ADVENTURE NEWSLETTER #11
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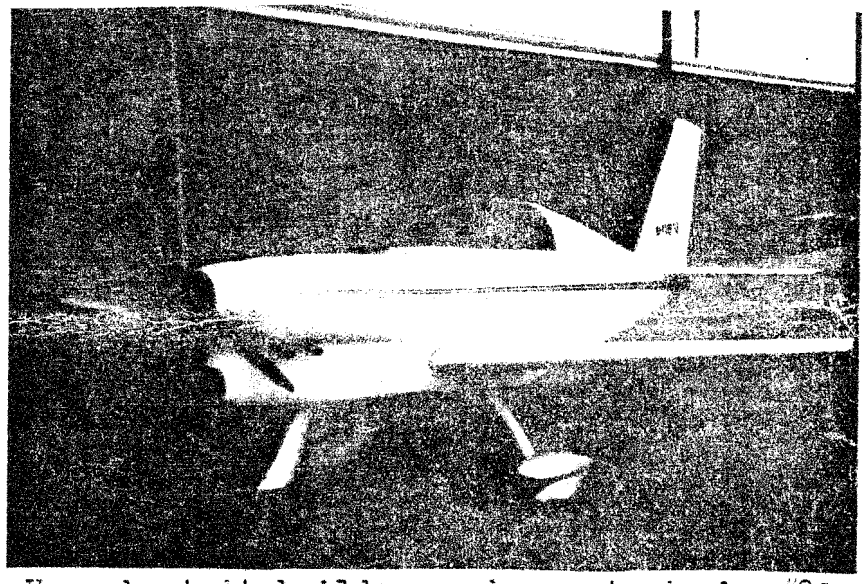
What has happened Most of you know by now of George's death on November 19, 1981, at NASA Langley in Virginia. He was with two NASA employees in the Piper Advanced Technology, PAT-1 when the accident occurred and all three were fatally injured in the crash into Chesapeake Bay. There has been no official reason or unofficial opinion given for the accident. George was the spear-head for the project so to bring you up to date on Mead Engineering the preceding details were necessary.

Thanks to all of those who wrote letters and/or made phone calls and to those who made contributions to the EAA Air Museum fund in George's memory.

Now, to let you know how things are progressing with Adventure business. Dennis Brown, consultant, laborer, pilot will give you the latest mods and information for your Adventure, be it Taildragger or Tri-gear version. Plans are now available for both.

Before he takes-off, a BIG "Congratulations, job well done" goes to Paul Charles and Johnny Murphy in Cape Canaveral, FL., for completing the first plans built Adventure! It made the Sun n' Fun meet and received an award. Appreciation is extended to them for their dedication to George-printed on the little bird.



How about it builders, who wants to be #2?

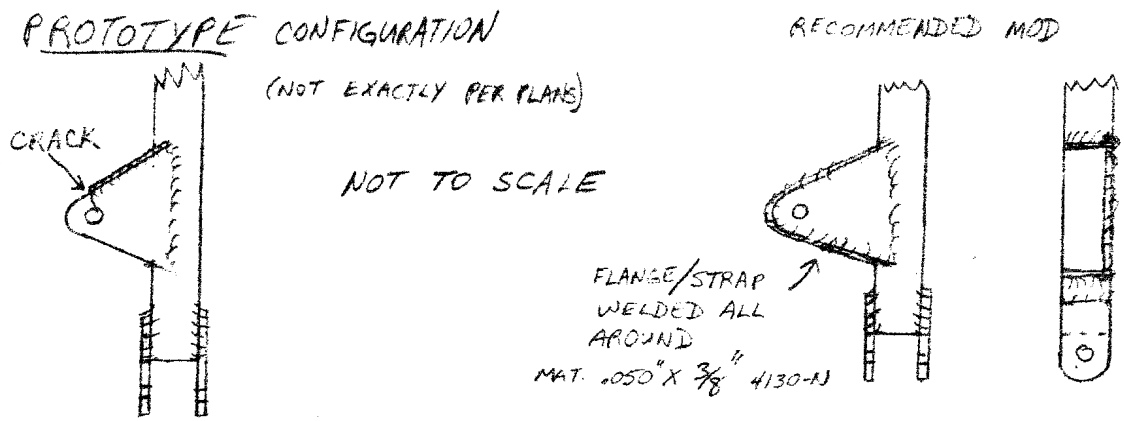
OSHKOSH and the Oshkosh 500 The Adventure prototype will be at Oshkosh this year, all things going as planned,and will compete for the 4th year in the Oshkosh 500 on August 2(or there abouts). Dennis will be the pilot.

The Matthias award has been changed in name this year to the Mead-Matthias Award, and Aircraft Spruce and Speacialty in Fullerton, CA. will provide the $250.00 prize.
Go for it Builders!

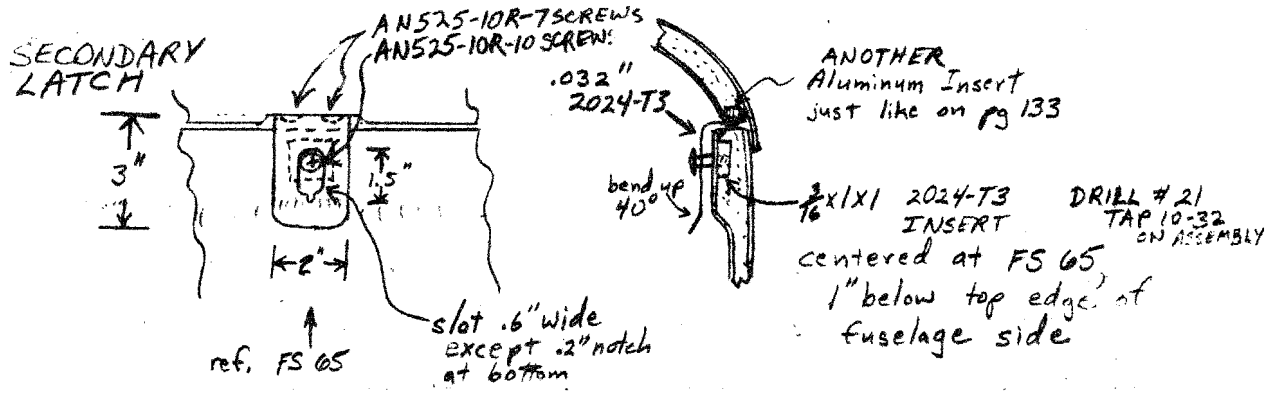
Address change? Oh yes--For those who read Homebuilt Aircraft magazine for August, the mailing address has NOT changed.

There are several items that I've noticed in flying the taildragger Adventure that need to be brought up. First let me preface all these "changes" or "comments" with a blanket disclaimer. These items were discovered on the prototype and are not necessarily representative of your plane. Any changes that I would make I'll be glad to share and give my reasons for making those changes. You are responsible for your plane and the final decision as to any change is for you to make. For this reason, by definition, there is no such thing as a mandatory change on an amateur built plane. To carry that argument to some enlightening extreme I am aware of one popular homebuilt design that the FAA has deemed as "non-certifiable" without a particular design modification. However by simply adding a suffix or prefix to the model designation this rule cannot be enforced. So much for "mandatory" changes. I'll add one point. Without this particular mod on that particular design you'll probably wish (for a few seconds at least) you took the time to do the repair.

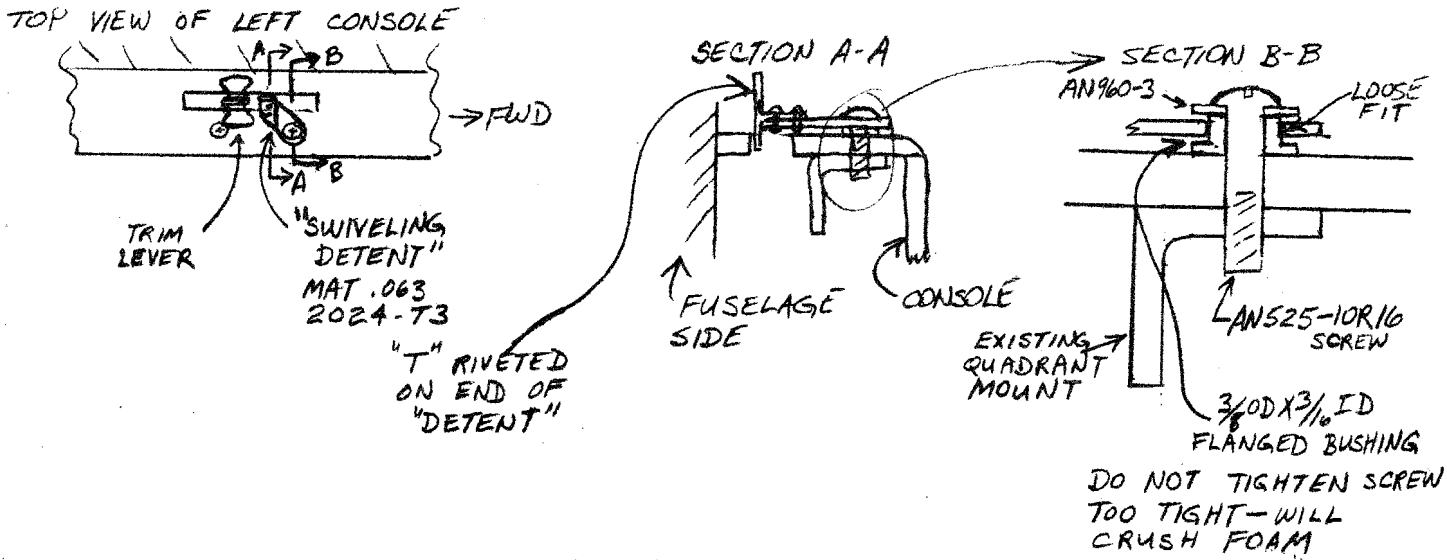
The first change I made was in the flap handle. I found a crack in the flange that the detent pin mounts in. The crack formed because of the flexing imposed on the flange when you haven't quite cleared the detent holes before pulling on the handle. The fix is simple, weld a reinforcing strap all the way around to make a flange to the flange.



The second item is the canopy latch. The primary canopy latch is a Brock part stamped out of 1/8" aluminum. This is the identical part that is used on the Varieze front canopy latch. While I was doing some maintenance I noticed what appeared to be a minute crack where the canopy hold down bolt rides on the latch. That really scared me, since there is no secondary latch on the prototype Adventure and it'd ruin my whole day to have to bail out and do all that walking to get home. That's the bad news. The good news is that it took a very hefty load to go ahead and fail the part. I'm not recommending any design change to this part except to inspect it often and thoroughly and replace as needed. I am going to recommend a secondary latch as follows:



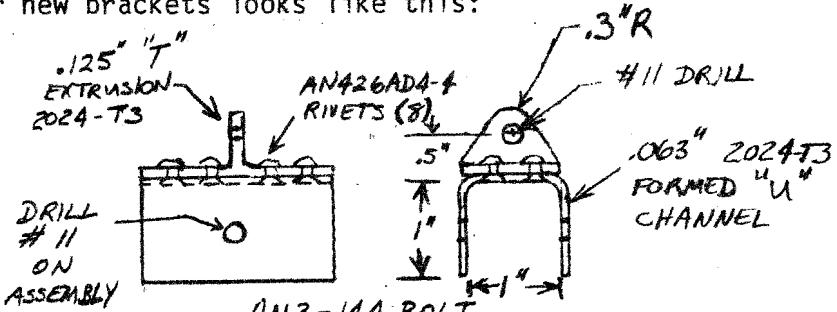
The third item is the pitch trim assembly. The prototype Adventure is nose heavy with me (165 lbs. with parachute) in it and an O-200 on the nose. The nose up trim authority, which was entirely adequate with the original A-80, was totally inadequate for me. George made one change and this partly fixed that problem -- but brought up another. The characteristics of this trim quadrant is that it will move quite easily, with pilot input, in the direction of the applied pre-load. What this means is that when I used full up trim for takeoff and landing, the slightest pilot input (read: bump inadvertently) could slide the trim to full down. The Ted's 62 x 76 prop is now 61 3/4 x 76 as a result of one exciting takeoff at Oshkosh last year. I am suggesting a detent in the takeoff position so that the trim lever cannot be accidently moved forward of this position. Due to wide variances in airplanes I cannot tell you where this detent should be. Here's how I made the detent for the prototype.



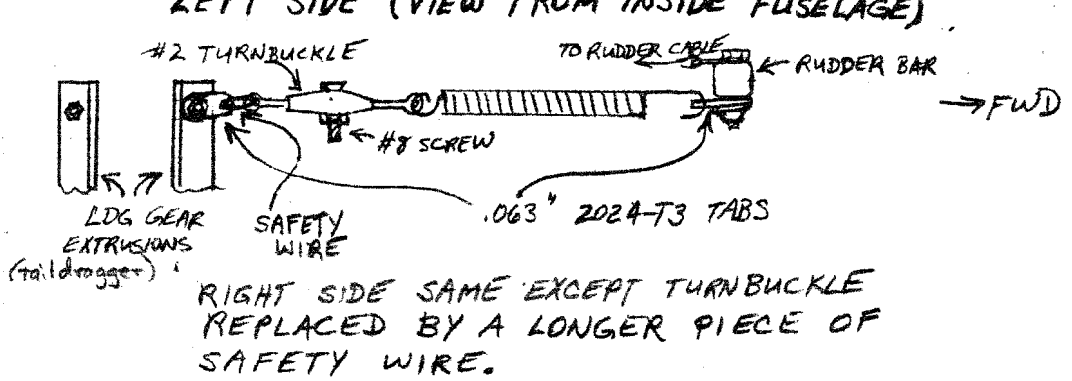
Also -- this type of quadrant has a tendency to slip if there is a little dust, dirt, grime or something in it. I sprayed the guts of the thing with a tiny amount of WD-40 and wiped it all off and this seemed to improve things greatly. Can't do this unless you remove the thing from the plane -- and that will cause you a great deal of moaning and groaning.

Fourth -- the brake pedals. I think the taildragger version of the Adventure needs better brake pedal arrangement. Directional control absolutely depends on brake authority and you've never lived until you've had a left crosswind on a narrow runway and you're right foot slips off the brake pedal. The change I'm recommending is for new construction. The mounting brackets are increased in thickness to increase rigidity and also moved further apart. I'm including a revision page 84 Rev. 1 to replace page 84 of the plans. This shows the change to the rudder bar and intercostal mounting brackets. The back side of the page shows the rudder pedals for the new spacing on the rudder bar. As much as I dislike welded parts I'm still going to recommend this as a welded assembly. Adequate torsional rigidity in an aluminum assembly ends up more complicated than the welded assembly. Find a friend with a torch and building welded parts is real easy.

To retrofit this change, in case your rudder bar is already installed, you need to make "bolt in" rudder bar attach brackets. You can't get in to drill out the old attach brackets unless you have a right angle drill. I used my Dremel tool and ground off the heads of the rivets. The method I used for new brackets looks like this:



Fifth -- Rudder trim and feel springs. The Adventure is very stable directionally. Unfortunately the rudder force and pedal travel are both small. This makes it difficult to use in cruise flight. You may want just a little rudder -- but you get more than you need. I found a couple of springs at the surplus store and started looking for a place to put them. Lo and behold the top front landing gear extrusion bolts are in a good place to attach one end of the spring system and the bolt on the end of the rudder bar a good place for the other end. I made some tabs out of 1/16" aluminum and attached one to each place. A piece of .032 safety wire takes up the extra distance on the right side and a small turnbuckle is used on the left. The turnbuckle is <u>not</u> safetied but has a "too long" #8 screw through the turnbuckle. Then you can adjust the left rudder tension -- which gives you rudder trim. The screw interferes with the fuselage side so it doesn't have too much tendency to change settings by itself.



The springs I got use .062" wire, close wound, 1/2" O.D., and have about 4" length, unstretched. There is about 1/2" stretch remaining in the left spring when pushing full right rudder, and vice versa.

The stick free directional stability is improved with this system and you do 95% of your flying without using the rudders at all.

You tri-gear folk have a little problem finding an existing bolt to attach to. If all else fails you could mount a nutplate on the backside of a small piece of plywood and glass this (2 or 3 layers of BID) on the side of the fuselage about 10" behind (toward tail of plane) the rudder bar. You'll have to hack a hole to get the nutplate to mount flush on the fuselage side.

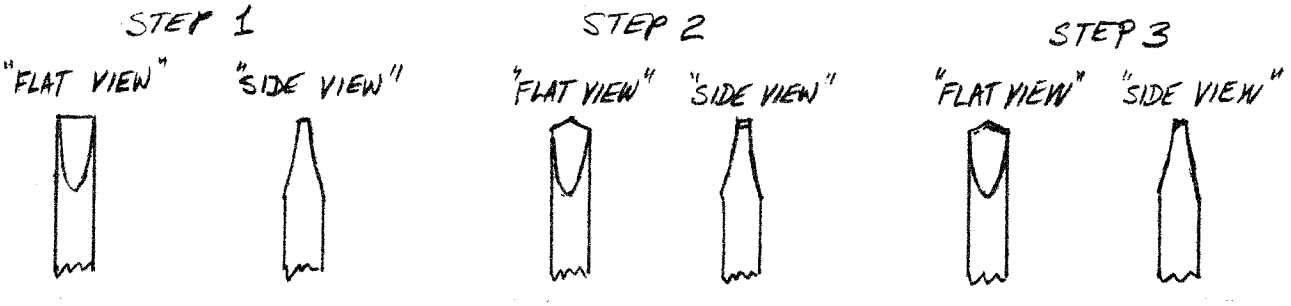
PLANS CHANGES

I noticed in referencing the plans for the secondary latch that the two aluminum inserts for the primary canopy latch system (page 133) are not referenced on page A-10. These inserts should have been installed prior to the glassing of the inside fuselage surface. Transfer the locations referenced on page 133 for the 3/16 x 1/2 x 2 and 3/16 x 1/2 x 1 inserts to page A-10. While you're at it, also transfer the location of the secondary latch insert mentioned in this newsletter to page A-10.

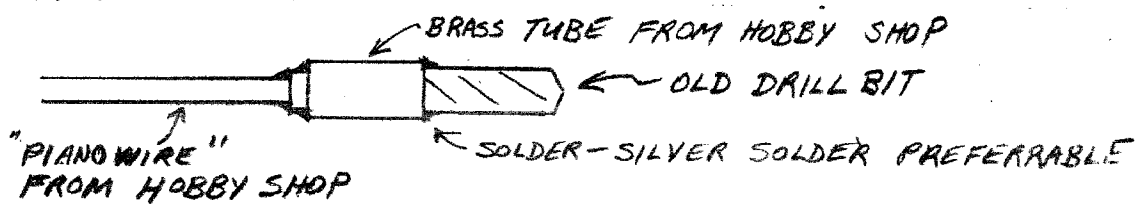
HELPFUL HINTS DEPARTMENT:

The 3' x 3/16" drill bit mentioned in the tail wheel plans, page 120TW, is not described or diagrammed. This is one of those "one time only" tools that you seem to keep around for years and years. The idea is to make a scraping action drill bit, similar to the "spade" bits used in woodworking, on the end of a long piece of wire. The wire can be "snaked" into position to drill a hole close to an edge. It won't be a pretty hole --but it will be a hole.

To make the bit grind a flat on both sides of the end of the wire. I use 5/32" piano wire from the local hobby shop. It should look like a screwdriver blade at this stage. Then grind the top to a peaked shape. And finally grind or file a cutting edge on the flutes you've just made.



For larger diameter bits use a small wire (5/32") and bush the wire with brass tubing up to the diameter of an old regular bit and solder the whole mess on the end of your snake drill.



SUMMER PLANS FOR THE PROTOTYPE:

We have a real pot full of things that we want to do on the prototype. Big ambitious things like a 240 mph on 100 hp mod to the prototype. So much for fantasy -- now down to the realities of day to day survival. My job and many other factors keep me from spending lots of time on the Adventure so this summer will consist mostly of improving the day to day operational aspects of the Adventure. This newsletter, as you've probably surmised, is a step in that direction. Specifically the things we will do before Oshkosh are these:

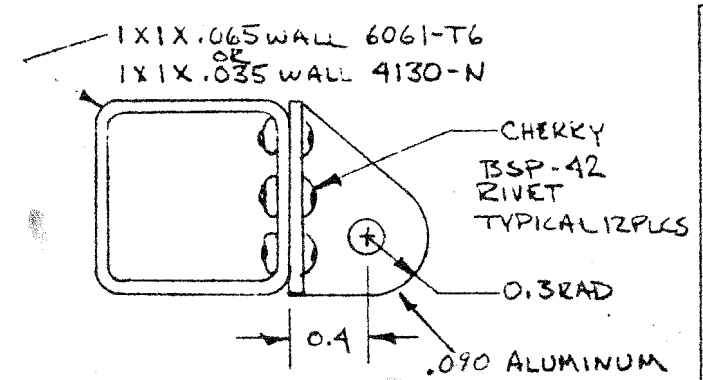
1. Oil cooler installation
2. Engine work
3. Baffling cleanup
4. Wing root fairing (depending on tuft tests)
5. Tailwheel fairing
6. Anything else we have time to do

I know that these don't sound too exciting but like I said -- you've got to be realistic.

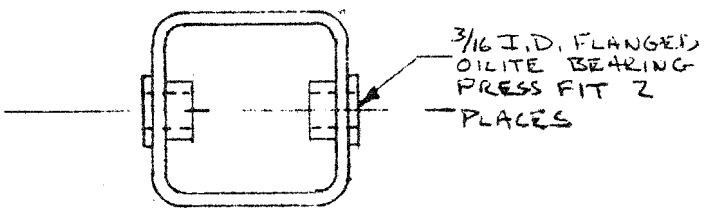
We'll try to get to some fly-ins. If any of you want to look at the Adventure let us know and we'll try to work out something. Of course you can always come to Kansas and look at it.

I jumped a Cessna 310 the other day. He was 2 to 3 miles ahead climbing out from Newton, Ks. I didn't have up a head of steam but thought I'd see if I could catch him. Caught him after he was leveled out, cruising down to Wichita. I was indicating 205+ mph at 4000 pressure altitude at 67°F and passing him. **FUN**. Figure that out for TAS on your computer. To be exact your computer should read:

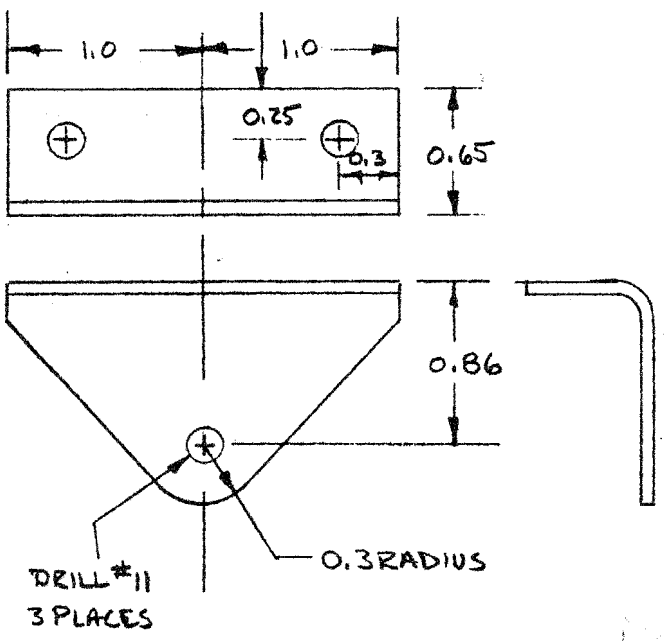
	205 IAS	assume IAS = CAS
INPUT	75°F RAT	assume .95 recovery factor
	4000' Hp.	
OUTPUT	204.6 EAS	
	221.9 TAS	Notice that OAT ≠ RAT
	.2896 Mach	ie. at this mach your
	67.2°F OAT	temperature gage reads about
	107.3 PSF Q	9°F too high.



SECTION A-A
FULL SIZE



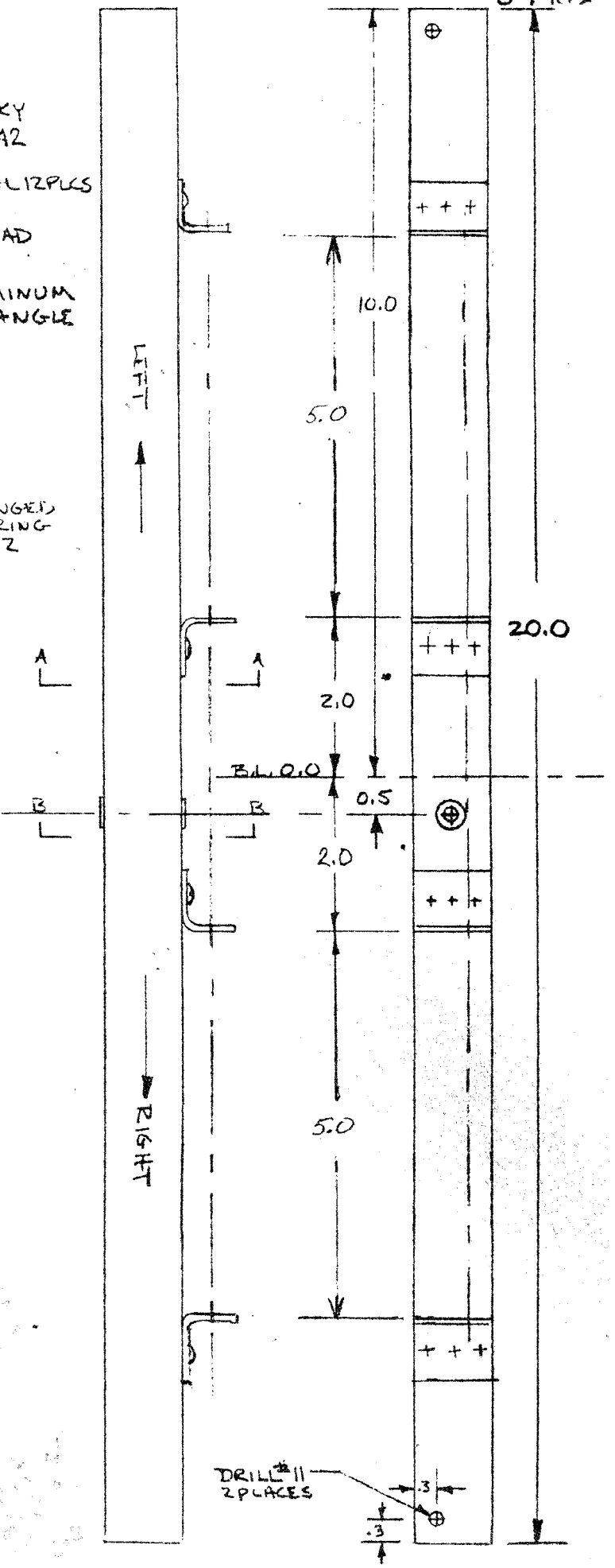
SECTION B-B
FULL SIZE



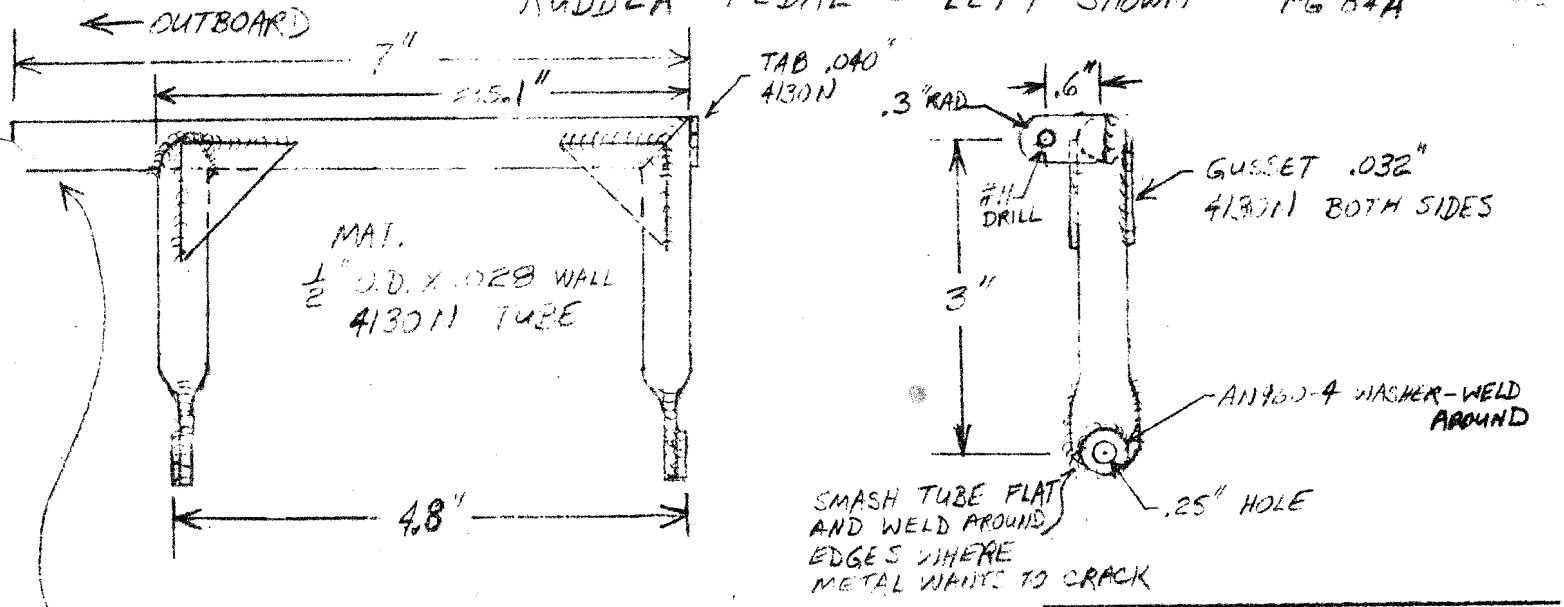
RUDDER BAR MOUNT BRACKET

SHOWN FULL SIZE

MAKE 2 FROM 2X2X.090
2024-T3 ALUMINUM FORMED
ANGLE OR .125 Aluminum Extrusion

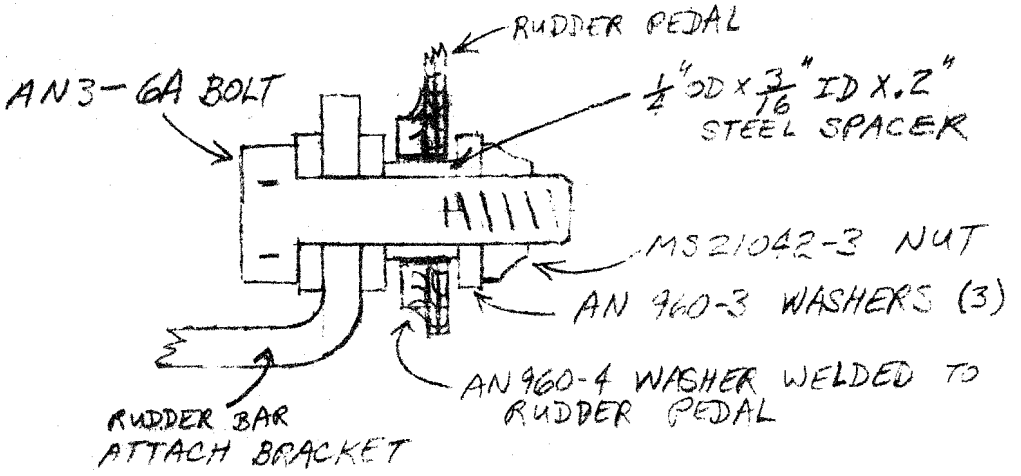


RUDDER PEDAL — LEFT SHOWN



CUT TO LENGTH ON ASSEMBLY TO CLEAR WHATEVER IS IN THE WAY AND TO FIT A COMFORTABLE FOOT POSITION FOR THE PILOT

TYPICAL PEDAL TO RUDDER BAR ATTACH PIVOT ASSEMBLY (4 PLACES) DOUBLE SIZE



NOTE: THIS IS THE SAME BOLT ARRANGEMENT TO BE USED TO ATTACH THE BRAKE CABLE EXCEPT THE OUTSIDE WASHER SHOULD BE AN AN970-3. THE CABLE THIMBLE RIDES ON THE STEEL SPACER.