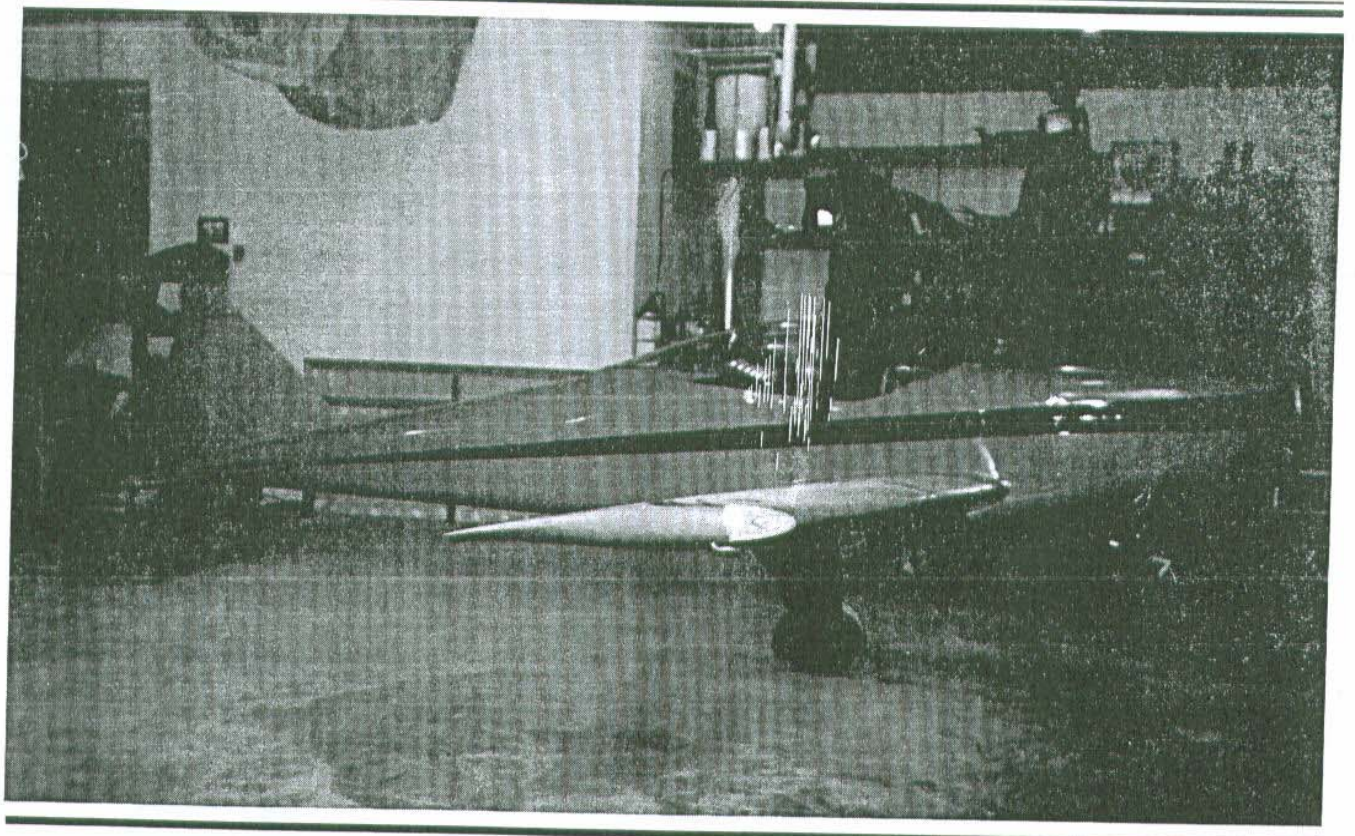
BUILDERS & FLYERS
GP4
NEWSLETTER

THE OFFICAL VOICE OF GP-4 BUILDERS ALL OVER THE WORLD

VOLUME 8

MAY - JUNE 1996



JACKIE YODER'S GP-4 OF MIDLAND, MICHIGAN

It's in the Pink!

Hello Spud and fellow GP-4 builders

You won't be able to tell but my GP-4 is Pink with a medium brown accent strip. I am getting very close with still lots of little things to do and finish up. If every thing goes well, I hope to fly in 1996!

I wanted to take the time to share some of the things that I have done differently along the way in reagrds to building tips and modifactions.

One of the main modifactions that I made with my GP-4 is the installation of a Lycoming O-540-AID5 260 horsepower.

George Pereira says "You"ll really be Surprised!"

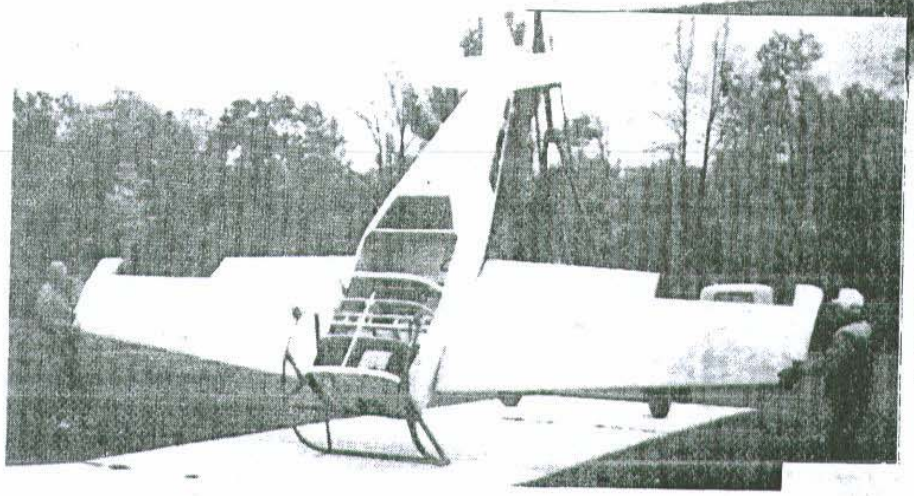
After I had gotten the basic fuselage and wing constructed it was getting harder and harder to man handle everything around. I also wanted to paint the aircraft with the wing and fuselage assembled.

● MORE FROM JACKIE YODER.....

As you can see by the follow photos I came up with an elaborate turning device that I made from a boat trailer and curved metal framing bolted to the firewall. It worked very well. The following photos and narations where originally printed in EAA Techincal Counsler News Winter of 1994 which Ben Owen and company produces from Oshkosh.

YODER GP-4

(Right) Jackie Yoder of Midland, MI is a Technical Counselor and also has built a Barracuda. He currently has a GP-4 under construction and has developed an elaborate turning device from a boat trailer.

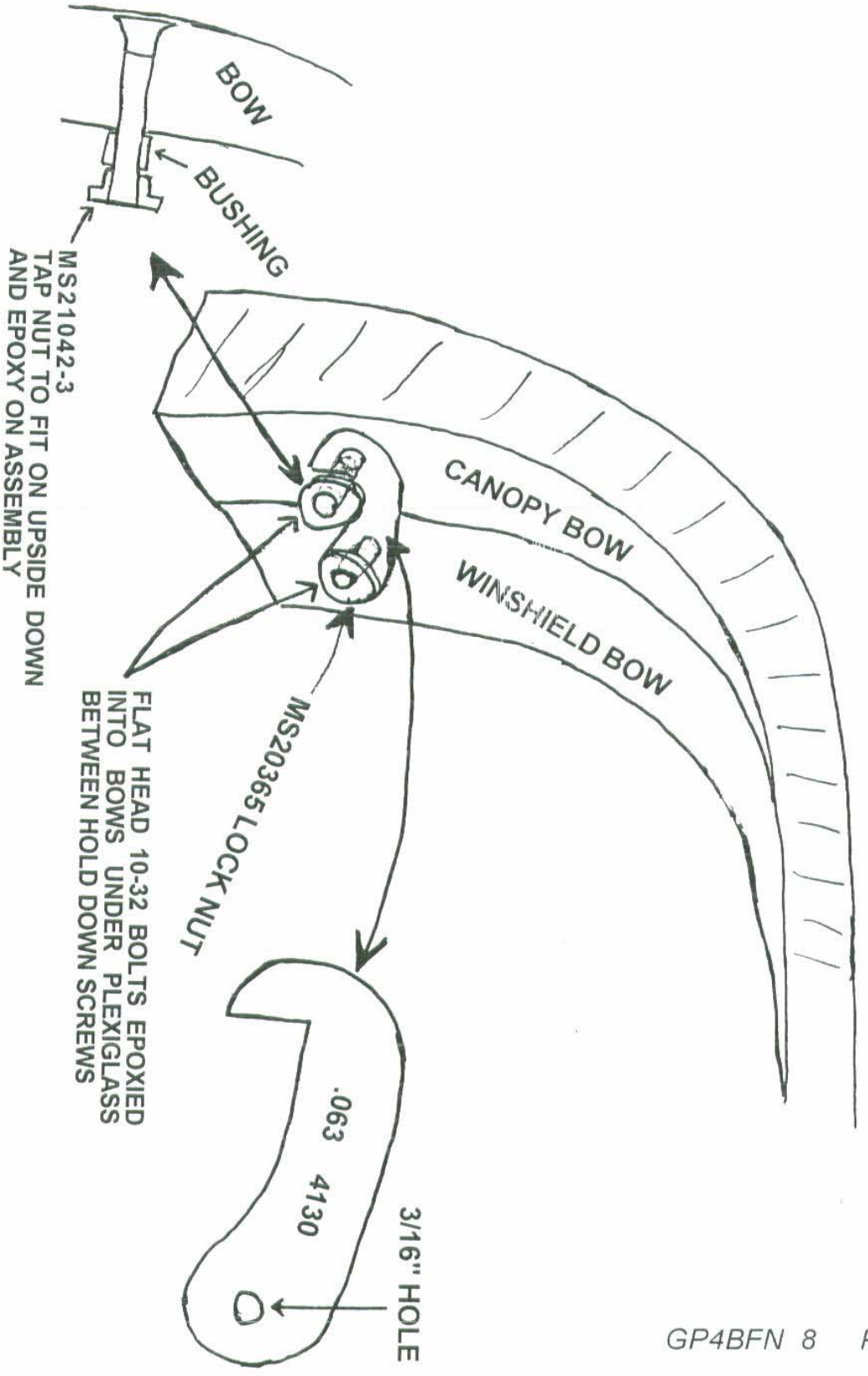


(Left) The aircraft is assembled in one piece and in order to work on and paint the bottom, he developed this turning device. As the crane lifts the tail up, the fuselage rotates about a metal frame bolted to the engine mount on the firewall.

(Right) Here, the aircraft is vertical and going up-side-down. You mount an angle iron solidly to the tail post that will support and protect the vertical stabilizer in the inverted position. Make provisions to bolt the winch cable securely to the tail angle support so it can not unhook during the roll. In this case, the wing with the gear installed weighs approximately 400 pounds. There is no other way to lift it without doing damage to the fragile edges of the wing skins. The fuselage is approximately 125 pounds. This one-half outside loop took just 15 minutes with the help of four friends.

● CANOPY SAFETY LATCH.....

One other area that **I added,** not modified, was a safety latch on each side of my canopy. I would like to make clear that this is "in addition" to the latch system that is layed out in the GP-4 construction plans. I think the drawing should be self-explanatory. I will keep everyone posted on my progress! Jackie Yoder, Midland, Michigan.



GEORGE'S CORNER

Fellow GP-4 Builders:

Each May and into June I try to find a way to plan a flight to Oshkosh every year. I am sorry to say I will be grounded this year (Well sorta!) The necessary, but mundane duties of helping Peggy at our decorating shop has won out. June through September gets pretty busy at Peggy Pereira Interiors. Employee vacations in the summer months also contribute to my frustration. I will miss not seeing and talking to you builders at our Mecca at Oshkosh 96. Perhaps next year?

Hey, guess what? We might have 3 more flying this year. Bell Berrick from Omaha, Nebraska is real close. Jackie Yoder from Midland, Michigan has some engine work left and his will be ready. Steve Baum from San Tee, California is in primer and fitting his cowl.

● Short Field Take-offs

Spud has had some information inquiries on the GP-4. in regards to take-off and landing performance. I recently made some measured tests and here are the results.

Place: Rio Linda Airport.
Paved runway.
Elevation 41 feet.,
Temperature 87 degrees F (non-standard).
Wind "0" mph.
Aircraft weight 1,710 lbs.

Three take offs and three landings were made. The below figures are an average of those 3 take off and landings.

Take off with 10 degrees of flaps - 516 feet.
Take off with no flaps - 630 feet.
Landing with full flaps, 38 degrees, full stop - 1,022 feet.

I am guessing you could clear a 50 foot obstacle after take-off in under 1,000 foot at the above weight and conditions.

● Short Field Approaches

The pattern was flown at 110 mph, gear down and flaps up. You need about 18 inches of power to hold a heavy GP-4 at pattern altitude with the gear down. With the gear down and full flaps you need about 10 inches of power to maintain a 3 degree glide slope and 90 mph. At uncontrolled fields I generally fly a close in pattern. Short base and short final when traffic allows. I practice power off approaches from down wind and the pattern must be tight if your only 800 foot AGL. The sink rate is high in the GP-4 with everything hanging out. On the three short field landings I tried for a full stall at touch down, but didn't quite get it. I did start the flaps back up for better braking as the GP-4 stopped on the runway. My touch down speed was about 68 to 70 mph. If I had made a full stall touch down it should have been 60 to 65 MPH which would have allowed a little shorter roll out.

● Grass or Dirt Strips

Can you land the GP-4 on grass or dirt strips? I never have yet, but I don't see why you couldn't. The strip would have to be free of big chuck holes. Remember your nose gear tire is 10" inches diameter. The big thing to watch for is small rocks or gravel. You only have 8 1/2" of prop clearance and under power your prop will pick up some damage from the gravel.

Props

Speaking of props, the only recommended prop is the Hartzell HC-M2YR-1BF/F7666AS-2 and the spinner assembly is Hartzell C3568. These two items mate with the cowling and the Lycoming IO-360. Current 1996 prices are $5,355.00 for the prop and $549.00 for the spinner. Both items are F.O.B. and will be drop shipped from Hartzell, Piqua, Ohio. To order these item please contact myself at Osprey aircraft. Everyone should plan on a 4 month lead time, so plan accordingly!

● Hydraulic Gear Plans Now Available!

Finally finished the hydraulic gear plans! It was almost as much work designing a new plane! I was on this for over a year researching and designing on a mock up center section of the wing. I now feel that this new system has all the amenities to do the job very well. Darry has the working mock up wing center section at his shop that I used to designed and build the new hydraulic system. He will use this as a jig to build all the necessary metal components for the GP-4 group that would like to purchase these item.

Both manual and hydraulic retraction systems have their advantages and disadvantages. The manual system cleans up the airplane instantly after takeoff. No redundant emergency system is required. Its cheap if you build the components yourself and it is light. The disadvantage is that you have to fly the airplane and muscle up the gear right after takeoff. Its quite easy after some practice, but it is still another learning curve to go through.

The advantage of the hydraulic gear is obvious. Flip a switch and fly the airplane! the disadvantages are the possibility of electrical or hydraulic failure, more weight (about 6 pounds), more expense and longer retraction time (about 8 to 10 seconds).

The emergency gear down system allows the main gear to free fall into a locked position. The nose gear is pulled down and locked with a T handles. We

use uplocks on all three gear struts after retraction. This allows the hydraulics to be shut down during cruise flight.

You can not retrofit the hydraulic gear system into a finished GP-4. You should decide to use the hydraulic gear before the nose gear tunnel is skinned. The wing must be uncovered with the wing tanks off.

All welded and machined components for the new hydraulic gear as well as other GP-4 components are available from **Darry Capps, 813 Hoyer Road, Newman, CA 95360 (209) 862-2707.** (Price list available from Darry on request).

The hydraulic gear plans are available to all GP-4 builders from Osprey Aircraft for $150.00. Please find enclosed in this issue of the newsletter an order form for those who would like to order.

Regards to All, George

OSHKOSH 1996!

The big "O" is just around the corner and I'm sure it will be bigger than ever!

We have a GP-4 builders meeting scheduled for Sunday August 4th at the Homebuildrs Headquarters Building (just south of the Tower) on the front porch meeting area starting at 9:00 AM until 11:00 AM. All Oshkosh attendee's/GP-4 builders should plan on this meeting.

Because of some "NEW" business travel scheduling conflicts, it is "Iffy" that I will be able to attend this Sunday morning meeting. Everything is all set up, but I need some one to volunteer to be the "Host" of the event if I can't get some things moved around on the business side. - Spud Spornitz

Tardy #8 Newsletter!

I apologize for this very late newsletter. I have been promoted (I think) in the company that I work and now find myself traveling an incredible amount. I try to get back on schedule as soon as possible. Yes, this play hell with building time also!!!!! - Spud Spornitz

MIKE TRAUD ON T-88 EPOXY

Hello Spud,

Enclosed is a copy of a letter I wrote some months ago to the Falco Cult and their respective newsletter. Years ago I purchased a set of Falco plans with the intent of building one, but never did - not enough performance, especially for the price. As a Falco plans owner, I was entitled to the quarterly newsletter and have maintained the subscription over the years. The newsletter is actually fairly good with a lot of helpful ideas for wood aircraft construction. However, those Falco builders and flyers are pretty hard nosed about a lot of things, one of which is the proper glue to use when building a wood airplane. They still believe in the De Havilland Mosquito method of using Aerolite. What prompted my letter was one of their builder made this half-ass (if you'll pardon the expression) test using T-88. This guy stated that the T-88 test failed in his wife's oven and therefore, T-88 was not acceptable glue for aircraft construction. This kind of analysis is quite irritating as well as down right untrue. So I had to retort by writing the enclosed letter. I think it is worthy enough to reprint it for the GP-4 camp. Possibly some readers will find it interesting.

My project is progressing well. I will be installing the new retractable nose gear assembly soon (fabricated by Darry Capps). George has done an exemplary job of designing the electric/hydraulic gear system for the GP-4. No doubt a quite a few builders will find this the way to go with their gear system.

Best Regards

Mike Traud
Gold River Facility

Now for the Mike T-88 response.....

I feel compelled to comment on Glyn Russell's statement in the March '95 newsletter regarding glues used in wood aircraft construction. Mr Russell's statement about T-88 are without merit. He states that the use of T-88 disallows painting the aircraft any color other than white. Mr. Russell bases his statement on what appears to be a very unscientific test, which, frankly speaking, resulted in erroneous assessments of the performance of T-88.

Where Mr. Russell's test block(s) constructed as specified in the Falco builders manual? Did he make multiple test blocks and conduct other tests (cold. normal, wet, dry) with the same batch of glue? Did he mix the T-88 properly? Mr. Russell did not indicate anything about multiple tests, yet he informs other builders of his expertise based on one test with his wife's oven, and draws his own conclusion and recommendations.

I have discussed T-88 and its performance with the manufacturer, System Three. Additionally, I have conducted my own tests, and am familiar with 'all wood' aircraft using T-88 as the primary bonding agent. T-88, notably, is a superior epoxy system which has been in use for over 20 years with no known failures due to heat (from the sun). While it no doubt is a good idea to keep surface temperatures low with white paint, it is not a necessary requirement when using T-88. Falco builders take note: wood is a superior insulator to heat. If you measured the skin temperature on Karl Hansen's beautiful bright red Falco in the hot California sun, you would note that it is very warm, upwards of 130+ degrees. Hot indeed. However, if you measured the skin temperature inside the wing (the wheel well, for example), you would note quite a difference. The approximate inside skin temperature would be far less than 100 degrees F-about 85 degrees F. This change in temperature is a tremen-

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BILL BERRICK ON HARTZELL PROPELLERS

Hello Spud,

The letter below from Hartzell came in response to my inquiry about any RPM restrictions with this engine-propeller combination. I had been flying a Mooney with the same engine and very similar numbers on the propeller that was restricted from continuous operation between 2000 and 2350 RPM. That concerned me enough to ask the question. I think George Pereira has flown his GP-4 at 2200 RPM and 22 MP frequently without any problems. Sincerely,

Bill Berrick, Omaha, Nebraska

HARTZELL PROPELLER INC.

One Propeller Place
Piqua, Ohio 45356-2634 U.S.A.

HARTZELL

March 12, 1996

Mr. William H. Berrick
11803 Hunters Cove
Omaha, Nebraska 68123-1119

Subject: Installation of Hartzell Propeller Model HC-M2YR-1BF/F7666A-2 on Lycoming Engine Model IO-360-A1A

Dear Mr. Berrick:

We have never tested this specific propeller/engine combination, however, based on our experience with similar installations the following operating restriction should be observed: "Avoid continuous operation between 2000 and 2350 RPM". Within this RPM range the stress amplitudes in the blade tip area are such that continued operation can eventually lead to a fatigue failure of the blade tip.

If you have any questions or require any additional information please contact us at any time.

Yours truly,

John H. Hartmann
Senior Test Engineer

JHH

CONTINUED FROM PAGE 5

"TRAUD ON EPOXY"

dous advantage to the builder wishing to use a darker color of paint.

It is interesting to note that the Falco camp leans towards Aerolite as their glue of choice, or so it seems. One of the components of Aerolite is, of course, water, which, during the bonding process, evaporates. This in turn causes localized 'hard' spots due to increased grain density caused by shrinkage of the wood at the joint. This by no means compromises the integrity of the bond, but rather is visible (cosmetically) even with the very best of paint jobs. Understand, however, the Aerolite is a good glue and definitely has its place, but it appears to be inferior to the available epoxy system (and Aerolite, as you know, is incompatible with epoxy, thereby increasing the complexity of the job).

Indeed, all the glue systems available have their strong suits; their performance varies with the application. While my intent here is not to further this controversy, but to point out that one should be very thorough in one's investigation of glue performance before disseminating data to the building community. After all, wouldn't you be disappointed to learn that your beautiful white Falco, which you have been flying could have been even more impressive painted red (which you desired in the firs place) with no impact on structural integrity?

Mike Traud

Gold River, California

THE CLASSIFIEDS

For Sale: Pre-fabricated composite components for GP-4. Cowling - $700.00, exhaust blisters - $100.00, inlet ramps - $100.00, tailcone - $100.00. All four peices for $925.00. Jake Jackson - Rio Linda, CA (916) 992-0608

For Sale: Quality custom fabricated metal components for your GP-4. See GP4BFN issue #4 for complete component listings and pricing. Please allow generous time allowances for your orders. Darry Capps, 813 Hoyer Road, Newman, California (209) 862-2707

For Sale: LETTERING BY ROBERT! - *"N" NUMBERS AND MORE!* High quality self-adhesive aircraft numbers. Numbers and lettering in any shape, size and color. You'll love our work - 100% satisfaction guaranteed. Pricing - 1"-.35, 2"-.55, 3"-.75, 4"-.95, 5"-$1.15, 6"-$1.35, 7"-$1.65, 8"-$1.95, 9"-$2.35, 10"-$2.75, 11"-$3.15, 12"-$3.45. postage and handling $3.50. Ask for Robert after 6:00 p.m. (913) 648-4022 or E-mail "apwrobert@aol.com or mail to: 6501 W. 80th Terrace, Overland Park, KS. 66204-3823

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913-764-5118

E-MAIL BSPORNITZ@AOL.COM

DON'T TRY THIS AT HOME!

● **This is a true story.....**

The Arizona Highway Patrol came upon a pile of smoldering metal embedded into the side of a cliff rising above the road at the apex of a curve. The wreckage resembled the site of an airplane crash, but it was a car. The type of car was unidentifiable at the scene. The lab finally figured what it was and what had happened.

It seems that a private individual had somehow gotten hold of a JATO (Jet Assisted Take-Off - actually a solid fuel rocket) that is used to give heavy military transport planes an extra "Push" for taking off from short airstrips. He had driven his Chevrolet Impala out into the desert and found a long, straight stretch of road. Then he attached the JATO unit to his car, jumped in, got up to a certain speed and fired off the JATO!

The facts as best as could be determined are that the operator of the 1967 Impala hit the JATO ignitor at the distance of approximately 3.0 miles from the crash site. This was established by the prominent scorched and melted asphalt at that location. The JATO, if operating properly, would have reached maximum thrust within 5 seconds, causing the vehicle to reach speeds well in the excess of 350 mph and continuing at full power for an additional 20 to 25 seconds. The driver, G-forces usually reserved for dog-fighting jocks under full afterburners, basically causing him to become insignificant for the remainder of the event. However the automobile remained on the straight highway for 2.5 miles (15 to 20 seconds) before the driver applied and completely melted the brakes, blowing the tires and leaving thick rubber marks on the road surface, then becoming airborne for an additional 1.5 miles and impacting the cliff face at a height of 125 feet leaving a blackened crater 3 feet deep in the rock.

Most of the drivers remains were not recoverable; however, small fragments of bone, teeth and hair were extracted from the crater and fingernail and bone shards were removed from a piece of debris believed to be a portion of the steering wheel.

BUILDERS & FLYERS GP4 NEWSLETTER

1112 LAYTON DRIVE
OLATHE, KANSAS 66061

FIRST CLASS MAIL

NEWS FOR CRAFTSMEN OF FAST WOODEN AIRCRAFT!