

**E**D MARQUART, THE Squire of FlaBob Airport, biplane designer and replica race plane builder extraordinaire, was wearing a smile a yard wide after the Watsonville, CA fly-in this spring. An absolutely stunning example of his popular 2-place biplane, the Charger, had been named the Grand Champion homebuilt . . . and everyone was saying it would take something out of this world to beat it the following weekend at Merced. Well, no extra-terrestrial appeared, so the Charger won again . . . and Ed's cup literally bubbled over.

Then, on Friday evening, August 6, the EAA crowd that had gathered in the Theater in the Woods at Oshkosh fell silent as John Winter, the chief judge for custom aircraft, began reading off the name of the 1982 EAA Grand Champion homebuilt.

"The winner is . . . Marquart Charger N26JS, built by Jim Smith of Petaluma, California!"

Heaven will simply have to wait for Ed because he has achieved enough of it here to last for quite a while!

So . . . who was the obviously superb craftsman responsible for this rare triple crown sweep? Well, meet Jim Smith (EAA 46653) of Petaluma, CA (just north of the San Francisco Bay area), who for the past 8½ years has been laboring, more or less anonymously, to produce The Ultimate Charger.

Much of the time in a chicken coop!

Also, meet his wife, Karlita. She provided the initial spark that set the project in motion . . . and was the one who took a job to earn the money to buy materials while Jim built the airplane.

"No greater love" . . . as they say.

The airplane, itself, is about as close to a straight off-the-plans Charger as you'll find, as far as the basic structure is concerned. Some fairings of Jim's own design and manufacture have been incorporated, but the real story . . . and the thing that impressed judges at Watsonville, Merced and, now, Oshkosh . . . is just plain outstanding workmanship. EVERYTHING is by the book — a model of "aircraft practice". All the bolts, for example, are the proper lengths; the correct number of threads are showing on each; every rib stitch is exactly the same distance from the next, the tapes (those you can see) are straight as a die, etc., etc. Then, there are lots of "extra mile" items, like the fact that there are no screws in the airplane. Nutplates are installed **everywhere** (think of the time that took!). And there are no instances where sheet metal overlaps the adjoining piece — all the panels are carefully and accurately butted together. The result is that the entire front half of the fuselage looks like it is formed with stamped panels.

One of the endearing features of a Marquart Charger is the fact that the side panels hinge up to permit inspection and maintenance of all the systems (and their associated lines, hoses, cables, etc.) from the firewall back to the rear of the front cockpit. It's endearing to judges who can peer into the airplane's innards to their hearts content, straining to find some errant drop of oil or hidden blemish that might legitimately tilt the scales in favor of this airplane over the next . . . or vice versa. Oshkosh is the Super Bowl and World Series of aircraft judging all rolled into one and the differences between finalists usually get down to such fine comb nit-picking screening. They certainly had no problem with Jim's Charger. On the days weather permitted, he displayed the airplane with the side panels taped open . . . almost indecently exposed to the prying eyes of everyone who happened by.

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# JIM SMITH'S GRAND CHAMPION

By Jack Cox

What they saw was a tubular frame beautifully and permanently protected with coats of epoxy paint, all the usually mundane plumbing and wiring arrayed in a profusion of symmetry and precision, plus things one normally does not get to see — like the back sides of instrument panels, the bottom sides of fuel tanks, the front side of rudder pedals, etc. All very revealing . . . and, obviously, all very impressive to the judges.

Ed Marquart's fully cantilever landing gear has always been admired for its aesthetic and aerodynamic cleanliness, but Jim has gilded the lily . . . or, **glassed** it in this instance. Using a tub full of modeling clay,



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the sculpted wheel pants, lower gear leg/wheel pant function fairings (including an air scoop for cooling the brakes), fuselage-to-upper gear leg fairings — with the open end rolled under, or “tunnelled” like custom car builders used to do to their tail lights, lower wing root fairings and lower cabane strut fairings. All were used to make **master molds** from which fiberglass parts were pulled.

Now, if you wondered why it took 8½ years to build this airplane, you’ll better understand when you know that it was not as a result of a lot of gaps in the work schedule. It was worked on **steadily** for 8½ years — taking a full year on the aforementioned

*fairings alone!* And it took another year to finish and paint it. Such is the dedication of an EAA Grand Champion builder.

8½ years ago when Jim started the project, there were no parts, components, kits or whatever available for the Charger — just the plans and a lot of good advice from Ed Marquart. So, Jim built every part of the airframe, except the normally purchased items like engine, prop, wheels, instruments, flying wires, etc. There weren’t any short cuts available then, but had there been, it really didn’t matter — for Jim would have taken the long, painstaking route anyway.

When the airframe was covered, the Stits process was utilized start to finish. A LOT of dope was brushed and sprayed on the fabric, but around 1000 hours(!) were expended sanding most of it off to get the satin-like finish Jim wanted. At one point — while using 400 paper — he began noticing "brown streaks" on the surface. Puzzled, he wiped them off, but found they reappeared as soon as he resumed sanding. Yes, it was blood . . . he had taken his finger tips right through to his capillaries without realizing it. He wore out a full case of thin Playtex rubber gloves to complete the sanding.

Jim's Charger is powered with a 150 hp Lycoming 0-320E3D — virtually stock Cherokee 140, firewall forward, including the metal prop. The oil cooler has been moved to a more advantageous location and a GM alternator has been fitted, but, otherwise, the installation might well have been done in Vero Beach . . . well, except for the chrome and polish. No factory could afford the sanitary condition of this engine compartment.

A full set of controls and instruments was fitted in each cockpit — including radios. As show planes often go, the cockpit interiors of 26JS are almost spartan. The seats are meticulously upholstered, the instruments are fitted into the panel to watch-like tolerances and everything is neat as a pin, of course . . . but there are no plush sidewalls, deep carpets, etc. The cockpits are much like factory biplanes were in the 20s and 30s — no extra weight, just the necessities, beautifully installed, period.

During construction, a great deal of effort was expended towards keeping the airframe as light as possible . . . consistent, of course, with Jim's personal preference for nut plates, all the fiberglass fairings, etc. Empty weight came out at approximately 1200 pounds. This is 150 pounds more than Ed Marquart's prototype, however, 26JS has a heavier 0-320 (0-290 in the prototype), radios, the glass fairings, etc., so Jim believes his basic airframe must be about the correct weight. The 15 additional horsepower pretty well takes care of the added weight, so that performance, including rate of climb, has not suffered, Jim believes.

The airplane climbs from near sea level at an initial rate of 1500 fpm, with just the pilot aboard. At 3,000 feet and at 2400 rpm, it trues out at 131 mph. The take-off roll is about 300 ft. and with close attention to approach speed, Jim can get it down and stopped in about 500 feet, he says. Loops and rolls can be initiated from straight and level flight, and recovery from a 4 turn spin requires no more than a quarter of a turn.

One of Jim's greatest sources of pride is the fact that his Charger only consumes 7.5 gph at normal cruise power — which he attributes to the Charger's basic clean-for-a-biplane lines . . . and, not immodestly, to all those slick fairings he created for the airplane. With a fuel capacity of 38 gallons (28 in the fuselage and 10 in the center section), a five hour cruising range is available . . . handy for some of the long legs over the Rockies flying to and from Oshkosh.

Best of all, though, are the flying characteristics of the Charger, Jim says. Like every owner and every person who has ever flown one, his experience is that it is simply a beautifully responsive, docile airplane without a mean bone in its body. It was created strictly as a sportplane and, consequently, does nothing spectacularly . . . it simply does everything well.

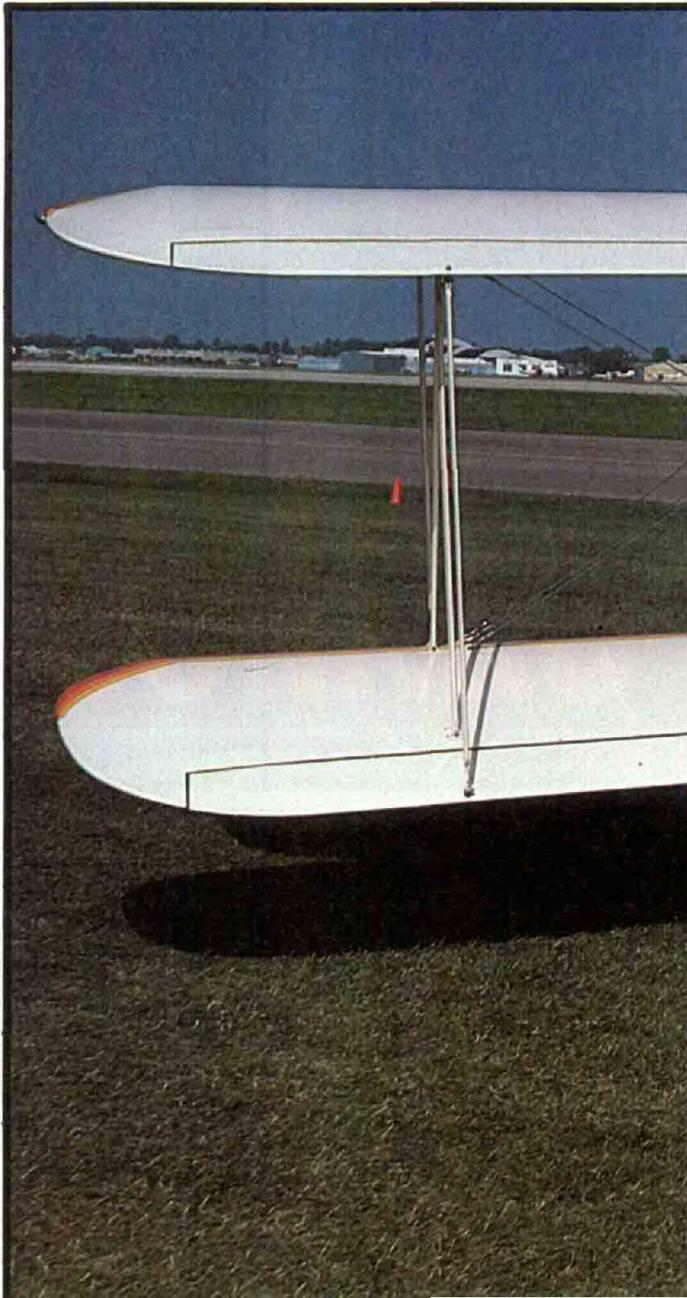
Higher praise rarely comes to any airplane.

## The Other Side of the Sandpaper . . .

Now, let's go back to those bleeding finger tips and take a look at the OTHER side of the sandpaper — at the **sander**, himself.

Jim Smith was born in Oklahoma in February of 1935 — which makes this momentous year in his life his 47th. His parents moved to the San Francisco Bay area in 1937 and he grew up around Santa Rosa and San Mateo. His initial exposure to aviation came in the form of the legendary China Clippers, winging their stately ways in and out of their base at Treasure Island. Like so many other Bay Area youths of the late 30s, he watched in wonder as they thundered out over the Golden Gate and slowly vanished into the western sky . . . his imagination filled with mysteries of the fabled East he knew their crews would soon experience.

Later, when World War II began, the fighters came to Santa Rosa — P-38s and P-39s. Now Jim was a famous ace, blasting the enemy from the skies over Europe and the South Pacific . . . in his daydreams, of course. He must have also had a rather pragmatic side for so young a man, however, because even in those days he had already decided that someday he would become a pilot . . . **and would build his own air-**



(Photo by Jack Cox)

Jim and Karlita Smith.

**plane.** That was pretty bold thinking in those days, but, significantly, Jim received a lot of encouragement from his father, and he never gave up on his dream.

After school, he moved back to Oklahoma, met and wed Karlita . . . and eventually returned to California. He worked for quite a number of years as a mechanic for United, but quit to become a professional auto mechanic. (The money is a lot better, he says with a grin.) Along the way, the Smiths were blessed with two daughters, Karla and Selise.

In the early 60s, Jim got around to realizing a part of his lifelong ambition. He soloed in a Cherokee 140 and soon obtained his pilot's license. It was during this period that he discovered sport aviation and began attending area fly-ins. Seeing his first homebuilts must have been like throwing a bucket of 100 octane on a bed of hot coals — all those early dreams of building his own airplane were suddenly a consuming passion. Karlita probably became awfully tired of hearing Jim moaning about how he just **had** to build an airplane . . . someday . . . because eventually she called his hand, expressing her opinion that **TODAY** was a lot better time to get started than any "some-

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(Photo by Jack Cox)

(Photo Courtesy Jim Smith)



day" she could think of. Furthermore, she was ready and willing to get a job and earn the cash to pay for the materials. He could hold down his regular job at a local Cadillac dealership, but would be free otherwise to do nothing but build his dream plane.

Well, Jim's father didn't raise any fools, so suffice it to say, he shortly had a set of Charger plans in hand and was cutting metal before the sun nestled down behind the Golden Gate too many times thereafter!

Not too far into the project, Jim picked up a partner-in-crime, so to speak. A fellow EAA Chapter 124 (Santa Rosa) member, Remo Galeazzi, also wanted to build a Charger . . . so Jim invited him to jump right on in. Remo had no aircraft building experience or related technical skills, but by trailing along just one part or component behind Jim, he could learn. And learn he did — he had a stern taskmaster in Jim Smith, a professional mechanic and a person unwilling to compromise when it came to the quality of a given piece of work — but Remo proved equal to the challenge. (Jim says Remo has become a fine craftsman, which is, of course, a compliment to both the teacher and the taught.) His Charger, which was displayed with Jim's at Oshkosh '82 is a twin in all but his choice of paint scheme . . . and perhaps just enough of the master's touch in Jim's airplane to be noticeable to discerning judges.

The basic structures of both airplanes were built in the respective owner's home workshops, but when it came time to begin assembling them for fit, rigging, etc., both needed larger workspaces. The problem was solved when an area chicken rancher decided to get out of the business, renting, instead, his chicken houses for storage or whatever. A 40'x80' space — sufficient to house both airplanes — was rented by Jim and Remo and work on the Chargers was ultimately completed there.

Toward the end of the long gestation period, Jim began to get Oshkosh fever and surged on ahead of Remo — by almost a year. 26JS flew last fall and Remo's 23RG finally broke earth's surly bonds about a month before Oshkosh.

Although a designee in Chapter 124 and long active in its local endeavors, Jim first burst upon the national scene over Memorial Day by winning the top homebuilt award at Watsonville, CA . . . then again the following weekend at Merced.

After Watsonville, he put in for vacation during Oshkosh!

The flight east to Oshkosh '82 in fact turned out to be something of a Chapter 124 mass invasion. Several flights of member's airplanes, grouped more or less according to speed, made their way eastward, with Jim accompanied by Galeazzi in his Charger, N23RG; Jeannie Williams in still another Charger, N11RS; Erik Petersen in his Starduster Too, N292EP; Bob Bruner in his Acro Duster II, N26RB; and Bruce McGlochlin in his Piper PA-16 Clipper, N5905. Karlita accompanied Jim in his Charger and several other wives were also along in the other planes.

The flight had a ground support caravan pounding along I-80 below (and behind) them and an "advance man", Ed Vandenbos, flying out ahead to make motel reservations, rent cars, etc. Ed and his Piper Archer ("the laundry cart") did a tremendous job, enabling the "flying circus" to function in an efficient manner.

Bob Bruner's Acro Duster was the short ranged bird in the gaggle, with an endurance of only about 2 hours . . . as compared with the Chargers which could stay aloft for 5. It took 19 hours of flying time to get to Oshkosh — and 16 landings! This could have

been a real drag — but at every stop, an admiring crowd gathered to drool over the airplanes and any number of funny incidents seemed to occur along the way . . . one involving an FAA controller trainee who simply didn't know what to do with a "flight of six" all wanting to land at once!

One mechanical problem did crop up — taxiing in at Fond du Lac to wait out the air show period at Wittman Field, Jim experienced a failure in his landing gear shock system. There was no damage to the airplane, thank goodness, but he limped onto the ramp like some great ruptured duck. As always, the Fond du Lac FBO personnel were 100% in their assistance — as was an Oshkosh welding shop — and 26JS was flown into Wittman Field the next day, no worse for the experience. Jim said he was mightily impressed with all the helpful people he met in Wisconsin — and especially with the troops manning the Emergency Repair area. A couple of the other Santa Rosa/Chapter 124 airplanes needed minor assistance during the week and always got first class attention.

"Those guys in Emergency Repair deserve a medal," he says.

Jim and Karlita spent the week talking to more people than they ever dreamed could be massed on one airport . . . and had just enough energy on Friday night to trudge down from the homebuilt display area to the Theatre in the Woods for the presentation of major aircraft awards. There, the decision to build an airplane some 8½ years before, the long hours of work (for both of them), the personal sacrifices any family has to accept in order to live with and around such a project for so long reached its ultimate conclusion — Grand Champion Custom Built for 1982!

It's an experience that only the recipients can fully appreciate — the rest of us must simply stand there and admire their accomplishment from the sidelines.

Jim has said that his greatest pleasure is watching the reactions of the rest of us as we admire his work of aviation art. A decade ago, he was one of the admiring spectators drooling over someone else's artistry. Those aircraft — and their builders — inspired Jim and provided him with a standard of excellence he would go on to try to exceed with his own project.

Now, things have come full cycle. You just KNOW someone was in that crowd at Oshkosh sizing up N26JS as the **starting point** for his project . . . the Grand Champion for 1990, perhaps?

That's a part of what it means to be a Grand Champion. Jim Smith is now a permanent link with sport aviation's past and is our current bridge to the future.

Ever upward!

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