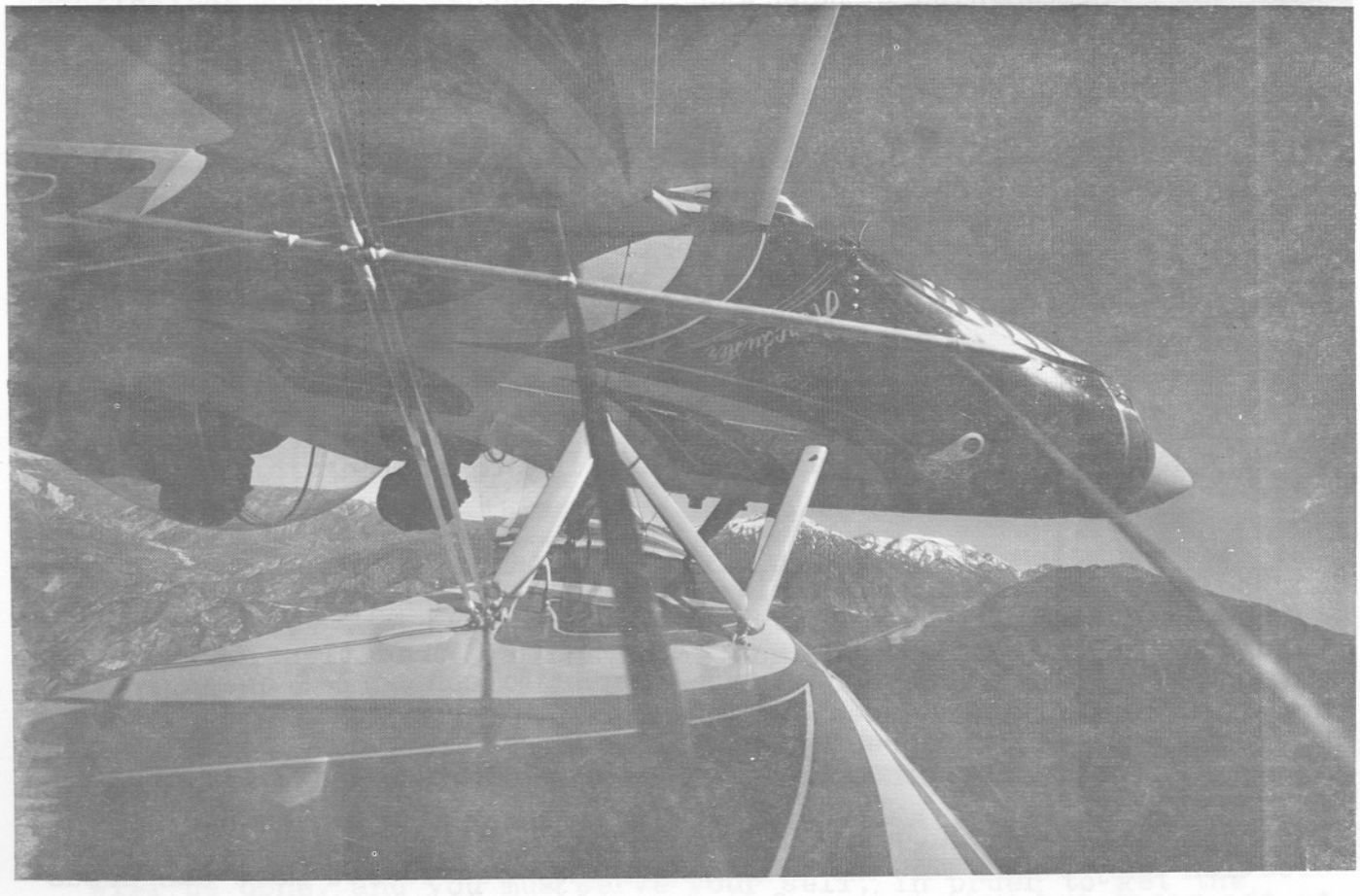
THE

Starduster

JULY 1980

MAGAZINE

DEDICATED TO THE ACTIVE HOMEBUILDER



POLITICS AND FLYING

For the first time ever, we are going to host the Olympics of flying, the World Aerobatic contest. It will be held at our beloved Oshkosh, Wisconsin, the last two weeks of August.

And for the first time, ever, the Russians and the Czechs will not be there. "Technical" reasons, say the Russians, and "Financial" reasons, say the Czechs.

Normally these contenders who will be absent this year, are among the strongest contenders.

Does anyone doubt the real reason for these abscences? Politicians in their countries have issued an edict, as has a politician in this country, against our athletes attending the olympics.

Will the relationships between countries improve by these abstentions? Does anyone think international relations will now get better? Doesn't people to people intermingling in sports and contests normally have a beneficial effect on international relations?

In ancient Greece, the Olympics were so highly thought of, that if a war was raging when it came time to hold the Olympics, a truce was declared. Both contestants and spectators from the warring cities were gaurunteed safe conduct to, during, and from the Olympics. After the winners were crowned, and the people safely home, the worriors picked up their weapons and resumed the war.

But perhaps they had more understanding of their opponents and perhaps they were a little more eager to quit fighting. Probably peace came quicker, and the victor was more magnanimous in victory. It is a sure bet that the games did nothing to prolong the war, or make it more savage.

With the examples of the noble Greeks before us, it would seem that our politicians would also strive to hold open all avenues of people to people communication. Alas, that is not the case. Politics has laid hold on one of our most noble abd ancient traditions, and savaged it. Probably beyond repair. It will be many a year before a full set of Olympic games, or world Aerobatic contests is again held. With the precedent of political interference established, these international events have fallen on hard times.

The Ancient Greeks had another custom worthy of emulation. At every election they voted for the politician they considered most dangerous to the peace and well being of the republic. The politician who received the most votes was banished for ten years.

THE STARDUSTER MAGAZINE IS DEDICATED TO THE PROPOSITION THAT THE ULTIMATE IN SPORT AIRCRAFT WAS REACHED WITH THE DESIGN AND DEVELOPMENT OF THE OPEN COCKPIT, TAIL DRAGGING BIPLANE--- AND THAT EVERY THING ELSE HAS BEEN DOWNHILL----------EVER SINCE.

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On our front cover is a picture of ye olde eds ACRODUSTER TOO in an interesting position. The picture was snapped with the aid of an I strut mounted camera. This airplane has just received an annual that included a new paint job, using Ditzler paint. Come to Oshkosh and take a look at it.

On our back cover is a beautiful shot of JIM APPLEBY's FOKKER TRIPE. It too has had a new paint job. Bowing to public pressure, he has FINALLY painted it red, as befitting a member of the red barons squadron. Watch for this plane in a beer commercial, on TV.

OUR TWO INFLATION FIGHTING POLICIES--

1. We give 3-5 pounds of short lengths of 4130 tubing, free, with each substantial order. It is suitable for welding practice. No size selections will be made. (If you want bushing stock, you must order it.) This tubing is free, but you must ask for it.

2. A ten per cent discount will be given to all walk-in customers who select thier own tubing from the short lengths rack. No cutting will be done, and you must serve your self, in order to get the discount.

STITS AIRCRAFT COATINGS
P. O. BOX 3084 – RIVERSIDE, CA. 92509

Refinishing Fabric Surfaces

Before trying to refinish aircraft fabric, the type of coating(s) and fabric installed on the aircraft should be determined and a decision made as to whether it is economically feasible to refinish the fabric, based on the condition and type of coating(s) and finish, and the remaining expected service life of the fabric. The same type fabric may not be installed on all components and components may have been recovered at different times.

COATING IDENTIFICATION TEST

The most practical method to determine the type of coatings and finish on aircraft fabric in the field is a solvent solubility test. We have worked out a schedule using the more easily available solvents. A more complex group of solvents could be used for the same purpose, however they would not be readily available to mechanics in the field. The solvent solubility test is made by applying a solvent with an absorbent type material such as a wad of cotton placed on the surface from 3 to 5 minutes. Solubility will be indicated by dissolving the film, causing the pigments to return to original solution and transfer to the cotton wad. Penetration and wrinkling the film is not an indication of solubility, but rather absorption and expansion the same as paint stripper. By cross-checking with the various solvents it can be determined whether the coating is nitrate, butyrate, POLY-TONE, acrylic lacquer, acrylic enamel, or a layered combination.

SOLVENT TEST TO DETERMINE TYPE OF COATING

3 to 5 Minute Contact With Cotton Wad Wetted With Test Solvent

	NITRATE DOPE	BUTYRATE DOPE	NITRO-CELLULOSE LACQUER	STITS POLY-TONE POLY-BRUSH POLY-SPRAY	SYNTHETIC ENAMEL	ACRYLIC LACQUER	ACRYLIC ENAMEL	URETHANE ENAMEL	EPOXY PAINT
METHANOL	S	IS	IS	IS	PS	IS	PS	IS	IS
TOLUOL (TOLUENE)	IS	IS	IS	S	IS	S	ISW	IS	IS
MEK (METHYL ETHYL KETONE)	S	S	S	S	ISW	S	ISW	IS	IS
ISOPROPANOL	IS	IS	IS	IS	IS	S	IS	IS	IS
METHYLENE CHLORIDE	SS	VS	S	VS	ISW	S	ISW	ISW	ISW

SS Slightly Soluble
S Soluble
PS Penetrate film, slight softening without wrinkling
IS Insoluble
VS Very Soluble
ISW Insoluble, film wrinkles

It is difficult to separate urethane from epoxy with this simple solvent test without experience. The most practical method for a mechanic to separate the two is place a few drops of lead/acid battery electrolyte (diluted sulphuric acid) on the surface for about 4 hours. Good urethanes are not effected. Epoxy primer or finish will change color. Dark colors will lighten and light colors will darken. A 24 hour soak will lift good epoxy finish or primer. Dupont 825S epoxy primer lifts and is destroyed in about 3 hours.

IDENTIFYING FABRIC TYPE

Grade A cotton fabric meeting TSO C-15 can be identified by the off white color and thread count of 80 to 84 threads per inch in both directions.

Aircraft linen conforming to British spec. 7F1 may be identified by a slightly darker shade than cotton fabric and irregular thread spacing. The average thread count will be about the same as Grade A fabric. The non-uniformity of the linen thread size is also noticeable, with one thread half the size of the adjacent thread.

When viewed under a magnifying glass the ends of the cotton and linen fiber nap may be seen on the backside. The nap is also seen when the coating is removed from the front or outside surface.

Dacron (polyester) fabric is whiter than cotton or linen. The dacron fabric styles used for aircraft covering have a variety of thread count, depending on the source. The heavier 3.7 oz. dacron styles range from a thread count of 49 threads per inch through approximately 60 threads per inch, and may vary from square weave (Stits 53 x 53) to 10 thread count difference in each direction. The standard weight 2.7 oz. dacron fabric styles will have a thread count ranging from approximately 60 to 70 threads per inch, and not always a square weave. Dacron is a monofilament and will have no nap or filament ends showing.

Fiberglass can range to a coarse weave in the neighborhood of 34 x 36 to 60 x 60 threads per inch. Fiberglass is a monofilament and there will be no filament ends showing unless a strand is broken or sheared due to impact by a sharp object, like a rock.

continued

Fiberglass is white in color and one process approved under an STC, Razorback, is precoated with a blue dyed butyrate dope to help avoid distortion of the fabric weave while handling.

A blue or green dye first coat of dope applied to grade A fabric or linen showing through the backside would indicate a fungacide was used to avoid bacteria deterioration. A blue or green color showing through the backside of dacron fabric would indicate one of the special formula nitrate dope was used in an effort to gain improved adhesion. Stits POLY-BRUSH first coats are clear with a white fire retardant pigment added. Future production batches of Stits POLY-BRUSH will have a red oxide tint to aid in application uniformity.

Another method of determining the type of fabric when small samples can be removed from the aircraft is a burn test. Cotton and linen fabric when stripped of all coatings will burn leaving a dry ash. Dacron burns after melting to a liquid. Fiberglass does not support combustion and will become white hot over a flame.

DETERMINING FABRIC STRENGTH

The minimum allowable strength for fabric on an aircraft with a wing loading under 9 lbs. per square foot and a never exceed speed (VNe) of 160 MPH or less is 46 lbs. per inch width, or 70% of the original 65 lb. strength required of an aircraft classified as a "light plane" and covered with fabric meeting TSO C-14.

The minimum acceptable strength for fabric on an aircraft with a wing loading of over 9 lbs. per square foot and a VNe over 160 MPH is 56 lbs. per inch width, or 70% of the original 80 lb. tensil strength required for fabric meeting TSO C-15. The minimum allowable strength is applicable whether the aircraft is covered with linen, cotton, dacron, fiberglass, or any other numerous possible alternates.

Several unofficial testing methods and devices are offered on the market which a mechanic may use to make a general examination of the condition of the fabric without removing sections for a 1 inch strip test. One device is a Sebol tester which punches a small hole, the size determining the strength of the fabric (actually tear resistance) in combination with the coatings. Another type is the Maule punch test, which does not punch a hole through the fabric unless the mechanic so chooses to determine the ultimate rupture resistance, or the fabric is below minimum. It should be understood that a combination of the coatings and fabric thread resistance to a concentrated load or fabric tear resistance is being measured. Since fiberglass is a brittle thread it will not take concentrated loads and neither of these punch tests are applicable to fiberglass cloth. Fiberglass cloth should not be considered unairworthy when an inexperienced mechanic makes a punch test and reports a low reading.

Field tests of a 1 inch wide section of fabric removed from the upper surface of the wing or component in question, cleaned of coatings and clamped between a pair of suitably designed clamps, and a tensil load applied with sand in a bucket, is usually acceptable when witnessed by FAA personnel.

If there is still a question about the strength of the fabric the final test should be made in a laboratory by experienced personnel.

The theory of non-deterioration of fiberglass cloth should not be accepted as fact in view of the numerous chemicals, acids, and caustics that can damage fiberglass cloth. (See Stits Technical Bulletin 79-1) When refinishing metal components on aircraft which have fiberglass cloth covered panels the mechanic should avoid spilling acids used for metal conversion coatings, or caustic paint strippers in any area where the solution may lie pooled unnoticed and damage or destroy the fiberglass cloth.

PRINCIPLES OF REJUVENATION

Any coating that cannot be dissolved with MEK cannot be successfully rejuvenated to restore the needed flexibility and avoid further cracking. When fabric is finished with a non-soluble coating and the cracking and checking is severe, it is usually more economical to completely recover than try to carefully strip the insoluble coating off with a paint stripper without damaging the underlying softened coatings in order to rejuvenate and refinish. Stripping small areas is economically feasible, but entire wing panels when stripped usually result in a botched refinish when the solvent softened underlying film is gouged with a tool. Further, the solvents in the paint stripper often loosen the finishing tapes and overlapped dope or cemented fabric splices, which are under tension. The most effective stripper to be used on the insoluble coatings on both fabric and metal contains methylene chloride, a very penetrating chlorinated hydrocarbon. Paint strippers containing strong caustics should not be used on fabric due to the possible damage to the synthetic fabric, depending on the type. (See Stits Technical Bulletin 79-2)

Nitrocellulose resin and cellulose acetate butyrate ester resin (C.A.B.) have compatible modifiers, known as plasticizers added to impart a degree of flexibility necessary for extended service life on fabric. There are many types of plasticizers that may be used in nitrocellulose resin because it is more compatible with many types of modifiers. Mil specifications for nitrate and butyrate dope define the quantity range and the quality of each material, however at this time there are no mil. spec. aircraft dopes on the market and each manufacturer has his own formula to compete. Castor oil and trycresyl phosphate are two plasticizers used in mil. spec. nitrate dope. Tricresyl phosphate and tryphenol phosphate are used in mil. spec. butyrate dope. These plasticizers are monomeric, meaning they will migrate with age and high temperature and disappear from the dope film. Migration of the plasticizers also causes tension to increase, therefore the increased tension coupled with the less flexibility will result in cracks when dope film is bent beyond its flexing limits.

Ringworms are caused by impact load in a concentrated area which in effect is a circular crack. Stits POLY-DOPE coatings, including POLY-TONE, also use plasticizers but of an entirely different type which migrate more slowly, withstand higher temperatures better than tryphenol phosphate and tricresyl phosphate, and remain flexible in sub-zero temperatures. (Refer to Stits Technical Bulletin 79-1)

Nitrocellulose lacquer is very seldom used as an aircraft fabric finish in the Unites States, however some imported aircraft do have lacquer as a finish, which cracks very easily. Nitrocellulose lacquer (and acrylic lacquer) on fabric can be rejuvenated the same as nitrate dope. Basically nitrocellulose lacquer and nitrate dope are about the same with the exception of additional modifiers in lacquer to eliminate shrinking characteristics which are not acceptable for a film former to be used as a wood or metal finish.

A good rejuvenator consists of a mixture of clear dope, plasticizers, and a blend of strong penetrating solvents and slow evaporating solvents. The theory of rejuvenation is to penetrate and soften the old film with the solvents and carry the new plasticizers down into the softened film before the solvents have evaporated. During rejuvenation the film is very soft and easily damaged. Therefore rejuvenator should be applied with a spray gun, not by brush which may disturb the soft film on the second coat. Rejuvenation should take place in weather conditions which will permit slow drying rather than solvent flash off before the solvents have the opportunity to penetrate properly. Two to four spray coats at 10-15 minute intervals are usually required.

When rejuvenator is used on any fabric which was tauted by the action of the shrinking dope film, the fabric will slacken and remain slack until all the solvents have evaporated. These fabric types include cotton, linen and fiberglass. Slacking does not occur on synthetic fabric which was tauted by heat such as dacron. After the solvents have escaped and the fabric returned to its original tension, a pigmented butyrate dope finish may be applied or a flexible aircraft urethane finish such as Stits AERO-THANE enamel. Urethane finishes have the advantage of locking in the plasticizers to reduce the migration and withstand the weather better than any of the other type field applied finish. The disadvantage of urethane enamel or any non-soluble finish is preventing rejuvenating again without removing the finish coat.

When nitrate or butyrate dope coatings have long cracks the cracks will open about three times their original width as the rejuvenated and softened dope film begins to dry and taut. Small ringworms and short checks will open only slightly due to the continuity of the surrounding film. Heavily checked and cracked dope finishes therefore are never refinished to the original new appearance, due to the necessity of filling in the widened cracks and trying to sand to get a smooth appearance. The crack repairs will invariably show through when the finish is completed. The crack widening problem seems to be more noticeable with butyrate dope on dacron and fiberglass, which do not provide as good a bond for the dope coatings as does cotton and linen. Therefore, the degree of cracking should be a consideration when determining whether to refinish or recover or strip to bare fabric and start a new dope film buildup.

REFINISHING NITRATE AND BUTYRATE DOPE ON COTTON OR LINEN FABRIC

Very rarely is nitrate dope used as finish, particularly in view of the better quality of butyrate dope finishes and the fact that pigmented nitrate dope is no longer readily available due to its decreasing demand. We recommend that nitrate dope coated surfaces be patched with butyrate dope when necessary, rejuvenated with butyrate rejuvenator, and finished with butyrate dope if dope finish is used rather than reverting back to nitrate dope. Do not use nitrate dope over butyrate dope because butyrate dope is not compatible with nitrate dope when used in this relation and the butyrate dope underlying film will check in a short length of time.

PROCEDURE

(1) Remove any visible oil, grease, tar, or wax from the fabric surface with Stits C-2210 Paint Surface Cleaner. Use a clean cotton cloth for a final wipe. Shop towels furnished by towel rental services may be contaminated with silicone which transfers to the surface being cleaned with the solvent. Use new untreated knit type lint free polishing cloths available from most automotive supply stores, or equivalent paper wipe towels.

(2) Wash the balance of the surfaces with 1 part X-OFF 310 Cleaner to 20 parts clean water to remove all dirt, loose oxidation, and polish.

(3) Wet sand the surface with 280 grit Wetordry sandpaper and wash the residue off with clean water and dry with clean rags.

(4) Apply 2 to 4 coats of a good quality butyrate dope rejuvenator on nitrate and butyrate dope finishes. Thorough penetration and softening of the dope film is important. Avoid rejuvenating in temperatures above 80° due to rapid evaporation of the solvents.

(5) After the rejuvenated surfaces have dried to a firm film (2 or 3 days) 2 coats of good quality aluminum pigmented butyrate dope may be applied. If small cracks in the old finish are visible after the butyrate dope coat has dried, they may be sealed with aluminum butyrate dope using a small soft brush. Applying additional coats of aluminum butyrate dope and sanding with 400 grit paper after each coat has dried is optional, and will depend on the surface condition and cracks being covered.

(6) Pigmented butyrate dope finish may be applied as soon as the aluminum butyrate coats have dried a few hours and no later than 3 weeks. An optional clear AERO-THANE (AO-100) coat may be applied over the pigmented butyrate dope, or AERO-THANE pigmented enamel used instead of the pigmented butyrate dope, however any urethane coating should not be applied until the fabric surfaces have thoroughly dried 48 hours to 1 week, depending on the temperature. When slow solvent vapors in the rejuvenator (or any coating) are trapped under solvent resistant catalyzed finish coatings, there is a possibility of small vapor blisters forming later under the finish coat in areas over metal structure, such as wing leading edges and large structural tube or stringer areas. Trapped solvent vapors will escape through the backside of the surface in open fabric areas. Heat lamps or direct hot sun rays to accelerate drying of any coating can also generate vapor blisters

A common cause for poor adhesion of any coating on aluminum pigmented nitrate or butyrate dope is an excessive amount of aluminum pigment added to the clear dope when mixing. If the aluminum pigment can be easily transferred to the finger when rubbing the surface, the proportion of aluminum pigment to dope is too great, and the surface should be sanded to remove the excess aluminum pigmented film before proceeding to finish, or the new finish coats will continue to peel off with masking tape.

REFINISHING NITRATE AND BUTYRATE DOPE ON DACRON FABRIC

Adhesion of the old dope coatings should be spot checked with a strip of masking tape pulled off rapidly at 90°. All loose sections should be stripped off. Loose or deteriorated finishing tapes and reinforcing and inspection accessories are replaced or repaired. Use only dacron finishing tapes attached with POLY-BRUSH. Round reinforcing patches may be installed over loose inspection hole reinforcing rings.

If the cracked and brittle nitrate and butyrate coatings will dry strip to the bare dacron fabric or can be easily removed by scrapping with a dull blade after softening with 50/50 butyrate retarder and MEK, the buildup procedure will be the same as starting from new fabric. (Refer to POLY-FIBER Procedure Manual #1) However, the fabric should be retauted at 350° if it appears to be slack because POLY-DOPE coatings will not increase the tension the same as nitrate and butyrate dope film. Use a damp cotton cloth over the hot iron to lessen the possibility of igniting any nitrate dope remaining in the fabric weave. Any old dope film remaining on the fabric surface after stripping should be removed by scrubbing with MEK. The first coat of POLY-BRUSH should be reduced 50% to provide good penetration through the partially blocked weave.

If the old dope coatings are sound and only refinishing is needed, then proceed in the same manner as cotton fabric (1) thru (6).

REFINISHING PIGMENTED BUTYRATE DOPE AND POLY-TONE OVER POLY-FIBER COVERING MATERIALS

Heavy coats of pigmented butyrate dope finish applied (contrary to our advice) over POLY-FIBER covering materials, which have checked and cracked due to excessive surface tension, will continue to shrink and open new cracks in the softened film when rejuvenating and refinishing. Solution: Strip all coatings or recover. Sound surfaces which were covered with POLY-FIBER covering materials and finished with pigmented butyrate or Stits POLY-TONE may be sanded and cleaned as instructed for cotton fabric, paragraph (1) thru (3).

(4) Apply 2 to 4 spray coats of Stits RJ-1200 Rejuvenator. Thorough penetration and softening of the dope film is important. Avoid rejuvenation in temperatures above 80° due to rapid evaporation of the solvents.

(5) After the rejuvenated surfaces have dried firm 2 coats of POLY-SPRAY may be applied. If small cracks in the old finish are visible after the POLY-SPRAY coat has dried they may be sealed with POLY-SPRAY using a small soft brush. Apply additional coats of POLY-SPRAY and sand with 400 grit paper after each coat has dried if needed, depending on the surface condition.

(6) POLY-TONE finish may be applied as soon as the POLY-SPRAY has dried. Clear AERO-THANE (AO-100) may be used over the POLY-TONE to produce a gloss far superior to any pigmented finish, including urethane enamel. Pigmented AERO-THANE enamel may also be used instead of POLY-TONE, however any urethane finish should not be applied until the fabric surfaces have thoroughly dried 48 hours to a week depending on the temperature. (See cotton-dope refinishing)

There is no maximum time limit to the finish coat when refinishing Stits POLY-FIBER coatings because they do not taut and crack due to film tension differentiation like butyrate dope.

One cause of poor adhesion of POLY-DOPE coatings or any coating on old butyrate finishes is unclean surfaces. Thorough cleaning and sanding is necessary.

REFINISHING EPOXY COATED DACRON FABRIC

Dacron fabric coated with modified epoxy resins (Eonnex) which has become brittle, cannot be completely rejuvenated to the same degree as conventional dope or POLY-DOPE coatings, however refinishing as suggested here will have considerable influence to relieve the brittleness.

Due to the cost, it is not practical to strip the epoxy resin off the fabric. If large open cracks are present and the fabric has been exposed and damaged through the cracks, complete recovering may be the most practical.

If the fabric tests satisfactorily and the coating is exclusively epoxy resin the surface may be thoroughly cleaned and sanded as recommended for cotton fabric (1) thru (3). Apply 3 coats of POLY-SPRAY and refinish with POLY-TONE or AERO-THANE. If the epoxy fabric coatings have been finished with synthetic enamel or acrylic enamel which have checked, the enamel may be stripped off with Stits Paint Stripper without damaging the epoxy undercoat. After stripping and sanding, refinish with 3 coats POLY-SPRAY and POLY-TONE or AERO-THANE.

REFINISHING SYNTHETIC ENAMEL, ACRYLIC ENAMEL, EPOXY ENAMEL AND AUTOMOTIVE URETHANE ENAMEL FINISHED SURFACES

These finishes cannot be rejuvenated in a conventional manner, therefore if the underlying dope film on the fabric is to be rejuvenated, the enamel must be removed first. A decision should be made as to whether the remaining service life of the fabric would warrant the extra work of stripping, rejuvenating, and refinishing. It is not economically feasible to strip large areas.

If stripping is decided, Stits Paint Stripper is recommended, working small areas. As soon as the enamel surface has wrinkled and softened, wash off and neutralize with water to avoid penetrating the underlying dope film. Thoroughly clean and sand the underlying POLY-DOPE, nitrate dope, or butyrate dope surface and refinish as recommended for these coatings.

Do not use commercial paint strippers containing paraffin on fabric. The paraffin may penetrate the fabric weave and prevent adhesion of the new coatings.

If the fabric tests satisfactory, the dope film is sound, and the enamel finish is sound (no cracks) but faded and chalking, it may be refinished with Stits AERO-THANE. A thorough washing and sanding as outlined in steps (1) thru (3) is recommended, followed with AERO-THANE finish before the surface becomes contaminated from handling or weather.

If the fabric is good and the problem is inadequate coating buildup and poor fabric protection, a thorough cleaning, two coats of aluminum pigmented AERO-THANE (AO-220M) and AERO-THANE enamel color finish is recommended.

Some brands of synthetic enamel, such as Dupont Dulux, can be recoated with AERO-THANE after aging only 36 hours, and other brands such as Ditzler, will show slight indications of wrinkling after aging as long as 20 days. Based on various tests, it is our assumption that most synthetic enamel brands can be refinished with AERO-THANE successfully after they have aged over a year, however, we recommend testing a small area first.

POLY-TONE contains ketone solvents which usually swell and lift fresh sanded synthetic enamel in a few areas and is not recommended to refinish synthetic enamel.

REFINISHING NITRATE OR BUTYRATE DOPE ON FIBERGLASS FABRIC

Follow all testing, cleaning and rejuvenating procedures outlined for nitrate and butyrate dope in (1) thru (6). Any non-soluble finish coat must be removed before the underlying dope film can be rejuvenated. If the dope film has many cracks it may be removed the same as dacron fabric. Any repairs should be made with butyrate dope using fiberglass cloth and finishing tapes of a quality equal to the original material.

The fiberglass cloth and dope covering systems are probably the least understood of all material combinations. Our research of fiberglass filaments show that the elasticity is only 3% before breaking and the compressibility is comparable. In contrast cotton and linen have considerably more elasticity and compressibility. The theory of thoroughly penetrating the fabric weave of grade A cotton and linen for better dope bond is not applicable to fiberglass cloth. Unthinned dope is sprayed, not brushed, on only the outer surface of fiberglass fabric to avoid penetration and bonding the weave together, and form a solid film which shrinks. A solid film of conventional nitrate or butyrate dope on any surface, even plastic window screen or burlap, will shrink and tend to pull the host surface with it. In viewing the backside of fiberglass panels under a magnifying glass, it will be noticed that the excess filament length is absorbed by the fiberglass yarn pushing back from its contact with the mating cross yarn lying nearest the doped surface. The gap or distance depends on the amount of filament length to be absorbed. The total panel shrinking is limited to the ability of the yarn to bend and absorb the excess length. Therefore coarse fiberglass styles are more suitable but require considerably more dope to fill.

REFINISHING PLYWOOD SURFACES COVERED WITH FABRIC

The cleaning and preparation of plywood surfaces covered with fabric will be the same as other surfaces covered with the same type fabric and coatings with the exception of rejuvenating, which is optional.

MISCELLANEOUS DACRON FABRIC COATINGS

Various water thinning coatings have been used on dacron as a base coat, and finished with a solvent system top coat. Solubility and compatibility tests should be made on small test areas and a decision made to refinish or recover, depending on the results. Adhesion of any new top coat should be checked after dry at least a week.

Success in rejuvenating and refinishing old surfaces will depend on their condition and the adhesion of the various type coatings to each other and to the fabric, the compatibility of the layers of coatings, and the experience and skill of the mechanic performing the operation. A small component such as elevator or aileron should be refinished completely through all stages to determine if the results and adhesion are satisfactory before undertaking the complete aircraft.

CAUTION: Non-tauting nitrate dopes and non-tauting butyrate dopes are not manufactured to any mil. specification. Some brands are particularly inferior. The non-tauting features are derived by adding (sometimes doubling and tripling) the quantity of plasticizers which reduce the tauting characteristics until several years later when the plasticizers migrate to the surface and are washed away. Our tests indicate that excessive plasticizers interfere with the adhesion of any recoat, and we caution against trying to finish fresh non-tauting nitrate or non-tauting butyrate dope with our products without making tests for suitability.

O S H K O S H S C H E D U L E

As usual, STOLP STARDUSTER CORPORATION closed for business during the first two weeks of August. The exact dates are; CLOSED ON SATURDAY, AUGUST 2: OPEN ON MONDAY, AUGUST 18. Friday , August 1 is our last day of business before vacation.

At Oshkosh we will have booth number G-5 in the main south exhibit building. This is along the north wall, right next to KEN BROCK. Please come by to see us. We can chat with you and take your order right at Oshkosh.

We will have our ACRODUSTER TOO on the flight line, sporting a complete overhaul and a new paint job. Also, Cindy Rucker is supposed to have her new ACRODUSTER ONE there. Our foreman, Bill Clouse will be around to look after the airplanes and engage in conversations.

Our forums will be on Sunday, August 3, from 3:00 to 4:15; and on Wednesday from 9:00 to 10:15 A.M. This year our general foreman, Bill Clouse will share the podium with me. Bill is stronger than I am on engine problems, systems, and troubles, and will be able to make a better presentation on such matters.

We will also be at Oshkosh for the world aerobatic contest. The same booth in the same building. And our Acroduster Too will be flown in the world contest by ALDO LOCATELLI. Hope to see you there.

INSTALLING THE ENGINE (Part two)

Your bottom exit skirt can be made out of .063 soft (0 condition) 2024 or 6061 aluminum. It is easiest to make the skirt almost square, or rectabgular, when viewed vertically, with just the front corners rounded. Attaching flange on top can then easily be bent on a brake or in a vise. It is a good idea, also to put a small lip on the bottom front of the skirt, to prevent flexing and cracking after too few hours. A very elaborate skirt can be made with a form block and a bean bag, if you are a good sheet metal former. In that case, start off by making stiff paper templates of your proposed design. Cut the metal to approximate size from the template and work it to final form over a template and bean bag. Rivet skirt on with 1/8" diameter aircraft driven rivets, or 1/8" diameter steel or monel pop rivets.

We now come to installing the fuel system.

At this point we pause and do a little philosophical soul searching regarding the type of center section and main tank installation that we want.

Assuming you want the convenience of a second tank, do you want to plumb so that the second tank can be fed directly to the engine, or do you want to plumb so that the second tank feeds into the main tank?

Pros and cons are as follows: For feeding wing tank directly to engine; (1) You have another source of fuel in case your main tank malfunctions or becomes contaminated. (2) only one valve, a four way valve, is required.

Against feeding wing tank to engine: (1) It is difficult to get a good reliable gas gage to work off of wing tank. The shape of the tank works against an electrical sending unit. Vertical sight gages work best, but our experience with them has been that they are prone to leaks and even breakage under high airloads. Therefore, you are reduced to running on time alone, or running the tank dry. If you run the tank dry, it may quit at a very inopportune time. If you leave some fuel in the tanks, it is a bother when doing aerobatices. Negative G maneuvers should not be done with ANY fuel in the wing tank.

For feeding the wing tank into the main tank: (1) All your flying is done from the main tank, therefore you do not have to worry about running the top tank dry and possible engine restart problems. You also do not have to worry about forgetting to switch tanks and possibly having the engine quit in a landing pattern. No gas gage for the top tank is needed as fuel is fed down as the main tank becomes empty. The top tank can be completely emptied with never so much as an engine sputter.

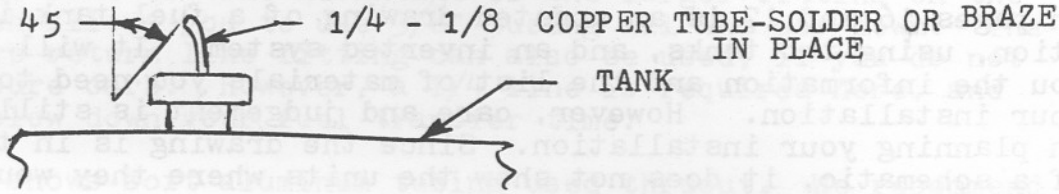
Against feeding the wing tank into the main tank: (1) An extra valve is required. (2) If this valve is open when the top tank is filled at the gas pump, the gas will start flowing out the overflow vent of the main tank almost as fast as you pump it in the top tank.

After considering all the pros and cons, you must make up your own mind, as to the best way to go. After experience with both kinds

of installations, I prefer the top tank to main tank installation. Still, there are arguments on both sides, and many highly competent pilots prefer the other kind.

In either case, the first step in the fuel installation is to see that both tanks are properly mounted. Both tanks should be cradled in neoprene. Neither should touch structure anywhere. The supporting angles should be covered with fuel resistant neoprene both along the bottom and along the sides. The hold down straps should be coated with neoprene. I repeat, the TANKS SHOULD NOT TOUCH STRUCTURE ANYWHERE.

After the tank straps are properly tightened, venting comes next. On the top tank you must install the vent in the cap. Drill a small hole and solder or braze in a small copper tube with the tube opening facing about 45 degrees into the wing. See below.



For venting the main tank, you must run two vent lines. On the top front of the tank there are three 1/4 pipe weld in fittings. The one on the right (pilots view) is the inverted vent. It goes clear to the bottom of the sump tank. Run 1/4" soft aluminum tubing from this fitting up the cabane strut, and terminate right under the wing. Have it face into the wind at a 45 degree angle.

The center fitting is for the carburetor return line on engines fitted with a pressurized carburetor. Run the return line from the pressurized carb to this fitting. If you have a fuel injected engine or a non-pressurized carb, you may either plug this fitting or save it for feeding in gas from the wing tank.

The fitting on the left is the upright vent line. It is vented at the top of the main tank and also at the top of the sump tank. Normally it vents only the top of the main tank. It only vents the sump tank when the top tank is empty, and the sump tank is less than full. This fitting should be connected to a 1/4" soft aluminum line which vents beneath the airplane. It can vent under the firewall, or be run down the gear leg and vent in the vicinity of the wheel pants. If it vents under the firewall, make sure it is a safe distance away from the hot exhausts. You don't want the possibility of any fires underneath your fuselage.

Both your top and bottom main tank vents should be carefully balanced as regards air pressure. If one has more pressure than the other, the one with the lesser pressure will vent gasoline in flight. After you are flying make a careful inspection for this. It is best to vent the bottom line a little more strongly at first, so that you know gas isn't venting out the bottom. This will result in a fine mist or spray coming out the top vent, where it can be seen. Then gradually increase the air pressure on the top vent until the spray or mist just disappears. Your pressures should then be properly balanced.

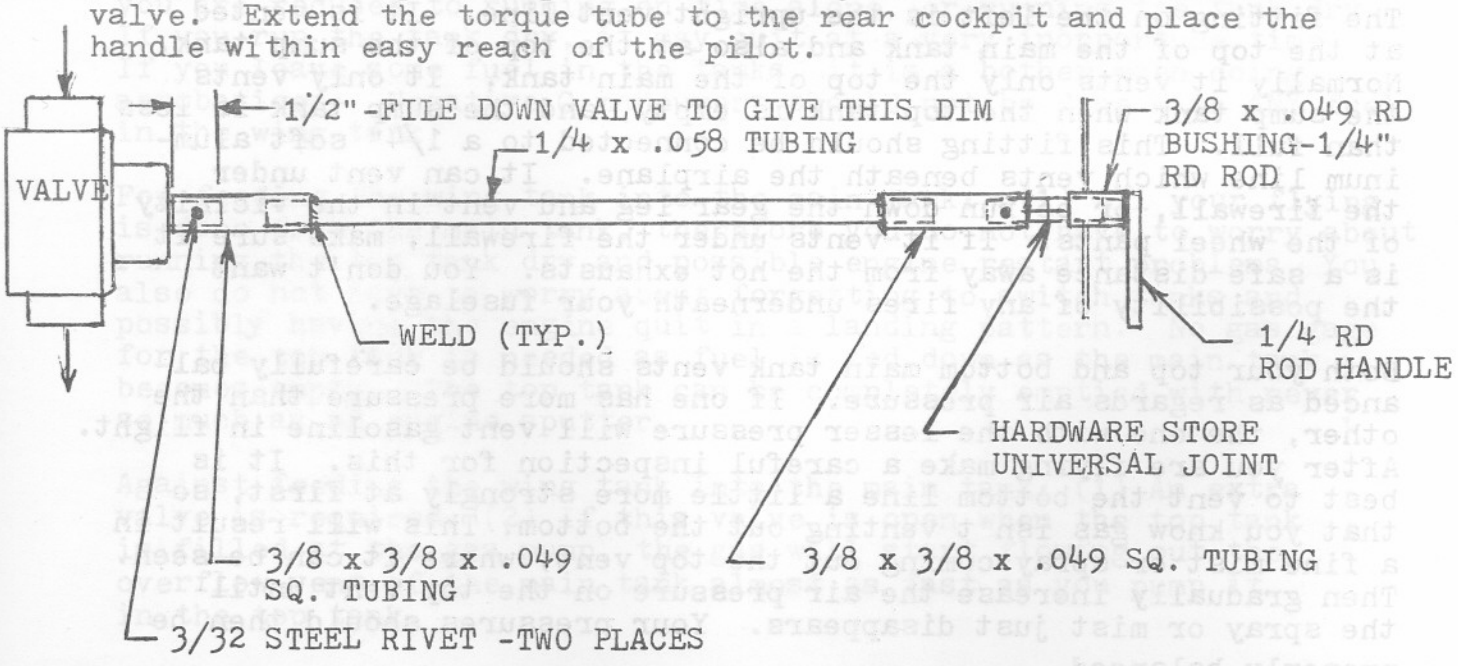
But fine tuning your main tank vent system has to wait until you fly. After vent lines are run, consideration to grounding both tanks is in order.

In running fuel lines, you may use all metal lines, such as soft aluminum, rubber lines covered with a steel braid, or all synthetic rubber lines. If you use soft aluminum lines, you ground the tank automatically thru fittings at the firewall. Otherwise you should run a grounding strap or line to basic structure.

We will assume you are going to use soft aluminum line aft of the firewall, and steel braided neoprene rubber hose foward. We will also assume that you are going to feed the top tank into the bottom main tank.

On pages 16 and 17 is an updated drawing of a fuel tank installation, using two tanks, and an inverted system. It will give you the information and the list of materials you need to plumb your installation. However, care and judgement is still necessary in planning your installation. Since the drawing is in the nature of a schematic, it does not show the units where they would actually be placed. For instance, the selector valve would most certainly not be where the drawing shows it.

It is best to carefully decide where to put your fuel plumbing units and then hook them up in the proper sequence. For the installation we are considering, two fuel valves are called for. One is a 1/4 x 1/4 x 1/4 three way valve, and the other is a simple 1/4 x 1/4 off-on valve. Be sure you use all metal imperial valves. The kind with the plastic cores are unsatisfactory, if not downright dangerous. Place these two valves on the right hand side, between the side frames and contour lines, and in close proximity to the main tank. You will probably have to weld on some mounting brackets. Face the top of the valves toward the rear. Remove the handles. Make up a torque tube assembly as shown below for each valve. Extend the torque tube to the rear cockpit and place the handle within easy reach of the pilot.



In placing the gascolator and fuel pump, we recommend that both units be behind the firewall. We do this to cut down on engine compartment heat, and the probability of vapor lack that such heat induces.

Take care to have the gascolator as the lowest point in the system. Water settles at the low point, and if your gascolator isn't there, it won't do much good to drain it.

Also, we have found thru sad experience that your expensive fuel pump will last much longer if a gascolator first cleans the fuel. Therefore, be sure and place the gascolator upstream from the fuel pump.

The schematic shows the top tank feeding into the bottom of the sump tank. This is done to take advantage of the larger fitting on the bottom, which allows you to use 3/8" tubing all the way down. The pressure carb return line fitting can also be used, if you do not have a pressure carb. However, a 1/4 line is required here, and this would slow down your fuel transfer time.

The drawing shows soft aluminum tubing used thruout. We recommend soft aluminum tubing up to the firewall, and 601 braided hose forward of the firewall. Since the drawing stops at the firewall, no braided hose is called out.

In installing the tubing and the fittings, be sure and use Fuel lube on all threads. It will keep the aluminum from galling and enable you to disassemble the system, if it ever becomes necessary, without tearing up the threads.

In picking an auxillary fuel pump, you have several options. You could install a Christen wobble pump, selector valve, and gascolator combination where the rear seat pilot could reach it. I do not advise this in a two place airplane, as the fuel lines have to run all the way back to the rear cockpit and then all the way forward again. I think this increases the chance of an airlock in the system, and subsequent engine failure. I like to keep the gas lines as cpmpact and short as possible. Therefore, an electric pump of some kind is called for.

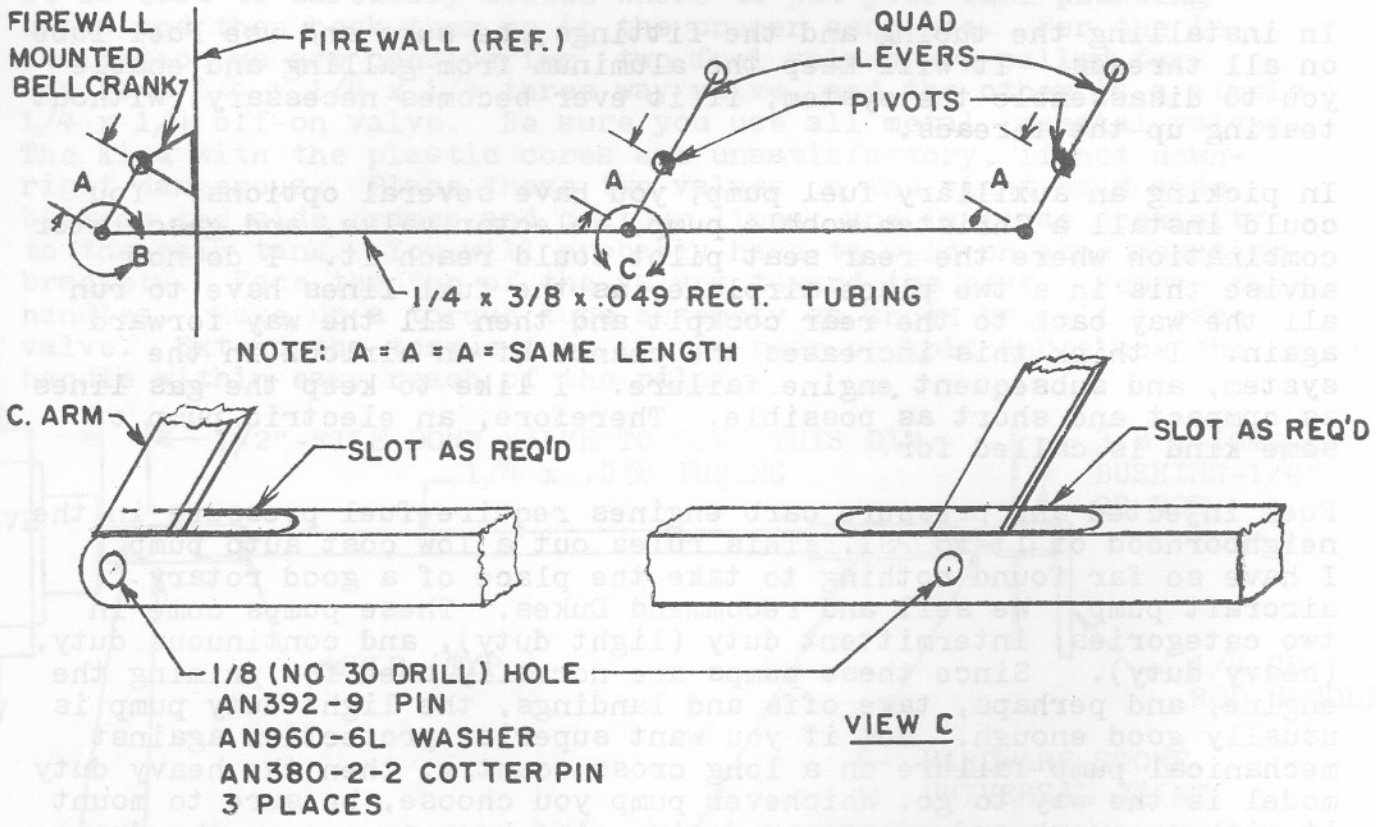
Fuel injected and pressure carb engines require fuel pressure in the neighborhood of 15-16 PSI. This rules out a low cost auto pump. I have so far found nothing to take the place of a good rotary aircraft pump. We sell and recommend Dukes. These pumps come in two categories; intermittent duty (light duty), and continuous duty, (heavy duty). Since these pumps are normally used for priming the engine, and perhaps, take offs and landings, the light duty pump is usually good enough. But if you want superior protection against mechanical pump failure on a long cross country, then the heavy duty model is the way to go. Whichever pump you choose, be sure to mount it with an overboard emergency drain. And keep an eye on the drain after flying starts. If fuel starts dribbling out, you have some worn seals, and the pump should be sent back to Dukes for an overhaul. As I mentioned earlier, the seals will last a lot longer if the gascolator is upstream from the fuel pump. P.S.(These overhauls ain't cheap.)

When all the components, fittings and tubing called out on the drawing are in place, you have a considerably cleaned up firewall, and thus more room for other items, like batteries, and inverted oil systems.

From the firewall to the engine driven fuel pump, use a short length of 601-6 steel braided hose, with 816-6D swivel hose ends. The fuel pump comes from the factory with a special factory fitting that will accept the 816-6D hose end.

From the outlet side of the engine driven pump, run 601-6 hose to the fuel injector or pressure carb, again using 816-6D hose ends. On this length of hose, use an insulating fire protecting sleeve. This will make it easier to hot start your engine on a hot day, and will help prevent vapor lock.

This completes your fuel line plumbing. Now we put in the fuel controls. These are (1) Throttle control, and (2) Mixture control. These controls can be actuated by push pull cables. However, we have had the best results using push-pull tubing and bell cranks. The push pull tubing is 1/4 x 3/8 rectangular tubing. The ends can be slotted to form a fork for attachment purposes, thus saving on weight and expensive fittings. Below is a drawing of the simplest and best push pull system we have used so far.



NOTE: THE RECTANGULAR TUBING IS ONE PIECE, AND RIGID- THEREFORE, ALL BELL CRANK ARMS MUST BE SAME LENGTH AND SAME ANGLE.

CONTINUED NEXT ISSUE

S P R I N G G E A R S & W H E E L A L I G N M E N T

With the increasing popularity of spring gears of aluminum, steel, or fiberglass, we are witnessing more and more problems pertaining to wheel alignment.

In a rigid triangular steel type gear, the wheel position, and thus its tracking qualities, are pretty well locked in when the gear is built. Therefore, extreme care is usually taken to get good wheel alignment, with pretty good results (usually).

But in a spring gear, the axle is not locked in so rigidly, and the alignment must be done after the gear is installed. Since each airplane has a different weight on the gear, it is not practiciable to align the wheels prior to installation.

The procedure is as follows: 1. Load the plane as if for flight. If a two place, strike a happy medium by loading the plane with one tank of gas, the back seat pilot, and no luggage.

2. Take two smooth sheets of metal per wheel,(4 sheets) big enough to allow the wheel to rest on them. About 12" by 12" is a good size. These sheets may be of steel, or aluminum, or any other metal.

3. Place two sheets in front of each wheel, one on top of the other, and with a layer of oil between the sheets. Roll the plane onto the doubled oily sheets.

4. Rock the airplane gently, and encourage it to settle down to its natural position, unencumbered by friction between the wheels and ground.

5. Measure the camber and toe in-toe out of the wheels. The wheels should point straight ahead, and be vertical. There should be no toe in-toe out, and no camber.

6. Shim the wheels by placing shims between the bolt-On axles and the gear. These shims can be tapered washers, or you may buy tapered shims from a Cessna dealer. These store bought shims are recommended. They save you a lot of work.

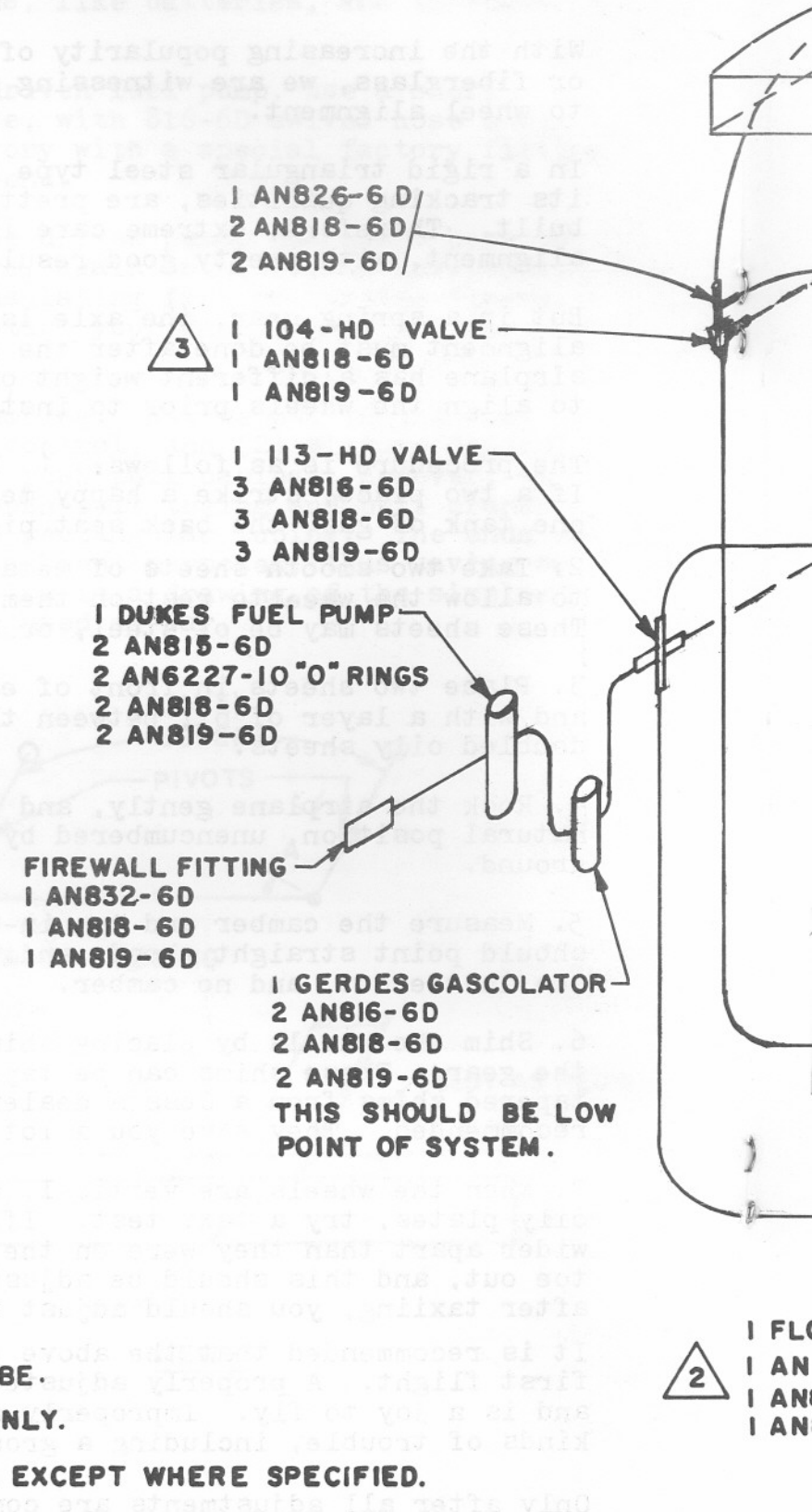
7. When the wheels are vertical, and point straight ahead on the oily plates, try a taxi test. If, after taxiing, the wheels are wider apart than they were on the plates, you still have a little toe out, and this should be adjusted. If the gear is narrower after taxiing, you should adjust for toe in.

It is recommended that the above procedure be followed before the first flight. A properly adjusted spring gear ground handles well and is a joy to fly. Improperly adjusted it can cause you all kinds of trouble, including a ground loop.

Only after all adjustments are complete should the wheels pants be installed. Happy flying.

REQ	NAME	SOURCE
1	SMALL FUEL LUBE	STARDUSTER CORP.
16'	3/8 AL. TUBING	
12'	1/4 AL. TUBING	
1	CCA-1550 VALVE	
1	CCA-1600 VALVE	
2	AN6227-10 RINGS	
2 (4)	AN819-4D	
2 (4)	AN818-4D	
(1)	AN924-4D	
(1)	AN832-4D	
2 (3)	AN822-4D	
1	AN917-2D	
1 (0)	AN913-2D	
1	AN911-2D	
1	AN832-6D	
1	AN826-6D	
2	AN815-6D	
3	AN822-6D	
16	AN819-6D	
16	AN818-6D	
7	AN816-6D	
1	DUKES PUMP	
1	GASCOLATOR	
1	FLOP TUBE ASSY	
1	104-HD VALVE (1/4)	
1	113-HD VALVE (1/4)	
3	FINGER STRAINER	STARDUSTER CORP.

LIST OF MATERIALS



6- LUBRICATE ALL FITTINGS WITH FUEL LUBE.

5- QTY IN PARENTHIS FOR PRESS. CARB. ONLY.

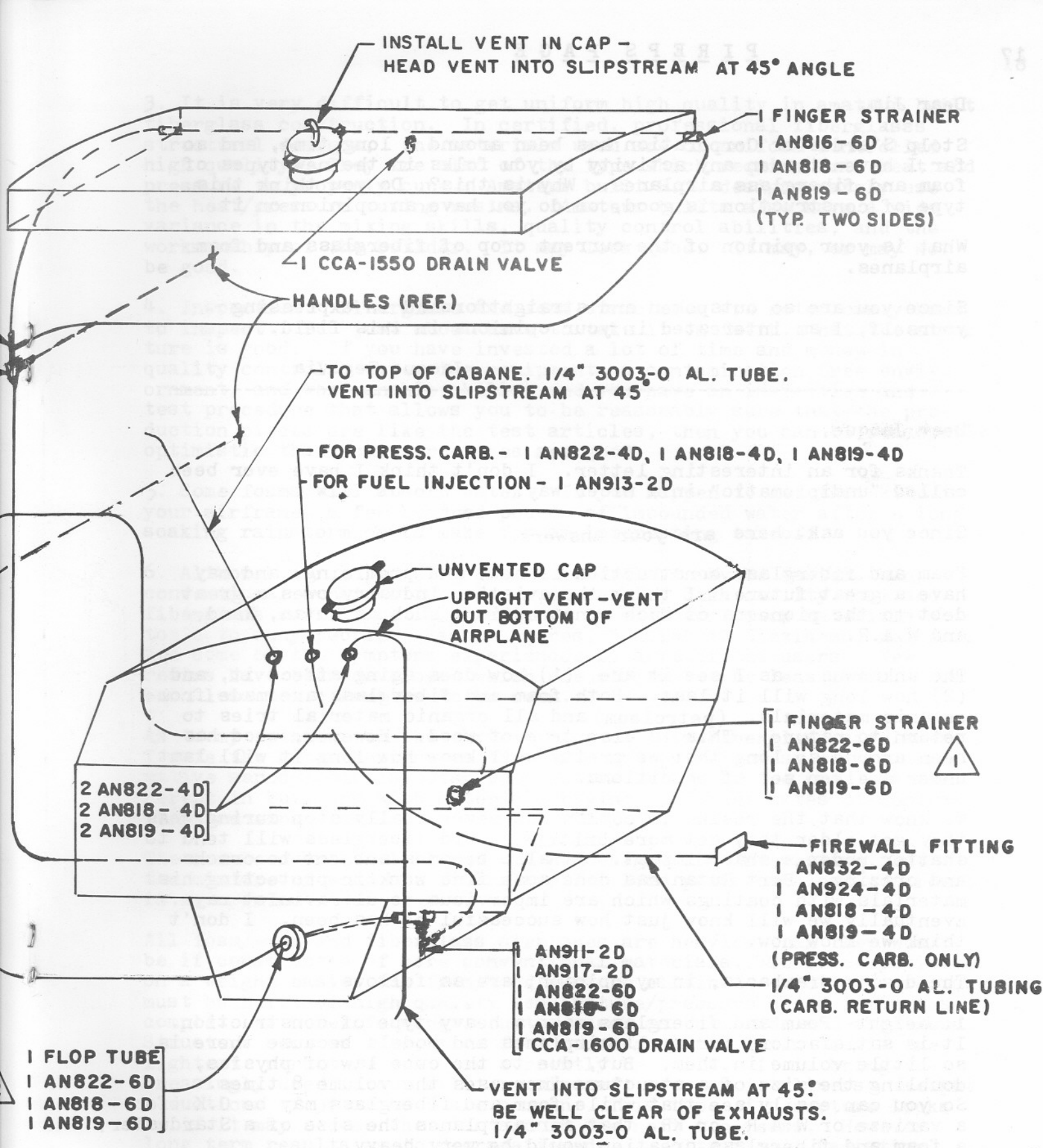
4- ALL TUBING IS 3003-0 ALUM.; 3/8 DIA. EXCEPT WHERE SPECIFIED.

3 REPLENISHES MAIN TANK.

2 AEROBATIC & RESERVE OUTLET.

1 MAIN OUTLET-USE FOR CRUISE.

NOTE:



SCALE: NONE	FUEL TANKS INSTL INVERTED SYSTEM SA300 & SA750	THE STARDUSTER MAGAZINE
DATE: 7-16-80		
DRAWN: J. Osborne		
STRESS: J.O.		
CHECKED: J.O	STOLP STARDUSTER CORPORATION	

Dear Jim,

Stolp Starduster Corporation has been around a long time, and so far I haven't seen any activity by you folks in the new types of foam and fiberglass airplanes. Why is this? Do you think this type of construction is good, or do you have an opinion on it.

What is your opinion of the current crop of fiberglass and foam airplanes.

Since you are so outspoken and straightforward in expressing yourself, I am interested in your opinions in this field.

Jacque Segovia

Dear Jacque,

Thanks for an interesting letter. I don't think I have ever been called "undiplomatic" in a nicer way.

Since you ask, here are your answers.

Foam and fiberglass construction is new, and promising, and may have a great future. I think the aviation industry owes a great debt to the pioneers of such construction, such as Rutan, Rand, and W.A.R.

The unknowns , as I see it are, (1) how does aging affect it, and (2) how long will it last. Both foam and fiberglass are made from organic materials, (petroleum) and all organic material tries to return to nature. This is also true of wood. However, wood has been around so long that we pretty well know how long it will last under a given set of conditions.

We know that the resins in common use never really stop curing. As they get older they get more brittle. Old fiberglass will tend to shatter under a sharp impact. It also becomes subject to cracks and crazing. Bert Rutan has done some fine work in protecting his materials with coatings which are impervious to ultraviolet rays. Eventually we will know just how successful he has been. I don't think we know now.

The design drawbacks, in my opinion, are as follows.

1. Weight- Foam and fiberglass make a heavy type of construction. It is satisfactory for small airplanes and models because there is so little volume in them. But, due to the cube law of physics, doubling the size of a structure increases the volume 8 times. So you can easily see that while foam and fiberglass may be O.K. for a varieze or W.A.R. or KR, that for airplanes the size of a Starduster, a foam and fiberglass creation would be very heavy.

2. Different coefficients of expansion can create a troublesome and perhaps dangerous situation. If your airframe is fiberglass and foam over a wood or metal frame, then temperature changes will probably crack your fiberglass skin, and if the skin is a primary load path you could be in deep trouble.

3. It is very difficult to get uniform high quality in amateur built fiberglass construction. In certified, professional fiberglasss structural designs, the materials used are of uniform controlled high quality. They are also of the type which require both heat and pressure to properly cure. Amateur built F.G. designs rarely use the heat/pressure curing resins. Amateur builts also have a wide variance in the mixing skills, quality control abilities, and the workmanship of the builder. It may look good. It may, or may not be good.

4. Inspection. Fiberglass and foam structures are notoriously hard to inspect. You just about have to take it on faith, that the structure is good. If you have invested a lot of time and money in quality controls, expensive equipment, a contamination free enviornment, and workmanship skills, and you have an inspection and test procedure that allows you to be reasonably sure that the production pieces are like the test articles, then you can be reasonably optimistic that your structures are good.

5. Some foams will absorb water. If you happen to get that kind in your airframe, a few hundred pounds of impounded water after a long soaking rainstorm could make for an interesting takeoff.

6. Although,for experts, foam and fiberglass may be easier than conventional construction, for most people, high quality foam and fiberglass work is not any easier. In addition, such materials are toxic to many people. Rashes, sores, headaches, dizziness, nauseau, are some of the symptons experienced by some of the users. New resins have been developed which are claimed to be less toxic. How much less toxic remains to be seen.

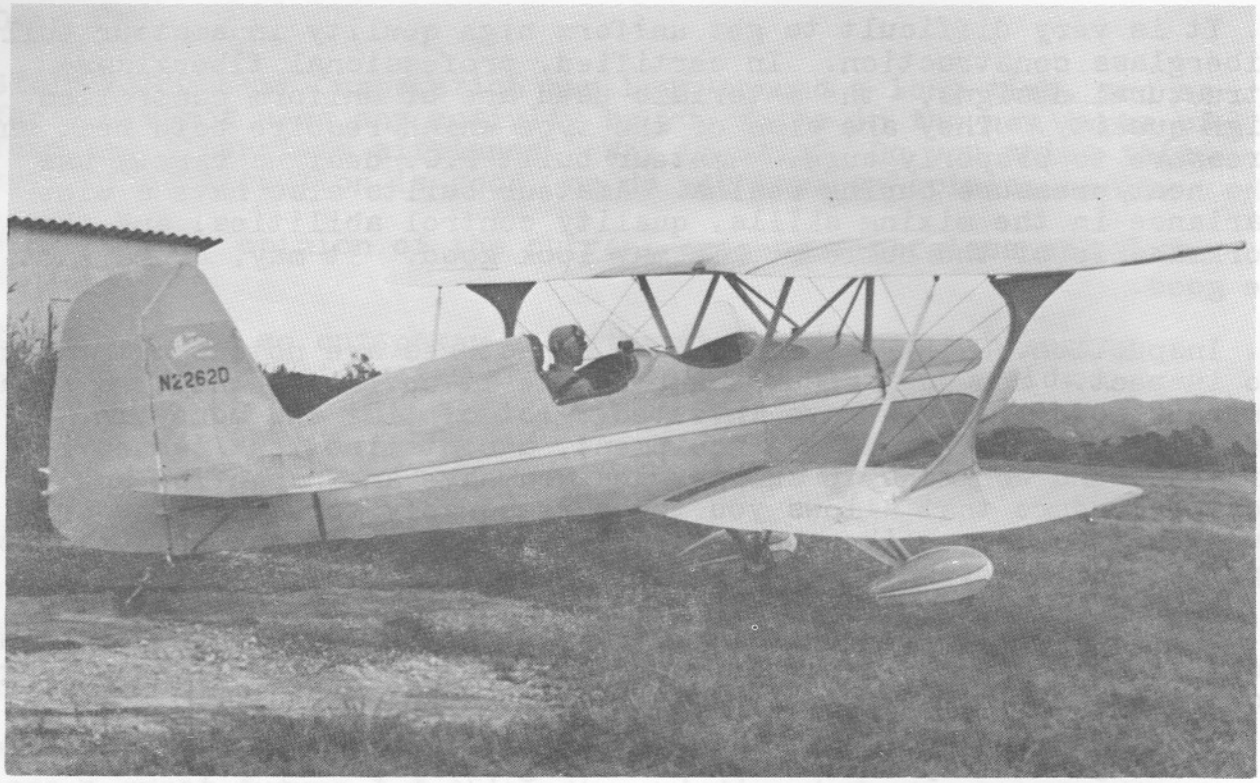
As to my opinions on the current crop of Foam Fiberglass airplanes, I rate the Rutan designs as the best, not only because of his innovative aerodynamic layouts, but because he avoids the problems inherent in building with materials having different rates of contraction and expansion.

The more conventional KR and W.A.R. designs are interesting, but the mixture of wood and fiberglass for load paths can lead to trouble, in my opinion.

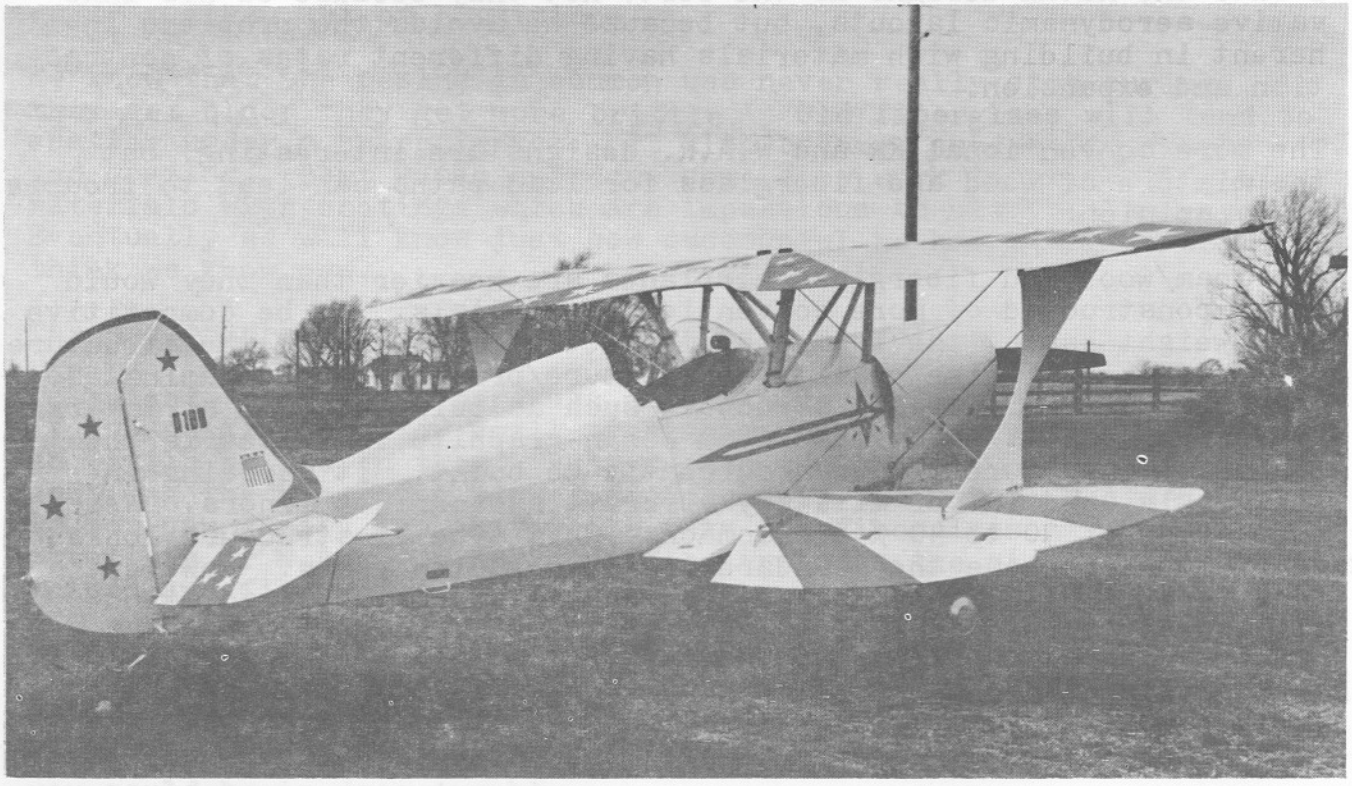
All foam/wood and fiberglass airplanes are heavier than they would be if constructed of more conventional materials. To be competitive on a weight basis, the foam/wood must be eliminated and the structure must be built of high quality temperature/pressure cured laminates, complete with reinforcing structure such as bulkheads and stringers. Structure such as this, made from Boron-graphite laminates, is the lightest structure that can currently be built. It is being increasingly used in our military aircraft and our jet liners. Weight reductions of 30 to 40 % are common. This type of structure looks as if it may become the standard in the next ten years. However, long term results as to degradation due to ultraviolet radiation still need to be determined.

I hope this clears up my opinions on composites. Thank you again for writing.

JIM OSBORNE



ABOVE IS A PICTURE OF ANDRES MARRERO, OF RIO PIEDRAS, PUERTO RICO, AND HIS NEW STARDUSTER TOO. A BEAUTIFUL FINISH TO SIX YEARS OF WORK. BELOW IS A STARDUSTER ONE OWNED BY DEWEY BALLARD, OF PRAIRIE VILLAGE, KANSAS. DEWEY JUST REBUILT IT TO ACCOMODTAE AN ALUMINUM SPRING GEAR.



Jim,

Here are the long bolts. Thanks for the prompt service. I have the machine stripped down, and am in the process of grinding off the old gear fittings.

I will do a lot of changing in the cockpit while it is all apart. The photo shows what she looked like before. I'll send you a new one later with the new look.

Sincerely,

DEWEY BALLARD

VICTOR W. TATELMAN
18900 S. W. 232nd Street
Miami (Goulds), Florida 33170
U. S. A.

May 26, 1980

Dear Jim;

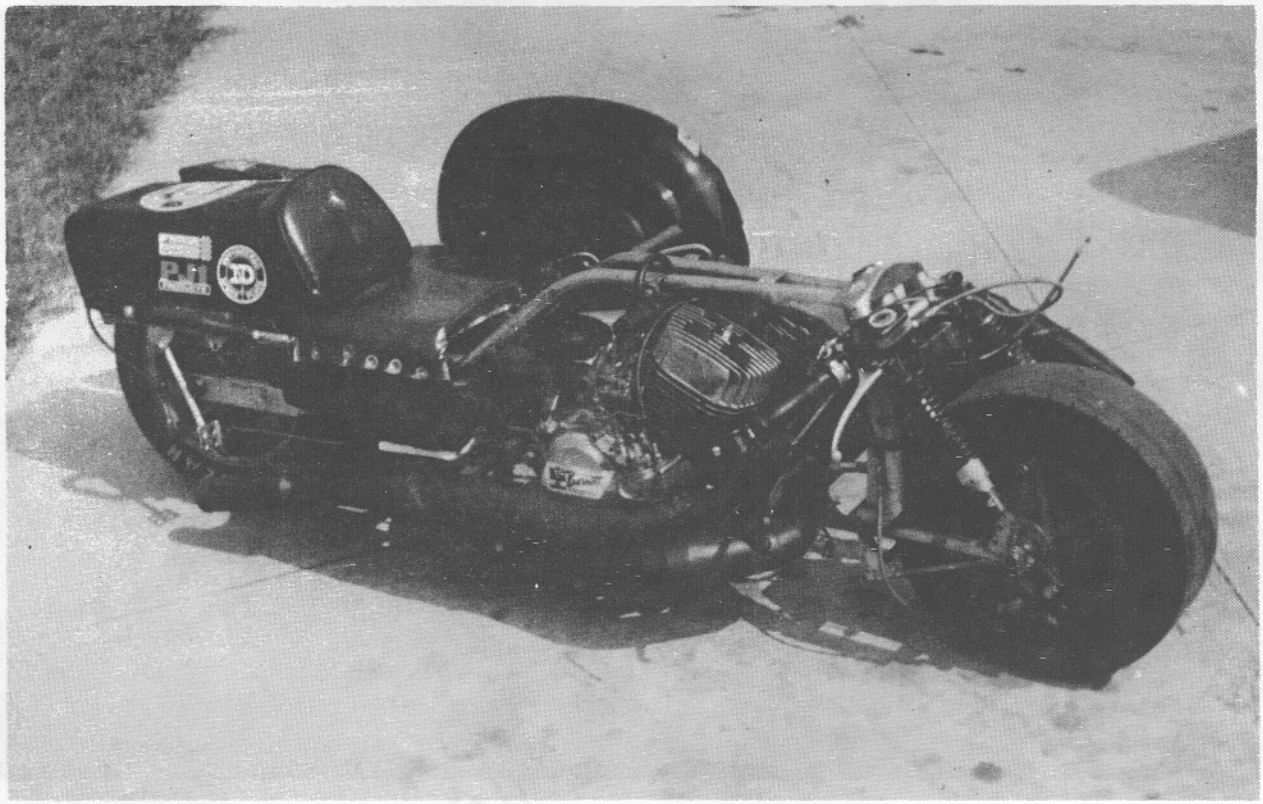
Started the engine for the first time - taxied around the back yard. Exciting!

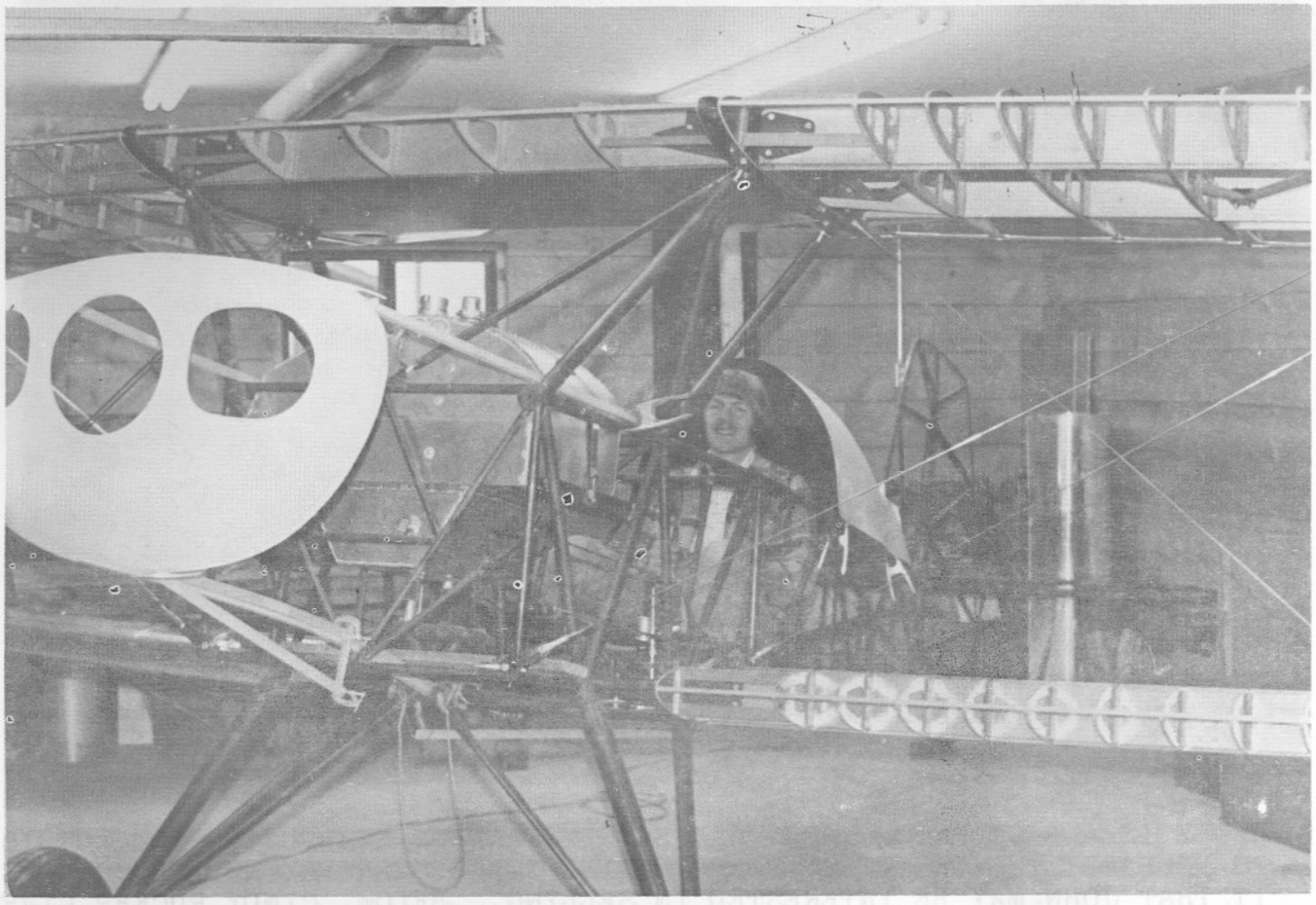
Best,

Vic

Vic Tatelman

SMITH MINIPLANE BUILDER TONY FURUKAWA SITTING ON THE WING OF RON HEIMBECKS MINIPLANE, AND INDULGING IN A LITTLE DAYDREAMING. BELOW: NOT ALL OF OUR CUSTOMERS BUILD AIRPLANES. THE 3 WHEEL RACING CYCLE BELOW WAS BUILT BY ALAN SPEARS AND WIFE AND GOES UP TO 180 MPH ON THE STRAIGHTAWAYS, WITH WIFE RIDING THE SIDECAR.





Dear Jim and everybody else at Stolp,

I haven't been progressing very fast on my project, as it is summer again.

Just thought I'd remind you that when I got my flying wire set (ACRODUSTER TOO) I received one too many right hand terminals for both wing and tail wires.

Please send one L.H. terminal for wing and one L.H. terminal for tail wires. (One AN665-46L and one AN665-34L.) I'll send back the wrong terminals in the same box you ship the correct ones in.

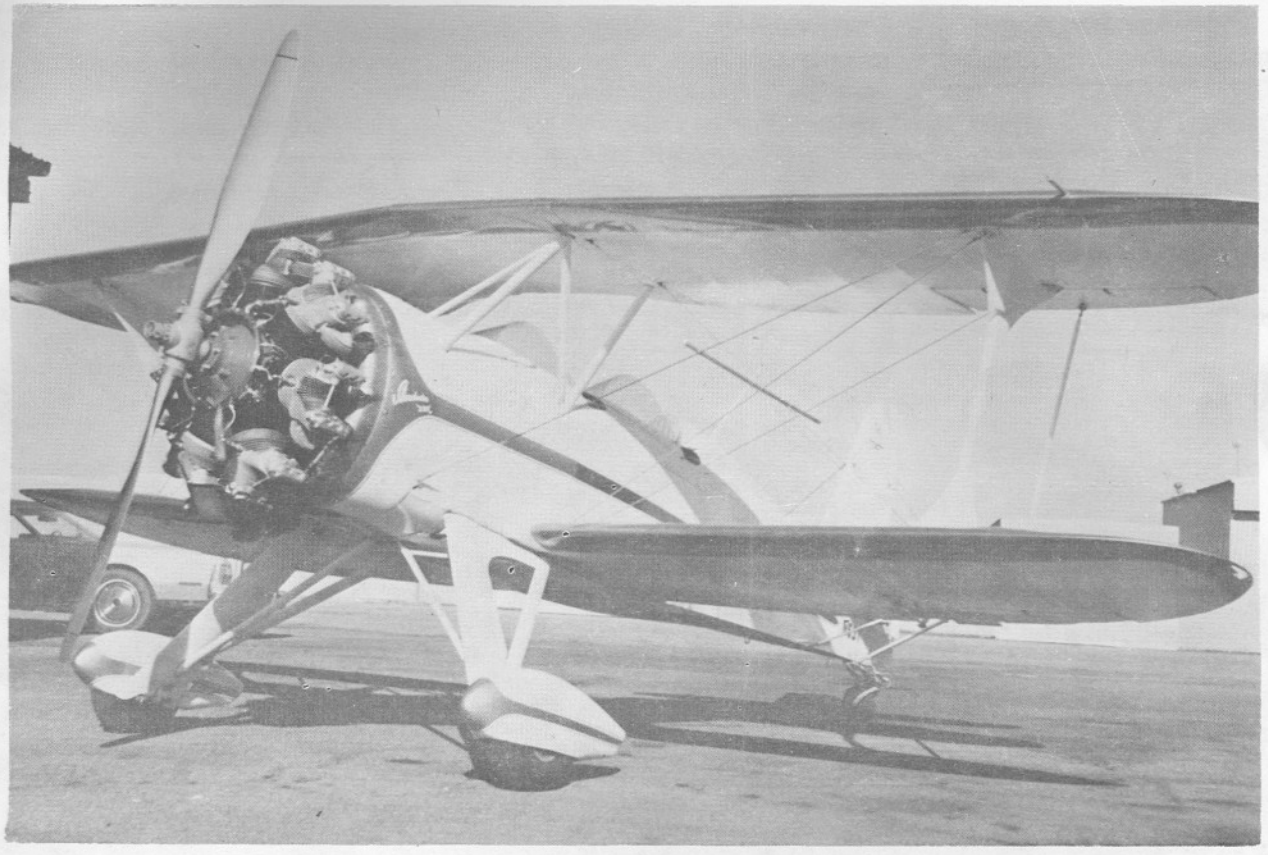
Also, my subscription to STARDUSTER MAGAZINE ran out. Please renew my subscription for 1980, and send the back issues I have missed. I believe I have some money on account to cover this, but haven't received a statement lately. I would appreciate a statement and a new catalog.

I am enclosing a few shots of my project. Hope you find them interesting.

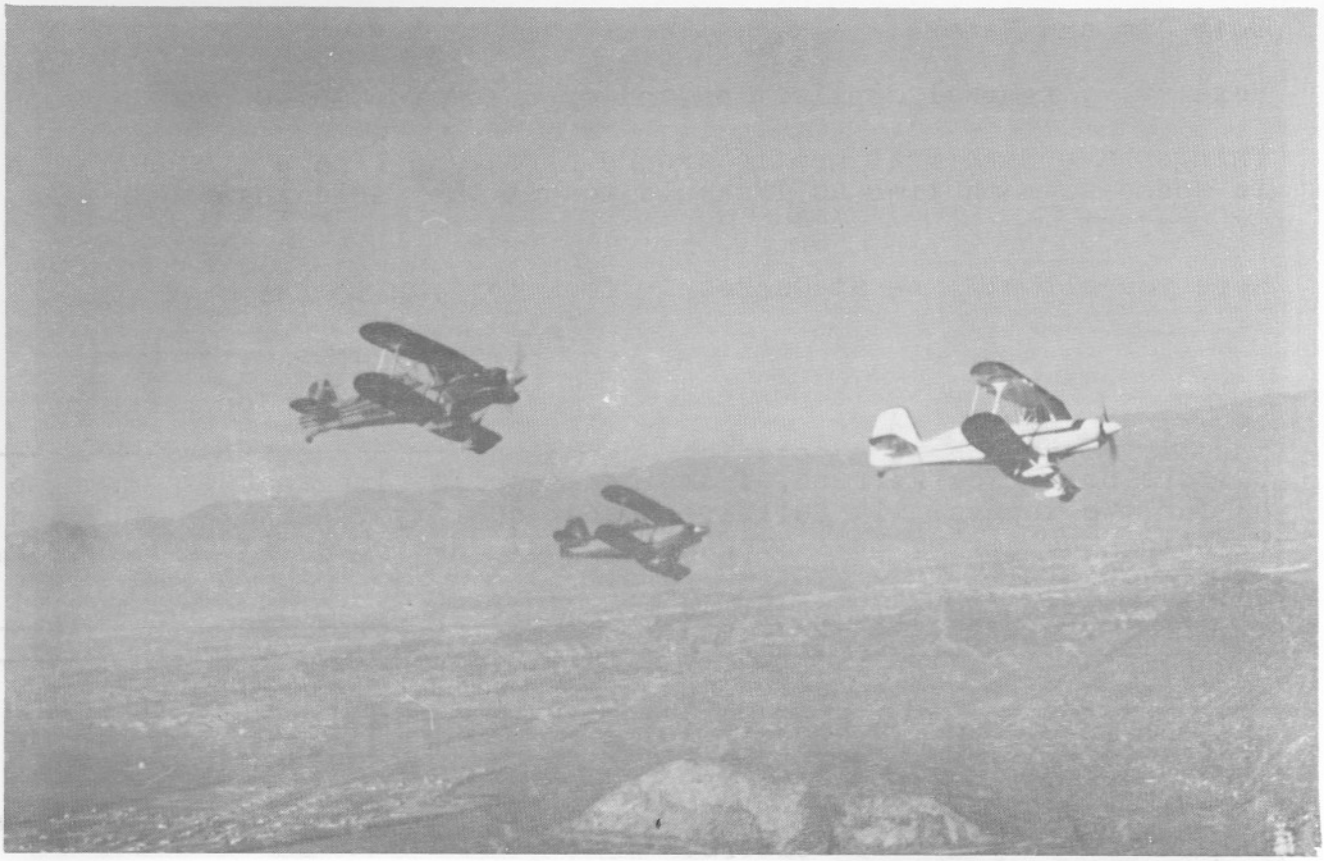
I hope this finds you all well, busy with airplanes, and happy.

Best regards,

LOWELL SLATTER

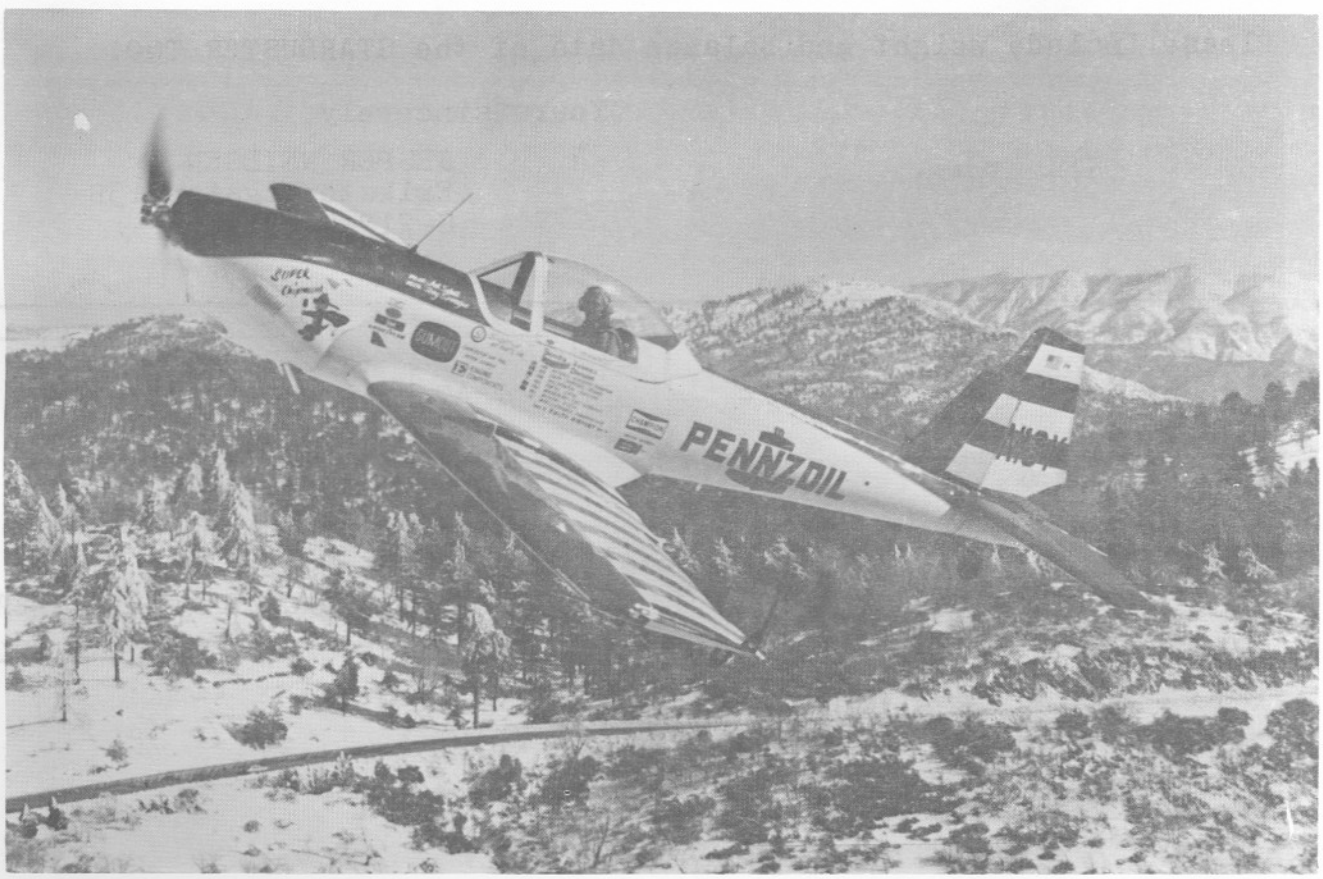


ABOVE IS A PICTURE OF JOHN TRAVIS' OUTSTANDING STARDUSTER TOO. THIS IS PROBABLY THE PRETTIEST ROUND ENGINE STARDUSTER FLYING. RUMOR HAS IT THAT JOHN MAY BE INTERESTED IN SELLING. BELOW, CINDY RUCKER GIVES HER NEW ACRODUSTER ONE A PROPER WELCOME, WITH A BIG KISS RIGHT ON IT NOSE. IT SEEMS AN APPROPRIATE GESTURE.



Above is an interesting picture of a STARDUSTER TOO, owned by Cary Watkins, leading a formation of an ACRODUSTER ONE and ACRODUSTER TOO.

Below is a nice shot of the worlds greatest airshow pilot,(we think) in a beautiful snowy emvironment. Professer ART SCHOLL and CHIPMUNK.



Dear Jim and Hanako,

Here is my renewal application and my check for $6.00

Things have been real hectic around here, and I have not been able to spend as much time as I should to put the finishing touches on my project.

Hope you all will be at Oshkosh! Look for you there.

Best regards,

Joe Ferraro

Editors note: Joe Ferraro, from Indianapolis, Indiana, is known to us for two things: 1. Building a show quality STARDUSTER TOO, and 2. Being the worlds best spaghetti cook. He proves it, every year, at Oshkosh.

Dear Sirs,

When I received your info packet about your STOLP STARLET, I became interested in your two seaters.

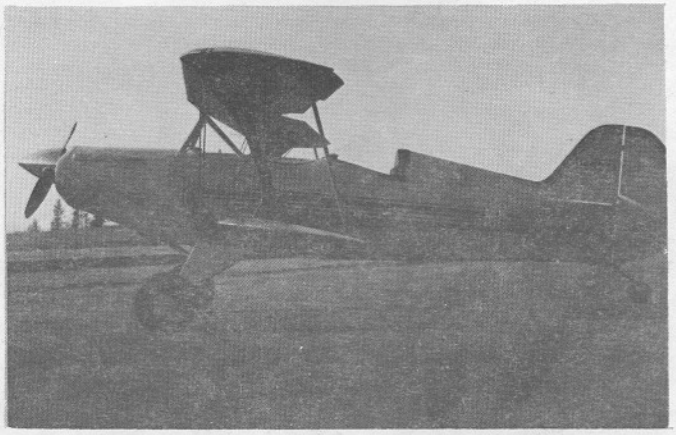
Some days ago, I sent for info's about the STARDUSTER, and now I would like to to have your info pack about your ACRODUSTER TOO.

I enclose $5.00 for info's and postage,and I hope you can send me another three view drawing of the STARLET.

Please include weight and balance data of the STARDUSTER TOO.

Yours sincerely,

JESPER NEILSEN
Erikstorpsgatan 13B
S-21754 Malmo
SWEDEN



THAT GOOD LOOKING BIPLANE ON THE LEFT BELONGS TO MR. AND MRS. RALPH PRISEL.

LOOKS LIKE AN EARLY STEEN SKYBOLT. WORKMANSHIP APPEARS TO BE EXCELLENT. CONGRATULATIONS.

ABOVE IS A SIDE VIEW OF ORSON CLEVELANDS NEW STARDUSTER TOO. ONE OF THE CLEANEST PAINT JOBS, AND NICEST LOOKING AIRPLANES AROUND.

BELOW IS A PICTURE OF A WACO 10, SEEN AT CHINO. YE OLDE ED USED TO RIDE IN PLANES LIKE THIS 45 to 50 YEARS AGO.

Dear Jim,

Recently I bought a Starduster Too. It flies well and I have been happy with it except for one thing. It needs a new paint job.

Could you tell me how to determine what kind of finish is on there now. I am new at these things. Nevertheless, I would like to do the prepearing and repainting myself. I believe I can do it, if I can just find out what is on there now. I understand it is a mistake to mix different kinds of paint. What do you think.

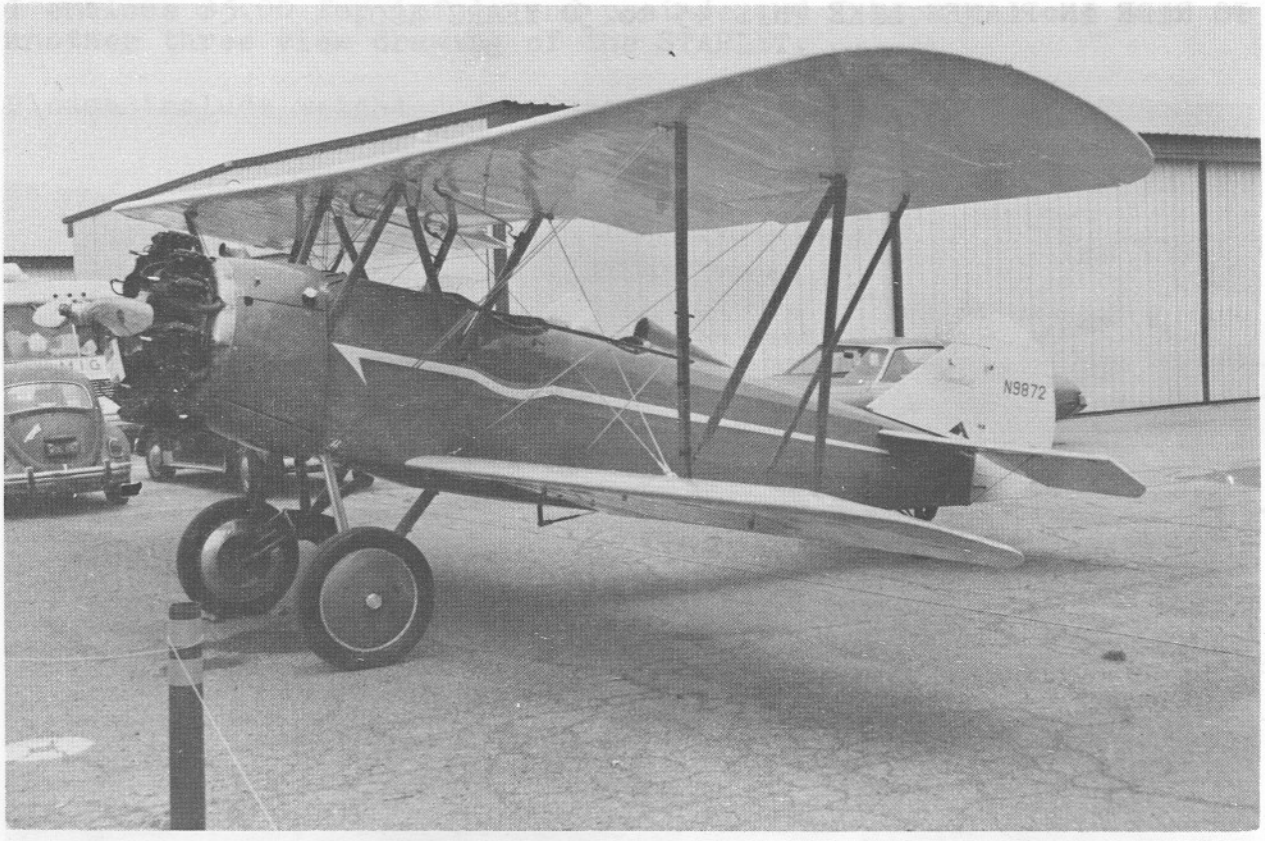
Sincerely,

Charles Dekalb

Dear Charles,

Thank you for your letter. I am ignorant of such things myself, so I went to Ray Stits for advice. He gave me a technical article he has put out to his people, and it starts on page three of this magazine. You may take credit for being the inspiration for this article. Best of luck on your repaint job.

Jim



ABOVE IS A NICE LOOKING TRAVELAIR, SEEN AT CHINO A FEW WEEKS AGO.

Hello,

I have put this one off far too long. Enclosed is a money order for eight dollars. Six for a subscription to STARDUSTER MAGAZINE, and two for an up-to-date catalog.

I have been going thru a friends collection of STARDUSTER MAGAZINES, and, quite frankly, am impressed. Both with the general content, and that you are not confining your efforts solely to your own aircraft.

This is a reminder of the kind of open/ friendly attitude which attracted me to home building in the first place. (My father built a Cherokee II sail plane while I was growing up- started it about 18 years ago-still flies it- keeps it at Livermore), But seems to be disappearing. Keep up the good work.

Going thru Walt's stack of STARDUSTER MAGAZINES brings to mind several questions.

1. Is it possible to obtain back issues?

2. Is there available a list of plan updates to ACRODUSTER TOO plans? I am #348.

3. How do I get information on the Aluminum landing gear?

4. One of the older issues mentioned the availability of aileron bearing inserts, but I do not see them in recent catalogs. Are they still available? If not, do you have any recommendations along these lines?

And Last, a comment about all the words of wisdom on selecting a plane to build. The decision to build a homebuilt is not a practical decision. After selecting another plane, I "had" (notice the quotes) to can it and start on the one that stirred my my blood. Because of all the moving around I've done,(and note-- I've moved again--address below), I'm getting off to an awfully slow start, but thank you.

Jerry Henneman
4023 Corliss Ave, N.
Seattle, Washington 98103

P.S. Is it possible to get the names(s) of any other ACRODUSTER TOO builders in this part of the country?

ANSWERS:

1. Yes, back issues are 6.00 per year, 1.50 per each.
2. No formal list. Check STARDUSTER MAGAZINE for all changes.
3. The October 78 Magazine has the landing gear info in it. Current prices: Gear-$500.00, Axles and nuts- $75.00. Fuselage modification material- $40.00.
4. Aileron bearingss are still available. On Rod end and bearings page of catalog. $35.00, set of eight.

Our ACRODUSTER builder are categorized by location, but one name that comes to mind from the Seattle area is Steve Lorenz, 5601 Alder Glen Park, Aberdeen Washington.

I wish to thank you, Jerry, for your letter, and wish you every success in your project.

PIERRE MAZURAIS
14 Rue de L'heurtibise
77133 Machault
France

June 2, 1980

Dear Jim,

Thank you for your letter dated May 14. I would like to confirm my order for one complete set of wires for the wing and tail of a STARDUSTER TOO.

I contacted today Amerford, in Paris. They are going to contact Amerford in Los Angeles, 5771 West 96th Street, California 90045. (Tel. 213-776-6244) Mr. Don Smith or Mrs. Patty Cabico will be in charge of the shipment.

In agreement with Amerford Paris you will be paid directly by Amerford, Los Angeles.

I hope that this arrangement will suit you, and Air Freight could be collect.

You asked me in your last letter if I was American. No, I am French, but I lived in the States for three years. My wife is American. How is that for a good reason!!!

Maybe I will see you in August during a business trip. I will let you know.

Cordially,

PIERRE MAZURAIS

Thabk you for your most interesting letter, Pierre.

If you come to the States in August, Please see me at Oshkosh or Fondulac. I will be at Oshkosh for the first week in August Fondulac the second week, and Oshkosh for the last two weeks for the World Aerobatic Contest. STARDUSTER CORP. will be closed the first two weeks in August for Vacation, but will be open the last two weeks, with Hanako running things,(as usual).

Hope to see you at Oshkosh.

Cordially,

JIM

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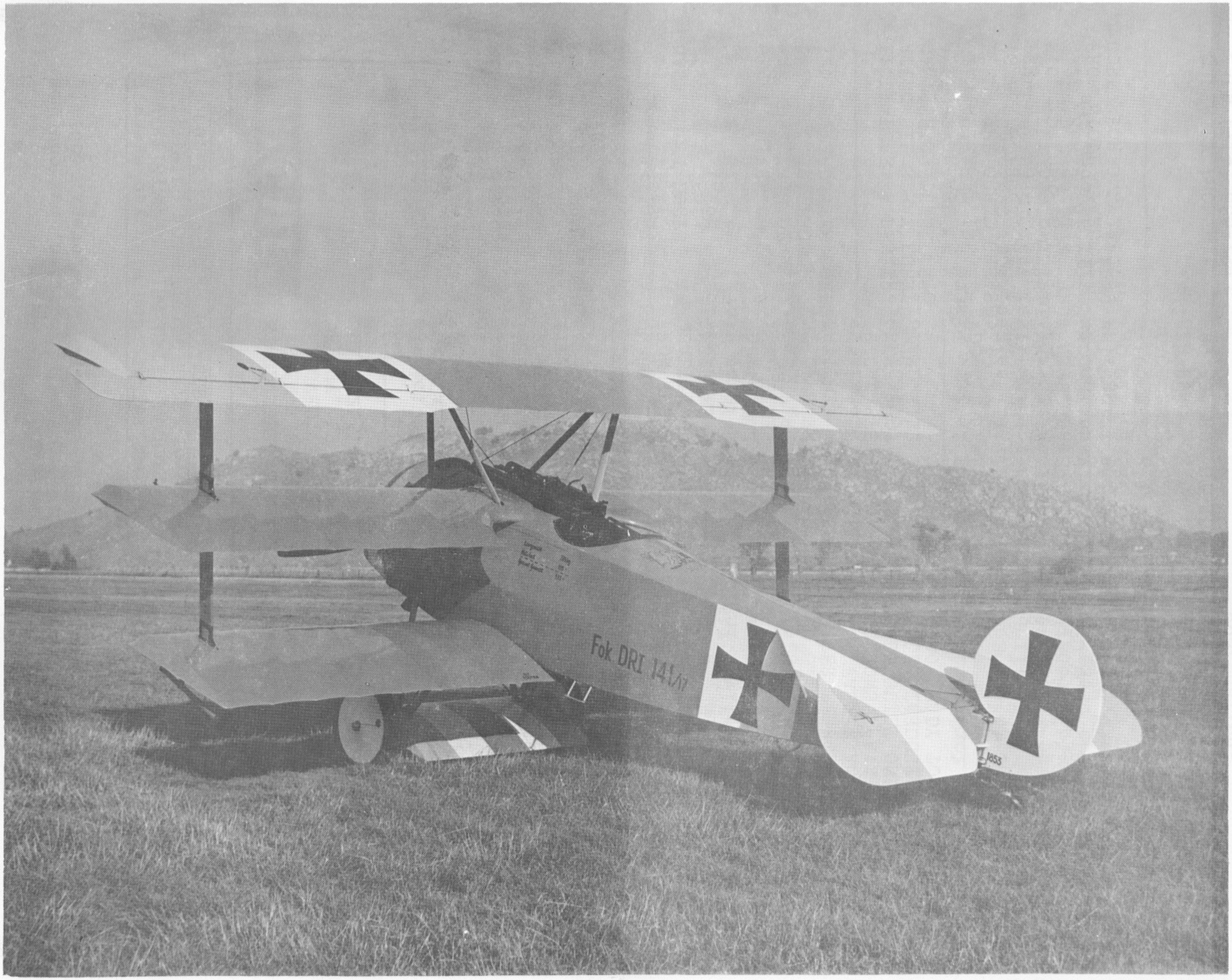
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