



## FLYERS ASSOCIATION NEWS

Number 92-2

September 1992



VORTEX GENERATORS ON P-596

Bob Desroche (R) of Boundary Layer Research explains their advantages to Jim Gorman.

Your reservation form for 1992 Duke Fly-in at Corpus Christi is enclosed. Save November 12 - 13 - 14 for a great time in southern Texas.

Bruce James has planned a full schedule of interesting activities including our always well attended symposium with Beech, Lycoming, and our own A+P member, Ralph Cohen to answer your questions.

One topic surely will be VORTEX GENERATORS - those who have them report amazing controllability at low speeds and stall.

Bob Desroche is approaching 60 VORTEX GENERATOR installations. Some of the results are:

	<u>Before</u>	<u>After</u>
VMC	85 kts	72 kts
Stall	82	69
Gross Weight Increase		190 lbs.

He also reports gap seals are not worth the expense to install them.

ITEM OF INTEREST: Recent ad for cowling fastners.

Cessna 421	\$1036.80
Beech Duke	285.30

Sort of makes one think Cessna used screws instead of aluminum to hold things together.

Vol. 10, No. 4 of NTSB Reporter has a report on fatal Duke accidents. It is reprinted with permission (c) 1992 by NTSB Reporter, 5 Odell Plaza, Yonkers, NY 10701.

## **BREAK UP: The Pilot Reported Deviating Around Weather Cells Before Contact Was Lost.**

-----Basic Information-----

Type Operating Certificate-NONE (GENERAL AVIATION)	Aircraft Damage DESTROYED	Fatal	Injuries			None
Type of Operation -PERSONAL	Fire	Crew 1	Serious 0	Minor 0	0	
Flight Conducted Under -14 CFR 91	IN FLIGHT	Pass 3	0	0	0	
Accident Occurred During -DESCENT						

-----Aircraft Information-----

Make/Model - BEECH B-60	Eng Make/Model - LYCOMING T10-5410E1C4	ELT Installed/Activated - UNK/NR
Landing Gear - TRICYCLE-RETRACTABLE	Number Engines - 2	Stall Warning System - YES
Max Gross Wt - 6725	Engine Type - RECIP-FUEL INJECTED	
No. of Seats - 6	Rated Power - 380 HP	

-----Environment/Operations Information-----

Weather Data	Itinerary	Airport Proximity
Wx Briefing - FSS	Last Departure Point	OFF AIRPORT/STRIP
Method - TELEPHONE	GASTONIA, NC	
Completeness - UNK/NR	Destination	Airport Data
Basic Weather - IMC	FORT PIERCE, FL	COLUMBIA METRO
Wind Dir/Speed- 110/007 KTS	ATC/Airspace	Runway Ident - N/A
Visibility - 10.0 SM	Type of Flight Plan - IFR	Runway Lth/Wid - N/A
Lowest Sky/Clouds - UNK/NR	Type of Clearance - IFR	Runway Surface - N/A
Lowest Ceiling - 4000 FT BROKEN	Type Apch/Lndg - NONE	Runway Status - N/A
Obstructions to Vision- NONE		
Precipitation - RAIN		
Condition of Light - DAYLIGHT		

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-----Personnel Information-----

Pilot-In-Command	Age - 49	Medical Certificate - VALID MEDICAL-WAIVERS/LIMIT
Certificate(s)/Rating(s)	Biennial Flight Review	Flight Time (Hours)
PRIVATE	Current - YES	Total - 1290
ME LAND	Months Since - 4	Make/Model - 26
	Aircraft Type - BE-60	Instrument - 159
		Multi-Eng - 1274
		Last 24 Hrs - 0
		Last 30 Days - 6
		Last 90 Days - 17

Instrument Rating(s) - AIRPLANE

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Occurrence #1 IN FLIGHT ENCOUNTER WITH WEATHER  
Phase of Operation CLIMB - TO CRUISE

Finding(s)

1. WEATHER CONDITION - THUNDERSTORM, LEVEL III
2. WEATHER EVALUATION - INADEQUATE - PILOT IN COMMAND
3. FLIGHT INTO KNOWN ADVERSE WEATHER - ATTEMPTED - PILOT IN COMMAND
4. IN-FLIGHT PLANNING/DECISION - POOR - PILOT IN COMMAND
5. OVER CONFIDENCE IN PERSONAL ABILITY - PILOT IN COMMAND
6. IN FLIGHT WEATHER AVOIDANCE ASSISTANCE - NOT USED - PILOT IN COMMAND
7. OVER CONFIDENCE IN AIRCRAFT'S ABILITY - PILOT IN COMMAND

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Occurrence #2 LOSS OF CONTROL - IN FLIGHT  
Phase of Operation DESCENT - UNCONTROLLED

Finding(s)

8. REMEDIAL ACTION - NOT PERFORMED - PILOT IN COMMAND
9. AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND

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Occurrence #3 AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION  
Phase of Operation DESCENT - UNCONTROLLED

Finding(s)

10. DESIGN STRESS LIMITS OF AIRCRAFT - EXCEEDED - PILOT IN COMMAND

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Occurrence #4 IN FLIGHT COLLISION WITH TERRAIN/WATER  
Phase of Operation DESCENT - UNCONTROLLED

-----Probable Cause-----

The National Transportation Safety Board determines that the Probable Cause(s) of this accident was:  
THE PILOT EXERCISED QUESTIONABLE JUDGEMENT IN INITIATING A FLIGHT INTO AN AREA OF KNOWN THUNDERSTORMS. FURTHER, EITHER DELIBERATELY OR INADVERTANTLY ENTERED A THUNDERSTORM AND OVERSTRESSED THE AIRFRAME STRUCTURE RESULTING IN AN INFLIGHT SEPARATION OF THE AERODYNAMIC SURFACES.

**HISTORY OF THE FLIGHT:** At about 1642 eastern daylight time, a Beech Model B60 experienced an in-flight airframe separation and crashed while on a personal flight. Instrument meteorological conditions existed at the time and an IFR flight plan had been filed for the flight to Fort Pierce, Florida. The airplane was destroyed. The private pilot and the three passengers received fatal injuries. The flight had originated from Gastonia, North Carolina, at about 1600.

After obtaining a weather briefing, the pilot filed his flight plan with the Hickory FSS by telephone at 1549 with a proposed departure time of 1600. Prior to obtaining the weather briefing, the pilot had fueled his airplane and completed the preflight. After filing, he made the takeoff from Gastonia and turned to the west side of the airport for his departure to the south. Witnesses reported that at the time of his departure level 5 thunderstorms were west and east of the airport. At 1602, the pilot contacted Charlotte departure control and stated that he was off Gastonia and would like to pick up his IFR clearance. He was told to maintain VFR and that his clearance was "on request." At about 1606, Charlotte called and indicated that they "have no flight plan stored for you". The pilot then radioed that he had filed for "four o'clock with Hickory about 20 minutes ago". Charlotte then told the pilot that they would check on the clearance.

At 1615, the pilot again radioed Charlotte and asked if they had "any flight plan for me yet?" Charlotte replied

"no sir, I'm working on it though. . ."

At 1617, Charlotte called the pilot to inform him that his transponder was not being received and requested his position. The pilot replied that he was "45 north of Columbia." Charlotte came back with "and you're squawking zero seven one five." The pilot replied "negative sir you gave me six three zero three. Charlotte then called Columbia Approach Control to inquire if they were receiving the six three zero three code "north of your airport probably thirty five miles or so?" Columbia stated "Affirmative".

At about 1620 Columbia told Charlotte that the airplane was "five northwest of Great." At 1621, the pilot was told to maintain VFR and contact Columbia Approach Control on 124.9, they'll have a clearance for you." The pilot then contacted Columbia Approach Control when he was 32 miles north and stated that he would like to pick up his IFR clearance. Columbia told him to stand by that they were working on it. About three minutes later, Columbia told the pilot to "IDENT" and the pilot acknowledged. Columbia then told the pilot that they had radar contact 25 miles north and asked for his altitude. He replied "through 5800 feet would like to climb to 17,000 if I could." Columbia then issued the IFR clearance, "cleared to Fort Pierce as filed climb and maintain 9000".

About 45 seconds later, Columbia inquired if the pilot was proceeding direct to Columbia. The pilot replied

"78TW gotta cell right off to my left there just deviating around it if I could." Columbia replied "roger." About 2 minutes later, Columbia issued the pilot clearance to climb to 10,000 feet and the clearance was acknowledged. He was then cleared to contact Jacksonville on 124.7, maintain 10,000 feet and proceed direct to Columbia VOR. Again the pilot acknowledged.

The pilot called Jacksonville at 1629:36 and informed them that he was climbing through 8400 for 10,000. Jacksonville cleared him to climb and maintain 15,000. At 1637:03, the pilot was cleared to continue his climb to 17,000 feet and he acknowledged the clearance. At 1643:31, Jacksonville called "N78TW I've lost your transponder, reset on code 6303 please normal." There were no further communications from the airplane.

Ground witnesses heard the airplane and either saw it come out of the clouds, or saw it just after it exited the clouds. The accounts all indicated the presence of fire and or smoke from the airplane. The witnesses also reported that the airplane was "tumbling." One person at a hunting camp about 3 miles north of the fuselage wreckage location stated that he heard an airplane in a severe thunderstorm and that the engines revved up very loud and then he heard an "explosion." He did not report seeing the airplane at any time, though parts of the airplane were found within about 1/4- to 1/2-mile of the cabin. The main wreckage was upside down and fire was present when the Carolina Eastman personnel arrived at the scene. The wreckage was distributed over a path oriented generally north-south and the path was almost three nautical miles in length.

**PERSONNEL INFORMATION:** The pilot was the holder of a private pilot certificate with airplane multi engine land and instrument airplane ratings. He also held a third class medical certificate with the restriction that he must wear corrective lenses while exercising the privileges of his pilot certificate.

According to the pilot's logbook, he had accumulated a total of 1290 hours flight time as pilot with 1010 hours as pilot in command. The logbook indicated that he had a total of 26 hours pilot time in the Beech B60, including 3.9 hours of actual instrument time.

**AIRCRAFT INFORMATION:** The airplane was a 1977 Beech model B60 Duke. The Hobbs meter time at the wreckage was 1669.1 hours and according to the aircraft records, this would have been the total time in service for the airframe and engines. The airframe log indicated that both engines had been removed and replaced for major overhaul at an airframe time in service of 1648.6 hours.

**METEOROLOGICAL INFORMATION:** The pilot's preflight weather briefing reportedly contained four convective SIGMETS. The briefer also stated that numerous thunderstorms in the vicinity of Columbia,

South Carolina, were being displayed on the Charlotte, North Carolina, Weather Bureau radar at the time of the briefing and that the pilot was advised of this activity. At the time of the departure from Gastonia, level 5 thunderstorm cells were east and west of the departure airport. Witnesses around the ground impact site related that "heavy or severe thunderstorms" were all around the area at the time of the accident. It was reported that one witness saw the airplane "come out of the overhang" between two level 4 thunderstorms prior to ground impact. The airplane was reported to have been on fire and tumbling at the time.

The communications transcripts did not indicate that the pilot had requested an in-flight update on the weather conditions during his flight.

The tops of the thunderstorms were forecast as above 45,000 feet. The possibility of one inch diameter hail and wind gusts to 50 knots was also included in a convective SIGMET issued at 1655 which was about 13 minutes after radar contact with the airplane was lost.

**COMMUNICATIONS:** The communications records did not contain information that indicated that the pilot was having any problems with his radio equipment nor with the airplane during the flight. The transcripts did indicate that Charlotte ATCT had a problem receiving the airplane's transponder. Columbia and Jacksonville transmissions indicated that their reception of the transponder beacon was normal.

**WRECKAGE AND IMPACT INFORMATION:** The wreckage of the airplane was distributed about a general north-south line and fragments were found as far as about three nautical miles north of the fuselage. The empennage, both outer wing panels, and the right engine had separated in flight. Parts of the right outer wing panel structure were reported to have been located subsequent to the field phase of the investigation.

The fuselage, left engine including propeller and cowling and the inboard portion of both wings had impacted the ground south of the Carolina Eastman industrial complex. The wreckage was upside down when the security personnel from Carolina Eastman arrived at the site. A small fire was burning and was reportedly extinguished by use of a hand-held fire extinguisher. All four occupants were inside the fuselage. The wreckage was rolled over and the top cut open to remove the occupants.

The state of South Carolina, Aviation Department, made a Bell 206 Jet Ranger helicopter available for an aerial search of the wreckage scatter path. The first fragments of the wreckage located were small fragments of metal about 3.0 nautical miles north of the fuselage. The bearing from the fragments to the fuselage was about 177 degrees. These fragments were found on the west side of a river which made a semi-horseshoe bend

north of the wreckage site. Additional small fragments of metal were located on the east side of the river about 2.3 nautical miles north of the fuselage.

Witnesses from a hunting club whose grounds were on the east side of the river and included the area where the right elevator was found reported finding parts of the airplane. The complete right engine nacelle cowling was under a dense tree canopy and was about 1000 feet north-northeast of the location of the right elevator.

The outboard portion of the right flap was found about three blocks north of the ailerons. It was the most distant portion of the wreckage from the fuselage which exhibited evidence of fire and thermal damage. The outboard end of the flap exhibited evidence of crushing

toward the root. The total portion exhibited evidence of thermal damage and the flap was expanded outward consistent with an overpressure condition from within.

Both wings were separated just outboard of the wing attach bolts. All bolts were accounted for and were tight. Both wings exhibited evidence of downward bending adjacent to the fracture points. The right wing stub exhibited evidence of fire and thermal damage in addition to impact and fracture damage.

The right wing spar fracture surfaces were forwarded to the NTSB Laboratory in Washington for metallurgical examination. The examination indicated that the fracture surfaces had been exposed to fire after separation. The fracture area did not exhibit evidence of heating prior to separation.



Cutter at Phoenix Sky Harbor Airport has leading edge assembly, outboard. Part Number 000-110029-59. It fits B60, Serial Number P402 and after. Contact Rodney Cash, 602/273-1237 for special price.

WELCOME NEW MEMBERS

Mark Gardner  
Denver Air Center  
Building B-3 Jeffco Airport  
Broomfield, CO 80021  
P-314 N927V  
303/466-2336 (o)  
303/469-6165 (h)

Nick Frisch  
Flight Safety International  
9720 E. Central Ave.  
Wichita, KS 67206  
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407/845-1255 (h)

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404/436-0879 (o)  
404/953-2069 (h)

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P-344 N3344D  
602/281-0865 (o)  
602/281-7122 (h)

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Shalimar, FL 32579  
P-376 N82EC  
904/243-0121 (o)  
904/651-2381 (h)

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Tahlequah Leasing Corp.  
N.E. 5710, N. Shore Rd.  
Belfair, WA 98528  
P-180 N7584D  
206/275-6292 (h)

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2524 Belmont  
Plano, TX 75023  
P4 N711PS  
214/360-7302 (o)  
214/596-3266 (h)

Bert Zaccaria  
Sierra Warbirds  
P. O. Box 3374  
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P-503 N337DF  
916/582-9124 (o)

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P. O. Bcx 1900  
Ashland, KY 41101  
P-417 N711AA  
606/325-8845 (o)  
606/836-7225 (h)

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P-120 N7396D  
212/665-2300 (o)  
516/487-9094 (h)

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512/736-4896 (h)

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619/672-0132 (h)

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717/244-1909 (h)

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Waunakee, WI 53597  
P-541 N3664C  
608/251-2020 (o)  
608/831-9594 (h)

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963 Braemar Lane  
San Diego, CA 92109  
P-388 N1887L  
619/543-5546 (o)  
619/581-6810 (h)

#### MEMBERSHIP LIST CHANGES

TOM HARTER add N6013S P-368  
Change phone number to 510/657-1534

ALBERT SYKES change address and phone number:  
6305 Seaside Walk  
Long Beach, CA 90803  
310/439-4402 (o)  
310/439-2502 (h)

WILLIAM GRIGG change N number to 7057D

CHARLES ARNOLD change address:  
1018 Delta Ave.  
Cincinnati, OH 45208-3100

KEN EARP change address:  
1905 Manchester Circle  
Fallon, NV 89406-3516

JIM GORMAN change office phone to 419/755-1223

DAVID LILLY add P404 N4219S



DUKE FLYERS ASSOCIATION 1992 FLY-IN  
CORPUS CHRISTI, TEXAS  
NOVEMBER 13 - 15, 1992

The Duke Flyers Association will meet in Corpus Christi, the Texas Riviera, for the 1992 Association meeting. Lots of fun activities are planned for your enjoyment. Don't miss this action packed weekend!!!

Dates: November 13-15, 1992

Host: Bruce James - 512-889-8516

Information: Elaine Motl - 512-884-1265

Fly-in Location: Hedrick Beechcraft (located at Corpus Christi International Airport)  
John Gravell - 512-289-1881

Hotel: Sheraton Bayfront - 800-288-4786  
707 North Shoreline, Corpus Christi  
\* Duke Flyers Discount Rate - \$68.  
See registration form for details.

Schedule: Thursday, November 12, 1992  
For early arrivals, we can schedule, tennis, golf, fishing, sailboat trips, sightseeing tours, aquarium tours, dogtrack excursions, even windsurfing lessons! Just call with your request and we will make the arrangements.

Friday, November 13, 1992  
10am - Registration Opens. Refreshments will be provided. Parking will be provided free of charge at Hedrick Beechcraft. Please request fly-bys from the tower. Line walking and tire kicking to go on throughout the afternoon. We can also arrange the special activities listed above.  
7pm - Fiesta on the Bay. Association members will board The Flagship for a breathtaking tour of Corpus Christi Bay. A special Fiesta meal will be served and will feature some unusual seafood dishes. Mariachi Music will set the theme.

Saturday, November 14, 1992  
9am - Seminar at Sheraton Bayfront  
9am - Spouse Excursions  
12:30pm - Break for lunch at local restaurants  
2pm - Meet at Hedrick Beechcraft to Depart for Naval Air Station  
2:30pm - Tour of NAS including flight simulator, squadron line, & working dogs. For those who would like to tour the King Ranch museum or check out the King Ranch Saddle Shop, cabs will be available for transportation.

4:45pm - Gather for departure back to Corpus Christi.

5:15pm - Arrival back at Hedrick Beechcraft for evening of fun and entertainment. Country-Western Ho-Down with live music and South Texas BBQ.

Sunday, November 15, 1992

Check out day. You are invited to stay in the area and enjoy the beautiful beaches or one of many outdoor activities. Arrangements and directions will be provided.

Additional: Average temperature in Corpus Christi in November will be a high of 75 degrees and a low of 65 degrees. All activities are planned for casual attire. Predominant wind direction is south east with the average speed 7-10mph.

Car Rental: Dollar Rent a Car will be available at Hedrick Beechcraft for your convenience.

\*Extras: Hedrick Beechcraft will offer special discounts on services.

- \* .25 off each gallon of gas
- \* \$5 per hour off shop rates
- \* \$5 per hour off avionics

LOOKING FORWARD TO SEEING EVERYONE IN WARM, WONDERFUL SOUTH TEXAS!

# DUKE FLY-IN REGISTRATION FORM

Please print:

NAME \_\_\_\_\_ PHONE \_\_\_\_\_

ADDRESS \_\_\_\_\_

NAMES OF OTHERS ATTENDING:

ADULTS \_\_\_\_\_

CHILDREN \_\_\_\_\_

ARRIVAL DATE AND TIME \_\_\_\_\_

DEPARTURE DATE \_\_\_\_\_

NUMBER OF HOTEL ROOMS \_\_\_\_\_ NUMBER OF NIGHTS \_\_\_\_\_

CREDIT CARD NUMBER FOR ARRIVAL AFTER 6PM \_\_\_\_\_

DUKE N NUMBER \_\_\_\_\_ DUKE SERIAL NUMBER \_\_\_\_\_

HOW MANY WILL ATTEND: FIESTA ON THE BAY ADULTS \_\_\_\_\_ CHILDREN \_\_\_\_\_

FUN FLIGHT & TOUR ADULTS \_\_\_\_\_ CHILDREN \_\_\_\_\_

COUNTRY WESTERN NIGHT ADULTS \_\_\_\_\_ CHILDREN \_\_\_\_\_

EXTRA ACTIVITIES YOU WOULD LIKE ARRANGED:

EARLY BIRD: \_\_\_\_\_ DATE \_\_\_\_\_

SPOUSE EXCURSIONS:(SATURDAY MORNING) \_\_\_\_\_

PLEASE MAIL FORM TO: ELAINE MOTL  
1700 TEXAS COMMERCE PLAZA  
CORPUS CHRISTI, TEXAS 78470

\*\* PLEASE BE SURE TO CANCEL IF YOU ARE UNABLE TO ATTEND