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Safety Net

MASA. . .
Servant of Servants at AirVenture

The old adage 'great oaks from little acorns grow' certainly holds true in the case of the Mission Aviation Support Association (MASA). While not a 'great oak,' the down- to-earth services currently performed by this small group—little known outside mission aviation circles—play a small but significant part in the up-in-the-air ministry of God's servants promoting God's redeeming grace throughout the world. Here's the story as told by Lee Smoll, Founder and Director of MASA.

Lee Smoll

Harold Berk Photos

Lee had always been interested in Mission Aviation. After graduating from college and serving in the Air Force, he applied to Moody Aviation for training. That door closed, however, and he went into teaching. His opportunity to work with the mission aviation community came in a different way.

It all started in the late '70's when Bob and Louise Griffin, representing JAARS, first came to the EAA Oshkosh event—now called AirVenture. Lee met the Griffins at the airport and assisted in their orientation to Oshkosh. He camped alongside them in 1982 after the JAARS crew had increased to 6 or 8 men. He observed Louise cooking all the meals for the men and realized that was a ministry local Christians could be involved with. He contacted Randy and Marlene McMullin, who lived outside of Oshkosh. Marlene sensed an opportunity and they began providing noon and evening meals during the week with help from their church and other friends in the Oshkosh area. They served in that way from 1983-1989. During these years MAF began having a presence at EAA under the leadership of Dave Voetmann. By the late '80s, not only was Marlene arranging food and housing, she was also arranging limited speaking engagements for the pilots in local churches. It had become an overwhelming task for one person.

In 1990, Lee began to seek more churches and volunteers to serve the additional personnel. It was an intentional effort to seek and involve churches who were sensitive to and demonstrated a desire to assist faith-based mission agencies. During the decade of the '90s, JAARS and MAF were the primary participating agencies.

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Good News Travels Fast

Harold Berk Photo

With the successful launch of the AIRMAP insurance program, good news has indeed "traveled fast" as we have received many calls and contacts from ministries that we were not even aware of. We stand amazed at how God has worked to bring together so many diverse ministries to cooperate on this level. As of this writing, 25 different ministries have committed to participation in AIRMAP, and even more in MSI's Regional Safety Verification Program (RSVP).

The task of organizing and implementing the logistics of RSVP, and creating the materials using the latest technology and research done in the area of safety is daunting—some would even say impossible. Of course, some said that beginning AIRMAP would be impossible, too! Fortunately we know that with God, all things are possible! Thank you for joining with us in this effort which will, by God's grace, result in the Good News of the gospel traveling fast through missionary aviation to the ends of the earth.

Jon Egeler
President

MASA. . .

At the end of that decade, there was much thought given to the cost of having a presence at EAA. Did the high cost of bringing personnel, airplanes, and supplies to Oshkosh each year—not to mention the cost of participating as exhibitors—truly benefit the organizations?

Matthew Ott Photo

In 1999, in consultation with Glen Ferguson of JAARS, a strategic decision was made to refine the vision of the services and cooperation of both the emerging MASA and participating agencies. Up to this time, the focus of the volunteer effort had been to assist the mission representatives by providing food and lodging to facilitate their involvement at the EAA site. The fresh thought was to expand the concept of mission agency involvement by focusing on the local Christian community as well as on those who show up at the displays on the EAA exposition grounds.

This refocusing of vision resulted in several outcomes. One significant positive outcome was that additional mission agencies began to exhibit at Oshkosh under the aegis of the International Association of Mission Aviation (IAMA), which has its own display tent on the EAA grounds. As more agencies expressed an interest in attending EAA, MASA enlarged their tent space on the flight line. This enabled the number to increase from 11 to 19 in a few years.

Thus the ministry of JAARS, MAF and other agencies began to be shared around Oshkosh and not only at the EAA site. MSI became involved and former President Joe Hopkins had a hand in early orchestration of this concept and expansion of ministry. Local churches and groups invited mission representatives to meetings to share their visions for aviation ministry. These opportunities continue. The counter-point of this was increased workload on mission representatives. It was no longer show and tell only during expo hours and the informal networking enjoyed by IAMA member participants at AirVenture. Ministry expansion meant work!

Harold Berk Photo

The EAA Hospitality ministry started by the McMullins grew to an informal committee in the '90s with representatives from several local churches. When the significant redefining of Lee's vision began in 1999-2000, it became evident that a more

formal organization was required. MASA became an official corporation in 2001 and soon after obtained its 501(c)(3) status from the Internal Revenue Service.

The MASA staff currently consists of approximately twenty-five people. All volunteer their services, including the three current MASA office-holders: Chairman Lee Smoll, Vice-Chairman/Treasurer Dan Holdridge, and Secretary Donn Wright. Staff members volunteer more than their time and talent—which in itself is no little contribution. They provide the entire campsite which includes the 20x60 dining room/lecture hall and a well equipped 20x20 kitchen. Their contact with the churches and friends in the area make it possible for the missionary aviators to stay in free bedrooms and drive vehicles donated for their use.

Harold Berk Photo

Anita Holdridge, the "go to" heart of MASA

On behalf of the mission agencies, MASA provides astounding service on a minuscule budget. For example, MASA interfaces with the EAA for display space, which requires a cash deposit in December prior to the next year's EAA Air Adventure. To secure this space, MASA makes the deposit, requesting corresponding payment from participating mission agencies—solidifying agency commitment to the next year's event. Another major expense item is the cost of renting campground space for the large MASA tent just outside one of the entrances to the EAA exhibit area.

Harold Berk Photo

Income to MASA from contributions received from local churches and individuals who see the significance of the MASA ministry make it all possible. Many of the volunteers themselves sacrificially share in meeting the financial needs of MASA.

In serving nineteen mission agencies at AirVenture 2007, the following data attest to this ministry's current extent of service:

90 missionary guests in attendance.
40 local families provided 595 bed/nights of hospitality.
12 vehicles loaned for the week.
21 groups of people and/or churches prepared and served 2400 meals on the grounds.
10 groups meeting during the week invited a missionary or missionaries to speak.
24 area churches provided time in one or more services to share the work of mission aviation.

Additional information about this ministry may be obtained at the MASA web site: www.oshkoshmasa.org.

Matthew Ott Photo

When asked about the future of MASA, Lee suggests that will be up to the Lord as the hearts of mission agencies continue to see their ministry effective at the EAA AirVenture site, in Oshkosh area churches and in individual contacts. It also depends on continued heart motivation of the many local volunteers who provide such significant practical service to mission personnel. And finally it depends on sufficient funds for it to continue. Without fanfare or publicity and on an amazingly low budget, MASA is providing salutary service to God's servants in Oshkosh that may reach out to the front lines of mission aviation.

Harold Berk Photo

Moses was the great prophet of old chosen by God to accomplish marvelous things and be the conveyor of God's revelation to his people. Yet when Moses was finished with the work to which he had been called and Joshua was advised of his passing, it was sufficient for God to simply but profoundly say "Moses, my servant. . ." To be called a servant of the Most High is the highest accolade anyone or any organization can receive. Is not to be a servant of servants worthy of double honor? The Lord is to be praised for each servant volunteer involved in the MASA ministry. May this ministry continue to be adequately supported by the prayers and gifts of God's people who share this unique vision.

MSI

Quest Kodiak Certified

Harold Berk Photos

May 30, 2007, marked the FAA certification of the Quest Kodiak. This huge benchmark in the vision of many dedicated Christians means that their efforts can now turn to production issues. Hopefully, the delivery of the first Kodiak is not too far off. Missions are watching and waiting with great anticipation. Kudos to all involved. Well done! May this new tool be used safely for His glory.

Spokane Turbine Center Ground-breaking

On October 5, 2007, Spokane Turbine Center (STC) broke ground on the construction of their new hangar and facilities at Felts Field in Spokane, Washington. STC's vision is to provide turbine training specifically designed to meet the needs of missions around the world. They hope to have the facilities complete in time to host the IAMA conference in May, 2008. They have placed orders for a Quest Kodiak as well as a simulator, and will be providing maintenance training in addition to flight training. For more information contact Jeff Turcotte at www.spokaneturbinecenter.net.

Bill Kilgore Photo

Safety Summit III Announced

Jon Egeler has announced that MSI will be hosting a Safety Summit in February, 2008. This summit will follow a symposium format and is designed to examine the various philosophies, theories, and approaches to safety that are in use in missionary aviation as well as industry. The merits and limitations of the various ideas will be examined and discussed with the goal that optimum solutions may be generated and be able to be tailored to the safety requirements for each individual organization represented.

Exact dates and venue are still being worked out. If this discussion at theoretical level interests you or your organization, please contact Jon Egeler at 423-542-8892 or info@msisafety.org.

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Rudolph and his Diesels

Forget about Rudolph's Red-Nose Reindeer pulling the sleigh through the sky. In these days of increased difficulty or inability to get AvGas at any price in many areas of the world, it's Rudolph's diesels that are the red-hot opportunity to mission operations where upgrading to turbine equipment is not practical.

First, a bit of interesting diesel history. The later half of 19th Century Europe was marked by rapid development of the internal combustion engine using a spark to ignite fuel in the cylinder. In 1897, German inventor Rudolph Diesel (1858-1913) came up with his first successful engine with fuel in the cylinder ignited by the heat of compression rather than by spark. A few years before, his first try blew up and nearly killed him.

1932 marked the first time diesel engines were used in aircraft. The liquid-cooled German Junkers Jumo 205 series engines were used in a variety of German civilian and military aircraft (Focke-Wolf, Junkers, Dornier, and Heinkel). Diesel engines were installed in the hydrogen-filled Graf Zeppelins, including the Hindenburg that burned at Lakehurst, NJ in May of 1937.

Not to be outdone by the Germans, the American Packard Motor Car Company built a 9-cylinder air-cooled radial diesel engine in 1929 that was used in the Stinson Detroiter. The first one flew from Detroit, MI to Langley Field in Hampton VA, for a fuel cost of $4.68! To make a similar flight with a gasoline powered 9-cylinder engine would have cost $27.30—almost 6 times as much! Differences in cost of the respective fuels as well as the greater energy content of diesel fuel over gasoline undoubtedly accounted for the divergent trip cost comparisons.

Two pitfalls doomed the 30's vintage diesel engines for continued development in aircraft: higher engine weights and the smell from diesel exhaust—in the early aircraft with only open windows for fresh air. In contrast, AvGas was easily available and relatively cheap for decades before and after World War II and the exhaust didn't smell or look as bad. Reciprocating gasoline engines for civilian use were lighter and became very reliable with increasing technology. Also, the range of power output in gasoline aircraft engines was very broad. Engine and airframe design and development went hand in hand.

As mission agencies review their aviation operations in light of today's realities, several things emerge: the possibility of shutting down operations for lack of AvGas, the high fuel costs of operations where AvGas is available at ever-increasing costs, the lack of diesel engines at present to efficiently replace the powerplants in the Cessna 206—current front-runner in mission operations, cost considerations if moving to diesel engines both for initial acquisition and continued operation and maintenance, and ultimately the huge cost of moving to turbine equipment.

All these realities come into sharp focus when an agency's flight operations are carefully reviewed. What flight lengths are the norm, what are the airstrip conditions, how large loads are carried in cargo and/or passengers, what terrain is covered, is the aircraft capacity under utilized or is there need for larger aircraft, etc. . . All these issues and more are in play.

Steve Quigg Phpto

Two European aircraft engine makers have emerged and currently form the principal focus of mission leaders: SMA (French) and Thielert (German). The SMA company produces a four cylinder turbocharged diesel engine that looks very similar to conventional gasoline reciprocating engines. The SMA engine currently in production is the SR305-230, an engine of 230 h.p. that has been recently certified in the CE-182. In contrast to purely liquid cooled engines, it has an oil/air cooling system integrated with engine oil and sports a Bosch direct injection fuel system. Recently the company indicated that it has a diesel engine of higher horsepower under development.

Steve Quigg Phpto

In contrast are the liquid cooled Thielert diesels, marketed under the Centurion name. Two models are currently in production and certified, the 2.0 with 135 h.p. and the 4.0 with 350 h.p. Both of these engines spring from the long involvement of Mercedes with diesel engines in their cars. As a consequence of their origin in the auto industry, they tend to be on the heavy side. Obviously this cuts down on payload and would require careful balancing of passenger/cargo/fuel. Thielert is currently working with Cessna to certify a 4.0 in a CE-206. The 2.0 version is flying in the new twin-engined Diamond D42 and is in the process of being certified in the CE-172. Thielert announced recently that it also is in development of a 3.2 version with 230 h.p.

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Diamond D42 with twin Thielert 2.0 Diesel Engines

Harold Berk Photo

What about the two major factors that hindered aircraft diesel progress for a half century? Engine weight is still a real problem. It always will be. It becomes an issue of balance between additional engine weight, comparative fuel weights/quantities to complete flight lengths/time and payload tradeoffs.

Little if anything appears in current literature regarding the exhaust smell of the today's diesels. The smell has been reduced by a combination of fuel quality (all current aircraft diesels run on Jet fuel, not the heavy diesel fuel of the '30s with accompanying black smoke) and very significant advances in engine and fuel injection technology–specifically common rail technology. Driven by environmental concern, fuel injection, engine and auto manufacturers are to the point that, in only a few years, diesel automobiles will meet EPA requirements in all fifty US States. This new common rail technology with multiple injections during each power stroke is used on the Bosch fuel systems on Thielert engines.

Harold Berk Photo

Many technical factors impinge upon whether or not to go the diesel route. For example, the high compression ratios of diesel engines makes engine crankshaft torque an important consideration. Most propellers for diesels are made of composite/wood materials rather than aluminum to keep from stress cracking/failure. Mission experience with composite propellers on unpaved airstrips has not been very encouraging.

Another consequence evident in aircraft engine re-powering is an increase in idle speed specified for some diesel engines. Whether necessitated by the requirement to reduce torque forces on the propeller, to increase the flywheel effect of lighter than aluminum prop blades or by vibrational restrictions relating to specific airframes, the resultant increased thrust when no more thrust is really desired may result in more float than normal during the landing phase. It is possible that float while landing on short strips could be reduced to normal levels by reducing final approach speed. However, safety might be compromised by the reduced airspeed necessary to counter otherwise excessive float.

It remains to be seen what decisions missions will make in the near future regarding retrofitting their current aircraft with diesel engines—or whether they stay with their present fleets in hope that AvGas will be available. Cessna and Maule aircraft are current re-power targets. It may be that Rudolph's diesels will yet flower in the aviation world as they have proliferated in land and sea usage over the past century. It's rather interesting to contemplate in these days of rapid technological advance—only 110 years after the first successful diesel engine was developed!

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Mission Safety International, Inc.
328 E. Elk Avenue, Suite 1
Elizabethton, Tennessee 37643-3551
Telephone 423-542-8892 FAX 423-542-5464
E-mail info@msisafety.org www.msisafety.org

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