

Used Aircraft Guide

Mitsubishi MU-2

A relative bargain, the MU-2 has a reputation as being unsafe. But owners say that lack of training, not the airplane, is to blame.

Pilots browsing through the light turboprops as a natural step up from a piston twin might be drawn to the Mitsubishi MU-2s by the lure of dazzling speed, unbeatable short-field work and a less-than-shocking purchase price. However, the airplane has a reputation as being "hot" and dangerous. Most owners attribute this to bad press, but the press had to come from somewhere: in this case, it was the accident rate, which was high in the early years—so high that the FAA considered requiring a type rating for the MU-2. That never came to pass, however.

So, is the MU-2 unsafe? Owners universally say "no, but..." The "but" is the need for initial and recurrent training. One respondent said that he's already been to Flight Safety twice this year, and is planning to go again. That's higher than average, but all of the owners who replied to our request for feedback stressed the need for good training.

The MU-2 can be a real bargain. According to the *Aircraft Bluebook*, a cabin class piston twin like the 1980 Cessna 421 currently goes for a steep \$346,000. This makes a used '72 Mitsubishi MU2F, for example, a rather attractive alternative at around \$235,000, not all that much more than an airplane like the Beech Duke, which has a current value of \$225,000 for a 1980 model. Try to break into the turbine market with

something like a used King Air, even of the same vintage, and the ante goes up to around \$440,000.

Naturally, there's a catch in the step up to turbines; in fact, there are two. One is greatly increased cost per hour; the other is handling and ease of pilot transition. The MU-2s were among the earliest turboprops to appear on the market, and they are airplanes designed to meet certain specific design criteria. The first of these is speed. For that reason, a small, highly loaded wing was used. The second was short and rough field performance. That meant the use of full-span Fowler flaps, which left no room for ailerons: the MU-2 uses spoilers for roll control. The rough field capability was dealt with by massive landing gear.

The MU-2s are the result of a true international amalgam. The airframe was built in Japan by Mitsubishi and shipped to the United States for assembly and addition of AiResearch engines along with avionics and other systems. According to Dick Allan, a broker who does a lot of MU-2 business, some 70 percent of the cost of the airplane came from U.S.-built systems. After an initial marketing relationship with Mooney in 1965, Mitsubishi set up a wholly-owned subsidiary for assembly and sales in when Mooney went bankrupt). Currently, the airplane is officially handled through Beech; however, most operators get all their support from International Jet, which specializes in the MU-2.

Model Changes

After the debut of the first MU-2B

model, Mitsubishi brought out a dozen upgraded models with enhancements ranging from major fuselage enlargements to boosts in engine power and jumps in gross weight.

The MU-2D followed the -2B, offering integral wet-wing tanks instead of bladder tanks, higher weights, higher pressurization and four-position flaps.

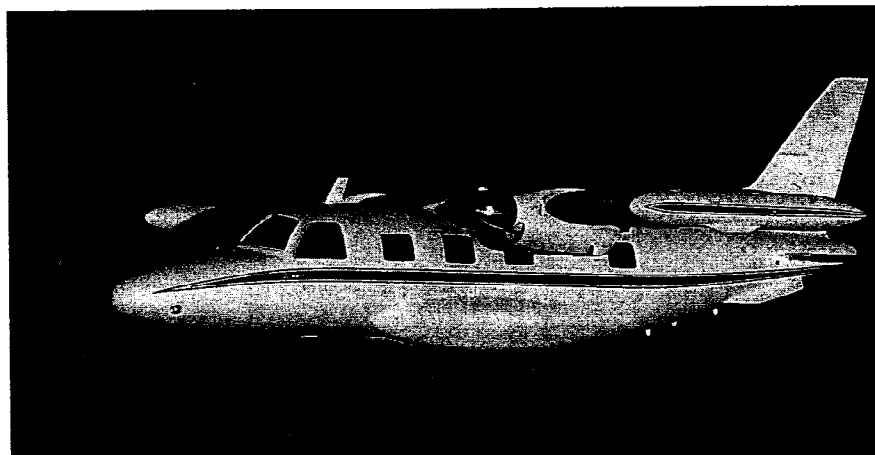
The F model received engines of 665 shp, up from 575, and extra fuel. The G was the first stretched version, with a cabin about five feet longer, made possible by the addition of pods to the sides of the fuselage to accommodate the landing gear (making the airplane slightly reminiscent of military transports like the C-130).

In the J model the interior was redesigned slightly to provide another 11 inches of cabin room. Also, extra soundproofing was added to the later Js.

The L received bigger 715 shp engines, increased gross weight and pressurization. The M boosted gross, pressurization, and certified altitude.

The N and the P offered an engine slowdown and four-bladed props for sound reduction. The Solitaire and Marquise with -10 engines boosted altitudes and speeds. These last two were introduced in 1979, and remained in production until the line was closed down in 1985.

This is a J model. The long bodies command a \$30- to \$40,000 premium over their sister ships.



Cabin Sound Levels

Perhaps the most significant improvement came with the '77 P and N models, when a major effort was made to combat the aircraft's reputation for annoying cabin noise levels. A big change was made at that time by slowing down the engine rpm, adding a fourth prop blade and enlarging the prop diameters. Owners say this hushes the cabin sound levels dramatically, by 10 dbA or so, though ironically the greatest din is still experienced during taxi, since the AiResearch Garrett TPE 331 engines are spooling up at around 65 percent rpm, unlike the P&W PT-6 engines, which idle in a more subdued, conventional fashion.

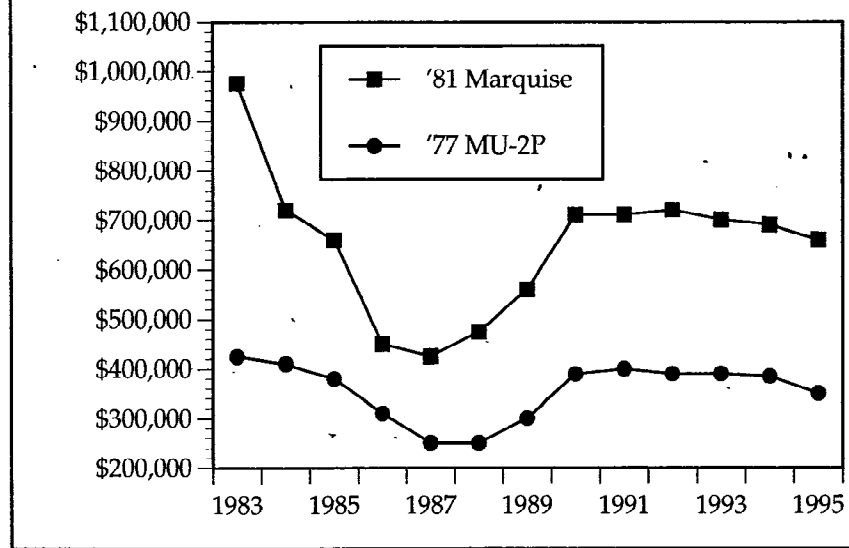
In fact, if there's one main complaint aired by MU-2 pilots, especially earlier models, it's the noise level about the Mitsubishi aircraft.

One pilot of a 1975 M model said his company had taken sound level readings in the aircraft that showed extremely high decibel levels in front, becoming progressively lower toward the back of the cabin. They recorded levels of from 95 to 102 dbA in the pilot and copilot seats, down to 87 to 90 dbA in the middle seats and 80 to 85 dbA in the rear seats while cruising at an altitude of 22,000 feet. He figured that later models with the engine slowdown dropped an average of 10 dbA across the board inside the cabin.

Cabin Room

Despite the seemingly small cabin size when viewed from the outside, owners describe the interior as quite roomy and comfortable. The short models seat six in an executive configuration, the long ones eight, though as many as 11 can be accommodated in for air taxi hauling by eliminating facing seats and tables. The long models even come with private toilets and cabin-size baggage areas. The short ones have three separate baggage bays in back of the cabin, with the front one pressurized.

Mitsubishi MU-2 Resale Value



Two areas which received universal praise from pilots were riding

The Piper Cheyenne I checks in at about 249 knots and the II at 283

earlier models. Its integrity. Thanks to the high wing loading on the MU-2s, the aircraft sails through chop with little discomfort. And everyone raved about the ruggedness of the Mitsubishi aircraft (in part, the result of design for rough field operations).

the later MU-2s works out at a bit over 1,000 miles, which is average for this class of aircraft, though it's overshadowed by some like the Conquest (1,232 miles) and Swearingen IIIB (1,393 miles).

Payload

Payload appears quite good, especially on later models with higher-output engines not power limited by temperatures on warm days. The chief pilot of an organization that operates a short '75 MU-2 M model said he could fill the fuel tanks, allow 250 pounds for himself and his Jepps, etc., and still load on board five passengers and 214 pounds of baggage. His payload was 1,376 pounds.

The earlier model MU-2s (Bs, Ds and Fs from '67 through '71) had cruise speeds that were lower by 35 to 65 knots, and commensurately lower range.

Handling

When it comes to handling, there is common agreement that the MU-2s are more demanding for the step-up pilot than other turboprops like the Beech King Air and the Piper Cheyenne. The feel of the aircraft is different because of the spoilers. And many confess that the other side of the coin relating to the MU-2's outstanding short-field performance is that the airplane can be tough to land with finesse.

When it comes to out-and-out speed, the Mitsubishis lead the pack and always have. The later models can be expected to yield over 300 knots (short models) and the long models only a whisker under that. Aside from much more expensive airplanes like the Piaggio Avanti and Beech Starship, only the Swearingen IIIB comes close at 300 knots, and the Cessna Conquest at 293 knots. The small Beech King Air C90 trails way back at 222 knots and even the King Air 100 only makes it to 248 knots.

Pilots talk about descent rates on final as high as 2,000 FPM, if called for, with the props back in flight idle and 40 degrees of flaps hanging from nearly the full length of the MU-2 wing. The flare calls for a skilled touch to prevent a hard landing, though if the engine flight idle is properly adjusted this tendency is

dramatically reduced (see sidebar). Even when the mains are on, the nosewheel wants to fall even if the pilot tries to hold it off with elevator. One owner complained that he was forever experiencing flight director failures which, correctly or not, he attributed to the pounding it took each time the nose slammed down on landing. It is generally agreed that the short models are the worst in this regard, due to the CG location in relation to the main wheels.

One MU-2 flier offered this parallel: "If you can fly a Rockwell Shrike or a Mooney, you can fly and comfortably land a Mitsubishi. It wants to float down the runway, so you want to get it right down there on the flare. You don't want a 30-foot initiation of flare; you want it at three feet. And you want to keep the power on 'til touchdown.

aircraft tend to slow it up in the flare and get back to flight idle, trying to hold the nose off. It doesn't work. This airplane has to be flown onto the runway. Once you've got the mains on, the nose gear is going to plant itself. It seems abrupt to the pilot."

But this pilot said the aircraft could take the punishment. "That nose gear is tough," he said. "I don't know of any damage to the MU-2

nosewheels because of this characteristic."

Safety Record

The MU-2 has, in the past, displayed a greater than average accident rate, which is the underlying cause of its reputation. However, of late operators seem to be more cognizant of the need for recurrent training, and the rate has fallen. It's also difficult to draw statistically valid conclusions due to the overall low number of accidents. Nevertheless, the record is instructive and highlights the areas pilots need to be aware of. For example, the number two accident problem with the MU-2 models in a 13-year accident rundown (1965 through 1978) turned out to be hard landings. The number three problem area was undershoots—as might be expected in an aircraft that can be set up for a

possibility of getting behind the power curve.

The leading probable cause for accidents in the MU-2 was engine failure. This was also blamed for the greatest number of fatal accidents in the MU-2—three. This is somewhat deceptive: on all three of these fatalities, only one engine failed, but the pilot was unable to make a safe return with the remaining powerplant. A stall/spin was

blamed in each case, with the pilots accused of "diverting attention" from flying the aircraft. All this reinforces the case for recurrent training.

This might suggest that the loss of an engine, especially on takeoff and climbout and in the landing pattern, can be a serious cause for concern in the MU-2. In fact, the only safe return with an engine out was made when the failure occurred during normal cruise and the pilot apparently had the time to sort things out and make it to an airport. The airplane, like other turboprops, is certainly able to fly on one engine; however, the pilot has to stay ahead of matters.

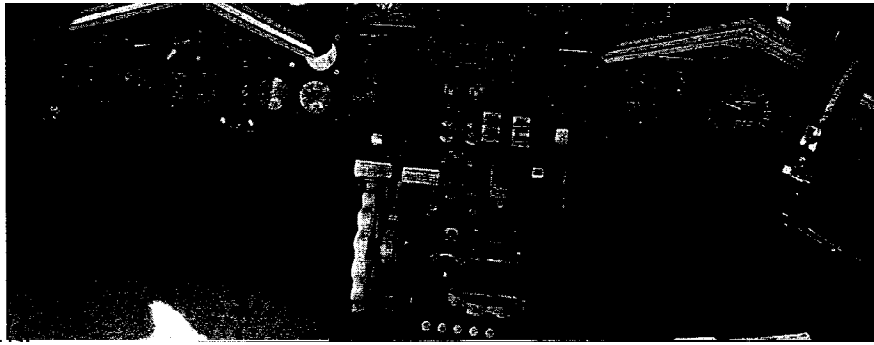
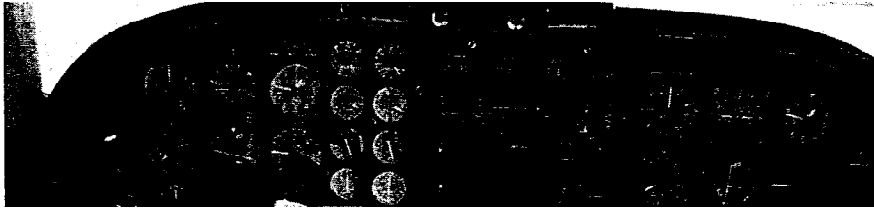
It should be noted that the six engine failure accidents (and one incident) were all evidently the result of some sort of malfunction. Another four engine failures occurred because of pilot mismanagement; and three other fuel exhaustion accidents were the result of mechanical failures.

Though there are three main sets of fuel tanks in the MU-2, the monitoring system would not appear to be inordinately demanding. There is one main tank in the central wing section into which outer wing tanks feed by electrical fuel pump and into which the tip tanks feed by pressurization from

Cost/Performance/Specifications

Model	Year	Average Retail Price	Cruise Speed* (kts)	Useful Load (lbs)	Fuel Std/Opt (gals)	Engine	TBO (hrs)	Overhaul Cost ea.
Short Cabin								
MU-2B	1967	\$95,000	240	3,200	285	Gar. TPE-331-25AA	2,000	\$150,000
MU-2D	1968	\$100,000	250	3,580	285	Gar. TPE-331-25AA	2,000	\$150,000
MU-2F	1968-72	\$185,000	270	4,030	366	Gar. TPE-331-1-151A	5,400	\$141,000
MU-2K	1972-74	\$290,000	300	4,000	366	Gar. TPE-331-6-251M	5,400	\$141,000
MU-2M	1975-76	\$325,000	295	3,600	364	Gar. TPE-331-6-251M	5,400	\$141,000
MU-2P*	1977-78	\$353,000	290	3,450	364	Gar. TPE-331-5-252M	5,400	\$141,000
Solitaire	1979-85	\$700,000	295	3,450	403	Gar. TPE-331-10-501M	5,400	\$150,000
Long Cabin								
MU-2G	1970-71	\$225,000	240	4,100	366	Gar. TPE-331-1-151A	5,400	\$141,000
MU-2J	1972-74	\$325,000	280	4,000	366	Gar. TPE-331-6-251M	5,400	\$141,000
MU-2L	1975-76	\$365,000	280	4,000	364	Gar. TPE-331-6-251M	5,400	\$141,000
MU-2N	1977-78	\$392,000	275	3,800	364	Gar. TPE-331-5-252M	5,400	\$141,000
Marquise	1979-85	\$730,000	295	3,450	403	Gar. TPE-331-10-501M	5,400	\$150,000

Source: Aircraft Bluebook Price Digest. Prices are for average airplanes, not pristine examples.



The cockpit is typical turboprop: engine gauges right where they should be, and no surprises.

engine bleed air.

Since both engines feed from the center tanks, there is not even a need for crossfeed arrangement, and all the pilot has to do is monitor the transfer of fuel from the outer tanks into the center ones. We noted no accidents from landing with asymmetrical tip loadings.

The last significant cause of MU-2 accidents disclosed in the NTSB briefs is gear-up landings. In the years surveyed there were seven of these altogether—and in four of these the pilot simply forgot to lower the gear.

Service Difficulties

For the most part, complaints center on isolated systems, and there appears to be no real pattern. Owners love the ruggedness of the airplane. One respondent, who used to fly a Cessna 340, has found that he can budget less for maintenance reserve with the MU-2 because it doesn't break down as often. Another flight department has a 99% dispatch rate.

In our last look at the MU-2, we had a few very negative comments, including one owner who finally

gave up and bought a King Air. Not so this time around. We were fortunate for this article to be able to tap into a large gathering of MU-2 operators at the 1995 NBAA convention in Las Vegas. A survey form was handed out, and the results indicated overall satisfaction with service and parts availability. As noted above, most operators use International Jet for support, and have expressed satisfaction with their service.

Naturally, operators of large piston twins must brace for the quantum cost jump when they make the move to turboprops, but there are those who maintain that the fantastic speed of the MU-2 series will actually deliver a better cost per seat mile than the piston machines.

Mods

Among the more interesting Supplemental Type Certificates issued to MU-2s were: several battery temperature warning and monitoring systems, offered by AiResearch, Mitsubishi and KS Avionics, at Castro Valley, Calif. Also, addition of a baggage compartment in the main landing gear wheel pods, by Mitsubishi; plus portable jump seats by Ward International Aircraft in Fort Worth, Texas; installation of an electrically heated glass windshield on the pilot's

AiResearch.

Owner Comments

I purchased a 1981 Mitsubishi Solitaire in December of 1994. Previously I owned a Cessna 340,

is difficult to compare four such diverse twins, but easy for me to analyze reliability.

This airplane is the most reliable I have ever operated. I have now flown it 183 hours and other than 50-hour phase inspections the only maintenance costs I have had were a failed gear down-limit switch (\$285) and a failed fuel transfer pump (\$1200). The phase inspections cost

have been no parts needed during these inspections. I also had my fuel injectors cleaned for \$1200. Other than fuel and engine reserve that has been it.

Every other airplane I have ever owned cost me more for the same amount of flight time. My hourly costs including reserves, hangar and insurance are \$320.40, versus \$212.70 for the 340. For a typical trip (New Hampshire to Florida), the 340 took 5 hours, 45 minutes. The MU-2 takes only four hours. Interestingly, the cost for both airplanes works out to about \$1280, but I now have better performance and reliability. Removing insurance and hangar costs it's still a wash: the MU-2 does the trip for \$1000, the 340 for \$1009.

I attribute the poor accident rate to untrained pilots. This is not an airplane that a low-time or untrained pilot should fly. I believe in Flight Safety training; I've been twice this year, and will go again before the year is out. I fly the airplane at least once a week and I don't believe this airplane should be flown infrequently.

This airplane is the best bargain in the used turbine fleet. I can't imagine why anyone would want, for example, a used King Air instead: just look at the speed and operating costs. I would even recommend an old N, M, or P model over a used

piston twin. The MU-2 is simply faster and less costly to operate.

Paul M. Connolly
Nashua, New Hampshire

I own and operate an MU-2B-40 Solitaire. It's an extraordinary airplane that makes my travel for business and pleasure an absolute joy rather than a chore. I operate the aircraft over 400 hours per year mostly around the U.S., but have made two round trips to Europe.

I purchased my MU-2 in the fall of 1993. It had been well maintained, and had zero-time engines. I paid \$650,000 for it. By way of comparison I could have bought an Aerospatiale TBM, a 285-knot airplane, for \$1.6 million or a new Beech King Air CB90, a 240-knot airplane, also for \$1.6 million. Since the MU-2 is a 315-knot airplane at one-third the cost of the alternatives, I naturally chose the MU-2. Since the MU-2 had zero time engines and was beautifully maintained, I regarded it as a virtually new airplane and felt that I could make an "apples to apples" comparison to the TBM and King Air. The fact that the MU-2 had 4,000 hours on the airframe was, to me, an irrelevancy—the rugged airframe and unique design convinced me that there were a lot more cycles left on a 4,000 hour MU-2 than there are on a new TBM or King Air.

Naturally I was concerned about the alleged difficulties of checking out

multi-engine aircraft. The MU-2 is a fast, efficient, versatile and cost-effective aircraft. Let me comment on each point:

- Speed - The 315 knot cruise at flight level 190 is at the lower end of jet speeds and exceeds any other turboprop. [Ed. note: That's not quite accurate. The Piaggio Avanti and Beech Starship are both faster (the Avanti much faster), but are in another league price- and size-wise.] My view is that jet speeds are wonderful in theory but not always attainable in reality. With ATC delays, the average speed of a

727 in commercial service is 350 knots. While they can go faster, speed restrictions are a fact of life. In fact, I regularly beat jets from Teterboro to my summer home in Nantucket. The MU-2 is generally faster than a jet for stage lengths of 300 miles. . .

The speed of the MU-2 makes it an aircraft that can fly anywhere in the U.S. without subjecting the passengers to long hours of lag. Flying southwest in the winter, one usually has a 50 knot headwind. In an MU-2 this means a ground speed of 265 knots, still very respectable

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Tobago (9)	Cessna P-210 (11)	Mooney 231 (12)
Aerospatiale Trinidad (12)	Cessna 337 Skymaster (7)	Mooney 252 (10)
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Beech 17 Staggerwing (9)	Cessna 310 (10)	North American T-6 (12)
Beech 19/23/26/27/28/29/30/31/32/33/34/35/36/37/38/39/40/41/42/43/44/45/46/47/48/49/50/51/52/53/54/55/56/57/58/59/60/61/62/63/64/65/66/67/68/69/70/71/72/73/74/75/76/77/78/79/80/81/82/83/84/85/86/87/88/89/90/91/92/93/94/95/96/97/98/99/100/101/102/103/104/105/106/107/108/109/110/111/112/113/114/115/116/117/118/119/120/121/122/123/124/125/126/127/128/129/130/131/132/133/134/135/136/137/138/139/140/141/142/143/144/145/146/147/148/149/150/151/152/153/154/155/156/157/158/159/160/161/162/163/164/165/166/167/168/169/170/171/172/173/174/175/176/177/178/179/180/181/182/183/184/185/186/187/188/189/190/191/192/193/194/195/196/197/198/199/200/201/202/203/204/205/206/207/208/209/210/211/212/213/214/215/216/217/218/219/220/221/222/223/224/225/226/227/228/229/230/231/232/233/234/235/236/237/238/239/240/241/242/243/244/245/246/247/248/249/250/251/252/253/254/255/256/257/258/259/260/261/262/263/264/265/266/267/268/269/270/271/272/273/274/275/276/277/278/279/280/281/282/283/284/285/286/287/288/289/290/291/292/293/294/295/296/297/298/299/300/301/302/303/304/305/306/307/308/309/310/311/312/313/314/315/316/317/318/319/320/321/322/323/324/325/326/327/328/329/330/331/332/333/334/335/336/337/338/339/340/341/342/343/344/345/346/347/348/349/350/351/352/353/354/355/356/357/358/359/360/361/362/363/364/365/366/367/368/369/370/371/372/373/374/375/376/377/378/379/380/381/382/383/384/385/386/387/388/389/390/391/392/393/394/395/396/397/398/399/400/401/402/403/404/405/406/407/408/409/410/411/412/413/414/415/416/417/418/419/420/421/422/423/424/425/426/427/428/429/430/431/432/433/434/435/436/437/438/439/440/441/442/443/444/445/446/447/448/449/450/451/452/453/454/455/456/457/458/459/460/461/462/463/464/465/466/467/468/469/470/471/472/473/474/475/476/477/478/479/480/481/482/483/484/485/486/487/488/489/490/491/492/493/494/495/496/497/498/499/500/501/502/503/504/505/506/507/508/509/510/511/512/513/514/515/516/517/518/519/520/521/522/523/524/525/526/527/528/529/530/531/532/533/534/535/536/537/538/539/540/541/542/543/544/545/546/547/548/549/550/551/552/553/554/555/556/557/558/559/560/561/562/563/564/565/566/567/568/569/570/571/572/573/574/575/576/577/578/579/580/581/582/583/584/585/586/587/588/589/590/591/592/593/594/595/596/597/598/599/600/601/602/603/604/605/606/607/608/609/610/611/612/613/614/615/616/617/618/619/620/621/622/623/624/625/626/627/628/629/630/631/632/633/634/635/636/637/638/639/640/641/642/643/644/645/646/647/648/649/650/651/652/653/654/655/656/657/658/659/660/661/662/663/664/665/666/667/668/669/670/671/672/673/674/675/676/677/678/679/680/681/682/683/684/685/686/687/688/689/690/691/692/693/694/695/696/697/698/699/700/701/702/703/704/705/706/707/708/709/710/711/712/713/714/715/716/717/718/719/720/721/722/723/724/725/726/727/728/729/730/731/732/733/734/735/736/737/738/739/740/741/742/743/744/745/746/747/748/749/750/751/752/753/754/755/756/757/758/759/760/761/762/763/764/765/766/767/768/769/770/771/772/773/774/775/776/777/778/779/780/781/782/783/784/785/786/787/788/789/790/791/792/793/794/795/796/797/798/799/800/801/802/803/804/805/806/807/808/809/810/811/812/813/814/815/816/817/818/819/820/821/822/823/824/825/826/827/828/829/830/831/832/833/834/835/836/837/838/839/840/841/842/843/844/845/846/847/848/849/850/851/852/853/854/855/856/857/858/859/860/861/862/863/864/865/866/867/868/869/870/871/872/873/874/875/876/877/878/879/880/881/882/883/884/885/886/887/888/889/890/891/892/893/894/895/896/897/898/899/900/901/902/903/904/905/906/907/908/909/910/911/912/913/914/915/916/917/918/919/920/921/922/923/924/925/926/927/928/929/930/931/932/933/934/935/936/937/938/939/940/941/942/943/944/945/946/947/948/949/950/951/952/953/954/955/956/957/958/959/960/961/962/963/964/965/966/967/968/969/970/971/972/973/974/975/976/977/978/979/980/981/982/983/984/985/986/987/988/989/990/991/992/993/994/995/996/997/998/999/1000		

NEED TO KNOW

stories generally spread by the uninformed. I spoke with many professional pilots who fly or have flown an MU-2. Each and every one swore by the airplane. They told me to get training from Flight Safety and Reece Howell and I would not have any problems. They were absolutely correct. As a low-time multi-engine pilot, I had no problems in checking out on the MU-2. The training was a wonderful experience, and I have total confidence in my ability to handle the airplane. The FAA has conclusively proved that a type rating is not needed for the MU-2, and I will go so far as to say that if a pilot cannot check out in an MU-2, he should not be flying any

Beech 1-34 Mentor (9)	Cessna 421 (8)	Piper Arrow (9)
Beech 36 Bonanza (8)	Cessna 425 Conquest I (9)	Piper Cherokee 140 (11)
Beech A36TC/B36TC (11)	Cessna 441 (8)	Piper Cherokee 235/Charger
Beech 55 Baron (10)	Cessna 500 Citation (9)	Pathfinder/Dakota (10)
Beech 58 Baron (9)	Champion 8GCBC	Piper Cheyenne (9)
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Beech 90 King Air (8)	Commander 500 Series (6)	Piper Malibu/Mirage (13)
Beech 95 Travel Air (10)	Commander Turbines (7)	Piper Navajo (9)
Beech V-tail Bonanzas (13)	Ercoupe (10)	Piper Seminole (6)
Bellanca Viking (11)	Glasairs (6)	Piper Seneca (13)
Boeing Stearman (7)	Globe/Temco Swift (10)	Piper Super Cruiser (9)
Cessna Hawk XP (6)	Grumman American	Piper Super Cub (8)
Cessna 150/152 (7)	Cheetah & Tiger (9)	Piper Tomahawk (8)
Cessna 170 (12)	Grumman Cougar (10)	Piper Tri-Pacer (7)
Cessna 172 Skyhawk (12)	Gulfstream AA-1	Piper Turbo Arrow (9)
Cessna 172RG Cutlass (7)	Yankee (12)	Piper Twin Comanche (10)
Cessna 175 Skylark (7)	Helio Courier (8)	Piper Warrior (10)
Cessna 177 Cardinal (8)	Lake Amphibians (10)	Republic Seabee (12)
Cessna 177RG Cardinal (10)	Luscombe 8 (8)	Robinson R22 (11)
Cessna 182 Skylane (9)	Maule (13)	Rutan VariEze, Long-EZ (13)
Cessna 182RG Skylane (13)	Meyers 200 (8)	SIAI-Marchetti SF. 260 (9)
Cessna 195 (10)	Mooney M-20M TLS (7)	Stinson 108 (10)

Our Take on the MU-2

Enough rumor and reputation: we accept an offer to fly an MU-2. Here's our view:

Even though a hard look at recent accident stats suggests otherwise, the MU-2's reputation as a tricky airplane to fly seems to persist. Is it

demonstrated some important tests that should be performed during the starting sequence. The engines are equipped with a negative torque

mild. We didn't notice any tendency to drop a wing and the stick shaker (there's no horn) gives plenty of warning. The spoilers seem to

turboprops of its size. To prove the point, he insisted that we take a demo flight in a short-body MU-2F, one of the earlier models and a real bargain, since most are likely to sell in the \$225,000 to \$250,000 range.

Whether it was intended or not, the MU-2 has fallen into the niche of being a step-up turboprop for pilots wanting more speed or weather

driving the engine, thus limiting drag in an engine-out situation. It doesn't entirely autofeather the dead prop (it attempts to set it to 90 percent feather) but the drag reduction is nearly the same.

After start-up and pre-takeoff checks, Allan demonstrated his MU-2 takeoff technique: Accelerate to 80 knots, apply some backpressure, then a

Allan demonstrated the NTS by chopping the left engine. The yaw was immediately noticeable but less pronounced than you'd expect with a piston twin with an unfeathered prop flopping around in the breeze. Allan uses a quick "one-two-three" drill to identify the dead engine, pull the condition lever back to feather and trim for roll and yaw. Trimmed and cleaned up, the airplane steamed

muster. In that sense, a piston twin should find an MU-2 cockpit relatively familiar, except for the power controls and systems relating to starting and managing the turbines. (There are power levers, of course, but obviously no mixture controls and condition levers in place of prop controls.)

Frankly, we found the cockpit somewhat similar in size and layout to a Cessna 310 and the only thing we didn't like was the placement of the master annunciator panel, which is down by the pilot's left knee, out of view. No big deal, but you have to remember to look left and down for any warning lights. Cockpit visibility is adequate; not great but not bad.

System wise, the MU-2 seems relatively straightforward. The fuel system—a center-mounted main tank fed by outboard and wing tip tanks—is electrically controlled via

most at about 70 knots. The airplane breaks ground easily and accelerates smartly. It's at this point that a transitioning piston pilot may have a little trouble. The airplane doesn't settle into a nice, piston-like 120-knot climb but keeps on accelerating toward 150 knots or so and 1500 feet per minute. Until you're used to it, that kind of performance can leave you trailing on the static wicks. On an IFR day, you'd be into the crud pretty quick.

No surprises in climb or straight-and-level flight. Upon reaching cruise, there's really nothing to do but set the appropriate power and trim the airplane. At 7000 feet, we tried some steep turns and were rather surprised to see that with a notch of up elevator trim, the MU-2 will hold a 45-degree bank turn hands off, with no tendency to diverge in either direction, which is something most light twins can do

5000 feet easily. (Naturally, it could maintain a higher altitude, too.)

NTS may seem a godsend to the transitioning pilot used to yanking prop levers back to feather and barely holding an anemic cruise with the remaining piston engine, but there's a price to pay. We think to operate the airplane safely, a pilot should understand how NTS works and perform the recommended system checks and maintenance regularly. We're told that MU-2 pilots are a little rusty in this area. (This advice applies to all of the airplane's systems which, as we said, aren't especially complex but combined with the MU-2's blistering speed, the workload could easily overwhelm an inexperienced or frail pilot.)

Having heard of the MU-2's supposed tendency to develop high sink rates on approaches, we were again surprised to discover that at a

gauges on the lower left instrument panel. The pilot has to remember to pump the outboard fuel into the main but there's no crossfeed to bother with. It's not quite set-and-forget but lots simpler than the aforementioned 310.

Cabin pressurization and engine starting system is virtually push-button automatic, although Allan

and positive; Allan delights in demonstrating fighter aircraft-like maneuvering.

What we found most eye-opening was the MU-2's slow flight and stall habits. It has a tiny, highly loaded wing and we had been led to believe it gives up with a whump at high angles of attack. However, even clean, the incipient stall is relatively

no more prone to sink than any light twin. In fact, we flew a couple of approaches just above the 86-knot VMC speed and other than minute adjustments in power, the airplane required no special treatment. However, with 40-degrees of flaps extended, we found that it wanted larger roll inputs than a typical cabin-class twin might, yielding a somewhat sluggish feel on final, but

no tendency toward pilot-induced roll oscillations.

Touchdown is definitely an acquired skill. Allan's method is let the mains contact the runway and then apply abrupt backpressure to keep the

as his. That said, we wouldn't call the MU-2 hard to land but we can see why some pilots say it's difficult to make consistent squeakers, especially in the short-body models, whose center of gravity is forward of the wheels (in the long-body models the gear retracts the other way, so the CG is over them).

Allan says that many approach and landing problems are probably due to engines mis-adjusted for flight idle. True flight idle should result in zero thrust but with positive airflow over the wings; if idle is too high, the airplane will tend to float and if it's too low, the props will go flat and disturb airflow over the wings and tail, resulting in the squirrely behavior on final that many pilots complain about. The props cover so much of the wing span that the problem is three-fold: loss of lift, loss of thrust, and loss of elevator control all at once. Allan says pilots should periodically perform a simple, factory-approved flight test to confirm the flight-idle setting, then have the engines adjusted accordingly.

Bottom line? The MU-2's snakebit rep seems hardly deserved, assuming a relatively competent pilot. That said, however, we agree with those who say the airplane ought to require the equivalent of a type rating. (In fact, most insurance companies virtually enforce this anyway, requiring extensive pilot training before they'll write coverage.)

We believe the MU-2's relatively low cost and high performance may attract operators who would skimp on maintenance and training. That's bad news, and argues for the kind of formal initial and recurrent type-

for a turboprop. The King Air CB90 is down to less than 200 knots—piston aircraft performance. I have a ranch near San Antonio, Texas, and regularly fly nonstop to New York at FL 290 to 310.

This substantially reduces fuel burn and makes it an extremely efficient aircraft. The Aero Commander 1000 and Cessna Conquest can operate at slightly higher altitudes, but they are often double the price of the MU-2. Trips from California to New York with the MU-2 require only one stop. I believe that this is excellent performance comparable to most light jets with meaningfully less fuel burn. An important factor in efficiency is the very compact size of the aircraft resulting from its unique design. This makes ground handling and hangar storage very easy. This is a very important cost benefit over the life of the airplane.

- Versatility - The design goals for the MU-2 were speed and short field capability. The MU-2 meets these criteria better than any other turboprop. Not only is it faster, it is also slower. In light configuration with 40-degree flaps the aircraft can be safely touched down between 60 and 70 knots. With its massive gear, brakes and prop reverse, it can be stopped in a very short distance. This is an advantage for me because I am always landing on ranches with unimproved fields.

- Cost effectiveness - As mentioned, the initial capital outlay is below the competition. So is the operating cost. A 100-hour inspection on an MU-2 should be between \$3000 and \$4000. Since many of the aircraft are in commercial service, there are shops around the country that can do the work quickly and efficiently. A well-maintained MU-2 should have few problems coming into a 100-hour. The only area that can be a problem is getting insurance for low-time pilots. With proper training it can be obtained but will probably run 50 percent more than for a comparable

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appears to be safe enough if the pilot who flies it stays current.

In summary, the airplane is easy to fly once one learns to trim it and

understands its sensitivity to power changes. We who own and fly the MU-2 sincerely believe that it is probably the most unique and reliable aircraft in the world. It is more than just a magic carpet...it is nothing less than a work of art.

George Baker
New York

I've owned a 1973 K model for the past year, having flown it 150 hours during that time. I hold an ATP rating with 4000-plus hours. Safety issues surrounding the aircraft prompted my attending both Reece Howell's introductory MU-2 course as well as Flight Safety's recurrent training. In addition I flew approximately 25 hours of dual with Reece and a local MU-2 line pilot.

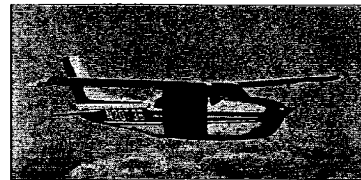
I do not feel that the aircraft is inherently dangerous, but there are six idiosyncrasies which I feel the pilot must be aware of to safely fly the MU-2: 1) Control inputs are

much heavier than those of a piston twin, and the pilot must retrim the MU-2 whenever changing pitch or power. 2) In the MU-2 greater attention must be paid to keeping the ball centered, first by setting equal torque from each engine and then using rudder trim as required. 3) using the autopilot during periods of high workload keeps the wings level and solves the tendency of a wing to drop. 4) The MU-2 has better roll control than most other aircraft, but the yoke must be deflected about 30 degrees farther to get the same rate of spoiler-induced roll as with a conventional aileron equipped aircraft. Initially the pilot will be timid in this regard and the aircraft will feel sluggish in its response. 5) the heavy wing loading of the MU-2 requires a stabilized approach, paying close attention to airspeed and rate of descent on final. The pilot must learn to avoid reducing power as the flare is commenced for landing: doing so in an aircraft with high wing loading can result in a hard landing. 6) Control on the roll out is best accomplished by equal and gentle application of ground idle or reverse thrust.

Is the MU-2 dangerous? Absolutely not! Is an untrained MU-2 pilot dangerous? He certainly could be! The key to flying the MU-2 safely is adequate training. In exchange for taking the time to learn to fly it correctly the MU-2 pilot and his passengers are rewarded with spectacular performance and great comfort at bargain-basement prices. I couldn't be more happy with mine.

Ken Wolf
Lewiston, Maine

Reader Feedback Wanted: Cessna 210



Our next used aircraft guide will be on the 210 and T-210 Centurion. If you have any experience with this aircraft, own one (or have owned one in the past), we want to hear from you. We want to know what it's like to own this airplane, how much it costs to operate, maintain and insure, and what it's like to fly. Facts and figures we can get from the operator's manuals; only the owners and operators can tell us what it's like out there in the real world.

Also, we welcome any information on modifications, support organizations such as owners clubs, and any other pertinent comments.

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