



Chapter 569

NEWS LETTER

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NOVEMBER NEWS LETTER

Our December meeting will be our annual Christmas banquet. It is to be Sunday, December 2nd, at the Legion Club at 5730 "O" Street. Cocktail hour will begin at 6:00 PM and dinner and other festivities will commence at 7:00. You won't want to miss this big one. Jim Fix tells me that unfortunately, he has been unable to talk anyone into being the star of his show -- in fact, he has been unable to talk anyone into even participating in the show. It seems some of last year's cast were offended because I implied they were less of a drawing card than Elizabeth Taylor. But, he says, "Not to worry. If they won't work voluntarily, you've got to draft em." Sure hope he is right???

Our monthly meeting came somewhat earlier than usual this year, so the minutes of the last meeting and treasurer's report didn't get written up in time for the news letter. I told the President that no one reads them anyway, so it didn't matter. He said if that is the case, then he will read them. I think he feels they should be read at least once.

In addition to our meeting coming early this year, President Bush, apparently due to his Persian Gulf schedule, put the first Tuesday on New Year's day. With New Year's also starting at midnight, we didn't think anyone would be in shape for a meeting at 7:30 P M, so we arbitrarily moved our meeting date to January 8th at 7:30 PM. As usual it will be at the Cobbler Inn at West 48th Street & Highway #6. We will be showing an outstanding film of the geese which fly in formation with an airplane. Some of you have seen it, but it is so interesting, I hope you won't mind seeing it again. We will also show some films which Dick Miller has provided of old airplanes being flown. Some of these pictures were taken by Dick, and later shown by the TV station there.

The refreshment committee for the January meeting will be: Janice Jackson (in charge), Mike Jiskra, Eldon Kreimer, Tom Lutzi & Wayne Martin.

Since we don't have too much with which to fill up this news letter, I will take the liberty of including an article which was in our news letter several years ago. It is actually a true happening, although you may question this as you read the story. Please don't skip ahead, as the final part will explain that it did, indeed, happen to me. I have entitled it, "A true airplane story with a happy landing." I will also include an article regarding "homebuilts in Russia" and one from the FAA telling how to properly fuel your airplane. .

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Soviets Increase Construction and Use Of Homebuilt Aircraft Despite Difficulties

OSHKOSH, Wis.

Homebuilt aircraft are gaining popularity in the Soviet Union despite difficulty in obtaining materials and lingering fears of government reprisals.

Prior to the mid-1980s, construction of experimental-type homebuilt aircraft was discouraged by the government and virtually impossible to accomplish openly, Sergey Bolotov, a pilot with the Soviet national airline Aeroflot told AVIATION WEEK & SPACE TECHNOLOGY during the recent Experimental Aircraft Assn. (EAA) convention here. He said the chief reason for the ban was fear that "pilots would build an aircraft and fly out of the country."

With the rise to power of President Mikhail S. Gorbachev, however, the government "has become more tolerant" of the sport aviation movement and has begun encouraging construction of amateur-built aircraft, he said. The homebuilt movement is, however, in its infancy and lacks the national cohesion and technology base found in the U. S. and European sport aviation industries.

Obtaining materials is difficult, since supplies are "spread across the Soviet Union's factories according to the five-year plan," Bolotov said. To help alleviate this problem, the government has direct-

ed factory managers to provide materials to local builders.

Bolotov said that prior to the 1980s, people "stole what materials they needed from the factories" where they worked and secretly constructed their aircraft at home. The supplies often were hidden or disguised to reduce chance of detection

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by informants. In some cases, the local militia or the KGB were called in to search homes, and some aircraft were found and destroyed. Flights of the few aircraft that were completed had to be performed in remote areas.

Bolotov said fatal accidents with such aircraft were not uncommon then and continue to occur now because most of the builders "do not know how to fly" and teach themselves "by trial and error." Formal pilot training in the Soviet

Union is available through government-sponsored civilian or military flight schools, according to Bolotov. Military aviator candidates must be 17-21 years old, and civilian pilot applicants must be 22 or younger. Only men may apply.

He said the Federation of Amateur Pilots has been formed to certify and issue pilot licenses to experimental aircraft builders. Bolotov, who lives in Leningrad and is trying to establish an EAA chapter there, said the association "has a flight school but no aircraft" in which to train civil pilots. He is holding discussions with Pro-Tech Aircraft in the U. S., which offers a kit-built, two-seat tailwheel design suitable for primary training.

In addition to assisting with the flight school's activities, Bolotov also arranges the annual fly-in gatherings of Soviet homebuilts. The first event, held in the Crimea in 1984, drew three aircraft. In 1985, seven aircraft attended; the 1986 fly-in at Moscow had more than 150 aircraft on display.

INNOVATION NECESSARY

"We do not know how many homebuilt aircraft actually exist in the Soviet Union," he said, primarily because many would-be builders still fear government reprisals.

Soviet homebuilts are unsophisticated but show considerable innovation to compensate for the lack of aircraft-quality materials and powerplants. Virtually all aircraft are limited to single-seat designs, primarily because they must use one or two-cylinder, 25-30 hp. engines from motorcycles or snowmobiles, or outboard motors from boats. Many of the powerplants are modified for flight.

For example, Viktor Dmitriev, a truckdriver from Kirgizia, designed and built an aircraft in his home and taught himself to fly it. The aircraft features single-slotted, trailing edge flaps and leading edge slats.

"There are virtually no books on how to design, build and fly a homebuilt aircraft, how to design and build propellers, and [with] instructions for engine installations," Bolotov said.

Builders learn from others or proceed using their best judgment, he said.

Although severe airspace restrictions exist for sport aircraft flying, small airfields set aside for their use are being allotted by the government. The Soviets also have begun printing and selling aeronautical charts for civil pilots. □



This single-seat, homebuilt aircraft was designed by Viktor Dmitriev, a truckdriver from Kirgizia, and is typical of Soviet homebuilts. Weighing about 100 lb., the aircraft features metal and wood construction with cloth covering on the wings, empennage and control surfaces and was built from materials obtained locally. The powerplant is a one-cylinder design converted from a Czechoslovakian two-cylinder motorcycle engine and develops about 25 hp.



U.S. Department of Transportation
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Washington D.C.

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ALL ABOUT FUEL

This pamphlet provides information about aviation fuels and the safety precautions that need to be observed during aircraft fueling.

The introduction of turbine-powered aircraft into the civil aircraft fleet during the 1950's caused many changes in the marketing of aircraft fuels. As the air carrier and military fleets were converted to turbine-powered aircraft, the demand for aviation gasoline (avgas) decreased drastically. Aviation fuels now represent a relatively small portion of the petroleum industries by products and therefore the production of avgas in multigrades is no longer economically feasible. During the past few years, we have seen 91/96, and 115/145 octane fuels disappear from the market. In 1971 the oil companies began development of a single grade avgas that would meet the needs of all reciprocating powered aircraft.

80/87 vs 100LL

When the 80/87 began to disappear from the avgas market and 100LL was introduced to take its place, operators expressed concern about the service life expectancy of their low compression engines. Some operators experienced accelerated exhaust valve erosion and valve guide wear from the use of highly leaded 100/130 (green) avgas in their engines that were rated to use a minimum grade 80 octane fuel. The engine manufacturers were quick to provide aircraft owners with amended operating procedures and maintenance schedules which helped minimize the engine malfunctions resulting from the use of high lead 100/130 avgas. Experience of the past ten years has proven that low compression aircraft engines can be operated safely on 100 low lead avgas without difficulty, providing they are operated and serviced in accordance with the approved aircraft owners manual or other officially approved document.

AUTOMOTIVE GASOLINE

Leaded automotive gasoline is not recommended as a substitute for aviation gasoline because of the differences in properties and composition of the two types of fuel. Regular leaded automotive gasoline may cause preignition and detonation, vapor lock, and sticking or burned valves when used in aircraft engines. Lead-free automotive gasoline, however, has been extensively tested in aircraft equipped with low compression engines that use low

octane fuel by the Experimental Aircraft Association and other Organizations. The Federal Aviation Administration has issued supplemental type certificates (STC) to these organizations permitting the use of unleaded automotive gasoline of 87 minimum antiknock index per ASTM specification D-439. Each make/model aircraft shall be modified and operated in accordance with the instructions, limitations, and procedures contained in the STC when unleaded automotive gasoline is used.

PLACARDS-TYPE OF FUEL

Be sure you get the type of fuel that is specified. Federal regulations require that all aircraft filler openings must be marked with the word 'fuel' and the minimum fuel grade for reciprocating powered aircraft, or the permissible fuel designation for turbine-powered aircraft. Even these requirements do not rule out the possibility of being serviced with the wrong type of fuel. Pilots should be particularly cautious when being serviced at facilities that provide turbine fuel as well as avgas. Turbine or jet fuel is detrimental to the reciprocating engine and extended use of avgas can damage turbine engines. Therefore, it is imperative for flight crews to double check when their aircraft is serviced to assure that they receive the proper type and grade of fuel. Although this responsibility is placed upon the pilot by regulation it just makes good sense to be sure. The fuel system sumps should always be drained and checked for contaminants after each fueling of the aircraft and during preflight inspection.

FUEL ADDITIVES

The FAA and several engine manufacturers have approved the use of certain carburetor anti-icing fuel additives in aviation gasoline. However, such additives should not be used without consulting the airframe manufacturer because their chemical content may not be compatible with the aircraft fuel system cells, seals, etc.

The same is true with lead scavenging additives such as Tricresyl Phosphate (TCP). TCP, for example, has been used successfully to reduce lead fouling of spark plugs in normally aspirated reciprocating engines for several years. However, TCP should not be used in turbocharged or supercharged engines without approval of the airframe manufacturer. TCP must be mixed according to the instructions provided by the manufacturer, Alcor Inc., for maximum effectiveness.

SPARK PLUG FOULING AND HOW TO AVOID IT

In most cases spark plug fouling can be reduced or eliminated by simply applying proven operating techniques. For example, low operating temperatures coupled with rich fuel mixtures result in incomplete vaporization of the tetraethyl lead in the combustion chamber causing lead fouling of the spark plugs. Maintaining proper cylinder head temperatures will minimize plug fouling problems. Be certain that maintenance personnel have installed the spark plugs recommended for the particular engine installation. Have the carburetor idle mixture checked and adjusted. Use recommended leaning techniques in cruise condition at all altitudes. Avoid low power letdowns, descend with power, and avoid over rich conditions. Carburetors and fuel injectors are normally set slightly rich in the closed throttle position, so it is best to carry a slight amount of power on landing approaches rather than approach with closed throttle. Keep the cylinder temperatures in the normal range during operation. After flight or ground operations, before shutdown, advance the throttle to about 1800 RPM for 15 to 20 seconds to clear the plugs and combustion chambers, retard the throttle to about 1200 RPM and shut the engine off immediately with the mixture control. You should not have plug fouling or misfiring on your next startup. As long as you make sure the aircraft is serviced with the proper fuel, check the sumps for contaminants, operate the engine according to the aircraft owners manual and have the spark plugs serviced as recommended, you should not have plug fouling problems.

TURBINE FUEL

Occasionally, aircraft are inadvertently serviced with the wrong type of fuel and in most instances it is because of misleading signs. For example, certain turbo-supercharged reciprocating powered aircraft have paint designs with the word TURBO conspicuously displayed on the vertical stabilizer or on the engine nacelle. Line service personnel assumed this to mean turbo-jet and filled the tanks with jet fuel. Another incident involved an

air carrier type aircraft that was originally equipped with reciprocating engines which most operators converted to turbo-props. The service personnel assumed the aircraft was a converted model when it wasn't.

Reciprocating engines may run briefly on jet fuel, but detonation and overheating will soon cause power failure. So, beware of getting jet fuel when you need avgas. Avgas is no substitute for jet fuel either. The engine failure caused by running the turbine engine on the wrong fuel may not be as sudden, but prolonged operation on gasoline will severely damage the engine by the lead content and differing combustion ranges of the fuel. Time limitations for use of avgas in turbine engines are listed in the airplane or rotorcraft flight manual.

PRE-FLIGHT ACTION

The responsibility is yours, the pilot, to determine that your aircraft is properly serviced. Check your aircraft before each flight and be sure you have the correct type of fuel. It may save your life. Take the time to inspect your aircraft thoroughly. (1) Be sure all of the fuel and oil tank caps and covers are installed and secured properly after you visually check the fluid level. Observe the color and odor of the fuel as you check the tank. (2) Draw a generous sample of fuel from each sump and screen drain into a transparent container. Check for the presence of water, dirt, rust or other contaminants. Don't be so frugal as to save the fuel drained from the sumps by pouring it back into the tank. There are people who do. Don't risk the possibility of contaminating the system, get rid of it. (3) Check that each fuel tank vent is clear of restrictions; i.e., dirt, ice, snow, bent or pinched tubes, etc.

A TRUE AIRPLANE STORY WITH A HAPPY LANDING

The little airstrip where I keep my Cessna 120 is located near a "normally" small creek. Recently, due to a 7" rain upstream, it was covered with two feet of fast-moving water. Our hangars were under even more water when my wife and I went out to inspect our pride and joy.

A farmer was working with a wagon and team of mules to get farm machinery up and out of the water. I quickly bargained with him to tow my plane out of the water and up a hill for tiedown. Since the wind was blowing a gale, I persuaded him to tow me on the end of a 100-foot rope to give me leeway to maneuver the plane and keep it headed into the wind.

Iris and I climbed aboard and off we went. Apparently I had misjudged the wind velocity, as we had only gone a few yards when we became airborne. The mules thought the devil was after them, and they started on a dead run. The faster they ran, the higher we went. To maintain directional control, I started the engine, but forgot that by doing so it would take us even higher. You can imagine my consternation when I looked down and now found the wagon, the farmer, and both mules hanging on the end of the 100-foot rope, and approximately 50 feet off the ground.

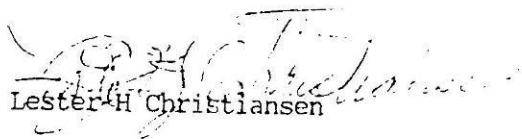
I finally gathered my wits about me enough to trim the plane for level flight while I decided what to do. I knew if I landed, it would either kill them on impact or maybe even worse, drag them to death.

Fortunately for all of us, the wind continued to increase in intensity. On looking down again, I found our ground speed to be nearly zero. This gave me an idea. I gently eased the plane down until its load was once more on terra firma. You can imagine the relief to me, and probably even more to the farmer and the mules. The mules apparently did not want to risk a repeat performance, and laid down and refused to be moved. (You know how stubborn mules can be.) Since I could not go forward despite full power, this left me only one alternative. I gently eased the plane down to the ground.

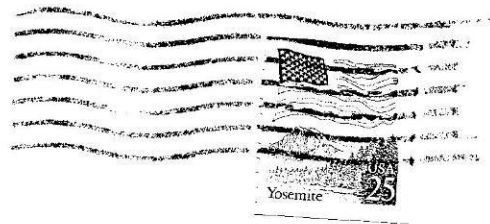
Once more, we lucked out. We had landed with the full-powered propeller only two feet short of a high woven-wire fence at the end of the pasture. I jumped out and started tying my side down, meanwhile hollering to Iris to tie hers. Apparently, due to the noise of the wind and the motor, she did not hear me. I was over on her side tying it down when I awoke from the most king-sized dream I have ever had.

This actually happened to me on the night of February 13, 1985. Iris tells me I woke her yelling for her to tie it down before it tipped over. Apparently, my arms and legs were doing their part too, as I was kicking and flailing like mad.

Yes, truth is sometimes stranger than fiction.


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