

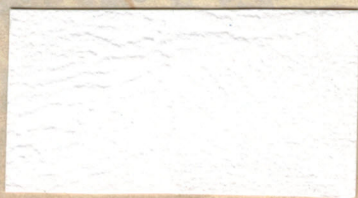
HOW TO BUILD "Hang Loose"

A "CHANUTE TYPE" GLIDER
BY JACK LAMBIE

* ILLUSTRATED BY MARK LAMBIE

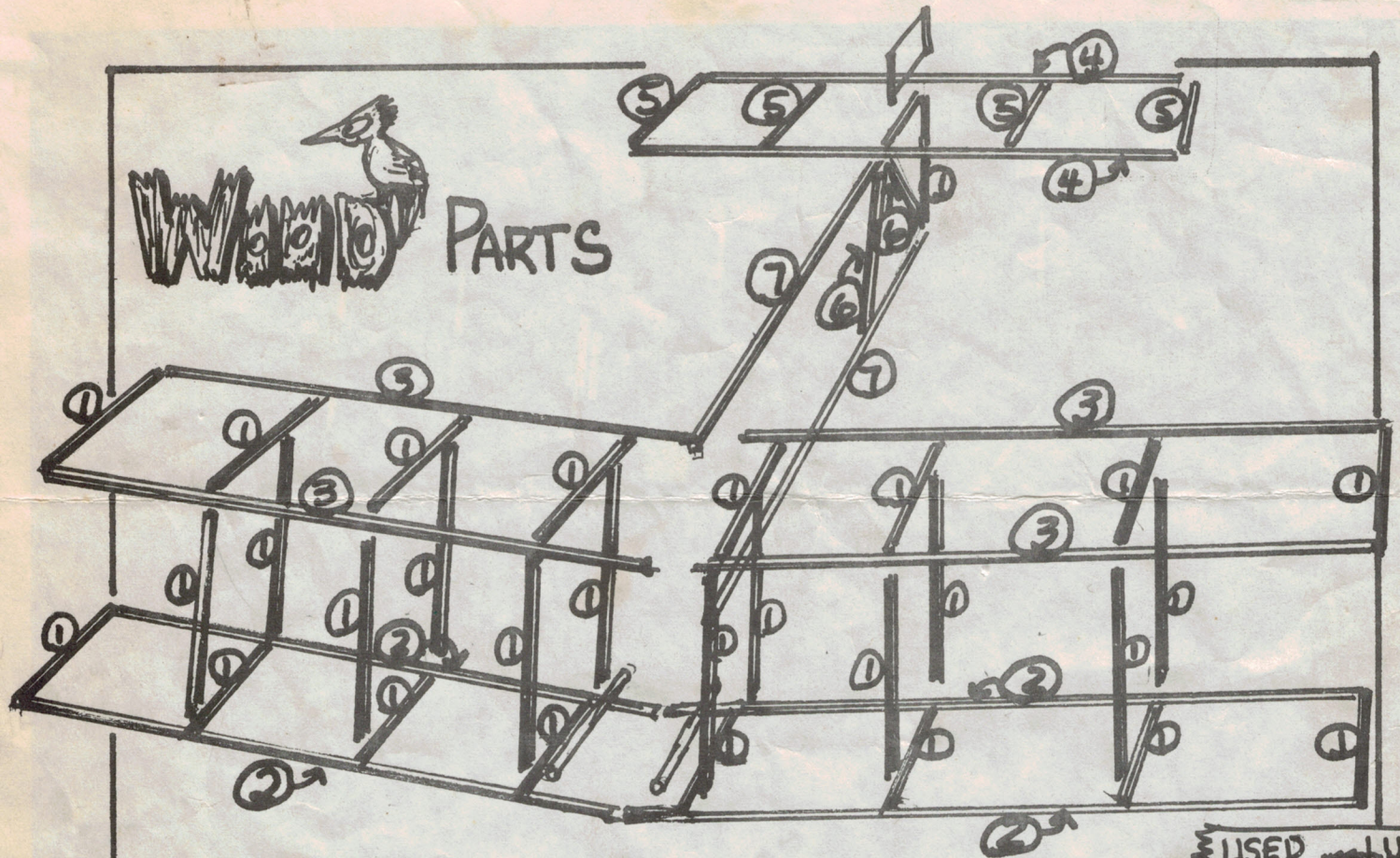
INCLUDES :

- ★ PARTS LIST
- ★ DETAIL DRAWINGS
- ★ FLYING INSTRUCTIONS





PARTS



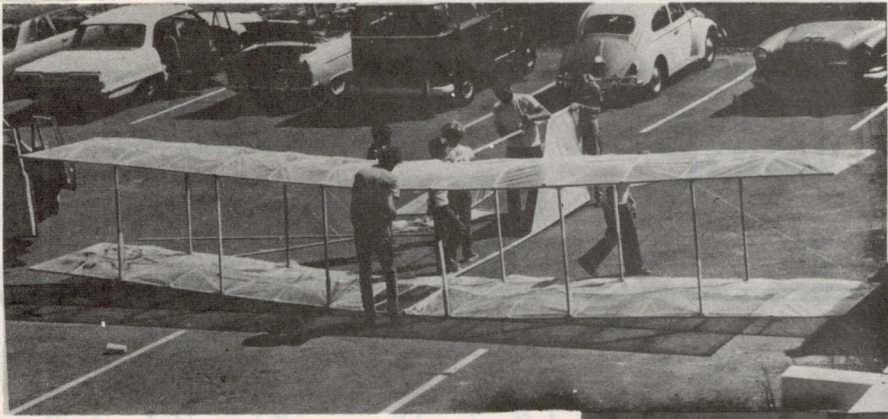
USED LUMBER

FOR WHAT?



GO TO THE USED LUMBER YARD AND PURCHASE SEVEN 14' X 6" STRAIGHT GRAINED PIECES OF YELLOW PINE "DOOR JAMB" WOOD SLICED INTO THE FOLLOWING SIZES... (AIRCRAFT GRADE WOOD MAY BE SUBSTITUTED)

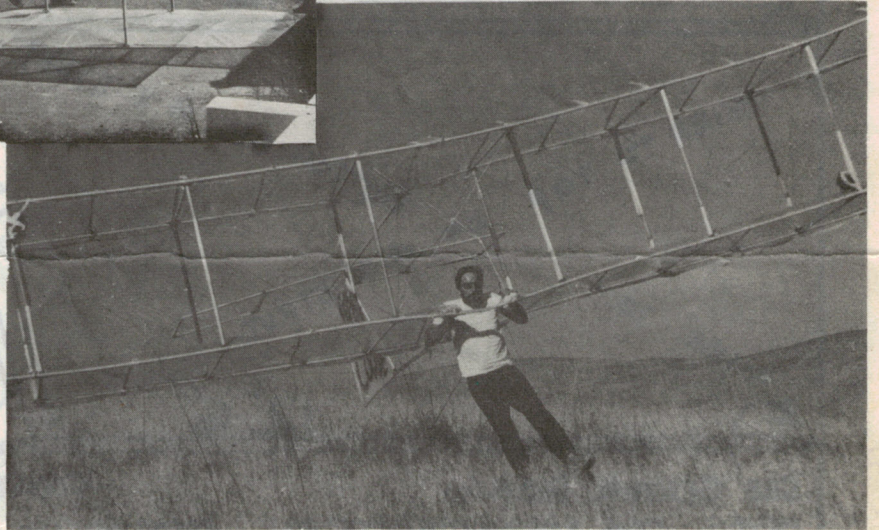
28 ea	$\frac{3}{4}$ " x $\frac{3}{4}$ " x 4'	UNIVERSAL STRUT UNITS	①
4 ea	$\frac{3}{4}$ " x $1\frac{1}{4}$ " x 14'	BOTTOM SPARS	②
4 ea	$\frac{3}{4}$ " x $1\frac{1}{4}$ " x 13'6"	TOP SPARS	③
2 ea	$\frac{3}{4}$ " x $\frac{3}{4}$ " x 10'	STABILIZER SPARS	④
4 ea	$\frac{3}{4}$ " x $\frac{3}{4}$ " x 3'	STABILIZER RIBS	⑤
2 ea	$\frac{3}{4}$ " x $\frac{3}{4}$ " x 4'6"	VERTICAL STABILIZER STRUTS	⑥
1 ea	$\frac{3}{4}$ " x $1\frac{1}{4}$ " x 12'	TAIL BOOMS	⑦
1 ea	$\frac{3}{4}$ " x $1\frac{1}{4}$ " x 12'6"		⑧



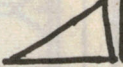



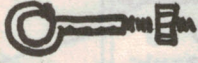




THE EMPEROR

ALL THE STUFF

YOU NEED

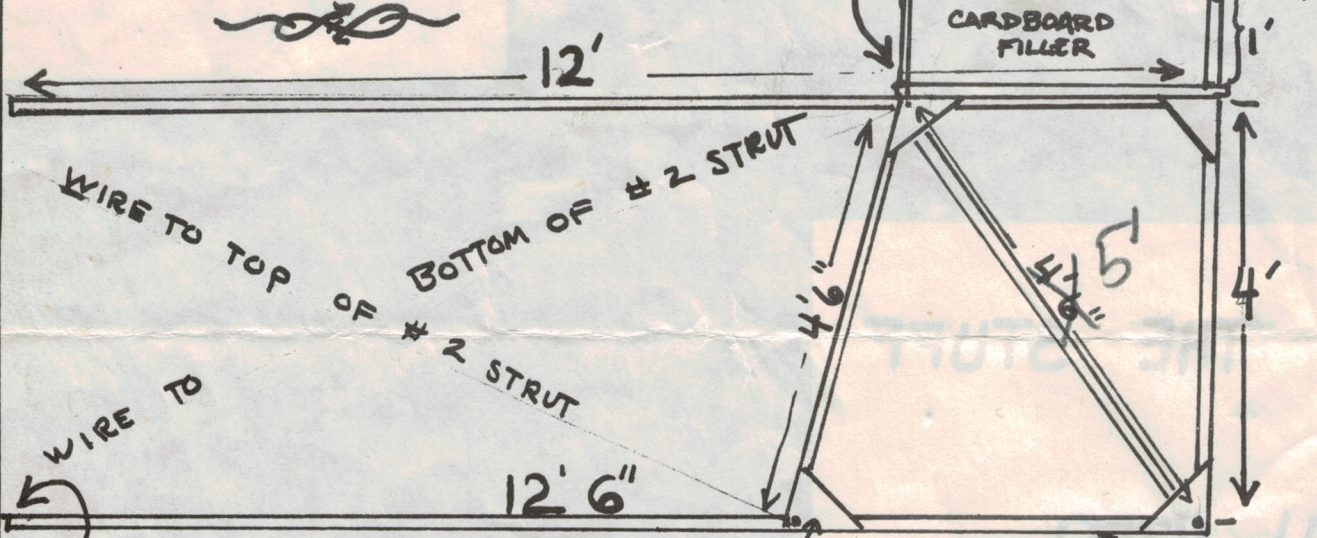


THEN GET 2 15' BAMBOO POLES 2" DIA.
CUT 2, 4'3" LENGTHS FOR ARMPIT HOLDER
ALSO CUT THE REST INTO 4'6" CHUNKS
SPLIT FOUR TIMES INTO 21 RIBS (SEE DETAIL)

- 96 4" TRIANGULAR CARDBOARD GUSSETS 
- 24 POLE HOLDERS  (CLOTHES CLOSET TYPE)
- 25 YARDS 10' WIDE PLASTIC SHEET
- 2 2" x 1" x 1" ALUMINUM ANGLES 
- 66 WOOD SCREWS 
- 21 2" x 3/2 EYEBOLTS 
- 1 PACKAGE COLORED CONSTRUCTION PAPER
- 300' BAILING WIRE 
- 1 BALL HEAVY STRING RIBSTITCHING 
- 1 8oz WHITE GLUE 
- 200 STAPLES
- 1 ROLL 1" MASKING TAPE 

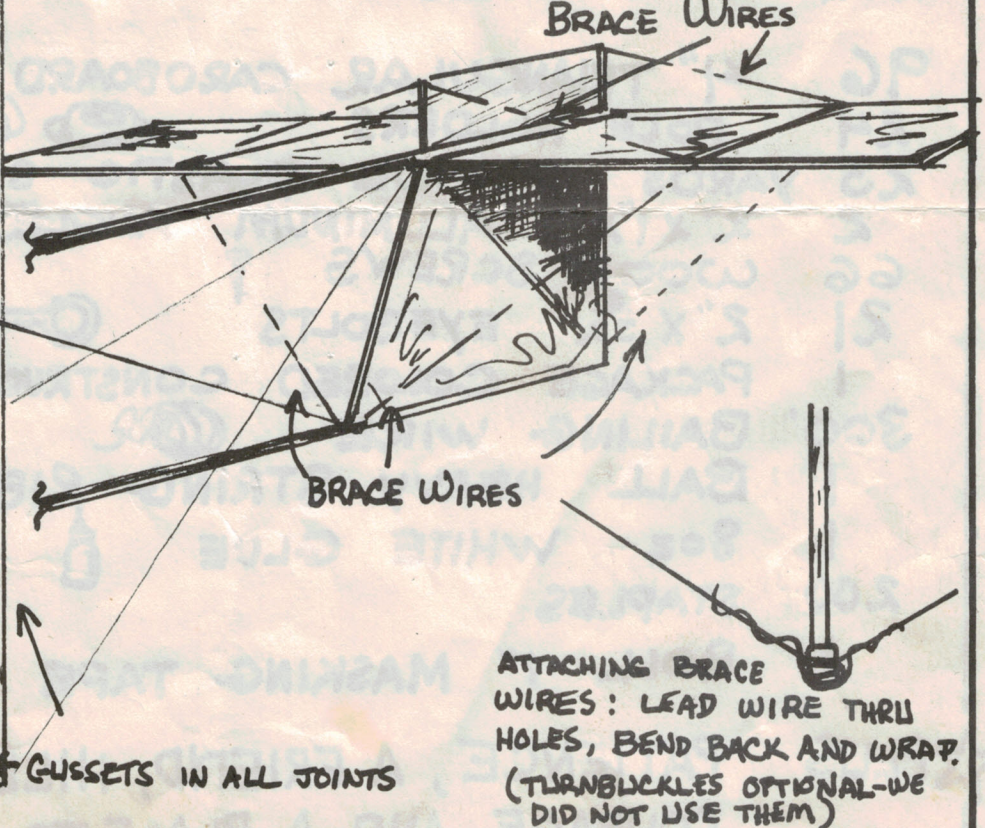
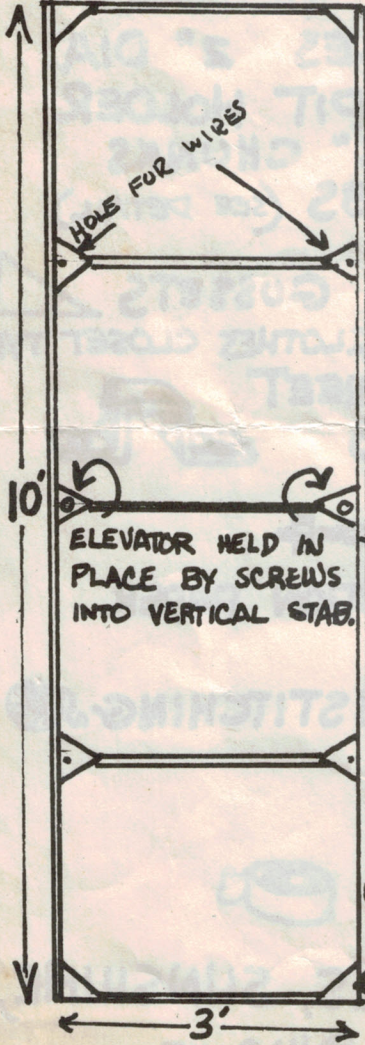
★ PLUS PATIENCE, A FRIEND, HILLS, SUNSHINE,
COURAGE AND A PLACE TO BUILD IT...

THE EMPENNAGE

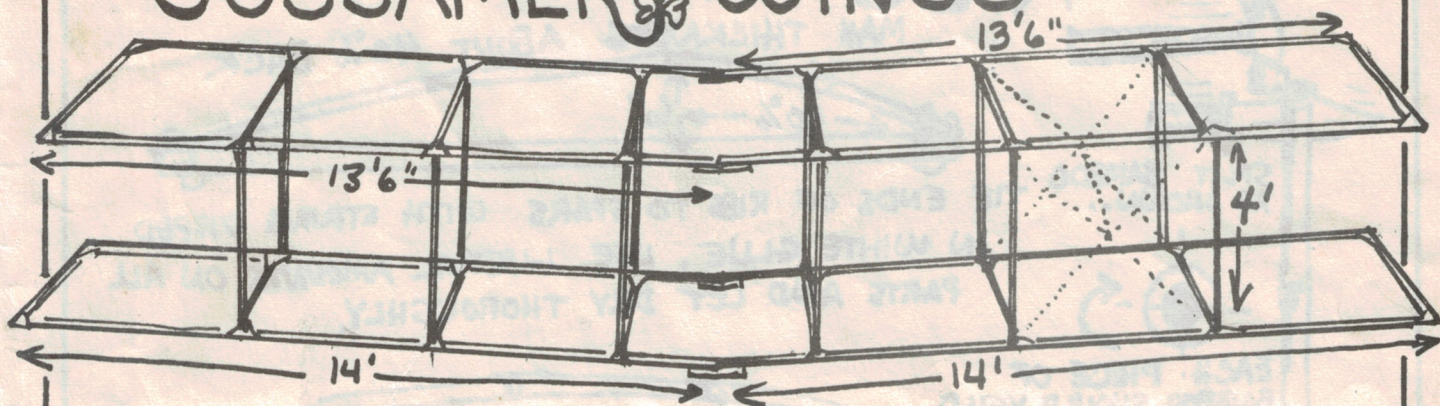


SEE CENTER SECTION
 DETAIL FOR EMPENNAGE/FUSELAGE ATTACHMENT DETAILS...

COVER BOTH SIDES OF VERTICAL STABILIZER WITH PLASTIC SHEET. STAPLE IN PLACE.
 COVER ONLY TOP SIDE OF HORIZONTAL STABILIZER WITH PLASTIC SHEET. (SEE BUILDING WINGS)

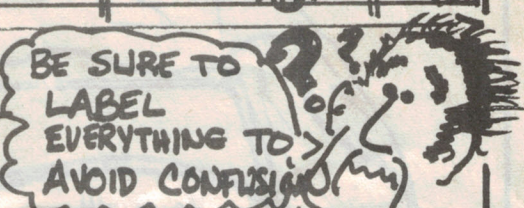
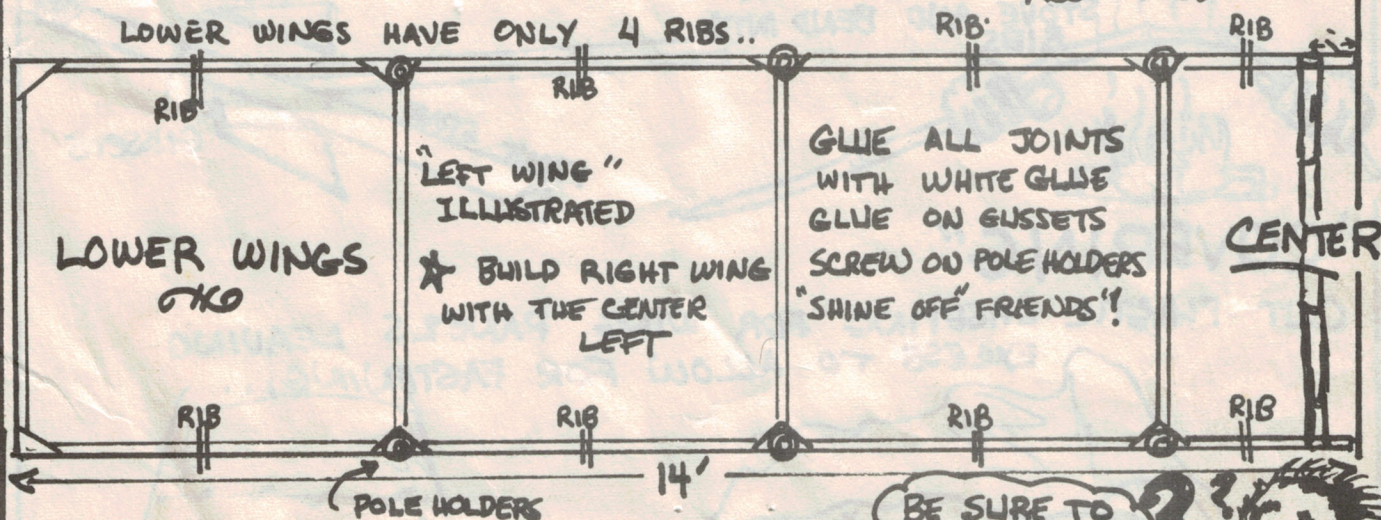


"GOSSAMER WINGS"



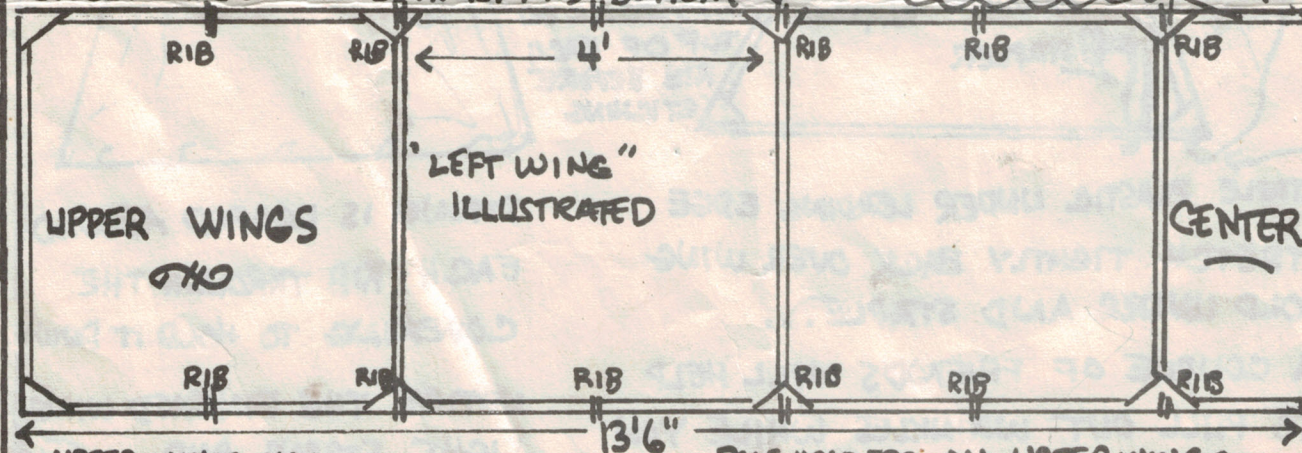
THE UPPER WINGS ARE BUILT SHORTER, THIS GIVES THE DIHEDRAL WHEN ASSEMBLED...

LOWER WINGS HAVE ONLY 4 RIBS..



USE ROUNDED LEADING EDGE IN FRONT

GUSSET ALL JOINTS BOTH TOP AND BOTTOM

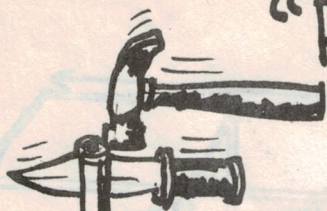


UPPER WINGS HAVE RIBS EVERY 2 FT EXCEPT TIPS..

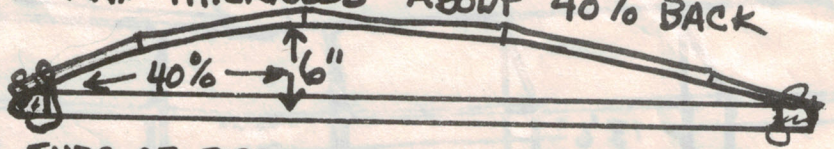
POLE HOLDERS ON UPPER WINGS ARE ON THE BOTTOM OF THE SPARS

"RIBS"

MAX THICKNESS ABOUT 40% BACK



SPLIT BAMBOO AS SHOWN...



TIE ENDS OF RIBS TO SPARS WITH STRING DIPPED IN WHITE GLUE. USE LIBERAL AMOUNTS ON ALL PARTS AND LET DRY THOROUGHLY.

EACH PIECE OF BAMBOO SHOULD YIELD 4 RIBS...

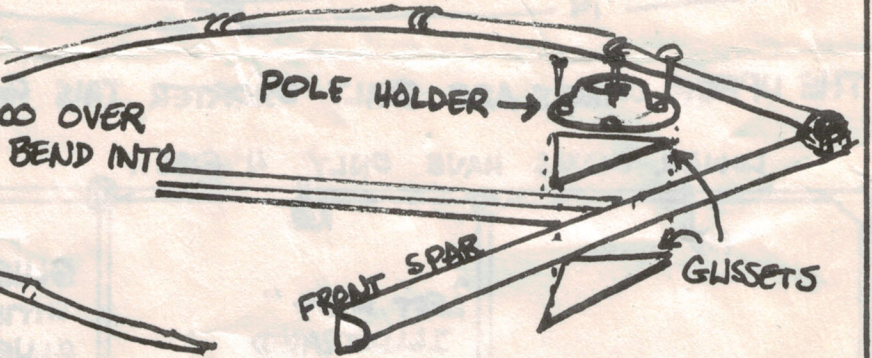
HEAT BAMBOO OVER STOVE AND BEND INTO RIBS



POLE HOLDER

FRONT SPAR

GLISSETS



"COVERING"

CUT PLASTIC SHEETING FOR WING PANELS LEAVING EXCESS TO ALLOW FOR FASTENING...



USE MASKING TAPE ON TOP OF PLASTIC ON TOP OF EACH RIB BEFORE STITCHING



STAPLE PLASTIC UNDER LEADING EDGE STRETCH TIGHTLY BACK OVER WING FOLD UNDER AND STAPLE...

A COUPLE OF FRIENDS WILL HELP TO PULL OUT WRINKLES WHILE YOU FASTEN THE PLASTIC ON.

STRING IS LOOPED AROUND EACH RIB THROUGH THE COVERING TO HOLD IT DOWN

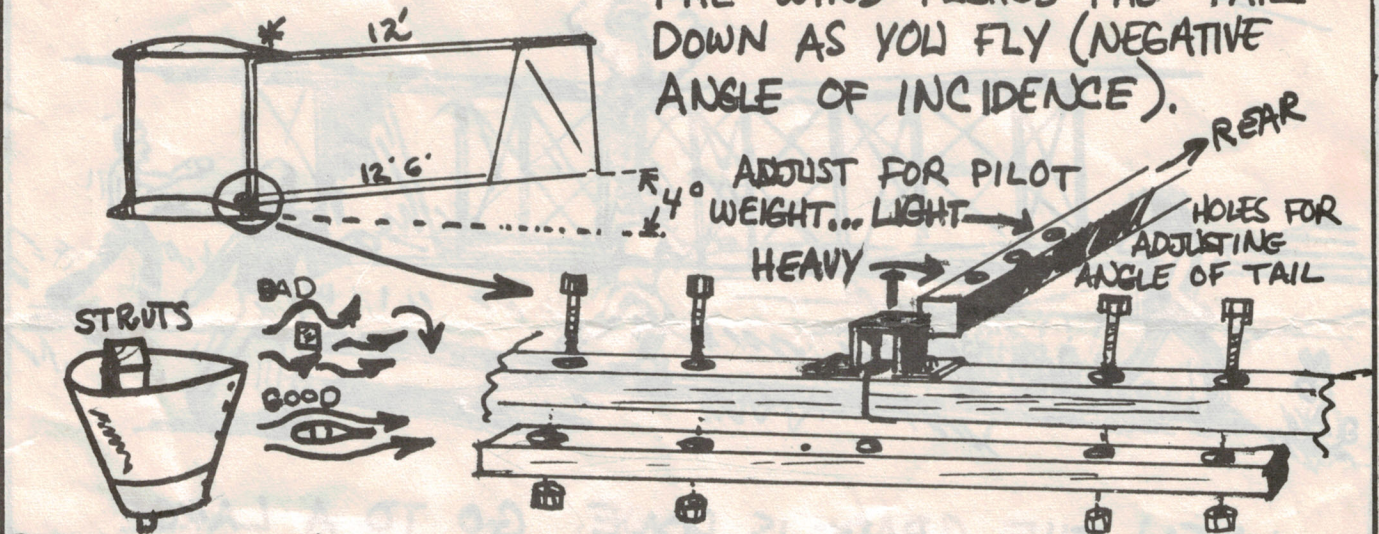
NOTICE THE FINISHED WING LIGHT, STRONG, AND TRANSPARENT.

BUT. NO FEATHERS



"TAIL BOOM MOUNT"

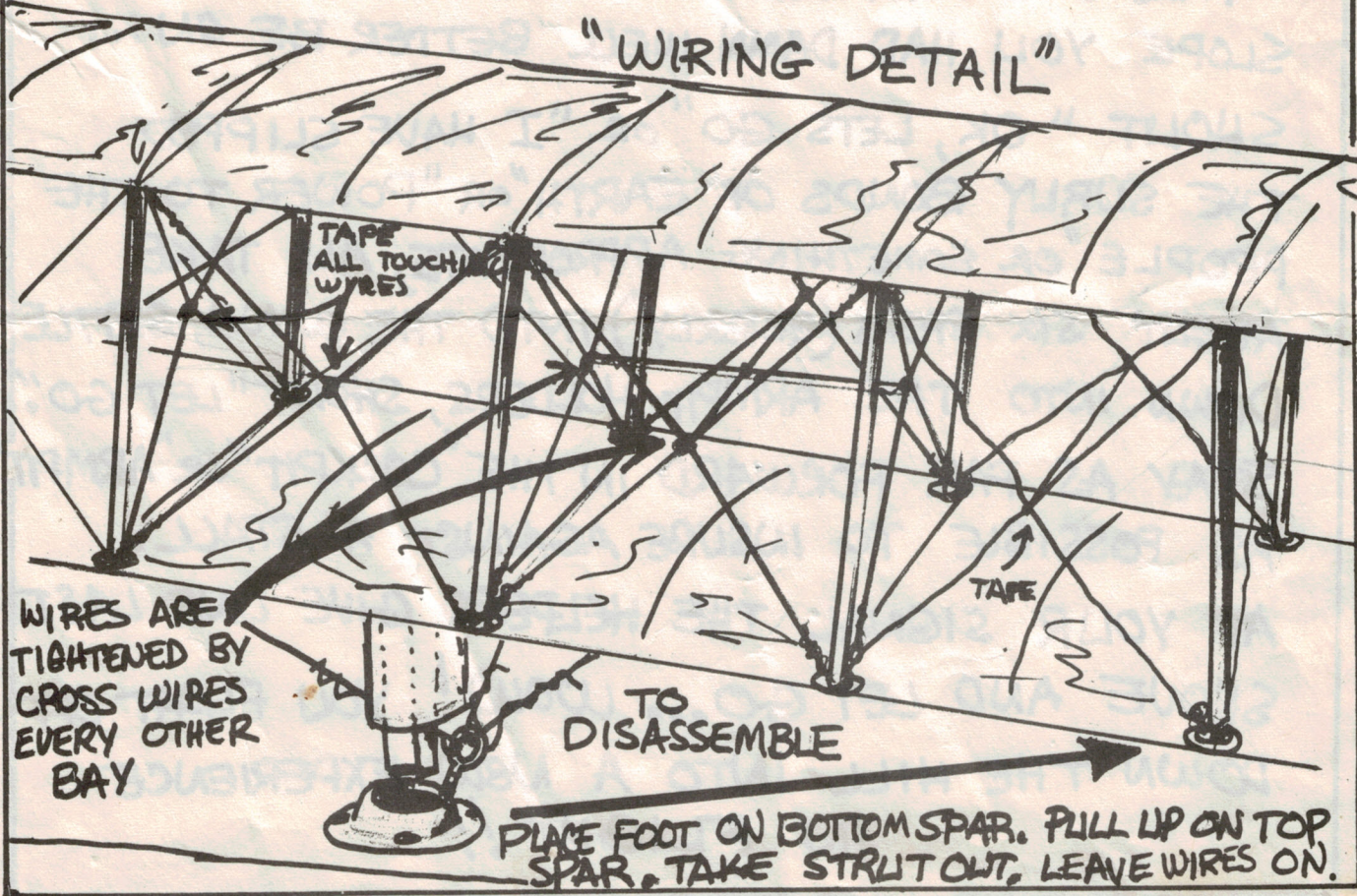
NOTE: IT IS IMPORTANT TO ANGLE THE TAIL ASSEMBLY UP SO THAT THE WIND PUSHES THE TAIL DOWN AS YOU FLY (NEGATIVE ANGLE OF INCIDENCE).



STREAMLINE WITH CONSTRUCTION PAPER

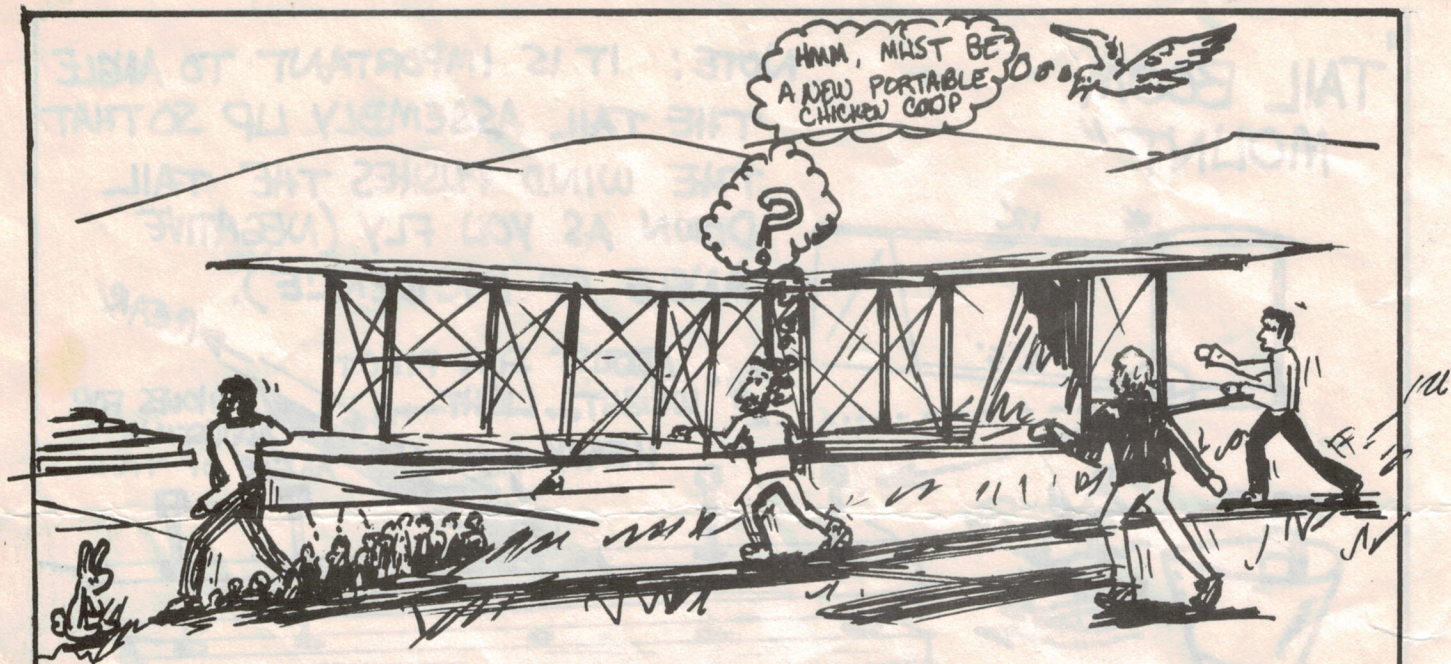
* TOP TAIL BOOM MOUNT SAME AS ILLUSTRATED EXCEPT IT IS NOT ADJUSTABLE.

"WIRING DETAIL"



WIRES ARE TIGHTENED BY CROSS WIRES EVERY OTHER BAY

PLACE FOOT ON BOTTOM SPAR. PULL UP ON TOP SPAR. TAKE STRUT OUT, LEAVE WIRES ON.

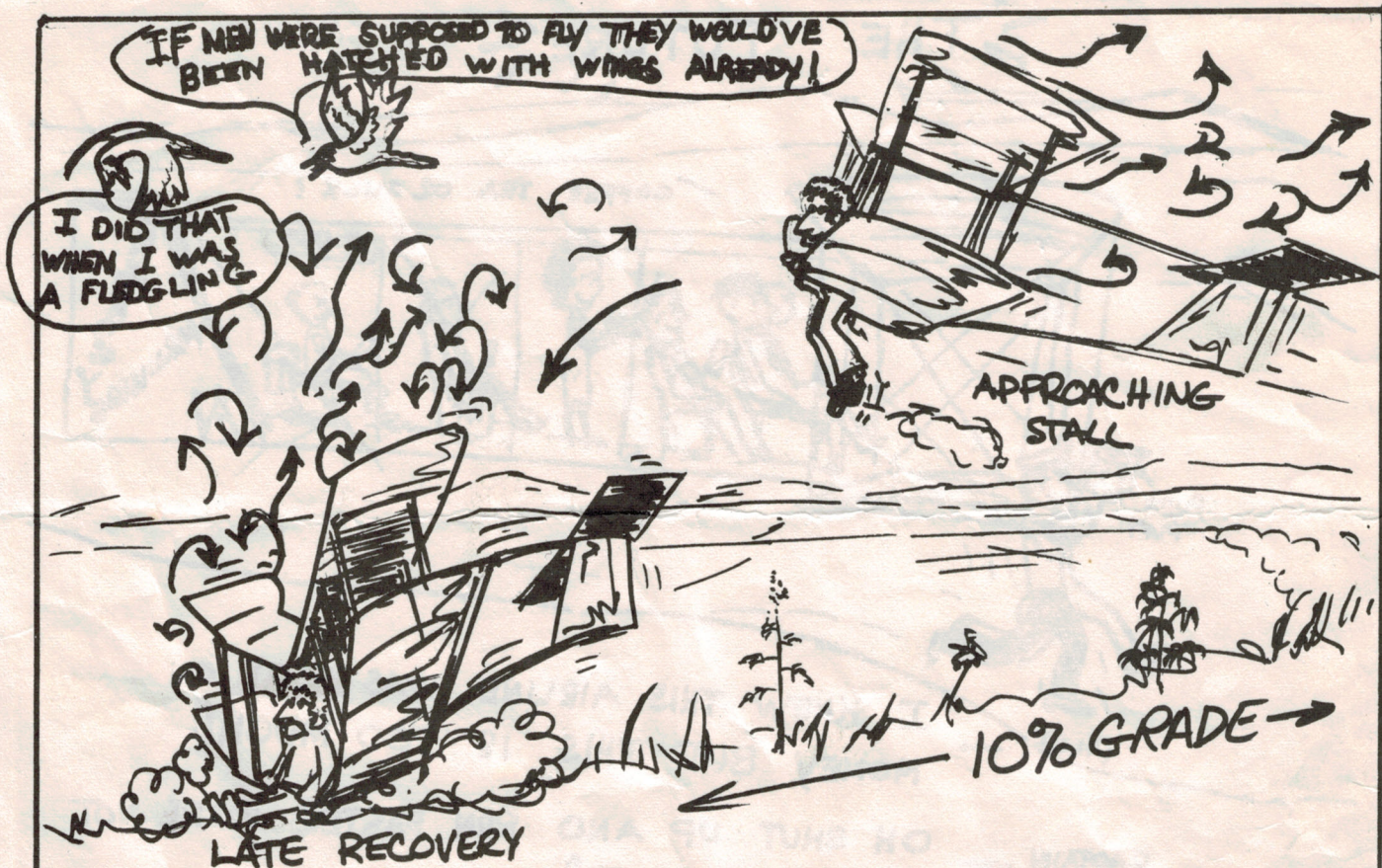


WHEN THE CRAFT IS DONE, GO TO A LARGE SMOOTH HILL. WITH A HELPER ON EACH WING TIP AND ONE ON THE TAIL, FACE INTO THE WIND.

TAKE ONE LAST LOOK DOWN THE 5 TO 10 DEGREE SLOPE YOU HAD DAMN WELL BETTER BE ON...

SHOUT "OK, LETS GO" OR "I HAVE SLIPPED THE SURLY BONDS OF EARTH" OR "POWER TO THE PEOPLE" OR SOMETHING APPROPRIATE, ALL TAKE ABOUT SIX STEPS (QUICKLY) INTO THE WIND, SETTLE DOWN INTO THE ARMPIT HOLDERS, SHOUT "LET GO". STAY AS FAR FORWARD IN THE "COCKPIT" OR "ARMPIT" AS POSSIBLE TO INSURE AGAINST A STALL.

AT YOUR SIGNAL THE HELPERS GIVE ONE LAST SHOVE AND LET GO... WOW! YOU FLOAT OFF DOWN THE HILL INTO A NEW EXPERIENCE IN FLIGHT!!



IF THE MACHINE SEEMS TO STOP IN THE AIR AFTER CLIMBING A BIT, YOU ARE STALLING...↑ MOVE YOUR LEGS FOWARD TO ANGLE DOWN AND PICK UP SPEED.

IN THE NORMAL 10 TO 12 MPH WIND, GROUND SPEED IS ABOUT 5MPH OR SO. FULL STALL LANDINGS AREN'T NECESSARY, BUT, IF YOU WANT, MOVE THE LEGS BACK JUST BEFORE TOUCH-DOWN AND THE GLIDER WILL FLARE UP AND STOP DEAD.

TURNING IS ATTEMPTED BY SWINGING THE LEGS INTO THE DIRECTION DESIRED. THIS IS NOT TOO EFFECTIVE AS CHANLITE AND LILIENTHAL DISCOVERED.

GOOD LUCK, REMEMBER, ALL HANG GLIDER PILOTS ARE MORTAL...

THE FUTURE



I KNEW THIS AIRLINE WAS SHORT ON MONEY BUT THIS IS TOO MUCH!

CAPTAIN — OH SHUT UP AND RUN FASTER WE'RE NOT AT VMC YET!

~~SEE // 83~~

SOME FAA RULES

1. ALL IFR FLIGHTS OVER 18,000 MSL MUST HAVE TRANSPONDERS.
2. FLIGHTS OVER 10,000' MUST HAVE OXYGEN AVAILABLE FOR CREW + PASSENGERS
3. OVERWATER FLIGHTS OF OVER ONE HOUR DURATION MUST HAVE INDIVIDUAL VESTS AND LIFE RAFTS.