AERO MED EXPRESS
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(800) 842-8555
Intensive Care Air Ambulance • P.O. Box 1568 • Rogers, Arkansas

[redacted]

September 9, 2005

Doug Rudolph, Aerospace Engineer
Small Airplane Directorate
Department ACE-112
901 Locust Street, Room 301
Kansas City, MO 64106

Dear Mr. Rudolph:

Please accept this letter in response to the Safety Evaluation Investigation concerning the MU-2B airplanes.

Aero Med Express operated a MU-2B-60 Marquise as an air ambulance for 10 years and approximately 7,000 hours. The aircraft was flown primarily by myself during this time frame. Our annual flight training was performed at Flight Safety International in Houston and also with Howell Enterprises in Smyrna, TN. All of the aircraft maintenance was performed at Intercontinental Jet in Tulsa, OK, which is a factory authorized service center. I had accumulated just over 15,000 hours of flying time before flying the MU2. I found the transition to go very smoothly and the aircraft a joy to fly. I recall very clearly from the training in the simulator as well as the actual aircraft the importance of trimming the aircraft correctly when operating on single engine in order to maintain the performance.

During our operational history of the Marquise, we had three precautionary engine shutdowns and one engine failure on a rental engine from Allied Signal. During these single engine operations, never did I have any aircraft control issues. The aircraft met all of my expectations just as I expected from the flight training I received.

In conclusion, please let me add that through the operational experience I obtained with the MU-2B, I gained such a confidence and comfort level with the performance and safety aspects of the aircraft that I gave my son his primary flight training in the aircraft and he obtained his private pilot license in the MU-2B on his 17th birthday followed a few weeks later by his instrument rating. The aircraft was a great training platform for his professional career in aviation. I strongly feel that proper initial training and annual recurrent training as well as professional maintenance are the key ingredients to a safe MU2 operation. It's really a great airplane.

Mr. Rudolph, if there is ever a time you would like to speak to me concerning operation issues or the experiences our company had with the MU-2B aircraft, you are most welcome to phone me at [redacted].

Kindest regards,

[redacted]

[redacted]

September 8, 2005

[redacted]

Mr. Doug Rudolph
Aerospace Engineer
Small Airplane Directorate
ACE-112 Department
901 Locust Street, Room 301
Kansas City, MO 64106

Dear Mr. Rudolph:

I am responding to the safety evaluation of the Mitsubishi MU-2 airplanes.

As an introduction, I am an 8000+ hr. pilot with 38 years of experience. My ratings include: ATP multi-engine, commercial, M.E.S., SEL, SES, glider, rotorcraft flight instructor – instruments, SE & ME airplane. Time in type 800+ hrs.

I have flown most all piston and turbo prop twin engine aircraft in flight instruction, air charter and scheduled freight, part 135 in twin beeches carrying mail and also federal reserve check runs.

I have owned and operated three separate MU-2 aircraft in part 91 operations.

As a MU-2 operator, I have followed with great interest all aircraft accidents and MU-2 accidents with close attention. I have personally had no problems operating the aircraft in any aspect. There is no question that the MU-2 requires more pilot attention than most other turbo props. Likewise, Learjets require more pilot attention than citation jets. As a result, training is imperative. Night scheduled cargo is very demanding single pilot work. As such, many of these accidents at night in IFR conditions are multi-factorial in etiology. Pilot experience, training, expertise, rest periods are all areas to review. The MU-2 will operate as advertised in all parameters of flight. When one exceed established operational procedures, there can be problems as in any aircraft. Pilots get too low on approach, overshoot runways, get below VMC and accidents result.

The MU-2, like the Learjet, is a high performance aircraft and requires training, time in type, and an organized disciplined respectful attitude toward flying. It is less forgiving if the above are violated, but a great aircraft of exceptional capability if operated as above with regard to training, maintenance and flying.

Sincerely,

[redacted]

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September 9, 2005

Mr. Doug Rudolph, Aerospace Engineer
FAA Small Airplane Directorate
Department ACE-112
901 Locust Street, Room 301
Kansas City, MO 64106

Re: Airworthiness Concern sheet dated 9/02/05 Re: Mitsubishi Model MU-2B airplanes

Dear Mr. Rudolph:

I fly an MU2B-60, Marquise for Incoe Corporation and have done so since 1991. Prior to that the company operated an MU2B-20 (F Model) purchased in 1978. I joined the company in 1985 and flew the "F" model until it was replaced by the Marquise in 1991. My current MU2 time is just under 6000 hours in all models, but primarily in the previously described two. That does not make me a particularly high time MU2 pilot but it does give me enough experience in type to have developed an opinion I wish to share with you.

Like most professional pilots I think the best airplane is the one that can keep me safely employed. For the last twenty (20) years our company MU2 (s) have done just that. Day in and day out. In good weather or bad our Marquise just keeps soldering on. As a matter of fact, the rougher the weather the more I appreciate the qualities of the MU2. It was designed and built rock solid and is extremely tough, a wonderful attribute when the sky is not so friendly.

MU2 handling characteristics are somewhat different than other contemporary designs mostly as a result of the use of spoilers for roll control. However, I believe those differences are beneficial in nature. For an example:

The MU2 exhibits no aileron induced adverse yaw when turning. You can perform a pretty well coordinated turn with your feet flat on the floor. While greater lateral control movement may be required as compared to conventional aileron equipt aircraft, the roll authority is as great or greater, especially at lower air speeds with the MU2 spoiler system. The aircraft also has a huge operational envelope and is as pleasant to fly at 120 KIAS with 20 degrees flaps as it is at 250 KIAS clean and the weight and balance limitations are generous.

Stall speeds are fairly typical for this class of aircraft: 80 KIAS – 100 KIAS straight and level at maximum gross weight depending on configuration increasing to almost 150 KIAS clean in a 60-degree bank. Such a bank would be an extreme maneuver for a people hauler like me but perhaps not for everyone. Single engine control characteristics are excellent and should be a non-issue for a properly trained pilot.

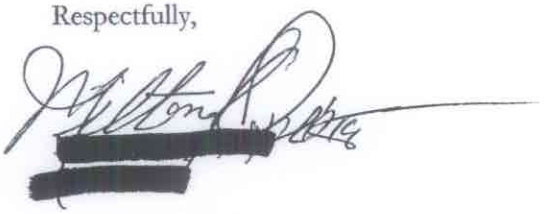
Mr. Rudolph, the bottom line is this. During twenty years, the last 17 of which have been flown single pilot, and nearly 6000 hours operating various models of the Mitsubishi MU2 any concealed or otherwise sinister trait or characteristic has failed to materialize. For every pilot that has come to grief in this fine machine many, many others have and continue to operate safely knowing that the quality of the aircraft and the integrity of its manufacturer can be relied upon. It is high time the FAA says "Enough!" to this economically and politically inspired witch-hunt. This fine aircraft has been certified and or re-certified at least three (3) times that I know of. It keeps passing ever more stringent certification requirements. I think it's unconscionable at this time to spend more of the taxpayers' money to perform yet another certification review. It is an insult to all the fine previous inspectors, FAA and otherwise who have found the MU2 continues to meet or exceed all certification requirements.

I will close this admittedly long-winded correspondence by once again saying the key to safety in aviation is flying well maintained equipment by a well qualified and trained crew. The responsibility of the FAA is to insure the above requirements are met.

Please be assured that I will make myself available to you if in anyway I may help or clarify. I am available via any of the following:

Office: 248-666-9408 Fax: 248-666-4709 E-mail: [redacted]

Respectfully,



[redacted]

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Cc: [redacted]

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DATE FAXED 9-12-05

TIME FAXED 10:23

PAGE 1 OF 1

September 12, 2005

[redacted]

Doug Rudolph
FAA Small Airplane Directorate

Fax-816-329-4090
doug.rudolph@faa.gov

RE: MU-2 -- [redacted]

Dear Doug:

We have owned our MU-2 P Model for several years and intend to keep it for many years to come.

We attend the biennial MU-2 Pilot Proficiency Courses put on by Mitsubishi and take annual proficiency checks.

Mitsubishi supports this aircraft as well. Our MU-2 and others that we know are very reliable machines. This aircraft is easy to fly and is especially modest to handle for short field landings and takeoffs because of the full span fowler flaps. We have never had a loss of control in our aircraft. The aircraft, as different from twin Cessnas that we have owned, is solidly built for a long life.

We encourage you to watch the icing video that we watch annually. It shows what the MU-2 can handle.

Don't take the use of this aircraft away from us.

Sincerely,

Signed By:

[redacted]

[redacted]

FAASmallAirplaneDirectorage-090905

[redacted]

[redacted]

[redacted]

September 9, 2005

Mr. Doug Rudolph
FAA Small Airplane Directorate
Doug.Rudolph@faa.gov
816-329-4090 fax

Dear Doug,

I am an owner of a Mitsubishi MU2B-60. I have flown an N Model, a Solitaire, and a Marquee for the last 9 years and I have over 1000 hours in Mitsubishi airplanes alone. I am outraged at the idea that this airplane would be grounded for an FAA examination. In the past, on at least two different occasions, the FAA has done extensive assessments on the Mitsubishi for air-worthiness and reliability and the Mitsubishi has proven itself to be a safe operating airplane.

I am appalled that the Congressman would use his power to ignorantly call upon the FAA to do something completely un-necessary while clearly ignoring the fact that a Conquest and a 421 had an accident at Centennial Airport during a similar period. At first glance it is evident that pilot error was the cause of the accident of the Mitsubishi, not mechanical error. Not to mention that 421's have more fatal accidents than do Mitsubishi's.

The Mitsubishi airplane works great and does what it is supposed to if the pilot is well trained and doing his job correctly. Sadly all too often there is pilot error and the machine should not be held liable. Any twin-engine airplane will kill someone if the pilot is not properly trained. There is no fatal flaw in the Mitsubishi. The Mitsubishi is one of the finest pieces of equipment ever made.

You would kill my business as well as many other businesses by even considering this unjust cry from a Congressman who has no idea what he is talking about. I cannot overstate how sad it is that one can have so much power to cry witch and everyone goes on a witch-hunt. I am a tremendous contributor to the political arena and I will without a doubt bring down the full force of my political backing to fight this Congressman and to show that the FAA is being pushed around.

Thank you for your consideration.

Best Regards,

[redacted]

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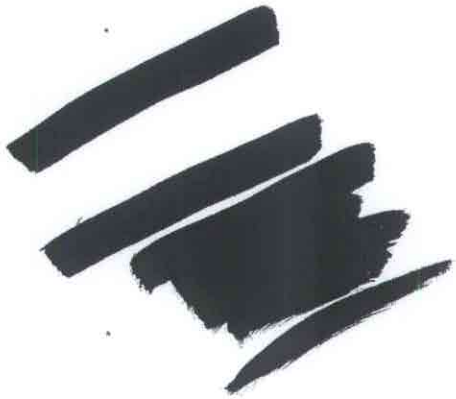


FAA
Small Airplanes Directorate
Kansas City, MO

Attn: Doug Rudolph

I am responding to the request for comments on the MU-2 aircraft.

First off, I would like to give you a little information about me. I am president of a hydraulics manufacturing company located in South Carolina. I currently serve as vice president of EAA Warbirds of America. I am also vice president of FAST which is the acting body for controlling formation flying in air shows nationwide. I have been flying all sorts of aircraft for over 30 years and currently own several aircraft. I have logged over 3,000 flight hours in many different warbird aircraft such as: 400 hrs in the F4U corsair, B-17, B-25, T-6/SNJ, L-5, T-28, and others. On the other side I have flown 150's through MU-2's. I have logged over 1,500 hours in the MU-2 and many hours in the 300 & 400 series Cessna aircraft.

I have been flying the MU-2 for almost 20 years. In those years, I have had nothing but good to say about the plane. It is a high performance aircraft and that's what I like about the MU-2. When I fly the F4U Corsair, which has 2,700HP, I have to respect all the special aspects of that particular aircraft. The MU-2 has a number of unique aspects that need to be understood and respected as well. In the past, the MU-2 was said to be a bad design, but in fact it was learned that pilot error has been most of the problem. I remember when we bought our first MU-2 in 1986 and everyone was saying "why are you buying that bad airplane, Charlie was killed in one and he was a 6,000 hour King Air pilot". I looked into this and found that Charlie felt he did not need training in the MU-2 because he had all this King Air time and it would be a waste of his time. It was a bad decision and pilot error ensued. We did not believe that this airplane was bad, so we bought it. Our first requirement was to attend training and Howell Enterprises was selected. After the training, we flew the airplane with confidence and I still enjoy flying this airplane today. Annual recurrent training has been received every year since we purchased the plane.

I think Mitsubishi is supporting their aircraft better than any other manufacturer in aviation. We all understand that training and education is the key for success. The Prop seminars conducted by Mitsubishi are extremely good and I believe the

results are hard to measure except for the current accident rate, which does not represent what has been prevented.

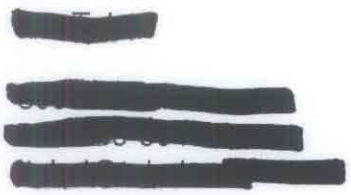
If I felt that the MU-2 was a bad aircraft, I would have sold this plane many years ago. It is a GREAT airplane and it will continue to be a solid plane for our future operations. I do not have any plans to sell the MU-2 or upgrade to something else.

I think if a suggestion has to be made, I believe it should be in training. The aircraft is good with proper attention to training. Pilots will make errors and this will never change. I just don't want to see an aircraft go through unjust steps because of pilot error.

In my nearly 20 years of flying the MU-2 I have experienced very heavy icing without any problems. I was conducting airborne NTS checks with failures and had to land the aircraft with one engine shut down. It was uneventful and everything went like it should. I was trained to handle this. I have never experienced anything so negative that I would need to list it here.

Should you have any further questions or require any clarification as to what I wrote, please feel free to contact me.

Best regards,



[redacted]

September 12, 2005

Mr. Doug Rudolph
FAA Small Airplane Directorate

Dear Mr. Rudolph:

I currently fly an MU-2 P for [redacted] Little Mountain, S.C. I have previously flown MU-2 B, F, G, J, K, and Solitaire models. I have approximately 2,000 hours in the above named aircraft and approximately 20,000 hours of total flying time accrued during a forty year career as a processional pilot, I received initial Mitsubishi flight training in a MU-2 B model in San Angelo, Texas in 1973. More recently, I have completed Reese Howell's school four times and Sim Com three times.

During my years as an MU-2 pilot-in-command, I have never experienced any controlability problems with MU-2 aircraft. When these aircraft are flown as pilots are now trained, I believe that MU-2 aircraft are as safe as any other general aviation aircraft.

Sincerely,

[redacted]
Pilot

CC: [redacted]
Anaconda Aviation and MAOPA

KINSEY, TROXEL, JOHNSON & WALBORSKY, P.A.
ATTORNEYS AND COUNSELORS AT LAW
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TELEPHONE (850) 434-5267
FAX (850) 434-6116
E-MAIL [redacted]

September 11, 2005

Mr. Doug Rudolph
Federal Aviation Administration
Small Airplane Directorate, Dept. ACE-112
901 Locust Street
Kansas City, Missouri 64106

Re: Mitsubishi MU-2B Safety Evaluation Investigation

Dear Mr. Rudolph:

Since December 1997, I have been the owner/operator of [redacted], an MU-2B-26, serial number [redacted]. I purchased the MU-2 after operating Beech Bonanzas (B35, J35 and A36) and Barons (B55 and 58P) for more than twenty-five years. In addition to increased speed and load carrying ability, I wanted the greater reliability of turbine engines and better single engine performance than was available in the Baron series.[1]

I am an insurance company's worst nightmare as I am a trial lawyer and relatively inexperienced pilot. Although I hold a commercial certificate with single and multi-engine land, single engine sea, glider, and instrument ratings, I have only slightly more than 5,000 hours of flight experience, 725 of which are in the MU-2. Fortunately, I learned to fly prior to becoming a lawyer and realize my competence (real or imagined) as a lawyer in no way contributes to my ability to safely operate an aircraft. Although I rarely fly more than 125 hours per year, I strive to operate aircraft as if I were a professional pilot.

I operated a pressurized Baron for eleven years prior to purchasing my MU-2 but had no real experience operating turbine aircraft. While the MU-2 clearly offered the most performance for the dollar, I was concerned by its reputation. I rapidly learned there were two species of pilots: those who loved the airplane and those who disparaged it. I also learned those who disparaged it had either never flown the airplane or had not received type-specific training.

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[1] I have had one total and one partial engine failure in single engine, piston airplanes and two total and one partial engine failure in multi-engine, piston airplanes. Fortunately, none resulted in accidents or damage to any of the airplanes.

After considerable research (I appreciate Reece Howell's patience answering my questions), I bought my MU-2 and went to Howell Enterprises for initial training and the additional dual instruction required by my insurance company. Over the years I returned to Howell Enterprises and Flight Safety for recurrent training. I am extremely pleased with my MU-2 and the support provided by Mitsubishi Heavy Industries.[2] I have found the MU-2 to be a capable and reliable aircraft. While I would enjoy discussing my operating experiences with you, I will confine my remarks to your concerns about the MU-2's controllability.

When I began training, it was apparent the MU-2 had different characteristics than airplanes I had flown in the past. I can't imagine a single-pilot, general aviation airplane that would have a greater need for type-specific training than the MU-2.[3] Although I considered myself a competent pilot,[4] I quickly realized the MU-2 cannot be safely operated unless the pilot receives type-specific training.

Since acquiring my MU-2, I have never lost control of the airplane or felt loss of control was a possibility. However, the workload during instrument approaches can be challenging. Below are examples of flight characteristics of the MU-2 which differ from other airplanes I have flown and which could cause an untrained pilot difficulty:

1. The MU-2 does not provide as much kinesthetic or tactile feedback as the Beech airplanes I operated. For example, when one applies spoilers to roll the MU-2, there is little difference in the pressure required regardless of the amount of yoke deflection. In contrast, the pressure felt when rolling a Beech increases as the aileron is deflected.

2. The MU-2 requires greater control input (movement) than a Beech to achieve the same roll rate. However, the MU-2's spoiler system provides more effective roll control at low airspeeds.

3. The MU-2 is more pitch sensitive than the Beech airplanes I operated. Small changes in pitch attitude result in greater altitude changes in an MU-2 than in Barons or Bonanzas. A friend who is type rated in several models of Learjets tells me this character-

---

[2] Mitsubishi's PROP program is tangible evidence of MHI's commitment to the support and safe operation of the MU-2 and should be a model for the entire aircraft industry.

[3] Several years ago I had an opportunity to fly a Citation 500 from Birmingham to Mobile, Alabama. While I had a professional pilot in the right seat talking me through the operation, the Citation had a much lower workload and was easier to fly than my 58P Baron.

[4] When I upgraded from the B55 Baron I operated for five years to a 58P, my checkout was one hour with the owner of the FBO that operated the airplane. I later attended Beech factory training and found it beneficial. However, I felt comfortable after the one hour checkout.

istic is typical of high performance jet airplanes and flying an MU-2 is good preparation for the Lear.

4. Reducing power to begin a descent in the pressurized Baron results in a pronounced change in deck angle due to decreased pitch attitude. Slipstream noise increases noticeably, and increased control force is required in both the pitch and roll axes as airspeed increases. In contrast, there is little difference in the MU-2's deck angle regardless of whether the airplane is descending at 500 or 2,000 feet per minute. There is little increase in slipstream noise and little change in control pressures.

5. Moving the MU-2's condition levers from a cruise setting to the "takeoff and land" position during approach can result in a rapid loss of airspeed due to increased propeller drag if the pilot does not ensure the engines are producing adequate torque before repositioning the condition levers.

6. The MU-2's use of spoilers for roll control requires the use of specific procedures during single engine operation. In the Baron I adjusted rudder trim before adjusting aileron trim as aileron deflection was the same regardless of whether it was the result of yoke input or adjustment of the aileron trim tab. During single engine operation of the MU-2, it is important to first remove spoiler deflection using roll trim before adjusting rudder trim. Removing spoiler deflection increases lift and results in a greater single engine climb.

While I feel these characteristics could cause problems for an untrained pilot, all were fully addressed during the training I received. A properly trained pilot should not have difficulty controlling an MU-2 in all flight regimes. However, it is important to remember that the MU-2 is a high performance airplane that must be flown in accordance with recommended procedures. When flown in that manner, the MU-2 performs as expected. No high performance airplane can be operated safely if the pilot is not properly trained or fails to follow recommended procedures.

The MU-2 community is a small and enthusiastic group. The operators I've met have impressed me with their dedication to the safe operation of their airplanes. I'm confident none of us would risk our personal safety, or the safety of our families and business associates, in an airplane in which we lacked confidence. Please contact me if you have questions or would like to discuss any of my observations.

Sincerely yours,

[redacted]

[redacted]

ProAir Enterprises, Inc.

September 11, 2005

Mr. Doug Rudolph
Aerospace Engineer
Federal Aviation Administration
901 Locust Street, Room 301
Kansas City, MO 64106

Via email

Re: MU2 Airworthiness Concern Sheet

Dear Mr. Rudolph,

This letter is in response to your request for information on MU2 Aircraft Operations dated September 2, 2005. This writer believes that his background and knowledge of this aircraft type may provide some assistance to you and to your task.

Background
I have operated ProAir since 1973. We are an aircraft training facility specializing in advanced training in High Performance Multi Engine Aircraft. We are equipped and qualified in all reciprocating twin engine aircraft manufactured by Cessna, Piper, and Beechcraft. In addition, we provide training in the turbo propeller aircraft by Cessna, Piper, Beechcraft, Pilatus, and **Mitsubishi**. We have been training in Mitsubishi aircraft since 1973 and currently operate, through our sister company, Eastaire, Inc. a Mitsubishi MU-2-B Marquise, serial number 790SA. We routinely train the crews for this aircraft, as well as, serial number 1522 SA.

The writer is an Airline Transport Pilot with ratings in Multi Engine Aircraft and Single Engine Aircraft. In addition, I am rated in Gliders. I hold a Gold Seal Flight Instructor Certificate with ratings in Airplanes, Single and Multi Engine as well as Instruments. I hold Advanced and Instrument Ground Instructor Certificates.

I attend recurrent training at **SimCom** on the Mitsubishi MU2 and the Pilatus PC-12 aircraft, most recently in January of 2005.

As of the date of this writing, I have logged 32,033 hours of which 19,000 hours are in high performance multi engine aircraft. I have more than 20,000 hours of dual instruction given.

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F. 401.333.3222
C. 401.556.5648
eastaire@cox.net

In addition, I hold a Master's Degree in Finance and regularly teach college level courses in Finance, Human Resource Administration, and Entrepreneurship.

Thus, I believe that I am uniquely qualified to comment on the Mitsubishi MU2 Aircraft.

Observations

The Mitsubishi MU2 was designed in the 1960's to fulfill a requirement for a compact, fast, efficient, and sturdy turboprop aircraft. It has achieved all of those goals. However, in order to achieve these goals, the manufacturer needed to design a wing system that appears complex but is indeed quite simple if a pilot is properly trained. The wing is designed with a high loading of weight to square footage of wetted wing area. This is ideal for a turboprop aircraft optimized for relatively low altitudes (between 15,000 feet and 25,000 feet). To reduce stalling speeds and to lower landing and takeoff speeds to a range that would allow short field operation, massive flaps were designed that extend nearly the full span of the wing.

The flap system eliminates the possibility of ailerons for roll control on the wing trailing edge as is the more common approach. The spoiler installation that evolved is not at all unique to this aircraft as some would allege. Many high speed aircraft have used spoilers for roll control with great success. A reasonably qualified pilot with adequate training quickly adapts to the spoilers and his or her performance and handling of the aircraft is immediately transparent.

However, the flap/spoiler arrangement does cause some interesting problems that are usually resolved quickly in the training process.

The function of the spoiler is to produce roll control by temporarily reducing the lift on one wing causing it to drop due to a decrease in the vertical component of lift. This is in contrast to typical aileron systems wherein one aileron rises, causing a decrease in vertical lift while the opposite aileron lowers causing an increase in the vertical component. In the aileron case, total lift available in the vertical axis remains essentially the same. Since, in a level flight turn, total vertical lift must remain the same, the spoiler equipped aircraft requires a slightly greater increase in angle of attack (or power or speed) in order to restore the lift lost by the raised spoiler.

The effects of this are minimal and, as stated previously, fairly transparent to the properly trained pilot. There is one exception however which can be critical. Many MU2 pilots are transitioning to the aircraft from lighter, piston powered aircraft. Some of these pilots are upgrading within FAR Part 135 (on demand charter) operations, particularly those that fly freight or cancelled bank checks. A review of NTSB accident reports for the MU2

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during the past 20 years shows a preponderance of accidents from this group of operators and pilots.

The light twin (Cessna 402, Piper Aztec, Beechcraft Baron, etc,) is trained during certification that the marginal performance of these aircraft in an engine out situation requires **immediate** reduction in overall drag resulting from lowered wing flaps and landing gear. These low experience pilots are repeatedly drilled to immediately raise the flaps and landing gear and further, to increase aircraft bank angle to overcome some of the turning effects and loss of efficiency of the now single engine aircraft. This training emphasizes the inability of these light aircraft to climb on one engine unless these techniques are followed to the letter.

On the MU2 aircraft, as well as most other jet aircraft, emergency techniques are somewhat different to accomplish the same goal – to extract climb performance on one engine. Recall the earlier description of the MU2; a high performance wing fitted with full span flaps to produce excellent performance at slow speeds. Therein is the difference. If a pilot, faced with a loss of engine at low altitude, raises the flap system from the high lift takeoff setting, the wing transitions immediately from a low speed wing to a high speed wing and, may be incapable of climb performance until much higher airspeeds are attained. A number of the accidents referred to above, may be attributable to this phenomenon. Again, properly trained, preferably in a simulator, the reasonably experienced pilot with quickly learn to deal with this, not uncommon trait, and will be prepared in the rare event of a failure of one powerplant to leave the flaps in the takeoff position until safe altitude and airspeed is attained. The Airplane Flight Manual for the MU2 clearly emphasizes the lower minimum climb speed with the flaps in takeoff position. As with any jet, the emphasis is on attaining maximum climb angle, for obstacle clearance as opposed to maximum climb rate desired in the light twin.

The spoiler system presents other, somewhat benign, issues. As described above, when the spoiler rises to lower a wing, some vertical lift is lost. This is usually replaced with a slight increase in angle of attack. However, decreasing lift after a loss of an engine is contra indicated. The light twin pilot has no particular problem with increasing aileron displacement to provide for a more efficient bank into the operating engine. The aerodynamics of this procedure is well known. The MU2 pilot must be trained to minimize the spoiler deflection (and bank) and to counteract turning tendencies with ample use of the rudder. The pilot must be trained to keep the wings level after an engine loss and to trim away the excessive pressures as soon as possible. Roll trim tabs are provided on the flaps to accomplish this without displacing a spoiler.

Thus, the inexperienced pilot is confronted with two counterintuitive actions in the event of engine failure. First, the pilot must leave the flaps in the takeoff setting as opposed to lifting them immediately. Second, he or she, must strive to keep the wings level and not

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to bank the aircraft with the spoilers. Very aggressive trimming is required. The flight control procedures are not difficult to learn, nor are they particularly unique to this aircraft, they are just different from other aircraft that inexperienced, untrained pilots may have encountered.

With regard to other systems on the MU2, none are complex or difficult to understand. The engines have a long proven record of incredible reliability. The fuel system is simple and relatively foolproof. Landing gear and flap systems are astoundingly robust. And, the deice/anti-ice systems are reliable and simple. The airplane will do all that its manufacturer has said it would and more. Thus the next problem.

Because of its known performance and reliability, the MU2 has become attractive to operators that fly freight or checks or ambulance operations. These operations are conducted mainly at night, in all weather conditions, and are flown by the least experienced pilots who are building flying time for higher career paths. Many of these pilots have transitioned from flying the aforesaid light aircraft. Many of the operators utilize in-house training programs that may look good on paper, are ineffective in real world operations.

It should be noted that, because of improvements in materials, manufacturing, and maintenance, airframe or engine failures have become rare. Thus it is not uncommon for a young pilot to have never experience an actual in-flight emergency. The current emergency is the pilot's first emergency. Training must offset this and provide for as many scenarios as possible. In my opinion, simulators, used correctly, are much better vehicles for this type of training than in-flight training in the aircraft.

Recommendations

Having trained many thousands of pilots over the last 44 years, I have long been convinced that proper training is the key to reduced accident rates. This is particularly true in turbine powered aircraft and is not unique to the MU2. Further, I strongly believe that all transitioning pilots should be trained in simulators, at least at the initial phase.

Mitsubishi Heavy Industries has done a remarkably great job supporting the MU2 and have vowed to support the aircraft until the last one flys. This is unique in the industry. The company has contracted with Turbine Aircraft Services to provide worldwide support with parts and technical advice. TAS has, in turn, worked with SimCom to establish simulator training parameters and scenarios. TAS continuously flight tests the various models of the MU2 and makes appropriate training recommendations. TAS runs annual seminars for MU2 pilots and operators, at no charge, to assure that as many of these as possible are kept informed on MU2 issues. The seminars are not limited to the

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good issues and spend considerable time on matters of safety and competence. Recent accidents are reviewed in detail.

It is this writer's suggestion that comprehensive training should be **required** in the MU2 aircraft, as well as all other turbine powered aircraft. Training should be in simulators, to the extent possible and emphasis should be placed on emergency procedures ranging from powerplant and systems failures to physiological issues. Since most of these aircraft are flown by a single pilot, a great deal of emphasis should be placed on issues confronting the single pilot, from Cockpit Resources Management to incapacitation and decision making under stress.

Many of these matters are beyond the scope of in-house training by the operator of the aircraft. Thus, I further recommend that any aircraft equal to or greater than 10,000 pounds gross takeoff weight require a limited **Type Rating** as is now required for aircraft over 12,500 pounds. The result would be an evaluation of pilot performance by a third party (the FAA Designated Examiner) who would not be financially constrained to accept below par performance.

The industry has done a stellar job of improving the safety and accident record of turbine aircraft operated by individuals and corporations in private (Part 91) operations and is able to police itself somewhat through contact with operators and cooperation with insurance carriers. It is the small commercial operators that are skewing the accident rate unfavorably. It is these operators for which this recommendation is designed but the essentials are for all operators.

I am available at any time to discuss these issues at the contact numbers below. Permission is granted to use the information contained herein for any appropriate purpose as the FAA shall see fit.

Sincerely
(signed)
[redacted]

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COOPER
COMMERCIAL

September 9, 2005

Mr. Doug Rudolph
Small Airplane Directorate
Dept. ACE-112
901 Locust Street, Room 301
Kansas City, MO 64106

Dear Mr. Rudolph:

VIA FEDERAL EXPRESS

RE: Safety Evaluation Investigation MU-2

I am writing you regarding the evaluation of the MU-2B. My company owns and operates a 1967 MU-2B, [redacted] I recently replaced all of the Avionics to provide state-of-the-art situational awareness and weather data. My aircraft is equipped with a CNX-80 WAAS GPS coupled to an MX-20 Moving Map with Chart View, WSI Weather and Traffic. This is in addition to Radar and a Storm Scope. I also had it painted and installed a new interior. The aircraft and the equipment have performed flawlessly.

In addition to excellent maintenance, I believe training is the most critical factor in operating any complex turbine aircraft; the MU-2B is no different. Therefore, I attend annual flight training in the aircraft at Howell Enterprises and / or at Simcom in their simulator. I also attend the P.R.O.P. Safety Seminars. I have 4,550 total hours and 250 hours in MU-2's. I hold an Airline Transport Pilot Rating and Wings XII Pilot Proficiency (see attached) with experience in Cheyennes, King Airs and Citations. At no time has my aircraft exhibited any unexpected or uncontrolled performance. I have operated the aircraft on one engine at both schools, Howell in the air, and Simcom in the simulator, and found it to operate as expected. I fly on a weekly basis. All of my flights are IFR and have been completely normal.

I am familiar with my aircraft and its performance. I have always found it to be safe in all realms of operation, flight, ground or transition. I would not fly this aircraft with my family and customers if I was not sure it was safe. I hope to be able to continue to fly [redacted] on a regular basis. I will, of course, continue with my annual training in this aircraft or any other that I fly.

If you have any questions concerning this matter, please contact me.

Sincerely,

[redacted]

Attachment

MU-2\0905-014\1

www.coopercom.com
CCIM Individual Member
3487 S. Linden Rd. - Flint, Michigan 48507
(810) 732-6000 Fax (810) 732-6003

McNEELY CHARTER SERVICE, INC.
P.O. Box 1057 · WEST MEMPHIS, ARKANSAS · (870) 735-0207 F[redacted]

September 12, 2005

Mr. Doug Rudolph
Aerospace Engineer
Small Airplane Directorate
Fax: 816-329-4090
E-Mail: doug.rudolph@faa.gov

Mr. Rudolph:

I am the owner of McNeely Charter Service, Inc., a 135 on-demand charter operation based in West Memphis, AR (KAWM) in continuous operation since 1983. We currently operate 8 aircraft: 2 Metroliners, 2 Cessna Caravans, 1 Shorts 3-30, 1 Beech Baron and 2 Mitsubishi MU2B-36's. Over the past 22 years I have operated up to thirteen aircraft at one time, fifty-four different total aircraft, & sixteen different aircraft types in 135 service without injury. The 135 business has been my entire livelihood for 22 years. We do strictly on-demand cargo, and operate in the continental U.S. and frequently in Mexico, Canada, and the Caribbean. In the past, we have operated DC-3's (over 32,000 hours) Beech 18's (over 13,000 hours) and just about every small piston twin out there. I personally have over 5200 hours in the MU2 and have trained and employed 28 pilots in the MU-2 since 1990.

My Pilots and I have operated the following MU-2 aircraft - accident and incident free:

"N" Number	Serial #	Type	Hours of Operation
[redacted]	[redacted]	MU2B-30	2080
		MU2B-26	560
		MU2B-60	3530
		MU2B-36	1120
		MU2B-36	3260
		MU2B-36	6470
		MU2B-40	820
		MU2B-36A	3030
		Total:	20,870

I bring up these facts not to boast, but to illustrate, with this background, I feel I am qualified to respond to your request for information on the MU-2 series aircraft.

We have experienced 7 in-flight engine shutdowns in the MU-2 that were unplanned. In addition, we have had well over 100 pre-planned, intentional in-flight shutdowns during training or while performing N.T.S. (Negative torque sensor) system checks after maintenance. In over 20,000 hours of MU-2 operating experience, we have never experienced any loss of control accidents, incidents or problems. As an elaboration on the MU-2's engine-out characteristics, based on 17 unscheduled in-flight engine failures in a variety of aircraft over a period of 22 years, I would much rather be in an MU-2 following an engine failure than almost any other aircraft I have operated (especially a Navajo, Beech 18, Aerostar or DC3).

Engine-out procedures are different in the MU-2 than most aileron-equipped aircraft in that it is spoiler equipped and the airplane is flown wings level single-engine (something that is easily and clearly demonstrated during training) rather than with the feathered engine up 5 degrees. The MU-2 has very docile stall characteristics and I don't have the slightest idea how anyone could question the MU-2's handling characteristics on 1 or 2 engines.

My theory why there may be a perceived safety issue with the MU-2 follows: The majority of the operating hours in the MU-2 are night 135 cargo operations. It is the turbine aircraft of choice due to its operating costs, acquisition costs, and reliability. The other aircraft in it's class would be the 90 series King Air, Turbo Commander, Piper Cheyenne, Cessna Conquest, etc. None of these aircraft are consistently used in 135 cargo operations. Historically, the 135 segment of aviation has had a higher accident rate than corporate operations. The scheduled, cargo operations that operate every night (the check runs that the MU2's do a majority of and that have had several of the recent MU-2 accidents) in all kinds of weather, usually are lower paying, entry level jobs and fatigue is often times a factor. They too, have frequently had a higher accident rate - regardless of aircraft type.

Lets face it - this is and has always been a more hazardous sector of aviation and probably will continue to be. Be it Beech 18's hauling boxes or air mail, or Cessna Caravans doing scheduled runs (especially after the Caravan fleet acquired some age and acquisition costs and barriers to entry were lowered) the accident rate of aircraft once placed in scheduled, night cargo service has always increased. It is also true that the check runs operate in and out of the larger cities so any accident will generate more publicity that many other type accidents.

Training is the other issue that needs to be addressed in the MU-2. It is a turbine high-performance aircraft and training needs to be approached accordingly. We train in-house, do it right and thoroughly, but all of our pilots also do outside training with professional training agencies. I suspect training (or lack of) is an issue in some of the MU-2 accidents of late, especially when you have repetitive accidents with one operation. Any attempts to shortcut training on any high performance, turbine aircraft are accidents waiting to happen.

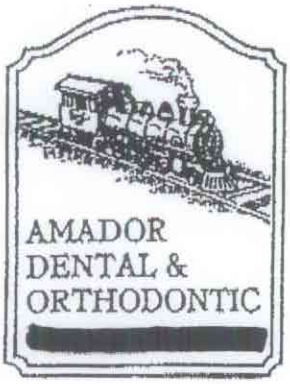
The factory also does a fantastic job of supporting the aircraft and sponsors free bi-annual safety and proficiency seminars. I cannot imagine why, but some individuals and operators choose to ignore this valuable resource. It is all about their attitude towards safety I suspect.

Thank you for the chance to respond to your request. I apologize for the length. If you wish to verify any of the facts regarding my company, our FAA P.O.I. (LIT FSDO) is Mr. Wes Crook - Phone 501-918-4435. My insurance agent is [redacted] Feel free to contact Mr. Crook, [redacted] or myself at your convenience, if you have any questions or concerns.

Sincerely.

[redacted]

McNeely Charter Service, Inc.



[redacted]
International Association For Orthodontics
ORTHODONTICS • ORTHOPEDICS • TMJ
FAMILY AND COSMETIC DENTAL CARE

[redacted]

9/12/05

Mr Doug Rudolph.

I use and Fly my Mitsubishi MU-2 SN 398 as a business tool ~ 70% of the time. With ~ 1200 hrs mostly Twin Time, the MU-2 has been wholely predictable and of Ideal utility for my missions I depend on this my only chosen aircraft. Please support the Fixing of Pilot problems re close in slow turns on one engine (ALL TWINS have this issue) IS the issue, NOT the MU-2. The Plane DOES what the Pilot tells it. Thank you.

[redacted]

5000 Pleasanton Avenue • Suite 110 • Pleasanton, CA 94566 • [redacted]