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WESTERN ASSOCIATION OF MOONEY MITES
NEWSLETTER

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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.

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FLYING SAFETY UPDATE ARTICLE No. 39

BE CARE 'FUEL'!

The pilot in command is responsible for making sure that his aircraft's fuel supply is uncontaminated and the proper grade in order to insure the safe operation of the powerplant. However, the accident statistics indicate that some pilots paid insufficient attention to the quality of their aircraft's fuel.

Fuel is contaminated when any material is introduced into it that isn't called for in its technical specifications. Most pilots readily recognize that water is a contaminant, but may be less aware that sand, rust, dust, living microbes, and certain additives can be equally serious fuel contaminants.

All aviation fuels absorb moisture from the air and contain water in both suspended particle and liquid form. The amount of suspended particles varies with the temperature of the fuel. Whenever the temperature of the fuel is decreased, some of the suspended particles are drawn out of the solution and slowly fall to the bottom of the tank. Whenever the temperature of the fuel increases, water is drawn from the atmosphere to maintain a saturated solution. Changes in fuel temperature result in a continuous accumulation of water. During freezing temperatures, this water may turn to ice, restricting or stopping fuel flow.

Dust and sand can be blown into tanks during refueling, or transferred into them by using unclean equipment. A fuel nozzle that is accidentally dragged across the ramp when it is being rolled up for storage on a truck is likely to pick up dirt. That dirt may find its way into the fuel tank of the next aircraft that is serviced.

Rust may occur in pipelines, storage tanks, fuel trucks and drum containers. Tiny particles of rust could be introduced into the aircraft fuel system if poor or improper filtration is used in refueling.

Microorganisms tend to occur in unleaded fuels, especially turbine fuels. These bacteria and fungi rapidly multiply and can cause serious corrosion in tanks and may clog filters, screens and fuel-metering equipment. Careful maintenance and thorough fuel inspections will correct or prevent these problems.

Oil companies have developed additives to cope with fuel icing and lead fouling. Any time the pilot mixes an off-the-shelf additive to his fuel, he should be sure that the fuel and engine manufacturers approve it, as well as the Federal Aviation Administration. Even approved additives may generate problems if they are not properly mixed with the fuel.

Using the incorrect type or grade of fuel can pose a serious threat to the safe operation of an aircraft, just as contaminants of

water or dirt. An aviation gasoline-powered engine can be ruined by operating it with turbine fuel. In fact, an aircraft that manages to get into the air with such a mistake is not likely to remain in flight very long! The addition of only a small amount of turbine fuel to aviation gasoline warrants a complete cleaning of the fuel system, even if the engine isn't started. In the event that the engine is operated with a mixture of turbine fuel, a careful disassembly and inspection of certain engine parts is the safest insurance, to be sure that the engine hasn't been damaged.

If the required grade of fuel is not available and the engine *must* be operated, the next *higher* grade, rather than the lower grade, should be used; a lower grade may damage the engine. Pilots flying aircraft with engines designed for 80 octane fuel may encounter lead fouling when they refuel their aircraft with the more readily available 100LL (low lead) gasoline. The 100LL still has more lead content than the 80 octane fuel, so excess deposits may develop in the combustion chamber and lead to various maintenance difficulties. The degree of the problem may vary from negligible to critical depending on the engine. Generally, rotation of the plugs, good leaning techniques, oil changes every fifty hours and use of the correct spark plugs will keep fouling problems to a minimum.

Although automobile fuels may be labeled "80 octane and higher," the FAA and the aircraft/engine manufacturers warn pilots that automobile gasoline must not be used in aircraft engines.

The FAA advises that the octane numbers for automobile gasoline are not valid for aviation use, because different methods are used to rate aviation gasoline. Thus, engine damage could be caused by pre-ignition and detonation.

Since automobile gasoline has a much higher vapor pressure, the FAA says that bubbles could form in the fuel lines of aircraft operated at high altitudes and/or high temperatures. Vapor lock in flight could cause an engine failure.

Additives in automotive fuels, according to the FAA, are not compatible with aircraft engines, and could cause corrosion and valve failure. The FAA also notes that automotive gasoline has a shorter storage life than aviation gasoline, so it could become gummy and/or lose some of its octane rating while stored in an aircraft's tank.

Pilots should also consider that the use of aviation automobile gasoline in their aircraft may void insurance and warranties.

The Experimental Aircraft Association

(EAA) is resuming an experimental research program to test the use of automotive gasoline in aircraft and the Aircraft Owners and Pilots Association (AOPA) is contributing funding to that program. This project is aimed at adding to the knowledge needed in the search for a standard available fuel for light general aviation aircraft. However, both organizations urge pilots that automobile gasoline should *not* be used in their aircraft.

A careful preflight is an important step in guarding against fuel contamination. Fuel samples should be drained into a transparent container in accordance with the aircraft manufacturer's recommended procedure. Draining fuel onto the ramp is not a satisfactory method of detecting water or sediment that could contaminate the fuel, and it could be a potential fire hazard during engine start-up.

Usually, water and sediment tend to settle to the bottom of the fuel tank where drains and sumps are located. When the pilot drains the fuel, the contaminants will settle to the bottom of the container. If any contaminants are present, then the pilot should continue to drain fuel until it is clear of water and dirt. Any fuel that has a cloudy appearance or is off-color should be suspect. When fuel grades are mixed, it is possible that the color coding of the fuel (red for 80 octane, blue for 100LL and green for 100) may be changed.

Fuel should be examined before filling, since the agitation of refueling may suspend water and other contaminants for several minutes. The pilot should check the fuel after refueling as well.

Pilots should not be too frugal when draining the fuel from the aircraft. A few years ago, the FAA conducted some tests in which three gallons of water were added to the half-full fuel tank of a popular make, high-wing monoplane. After several minutes, the fuel strainer was checked for water. It was necessary to drain ten ounces of fuel before any water appeared!

In a test with another aircraft, one gallon of water was added to the half-full fuel tank. It was necessary to drain more than a quart of fuel before any water appeared.

In both of these tests, about 9 ounces of water remained in the fuel tank after the belly drain and fuel strainer had ceased to show any trace of water. This residual water could only be removed by draining the tank sumps.

The FAA advises that it may be necessary to gently rock the wings of some aircraft while draining the sumps to completely eliminate all water. On certain tailwheel-type aircraft, raising the tail to a level flight attitude may result in an additional flow of water to the fuel strainer.

If fuel tanks are left undrained, water accumulates and may reach the engine in sufficient quantity to cause the engine to stop operating.

Any time an aircraft has to be refueled from drums, the pilot should regard the fuel with suspicion; it should be carefully inspected and identified. A portable filtered pumping unit should be used to transfer the fuel to the aircraft tank, or as a last resort, a chamois skin filter and filter funnel.

Protection against fuel contamination is simple and begins on the ground. Pilots who carefully monitor the refueling of their aircraft and conduct thorough fuel-system preflights are insuring that their engines won't be choked by water or other contaminants.

If anyone has sold their Mites, ask the new owner to join WAMM. Let us know his or her name so we may write to them. WAMM exists for everyone, please feel free to write me any bulletin news.

Rod Carson sold his N3162K Mite (M18L), which he stationed at Chino, Calif., to Mr. Stanley Aronoff of Encinco, Calif. Welcome to the Mite world Stanley.

Recently, Ken Shea and Dan McKinnon of San Diego, took a long week-end flight around California and Nevada for what Dan describes as the "Trip Mooney Mites were designed For". Dan wrote the story of which I shall print in the WAMM newsletter soon. They had a memorable time.

Mites For (ugh) Sale

I can't imagine anyone wanting to sell a Mite (unless he wants to bring happiness into someone's life)! Look whose talking, me?! The guy that flew from Calif. to OSHKOSH 80 in his mite N118C and returned home in a jet. Why? Because someone at Oshkosh made me an offer I could not refuse and that I had a second Mite (N120C) at home almost restored! Anyway, Tony Perez of 3500 Mountaire Dr., Antioch, Ca. 94509 has his Mite for sale. He is asking between \$9000 to \$10,000 and the price is negotiable! The phone is 415-689-1746.

Just a few observations that should bear watching on some things about the Mighty Mites. FAA reports many wooden aircraft have rotten wood, spar damage, etc; caused by clogged drain holes. I concur. Hey guys and gals, it's the water that is trapped itself in corners that does the damage, not age. Therefore, be certain to periodically check for clear drain holes. Don't wait for annual time and the IA inspector to do it for you. He may miss it too! Of course, the above seems to indicate that it is imperative to hangar your plane. It is the only way to prevent exposure to excessive moisture!

Bellows- Chevy Part-----P/N 3716711. Also try J.C. Whitney of Chicago, Ill.

Heard from John Castillo of Sacramento a few weeks ago. He is rebuilding the tail bulkhead of his fuselage encountering some material acquisition problems. After a few questions, I gave him some information which I feel certain will assist in his rebuilding of the problem area of the Mite fuselage. How are things progressing John?

Hey Nancy Crews-----are you flying yet? Drop me a word or two so that I can inform the others.

The 'Mite Spring Get-Together' will be at Porterville, Calif. again next year. It is the favorite spot and accommodations are great. The tentative dates (mark your calendar) are 9 & 10 of May 1981.

Things are happening*****

The Hughes Flying Boat- The Spruce Goose (which is not really true because no spruce wood was used in the construction of the aircraft) was moved from its home recently to temporary quarters. It will be eventually housed in a new museum adjacent to the Queen Mary in Long Beach.

Mite Owners----Metal to metal seatbelt latches are required in all aircraft; however, the Federal Register recently clarified the final date requirement. Installation was to be no later than 4 Dec 1980, it is now advanced to 4 Dec 1981. So those of you that do not have metal to metal latches have another year to get your belts changed! Don't wait too long---time flies.

Switch-On

80 Octane Gas

Despite oil companies ceasing production of 80 octane avgas, the word is out that at least one major oil company will continue production of the needed fuel. Which one? Sorry, I don't know yet!

WAMM wishes everyone a "Joyous Holiday Season" & Keep The Mites Flying.

The fifth annual Mooney Mite Fly-In will be held during 1981 at Cammeron Park Airport (Shingle Springs) Calif., the home of Dr. Sandy Sanderson. Sandy lives on the airport and has offered the facilities for our fly-in. How can we refuse? We don't! There are parks, a golf course, shopping center, Best Western Motel and 5 (five) resturants all within a raduis of two miles. Also, a swimming pool is available! So be it! The dates are 4,5 & 6 of Sept. 1981. Again, mark your calendar and have your "flying carpets" ready. This event should be where we hope to have the largest assembly of Mooney Mites since the factory sold our great birdss'ss! Let us make it so. Target is to have 12 to 15 Mites at this one. Plenty of time for preparation Mite Guiders.

Tom Clinton of Bellevue, Washinton and Gil Gilbert of Kent flew together to the fourth annual Mite Flyin at Columbia, Calif. last August. This is Gil's second attendance to the yearly event.

Recently, Tom wrote me a letter describing their flight in the Mite birds. The first leg of the trip on August 29th was 253 miles from Bellevue to Roseburg, Oregon landing at 12:54 pm. Then followed the second leg of 230 miles to Red Bluff, Ca. landing at 3:45 pm, with beautiful scenery enrouts. The last leg of the flight was filed for Columbia at 4:35 pm arriving at 6:15 pm after T experienced discomfort in his seat most of trip.

The return flight was not as easily completed as the flight to Columbia; however, still enjoyable. On one leg, Tom and Gil lost contact with each other only to find the other had already landed at Redmond. They continued to Yakima, Washinton staying the night because of daylight running out. Weather was some problem the first day and it also was the second day. They had to land 50 miles short of home and could not pick up their planes until 2 days later. Both Tom and Gil are not discouraged for they are looking forward to next year's fly-in. Below are some statistics of the Gilbert/Clinton flights:

To Columbia

Dist.	Time	Speed	Fuel	G.P.H.	Cost	Tac Time
658 Mi	7 Hr 4 Min	93.1 mph	26.4 gals	3.73	\$40.14 ea	7.5 Hrs

To Washington

Dist.	Time	Speed	Fuel	G.P.H.	Cost	Tac Time
660 Mi	6 Hrs 23 Min	103.4 mph	24.8 gals	3.88	\$39.02 ea	7.1 Hrs

Note from the Editor: In order to process this newsletter, he has errored on numerous occassions during the typing. Some corrections could not be made due a time constraint before reproduction of copies. Sorry-----please bear with me.

- REMEMBER- KEEP THE 'MITES' FLYING -



MERRY
CHRISTMAS
1980

AND
HAPPY
NEW YEAR



HEY 'RUDOLPH' - THE
AIRPORT IS THAT WAY!!



HAVE A
JOYOUS
HOLIDAY
SEASON