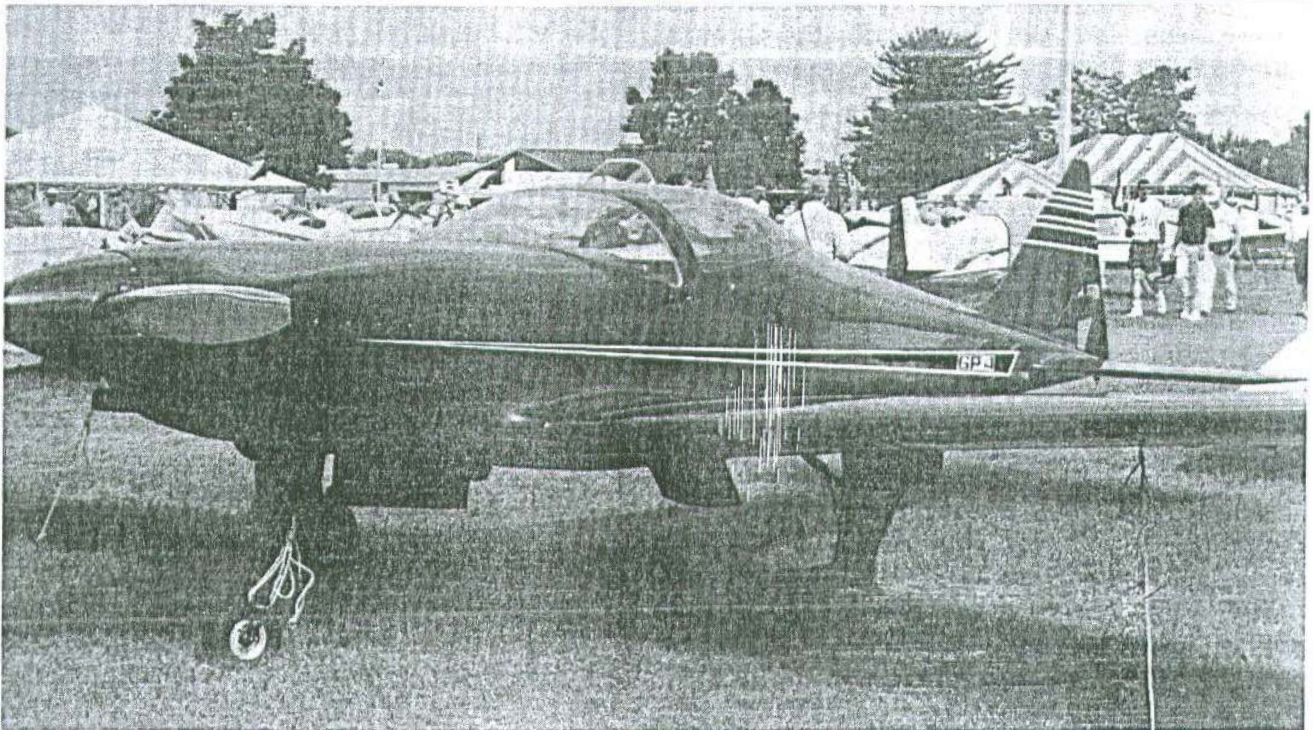




THE OFFICAL VOICE OF GP-4 BUILDERS ALL OVER THE WORLD

VOLUME 3

JULY - AUGUST 1995



**DARRY CAPPS OF NEWMAN, CALIFORNIA
WINNER OF THE 1995 DENVER TO OSHKOSH RACE**

Fellow GP-4 Builders;

First off, I have some great news! Darry Capps won the annual race from Denver, Colorado to Oshkosh, Wisconsin that is sponsored by Aircraft Spruce and Flying magazine.

anyone else. He just sat down, figured out his flight & fuel plan and got into his GP-4 and went for it! A number of racers had such backup such as fast twins flying ahead cranking out optimum winds etc., and then sending this data to their racer.

Darry did it all by himself, no help from me or

This was the fourth year for this race and a

win is very much sought out for by the big kit companies and store bought plane producers that participate.

It's a hard race, as you have to leave the Denver class B airspace threading your way to a great circle route to Oshkosh. It's 894 statute mile (777 nautical miles). You can not tanker any extra fuel (auxillary fuel tank). What you got is what you take. There are two classes. Unlimited and the 360 cubic inch engine class called the Corinthian Class. There are no restrictions for hot engines, turbo's & etc..

Darry was the 8th plane off the ground starting his time. Using his Loran and a back-up hand held GPS. He tried altitudes ranging from 7,500 to 9,500 ft. msl. As it turned out there was little if no help from the winds so most of the race was at 7,500 ft., full throttle at 2700 to 2800 rpm. Darry's engine is strictly stock except for an electronic ignition on one set of plugs and a magneto as the back up on the other side. Fuel burn was showing 13 GPH. Ground speed read outs ranged from 244 mph to 253 mph (212 to 220 knots). About 300 miles west of Oshkosh the electronic ignition started to fail. He shut it down and went on the single magneto ignition. Fuel burn went up to 15 GPH, **so the sweat started roll right about then!** Would he have enough fuel to finish??? When he refueled at Oshkosh it turned out he had just under 4 gallons left as he crossed the finish line!!!! Darry's average speed from a standing start was 243 MPH (211 knots). Not to shabby for an old wooden home built!

WE ALL CAN BE VERY PROUD OF DARRY!

My trip to Oshkosh was very uneventful. Had a great time visiting with builders and looking at photo's of their progress. Some beautiful work is being done out there! My good friend Ralph Hallenborg and I flew from my Sacramento, California base called Rio Linda Airport to Scotts Bluff, Nebraska for lunch and

then overnight at O'neil, Nebraska. A short 2 hour flight the next morning to Oshkosh. Good weather all the way, a first for me. Total flight time was 7 hours 16 minutes. Our fuel burn was just under 10 GPH averaging around 242 MPH (210 knots).

This GP-4 is a real go machine! So get busy you guys, the rewards are **FANTASTIC!** It is a superb airplane.

George's Builders tips

● Glare shield

It is very important to pre-finish the deck or glare shield under the windshield prior to final installation. Masking off the inside next to the slot where the glass slips in is almost impossible and spray painting is tough to due do to the slant of the glass, so you should do all your final finishing over this area. I suggest a dark color. A light color will reflect up into the windshield and spoil your vision. Darry's glare shield is GM bright red the same as the rest of his plane. Jake Jackson uses a dark maroon and mine is a medium blue shade. I wish it were red like the rest of the plane, but I am stuck with it now. You might consider using a 4 ounce fiberglass cloth followed by a 1.8 ounce deck cloth over the 1/16" ply glare shield area. You then have a substantial base for your primers and finish paint. It gets a lot of hot sun through the windshield so a durable finish is required here.

● Drawing #41

The aluminum .050 strip around the windshield holding the glass to the bow, shows a butt joint where the aluminum strip meets the fiberglass on the fuselage side. It looks nicer if you eliminate this joint by continuing the glass cloth up onto the aluminum strip feathering it out to the aluminum surface. To get a good bond onto the aluminum you can drill a series of 1/16" diameter holes about 1/4' to 3/8" apart through the aluminum strip up to where the glass cloth feathers out. Probably 2" to 3" up the aluminum strip. This will

encapsulate the resin through these hole and insure a good bond of the cloth to the aluminum strip. Sanding the area with 40 grit paper also helps the bonding.

● Drag Reduction

One of the reason the GP-4 goes so fast for the horsepower is the close fit around all junctures. The gear doors are flush when closed. Wing to fuselage is flush with no overlap protrusions, etc. An area of importance for drag reduction is gap closure on all movable control surfaces. After installing the balsa wood fairings it is important to keep the gaps between the balsa and the surface overhang uniform as the elevator, rudder and aileron move through their limit of travel. I suggest a gap of about 1/32" to 1/16" after the deck cloth covers the control surface and balsa fairing. If you have some low spots you can fill with micro. You can also insert 80 grit sandpaper between the two surfaces then rotate the control surface to get an uniform gap. The 1/32 gap is about right for the primer and finish paint that follows. It doesn't bother me if a few rub marks show on the finished surface. It will insure lower drag and a more responsive control input.

● Progress

Darry Caps has the engine mount jig complete and can now furnish a compete mount with nose gear truss. If you already have the dynafocal ring you can send it to Darry and he will deduct the ring cost from your mount costs.

I have a full scale mock up of the center section spar and a working retractable hydraulic gear set-up. The nose gear mock up is next, but it is going to take a while before I can have plans available.

Spud really needs your help with our newsletter so get those photo's and progress reports in.

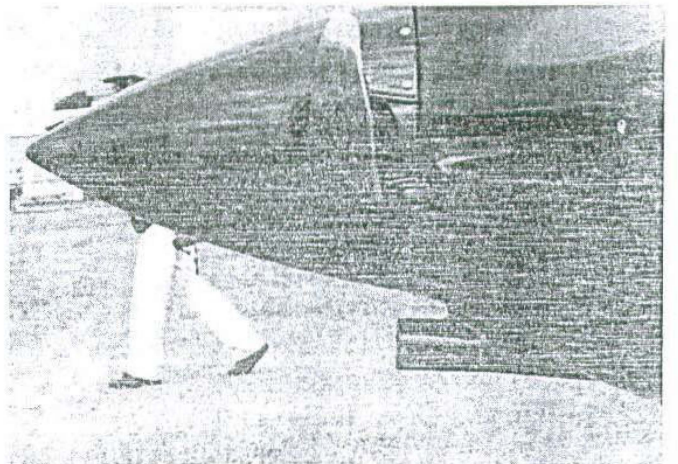
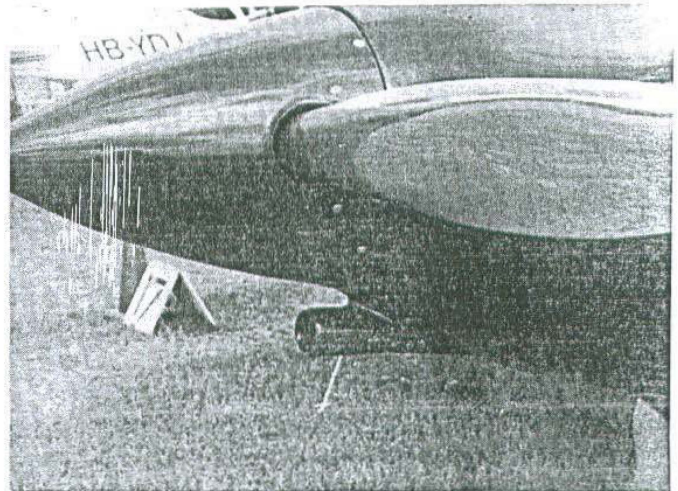
Regards To All

George

SPEED TIP!

I don't how many of you caught this on Darry Capps GP-4 at Oshkosh this year. I thought it would be a good idea to take a closer look for the folks that were not able to attend.

If you'll look at that photo's below you'll notice Darry's air intake or snorkel on his plane. You'll notice that his inlet has been extended forward very close to the back side of the prop. What this does is pressurize the intake system. In the racing circles this is said to raise the manifold pressure as much as an extra inch of manifold pressure over a stock or retracted system. Getting another inch of manifold pressure could mean a big difference. -- Spud



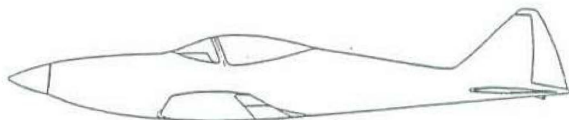
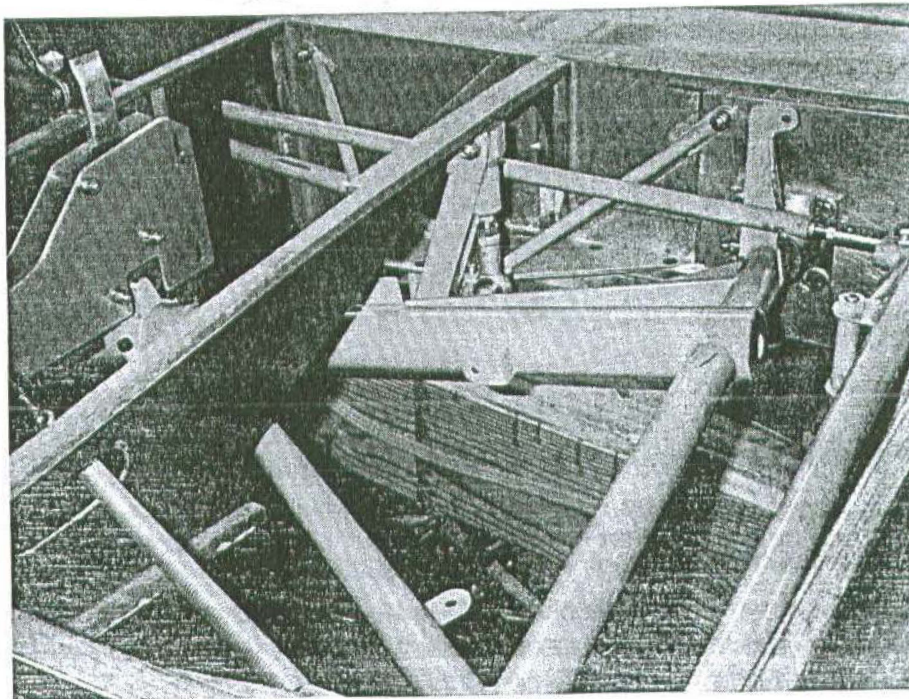
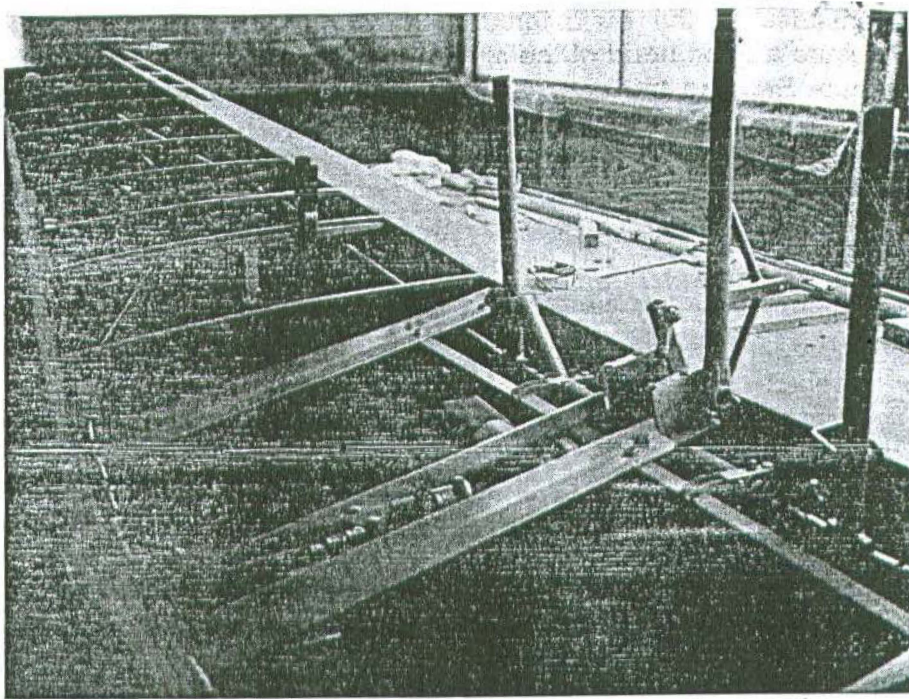
A PROGRESS REPORT

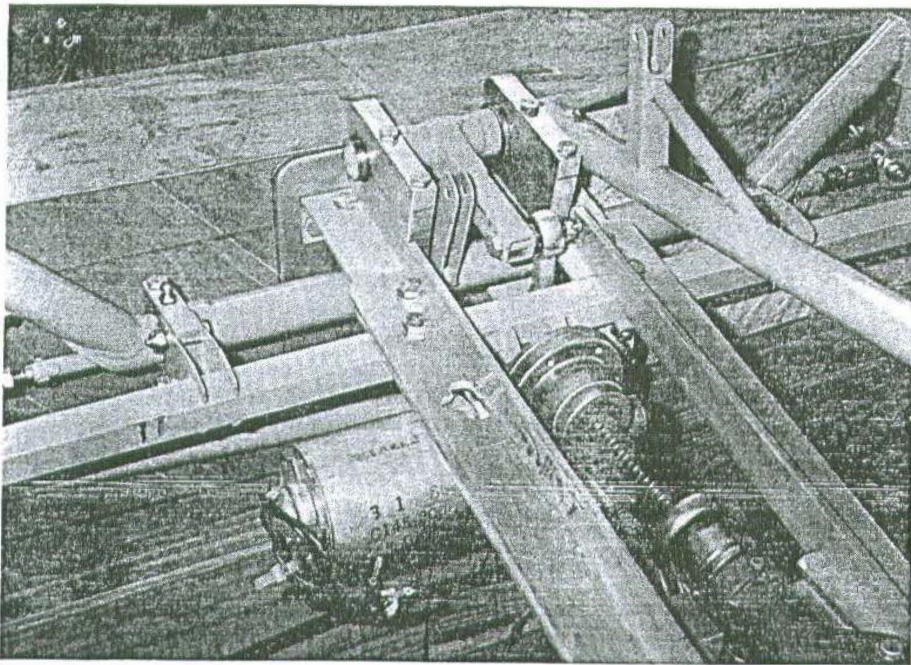
Hello Spud

Here's a progress report on my GP-4. I began in February 1994 with the stabilizer and elevators. I had them completed by June of 94 including the installation of a MAC servo trim system. At that point I had a total time of 188 hours into the project. I did this first because it involved the least expense and required all the skills that would be required through out the rest of the project. Gary Childs made the control horn and torque tube, since I can't weld.

Next, I took George's advice, "If you can't build the main spar, and then the wing, you can't build the airplane". So, in June, I built all the spar support braces, and ordered the wood. While everyone else was at Oshkosh on July 30th (94), I had a "Laminating Party" and we glued and clamped the top spar cap strip. We did the bottom cap the following weekend. I completed the main spar assembly on September 22, 1994 after 120 hours of work.

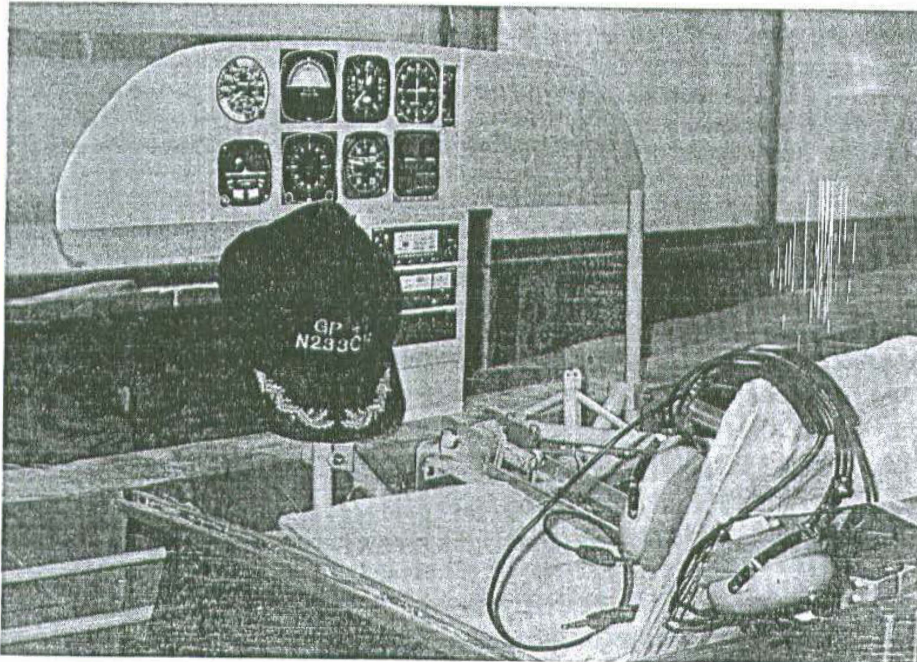
By Thanksgiving week I had the ribs and rear spars glued in place and by February 25th I had hung the flaps and ailerons on their hinges.





stinger at this time using the vacuum bag method.

I've bolted all the landing gear in place, have the electric flaps working and ailerons flapping up and down, gear up-locks complete and in place. Here's some advice -- don't order the long expensive carry through bolts per plans right away. Measure your spar thickness FIRST, then allow for the part you'll be bolting to the spar. I found that I needed my bolts to be about 1/4" longer than the plans called for. If Darry does your gear, you'll need some longer ones for the retract spider assembly since he machines those from aluminum stock. Be sure you don't drill those spar holes until you have your complete and in hand.



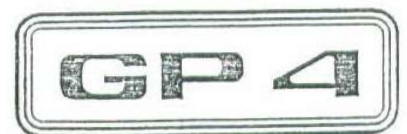
I took a few days off last week and made up all the glass components for the leading edge fuel tanks. I used Tommy Walkers molds and some help from my son. My target for a "COMPLETED" wing is Thanksgiving and fuselage start will be -- February of 1996

(Damm, I hate making nut-plates!!!). On February 19th, the first anniversary, I had a total of 611 hours invested into the project.

Here I am, almost one year from the day I began the spar with 835 hours total; 188 for the stab and elevators, 647 into the wing.

Darry Capps made my landing gear, aileron bell cranks, walking beam assembly, control sticks, retract links and spiders. This man does the most beautiful work I've ever seen, and if you can afford it, and want the very best, give him a call. Jake Jackson is making my cowling and

John Reinhart
6812 Toledo Court
Fort Worth, Texas 76133
Home (817) 294-9451
Work (817) 962-5273



CONFESSIONS OF A SCUD RUNNER

Van

We are all familiar with the problems of substance abuse and of the self examination questions addicts must use in identification and treatment of the problem. Let me apply this approach to one questionable flying behavior.

1. Have I ever done scud running? Yes!
2. How many times? Too often.
3. Have I ever pushed too far and scared myself? (is the Ayatolla Islamic?)

Why have I done it?

- a. Anxious to reach the destination?
- b. Macho reluctance to admit defeat?
- c. To prove that I can make it through?
- d. All of the above.

Do I consider myself a good scud runner? Yes, in that I have good control of the airplane and know some tricks of the trade. Good judgement is another issue -- see question 3 above.

Just what is "Scud Running"? Generally it means flying under low and/or indefinite ceilings and visibility; marginal VFR. Even this is difficult to define exactly. I have seen some conditions, primarily over flat terrain in the central states, where ceilings have been very low, less than 500 ft., but where the cloud base is perfectly flat- as flat and consistent as an inverted pool table, and visibility is very good. In other instances, primarily over irregular terrain, I have encountered ceilings which may vary unpredictably between 100 and 800 ft. and similar variations in visibility. This is what I would call SCUD. It is mean stuff, and can close in behind you as unpredictably as it might open up for you beyond the next ridge or river valley. Flying in these conditions requires piloting skill, knowledge of terrain and weather, and luck-- and should be avoided if at all possible.

RULES FOR SCUD RUNNING:

1. Fly VFR only in CAVU conditions, otherwise fly IFR. This idealistic rule is impractical for many reasons.
 - a. In many sections of the country (world) typical weather conditions would severely limit flying opportunities if this rule were strictly applied. Within limits, safe VFR flight can be conducted under reasonably low ceiling and visibility conditions.
 - b. Many sport aircraft are not equipped for IFR flight and neither are their pilots.
 - c. Many times, IFR is not safe in light aircraft because of icing conditions at IFR altitudes. "VFR Underneath" is often possible under these same conditions.
 - d. Some other criteria and limits must be applied to facilitate the maximum flight opportunities. Refer to the following to help establish the rules suited to you and your flying needs.
2. Get the best weather briefing possible. This will often be of limited value because of the dramatic weather changes probable between reporting points.
3. Never fly in limited ceiling/visibility conditions without sectional charts. When you need to know exactly where

you are, the details on a WAC chart just aren't good enough. Keep your finger on the chart as you progress so that you always know where you are. Use LORAN, GPS, or OMNI signals to cross check your position. Have your passenger/co-pilot help with the contact navigation.

4. Fly as high as conditions permit so that you can maximize forward visibility to maximize planning time and minimize surprises.

5. Set absolute ceiling and visibility minimums at which point you will turn back. When you reach these minimums, TURN BACK. Even if you don't reach these minimums and you "don't feel good" about the conditions, TURN BACK!

6. Always have enough fuel to fly back to your point of origin or a alternate airport known to have safe VFR conditions.

7. Fly to the right side of a valley so that the maximum space is available for a 180 deg. left turn. Turning left maximizes pilot visibility in a side by side airplane.

8. When flying under low ceilings and visibility, reduce your flying speed to provide more reaction time-time to analyze the conditions ahead and make a go/no go decision. Reduced speed also permits reduced radius turns when making 180s, etc. The speed should be no less than 2 times stall speed to prevent the possibility of accidental stall. For most RVs a reasonable scud running speed would be around 110-140 mph. **NOTE:** flying at reduced speeds and power settings greatly increases the possibility of carb icing. While the Lyc. 0-320 and 0-360 engines are not normally plagued with carb icing, the above conditions can offer a real trap for a pilot not accustomed to watching for carb icing and now distracted by the rigors of scud running.

9. Don't be tempted by "sucker holes", the bright spots just over the ridge or past the narrow spot in the canyon. If you can't see for sure that VFR conditions exist there, don't go.

10. Seek advice from local pilots familiar with the route you plan to fly. They can often advise of unique localized conditions you might encounter.

General comments:

Weather briefings are often incomplete or misleading. Often the briefers don't have detailed information available for the probable ceiling and visibility variations which you might encounter between points A and B. Sometimes the information is old, and localized conditions can change rapidly. Pilot reports for conditions enroute are very subjective. On the other hand, briefers often advise "VFR not recommended" when conditions are really not that bad. They are required to advise based on "worst case conditions", and if you abided strictly by that advice, you might do a lot of unnecessary waiting for CAVU conditions. Sometimes you have to demand a report of specific conditions, and then proceed cautiously if VFR seems possible. This is where the above self imposed limits and good judgment need to be applied.

CONFESSIONS OF A SCUD RUNNER



I subscribe to 8 other sport aviation "type" newsletters, the article on the previous page came from the RV newsletter called the RVator. The article was written by Richard "Van" VanGrunsven the President and designer of these excellent aircraft. This article really hit home with me and I felt it should be recommended reading for anyone that flies. I think you'll all agree after reading this honest, straight forward and humorous approach to the subject, I found it incredibly refreshing! I am sure that Mr. VanGrunsven and my intention are the same for presenting this article, we just want everyone to THINK, to be safe and enjoy this wonderful sport that we have. - Spud

Van gave us permission to reprint this article here in GP4BFN and wanted it prefaced with these comments.

"The following (Confessions of a Scud Runner) article was written for the RVator newsletter by Richards VanGrunsven. It voices his opinions and advice based on his flying experiences and may not agree to the letter with safety directives from the FAA and other pilot safety organizations. It was written primarily to cause pilots to think about this particular aspect of flying, not necessarily to provide them with a foolproof guidebook to safe flying" Sincerely Richard VanGrunsven

THE CLASSIFIEDS

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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

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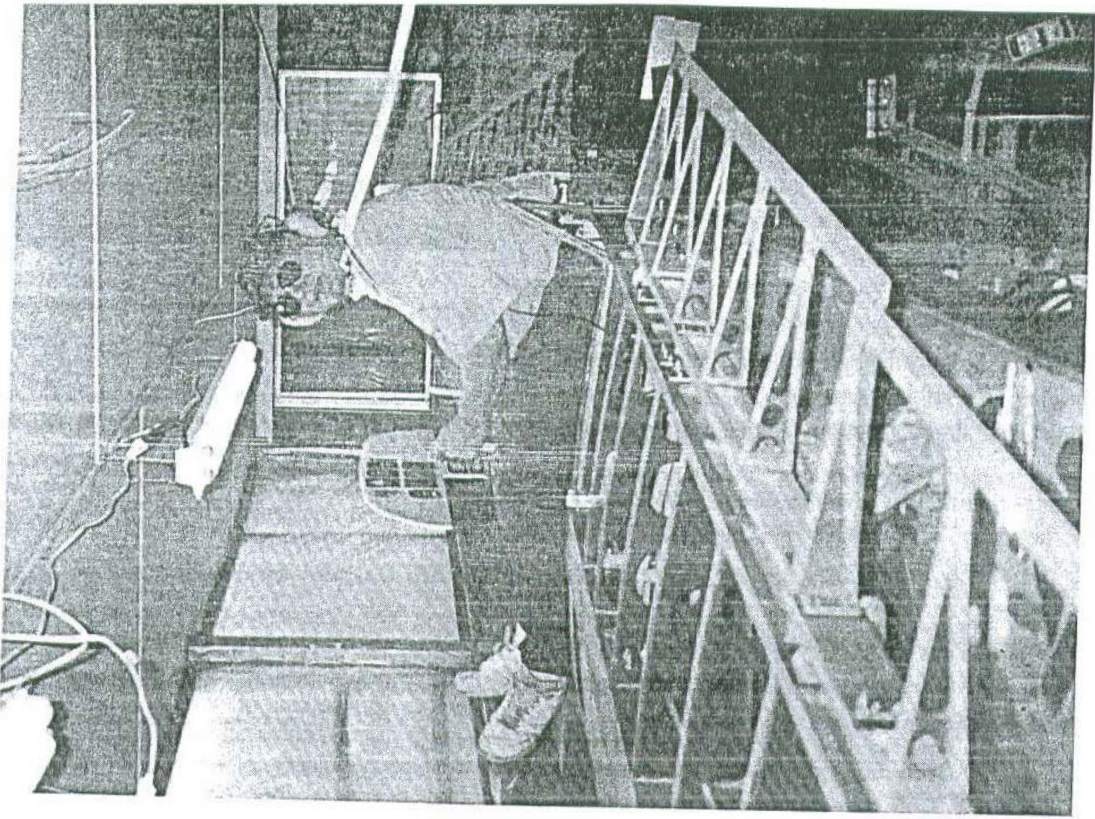
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