

AMERIFLIGHT

March 01, 2021

Mr. Joe Ojeda
Principal Avionics Inspector
San Antonio FSDO

[REDACTED]
San Antonio, TX 78216

Dear Mr. Ojeda,

Attached are the documents and photos from the accident investigation of aircraft N362AE that was performed on February 25, 2021.

The Ameriflight A&P Mechanics that assisted with inspection were:

Christopher Ostrowski – A&P [REDACTED]

Konrad Wiktorzak – A&P [REDACTED]

Let me know if you have any questions or need any additional information regarding this investigation.

Thank you,

[REDACTED]
Pat Kremer
V.P. Maint. / D.O.M.
Ameriflight, LLC

[REDACTED] | DFW Airport, TX 75261

PH: [REDACTED] ext. [REDACTED] | c. [REDACTED]

N362AE - NTSB Workscope

	Model	Serial Number	Aircraft Total Time	Aircraft Total Cycles
Aircraft Details:	SA227-AC	AC677B	28,988.20	39,883
Full flight control surface check with travel boards -				Maint Manual Ref 27-00-00
	Left	Right		Limits
Aileron Travel	18.5 UP / 21.0 DOWN	18.5 UP / 21.0 DOWN		UP - 18.5 $\pm$ 1 / DOWN - 21.50 $\pm$ 1
	UP	DOWN		
Elevator Travel	31	15		UP 30 $\pm$ 1 / DOWN 15 $\pm$ 1
	Left	Right	Center	
Rudder Travel	26	26.5	0	25.0 $\pm$ 1
Full trim control check				27-00-00
STAB Trim full travel time check completed and found satisfactory - See AMF Task Card				
Flap check to ensure they evenly extend / retract				27-00-00
Due to flap damage could not run flaps.				
Check for fuel at FCU				73-10-00
Fuel line at FCU was disconnected after the accident to drain the fuel due to excessive leaks.				
Checked and found fuel at the left and right engine fuel control unit filter bowls.				
Prop photos - left right / mark blades				Will provide
See attached photos				
SA227 Hard Landing Insp				05-10-00

Completed hard landing inspection. Due to damage to the wheel assys did not remove.

Engine borescope inspection

72-00-00 (TPE331 MM)

Engine hot gas path borescope inspection completed and found satisfactory

Borecope inspection completed on right and left engines no damage found - See photos

AMERIFLIGHT®

SA-227 AIRCRAFT MAINTENANCE LOG

Log Page No. **156233**

SRL MUST BE ON FOR DATA COLLECTION		
AIRCRAFT MUST BE IN CRUISE CONFIGURATION		
ENVIRONMENTAL CONDITIONS		
IOAT C°		
PRESS ALT		
KIAS		
ENG COND	LEFT	RIGHT
EGT		
TORQUE		
RPM		
FUEL FLOW		
OIL TEMP		
OIL PRESS		
BLEED SETTING		
ANTI-ICE		

*NO
Flight MX only*

VOR RECEIVER CHECK	
TEST POINT	
TYPE OF CHECK	
NAV 1 TO FROM	NAV 2 TO FROM
DIFFERENCE	
SIGNATURE AND DATE	

DATE 2/25/21	A/C N 362AE
CAPTAIN —	FLT/SPL# —
EMP ID# —	FO —
EMP ID# —	

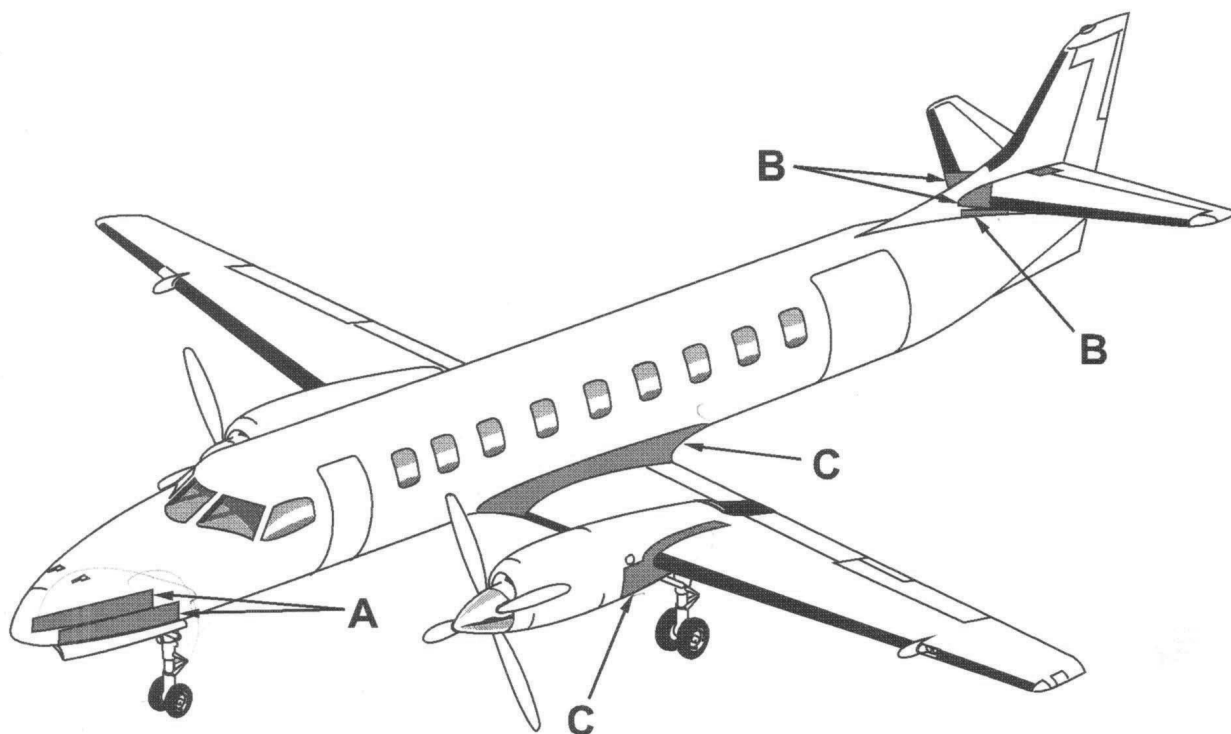
CAPTAINS SIGNATURE —

	AIRFRAME HOURS	AIRFRAME CYCLES
CARRIED FORWARD	—	—
THIS FLIGHT	—	—
TOTALS	28988.2	39883

MECHANICAL DISCREPANCIES / TASKS			CORRECTIVE ACTION		
# 2-1	Flight ☐ Maint ☒	Airport ID: SAT	ATA 27		
Flight control Travel check Required for FAA			performed Travel checks of Aileron, Elevator, RUDDER checks IAW SA227MM 27-00-00. Item found to be within Travel limits. performed Horizontal stab travel time check IAW AMF TC 227-27-40 -02. Found Items passed see Attached TC.		
			SIGN [REDACTED]		
			Cert: ADP		
			STA SAT DATE 2/25/21		
			PCT#		
# 2-2	Flight ☐ Maint ☒	Airport ID: SAT	ATA 05		
Hard landing INSP Required			performed structural INSP per SA227MM 05-50-10 see Attached no. further action Required.		
			SIGN [REDACTED]		
			Cert: ADP		
			STA SAT DATE 2/25/21		
			PCT#		
#	Flight ☐ Maint ☐	Airport ID:	ATA		
			SIGN		
			Cert:		
			STA DATE		
			PCT#		
WHITE PAGE (ORIGINAL): BUR RECORDS			COPY PAGE : DO NOT REMOVE		

MAINTENANCE MANUAL

STRUCTURAL INSPECTION GUIDE – MAINTENANCE PRACTICE



NOTE: INSPECT THE SAME AREAS ON MERLIN III, IV AND METRO

- A** INSPECT AFTER HARD, OVERLOAD, OR OVERWEIGHT LANDING
- B** INSPECT AFTER TURBULENT AIR
- C** INSPECT AFTER HARD, OVERLOAD, OR OVERWEIGHT LANDING, OR TURBULENT AIR

7M050010201

**Inspection Areas
Figure 201**



MAINTENANCE MANUAL

STRUCTURAL INSPECTION GUIDE – MAINTENANCE PRACTICE

<u>AREA</u>	<u>REQUIREMENT</u>	<u>HARD LANDING</u>	<u>TURBULENT AIR</u>
NACELLE	Inspect wing-to-nacelle attachment for cracks and loose or sheared attachment.	X	X
	<i>R/H Truss checked</i> Inspect engine mount attachment fittings for condition.	X	
	Inspect engine truss assembly for bent or cracked tubes, cracked gussets, and welds.	X	
	Inspect nacelle keelson webs for evidence of permanent buckling. <i>R/H Outboard Damage</i>	X	
	Inspect nacelle upper and lower longerons for evidence of buckling. <i>Buckling INBD/OUTBD R/H</i>	X	
	Inspect aft nacelle bulkhead. <i>Tracked</i>	X	
LANDING GEAR	Inspect MLG drag strut and support fittings for cracks and sheared or loose attachment.	X	
	Inspect actuators, bellcranks and rollers for cracks and damage.	X	
	Inspect MLG axle for permanent set.	X	
	Perform dye penetrant inspection of wheels for cracks in hub and rim flanges.	X	
	Perform landing gear retraction with aircraft on jacks, and check for freedom of motion and clearance.	X	
WINGS	Inspect top and bottom of wing for cracks, permanent wrinkles and/or loose rivets.	X	X
	Inspect wing spar webs for evidence of buckling if external wing skin buckling is present after encountering a hard landing or flight through turbulent air. <i>R/H Spar Damage</i>	X	X
	Inspect leading edge of wing for evidence of skin buckling and/or loose and damaged structure.	X	X
	Inspect wing-to-nacelle aft attachment for cracked or sheared attachments.	X	X
	Remove fairing and inspect area of wing enclosed by fairing. <i>No Damage noted</i>	X	X
	Check for clearance throughout flap travel. <i>N/A</i>	X	X

EFFECTIVITY:

TT 421-999 AT 423-999
AC 420-999 BC 762-999



MAINTENANCE MANUAL

STRUCTURAL INSPECTION GUIDE – MAINTENANCE PRACTICES

<u>AREA</u>	<u>REQUIREMENT</u>	<u>HARD LANDING</u>	<u>TURBULENT AIR</u>
FUSELAGE	Inspect top side and underside of fuselage skin for evidence of buckling. <i>R/H Damaged</i>	X	X
	Inspect skin splices for loose or sheared attachments. <i>N/A</i>	X	X
	Remove wing to fuselage fairing and inspect fuselage skin and frames, in area of wing spars, for permanent set or cracks. ✓	X	X
	Inspect all doors and door alignment. <i>N/A</i>	X	X
	Pressure check cabin to 7.0 psi. <i>N/A</i>	X	X
TAIL	Inspect vertical stabilizer-fuselage attachment by removing fairings. Inspect fairings and tubes for cracks, buckling, and loose attachment. ✓	X	X
	Inspect vertical stabilizer spar fuselage frames. ✓	X	X
	Inspect horizontal stabilizer trim actuator. ✓	X	X
	Inspect rudder surface and hinges for distortion, cracks, and sheared or loose attachment. ✓	X	X
	Check for clearance over full rudder travel. ✓	X	X
CONTROLS	Check flight control system from cockpit; operate all controls and trim tabs through full travel, checking for freedom of movement.	X	X

EFFECTIVITY:

TT 421-999 AT 423-999
AC 420-999 BC 762-999

SA227 SERIES



MAINTENANCE MANUAL
STRUCTURAL INSPECTION GUIDE – MAINTENANCE PRACTICES

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EFFECTIVITY:
TT 421-999 AT 423-999
AC 420-999 BC 762-999

05-50-10 PAGE 204
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AMERIFLIGHT MAINTENANCE TASK CARD

SA-227

CARD NUMBER: 227-27-40-02

DATE: 04/12/2013

REV1: 10/28/2015

SUBJECT: HORIZONTAL STABILIZER – 400 Hour Travel Time Check



AIRCRAFT NO: 3624E	TAT: 28988.2	DATE: 02/25/21	STATION: SAT
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REFERENCES: MM SA227 Series 27-40-10

PARTS/MATERIALS REQUIRED: N/A

TOOLS AND EQUIPMENT REQUIRED: N/A

ITEM	DESCRIPTION	MECH	INSP
A.	OPERATIONAL TEST – ACTUATOR TIME CHECK Time between overhaul (TBO) for pitch trim actuators: P/N DL5040M2-4 & DL5040M2-6 is 2,000 flight hours. ALL actuators require 400 hour travel time check.		
1.	WARNING: Clear tail of ALL personnel and equipment. Injury may occur if near traveling stabilizer. Be sure to notify operator (cockpit) when area is clear.		
2.	Connect GPU to aircraft. NOTE: Adjust GPU to 29.0 VDC, plus 0.0 or minus 0.5 volt. Make written record of time check using ACTUATOR TRAVEL TIME CHECK FORM (FIGURE 1) .		
3.	Turn battery switches ON.		
4.	Using PILOT control wheel trim switch, run horizontal stabilizer to full aircraft nose up position (leading edge of stabilizer will be full down). 22.15 NOTE: Travel time begins at the first trim in motion beep and ends at the last beep. (a) Using pilot control wheel trim switch, run stabilizer to extreme aircraft nose down position (leading edge of stabilizer will be full up). Record time of travel. Verify travel time is 22 to 27 seconds.		
	(b) Using pilot control wheel trim switch, run stabilizer to extreme aircraft nose up position (leading edge of stabilizer will be full down) and record time of travel. 23.27 Verify travel time is 18 to 27 seconds for P/N DL5040M6 actuator and 25 to 30 seconds DL5040M8 actuators.		

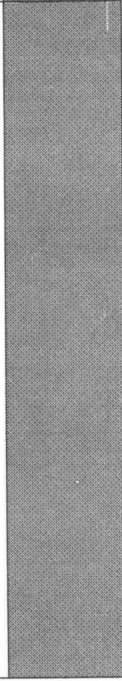
AMERIFLIGHT MAINTENANCE TASK CARD**SA-227**

CARD NUMBER: 227-27-40-02

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SUBJECT: HORIZONTAL STABILIZER – 400 Hour Travel Time Check

ITEM	DESCRIPTION	MECH	INSP
5.	Using COPILOT control wheel trim switch, run horizontal stabilizer to full aircraft nose up position (leading edge of stabilizer will be full down). <i>22.18</i> NOTE: Travel time begins at the first trim in motion beep and ends at the last beep.		
	(a) Using copilot control wheel trim switch, run stabilizer to extreme aircraft nose down position (leading edge of stabilizer will be full up). Record time of travel. Verify travel time is 22 to 27 seconds.		
	(b) Using pilot control wheel trim switch, run stabilizer to extreme aircraft nose up position (leading edge of stabilizer will be full down) and record time of travel. Verify travel time is 18 to 27 seconds for P/N DL5040M6 actuator and 25 to 30 seconds DL5040M8. <i>23.05</i>		
6.	Maximum allowable split between pilot or copilot pitch trim actuator travel time from full up to full down may not exceed four (4) seconds. If travel time split is excessive, proceed as follows: (a) Determine which side (pilot or co-pilot) is travelling faster. (b) Disconnect actuator rod of fastest side (pilot or copilot). (c) Check stabilizer travel time with only one actuator rod connected. If travel time is correct, check actuator for correct installation and freedom of operation. (d) Reconnect actuator and disconnect other actuator rod end. Check travel time for each actuator. If actuator rods are within specified travel time, check actuator installation for misalignment and/or check horizontal stabilizer for binding. If either actuator rod fails travel time criteria, reject actuator. (e) Connect actuator rods. Ensure electrical limit switches are adjusted and repeat actuator time check. If new actuator has been installed, perform entire Adjustment/Test – Mechanical/Electrical, refer to Maintenance Manual SA227 Series 27-40-10.		

TASK CARD 227-27-40-02 COMPLETED:MECHANIC'S
SIGNATURE:A&P: *A&P*

DATE:

2/25/21

AMERIFLIGHT MAINTENANCE TASK CARD**SA-227**

CARD NUMBER: 227-27-40-02

DATE: 04/12/2013

REV1: 10/28/2015

SUBJECT: HORIZONTAL STABILIZER – 400 Hour Travel Time Check

Actuator S/N <u>L0216</u>	Installed in aircraft S/N <u>AC671B</u>
Date of actuator Time Check <u>02/25/2021</u>	
PILOT PITCH TRIM ACTUATOR TRAVEL TIME	
Full nose down to full nose up <u>22.15</u> Seconds	
Full nose up to full nose down <u>23.27</u> Seconds	
Difference between up travel and down travel <u>1.12</u> Seconds	
COPILOT PITCH TRIM ACTUATOR TRAVEL TIME	
Full nose down to full nose up <u>22.18</u> Seconds	
Full nose up to full nose down <u>23.00</u> Seconds	
Difference between up travel and down travel <u>1.18</u> Seconds	

ACTUATOR TRAVEL TIME CHECK FORM
(FIGURE 1)