





## SHEET 2, LOWER WING ASS'Y.

### ① CUT SPARS TO LENGTH.

FRONT SPAR 1 1/2" WITH BEND, CUT TO 143" CUT OFF 1"  
REAR SPAR 1" WITH BEND, CUT TO 137" CUT OFF 7"

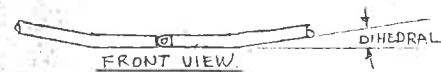
### ② ASSEMBLE WING TIP & SPARS

FOR THIS STEP IT IS NECESSARY TO ASSEMBLE THE SPARS & TIP ON A FLAT FLOOR. PREFERABLY A FLOOR INSIDE YOUR HOUSE WHICH IS FLAT. CEMENT FLOORS ARE USUALLY IRREGULAR.  
FIT REAR SPAR TO TIP WITH NO. 49 JOINER, RIVET ONLY ONE SIDE OF JOINER LEAVING SPAR FREE TO TWIST INSIDE WING TIP.

NOW LAY WING UPON YOUR FLAT FLOOR AND INSERT FRONT SPAR OVER WING TIP AS SHOWN. PUT A MARK 6" FROM END OF TIP FOR REFERENCE.

REASON FOR ALL THIS SETUP IS

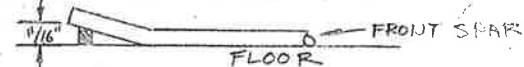
DUE TO THE FACT THAT THE "EASY" HAS DIHEDRAL & SWEEP, AND ALSO THE FACT THAT THE CENTER SECTION (PILOT AREA) IS RECTANGULAR, THE LOWER SPARS ARE ANGLED BACK AND UP AT THE JUNCTION OF THE CENTER SECTION (SEE DWG. 6)



SO YOU'LL SEE THAT THE BENT ENDS OF THE SPARS ARE BOTH ANGLED BACK (FOR SWEEP BACK OF WINGS) AND ANGLED UP (FOR DIHEDRAL).

### ③ RIVETING SPARS TO WING TIP.

NOW YOU HAVE THE WING FRAME ON THE FLAT FLOOR BUT NOT RIVITED TOGETHER.



WITH THE HELP OF A FRIEND, HOLD THE WING TIP AND FRONT SPAR FLAT DOWN ON THE FLOOR. ROTATE THE FRONT SPAR SO THAT IT IS ANGLED BACK AS SHOWN IN THE PLAN, AND THE END IS UP FROM THE FLOOR 1/16". PUT A BLOCK UNDER THE TUBE TO HOLD FIRMLY IN PLACE. NOW WHILE ONE PERSON HOLDS THIS END, THE OTHER RIVETS THE WING TIP ON WITH STEEL RIVETS AS SHOWN.  
NEXT, PUT THE 2 1/2" (WASHOUT) BLOCK UNDER THE REAR SPAR WING TIP END. NOW TWIST THE REAR SPAR AT THE JOINER UNTIL THE INNER BENT END OF THE LOWER SPAR IS 7/8" ABOVE FLOOR. NOW RIVET TIP TO REAR SPAR.



YOU WILL NOTE THAT BOTH SPAR ENDS WILL NOW BE 7/8" UP FROM FLOOR PLUS OR MINUS 1/16". WHEN YOU PUT THE 2 1/2" WASHOUT BLOCK IN PLACE AFTER RIVETING ON FRONT SPAR, THE DISTANCE INCREASES ON FRONT SPAR FROM 1/16" TO 7/8"

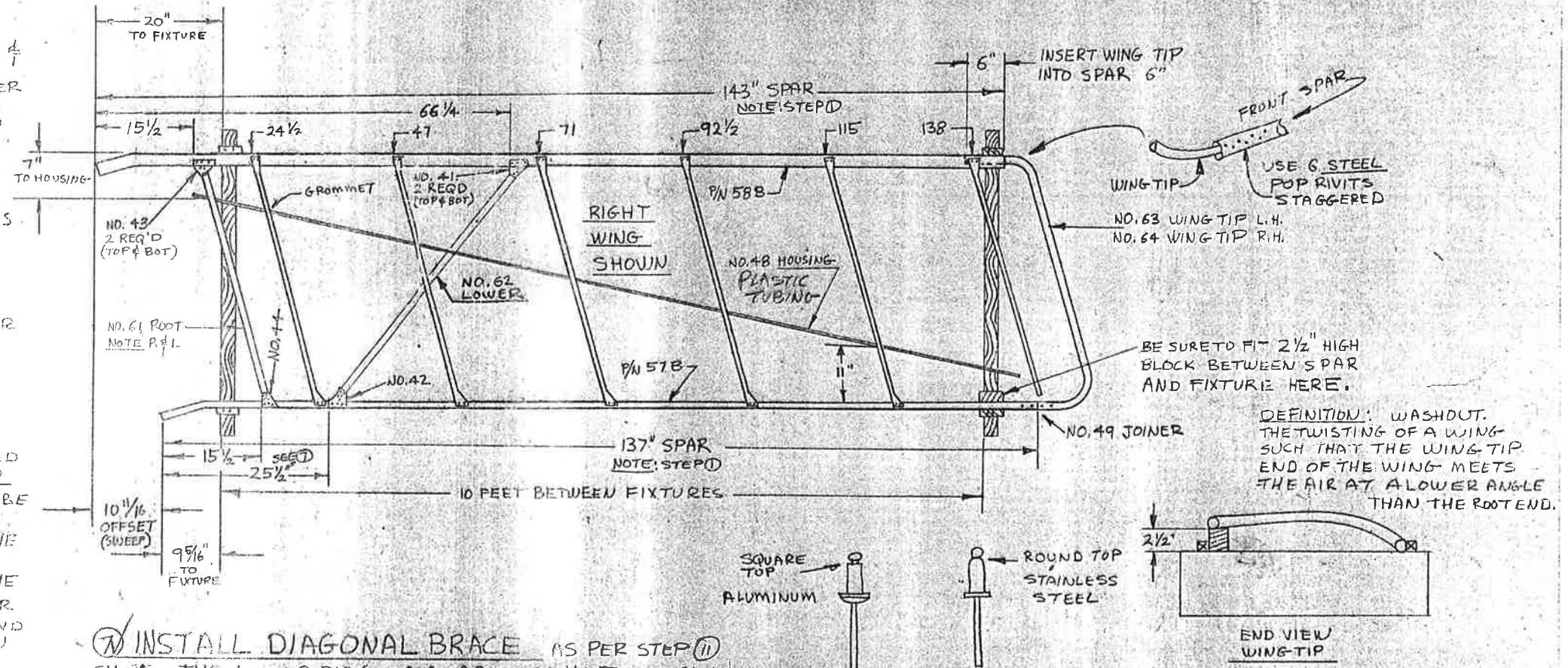
### ④ BUILD THE WING

PUT THE WHOLE THING ON YOUR BASIC FIXTURE. MEASURE THE 20" AND 10 1/16" MARKS FOR SWEEP, PUT IN THE WASHOUT BLOCK AND SECURE THE FRAME TIGHTLY TO THE FIXTURE. MEASUREMENTS SHOULD BE ACCURATE TO WITHIN 1/16" FOR SWEEP. REFER TO STEPS ⑥-⑧ SHEET 1.

### ⑤ INSTALL WING ROOT AS PER STEP ⑨ SH. 1.

NOTE: ON ALL THE REMAINING MEASUREMENTS THIS SHEET A TOLERANCE OF PLUS OR MINUS 1/8" IS ACETABLE.

### ⑥ INSTALL RIBS AS PER STEP ⑩ SH. 1.



### ⑦ INSTALL DIAGONAL BRACE AS PER STEP ⑪ SH. 1.

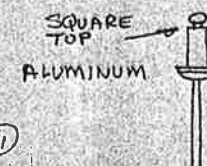
THE LOWER DIAGONALS ARE MARKED: 62 RL FOR RIGHT LOWER & 62 LL FOR LEFT LOWER. NOTE THAT LOWER DIAGONALS ARE SHORTER THAN UPPER DIAGONALS. THE 66 1/4" MEASUREMENT FROM ROOT END OF FRONT SPAR TO GUSSET IS TO ALLOW SUFFICIENT CLEARANCE FOR STRUT BRACKET WHICH WILL FIT INBOARD OF #41 GUSSET. THE 25 1/2" DIMENSION IS APPROXIMATE.

### ⑧ INSTALL CONTROL CABLE HOUSING

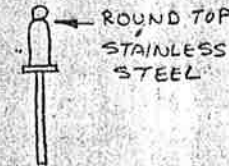
CUT HOUSING NO. 48 TO 12 FT LONG. MEASURE BACK FROM LEADING EDGE OF FRONT SPAR 7" AND MARK ROOT. NOW MEASURE NO. 5 RIB 11" FROM TRAILING EDGE, AND MARK RIB.

### ⑧ CONTINUED

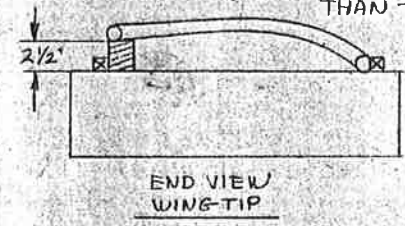
NOW STRETCH AND TAPE A PIECE OF STRING BETWEEN THE TWO MARKS. WITH A 3/8" DIA. DRILL BIT, MAKE A HOLE BETWEEN THE FIRST TWO LIGHTENING HOLES IN RIB #1. PUT THE RUBBER GROMMET SUPPLIED IN THIS HOLE. THE CONTROL TUBE WILL FIT THROUGH THE GROMMET.  
PUT THE 1/4" DRILL BIT IN YOUR ELECTRIC DRILL AND DRILL A HOLE IN THE ROOT TUBE FOR THE CABLE HOUSING. CLEAN THE EDGES OF THE HOLE SO AS NOT TO CUT THE CABLE HOUSING.  
PULL THE HOUSING THROUGH THE HOLES. LET IT HANG OUT 3" ON THE ROOT END. PUT STRAPPING TAPE AROUND HOUSING ON EACH SIDE OF ROOT TO SECURE IN PLACE.



SQUARE TOP ALUMINUM



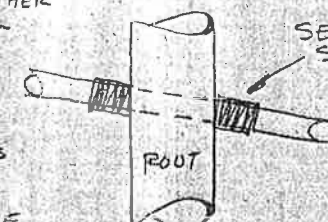
ROUND TOP STAINLESS STEEL



END VIEW WING-TIP

RIVETS FURNISHED IN UFM KITS ARE EITHER STAINLESS STEEL OR ALUMINUM. THE DIFFERENCE IS SHOWN ABOVE.

NOTE: IF BUYING REPLACEMENT RIVETS FROM OTHER SOURCES THE SHAPES MAY LOOK THE SAME BUT NOT BE THE SAME. TAKE THE RIVET OFF MANOREL AND CHECK RIVET WITH A FILE.



SECURE WITH 1/2" STRAPPING TAPE

ENGINEER, LARRY MAUR

ORIGINAL DRAWING 3/16/76  
UPDATED 4/12/77 & 3/29/78

UFM SANTA CLARA

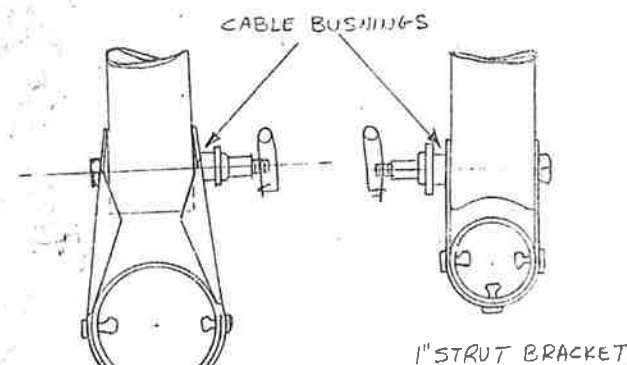


# SHEET 3 PRE-RIG

- ① PARTS
- |              |             |
|--------------|-------------|
| STRUT BRKT'S | NO. 33-38   |
| STRUTS       | NO. 66-69   |
| BOLTS        | NO. 4 & 5   |
| POP RIVETS   | NO. 20 & 21 |

## ② PREPARE BRACKETS & BOLTS

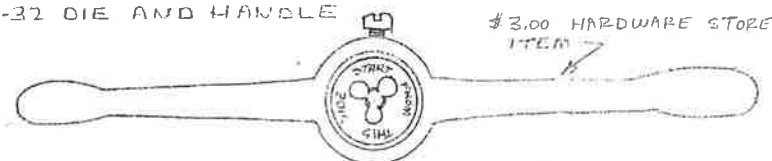
MOST STRUT BRACKETS COME PRE-BENT IN KIT. IF YOU NEED TO FORM A STRUT BRACKET TO FIT A SPAR, BEND FIRST AROUND A SLIGHTLY SMALLER DIA. TUBE AS THE METAL WILL SPRING BACK SOMEWHAT. THE HOLES MUST ALIGN UP SO BOLTS WILL THREAD IN EASILY.



## 1 1/2\"/>

BOLTS NO'S 4 & 5 MUST BE RE-THREADED SO THEY CAN BE SCREWED FAR ENOUGH INTO THE STRUT BRACKETS TO PUT LOCK WASHERS ON.

ADD 5-6 NEW THREADS ON EACH BOLT USING A 10-32 DIE AND HANDLE



CLAMP BOLTS IN A VICE AND ADD THREADS BY TURNING 1/2 REVOLUTION AT A TIME, BACKING OFF 1/4 TURN TO PREVENT METAL CHIPS, AND SO ON, USE OIL OR SOLVENT WHILE CUTTING, CLEAN IN SOLVENT FINALLY.

## ③ SET LOWER WING ON FIXTURE AS SHOWN

MARK LOCATIONS OF STRUT BRACKETS AS SHOWN ON DRAWING. ALSO MARK STRUT LOCATIONS ON UPPER WING. NOTE: THESE LOCATIONS ARE TO MIDDLE OF BRACKET.

NOW FIT THE PROPER NUMBERED BRACKET IN PLACE.

ALL NO 33 & 36 BRACKETS USE BOLT 4, 1 1/4\"/>

ALL OTHER BRACKETS USE BOLT 5, 1 7/8\"/>

MOUNT BRACKETS SO THE CABLE BUSHINGS GO ON THE INSIDE

## ④ PUT STRUTS IN PLACE AND FIT UPPER WING INTO POSITION. USE STRUTS NO. 66 (45\"/>

NOTE: STRUTS WITH CURVED ENDS GO TO REAR SPAR

## ⑤ MARK POSITION FOR UPPER WING GEOMETRY

USING A FELT TIP MARKING PEN, MARK ON THE FLOOR THE POSITIONS TO WHICH THE UPPER WING WILL BE LOCATED. MAKE A MARK ON THE FLOOR DIRECTLY BELOW THE END OF EACH LOWER WING SPAR.

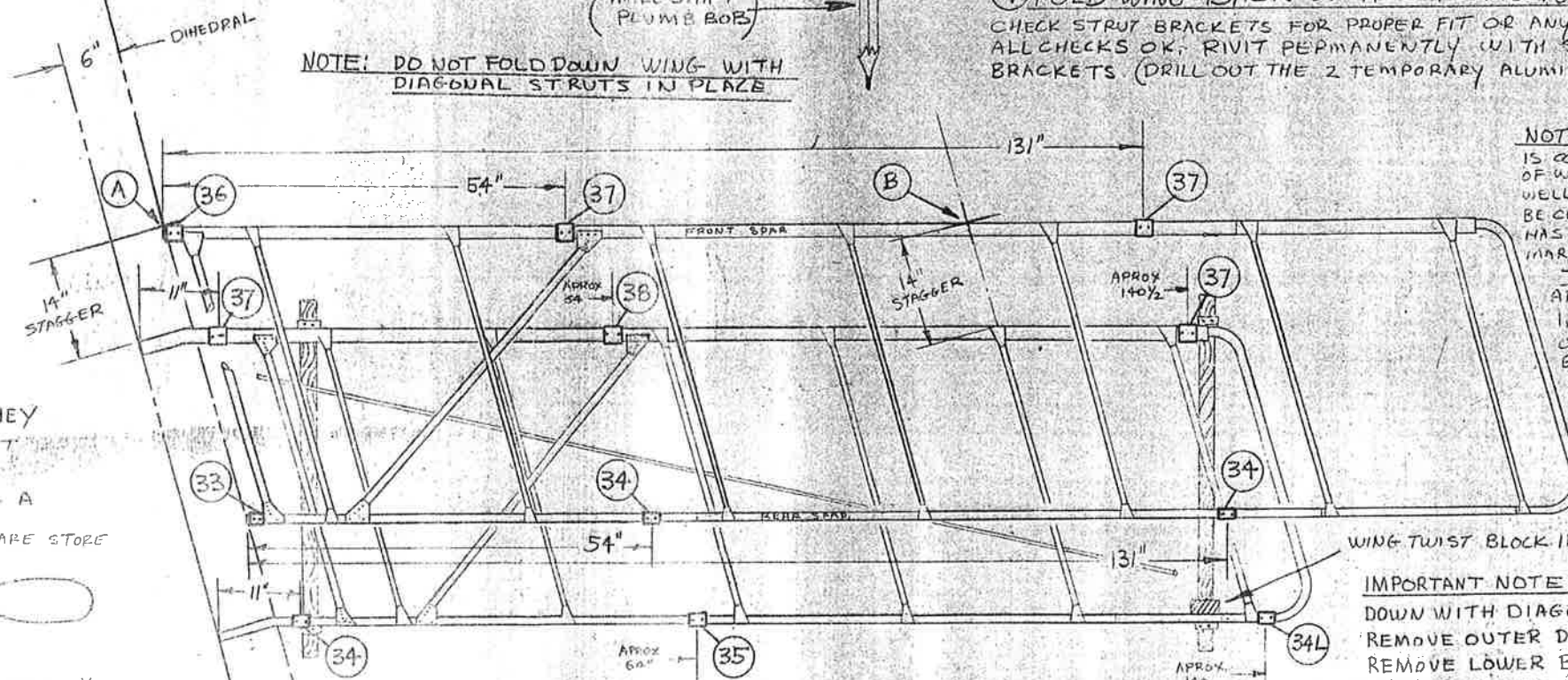
NOW MAKE ANOTHER MARK EXACTLY 6\"/>

MAKE MARK B BY MEASURING OUT 14\"/>

THE UPPER WING IS NOW FITTED DIRECTLY OVER MARKS A & B BY DROPPING A PLUMB BOB FROM THE LEADING EDGE OF THE UPPER WING TO THE MARKS.

(MAKE SHIFT PLUMB BOBS)

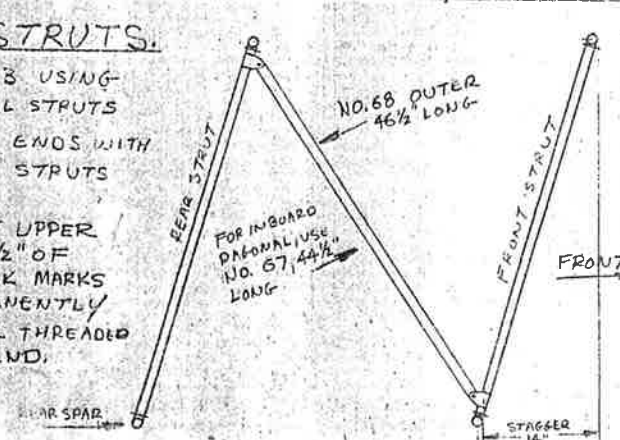
NOTE: DO NOT FOLD DOWN WING WITH DIAGONAL STRUTS IN PLACE



## ⑩ INSTALL DIAGONAL STRUTS

ALL STRUT BRACKETS ARE NO. 33 USING 1 1/4\"/>

INNER DIAGONAL IS FITTED SO THAT UPPER DIAGONAL BRACKET FITS WITHIN 1/2\"/>



OUTER DIAGONAL NO. 68 (46 1/2\"/>

3/18/76 OFM  
EASY RISE  
B. J. H. H.



# SHEET 4 FABRIC COVERING

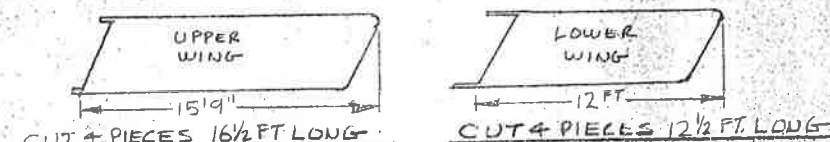
## 1 MATERIAL LIST FROM KIT.

25- 1 QUART FABRIC CEMENT  
26- 2 GALLONS NITRATE DOPE  
27- 2 GALLONS LACQUER THINNER.  
28- 1 PINT CHROMIC ACID  
52- 1 ROLL 1 1/2" WIDE FILAMENT TAPE X 60 YD.  
73- 44 YARDS 1.4 OZ. DACRON FABRIC X 44" WIDE

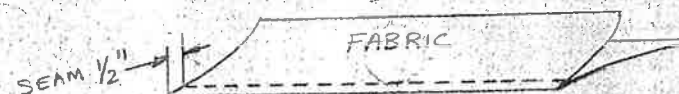
## 2 TOOLS & SUPPLIES NEEDED

2" BRUSH FOR CEMENT, 3" BRUSH FOR FABRIC.  
OPTIONAL HEAVY DUTY AIR COMPRESSOR & SPRAY GUN.  
1 GALLON MIXING CAN FOR DOPE, 1 QUART MIXING CAN, CEMENT  
"SCOTCH BRITE" SCOURING PAD, SPONGE, RUBBER GLOVES.  
PLASTIC TAPE SAME COLOR AS FABRIC.  
SCISSORS, "XACTO KNIFE"  
TAPE MEASURE, 4-6 CLAMPS.  
PAPER TOWELS  
HOUSEHOLD IRON, OR HEAT GUN.  
HOUSEHOLD SEWING MACHINE, BALL END NEEDLE, AND  
POLYESTER THREAD.

## 3 MEASURE & CUT FABRIC



## 4 SEW FABRIC WITH 100% POLYESTER (DACRON) THREAD ON HOME SEWING MACHINE WITH BALL END NEEDLE.



SEW ONE STITCH ONLY 1/2" FROM EDGE AS SHOWN.  
SEW 2 LOWER SETS AND 2 UPPER SETS.

## 5 PREPARATION OF AIRFRAME

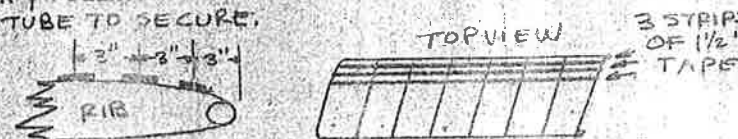
CLEAN ENTIRE WING WITH LACQUER THINNER OR ACETONE TO REMOVE RED INK, PEN MARKS, FINGER PRINTS, OIL.  
USING "SCOTCH BRITE" ABRASIVE PADS, CLEAN SPARS, TIPS, ROOTS, RIBS WHERE FABRIC WILL BE GLUED TO EM-CHROMIC ACID CONVERSION. THE EDGES (CAP STRIPS) OF THE ALUMINUM RIBS ARE GLUED TO THE FABRIC. WE WANT THE FABRIC TO STAY ON GOOD HERE SO WE DO A CHEMICAL TREATMENT TO THE EDGE OF THE RIBS WHICH INCREASES THE ADHESION OF ALUMINUM TO CEMENT. THE DIRECTIONS ON THE BOTTLE TELL HOW TO DO IT. THE EMPHASIS IS WEAR RUBBER GLOVES, COVER YOUR FLOOR TO AVOID STAINS. RUB DILUTED ACID MIXTURE INTO RIB WITH "SCOTCH BRITE". THEN APPLY A FRESH COAT WHICH SHOULD BE ALLOWED TO "WORK" FOR 5-7 MINUTES. WASH THE WHOLE WING OFF OUTSIDE WITH THE HOSE AND ALLOW TO DRY IN THE SUN THOROUGHLY.

BRUSH ONE GOOD COAT OF CEMENT ONTO SPARS, TIPS, ROOTS & RIB CAP STRIPS. IT IS NOT NECESSARY TO PUT GLUE ON THICK. SMOOTH, CLEAN, FAST & EASY IS THE TRICK. LET DRY AND PUT SECOND COAT ON CAP STRIPS.

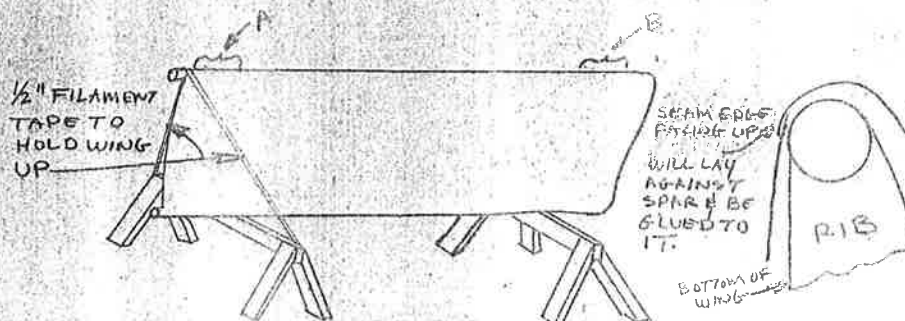
MAKE SURE TEMPERATURE & HUMIDITY ARE CONDUSIVE TO PROPER APPLICATION. IDEAL TEMP. RANGE IS BETWEEN 75° TO 80° F. DESIRABLE HUMIDITY BETWEEN 45%-50%. IT IS ALSO IMPORTANT THE CEMENT & DOPE BE THE SAME TEMP.

## 6 APPLY FILAMENT TAPE TO LEADING EDGE

TAPE IS APPLIED STICKY SIDE DOWN AS SHOWN, STARTING AT WING TIP & PULLING TIGHTLY TO ROOT. WRAP ABOUT 1 TURN AROUND TUBE TO SECURE.



## 7 SET WING UP FOR COVERING



SET UP WING ON SUPPORTS. TRAILING EDGE DOWN. HOLD WITH TAPE. DRAPE FABRIC OVER WING. SEAM ON INSIDE. ADJUST SO SEAM WILL BE ON BOTTOM SIDE OF FRONT SPAR AS SHOWN.

## 8 GLUE FABRIC ON

MIX GLUE WITH THINNER IN A CAN ABOUT 50/50. LIVE UP SEAM EVENLY AND BRUSH THE THINNED GLUE THROUGH FABRIC TO NEWET PREVIOUSLY APPLIED CEMENT. START AT "A" ABOVE AND BRUSH ON THE MIXTURE SO IT SOAKS AN AREA ABOUT 10-12" WIDE. LET DRY 5 MINUTES. GO TO "B" AND PULL VERY TIGHTLY. CLAMP OR HOLD THEN GLUE ANOTHER 10-12" WIDE STRIP. LET DRY. A LOT OF PATIENCE IS NEEDED HERE IF THE GLUE ISN'T DRY AND THE FABRIC SLIPS, THEN IT MAY BE PULL THE GLUE OFF THE TUBE. NOW SLIT FABRIC WITH "XACTO KNIFE" & PULL STRUT BRACKETS THROUGH. KEEP SEAM STRAIGHT. IRON SEAM STRAIGHT TO GET OUT WRINKLES. NOW GLUE SEAM TO SPAR.

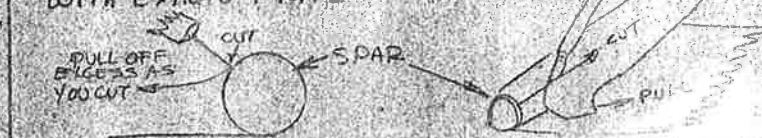
## 9 GLUE THE BOTTOM PANEL ON FIRST. LET FABRIC DRAPE EASILY WITHOUT WRINKLES. ALONG ROOT TUBE. GLUE FABRIC TO ROOT WITHOUT CAUSING ANY UNDOE WRINKLING.

## 10 PULL FABRIC TIGHTLY SPANWISE AND HOLD OR CLAMP AT WING TIP. GLUE, HOLDING STEADILY UNTIL GLUE DRIES. WE USE "PONY 3202" CLAMPS AT W.F.M.

## 11 LAY WING DOWN FLAT

BOTTOM SIDE UP. GLUE FABRIC AROUND TRAILING EDGE. DO NOT PULL FABRIC. JUST SHUG IT UP TO SPAR. SO MOST OF THE SPAN-WISE WRINKLES ARE OUT. THIS WILL ASSURE THAT THE FABRIC WILL NOT DISTORT THE WING WHEN IT SHRINKS SLIGHTLY AFTER DOPED.

## 12 TURN WING TOP SIDE UP. GLUE FABRIC AROUND SPARS ABOUT 3/4 WARP. LET DRY. NOW TRIM OFF EXCESS WITH EXACTO KNIFE.



## 13 RECOAT WITH FULL STRENGTH GLUE OVER FABRIC COVERED SPARS, ROOTS & TIPS. SET WING ON TRAILING EDGE AS PER STEP 7. GLUE UPPER FABRIC SURFACE SIMILAR TO LOWER SURFACE. AFTER FABRIC IS GLUED ON AS PER STEP 11 TRIM EXCESS WITH SCISSORS SO THAT FABRIC IS GLUED AROUND ABOUT 1/2" PAST SPAR.

## 14 GLUE FABRIC TO RIBS

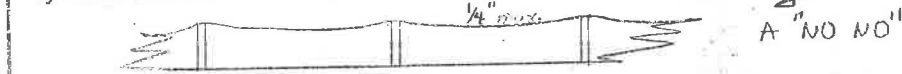
LAY WING FLAT AND PUT BOOKS OR OTHER WEIGHTS ON FABRIC TO PULL FABRIC TIGHTLY AGAINST RIBS. BRUSH A LIBERAL COAT OF THINNED GLUE OVER CAP STRIPS OF RIBS TO RE-ACTIVATE THE GLUE PUT ON IN STEP 5. WHILE THE GLUE IS STILL WET, RUB YOUR FINGER ALONG THE RIB TO FORCE THE GLUE UP THROUGH THE WEAVE OF THE FABRIC. NOW APPLY ONE MORE VERY LIBERAL COAT OF GLUE ALONG THE RIB. LET DRY.

DO ALL RIBS BOTH UPPER SURFACE & LOWER SURFACE THIS WAY TAKING CARE AND PATIENCE AS IT IS REAL HARD TO GET INSIDE THE WING NOW TO PUT ANY MORE GLUE ON THE RIB.

## 15 TIGHTENING FABRIC. BETTER TOO WRINKLEY THAN TOO TIGHT. THE IDEAL IS TO PUT THE FABRIC ON WITHOUT WRINKLES, AND HAVE PULLED IT VERY TIGHT SPANWISE. HOWEVER WRINKLES DO APPEAR. LONG-GENERAL SPANWISE WRINKLES WILL PROBABLY DISAPPEAR AFTER DOPING. OTHER WRINKLES CAN BE REMOVED WITH A HOUSE HOLD IRON. SET SLIGHTLY COOLER THAN WOOL. TRY IT OUT ON SCRAP BEFORE MELTING THROUGH YOUR NEW FABRIC JOBS.

OVERTIGHTENING OF THE FABRIC WILL CAUSE 2 PROBLEMS.

- 1) CAN DISTORT THE WING'S CAUSING ADDED SWEEPBACK.
- 2) CAN CAUSE THE FABRIC TO PULL DOWN BETWEEN THE RIBS.



## 16 DOPING FABRIC. BEST DOPING TEMP & HUMIDITY

REFER TO STEP 5. IT IS IMPORTANT THAT DOPE & THINNER ARE ALSO THE SAME TEMPERATURE. BE SURE TO "WARM EM UP" FOR AT LEAST ONE DAY BEFORE USE. THE ROOM YOU USE SHOULD ALSO BE WARMED UP BY LEAVING THE HEAT ON THE NIGHT BEFORE.

START WITH A MIXTURE OF 50/50 DOPE & THINNER. THE FIRST COAT SHOULD BE BRUSHED ON IN A UNIFORM MANNER. BRUSH ON ACROSS COAT TO CAUSE FABRIC TO RECEIVE DOPE FROM BOTH SIDES OF GRAIN. DO NOT RETURN TO RE-BRUSH A DOPED AREA. BUT FLOW THE DOPE ON SMOOTHLY OVER A LIMITED AREA AT A TIME. AVOIDING ANY PUDDLING OR ESPECIALLY RUNNING UNDER THE FABRIC.

THE SECOND COAT SHOULD PREFERABLY BE SPRAYED ON FOR A SMOOTH FINISH. USE THE BEST SPRAY OUTFIT YOU CAN GET. SPRAY ON HEAVY AND WET TO ALLOW DOPE TO FLOW OUT SMOOTH.

BLUSHING IS WHEN THE DOPE OR GLUE TURNS WHITE. IT IS CAUSED BY RAPID DRYING, LOW TEMPERATURE OR HIGH HUMIDITY. BLUSHING MAY BE DIMINISHED BY THE ADDITION OF LACQUER RETARDER. ASK YOUR LOCAL AIRCRAFT PAINTER OR AUTO PAINT STORE SALES MAN.

## 17 THE KISS TEST. THE TRUE TEST FOR A WELL SEALED FABRIC IS TO TRY TO SUCK AIR THROUGH IT. IF YOU CAN SUCK AIR THROUGH IT, IT'S NOT SEALED. PUT ON ANOTHER COAT OF DOPE.

## 18 ARTWORK, INSIGNIAS, ETC. MASK OFF SIMILAR TO PAINTING A CAR. GOOD TO PUT AN EXTRA COAT OF CLEAR DOPE ON FIRST TO SEAL THE TAPE. THEN SPRAY OR BRUSH COLORED DOPE AVAILABLE AT HUBBY SHOPS, OR STITS "POLYTONE" AVAILABLE FROM STITS AIRCRAFT COATINGS.

BOX 3084, RIVERSIDE, CA 92509  
PHONE (714) 684-4280  
ASK FOR COLOR CHART OF MANY COLORS.

UFM EASY RISER  
MODEL 4000  
3/25/78 LARRY MAURO

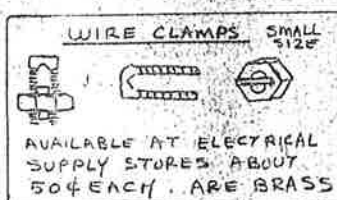


# SHEET 5 CABLE RIGGING EASY RISER

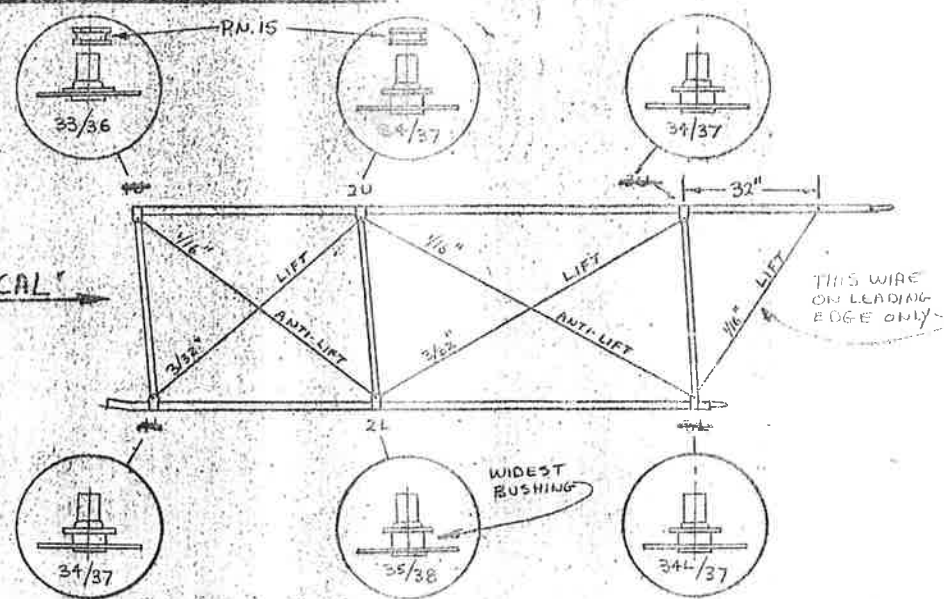
ENGINEER LARRY MAURO  
U.F.M. 2/27/76

## 1 MATERIAL LIST.

- 8- NUT, LOCKING 3/16" 2 EA
- 10- BOLT, 3/16" X 2" 2 EA
- 13- 1/16" CABLE 75 FT
- 14- 3/32" CABLE 50 FT
- 15- BUSHING, CABLE 1/4" 8 EA
- 16- BUSHING, CABLE 3/16" 2 EA
- 17- 1/16" NICOPRESS 40 EA
- 18- 3/32" NICOPRESS 32 EA



## CABLE RIGGING, TYPICAL



## 2 TOOLS & SUPPLIES

- NICOPRESS SWAGING TOOL
- CABLE CUTTER (VICIGRIPS OR CUTTERS)
- 4 EA. ELECTRICAL WIRE CLAMPS
- 1/2" FILAMENT STRAPPING TAPE

## 3 PURPOSE OF OPERATION

TO INSTALL INTERBAY (BETWEEN STRUTS) CABLE WHICH HOLDS PERMANENTLY WING GEOMETRY. CABLE DIS-CONNECTS FOR QUICK SET-UP INCLUDED.

## 4 SET-UP WING ASSEMBLY ON

ASSEMBLY FIXTURE. INSTALL WING TWIST BLOCK IN PLACE. REFER TO SHEET 3 STEP 5 AND DRAWING FOR GEOMETRY STRAP WING DOWN TIGHTLY. INSTALL PROPER STRUTS IN PLACE AS THEY WERE MARKED R1, R2, R3, ETC. WITH DIAGONALS IN PLACE. PLUMB UPPER WING TO MARKS "A" & "B" AND HOLD IN PLACE WITH 1/2" STRAPPING TAPE. BLOCK UP LOWER WING UNDER CENTER STRUT BRACKETS UNTIL LOWER SPARS ARE PERFECTLY STRAIGHT AS SIGHTED.

## 5 CABLE SWAGING PROCEDURE

THE RESPECTIVE CABLES ARE PERMANENTLY SWAGED TO STATIONS 1U, 1L, 3U, & 3L. THE OPPOSITE ENDS OF EACH CABLE IS FITTED WITH NICOS AND CABLE CLAMP AND HELD TEMPORARILY AT STATIONS 2U & 2L. WING IS CHECKED FOR PROPER GEOMETRY, STRAIGHTNESS OF SPARS & TIGHTNESS OF CABLES. THEN MIDDLE STRUT IS REMOVED AND THE REMAINING 4 CABLE ENDS ARE PERMANENTLY SWAGED.

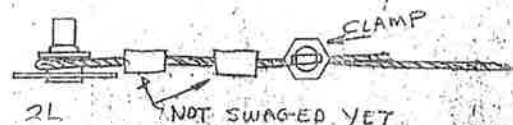
## 6 STARTING AT LEADING EDGE SWAGE

3/32" CABLE AT 3U. SWAGE FIRST NICO AS CLOSE AS POSSIBLE TO CABLE BUSHING. CUT SHORT END OF CABLE TO 1/2" AND SWAGE SECOND CABLE



## 7 BRING CABLE AROUND 2L BUSHING

DOUBLE BACK 5" AND CUT-OFF. PUT ON A CABLE CLAMP AND 2 NICOS AND THREAD CABLE THRU.



## DOUBLE-SWAGED CABLE END

- a) CUT CABLE XTRA LONG
- b) SWAGE FIRST NICO
- c) CUT SHORT END OF CABLE TO 1/2"
- d) PLACE 2ND NICO OVER RAW END AND SWAGE AS SHOWN.

NOTE: WHEN SWAGING CABLE AT FITTINGS, REMOVE STRUT TO GIVE CLEARANCE FOR SWAGE TOOL.

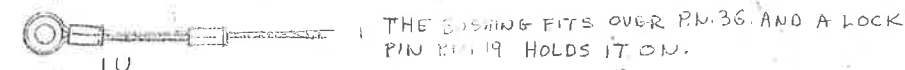
NOTE: WHEN SWAGING 2ND NICO, BE SURE TO HOLD TOOL SQUARE WITH FIRST NICO OR YOU WILL GET A HOOP IN ONE CABLE.

## REMEMBER THESE IMPORTANT RIGGING PROCEDURES

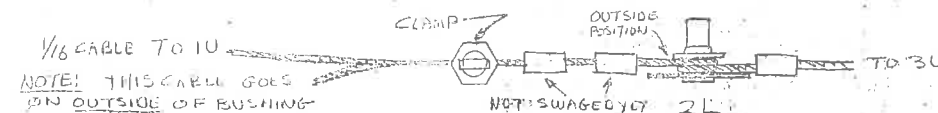
- 1- ALL LIFT WIRES GO ON INSIDE OF BUSHING IF 2 WIRES FIT ON SAME BUSHING.
  - 2- ONLY ANTI-LIFT WIRES HAVE QUICK DISCONNECTS (THEY DON'T CARRY FLIGHT LOADS)
  - 3- ALL CABLES ARE DOUBLE SWAGED
  - 4- ALL 1/16" NICOS ARE SWAGED WITH NICO JAW "C" OR U-SWAGE 1/16"
  - 5- ALL 3/32" NICOS ARE SWAGED WITH NICO JAW "G" OR U-SWAGE 3/32"
- BEFORE AFTER
- MAXIMUM DIAMETER OF SWAGED NICOS MUST BE:  
1/16" = .190" MAX. 3/32" = .265" DIA MAX.
- 6- CABLES WILL NOT BE LOOSE (THUD) OR SUPER TIGHT (TWANG). MUST BE JUST RIGHT (BONG). AND EASY TO GET DIS-CONNECTS ON & OFF.
  - 7- WASHOUT (TWIST) BLOCK MUST BE IN PLACE WHILE RIGGING.
  - 8- RIG LEADING EDGE FIRST. BEFORE FINAL SWAGING OF TRAILING EDGE CABLE CHECK WING FOR PROPER WASHOUT BY UN STRAPPING WING AT WING TIP END AND LIFTING OFF FIXTURE. LIFT BY MIDDLE OF WING TIP. THE FRONT AND REAR SPARS SHOULD LIFT OFF FIXTURE SIMULTANEOUSLY OR AT LEAST WITHIN 1/8" OF THE SAME TIME WHEN YOU GET THIS (BY ADJUSTING AT 2U & 2L REAR).
  - 9- CHECK PLUMB MARKS "A" & "B" CONTINUOUSLY WHILE RIGGING.
  - 10- SPARS SHOULD BE PERFECTLY STRAIGHT DURING & AFTER RIGGING.
  - 11- SWAGE FIRST NICO ON ALL CABLES CLOSE TO BUSHING LIKE STEP 6 EXCEPT LIFT WIRES AT 2L. HOWEVER DO SWAGE ANTI-LIFT WIRE AT 2L CLOSE AS IT LOCKS LIFT WIRE ON.
  - 12- TESTS CABLE & WIRE USED INTERCHANGEABLY IN TEXT. THANKS. P.

8) REPEAT PROCESS FROM 2U TO 1L USING 3/32" CABLE. SWAGE AT 1L, CLAMP AT 2U.

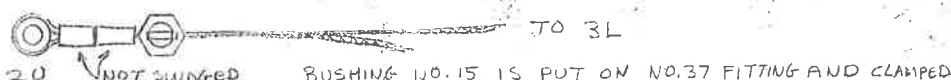
9) 1/16" CABLE IS NOW SWAGED AT 1U BY FITTING AROUND CABLE BUSHING P.M. 15. AND DOUBLE SWAGING.



10) PULL CABLE AROUND FITTING NO. 38 AT 2L. DOUBLE BACK 5" AND CUT CABLE. PUT CLAMP & 2 NICOS ON CABLE. CLAMP AS SHOWN.



11) SWAGE 1/16" CABLE AT 3L. PULL CABLE TO STATION 2U AND CLAMP IN PLACE SIMILAR TO STEPS 9 & 10.



12) REVIEW (1) ALL 4 CABLES ARE SWAGED AT 1U, 1L, 3U, 3L.

(2) THERE ARE DIS-CONNECT CABLE BUSHINGS AT 1U & 2U. (3) ALL CABLES ARE CLAMPED AT 2U & 2L.

OK!! NOW CHECK PLUMB MARKS "A" & "B" ADJUST CABLES AT 2U & 2L IF NECESSARY. SIGHT DOWN SPARS TO BE CERTAIN THEY ARE STRAIGHT ADJUST AT 2U & 2L IF NECESSARY. YOU MAY HAVE TO HOLD DOWN UPPER WING TIP TO MAKE IT LOOK STRAIGHT AS FABRIC COVERING TENDS TO BOW WINGS UP.

THE CABLES SHOULD ALL BE SNUG AND CLAMPS TIGHT. REMEMBER, SWAGING THE CABLE NICOS WILL SLIGHTLY TIGHTEN THE CABLES AS IT SQUEEZES AROUND BUSHINGS.

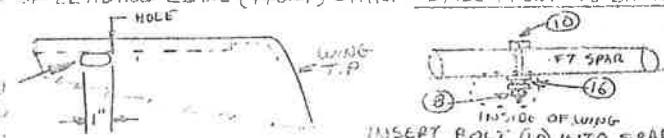
13) WHEN THE WHOLE WORKS IS STRAIGHT SNUG TIGHT AND TRUE. PULL OUT THE CENTER STRUT AND DOUBLE SWAGE ALL 4 ENDS.

14) YOU NOW HAVE THE TECHNIQUE FOR RIGGING ALL 4 SETS

OF CABLES. CABLES ARE RIGGED LEADING EDGE FIRST THEN TRAILING EDGE ON EACH BI-WING HALF. ONE MORE STEP AND YOU'VE COMPLETED RIGGING.

15) OUTER LIFT CABLE IS ATTACHED TO LEADING EDGE ONLY

MEASURE OUT 32" FROM 3U AND DRILL A 3/16" DIAMETER HOLE DIRECTLY THROUGH CENTER OF LEADING-EDGE (FRONT) SPAR. DRILL FRONT TO BACK. NOT TOP TO BOTTOM. CUT OUT A HOLE IN BOTTOM SIDE OF FABRIC AS SHOWN. HOT SOLDERED IRON MAKES BEST HOLE.



DOUBLE SWAGE BUSHING P.M. 15 TO 1/16" CABLE TIGHTLY. SLIP ASSEMBLY OVER INSIDE END OF BOLT (INSIDE WING). TAPE NUT P.M. 8 TO A STICK OR TO A WRENCH (SO IT WON'T FALL INSIDE WING) AND TIGHTEN UNTIL SNUG. DO NOT SQUEEZE SPAR.

PULL CABLE AROUND 3L INSIDE OF ANTI-LIFT WIRE, AND CLAMP. PUSH WING TIP DOWN (OR UP) UNTIL SPAR IS STRAIGHT, TIGHTEN CLAMP. REMOVE STRUT AND DOUBLE SWAGE. DO BOTH R & L WINGS.

16) FINAL ADJUSTMENT CHECK & LOCK PINS. GO OVER EACH AND EVERY NICO SLEEVE AND CHECK TO BE SURE OF PROPER SWAGING. BE CERTAIN PERSONALLY THAT CABLES CANNOT POSSIBLY COME OFF BUSHINGS EVEN BY FORCE. TIGHTEN ALL BOLTS JUST UNTIL ALL PLAY IS OUT OF STRUT. PUT ON LOCK PINS. FOLDING. TAKE OUT OUTER DIAGONAL STRUT. DISCONNECT LOWER BOLT ON INNER DIAGONAL & FOLD STRUT AGAINST REAR STRUT. NOW POP OFF THE 4 DISCONNECT CABLES AND FOLD WING DOWN. CHECK IT ALL OUT.

17) LET YOUR WIFE OR GIRLFRIEND TAKE YOU OUT TO DINNER TONIGHT YOU'VE EARNED IT. TOMORROW YOU'LL DO FINAL ASSEMBLY.