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WESTERN ASSOCIATION OF MOONEY MITES
NEWSLETTER

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Send inquiries to Western Association of Mooney Mites

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The WAMM Newsletter is established as a non-profit voice for the purpose of circulating information of interest or value as well as shared experiences to Western United States Mooney Mite owners and enthusiasts. In addition, it is formed in recognition that a newsletter is essential to maintain communication between Mite owners in attempting flying condition preservation of the remaining single place Mooneys. The newsletter is published every two or three months or as enough news and information gathers to be informative.

FLYING SAFETY UPDATE

Article No. 29

These articles are presented by AVEMCO Insurance Company in the interest of flight safety. The articles may be reproduced with credit to AVEMCO. You can help promote aviation safety by reviewing and implementing the pertinent information contained herein.

"The Trouble With Turbulence"

Any pilot may have difficulty coping with extremely rough air . . . and many may find the bumps and chops of even light turbulence to be somewhat disconcerting.

Fliers are aware that turbulence is often associated with mountains and thunderstorms; a few may not realize it can also be associated with clear skies.

While the severity of the airborne disturbances will vary, some circumstances can be assumed to present a more serious problem than others. The towering cumulus associated with thunderstorms is a situation that pilots should presume harbors turbulence—the worst kind at that. While those boiler rooms of natural energy may pack a wallop, every encounter doesn't spell doom for the unwary pilot who finds his airplane behaving more akin to a bucking bronco than an airborne machine.

Actually, once a pilot finds his airplane being tossed around in rough air, his biggest concern should be maintaining control of the craft. Control will help insure the structural integrity of the airplane and lessen the possibility that it will be overstressed during an uncontrolled descent.

Riding out bumpy air calls for tightened seatbelts and shoulder harnesses for the pilot and his passengers. A shoulder harness may prevent a front seat occupant from being thrown against the control column, which could cause a loss of control. Passengers should be assured that the rough flight will pass and be cautioned against bothering the pilot until the airplane reaches calmer air.

Moderate to severe turbulence calls for a reduction in airspeed to the manufacturer's maneuvering speed (V_a) for that particular airplane and trimming for level flight. The manufacturer's recommended airspeed for maneuvering is important because it is the highest airspeed at which full and abrupt control movements can be made without overstressing the airframe. However, abrupt control movements should be avoided as they tend to place heavy stresses on the airframe. Let the airplane ride with the turbulence rather than fighting it with the controls.

An airplane configured to V_a should stall before the airframe suffers a pilot-induced failure, but an airspeed significantly below V_a (which will vary depending on the actual gross weight of the airplane) won't offer any additional protection. In fact, such a move may make the airplane more likely to stall during vertical gusts. And a stall may lead to a loss of control and subsequent overstress of the airframe.

Successfully coping with turbulence demands that the pilot fly attitude—not altitude. Straight and level flight induces the least stress, in addition to the aid it offers in holding a constant heading. Wandering aimlessly in rough air may increase the time that the plane and pilot must endure the pummeling of turbulent air.

Maneuvers that invite a pitch change—a bank, trim change, power change or altitude chasing—should be avoided. They may contribute to an accelerated stall that could lead to an increase in speed and structural damage. The pilot should refrain from attempting to maintain a

specific altitude; the frequent updrafts and downdrafts associated with turbulence will usually average out during the flight.

Because straight and level flight is so important to airframe integrity and control, 180-degree turns are not recommended in moderate to extreme turbulence. Aside from placing additional stress on the airplane and risking a loss of control, the pilot may be inviting incapacitation. The jolting ride in turbulence during a turn may make the pilot more susceptible to a momentary case of vertigo, especially in IFR conditions—all it would take to lose control of the airplane and face uncertain consequences.

Retractable-gear airplanes are usually designed with a minimum of protrusions from the airframe in order to obtain maximum airspeeds. In rough air, though, a low-drag airframe could be a liability, especially in circumstances that result in an unplanned descent. Airspeed in that situation could build up very rapidly and lead to an overstress in a sudden gust load. So some flight manuals may suggest penetrating turbulence with the landing gear extended where the V_a and the maximum landing gear extended speed (V_{LE}) are compatible. Besides providing additional drag in an unplanned descent, some flight manuals indicate gear-down configuration adds lateral stability in rough air. With the landing gear extended, a higher power setting is possible, without increasing airspeed, providing better control capability.

The same reasoning does not apply to the extension of the flaps. They reduce the stress that the wings can withstand, so they must remain retracted.

Airplanes equipped with autopilots may make turbulence penetration less tiring for the pilot. Altitude hold functions, however, should not be engaged unless the system is certified for turbulence operation. Otherwise, the autopilot, in trying to hold the airplane at a specified altitude, may in fact cause a structural overload. The pilot should be sure to consult the airplane's flight manual for proper operation of the autopilot during turbulence penetration.

What happens if a pilot loses control of the airplane? In that case the aircraft may be in a nose-down configuration and gaining speed. While that situation is serious in turbulence, it is not hopeless if the pilot doesn't panic. The throttle must be retarded and the wings leveled before a gentle pull-out from the descent should be initiated. Any abrupt movement of the controls to recover from a dive could result in a structural failure with fatal results. Other attitudes may be induced by turbulence and the pilot who has had training in recovering from unusual attitudes is likely to be better prepared for recovery from them.

Instrument flight simulator time is highly beneficial in familiarizing the pilot with the effects of turbulence and recovery from unusual attitudes; however, the best insurance against risky confrontations with turbulence is to avoid it. Weather information, including interpretation of cloud formations and pilot reports, offers some good guides to being on the alert to possible turbulence along a particular route of flight. Even so, there is always the possibility of flying into turbulence, so every pilot should learn and know the "trouble with turbulence"!

FROM THE WASHINGTON COUNSEL

YOUR MEDICAL CERTIFICATE AND YOUR HEART

Heart disease may seem like a strange subject for a legal column. Strange *not only* because we find a lawyer writing about medicine, but also because this column is addressed to pilots who are actively flying and presumably free of significant heart trouble.

But it may not seem strange at all once we explain that heart trouble is one of the most frequent causes for losing one's FAA medical certificate. Foremost among the heart troubles is coronary heart disease. It has reached the epidemic stage in this country, killing more Americans each year than any other disease, including cancer. The risk increases with age. It appears to be a natural part of the aging process, but it is not.

As frightening as all of this sounds, many individuals who experience coronary heart disease recover and go on to lead normal lives. Leading a normal life, to a pilot, includes flying. So, pilots have two concerns: how do I avoid coronary heart disease; if I do experience coronary heart disease, how do I get back on flying status?

The latter is very much a legal problem, so let's talk a little bit about the law.

The medical standards for an FAA medical certificate, including cardiovascular standards, are specified in Part 67 of the Federal Aviation Regulations. (These standards are set out in the annual AOPA Handbook for Pilots.) They are the same for all pilots. From the weekend pilot to the airline captain. In essence, they say that if you have ever had a heart attack (myocardial infarction), you are not entitled to a medical certificate. They go on to say that if you have coronary heart disease, and you have it to such an extent that you are likely to have a heart attack, you are not entitled to a medical certificate.

The standards are quite stringent; actually, more stringent than medically required. So, the FAA will grant individual exemptions from these standards. In our experience, the exemption process has been most beneficial to pilots who have had a heart attack and who have made a good recovery. The exemption process was explained in our March 1978 column on "FAA Medical Certification Procedures."

Most of the legal challenges have in-

involved pilots who have not had a heart attack but who do have coronary heart disease. The case usually develops when a pilot experiences some pain or stiffness in his chest. Extensive medical testing shows that he or she has some narrowing in one or more of the major blood vessels that supply blood to the heart. In such a case, depending on the extent of the narrowing, there is often room for argument among the experts as to whether the condition may rea-



BY JOHN S. YODICE
AOPA 199738

sonably be expected to lead to a heart attack. This is especially true where a pilot has significantly reduced his "risk factors." It is also true where there has been remedial heart surgery and successful recovery. These are the cases that wind up before the National Transportation Safety Board. If a pilot can prove, through competent medical testimony, that he is not at increased risk for a heart attack even though he has coronary heart disease, the NTSB will order FAA to issue a medical certificate.

Since coronary heart disease may interfere with our flying, can we now take steps to avoid it? Very little is known about the fundamental pathogenic process of this disease. Medical studies over the past 25 years have helped doctors formulate a theory known as "the multiple risk factor hypothesis." These studies have identified certain personal characteristics and environmental factors that are associated with the incidence of coronary heart disease. The most powerful predictors of coronary heart disease include age, sex, blood pressure, cholesterol, cigarette smoking and physical inactivity.

The older you are, the more likely

you are to have coronary heart disease. Men are more likely to develop it than women, though this gap narrows with age until it almost disappears in the very elderly.

There is a positive association between blood pressure level and coronary heart disease. Actually, the rate of death from all causes increases proportionally to an increase in the level of blood pressure.

The elevation of cholesterol in the body has also been demonstrated to be associated with an increased risk of the disease.

Cigarette smoking is possibly the most significant and important risk factor associated with the incidence of coronary heart disease. While smokers have a higher incidence of the disease, if a person stops smoking, his risk reverts to almost that of a nonsmoker within a few years.

Perhaps the most controversial risk factor is physical inactivity. This is probably because medical research has not yet been able to establish that exercise will reduce the risk. Nevertheless, it seems clear that those persons who are physically inactive are at greater risk.

Other risk factors include obesity, family history of heart disease, stress, diabetes, gout and others.

The important thing is that we can control some risk factors. While medical research is equivocal about whether controlling the risk factors actually reduces the risk of coronary heart disease, I think a quote from a noted exercise physiologist puts the matter in proper perspective. Dr. Per-Olaf Astrand of Stockholm is reported to have said: "It will take 100 years to determine the exact relationship between physical activity and premature death from coronary heart diseases. Personally, I can't afford to wait that long to find out, so I elect to exercise."

After seeing many medical certificate cases involving coronary heart disease, and learning something about the natural history and dynamics of the disease, one cannot help but feel that healthy pilots may benefit from this background. Pilots who have the disease may benefit from knowing that there are legal procedures which help in getting back on flying status. □

The Mighty Mooney Mite

A short excerpt is included below that provides an interesting history of our Mooney Mites. The little wooden bird of ours was a revolutionary innovation for its day (how thankful we WAMM members are of that, aren't we?); however, the demand for more space and capacity gave the Mite a comparatively short unfortunate production life. Just think how much better off general aviation pilots of today would be if more mites had been built during its production run. Oh well, some of us are lucky (we have our Mites) and some other pilots unlucky because they are not aware of what they're missing.

The Mooney M-18 Mite was an interesting entry in the personal aircraft field in the post-WW 11 years. As an attempt to provide a minimum cost and lively airplane for the sport flyer, the Mite challenged a number of hard facts of aviation history and economics. Thanks to clever engineering and sharp management; its manufacturer almost got away with it.

The Mite was introduced in 1948 by Mooney Aircraft, then located in Wichita, Kan. The firm was founded by C.G. Yankey and Al Mooney former president and engineering vicepresident, respectively, of the Culver Aircraft Corp. after that producer of wooden personal aircraft had gone out of business early in the "iron bird" era. Mooney had a number of well-known designs to his credit, including the Culver Cadet, some Monocoupes, the Dart, and the Eaglerock Bullet.

Shop was set up outside of Wichita, using part time help already employed in other aircraft plants to keep cost down. In addition, costs of the M-18 were kept to a minimum by using wood, with its reduced tooling costs, and a 26 hp Crosley automobile engine. The primary fault of the car engine for airplane use, notably its high crankshaft speed, was licked by using four Goodyear steel belts to turn the propeller at half the crankshaft speed. The old problem of getting good airplane performance with minimum power was licked with a patented Mooney "Simpli-Fly" system that let one simple hand-crank operation take care of the simultaneous flaps and trim for any desired flight condition. And we owners all know of the whole tail unit pivots for trimming. To save further on weight and cost, there was no electrical system designed. So this meant hand-propping, while the thing in those days on the general scene, was a bit of a chore because the prop is unusually low on the ground-hugging Mite. Of course, as owners we know its best to prop our Mites seaplane fashion, from behind the prop.

The plane also had an ingenious manual retractable landing gear "wheels up" warning system, a marvelously simple device---an automobile windshield wiper tied into the intake manifold. They still are in use today on some Mites. I have an operational system on my N118C. Yet as good as the Mite was, it just wasn't good enough with the water-cooled Crosley. So a change was made to the M-18L model, a Lycoming O-145 65 hp was installed and only after five M-18's had been built. Then later the engine was again changed to a 65 Continental A-65 after Lycoming ceased production. The airplane was designated the M-18C.

For all of its merits and innovations, our Mite was still bucking history and economics. In spite of the problems which had killed off other single-seaters in the thirties and had kept a couple of other promising postwar designs from leaving the prototype stage, our Mite managed to hang on for eight years, reaching a production total of nearly 300. This total was greater than all other single-seat models built since the early thirties.

The Mighty Mite (continued)

The labor market forced the shop to move to Kerryville, Tex. in 1952, but the final blow came when Continental stopped building the A-65. No substitute was available as there had been when Lycoming went out of production. However, Mooney was in production with the four-place Model 20 by then, so the little fighter, the Mite, was discontinued. The fact there are still 140 on the FAA register nearly 25 years after production ended is a tribute to the little wooden wonders of ours.

MOONEY M-18 SPECIFICATIONS AND PERFORMANCE

Span	26 ft. 10 $\frac{1}{2}$ in.
Length	17 ft. 8 in.
Wing Area	95 sq. ft.
Empty Weight	550 lbs.
Gross Weight (Lyc)	780 lbs.
Gross Weight (Cont)	850 lbs.
Fuel Capacity	11 gals.
High Speed	138 m.p.h.
Cruise Speed	115 m.p.h.
Landing Speed	43 mph with flaps. 50 mph zero flaps.
Rate of Climb	900 f.p.m.
Ceiling	19,400 ft.
Range	380 Mi.
Cost (1950)	\$2,250

SWITCH ON

Pilots can now get instant radio operator licenses. When applying to the FCC for a license, you can fill in another form, which serves as a temporary permit. Write Federal Communications Commission, Washington, D.C. 20554, for Forms 753 and 753-T, or any FCC field office.

IRS AIRCRAFT USE TAX continues to plague aircraft owners. AOPA is urging FAA to send copies of the IRS brochure, "Federal Use Tax on Civil Aircraft", to all newly registered owners of aircraft. The publication explains who owes the tax and when. More widespread knowledge about the tax could alleviate many problems, including those of new owners of used Mites who suddenly find the tax on their bird hasn't been paid in years.

The FAA has been doing a survey of small planes (like Mites) to determine how many have shoulder harnesses. The action resulted from an inquiry from the National Transportation Safety Board, which would like the FAA to require the retrofit of shoulder harnesses. I firmly believe in them and have installed shoulder harnesses in each of my Mites. Any one desiring info on the installation of Mite shoulder harnesses, drop me a line. In addition, remember that 4 December 1980, this year, your Mite and all aircraft must have metal to metal buckle-up safety belts. So prepare in advance and do your conversion now. Have it inspected, then note it in your log book by a licensed A&P.

List of Possible Sources of Mooney Mite Parts

- | | |
|---|---|
| 1) Gee Bailey's Aircraft Plastics
2955 Junipero Ave
Long Beach, Calif
* Canopy & Windshields | 2) Fullerton Air Parts
4010 W. Commonwealth
Fullerton, Calif. 92631
* Canopy & Windshields
* Aircraft Hardware
* Fabric, Dope, etc |
|---|---|

List of Possible Sources of Mooney Mite Parts (continued)

- 3) Fred Schmidt
Rt 3 Main St.
Eaton, Ohio 45320
* Bellows (For steering rods in gear)
* Canopy & Windshields
* Fuel Gauge Tubing & Parts
* Gear Parts
* Wing Parts
Fuselage Parts & Hardware
* Tail Parts
* Biscuits (Rubber Discs for Gear) Mooney Dealers too?
* Tires & Tubes
- 4) Wag-Aero Inc
Box 181A
Lyons, Wiscon. 53148
* Prop Spinners
* Instruments
* 15 Amp Generator- Lyc usage possible
- 5) Univar Aircraft Corp.
Rt.3 Box 59
Aurora, Colo. 80010
* Fix Pitch Propellers
(Lyc & Cont)
- 6) El Reno Aircraft
El Reno, Okla
* O-145-B2 Lyc Parts
See Trade-a-Plane
for details
- 7) Motorcycle Shops
Triumph T-20
* Brake Linings
Ferodo Brand
Type BBS/19/1
Quality MS3
For Bonding to old shoes
* Some Honda Bike Shops too
- 8) Goodyear Tire Stores or
RV Specialty Stores
* Tires & Tubes
Size 4.10x 3.50x 4
- 9) Farm Implement Equipment Supplies
* Tires & Tubes
Size as above

SWITCH*ON again guys and gals. Fireup your magic carpets. Then fly them to the "spring get-together" at Porterville, Calif. airport this May 17 & 18. Those AD's must have been cleared by now. Those of us who attend plan to have great fun together as well as talk about the future of our marvelous flying machines. Remember may 17 & 18 at Porterville. In addition, the fourth annual Mooney Mite Fly-In will be held at a real fun great airport,

Columbia, Calif, the old mother lode country, as chosen by the WAMM members in attendance last year. The dates are as follows, Friday August 20, Sat, August 30, & Sunday, August 31, so that Monday Sept. 1 all will be home for the holiday with the families. I truly am looking forward to a good number of WAMM Mites to show for this year's fly-in....so let's plan early and fly your pride and joy to Columbia in August.

Your editor is planning to fly N118C to the "big one" in OSHKOSH this year. My plans have already been laid in concrete so that it has the highest priority. If any WAMM member is interested in going along, drop me a line or call. The trip should be interesting and I am looking forward to the adventure.

As a matter of interest, Bill Vandersand, one of our newer members, is making available at \$6.00, a few sets of plans of a Mite model. He will have them at the "spring get together" in May. Perhaps some of us may like to build a model of our super birds.

In mid-April, I flew commercial to Florida to visit with my aging father for a few days. While there, I contacted Dave Russell of Fort Lauderdale, owner of Mite N4057. As usual, he made me welcome in his home state with another invitation to fly his red and white bird. Flying over the flat land with clear visibility was indeed a joy for the half-hour I putted around the Florida **skies**. Dave and I spent the better part of a day talking "Mites" and visiting with other airport projects under way. The small airports appear to be bee-hives of activity with various types of airplane projects. Pompano airport has two Mooney Mites **living** there, **one** belonging to Dave Russell and the other owner is Charles Walters whom I did not have the opportunity to meet, regrettably.

Steve Franzel, your aircraft must be close to flying. Will it be ready for Columbia? Nancy Crews of California City has her mite almost ready except for **engine** and paint. Hopefully it will be flying soon. Dick McComas and Ben Farholdt have complied with the AD notes; so their Mighty Mites are flying again. Gil Gilbert of Washington is looking forward to flying his magic carpet to Columbia again this year. Great, the more the merrier. Let's hear from others....

HOT - SWITCH ON

Note - as soon as a formal proposal of the recommended amendments (the AD notes) are ready for submittal to the FAA, I shall forward everyone a copy for review and endorsement. At that time, please respond to the request for endorsement as soon as received. Hopefully, you will be receiving a copy from me before too long.

The week end of 18 April, three Southern California Mites flew to California City to visit Nancy Crews and to view the progress of her little bird, serial number #31. She is the Mayor elect of that town in the high desert. Ben Favrholt, Dick McComas, and I had an enjoyable visit with Nancy. She expressed her hospitality with sail-plane rides, what a gal! Her 'magic carpet' will be ready for test flights within a few weeks. Then the final touch of painting for a completed re-build program that has taken some five years! Hurray, Nancy!!!

For those of you attending this Fly-In, thank you for coming. We have been asked to observe the Airport Traffic Patterns and Rules in order to maintain a high standard of safety. Fly-By Traffic Patterns will be announced at the Pilot Briefings during gab sessions.

TRAFFIC PATTERN AND RULES

1. Observe the active runway.
2. Please be careful when taxiing your aircraft and be considerate with your prop wash on the ground. Loose gravel and dust can injure people and damage other aircraft. Thank You.
3. No aerobatics in the airport area or traffic patterns.
4. Please be watchful for other aircraft at all times - in the air and on the ground.
5. When making Fly-Bys, make one mile approach and one mile departures with respect to the active runway, then initiate your proper turn remaining outside the normal traffic pattern.
6. Make normal entry at airport designated altitudes (A.G.L.) for active runway.
7. Let's have a good SAFE Fly-In.



MITE FLY-IN
PROGRAM INFORMATION

SATURDAY - 17 MAY 1980

- 9:00 AM - REGISTRATION OPENS
- 9:00 to 12:00 - Greeting Arrivals and Making Friends
12:00 to 1:30 - Lunch
2:00 to 4:00 - Cross-Country Safari
4:00 to 6:00 - Get-Together Gab Session
- A. Introduction
B. Mite Talk
C. Evening Fly-By - Preparation
D. Dawn Patrol
- 6:00 to 7:00 - Sunset Fly-By
7:30 - Dinner & Refreshments

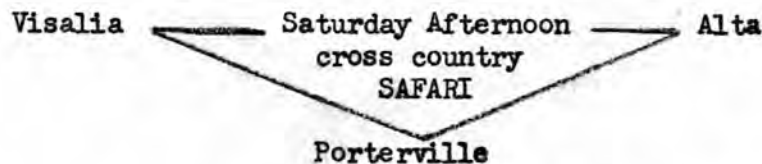
SUNDAY - 18 MAY 1980

- 6:30 to 9:00 - Dawn Patrol and Breakfast Flight
9:30 to 10:00 - Formation Fly-By
10:00 to 12:00 - Relaxation
12:00 to 2:00 - Lunch
2:00 - Goodbys and Departures

1980 MOONEY MITE SPRING GET*TOGETHER

PORTERVILLE AIRPORT
PORTERVILLE, CALIF.

MAY 17 - Saturday & MAY 18 - Sunday



ACCOMMODATIONS*****CAMPOUT OR TOWN MOTELS

KEEP***THE***MITES***FLYING