



Traverse City, Michigan 49686

www.45NorthAviation.com

March 18, 2022

VIA EMAIL

National Transportation Safety Board
Attn: Mr. Adam M. Gehardt,
Senior Aviation Accident Investigator
45065 Bles Park Dr.
Ashburn VA 20147

Re: N182XT accident investigation.

Dear Mr. Gehardt:

This letter is written in response to your emailed request for information and documentation associated with the subject accident aircraft, and work performed and observations made by 45 North and their respective employees. Please take note that 45 North is divided into two separate entities: 45 North Aviation, LLC and Evans Avionics, LLC d/b/a 45 North Avionics. I have taken the liberty of forwarding your email to Branden Hess, 45 North Aviation, LLC Director of Maintenance to permit him to answer your inquiries relating their activities related to the aircraft.

Specifically, you communicated your request for:

- 1) Work orders and maintenance logbook endorsements for any maintenance performed in the preceding 12 months;
- 2) Confirmation of whether or not 45 North has possession of the physical logbooks for the aircraft;
- 3) Our understanding of whether the owner of the aircraft utilized an electronic maintenance record or a traditional paper logbook;
- 4) Statement(s) from 45 North mechanics pertaining to "the known problem with the auto-pilot"; corrective action taken; whether the aircraft was returned to service; and whether the autopilot was returned to service, and if not, why not.
- 5) Information on whether any mechanic took the aircraft on a "maintenance test flight" recently; and,
- 6) Information about an "alleged engine fire that occurred during recent maintenance".

Addressing each of these points in turn:

- 1) A search of 45 North Avionics' records has produced the documents accompanying this emailed letter in a PDF-formatted file.
- 2) 45 North Avionics is not in possession of any logbooks for N182XT.
- 3) The aircraft owner presented a physical logbook for return to service or other entries. 45 North Avionics provided logbook stickers to the owner when appropriate. We have no knowledge or information if the owner utilized some form of an electronic maintenance record.

- 4) 45 North Avionics can summarize the observations and actions of their technicians as follows:
- a. Servicing of the aircraft's S-TEC 55x autopilot was performed by 45 North Avionics on occasion. 45 North Avionics was initially contacted by the owner in early August, 2021, regarding an ongoing problem with the autopilot. The owner reported that the aircraft would porpoise with the autopilot engaged and altitude hold selected. The tendency towards porpoising would progressively increase with time. The owner stated that he had taken his aircraft to another avionics repair shop with the same problem, but that the issue persisted.
 - b. The owner shipped an autopilot pressure transducer to 45 North Avionics, and it was shipped to the S-TEC factory for testing. We do not know who removed the transducer from the aircraft. S-TEC reported no faults found with the transducer and the owner was so informed. Ref: S-TEC 08/11/2021 Service Repair Order ("SRO") R000100804, and FAA Form 8130 dated 08/31/2021, attached.
 - c. The owner presented the aircraft at 45 North Avionics on September 22, 2021. 45 North deactivated the autopilot system, removed the autopilot pitch servo and sent it to S-TEC for testing. The owner was provided with a logbook sticker.
 - d. The pitch servo was sent to S-TEC for inspection and repair. Ref: S-TEC 09/28/2021 SRO R000101266, and FAA Form 8130 dated 09/30/2021, attached.
 - e. A 45 North Avionics invoice was generated when the pitch servo and altitude pressure transducer were reinstalled in the aircraft on 10/31/2021. The owner was provided with a sticker for placement in the aircraft's logbook. Ref: invoice #1443 and corresponding maintenance release, attached.
 - f. The owner departed with the aircraft and later called to report that the autopilot function had improved, but the initial symptoms were still present.
 - g. The owner again presented the aircraft at 45 North Avionics on 11/02/2021. With the owner as pilot, an avionics technician rode in the aircraft to observe autopilot function in the air and the reported anomaly was verified. The autopilot was again deactivated and its programmer/computer was removed and sent to S-TEC for inspection.
 - h. S-TEC reported updating the programmer/computer and replacing a capacitor to help stabilize pitch function. Ref: S-TEC 11/8/2021 SRO R000101647, and FAA Form 8130 dated 11/15/2021, attached.
 - i. The programmer/computer was reinstalled in the aircraft, INOP placards removed, circuit breaker reset and system ground-tested on 12/3/2021. The owner was provided with a sticker for placement in the aircraft's logbook. With the owner as pilot, an avionics technician again rode in the aircraft to observe autopilot function in the air. The porpoising anomaly was observed to be still present, although diminished when the pitch trim was selected "OFF". The aircraft was left at 45 North Avionics.
 - j. On 12/17/2021, the Elevator Trim Servo was sent to S-TEC for inspection. S-TEC reported finding faults with the unit, replaced the motor, capstan and clutch hardware. Ref: S-TEC 01/5/2022 SRO R000102019, and FAA Form 8130 dated 01/11/2022, attached.
 - k. On 01/21/2022, the repaired Elevator Trim Servo was reinstalled. Ground function tests were performed with no anomalies noted. An invoice (#1443) logbook sticker was generated and the aircraft returned to service.
 - l. The owner retrieved the aircraft on 01/31/2022. The logbook sticker was provided to the owner along with the invoice. Sometime thereafter, the owner telephoned and reported that the porpoising issue persisted.
 - m. 45 North Avionics contacted S-TEC for further guidance. S-TEC suggested that the Pitch Servo be returned for warranty repair. This information was relayed to the owner.

- n. The owner returned to 45 North Avionics with the aircraft on 02/14/2022. The owner reported that the elevator trim wheel was a little stiffer than before the trim actuator and pitch trim servo replacements. The owner advised that he had performed autopilot/trim system troubleshooting on his own, although the specifics of his actions were not conveyed. The owner indicated that the Programmer/Computer now displayed a fault, and that the manual elevator trim wheel operation appeared normal. Because 45 North Avionics was not immediately able to accommodate the aircraft, the owner decided to depart with the aircraft and return at another time. 45 North Avionics performed no maintenance or inspection of the aircraft on this date.
 - o. 45 North Avionics is an authorized S-TEC dealer. S-TEC was consulted numerous times throughout the troubleshooting process,
- 5) 45 North Avionics defers this inquiry to 45 North Aviation, LLC for a response.
 - 6) 45 North Avionics defers this inquiry to 45 North Aviation, LLC for a response.

45 North Avionics stands prepared to respond timely to any additional information in support of your investigation. Please feel free to contact me again via email if you have any additional questions.

Sincerely,



Mark Walters,
Avionics Manager

13 Oct, 2021

N182XT

Installed factory repaired S-TEC pitch servo and associated hardware.

Installed S-TEC altitude pressure transducer and associated hardware.

Removed collar on CB and removed INOP placard.

Performed functional ground test of S-TEC System 55X autopilot, ops check good. Updated GTX345 SN: 3EG007316 to main software version 2.60 and ADS-B software version 3.21 IAW Garmin service bulletin NO.: 2152 Rev A.

Altitude Pressure Transducer SN: 0422-31094 AA | PN: 0111

Pitch Servo SN: 12476 CDEFG | PN: 0108-P4

MAINTENANCE RELEASE

The airframe, powerplant or appliance identified above was repaired and inspected in accordance with current regulations of the F.A.A. and is approved for return to service. Pertinent details of the repair are on file at this repair station under order no. WO 1443

Date 13 Oct 2021 Signed [REDACTED]

for Evans Avionics, L.L.C., Cherry Capital Airport,
Traverse City, MI 49686, F.A.A. certified repair station no. E92R057X.

Cherry Capital Airport
1190-A Airport Access Road
Traverse City, Michigan 49686

NO. 1443

DATE: 13 OCT 2021

Name	D. SLATTERY	Charge	Cash	Credit Card
Address		City	State	Zip Code
Phone Numbers				
Make and Model	C-182R			
Registration No.	U182XT			
Serial No.	18266723			

[illegible]

TOTAL PARTS
Celebrating over 42 years of
Avionics Service

EVANS AVIONICS, L.L.C.
Capital Airport, 1190-A Airport Access
Cherry Traverse City, Michigan 49686

DATE 30.07.2021 OWNER D. S. BATTERY N# 182XT

[illegible]

EVANS AVIATION, INC.
Cherry Capital Airport, 1190-A Airport Access Road
Traverse City, Michigan 49686
268-0764

AVIONICS DISCREPANCY LIST
REPAIR STATION NO. E92R057X

1443

DATE 1300 2021 OWNER D. SLATTERY

N# 182XT

ITEM NO.		COMPLAINT & DESCRIPTION				CORRECTIVE ACTION	TECH	INSP
(2)		REMOVED PITCH SERVO SENT FOR REPAIR + RE INSTALL Model STECS5 PITCH SERVO S/N 12476 CDEFG P/N 0108-P4				REMOVED A/P PITCH SERVO SENT TO S-TEC FOR REPAIR. STEC FOUND HIGH STATOR VOLTAGE + REPLACED MOTOR. ALSO REPLACED CON TRIM SW. RE INSTALLED SERVO SYSTEM OPS. OK GOOD FAW S-TEC MM.		
		INSPECTION						
		PRELIMINARY						
		HIDDEN DAMAGE						
		PROGRESSIVE						
		FINAL						
QTY	PART NO.	DESCR.	SYMBOL	MFG				
5	E E							
		w/e						
MAINTENANCE RELEASE						DATE	TECH	TIME
The aircraft, airframe or appliance identified above was repaired and inspected in accordance with current regulations of the Federal Aviation Agency and is approved for return to service. Pertinent details of the repair are on file at this repair station under Work Order No. 1443						S E E		
Date 13 OCT 2021							w/e	
Signature [Redacted]								

1. Approving Civil Aviation Authority/Country: FAA / United States		2.		3. Form Tracking Number: 50182	
AUTHORIZED RELEASE CERTIFICATE FAA Form 8130-3 AIRWORTHINESS APPROVAL TAG					
4. Organization Name and Address: S-TEC Corporation, One S-TEC Way, Mineral Wells, TX 76067-9236					
6. Item:	7. Description:	8. Part Number:	9. Quantity:	10. Serial Number:	11. Status/Work:
1	ABSOLUTE PRESSURE TRANSDUCER	0111	1	0422-31094 AA	REPAIRED
12. Remarks: See attached SRO # R000100804 for work performed and parts used.					
The work specified has been accomplished in accordance with S-TEC Component Maintenance Manual number 87141, Revision C, Dated 8/1/2017					
13a. Certifies the items identified above were manufactured in conformity to:			14a. X	14 CFR 43.9 Return to Service	Other regulation specified in Block 12
☐ Approved design data and are in a condition for safe operation. ☐ Non-approved design data specified in Block 12.			Certifies that unless otherwise specified in Block 12, the work identified in Block 11 and described in Block 12 was accomplished in accordance with Title 14, Code of Federal Regulations, part 43 and in respect to that work, the items are approved for return to service.		
13b. Authorized Signature:		13c. Approval/Certificate No.:		14b. Authorized Signature:	
13d. Name (typed or printed):		13e. Date (dd/mm/yyyy):		14d. Name (typed or printed):	
				Kenny Poynor	
				14e. Date (dd/mm/yyyy): 31/Aug/2021	
User/Installer Responsibilities					
It is important to understand that the existence of this document alone does not automatically constitute authority to install the aircraft engine/propeller/article. Where the user/installer performs work in accordance with the national regulations of an airworthiness authority different than the airworthiness authority of the country specified in Block 1, it is essential that the user/installer ensures that his/her airworthiness authority accepts aircraft engine(s)/propeller(s)/article(s) from the airworthiness authority of the country specified in Block 1.					
Statements in Blocks 13a and 14a do not constitute installation certification. In all cases, aircraft maintenance records must contain an installation certification issued in accordance with the national regulations by the user/installer before the aircraft may be flown.					

CRS FF2R818K

Customer: [C000194-0]
Evans Avionics LLC



One S-TEC Way
Mineral Wells, TX 76067-9235

SRO #: R000100804

Line #: 1
Incident #: I000044599
Start Date: 8/11/2021

Mark Walters

Tel: [REDACTED]

Email: [REDACTED]

AIRCRAFT DATA:

Registration: N182XT

Year:

Make: CESSNA

Model: 182

S/N: 18266723

Voltage: 28V

AUTOPILOT: System 55/55X

Install Date:

Heading System

STOL System

Hobbs/Tach - Install

Current:

Cust PO: N182QT_ALT_XDCR

Ret Ship: UPS Blue

SRO Type: STEC-NWR

Return Failure

Reason:

AUTOPILOT PORPOISE +/- 500 FT WITH
ALTITUDE HOLD SELECTED. VS MODE OK

REPAIR STATION ACTIONS

	Inspector		Repair Time	Technician(s):
Preliminary Inspection	[REDACTED]	Blake McDonald	0.00	P000000720- Blake McDonald [REDACTED] P000000720- Blake McDonald [REDACTED] Final Inspection: 8/31/2021
No obvious defects				
Hidden Damage Inspection	Inspector [REDACTED]	Blake McDonald	0.00	[REDACTED] Kenny Poyner [REDACTED]
N/A				
Work Performed:			0.00	Component Data:
NFF - No faults found.			0.00	P/N: 0111
Ran in reference to mfg. spec.			0.00	S/N: 0422-31094 AA
Approved for return to service.			0.00	CMM:
				P/N: 87141
				Rev: C
Total Repair Time			0.00	
Labor Charge				

Qty	Part #	Description	Sale Amt
1.00	SVC-NFF-0111	0111 NFF	275.00
Total Parts:			275.00
Total Labor:			0.00
Tax:			0.00
Total Amount:			275.00

TERMS: STRICTLY CASH without prior arrangements

Remarks:

The Aircraft or appliance identified herein was overhauled, repaired or functional tested and inspected in accordance with FAA Regulations and is approved for return to service. Pertinent details are often on file at this repair station under the above repair order number.

8633 Rev O

1. Approving Civil Aviation Authority/Country: FAA / United States		2. AUTHORIZED RELEASE CERTIFICATE FAA Form 8130-3 AIRWORTHINESS APPROVAL TAG		3. Form Tracking Number: 50363	
4. Organization Name and Address: S-TEC Corporation, One S-TEC Way, Mineral Wells, TX 76067-9236 (Certificate No. PF2R818K)				5. Work Order / Contract / Invoice Number: R000101266	
6. Item: 1	7. Description: PITCH SERVO, 28V	8. Part Number: 0108-P4	9. Quantity: 1	10. Serial Number: 12476 CDEFG	11. Status/Work: REPAIRED
12. Remarks: See attached SRO # R000101266 for work performed and parts used. The work specified has been accomplished in accordance with S-TEC Component Maintenance Manual number 87138, Revision D, Dated 1/3/2017					
13a. Certifies the items identified above were manufactured in conformity to: ☐ Approved design data and are in a condition for safe operation. ☐ Non-approved design data specified in Block 12.			14a. ☒ 14 CFR 43.9 Return to Service Certifies that unless otherwise specified in Block 12, the work identified in Block 11 and described in Block 12 was accomplished in accordance with Title 14, Code of Federal Regulations, part 43 and in respect to that work, the items are approved for return to service.		Other regulation specified in Block 12
13b. Authorized Signature:		13c. Approval/Certificate No.:		14c. Approval/Certificate No.:	
13d. Name (typed or printed):		13e. Date (dd/mm/yyyy):		14e. Date (dd/mm/yyyy):	
				30/Sep/2021	
User/Installer Responsibilities					
It is important to understand that the existence of this document alone does not automatically constitute authority to install the aircraft engine/propeller/article. Where the user/installer performs work in accordance with the national regulations of an airworthiness authority different than the airworthiness authority of the country specified in Block 1, it is essential that the user/installer ensures that his/her airworthiness authority accepts aircraft engine(s)/propeller(s)/article(s) from the airworthiness authority of the country specified in Block 1. Statements in Blocks 13a and 14a do not constitute installation certification. In all cases, aircraft maintenance records must contain an installation certification issued in accordance with the national regulations by the user/installer before the aircraft may be flown.					

CRS FF2R818K



SRO #: R000101266

Customer: [C000194-0]
Evans Avionics LLC

One S-TEC Way

Line #: 1

Incident #: 1000044925

Start Date: 9/28/2021

Mark Walters

AIRCRAFT DATA:

Tel: 231-668-6000

Registration: N182XT

Year:

AUTOPILOT: System 55/55X

Email:

Make: CESSNA

Install Date:

Model: 182Q

Heading System:

S/N: 18266723

STOL System:

Voltage: 28V

Hobbs/Tach - Install:

Current:

Cust PO: N182XT Ret Ship: UPS Blue SRO Type: STEC-NWR	Return Failure Reason:	AUTOPILOT WILL NOT HOLD ALTITUDE. PITCH OSCILLATIONS START SMALL 3-500 FPM, AND GRADUALLY INCREASE	
REPAIR STATION ACTIONS		Repair Time	Technician(s):
Preliminary Inspection	Inspector: [REDACTED] Michael Stover	0.00	[REDACTED] Michael Stover [REDACTED] Michael Stover
No tamper seal. Capsta hardware and bridle cable included. No visible defects.			Final Inspection: 9/30/2021
Hidden Damage Inspection	Inspector: [REDACTED] Michael Stover	0.00	[REDACTED] Blake McDonald
N/A			
Work Performed:		0.00	Component Data:
CC - Motor start-up high, replaced motor. Replaced CCW trim switch and spring. Clutch is set at 35 in lbs, CCW, per ST-586. Trim switches are set in spec at 6 inch lbs.		0.00	P/N: 0108-P4
Ran in reference to MFG. specs.		0.00	S/N: 12476 CDEFG
Approved for return to service.		0.00	CMM: P/N: 87138
Total Repair Time		0.00	Rev: D
Labor Charge			

Qty	Part #	Description	Sale Amt
1.00	1253-1	WASHER, TENSION, .040 THK	0.00
1.00	1257	WASHER, 1.30DX, .875IDX, .031	0.00
1.00	1505-12	PIN, COTTER, 1/16 X 3/4 (MS24665-134)	0.00
1.00	23105Z05A	CAP, CER, 1UF, -20+80%, 50V	0.00
1.00	3501	SWITCH, TRIM, 4AMP, 28V, MINI	0.00
1.00	4205	SPRING, TRIM SWITCH, 0.15	0.00
1.00	5308-4	MOTOR, GEAR, 24 VDC, CODE E	0.00
1.00	6107-312	RING, RETAINING, 5/16" STEEL	0.00
1.00	SVC-MAJ-0108	0108 Major Level Repair	1,155.00
Total Parts:			1,155.00
Total Labor:			0.00
Tax:			0.00
Total Amount:			1,155.00

TERMS: STRICTLY CASH without prior arrangements

Remarks:

The Aircraft or appliance identified herein was overhauled, repaired or functional tested and inspected in accordance with FAA Regulations and is approved for return to service. Partinent details are often on file at this repair station under the above repair order number.

8633 Rev O

Dec 3, 2021

N182XT

Removed placards, reset circuit breaker, reinstalled factory repaired autopilot computer PN: 01192-0-2TF SN: 6172. Performed ops check IAW S-TEC Flight Line Service Manual. Ops check good.

MAINTENANCE RELEASE

The airframe, powerplant or appliance identified above was repaired and inspected in accordance with current regulations of the F.A.A. and is approved for return to service. Pertinent details of the repair are on file at this repair station under order no. WO_1443.

Date _____ Signed _____

for Evans Avionics, L.L.C., Cherry Capital Airport,
Traverse City, MI 49686, F.A.A. certified repair station no. [REDACTED]

1. Approving Civil Aviation Authority/Country: FAA / United States		2.		3. Form Tracking Number: 50671	
AUTHORIZED RELEASE CERTIFICATE FAA Form 8130-3 AIRWORTHINESS APPROVAL TAG					
4. Organization Name and Address: S-TEC Corporation, One S-TEC Way, [REDACTED]					
6. Item:	7. Description:	8. Part Number:	9. Quantity:	10. Serial Number:	11. Status/Work:
1	PRGMR/CMPTR 14/28 55/55X	01192-0-2TF	1	6172	REPAIRED
12. Remarks: See attached SRO # R000101647 for work performed and parts used.					
The work specified has been accomplished in accordance with S-TEC Component Maintenance Manual number 87145, Revision E, Dated 7/31/2017					
13a. Certifies the items identified above were manufactured in conformity to:			14a. X	14 CFR 43.9 Return to Service	Other regulation specified in Block 12
☐ Approved design data and are in a condition for safe operation. ☐ Non-approved design data specified in Block 12.			Certifies that unless otherwise specified in Block 12, the work identified in Block 11 and described in Block 12 was accomplished in accordance with Title 14, Code of Federal Regulations, part 43 and in respect to that work, the items are approved for return to service.		
13b. Authorized Signature:		13c. Approval/Certificate No.:		14c. Approval/Certificate No.:	
[REDACTED]		[REDACTED]		[REDACTED]	
13d. Name (typed or printed):		13e. Date (dd/mm/yyyy):		14d. Name (typed or printed):	
Blake McDonald		15/Nov/2021		15/Nov/2021	
User/Installer Responsibilities					
It is important to understand that the existence of this document alone does not automatically constitute authority to install the aircraft engine/propeller/article. Where the user/installer performs work in accordance with the national regulations of an airworthiness authority different than the airworthiness authority of the country specified in Block 1, it is essential that the user/installer ensures that his/her airworthiness authority accepts aircraft engine(s)/propeller(s)/article(s) from the airworthiness authority of the country specified in Block 1.					
Statements in Blocks 13a and 14a do not constitute installation certification. In all cases, aircraft maintenance records must contain an installation certification issued in accordance with the national regulations by the user/installer before the aircraft may be flown.					

CRS FF2R818K



SRO #: R000101647

Customer: [C000194-0]
Evans Avionics LLC

One S-TEC Way
Mineral Wells, TX 76067-9236

Line #: 1
Incident #: I000045188
Start Date: 11/8/2021

Jack Gavin

AIRCRAFT DATA:

Tel: [REDACTED]

Registration: N182XT

Email: [REDACTED]

Year:

AUTOPILOT: System 55/55X

Make: CESSNA

Install Date:

Model: 182

Heading System:

S/N: 18266723

STOL System:

Voltage: 28V

Hobbs/Tach - Install:

Current:

Cust PO: N182XT	Return Failure	AUTOPILOT PORPOISE +/- 500 fpm IN ALTITUDE HOLD MODE. PITCH TRIP APPEARS TO BE OPERATING PROPERLY. VERTICAL SPEED OK. ALL OTHER MODES OK
Ret Ship: UPS 3 Day	Reason:	
SRO Type: STEC-NWR		

REPAIR STATION ACTIONS			Repair Time	Technician(s):
Preliminary Inspection	Inspector	P000010130- Timmy Coufal	0.00	[REDACTED]
Warranty label broken. No obvious defects. AN/AE hardware/software.				Final Inspection: 11/15/2021
Hidden Damage Inspection	Inspector	P000010130- Timmy Coufal	0.00	Blake McDonald
N/A				
Work Performed:			0.00	Component Label
Other. Backlighting inop. Replaced display per ECO 17909. Performed ECO's 18440 and 18659 to bring hardware/software to AR/AF. Replaced C16 capacitor to help stabilize pitch function. Adjusted accelerometer within spec.			0.00	P/N:
Ran in reference to manf. specs.			0.00	01192-0-2TF
Approved for return to service.			0.00	S/N:
				6172
				CMM:
				P/N:
				87145
				Rev:
				E
Total Repair Time			0.00	
Labor Charge				

Qty	Part #	Description	Sale Amt
1.00	031152-02	DISPLAY ASSY, SYS 55X, LCD,	0.00
1.00	20S10202200KT	RESISTOR,200K,1%,1/10W	0.00
1.00	20S102025K82T	RESISTOR,5.62K,1%,1/10W	0.00
1.00	20S10202909KT	RESISTOR,909K,1%,1/10W	0.00
1.00	2507	CAPACITOR,METALIZED FILM	0.00
4.00	44673-02	SPACER, SUPPORT, PCB, .120T	0.00
2.00	MS15795-801	WASHER, PLAIN, .188 OD X .0781 ID X .020	0.00
1.00	SVC-MIS-01192	01192 Misc Repair	683.00
Total Parts:			683.00
Total Labor:			0.00
Tax:			0.00
Total Amount:			683.00

TERMS: STRICTLY CASH without prior arrangements

Remarks:

The Aircraft or appliance identified herein was overhauled, repaired or functional tested and inspected in accordance with FAA Regulations and is approved for return to service. Pertinent details are often on file at this repair station under the above repair order number.

8633 Rev O

21 Jan, 2022

N182XT

Removed placards, reset circuit breaker, reinstalled factory repaired autopilot computer PN: 01192-0-2TF SN: 6172. Performed ops check IAW S-TEC Flight Line Service Manual. Ops check good. Remove pitch trim servo PN: 0106-T10 SN: 17299 CEFG to send to Aero Genesys for repair. Reinstall pitch trim servo, PN: 0106-T10 SN: 17299 CEFG. System ops check good IAW S-Tec 55X Flightline service manual.

MAINTENANCE RELEASE

The airframe, powerplant or appliance identified above was repaired and inspected in accordance with current regulations of the F.A.A. and is approved for return to service. Pertinent details of the repair are on file at this repair station under order ~~per WO~~ 1443

Date [REDACTED] Signed [REDACTED]

for Evans Avionics, L.L.C., Cherry Capital Airport,
Traverse City, MI 49686, F.A.A. certified repair station no. E92R057X.

AVIONICS DISCREPANCY LIST
REPAIR STATION NO. E92R057X

Cherry Capitol Airport, 1190-A Airport Access Road
Traverse City, Michigan 49686
231/941-9764

W.O. # 14143

DATE 27 JAN 2022

OWNER

Slatery, Donald

[illegible]

77 JAN 2022

Signed

1. Approving Civil Aviation Authority/Country: FAA / United States		2.		3. Form Tracking Number: 50970	
AUTHORIZED RELEASE CERTIFICATE FAA Form 8130-3 AIRWORTHINESS APPROVAL TAG					
4. Organization Name and Address: S-TEC Corporation, [REDACTED]					
6. Item:	7. Description:	8. Part Number:	9. Quantity:	10. Serial Number:	11. Status/Work:
1	TRIM SERVO, 28V	0106-T10	1	17299 CEFG	REPAIRED
12. Remarks: See attached SRO # R000102019 for work performed and parts used.					
The work specified has been accomplished in accordance with S-TEC Component Maintenance Manual number 87136, Revision E, Dated 1/4/2017					
13a. Certifies the items identified above were manufactured in conformity to:		14a. ☒ 14 CFR 43.9 Return to Service		Other regulation specified in Block 12	
☐ Approved design data and are in a condition for safe operation. ☐ Non-approved design data specified in Block 12.		Certifies that unless otherwise specified in Block 12, the work identified in Block 11 and described in Block 12 was accomplished in accordance with Title 14, Code of Federal Regulations, part 43 and in respect to that work, the items are approved for return to service.			
13b. Authorized Signature:		13c. Approval/Certificate No.:		14c. Approval/Certificate No.:	
[REDACTED]		[REDACTED]		[REDACTED]	
13d. Name (typed or printed):		13e. Date (dd/mm/yyy):		14e. Date (dd/mm/yyy):	
Kenny Poyner				11/Jan/2022	
User/Installer Responsibilities					
It is important to understand that the existence of this document alone does not automatically constitute authority to install the aircraft engine/propeller/article. Where the user/installer performs work in accordance with the national regulations of an airworthiness authority different than the airworthiness authority of the country specified in Block 1, it is essential that the user/installer ensures that his/her airworthiness authority accepts aircraft engine(s)/propeller(s)/article(s) from the airworthiness authority of the country specified in Block 1.					
Statements in Blocks 13a and 14a do not constitute installation certification. In all cases, aircraft maintenance records must contain an installation certification issued in accordance with the national regulations by the user/installer before the aircraft may be flown.					



Customer: [C000194-0]
Evans Avionics LLC

One S-TEC Way

Line #: 1
Incident #: 1000045447
Start Date: 1/5/2022

Mark Evans

Tel:

Email:

AIRCRAFT DATA:

Registration:

Year:

Make:

Model:

S/N:

Voltage:

AUTOPILOT:

Install Date:

Heading System:

STOL System:

Hobbs/Tach - Install:

Current:

Cust PO:	Return Failure	AUTOPILOT PORPOISES IN ALTITUDE HOLD WITH TRIM SELECTED ON, WORKS FINE WITH TRIM OFF
Ret Ship: UPS Ground	Reason:	
SRO Type: STEC-NWR		

REPAIR STATION ACTIONS			Repair Time	Technician(s):
Preliminary Inspection	Inspector	P000010133- James Bryant	0.00	James Bryan
No damage noted. No capstan hardware or cable provided. Worn capstan.				James Bryan
Hidden Damage Inspection	Inspector	P000010133- James Bryant	0.00	Final Inspection: 1/11/2022
N/A				Kenny Poyner
Work Performed:			0.00	Componer
Other - High motor startup. Replaced motor.			0.00	P/N:
Other - Replaced worn capstan & clutch hardware. Clutch set to 24 in-lb, rotation CCW per TK-586			0.00	0106-T10
Ran in reference to Mfg. specs.			0.00	S/N:
Approved for return to service.				17299 CEFG
Total Repair Time			0.00	CMM:
Labor Charge				P/N:
				87136
				Rev:
				E

Qty	Part #	Description	Sale Amt
2.00	1205S5-010	WASHER,SHIM,SS,	0.00
1.00	12146	WASHER, SHIM, STAINLESS	0.00
2.00	1252	CLUTCH PLATE,SLOTTED	0.00
3.00	1253	WASHER, TENSION,.032 THK	0.00
6.00	1257	WASHER,1.3ODX.875IDX.031	0.00
1.00	1505-12	PIN,COTTER,1/16 X 3/4 (MS24665-134)	0.00
1.00	23105Z05A	CAP,CER,1UF,-20+80%,50V	0.00
1.00	5308-10	MOTOR,GEAR,24 VDC	0.00
1.00	6107-312	RING,RETAINING,5/16"STEEL	0.00
1.00	6202-1	CAPSTAN ASSY,THREADED	0.00
1.00	SVC-MAJ-0106	0106 Major Level Repair	1,155.00
Total Parts:			1,155.00
Total Labor:			0.00
Tax:			0.00
Total Amount:			1,155.00

TERMS: STRICTLY CASH without prior arrangements	Remarks:
---	----------

The Aircraft or appliance identified herein was overhauled, repaired or functional tested and inspected in accordance with FAA Regulations and is approved for return to service. Pertinent details are often on file at this repair station under the above repair order number.



[REDACTED] Traverse City, Michigan 49686 [REDACTED]

www.45northaviation.com

03/18/2022

Mr. Gerhardt,

Regarding all previous repairs on N182XT here at 45 North Aviation.

The first repair performed on the aircraft by us was replacement of the trim actuator. We determined replacement was required after a visual inspection of the actuator revealed one of the two roll pins that hold the sprocket on had fallen out. In addition, Cessna's recommended time in service for the actuator had not previously been followed (1000 hours/ 3years). The owner of the aircraft sourced/purchased the new actuator on his own and it arrived with an 8130-3 form from Textron. This part was installed on December 8th, 2021.

The second repair was the replacement of the flexible intake duct that connects the cowl to the carb airbox. Replacement of the duct was needed due to an over priming scenario that resulted in an intake fire. Being the low point in the system for fuel to collect, the silicone duct was damaged by the fire and required replacement. No other damage was noted in the vicinity. The part was sourced from Textron and installed January 24, 2022.

Logbook stickers for return to service were provided to the owner at each time of delivery.

Branden Hess
Director of Maintenance

[REDACTED]

[REDACTED]



Invoice

Work Order: WO_1879

Date: February 07, 2022

Started: 12/02/2021 • Completed: 02/07/2022

December monthly

45 North Aviation

AIRCRAFT

Monthly

Avionics Monthly

BILL TO

45 North Avionics

45 North Avionics Avionics

4. N182XT Remove and replace flexable intake Duct.

4-1 Corrective Action

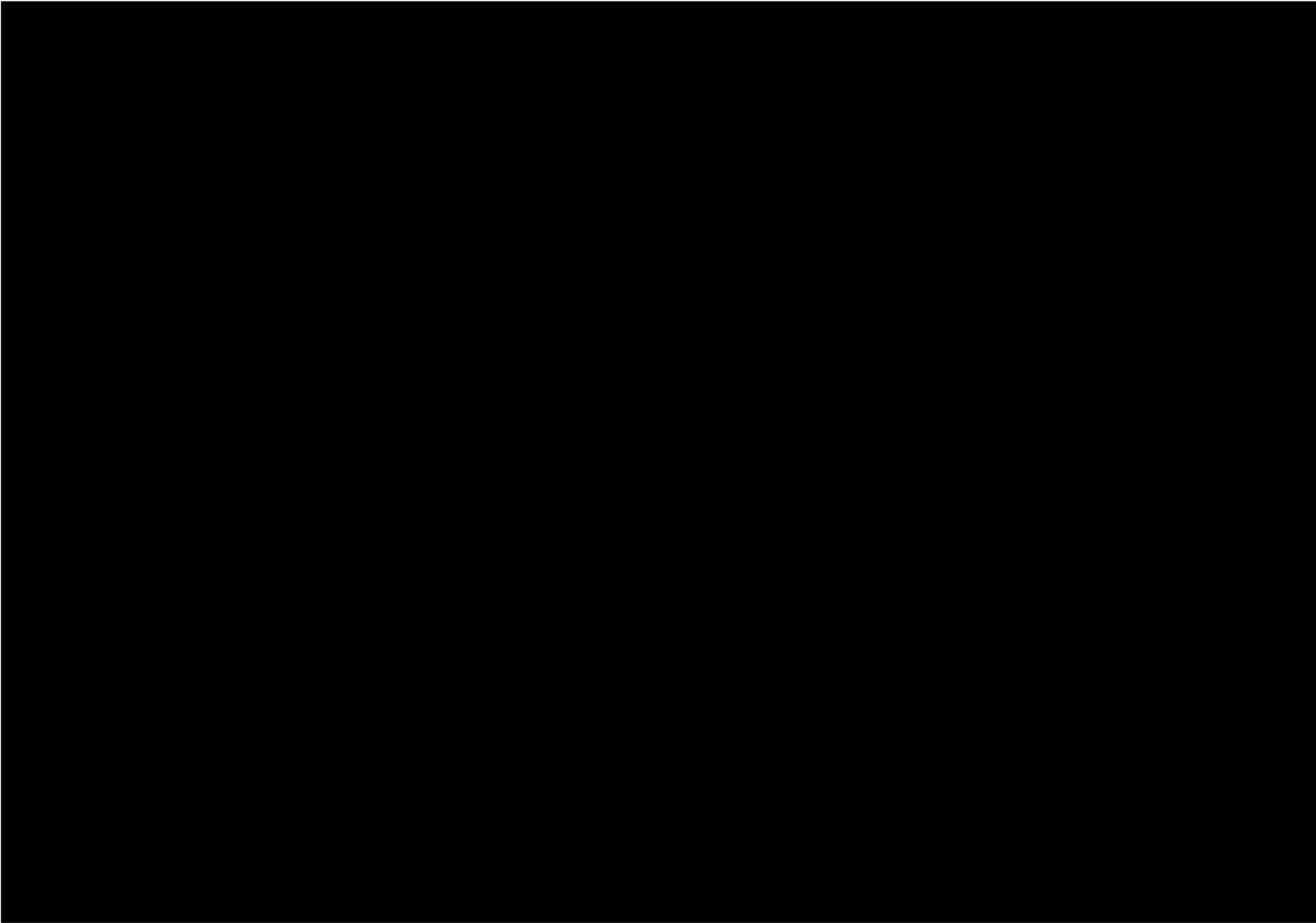
Removed flexible intake duct and replaced w/ new P/N 0752016-7.

-- labor: 4.8 hrs @ \$125.00

Parts Installed:

- 1 x 0752016-7 Boot Expander @ \$447.99

labor: \$600.00 • parts: \$447.99 • misc: \$0.00 • sub-total: \$1,047.99





N182XT
TACH: 1977.6

Cessna, 182Q, S/N: 18266723

December 08, 2021

Replaced elevator trim actuator with new Textron 1260074-1. Ref 8130-3 form # 7537652. (Owner supplied part) All work done IAW Cessna 182Q Service Manual.

With respect to the work performed, this airframe is approved for return to service. Details of work performed are on file with 45 North Aviation under work order: WO_1892.

Chase Voudren A&P