO
EQUIPMENT LIST ATTACHED		YES
		NO

MFGR. REPORT NO.

18. TYPE INSPECTION REPORT	
X	COMPLETE APPLICABLE PORTIONS OF TYPE INSPECTION REPORT, PART 1
X	COMPLETE APPLICABLE PORTIONS OF TYPE INSPECTION REPORT, PART 2
X	SEE ATTACHED PAGES FOR INSTRUCTIONS
X	SEE ATTACHED PAGES FOR SPECIAL TESTS (Define divisions of responsibilities)

ORIGINATED BY	CONCURRENCES					
ROUTING SYMBOL	ROUTING SYMBOL	INITIALS	ROUTING SYMBOL	INITIALS	ROUTING SYMBOL	INITIALS
ANM-190S	ANM-190S					

APPROVAL

DATE	TITLE	SIGNATURE
3/25/82	Chief, Aircraft Modification Branch, ANM-190S	RICHARD H. ULM

18. Type Inspection Report

Description

STC SA549NW is being amended to add the Piper PA-34-200 to the Master Eligibility List. The STC installs Madras Air Service Model 104 wing tips to various aircraft.

A. Inspection and Ground Tests:

AGL-218 or AGL-216 will accomplish the following:

1. Conduct a Conformity Inspection to Madras Air Service Installation Instructions No. 104.

2. Ascertain that a weight and balance correction has been accomplished for the wing tip installation.

3. Obtain a Statement of Conformity, FAA Form 8130-9, from the applicant.

4. Conduct any other inspections deemed necessary.

B. Flight Test:

AGL-216 will accomplish the following:

1. Conduct stall checks in accordance with the Flight Test Report Guide. (CAR 3.120, 3.121, and 3.122). (# .123 SINGLE ENG)

2. Conduct flutter and vibration test to V_d as per FTRG (Page 70 and 71 (attached) under CAR 3.159.

3. Conduct any other tests deemed necessary.

4. Conduct airspeed calibration in accordance with CAR 3.663.

#

BLOCK 1. GIVE FULL NAME AND ADDRESS AND TELEPHONE OF PERSON OR COMPANY WHO WILL OWN THE SUPPLEMENTAL TYPE CERTIFICATE. IF A COMPANY, PLEASE GIVE US A LETTER STATING WHO THE RESPONSIBLE OFFICERS ARE AND WHO IS AUTHORIZED TO SIGN DOCUMENTS FOR THE COMPANY AND KEEP THIS LETTER UPDATED DURING OUR BUSINESS WITH YOU.

NOTE: SKIP BLOCKS 4 AND 5

(A) GIVE COMPLETE MAKE AND MODEL INFORMATION AS KNOWN. ALSO GIVEN SERIAL NUMBER AND REGISTRATION NUMBER OF AIRCRAFT TO BE TESTED. INCLUDE NAME AND ADDRESS OF REGISTERED OWNER.

(B) GIVE AS COMPLETE A DESCRIPTION OF CHANGE AS POSSIBLE INCLUDING ENGINE AND PROPELLER MODELS (SERIAL NUMBERS OF ENGINE AND PROP NOT NECESSARY) IF APPLICABLE AND YOU MAY USE BACK OF THIS FORM OR EXTRA SHEETS.

(C) & (D) IF THIS STC WILL APPLY TO ONE AIRCRAFT ONLY, MARK NO
IF THIS STC WILL APPLY TO MORE THAN ONE AIRCRAFT AND BE CONSIDERED A MULTIPLE, ANSWER AS APPLICABLE.

SIGNATURE: MAY BE SIGNATURE OF OWNER OR AGENT

TITLE: "OWNER", "AGENT", "PRES", ETC.

This form may be typed or handwritten
After completion, please return to: FEDERAL AVIATION ADMINISTRATION
Modification Branch, ANW-190S
FAA BUILDING, BOEING FIELD
SEATTLE, WASHINGTON 98108