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THE VERY BEST!

RESTORATION OF A CLASSIC STEARMAN
STORY BY JIM HANSON



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THE VERY BEST!



The restored Stearman today

By Jim Hanson



After you read through this document, you will understand why I chose this title.

It's funny — often I start out to write a story, and it takes twists and turns, and the story bears only a slight resemblance to my original goal. I started out to write a story about a remarkable airplane restoration. Those are "informational" stories — and we've all read those kinds of stories in avia-

tion magazines. There's a good reason for that — they are easy to do. Describe the airplane — get some good photos — end of story. Everybody likes to look at nice airplanes, and the story itself is pretty straightforward. Magazine editors like that.

This story, though, took some unexpected turns. I'd heard about this Stearman restoration in progress — there was a low undercurrent and buzz about it in the aviation underground network. It was reputed to be very good, and very costly. It involved Chuck Doyle's aircraft — and anybody that has been around Minnesota aviation for a while knew both Chuck and the aircraft. There was an expectation that this would be special.

This Spring, I'd heard that the aircraft had flown — and not long afterward, I received an e-mail from Chuck Doyle, Jr. asking if I'd like to see it and cover it. Of course I would!

THE DOYLE'S

"Do you know Chuck Doyle? He's an airline pilot — a mechanic — flies aerobatics — owns a bunch of antique airplanes — been flying since he was a kid." Those statements could apply to Doyle Senior OR Junior.

Chuck Doyle Sr. was born in St. Louis Park, Minnesota in 1916. He first flew at what is now Minneapolis International



The Stearman during its "working" life, preparing to depart the old Southport airport to tow a banner over the Vikings game in Metropolitan Stadium in 1969.

airport — back in the days when it still contained the remnants of the speedway. It was in an old Navy trainer. He fell in love with airplanes, riding his beloved motorcycle to the airport, and did whatever he could to be around airplanes — trading working on airplanes 6 days a week for 15 minutes of flying time (*and you thought flying was expensive TODAY!*). He soloed an OX-5 powered Waco in 1933 — at the age of 17. Shortly afterward, he bought an OX-5 powered Travel Air biplane — restoring both the engine and airframe — all while still in high school. He was expelled from high school for too many unexcused absences — visiting the airport.

Wanting to pursue his aviation career, Doyle exchanged the old engine on his Travel Air for a more modern Wright "Whirlwind" engine. He took up advertising with the airplane — skywriting and banner towing — learning it from some of the originators of

See DOYLE, page 5

DOYLE

Continued from page 4

stunts — and sometime death was *not* defied. Aerobatics, wing-walking, parachuting, mock aerial battles, intentional crashes, airplane-to-airplane and vehicle-to-airplane transfers were the stock in trade of the shows.

Doyle obtained entrance as a performer by making a parachute jump from an airplane — something he did with no training. He went on to do all of the stunts in the show repertoire. Always looking to add additional excitement to the thrill show, Doyle took on ground-based acts — including motorcycle jumps, crashing through blazing houses and barriers, and car crashes while strapped to the hood of a vehicle. Doyle always seemed to escape unscathed. He performed nationwide.

In a strange irony, given the dangerous nature of his profession, World War II may have saved Doyle's life! In January, 1942, Doyle was offered a job with Northwest Airlines, flying copilot on DC-3s. Doyle worked with the Mayo Clinic on research on the effect of high altitudes on flight crewmembers.

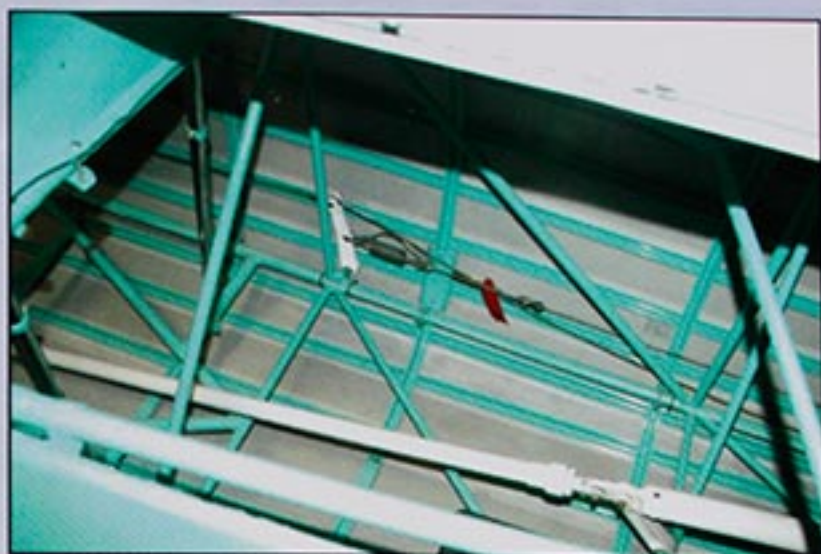
Doyle also took a leave from Northwest to work temporarily on the war effort as an aeronautical consultant — helping build the 1500+ troop carrying gliders produced in Minneapolis (see the series on constructing the Waco gliders in *Minnesota Flyer* magazine, May/June/July 2010). Going back to Northwest, he helped pioneer the routes to Alaska and the Aleutian Islands. In only three months, he became a Captain on the airline — a member of the Air Transport Command — civilian airline pilots flying military transports. He continued to fly for Northwest until reaching mandatory retirement age in 1976 — flying all of the great piston airliners — the 4-engine turboprop Electra, and the Boeing 727.

During his airline career, Doyle "moonlighted" with buying, restoring, selling, and operating aircraft — often military surplus aircraft like P-51s, P-40s, Stearman trainers, BT-13s, T-6s, helicopters, and even airliners and heavy bombers — as well as civil aircraft. One of the aircraft he purchased "way back when" was this very same Stearman.

Doyle modified the Stearman with a 450 horsepower engine transplanted from a BT-13, wheel pants, dorsal fin, and prop spinner. For skywriting, a 50 gallon oil tank was installed in the front cockpit and a smoke-oil injector was fabricated for a special smoke-generating tailpipe. Since Doyle regularly towed banners over Vikings football games at the old outdoor Metropolitan Stadium in the autumn months, a canopy was installed in deference to the cold Minnesota weather. The much-modified Stearman became a Minnesota aviation icon. Chuck Doyle Senior flew it until passing away in 2008.

Chuck Doyle Junior literally grew up with aviation. Chuck says "One of my earliest memories was at the age of six. My Dad was flying an airline trip on a Lockheed Electra turboprop — and told the co-pilot 'I think it's time that Chuck gets some flying time' — so I stood up behind the control yoke of the Electra and 'flew' the airplane (with a load of passengers!) as Dad watched the controls. I recall having the sense of control — and told him 'This isn't so hard — and it would be easier if I could see out the front!'"

the art form. He also wanted to become part of the "Aviation Thrill Show" circuit — pilots that would do death-defying



While the wooden components are being fabricated, the metal parts are being restored. One of the hallmarks of a super restoration is the attention to detail. The aft seat was restored, as were all of the individual small parts. Note that the tubing has been painted and finished prior to covering—detail that most people will never see, but indicative of a quality restoration.



Chuck flew more with his Dad over the years from the 1150 foot family farm airstrip in Apple Valley, and soloed a Super Cub on his 16th birthday. He did all of the non-glamorous work associated with maintaining and operating old airplanes — the maintenance work — cleaning the shop — adding fuel and oil, assembling banners, and holding the pickup pole for the ground banner pickups as the big-engined Stearman flashed by inches away overhead.

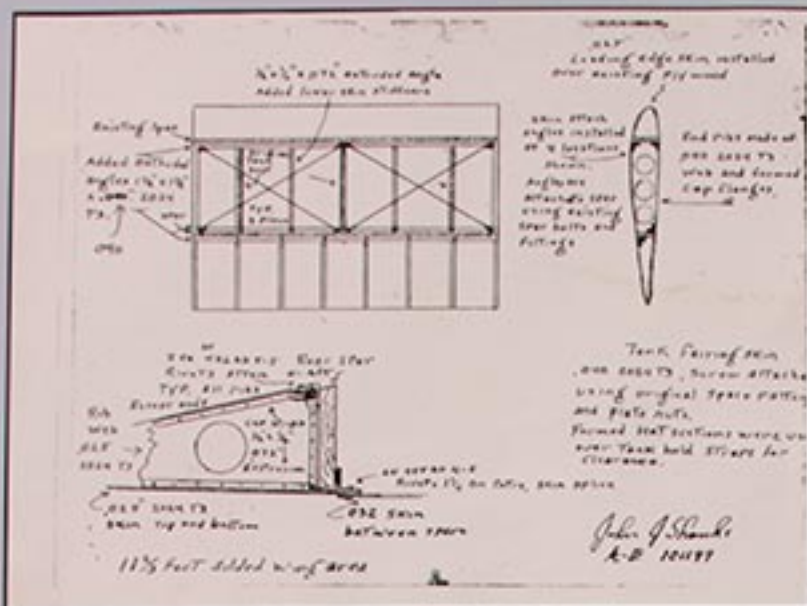
Though he could fly himself, Chuck was always a bit disappointed that he didn't get to tow the banners or do the skywriting himself.

"Dad wouldn't let me do it," he said, "and I resented it." It wasn't until much later that he explained to his son that he didn't want his son flying at the edge of a stall, towing banners above thousands of people at the State Fair or sports stadiums — with no place nearby to make a forced landing.

I asked him if and when he was able to fly the famous Super Stearman. "It was at Holman Field in the 1970s," he said. "The last day of towing at the State Fair. I was 17 or 18, and I had been working hard setting up banners. Dad had landed at Holman, walked over to me and sighed 'Do you want to fly the Stearman?' I was tired, and really didn't want to — but I knew what he was offering, and I would never pass up that opportunity.

"Tell the tower that you want to stay in the pattern and shoot a couple of landings," he said. It was my first takeoff and landing at a tower-controlled airport. I shot some landings — they came out pretty well. Afterward — my Dad just left the aircraft at

See DOYLE, page 6



The logbooks were complete, and RARE Aircraft was able to work from the detailed drawings of the previous modifications to come up with an exact configuration (left). The wings were constructed new—not rebuilt, as this center section shows. The rest of the panels show the stout construction of the Stearman wings, and the craftsmanship going into the building of these new wings.

DOYLE

Continued from page 5

Holman, and took me out and bought me a beer."

I know what Chuck was talking about — some Fathers are short on spoken praise — but when they do acknowledge that you've met their standards — it is better than anything they could have said aloud — a mutual and unspoken acknowledgement.

You've also shared an airplane, a beer, the sky, and an adventure.

Though Chuck didn't dwell on it, he seems to have the same mixed relationship that most children of famous people have for their parents — sometimes rejection or denial — then acceptance of the special circumstances they grew up with — then a real appreciation for their parent's contributions. One of Chuck's tales about growing up in the aviation household is illustrative.

"I took Dad's Stits Playboy for a flight," he related. My friends were there, and I made a pass over the field at barn altitude, and did three rolls before landing. Dad stormed up to me and said 'I don't know how many times I've had to tell you that I don't want you doing that in my airplane!' he thundered. 'But by the way, the third roll was the best!' It was only later that I realized that his sometimes critical treatment of me was because he had seen the consequences of even small mistakes in his business — and he didn't want that to happen to me."

Chuck continued to fly, and obtained his Airframe and Powerplant Repairman's Certificate. Like so many other children of successful business owners, he moved away from the family business and established his independence by starting an automo-

See DOYLE, page 7

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EAGLE AIR

DOYLE

Continued from page 6

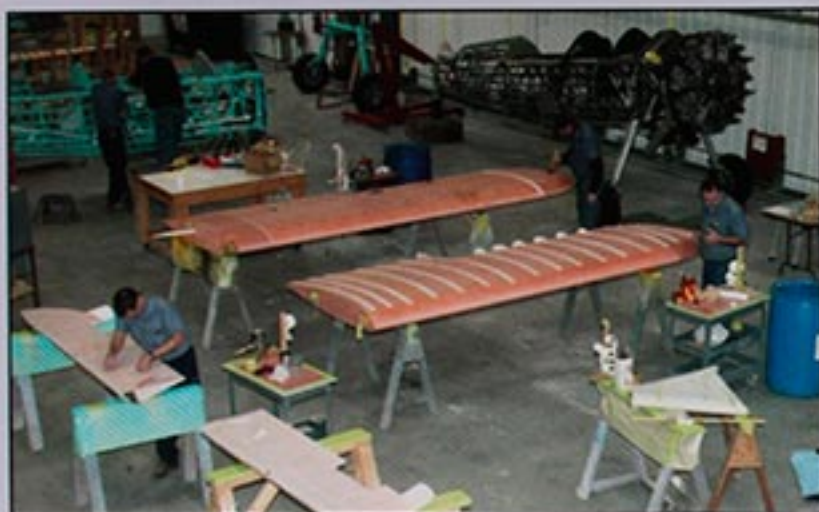
RARE Aircraft in 1994. It was a chance to work on airplanes — OLD airplanes — the kind of airplanes that he grew up with —

tive parts and machine shop. Like so many of us, aviation kept calling him back — and he went to work for Roy Redman at

and he found he liked it.

He also flew those old airplanes. He finally bowed to the inevitable, and joined Sun Country Airlines as a Flight Engineer on the Boeing 727 — a chance to use both his mechanic and pilot skills. Today, he is a Captain for Sun Country, and gets to enjoy

See **DOYLE**, page 8



The aircraft was covered using the poly-fibre covering process, as requested by Chuck. The fuselage cover is laid out, trimmed, and attached -- then shrunk and tightened up. Darker reinforcing tape covers the ribs and around the inspection panels. The fabric is attached to the wing ribs using long needles and thread, a process called "rib-stitching." The control surfaces are done in the same manner. The wings are finished in "silver" to block out harmful light before receiving the finishing coats of paint. This aircraft received several coats of Aero-thane paint--to produce the high-gloss finish, and to keep the covering light for good aerobatic performance. There's a Stearman in this photo, as all of the pieces start to come together.



While the large pieces are being painted, the small pieces are being detailed -- some of the most difficult work of all -- and the part of the restoration that everyone sees. The small pieces are individually painted before assembly so there will be no paint gaps or overspray. The signature "checkerboard" rudder was masked and detailed. The "sunburst" on the wings is laid out and painted. In the meantime, new instrument panels were constructed and readied for installation (instrument panel). The original instruments were sent out for overhaul, and a new pitot/static system fabricated.

DOYLE

Continued from page 7

both ends of the aviation spectrum — the latest technology glass-cockpit jets, and the simple pleasure of flying visually with little more than the sound of the wind in the wires. Today, in addition to the Super Stearman, Chuck owns that same Stits Playboy (restored two years ago), a Super Decathlon, a 1929 Travel Air 4000, a Twin Beech, and a Waco F-2.

It has been said that "No man becomes a man until his father dies." That's true — especially when you are the son of a famous person — you will always be compared with your father. Chuck Junior has come to terms with that comparison — he is his own person — famous in his own right — and comfortable with living with his Dad's memory while adding his own accomplishments. His building, restoration, and ownership of the Stearman is something that he shares with Chuck Senior. It is a way to acknowledge, honor, and perpetuate the bond they share.

Lifelong pilot, mechanic, restorer of old airplanes, adventurer, aerobatic pilot, airline pilot — that's the Doyles—BOTH OF THEM!

THE AIRCRAFT

I met with Chuck Junior, along with Roy Redman from RARE Aircraft — the people that did the restoration. I wanted information on the airplane. My very first question: "WHY THE TURQUOISE PAINT COLOR?" Chuck chuckled — he's obviously been asked this before. "Dad wanted a paint job that would stand out. Originally, he had a red and cream paint job — then purple and cream. Those were very 'Fifty-ish' paint colors — and even auto manufacturers were adopting them. He wanted something green, in tribute to his Irish heritage — but not 'GREEN

See DOYLE, page 9

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DOYLE

Continued from page 8

green' — so he settled on turquoise. He painted EVERYTHING turquoise — the Stearman, the P-51, the house and hangar, the motorcycle, even the toilet and the Corvette. It was Dad's tradition, and he loved to get teased about it, and I wanted to carry that on." I have to admit, it DOES stand out!

I asked Roy and Chuck to tell me about the aircraft, and they laid out all of the documents on the table and said "Ask away!" I asked if the aircraft was airworthy when they started the project, and they responded with "It was ferriable. You have to understand — this was a working aircraft, and it was licensed in the Restricted category because of all of the mods and the smoke system installed in the front seat. Since this was a family treasure, my brother Brian and sister Shannon agreed that we should have the aircraft appraised, and I would buy out their shares and have it restored. I wanted a Stearman that I could use — something I could take passengers in. It would take a lot of work to get it back to Standard category — and even then, it wouldn't look good. The only way to do that was to do a complete restoration."

I asked why Chuck — with his background with the aircraft — his background in working with RARE Aircraft, his A&P Certificate, and his appreciation of old aircraft — didn't do the work himself. Chuck smiled and answered in his forthright way:

"I spent eight years restoring the Travel Aire. I fly for a living, and I spend summers goofing off and flying. I decided to let someone else do it. The restoration started off with someone else. I was promised that I'd have the aircraft in one year. Along the way, as I looked at the progress (or lack thereof), it was apparent that it wouldn't be restored the way I wanted it. I wanted the VERY BEST Stearman I could have — not something cobbled together or 'good enough.' This was my DAD'S aircraft — one of a kind. I made up my mind to pull the project. It was messy, and it was costly, but I wasn't going to throw good money after bad. Enough said."

Chuck brought the Stearman to RARE Aircraft. RARE specializes in the VERY BEST restorations. From his previous employment with RARE Aircraft, Chuck knew that the finished product would be expensive — but that it would be the VERY BEST. RARE Aircraft consistently turns out award-winning aircraft, so I asked Chuck if he was going to have the aircraft judged at Oshkosh.

Both Chuck and Roy smiled. "No — we could have built the aircraft back to standard — but that isn't what I wanted. This aircraft was a family pet — but it was also a working aircraft — much modified from the original. Judges look for the smallest infractions and deviations from the original specifications. How would you judge this aircraft? It has dozens of mods — the cover

See DOYLE page 10



Rigging a biplane is a VERY difficult job -- all angles, incidences, and tensions have to be just right. The process starts out with a "high-tech" device -- a plumb bob. The entire wing and the control surfaces must be installed prior to covering and painting -- rigging adjusted, then disassembled, covered, painted, and re-assembled. The result? On the test flight, Doyle reported "It flew perfectly -- hands off--stalled straight -- perfect!"



With all of the parts ready to go, and the pre-assembly done, it's time for the airplane to go together. The parts are laid out, and the fuselage is still on the building fixture. It isn't ALL work, though -- since the fuselage is still on the fixture, and the Stearman IS designed for inverted flight, Ben Redman gets the first "roll" on the new restoration. The center section is mounted and the wings are joined. The tail feathers are mounted, the engine installed, and the gear goes on.

DOYLE

Continued from page 9

over the front pit for the smoke oil — the engine and prop — the turtledeck — the paint — 4 ailerons, the brakes, the faired

in wing access for the front cockpit, the Serv-Aero engine mount for aerobatics, the fuel injection system, the smoke exhaust stack, the inverted fuel and oil systems. This is a 'one of a kind' aircraft. I wanted a safe and reliable aircraft to fly for fun. I wanted the aircraft to look just as I remember it. I wanted the VERY BEST Stearman I could have."

RARE AIRCRAFT

RARE Aircraft was founded in 1991 by Roy Redman. It has always been a family-owned operation, and from the very first, has been committed to only the very best restoration and maintenance. That level of maintenance comes at a price — talking with Roy, Ben, or Jeremy Redman, you may feel a bit like talking to the head of maintenance of a high-end automobile maintenance department — a Rolls-Royce or Mercedes-Benz — there will BE no compromises — only the VERY BEST — and it is well there should not be compromises. These aircraft are worth \$250,000 or more — they should be maintained accordingly. That doesn't mean that regular maintenance should be expensive, though. Aircraft of this era are simple, and robust. They were built to take a lot of punishment from operating from open fields and the primitive airports. They were BUILT to be maintained in the field — that means they are easily repairable. You have to remember,

though, that some of these aircraft are 70 years old or more — at some time, they have to be completely remanufactured. Other than that — these airplanes don't require a lot of expensive maintenance and inspection — everything is out in the open for inspection, and any Airworthiness Directives should have long-since been issued and complied with.

I asked Roy and Chuck what makes the difference between a "good enough" restoration and the VERY BEST. The answer was simple — "Good Enough — is NOT good enough." He elaborated — "When you have an aircraft like this, you should never have to worry about it while doing aerobatics or normal operations. With our restorations — every bit of hardware is replaced. All four wings on the aircraft were built new, as well as the center section. A new engine mount was installed for aerobatics — an inverted fuel and oil system was installed, a different smoke system and exhaust installed, different oil cooler and vent, the cutout above the front cockpit was faired over to eliminate turbulence and improve performance, the front cockpit was faired over (but can be converted in only 20 minutes), modern brakes were installed, the panel re-worked, the list goes on and on."

With all of those changes in mind, I asked what remained of the original Stearman. "The fuselage and landing gear are original. The engine, cowling, and prop from a BT-13 that Chuck Sr. installed almost 60 years ago are intact. We sent the engine down to Tulsa Aircraft Engines. The teardown report showed the

See DOYLE, page 11

Doyle

Continued from page 10

engine to be in excellent shape — but in keeping with wanting the VERY BEST, it is now Zero since major overhaul.

With all of the modifications over the years — and the new modifications during the restoration, I asked about the aircraft paperwork and documentation. Roy pulled out the file — “All logbooks are complete. The aircraft has only 1212 hours total time since new, and as of this writing, 12 hours since restoration. Just LOOK at these logs — they read like a “Who’s Who” of Minnesota aircraft luminaries. The names include Bolduc, Falmouth, Ken Maxwell, Doyle, Wiplinger, Shanks, DePonti, Lysdale, Mohr, (and Redman). Time and time again, we were told “You can’t do that!” by various suppliers — it hadn’t been done on a Stearman before.”

Time and again, RARE Aircraft had to spend the time (and time is money) to work through the approval process. Roy noted that as the project progressed, the FAA actually became more and more accommodating — it seemed that THEY wanted this aircraft restoration accomplished, too! The FAA engaged in many inspections, discussions, and suggestions. Ask any aircraft restorer — having the FAA sign off on approvals can be the hardest part of accomplishing a restoration. If a restorer has done something before, the FAA feels better about the documentation and procedure — something to think about when selecting a restoration shop.

I asked who made the first post-restoration flight—and Chuck replied “There is NO WAY that I was going to let anyone else do it!” Chuck described RARE Aircraft’s procedures for the first flight — including an initial safety briefing. “We had Google Earth projections of the airport, so if we had a problem anywhere around the airport, we already knew where we were going to go.

We had Ben Redman flying chase in the Decathlon. We had a prescribed flight check card and procedure. We had people alongside the runway with fire extinguishers. We even had our ground people practice getting me out of the aircraft. Now THAT’S prepared!

Chuck said that the first flight came off without a hitch. “Everything — and I mean EVERYTHING worked perfectly,” he exclaimed. “There wasn’t one thing in the aircraft that didn’t work. The aircraft was in perfect trim — it stalled at the correct speed and straight ahead. I couldn’t be happier!”

And that’s exactly what Chuck Doyle wanted — and RARE Aircraft delivered!

Jim Hanson is the long-time FBO at Albert Lea, Minnesota. Jim is correct in that MOST of his stories do not follow their original goal — but that hasn’t stopped him from writing them! If you would like to guide Jim back on track, you can contact him at his airport office — (507) 373-0608, or jimhanson@deskmedia.com



Here’s a “pilot’s-Eye View” from the cockpit of the Stearman. Note the re-certified instruments in the old-style panel, but the modern radios are tucked away unobtrusively under the panel.



The trademark Shamrock for the Doyle’s. It brought luck to Chuck Senior through his life of adventure — may it do the same for Chuck Junior and anybody else that flies this beauty!



After less than a year at RARE Aircraft, the aircraft is ready to leave the hangar again for pre-flight checks--the official “rollout”.



First Flight



Minnesota Flyer Events Calendar

Check this column each month to see that dates have not been canceled or changed. Send notices of events at least six weeks in advance of publication to the *Minnesota Flyer*, P.O. Box 750, Sandstone, MN 55072-0750, or mflyer@pinenet.com.

July 7: Hazen, ND. Hazen-Mercer County Airport (KHZE) Fly-In Breakfast, 7 a.m.-noon. Gary Benton, (701) 880-0512.

July 8: Two Harbors, MN. EAA Chapter 1128 Annual Fly-In Pancake Breakfast at Richard B. Helgeson Airport (KTWM), 7 a.m.-noon. PICs free. Bill Fieldson, (218) 834-4784.

July 8: Winona, MN. Annual Fly-In Breakfast and free airshow.

See **MORE EVENTS**, page 13

COVER PHOTO: Chuck Doyle Sr. with his "working" Stearman, used for banner towing and sky writing. Note the cockpit canopy. Inset photo is Chuck Doyle Jr., who couldn't be more pleased with the restoration after the first flight, as this "perma-grin" shows! RARE Aircraft manager of production Jeremy Redman is obviously happy, too!

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FEATURED PHOTOGRAPHERS:

Ray Pittman, Emilee and Savannah Franklin

AEROMEDICAL FORUM: Dr. James Lakin

EDITORIAL OFFICE: P.O. Box 750, Sandstone, MN 55072-0750

(320) 245-2111 • Fax: (320) 245-2438 • mflyer@pinenet.com

www.mflyer.com

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