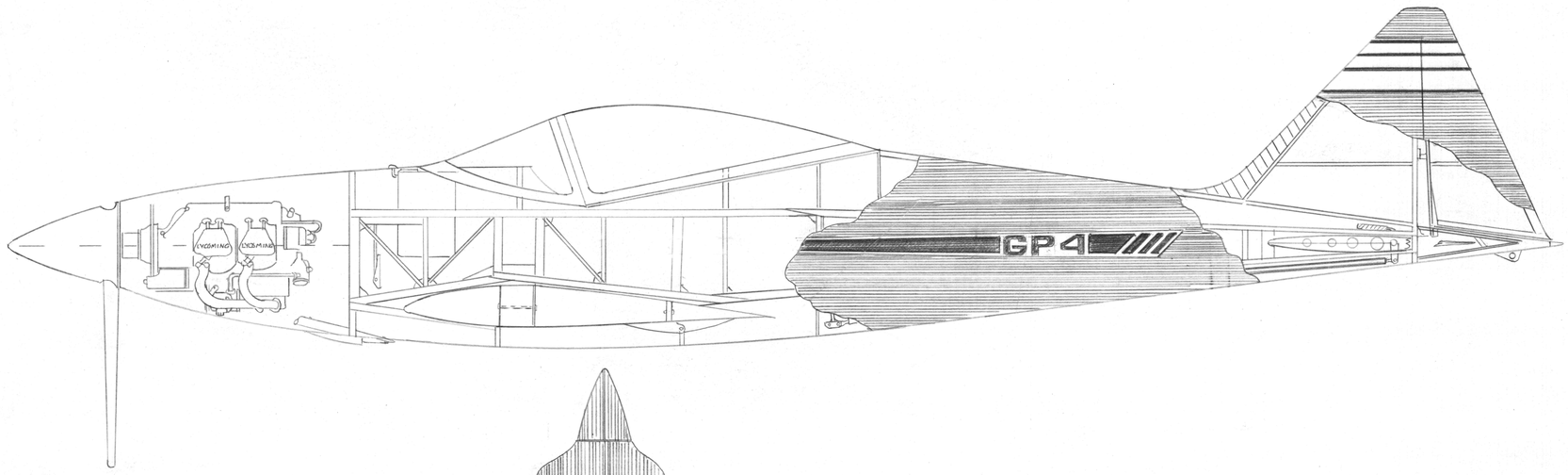
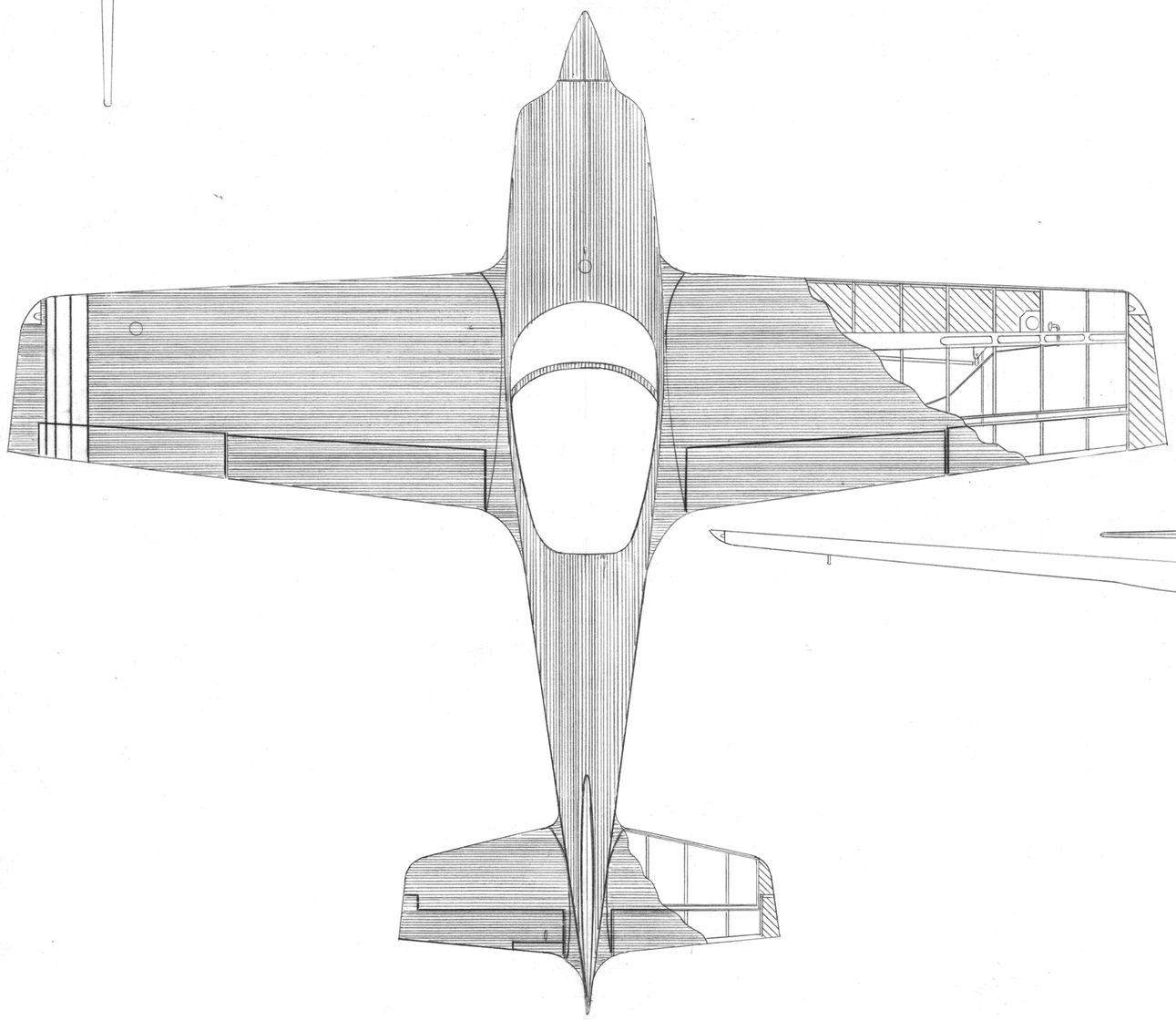
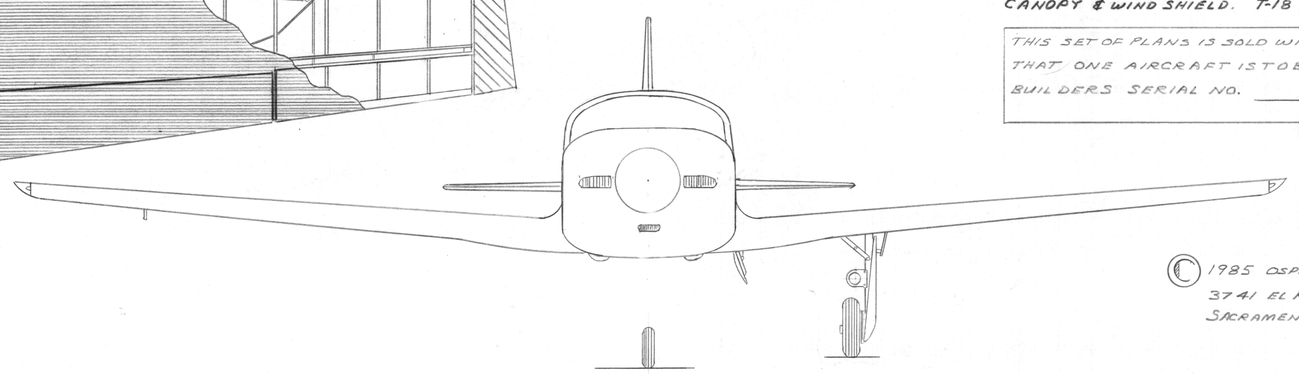






GP 4

SPECIFICATIONS

GROSS WEIGHT	1985 Lbs.
EMPTY WEIGHT	1248 Lbs.
USEFUL LOAD	739 Lbs.
BAGGAGE: 10.5 SQ. FT.	75 Lbs.
SEATS	2
WING LOADING (GROSS)	19 09^2
SPAN LOADING	80.45 ^{2}
WING AREA	104 $FT.^2$
WING SPAN	24' 8"
LENGTH (OVERALL)	21'6"
ASPECT RATIO	5.54 TO 1
AIR FOIL	63_1 212
DIHEDRAL	5 DEGREES
FUEL: 100-110 OCTANE	54 GAL.
ENGINE: LYCOMING IO-360 A1A 200 H.P. DRY WT.	323 Lbs.
WHEELS: MAIN, CLEVELAND 5X5 - TRACK	8 FT.
PROPELLER SPINNER; HARTZELL	C-356B

LANDING GEAR: TRICYCLE. MANUEL RETRACTABLE
PROPELLER: HARTZELL HC-M2YR-1BF/F7666A-2
AIRFRAME CONSTRUCTION ALL WOOD
CANOPY & WIND SHIELD. T-1B TYPE- WINDSHIELD 3/16" THK.

THIS SET OF PLANS IS SOLD WITH THE CONDITION
THAT ONE AIRCRAFT IS TO BE CONSTRUCTED FROM THEM.
BUILDERS SERIAL NO. _____

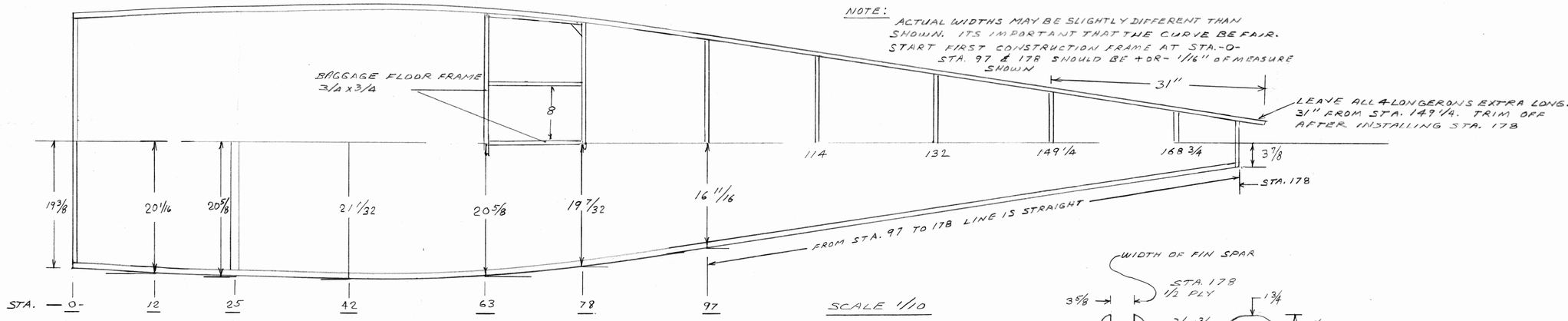
© 1985 OSPREY AIRCRAFT
3741 EL RICON WY.
SACRAMENTO CA. 95864

WARNING AND WAIVER

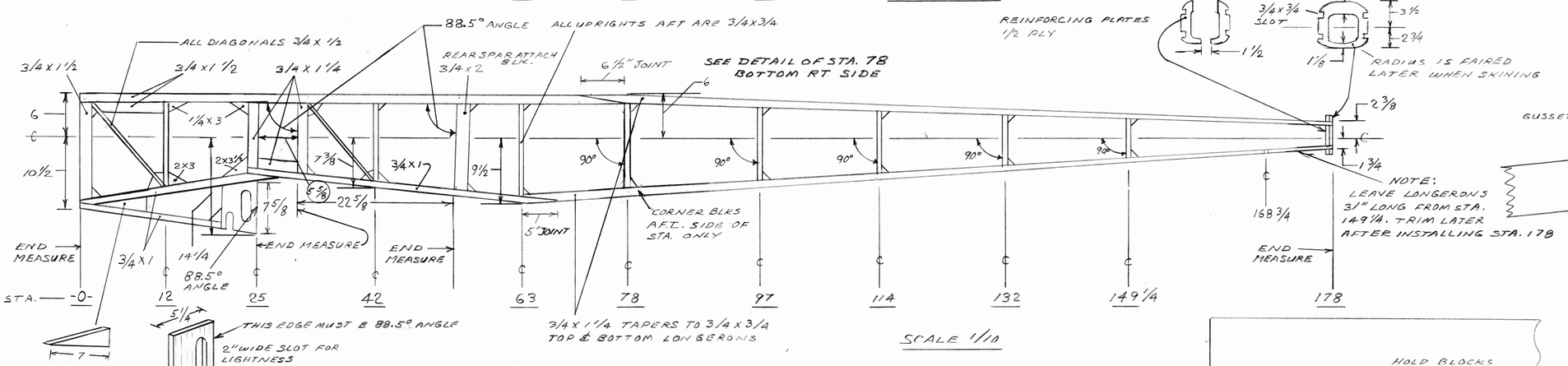
THESE PLANS, RELATED MANUALS AND OTHER MATERIAL ARE FURNISHED FOR EDUCATIONAL PURPOSES ONLY TO SHOW TYPICAL CONSTRUCTION OF STEEL TUBE, ALUMINUM, WOOD AND FIBERGLAS AIRCRAFT. NO WARRANTY, EITHER EXPRESS OR IMPLIED, IS MADE BY OSPREY AIRCRAFT OR GEORGE PEREIRA AS TO THE SUITABILITY OF THE PLANS OR ANY PART THEREOF, FOR THE CONSTRUCTION OF AN AIRCRAFT. IF ANY INDIVIDUAL OR GROUP OF INDIVIDUALS CONSTRUCTS AN AIRCRAFT FROM THESE PLANS OR ANY PART THEREOF, AND FLY THE AIRCRAFT WHICH WILL BE LICENSED IN THE EXPERIMENTAL CATAGORY OR AMATEUR BUILT CATAGORY BY THE F.A.A. THEY DO SO AT THEIR OWN RISK AND WITHOUT ANY LIABILITY WHATSOEVER ON THE PART OF OSPREY AIRCRAFT OR GEORGE PEREIRA. ALL SUCH LIABILITY BEING HEREBY EXPRESSLY WAIVED BY THE ACCEPTANCE OF THESE PLANS BY ANY PERSON AND BY ANY PERSON WHO FLIES THE AIRCRAFT. THIS WAIVER SHALL BE BINDING UPON THE HEIRS, EXECUTORS, ADMINISTRATORS AND ASSIGNS OF ANY SUCH PERSONS

S/N 703 Sam Raterree

NOTE:
ACTUAL WIDTHS MAY BE SLIGHTLY DIFFERENT THAN SHOWN. ITS IMPORTANT THAT THE CURVE BE FAIR. START FIRST CONSTRUCTION FRAME AT STA.-0- STA. 97 & 178 SHOULD BE +OR- 1/16" OF MEASURE SHOWN

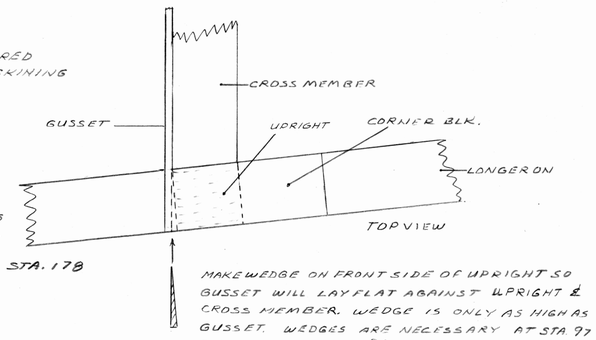


SCALE 1/10



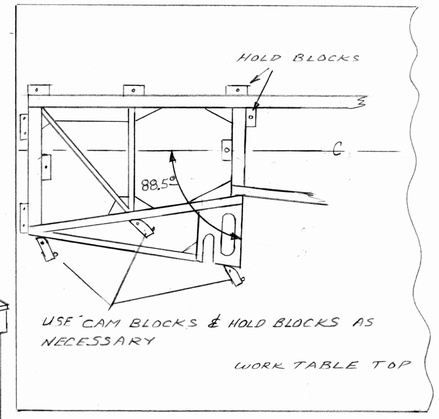
3/4 x 1 1/4 TAPERS TO 3/4 x 3/4 TOP & BOTTOM LONGERONS

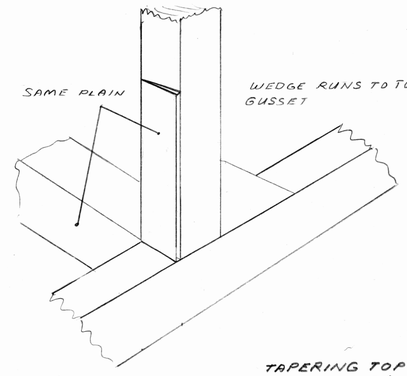
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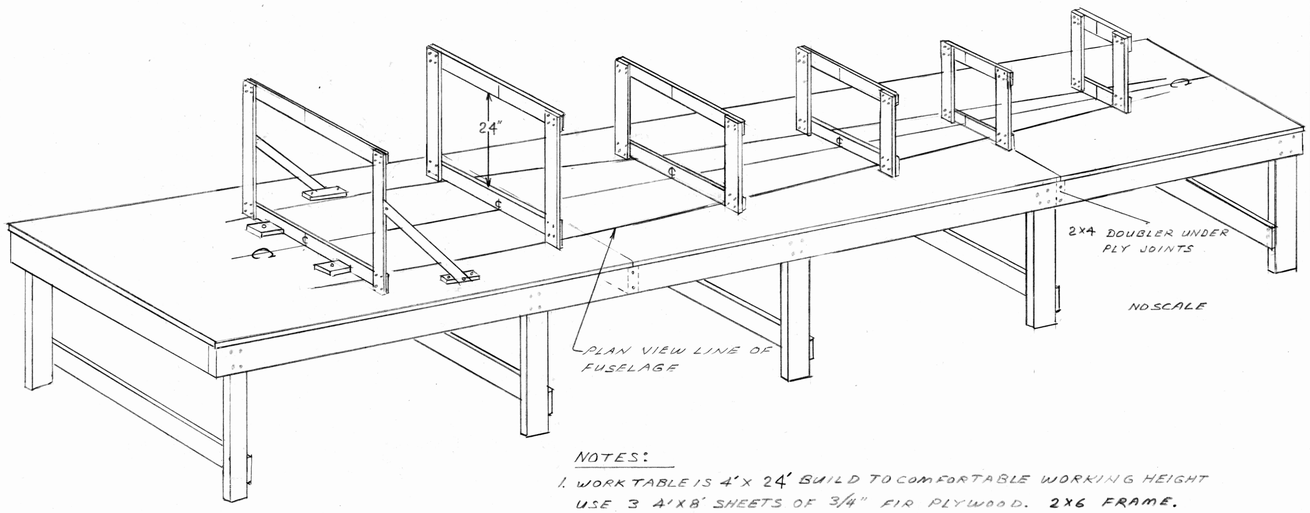


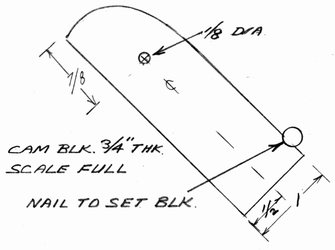
MAKE WEDGE ON FRONT SIDE OF UPRIGHT SO GUSSET WILL LAY FLAT AGAINST UPRIGHT & CROSS MEMBER. WEDGE IS ONLY AS HIGH AS GUSSET. WEDGES ARE NECESSARY AT STA 97 THROUGH STA. 168 3/4.

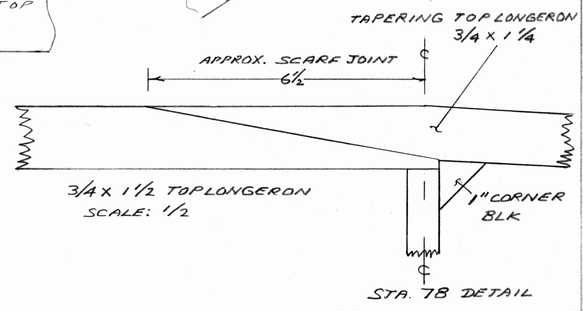
NOTE:
SKIN INSIDE OF EA. SIDE WITH 3/32" MAHOGANY. STA.-0- TO STA. 78 PRIOR TO ASSEMBLY. GRAIN RUNS FORE & AFT SCRIBE FRAME LAYOUT ON BOTH SIDES OF PLY FOR GLUEING & STAPELING











NOTES:

1. WORK TABLE IS 4' x 24' BUILD TO COMFORTABLE WORKING HEIGHT USE 3 4'X8' SHEETS OF 3/4" FIR PLYWOOD. 2X6 FRAME. PLUMB UNTIL LEVEL. COVER TABLE WITH BROWN PAPER
2. CONSTRUCTION FRAMES ARE 1/2" x 3" PLY. GLUE CORNERS TO INSURE A 90° RIGHT ANGLE
3. ATTACH ALL FRAMES AS SHOWN IN THE FIRST FRAME. FRAME WIDTH SHOULD ALLOW FRAME TO FALL JUST AHEAD OR JUST BEHIND THE STATION. THIS ALLOWS ROOM TO ATTACH GUSSETS, CROSS MEMBERS, ETC.
4. SUGGEST USING SARAN WRAP OR WAX PAPER AT EA. GLUE JOINT PRIOR TO GLUING THE SIDE ASSEMBLY

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OSPREY AIRCRAFT

FUSELAGE: SIDES
VERTICAL GRAIN SPRUCE LUMBER
ALL MATERIAL 3/4" THK SPRUCE
SCALE: 1/10, 1/2, & FULL
DWG. NO: 2

NO. 55 1/2 BOTTOM

NO. 78 BOTTOM

NO 97 BOTTOM

NO. 114 BOTTOM

NO. 132 BOTTOM

NO. 149 1/4 BOTTOM

NO 168 3/4 BOTTOM

11° ANGLE

NO. 78 & 88 HAVE 11° ANGLE ON TOP FLAT SURFACE

FOREWARD

NO. 78 TOP

NO.-0- BOTTOM

3/4 THK. SPRUCE

NO-0- TOP

INSTRAMENT PANEL

11° ANBLE

NO. 88 TOP

NO. 97 TOP

NO. 114 TOP

NO 132 TOP

NO 149 1/4

HEIGHT ABOVE TOP OF LONGERON 7"

DEPTH BELOW TOP OF LONGERON 1 1/4"

TOP OF LONGERON

NOTE: FORMER STA. 258 IS NOT SHOWN FULL SIZE. SEE DWG. 4 STA. 25 FOR DETAIL

GP4 © 1985 OSPREY AIRCRAFT

FUSELAGE FORMERS

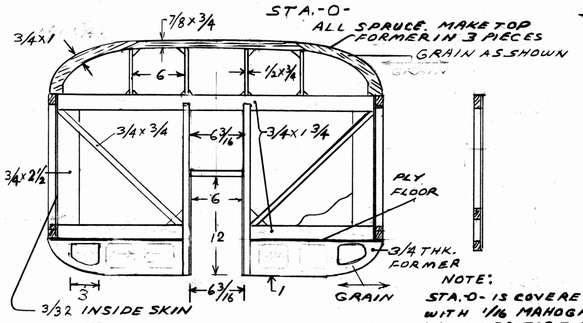
DESIGN:

SCALE: FULL

DWG. NO. 3

S/N 703 Sam Raterree

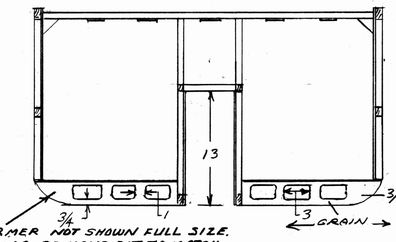
STA.-0-



NOTE:
STA.-0- IS COVERED ON INSIDE WITH 1/16 MAHOGANY PLY, THIS INCLUDES TOP FORMER DOWN TO FLOOR. OUTSIDE IS COVERED IN FULL WITH 1/8 BIRCH PLY. (GRAIN, VERTICAL)

STA. 12

STA 25



FORMER NOT SHOWN FULL SIZE. SHOULD BE HAND FIT TO MATCH WING CENTER SECTION. SEE DWG. 42

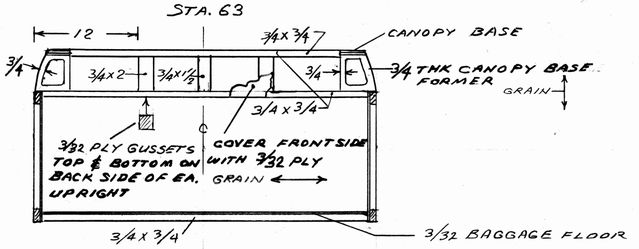
ALL STA. SHOWN 1/10 SCALE

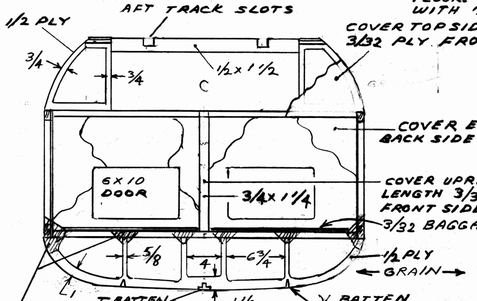
-0- THROUGH 168 3/4

STA. 42

CROSS SECTION OF CANOPY BASE BEGINS JUST AHEAD OF STA. 42

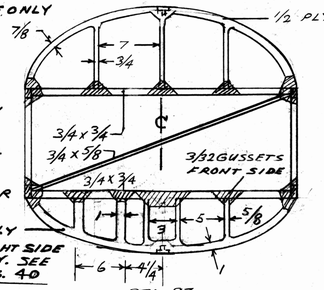
STA. 63



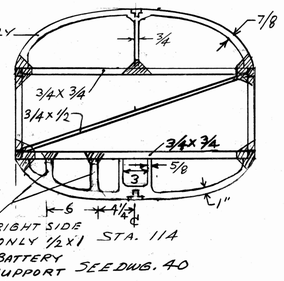


STA 78

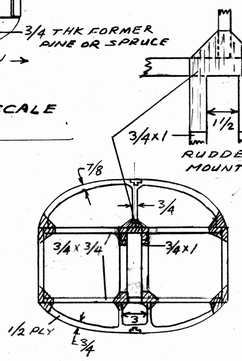
INSTALL 6X10 FLUSH DOOR ON EA. SIDE OF ℄ UPRIGHT. USE 3/32 PLY DOUBLER AS SHOWN ON OTHER ACCESS DOORS



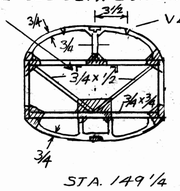
STA 97



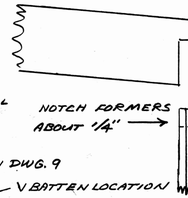
STA. 114



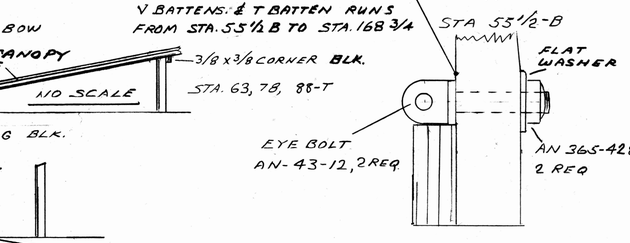
STA. 132

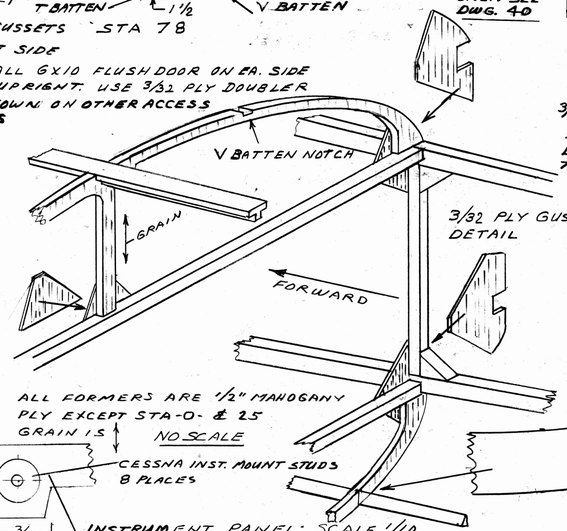


STA. 149 1/4



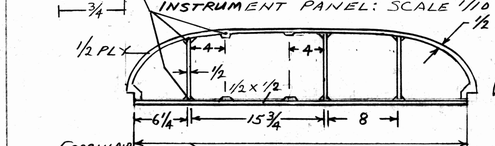


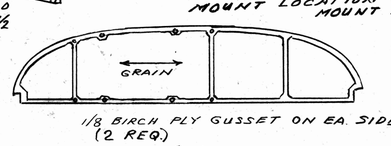


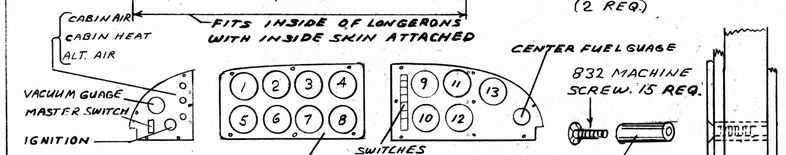


3/32 PLY GUSSET DETAIL

ALL FORMERS ARE 1/2" MAHOGANY PLY EXCEPT STA-0- & 25
GRAIN IS NO SCALE

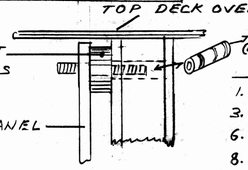






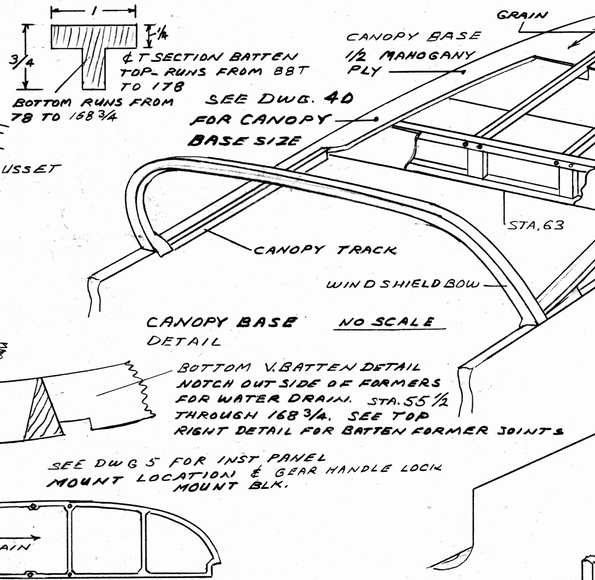
9. FUEL FLOW & MP
10. TACH
11. 4. CHT.
12. 4. EGT
13. F/P. O/P. O/T. AMP.

SUGGESTED CHOICE ONLY ON PANEL GUAGES



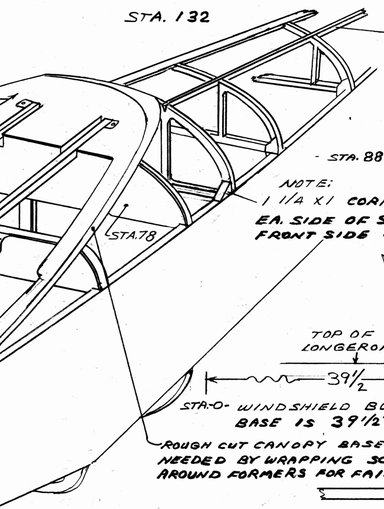
SUGGESTED IFR PANEL

1. AIRSPEED 2. ART/HORIZON
3. ALT. 4. GLIDE SLOPE. 5. TURN COORDINATOR OR T/B
6. DIRECTIONAL GYRO 7. RATE/CLIMB
8. VOR OR EXTRA SPACE

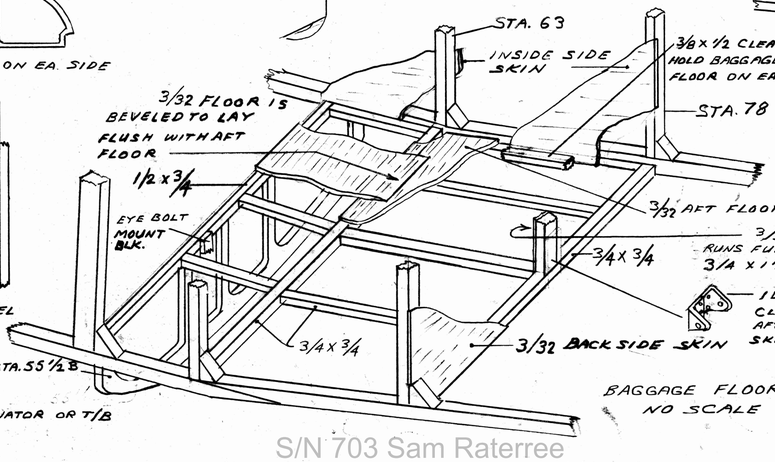


CANOPY BASE NO SCALE DETAIL

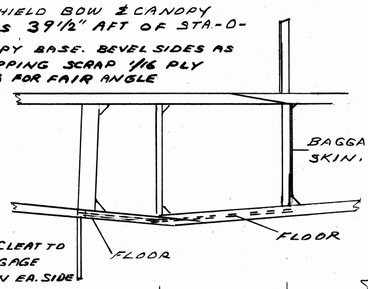
SEE DWG. 40 FOR CANOPY BASE SIZE

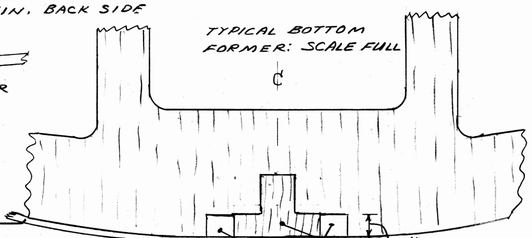


SEE DWG 5 FOR INST. PANEL MOUNT LOCATION & GEAR HANDLE LOCK MOUNT BLK.



BAGGAGE FLOOR DETAIL NO SCALE



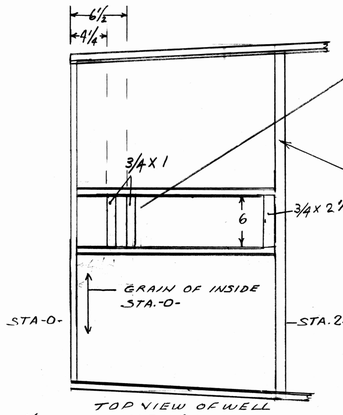


NOTE: AFTER BOTTOM FORMER BATTEN IS INSTALLED & PRIOR TO SKINING BOTTOM, SAW OUT A 1/4" X 5/16" NOTCH ON STA. 78 THROUGH STA. 168 3/4. JUST IN FRONT OF STA. 178 DRILL TWO 3/8 HOLES IN BOTTOM SKIN ON EA. SIDE OF THE FORMER BATTEN. THIS ALLOWS ANY WATER TO RUN TO THE REAR & DRAIN. NOTCH OUT SIDE OF 1/2 x 3/4 V BATTEN ON EA. STA. FORMER ALSO FOR WATER DRAINING.

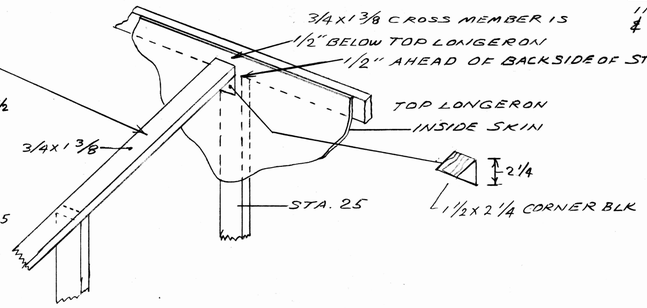
GP4 © 1985 OSPREY AIRCRAFT

FUSELAGE: STA. CROSS SECTIONS
DESIGN: OSPREY AIRCRAFT
SCALE: 1/10
DWG. NO. 4

S/N 703 Sam Raterree

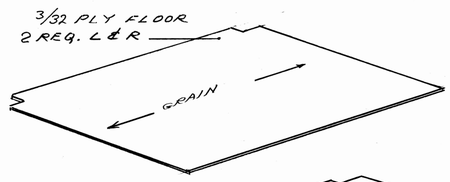


TOP VIEW OF WELL
SCALE 1/10

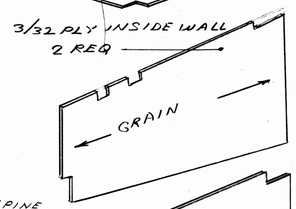


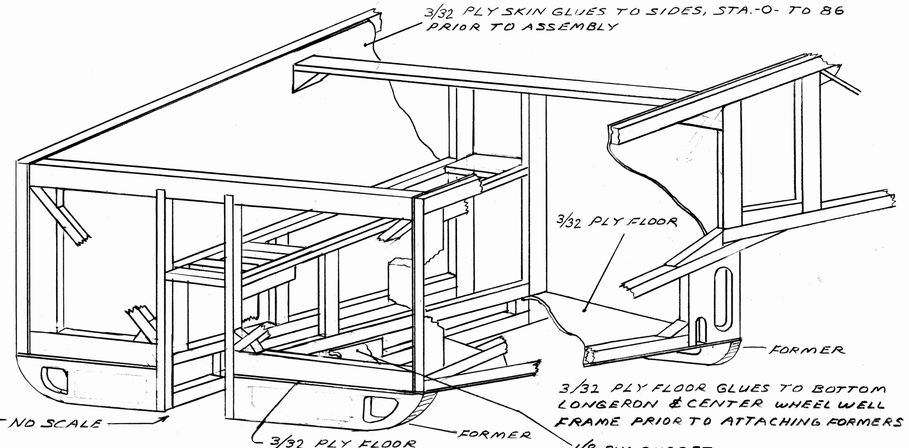
NOSE TUNNEL DETAIL

NOSEWHEEL WELL DETAIL
INSTALL AFTER SIDES ARE SKINNED FROM STA.-0- TO 86 & CROSS MEMBERS ARE IN PLACE



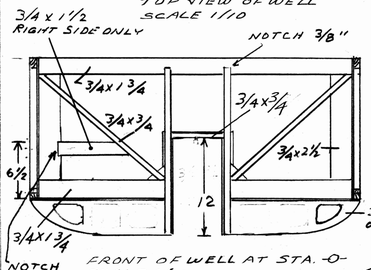




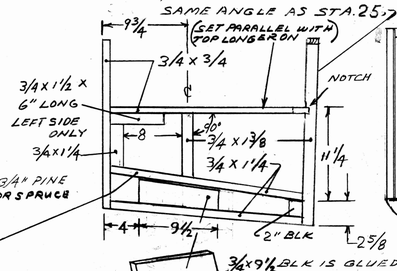


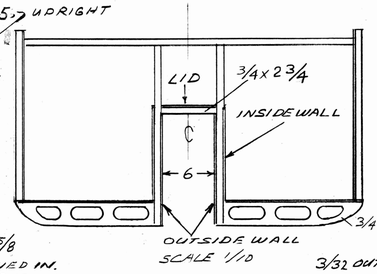
3/32 PLY FLOOR GLUES TO BOTTOM LONGERON & CENTER WHEEL WELL FRAME PRIOR TO ATTACHING FORMERS

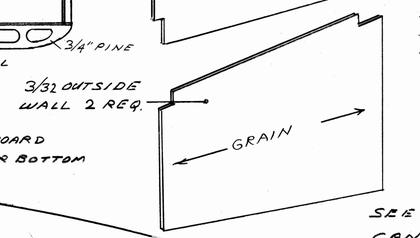
LID, INSIDE, & OUTSIDE WALLS ARE INSTALLED AFTER FRAME & PLY FLOOR IS COMPLETE



FRONT OF WELL AT STA.-0-
SCALE 1/10



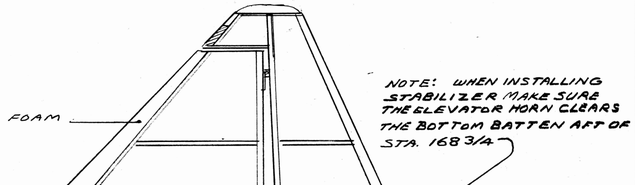




THIS ANGLE IS SAME AS OUTSIDE BOTTOM LONGERON

3/4 X 9½ BLK IS GLUED IN. AFTER FLOOR IS IN.

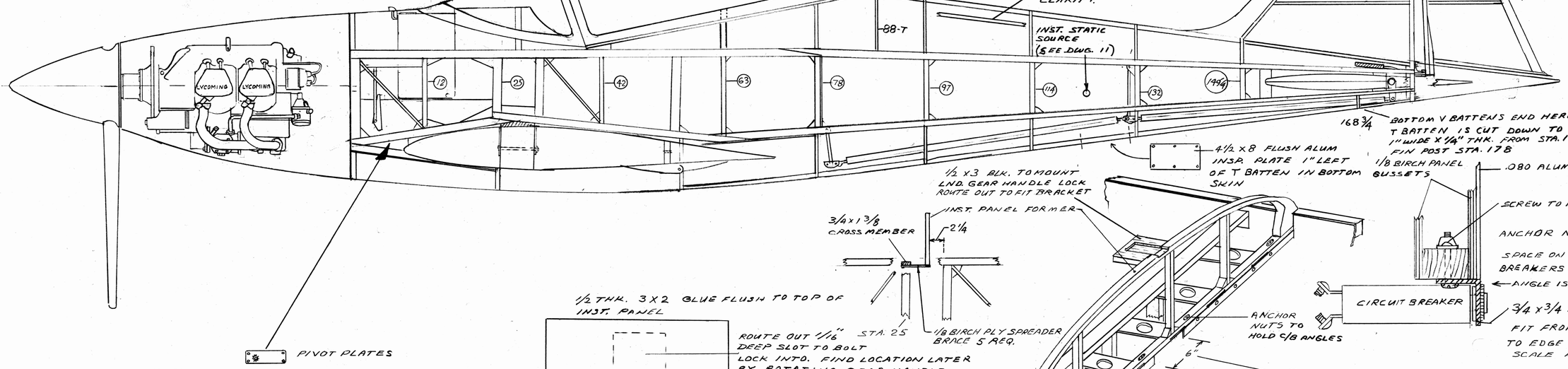
GUSSET OUTSIDE
1/8 PLY GUSSET COVERS BOTTOM 3/4 X 1¼ BOARD & 9½" BLK. GUSSET BUTTS UP AGAINST FLOOR BOTTOM



NOTE: WHEN INSTALLING STABILIZER MAKE SURE THE ELEVATOR HORN CLEARS THE BOTTOM BATTEN AFT OF STA. 168 3/4

SEE DWG. 40 FOR CANOPY BASE LAY OUT

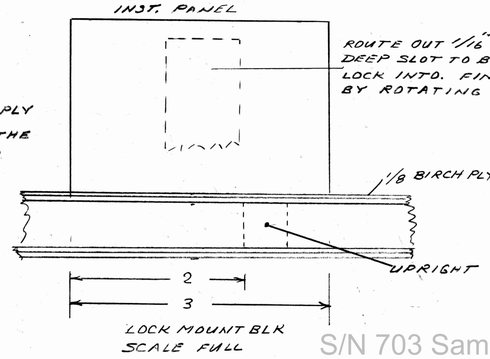
V. BATTENS NOT SHOWN FOR CLARITY.



NOTE:
AFTER NOSE GEAR WELL IS COVERED WITH 3/32 PLY FIT THE PIVOT PLATES ON EA. SIDE & ATTACH THE ANCHOR NUTS. THIS MUST BE DONE PRIOR TO SKINNING OUTSIDE FUSELAGE & BOTTOM.
SEE DWG. 49 FOR PIVOT PLATE & POSITION

4½ X 8 FLUSH ALUM INSP. PLATE 1" LEFT OF T BATTEN IN BOTTOM SKIN

½ X 3 BLK. TO MOUNT LND. GEAR HANDLE LOCK ROUTE OUT TO FIT BRACKET



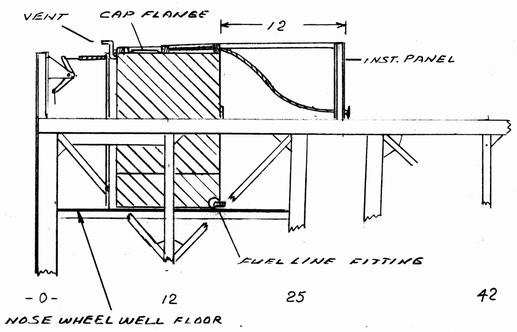
S/N 703 Sam Raterree

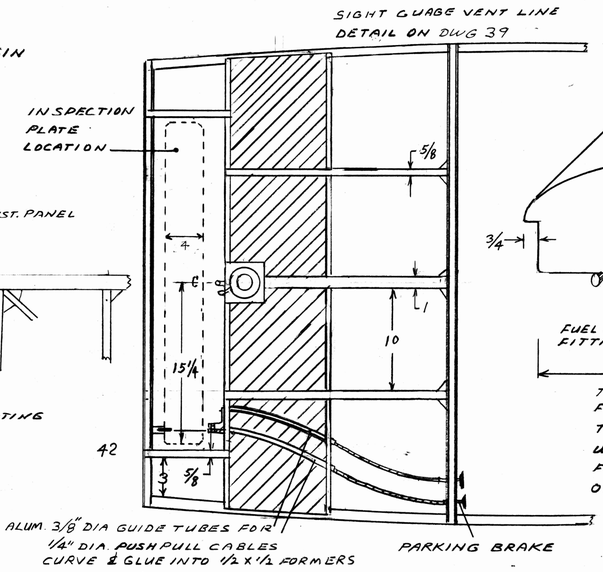
GP4 © 1985 OSPREY AIRCRAFT

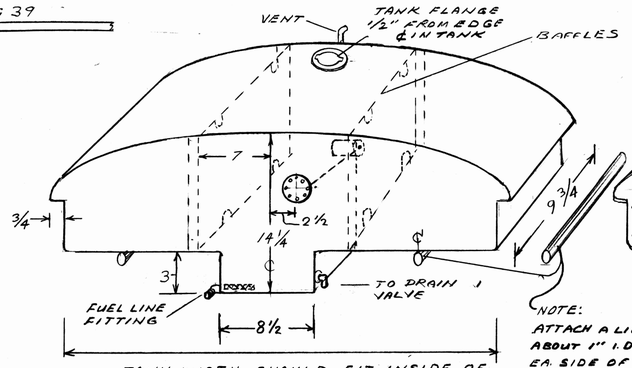
FUSELAGE: NOSE WHEEL WELL	
ENGINE: LYC. IO-360-A1A	
DESIGN: OSPREY AIRCRAFT	
SCALE 1/10 & FULL	
DWG. NO. 5	

FUSELAGE FUEL TANK
16.5 U.S. GALLONS
4 LAYERS 8.0Z CLOTH. USE
POLYESTER LAMINATING RESIN

SCALE 1 1/2" = 1'

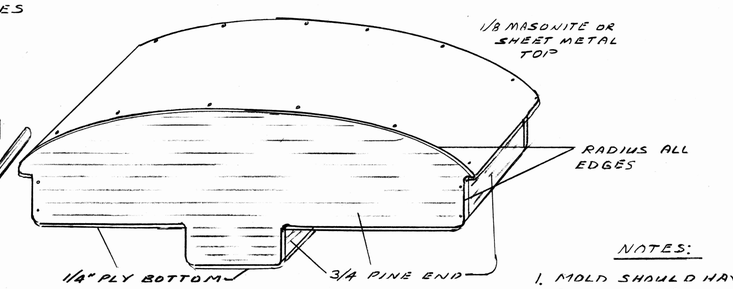




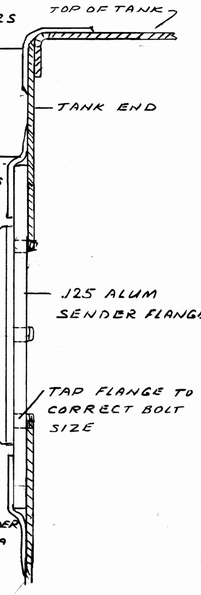


TANK WIDTH SHOULD FIT INSIDE OF FUSELAGE 12" FORWARD OF INST. PANEL THE MOLD SHOULD BE 1/4" LESS IN WIDTH THAN THE INSIDE WIDTH OF THE FUSELAGE. THIS ALLOWS FOR THE THICKNESS OF TANK SKIN & EDGE OVER LAYS USE TOP FORMER -0- & INST. PANEL FOR TANK CONTOUR. TANK SETS 1/2" BELOW TOPS OF FORMERS -0- INST. PANEL FORMER

NOTE:
ATTACH A LIGHT WALL ALUM TUBE ABOUT 1" I.D. TO THE BOTTOM OF EA. SIDE OF THE TANK FOR WIRING TO RUN FROM INST. PANEL FORWARD. SECURE TO TANK BOTTOM WITH 3" WIDE FIBERGLASS, RESINEND OVER TUBE TO BOTTOM

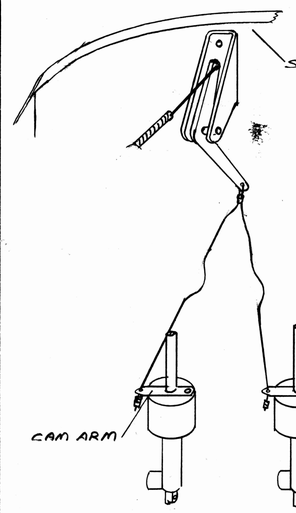


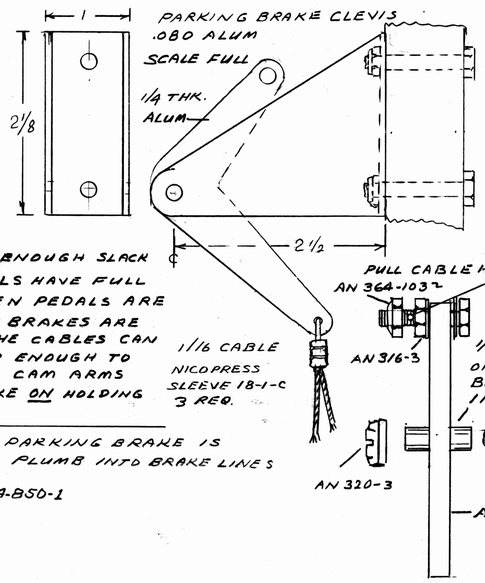
TYPICAL CROSS SECTION



NOTES:

1. MOLD SHOULD HAVE ALL EDGES RADIUS TO 1/8" SO GLASS WILL WRAP.
2. VARNISH MOLD & WAX AFTER ALL NAIL HOLES ARE FILLED
3. USE HEXCEL SAFE-T-POXY OR EQUIVALENT RESIN. COVER ACROSS SIDE WAYS ONE LAYER AT A TIME ALLOWING A 2" LAP ON BOTTOM. CUT THE 8.0Z CLOTH WIDE ENOUGH TO FOLD OVER ENDS 1/2". SPLIT CLOTH AT CORNERS IF NECESSARY.
4. CUT DOWN ℄ OF BOTTOM & PEEL OFF MOLD. FEATHER EDGE BOTTOM CUT & REJOIN WITH 2" WIDE STRIPS. 2 ON IN SIDE & 2 OUTSIDE
5. INSTALL BAFFLES USING 1 1/2" WIDE CLOTH STRIPS TOP & BOTTOM. (PRE SAND ALL AREAS THAT ARE GETTING A LAY UP TO INSURE A GOOD BOND.)
6. INSTALL ALL FITTINGS. (LESS VENT & SENDER FLANGE)
7. SAND FLANGED OVER EDGES USING LONG FLAT SANDING BOARD FOR A PLAIN EDGE PRIOR TO INSTALLING ENDS.
8. CUT 4 LAYERS OF CLOTH FOR END. COVER FLAT TABLE WITH WAX PAPER & RESIN THE 4 LAYERS. WHILE STILL WET, PRESS THE TANK SHELL DOW ON TOP OF RESINED CLOTH. WHEN DRY REPEAT ON OTHER END.
9. TRIM END & SAND A SLIGHT RADIUS ALL SIDES. CAVER ALL OUTSIDE ENDS WITH 2 LAYERS OF 4 TO 6.0Z CLOTH 1 1/2" WIDE
10. FEATHER ALL EDGES & INSTALL VENT & SENDER FLANGE
11. PRESSURE CHECK FOR LEAKS
12. CUT 1/2 WIDE SUPPORT BATTENS FOR TOP OF WHEEL WELL FLOOR. RESIN TANK IN PLACE WITH STRIPS OF MAT ON LONGERON TOPS & TOP OF WELL BATTENS
13. PUT A BED OF FLOX & RESIN MIX ON THE LONGERONS & PRESS THE TANK IN PLACE. USE FLOX TO SECURE CAP BLK. AND BATTENS TO TANK
14. INSTALL ALUM WIRING TUBES TO BOTTOM OF EA. SIDE.

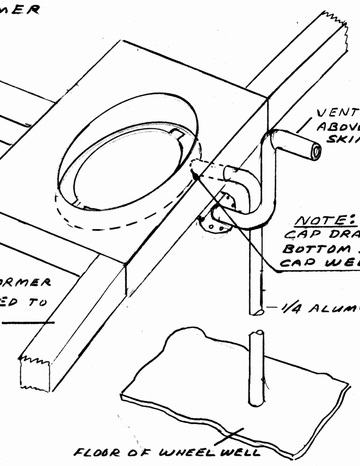




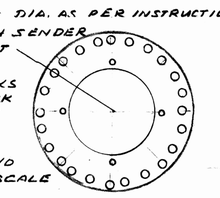
RIG CABLE WITH ENOUGH SLACK SO RUDDER PEDALS HAVE FULL TRAVEL YET WHEN PEDALS ARE NEUTRAL & BOTH BRAKES ARE DEPRESSED THE CABLES CAN BE TIGHTENED ENOUGH TO PULL THE TWO CAM ARMS INTO A BRAKE ON HOLDING POSITION

1/16 CABLE NICOPRESS SLEEVE 18-1-C 3 REQ.

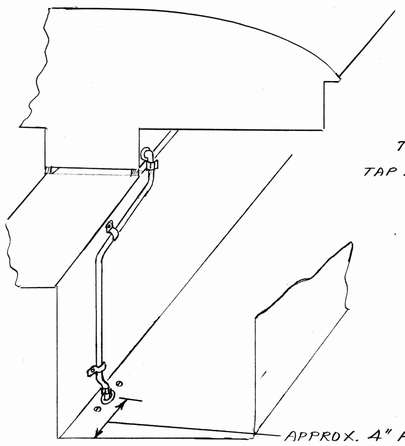
ALTERNATE PARKING BRAKE IS VALVE TYPE. PLUMB INTO BRAKE LINES AT FIREWALL USE VALVE A-B50-1



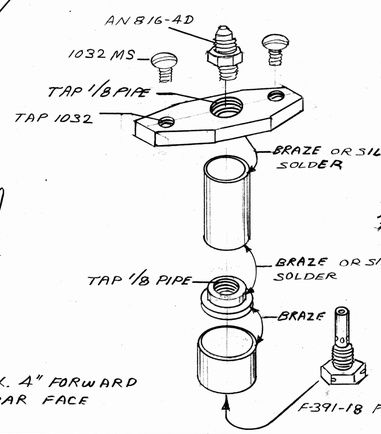
NOTE:
CAP DRAIN IS AT BOTTOM SIDE OF CAP WELL

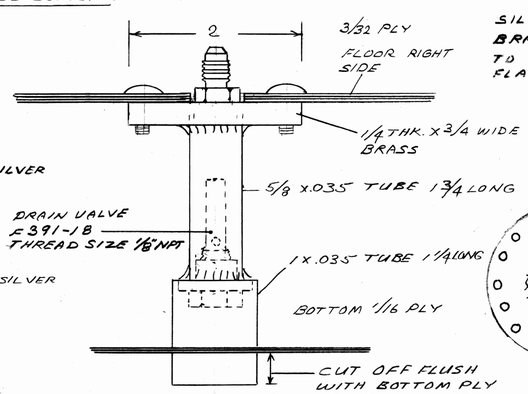


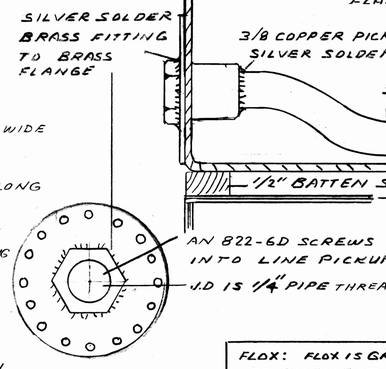
SENDER FLANGE HAS RING OF 3/16 HOLES OUTSIDE TO ADD TO ADHESION. INSIDE HOLES ARE TAPPED TO FIT SENDER BOLTS. GLASS OVERLAY DOES NOT COVER PAST SENDER COVER. THIS ALLOWS A METAL TO GASKET CIRCLE.



DRAIN AT FUSELAGE BOTTOM

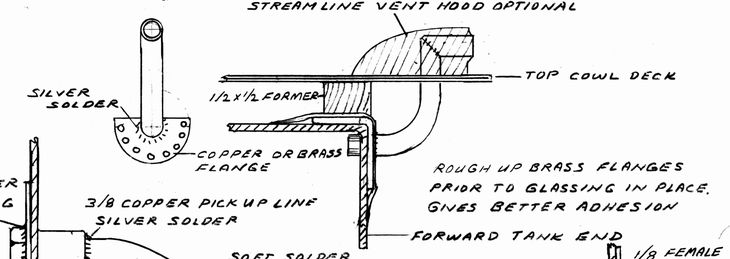




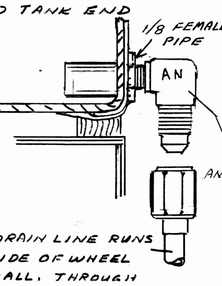


FLOX: FLOX IS GROUND COTTON. ITS EXCELLENT AS A FILLER IN GLUE JOINTS WHEN MIXED WITH EPOXY ADHESIVE INTO A PASTE

STREAMLINE VENT HOOD OPTIONAL



ROUGH UP BRASS FLANGES PRIOR TO GLASSING IN PLACE. GIVES BETTER ADHESION



DRAIN LINE RUNS DOWN SIDE OF WHEEL WELL WALL, THROUGH FLOOR TO 1/8 FEMALE PIPE FITTING FOR F391 FLUSH DRAIN VALVE IN BOTTOM OF FUSELAGE (SEE DETAIL A)

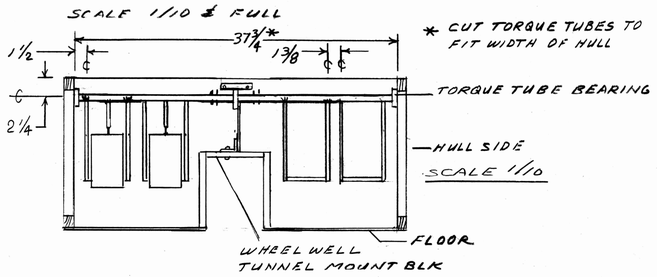
GP4 © 1985 OSPREY AIRCRAFT

FUSELAGE FUEL TANK 16.5 GAL
DESIGN: OSPREY AIRCRAFT
SCALE: 1 1/2" = 1' & FULL
DWG. NO: 6

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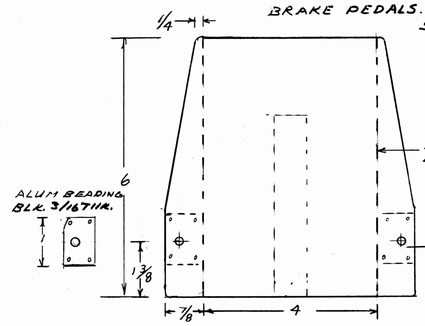
RUDDER PEDALS & BRAKE ASSEMBLY

SCALE 1/10 & FULL



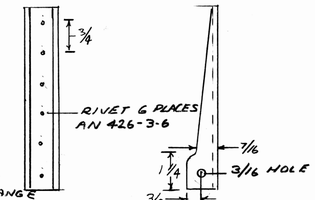
BRAKE PEDALS. .080 THK. 2024 T3

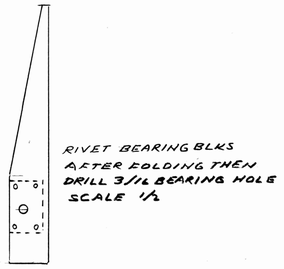
SCALE 1/2 MAKE 2



CLEVIS STIFFENER. SCALE 1/2

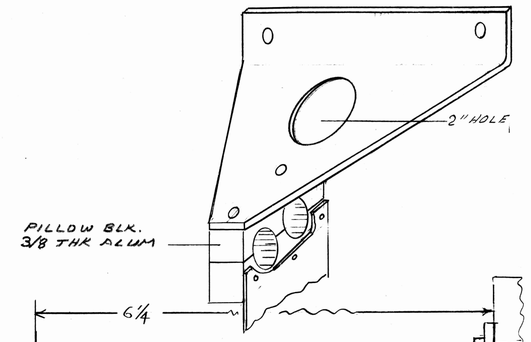
¾ ALUM CHANNEL

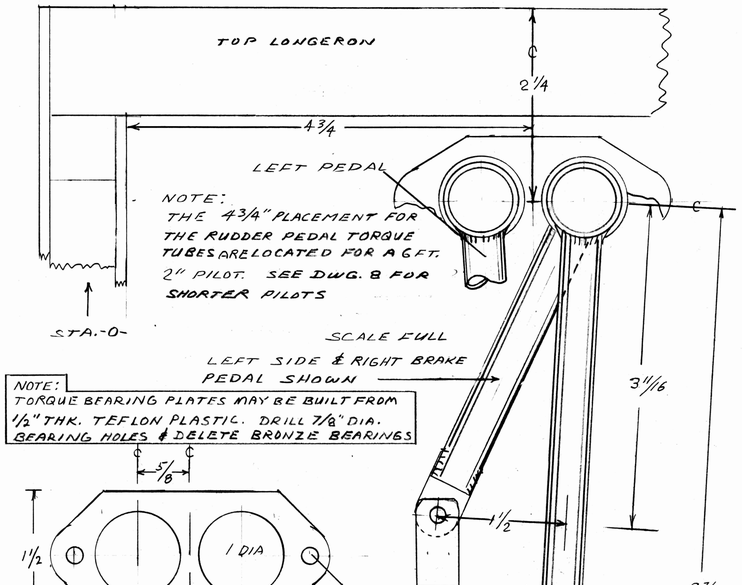




CENTER PILLOW BLK BRACKET

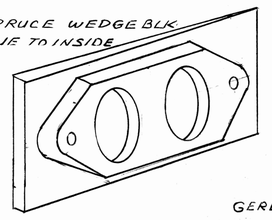
.125 ALUM. 2024 T3





NOTE: TORQUE BEARING PLATES MAY BE BUILT FROM ½" THK. TEFLON PLASTIC. DRILL ⅞" DIA. BEARING HOLES & DELETE BRONZE BEARINGS

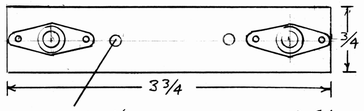
TORQUE TUBE BEARING PLATE 3/8 THK. ALUM. DRILL BEARING HOLES FOR 1" O.D. x ⅞ I.D. HARD BRONZE BEARINGS. SCALE FULL MAKE 2

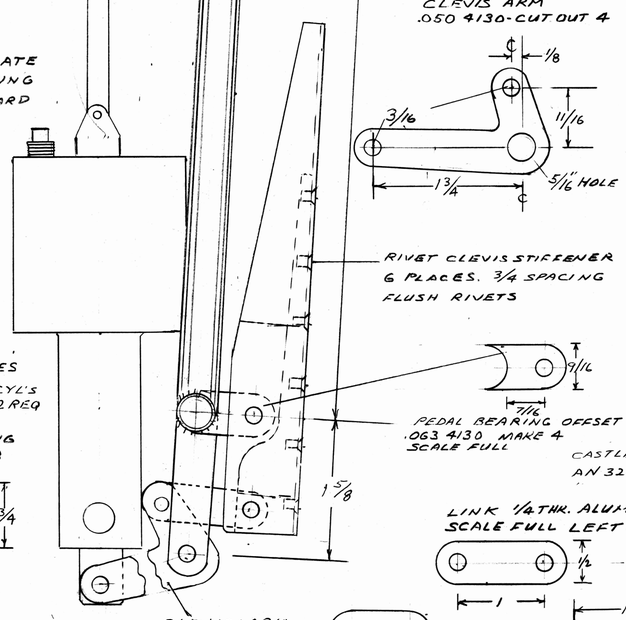


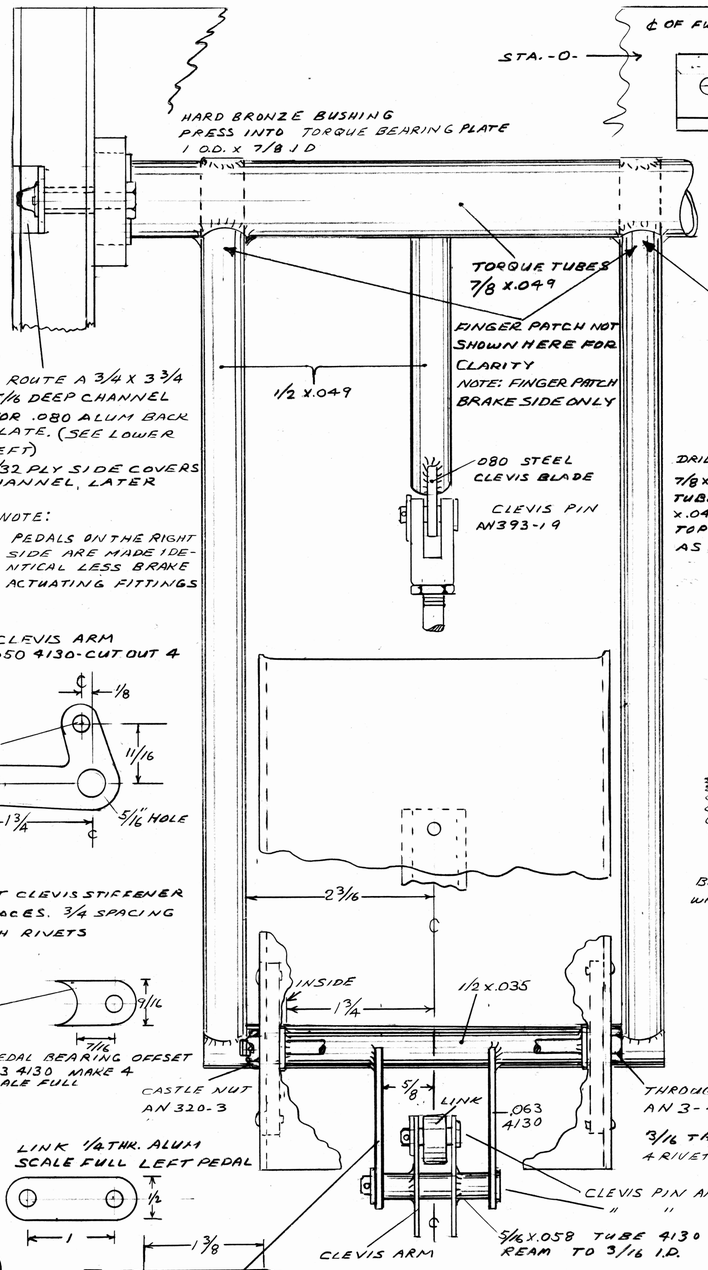
GERDES MASTER CYL'S A-049 2 REQ

.080 ALUM BACK PLATE. MAKE 2

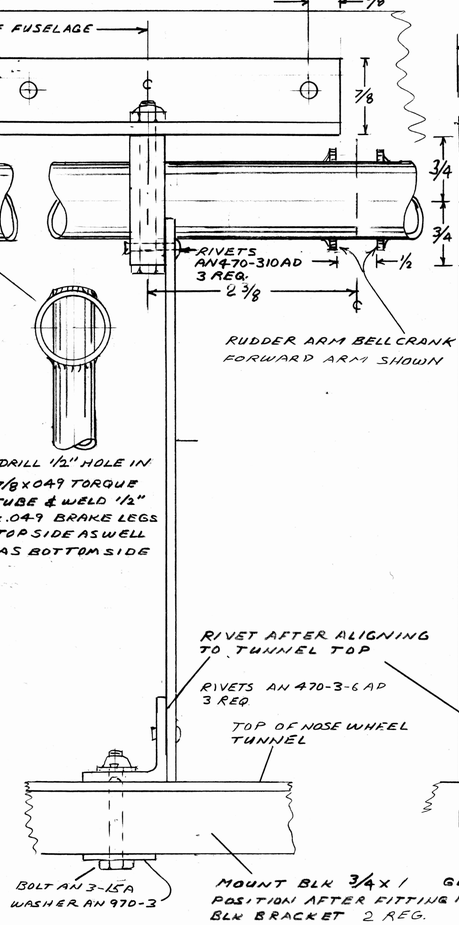
DRILL HULL SIDES THROUGH BEARING PLATE & MARK BACK PLATE FOR HOLE POSITIONS

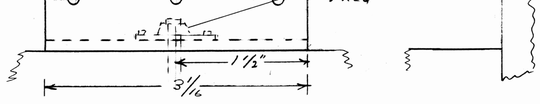






LINK ¼ THK. ALUM SCALE FULL LEFT PEDAL

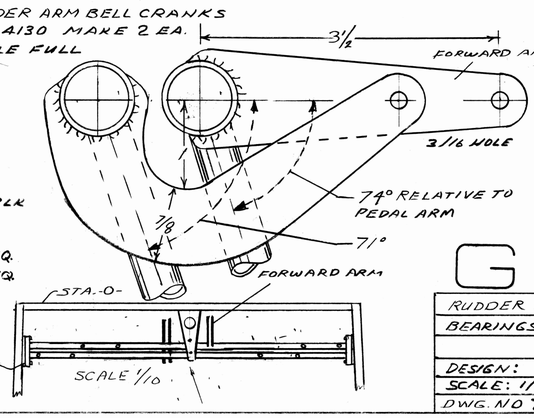




RUDDER ARM BELL CRANKS

.063 4130 MAKE 2 EA.

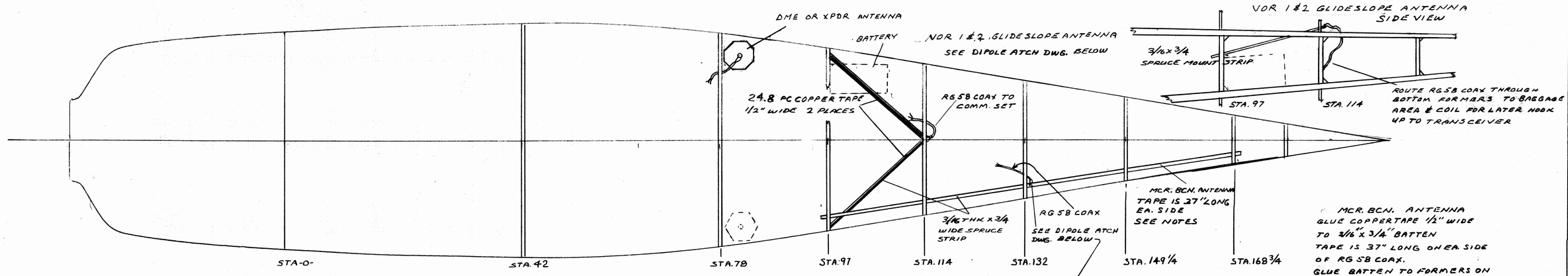
SCALE FULL



GP4 ©1985 OSPREY AIRCRAFT

RUDDER PEDALS, BRAKE PEDALS
BEARINGS & BRACKETS
DESIGN: OSPREY AIRCRAFT
SCALE: 1/10 - 1/2 - FULL
DWG. NO 7

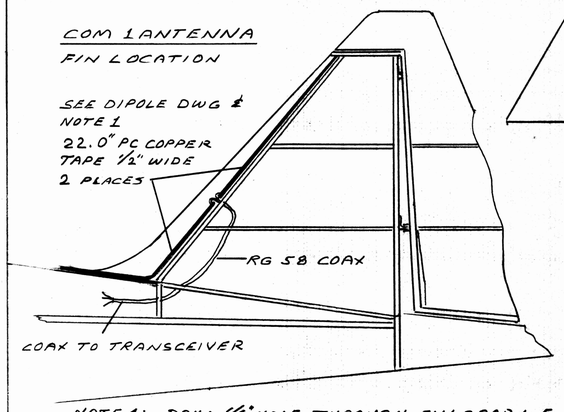
Copy 703 Sam Raterree



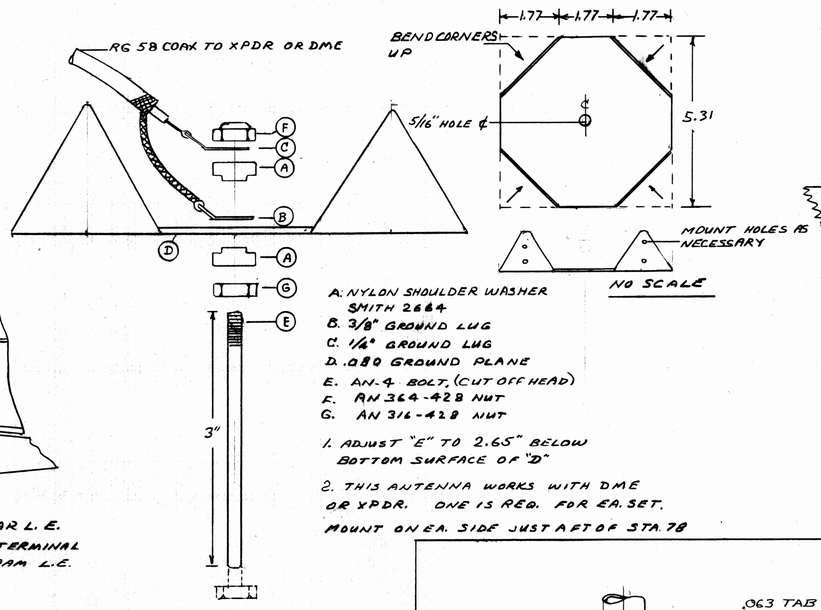
VOR 1 & 2 GLIDESLOPE ANTENNA
SIDE VIEW

MCR. BCN. ANTENNA
GLUE COPPER TAPE 1/2" WIDE TO 3/16" x 3/4" BATTEN
TAPE IS 37" LONG ON EA. SIDE OF RG 58 COAX.
GLUE BATTEN TO FORMERS ON BOTTOM SIDE OF TOP FORMER CROSS MEMBERS
RUN COAX TO BAGGAGE AREA BELOW FLOOR & COIL FOR LATER HOOKUP. TIE WRAP OR USE ADEL CLAMPS AT EA. STA.

COM 1 ANTENNA
FIN LOCATION



NOTE 1: DRILL 1/4" HOLE THROUGH FIN SPAR L.E. TO PASS COAX THROUGH. PUT TERMINAL STRIP ON OUTSIDE SURFACE. FOAM L.E. COVERS PC COPPER STRIPS

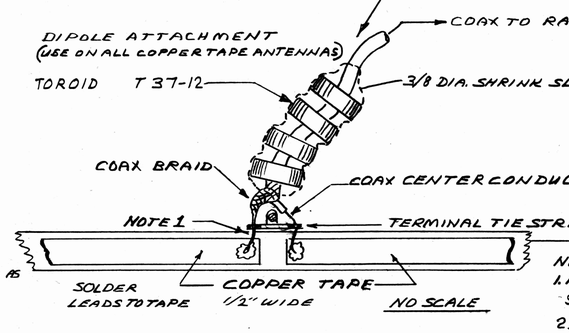


A: NYLON SHOULDER WASHER SMITH 2664
B. 3/8" GROUND LUG
C. 1/4" GROUND LUG
D. .080 GROUND PLANE
E. AN-4 BOLT, (CUT OFF HEAD)
F. AN 364-428 NUT
G. AN 316-428 NUT

1. ADJUST "E" TO 2.65" BELOW BOTTOM SURFACE OF "D"
2. THIS ANTENNA WORKS WITH DME OR XPDR. ONE IS REQ. FOR EA. SET.

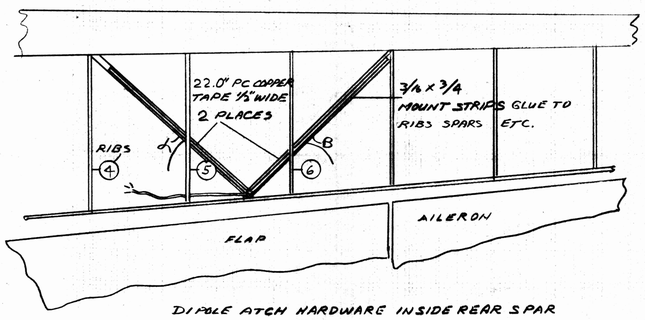
MOUNT ON EA. SIDE JUST AFT OF STA. 78

DIPOLE ATTACHMENT
(USE ON ALL COPPER TAPE ANTENNAS)

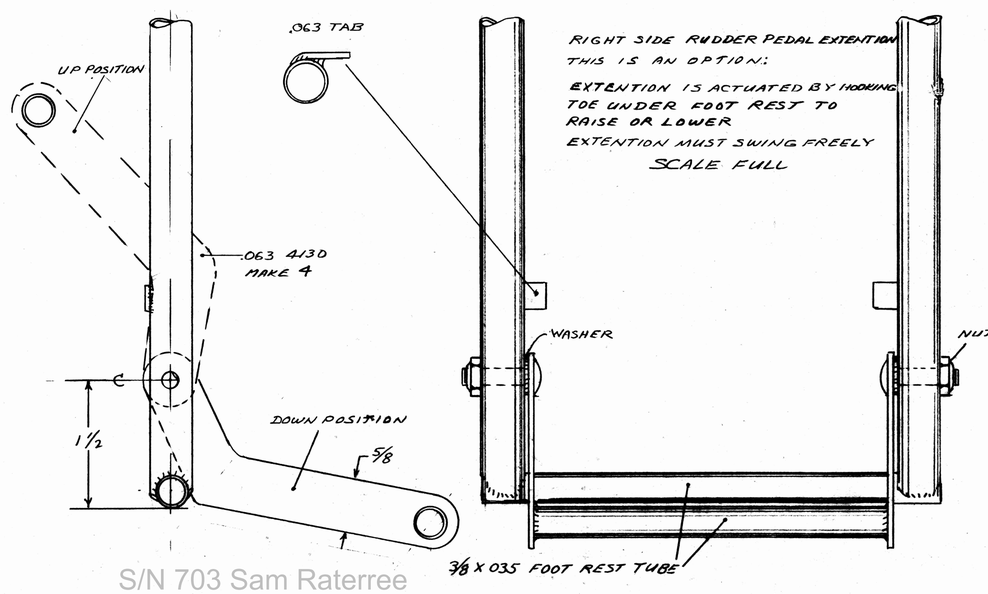


NOTES:
1. KEEP WIRES FROM TERMINAL STRIP TO TAPE. SHORT AS POSSIBLE SUBTRACT WIRE LENGTH FROM GIVEN TAPE LENGTH
2. USE 1/4" CABLE CLAMPS - NOT SHOWN - TO KEEP COAX FROM FLEXING
3. OVERCOAT TAPE WITH THIN COAT OF RESIN TO KEEP TAPE FROM PEELING
4. IF YOU USE 2 COM & 2 VOR YOU MUST INSTALL 2 COM ANTENNAS. ONE VOR ANTENNA WILL SERVE 2 NAV RADIOS & A GLIDE SLOPE
5. ALL ANTENNA MATERIAL AVAILABLE FROM
RADIO SYSTEMS TECHNOLOGY
10985 GRASS VALLEY AVE.
GRASS VALLEY CA. 95945
PHONE 916-272-2203

COM 2 ANTENNA: WING LOCATION

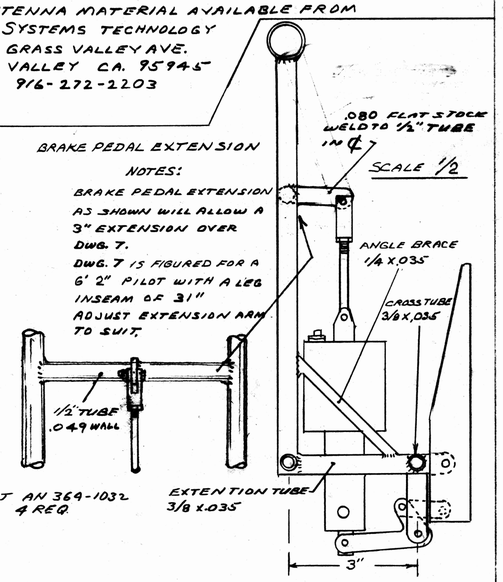


DIPOLE ATCH HARDWARE INSIDE REAR SPAR SEE DIPOLE ATCH DWG.
KEEP TAPE AS FAR AS POSSIBLE FROM METAL
ANGLES A & B TO BE WITH IN 15°



BRAKE PEDAL EXTENSION

NOTES:
BRAKE PEDAL EXTENSION AS SHOWN WILL ALLOW A 3" EXTENSION OVER DWG. 7.
DWG. 7 IS FIGURED FOR A 6' 2" PILOT WITH A LEG INSEAM OF 31"
ADJUST EXTENSION ARM TO SUIT.



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ANTENNA INSTALATION
OPTIONAL PEDAL EXTENTION
DESIGN: RADIO SYSTEMS TECHNOLOGY
SCALE: NTS & FULL
DWG. NO 8

FORWARD

BAGGAGE COMPT. BACK SIDE

1/4 O.D. x 3/16 I.D. ALUM BUSHINGS

BOLT AN3-14A, 8 REQ
NUT AN365-1032, 8 REQ

7/8

BAGGAGE FLOOR

3/8

3/8 O.D. x 1/4 I.D. HARD BRONZE BUSHING PRESS FIT

STA. 78

ALUM BACK PLATE .080

2

1 1/4

STA. 78 CONTROL CLEVIS IDLER ARM

3/16" THK. ALUM ANGLE
SCALE FULL

3/4 x 1 1/4 UPRIGHT

3/16 HOLE 4 PLACES

5/16

1

3/8

CASTLE NUT AN 320-4 2 REQ.

2

3/8 x .065 DRILL OUT TO 1/4 I.D.

3/8 BOLT AN 4-27, 2 REQ

1 1/2 x .035

BUTT WELD

5 11/16

1/4" HOLE

FOLD FROM .050 4130
DRILL & SHAPE AFTER FOLDING

3/8 INSIDE

NOTE: PIN ONE END OF PUSH ROD WHEN USING ADJUSTABLE BEARINGS EA. END

CHECK NUTS AN316-4 6 REQ
" " AN316-5 2 REQ

RIVETS AN 470-4-22
RIVET EA. END 2 PLACES
12 REQ.

ALUM PUSH ROD TURE. 2024 T3 1 x .035

9/16

HEIM HE4C 6 REQ

PUSH ROD 5/8 x .035 4130 STEEL

ROD END AN490 HT10P BEARING, HEIM F45-19M 2 REQ

15/16

.930

MACHINE ALUM PLUG TO FIT I.D. OF 1" ALUM. TUBE. DRILL & TAP FOR 1/4 28 THREAD. 6 REQ.

USE AN 4 THREADED STOCK FOR ROD END STUDS

STA. 132 CONTROL CLEVIS IDLER ARM

3/16 THK. ALUM. ANGLE
SCALE FULL

CROSS MEMBER STA. 132

FRONT GUSSET

FORWARD

3/32 PLY GUSSET 1" WIDE x 4" 2 REQ

1 3/8

NOTE: STA. 132 CLEVIS IS SAME AS STA. 78

2

3/4

.080 ALUM BACK PLATE 2 REQ

9 1/16

.050 GUSSET

1 1/4

3/4

1 9/16

.050 4130 CLEVIS

BOLT AN4-7A, 6 REQ
NUT AN 365-428, 6 REQ

1 1/2

3/8

RUDDER CABLE PULLEY BRACKETS: 3/16 THK ALUM. ANGLE 2 REQ. SCALE FULL

STA. 149 1/4

1/2

5/16

AN3-14A ACTS AS CABLE GUIDE
NUT AN365-1032 4 EA. REQ.

1/32 TO 1/16 CLEARANCE HERE, BOLTHEAD SERVES AS PULLEY GUARD

WASHER

PULLEYS AN 219-2, 2 REQ

BOLT AN4-11A
NUTS AN 365-428 2 EA. REQ.

2 3/8

3/4

3/16 HOLE

3/16

1 1/8

.080 BACK PLATE

1/4 HOLE

1/8 BIRCH PLY FIRE WALL
ASBESTOS SHIELD
.025 ALUM FIRE WALL

BOTTOM FORMER
1/8 BIRCH PLY GUSSET 2 1/2 x 2
.080 ALUM. PLATE FOR ANCHOR NUTS

TOP OF LONGERON BRACKET IS FLUSH WITH TOP.

3/16 HOLE
5/8
1/4 HOLE
3/8
2 1/4
1 1/4

AN 366F-1032 ANCHOR NUTS 2 REQ. EA. SIDE RIVET TO PLATE

NO. 6 WOOD SCREW HOLDS PLATE TO BACK OF BOTTOM FORMER
AN 3-14A 2 REQ EA. SIDE

NOSE GEAR TRUSS BRACKETS

ALUM. BUSHING FOLD FROM .063 4130
2 REQ EA. SIDE 2 REQ: SCALE FULL

17 5/16

STA. -0- FIRE WALL

3/4

15

1 3/4

17 5/16

4 3/4

4 3/4

DETAIL -A-
SCALE: 1 1/2" = 1'

LONGERON

3/32 OUTSIDE PLY COVER CUT SLOT FOR BRACKET TO FIT AGAINST LONGERON FOR FLUSH SIDE

3/32 INSIDE PLY

1/4 O.D. x 3/16 I.D. ALUM. BUSHING 4 PLACES 16 REQ.

13/16

SCALE FULL

COUNTER SINK & BRAZE HEAD TO STRAP

MACHINE SCREWS MS 24694-S66
NUT AN 364-1032
16 REQ

.063 PLATE, TOP & BOTTOM

7/8

7/16 PLY

BUILD BRACKET OUT FLUSH WITH OUTSIDE PLY WITH MICRO BALOON FILLER

STA. -0-

.063 OUTSIDE STRAP

2

3 3/8

1/8 BIRCH PLY
ASBESTOS & .025 ALUM FIRE WALL

1/4 O.D. x 3/16 I.D. 15/16 LONG, 18 REQ

BOLT. AN 3-14 A, NUT AN 364-1032 18 REQ

5/16 HOLE IS DRILLED AFTER GLUEING INTO FIREWALL

3/4 O.D. x 5/16 I.D. ALUM BUSHING 4 REQ.

15/16

.063 TOP & BOTTOM
.063 DOUBLER. EDGE WELD

3 7/16

INSIDE BRACKET ALL .063 4130 MAKE 4 (SEE CONSTRUCTION NOTES)

1 1/2

EDGE WELD

TOP OUTSIDE BRACKET ALL .063 4130 MAKE L & R RIGHT SHOWN

1 1/2
2 1/4
1 3/4
3/4
1 3/4

2

.063 SPACER EDGE WELD TO BOTTOM SIDE OF BRACKET

5/16 HOLE
3/16 HOLE

.063 SPACER

OUTSIDE OF STRAP

3 3/8

2

3/8

4 1/2

1 1/2

BOTTOM OUTSIDE BRACKET: ALL .063 4130. 2 REQ.

1 1/4

SEE NOTE (B)

DRILL 5/16 HOLE AFTER BOLTING BRACKETS IN PLACE. HOLE & SHOULD BE 17 5/16 TO ℄ LINE

NOTES: (ENGIN MOUNT BRACKETS)

1. BUILD 4 INSIDE BRACKETS PRIOR TO INSTALLING TOP DECK COWL & OUTSIDE FUSELAGE PLY. INSIDE PLY IS INSTALLED & 1/8 BIRCH PLY FRONT FIRE WALL
2. BEND UP 4 OUTSIDE BRACKETS. ALLOW FOR THE 1/16" THK. ASBESTOS & .025 ALUM FIRE WALL THAT WILL LAMINATE TO THE 1/8 PLY FRONT AT STA-0-
3. USE DRILL PRESS & DRILL ALL 3/16 HOLES. NOW DRILL THE 4 OUTSIDE HOLES TROUGH A GUIDE DRILL BLOCK
4. POSITION BRACKET ON FUSELAGE & DRILL INTO LONGERON & FIRE WALL ABOUT 1/4" DEEP. POSITION DRILL BLOCK OVER HOLES & DRILL HOLES ON TROUGH.
5. WITH DRILL BLOCK STILL IN PLACE ENLARGE HOLES TO 1/4" & PRESS IN ALUM BUSHINGS
6. FINISH THE FRONT BRACKETS (EDGE WELD SPACER ETC.) & BOLT TEMPORARILY TO LONGERON.
7. DRILL ALL 3/16 HOLES IN FRONT FIRWALL SIDE. THE 5/16 HOLE POSITION IS FIRST 3/16 TO BE USED AS PILOT HOLE
8. ENLARGE HOLES TO 1/4 USING DRILL BLOCK GUIDE & PRESS IN 1/4 BUSHINGS. ENLARGE THE PILOT HOLE TO 3/4 & GLUE IN 3/4 x 15/16 ALUM PLUG
9. REMOVE OUTSIDE BRACKET & POSITION INSIDE BRACKET OVER ℄ OF HOLES.
10. DRILL THROUGH BUSHING & DIMPLE INSIDE BRACKET ON THE TWO OUTSIDE END HOLES
11. REMOVE BRACKET & DRILL OUT DIMPLED HOLES BOLT OUTSIDE & INSIDE BRACKETS IN PLACE & DRILL ALL HOLES THROUGH INSIDE BRACKETS
12. TAKE OUTSIDE BRACKET & USING DRILL PRESS, MAKE A NEW DRILL BLOCK FOR THE 4 OUTSIDE HOLES. COUNTER BORE THE .063 BRACKET IN THE 4 OUTSIDE PLACES
13. PUSH THE 4 MACHINE SCREWS THROUGH BRACKET INTO NEW DRILL BLOCK & BRAZE HEAD TO BRACKET. THE WOOD DRILL BLOCK WILL TEND TO BURN HOWEVER IT WILL HOLD THE MACHINE SCREWS STRAIGHT SO TO ALIGN WITH INSIDE BRACKET HOLES
14. FIT NOSE GEAR TRUSS BRACKETS PRIOR TO GLUING SKIN ON BOTTOM. FINAL INSTALATION IS AFTER FIRE WALL IS COMPLETE
15. THE 5/16 ENG. MOUNT HOLES MUST BE DRILLED TO MEASURE IN DETAIL-A-.

(SEE FIRE WALL, WING FILLET DWG FOR FIRE WALL DETAIL)

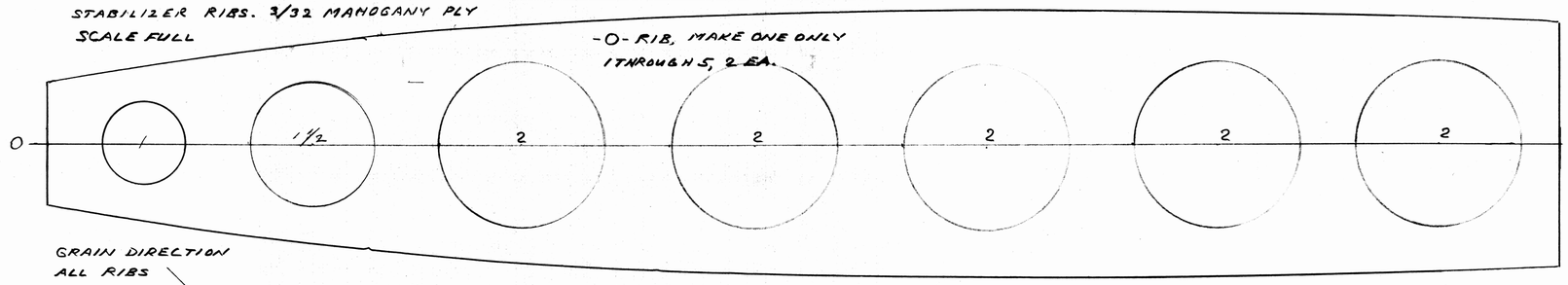
NOTE: (B) IF YOU USE THE READY MADE ENG. MOUNT DO NOT DRILL THE 5/16" MOUNT HOLES IN THE ENG. MOUNT BRACKETS UNTIL YOU HAVE THE MOUNT IN HAND. THE MOUNT CAN BE USED AS A DRILL GUIDE

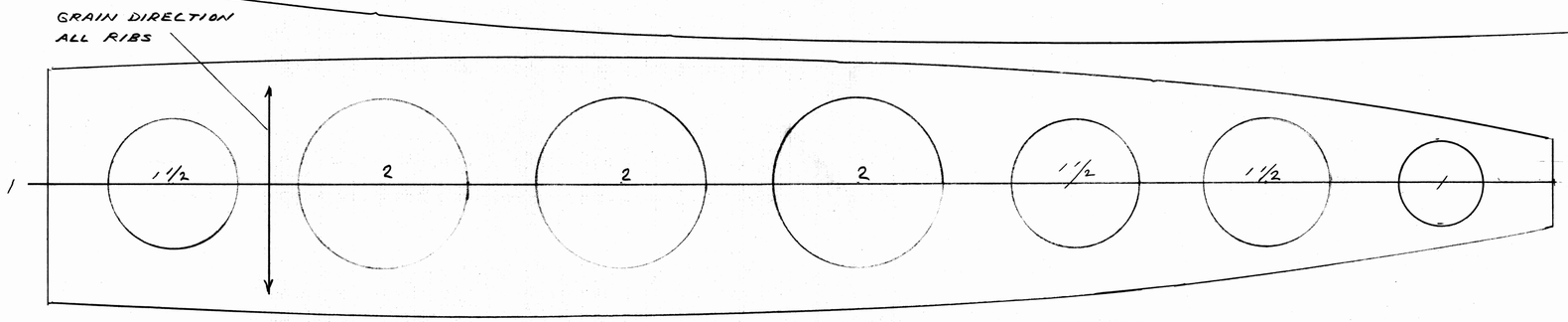
GP4 © 1985 OSPREY AIRCRAFT

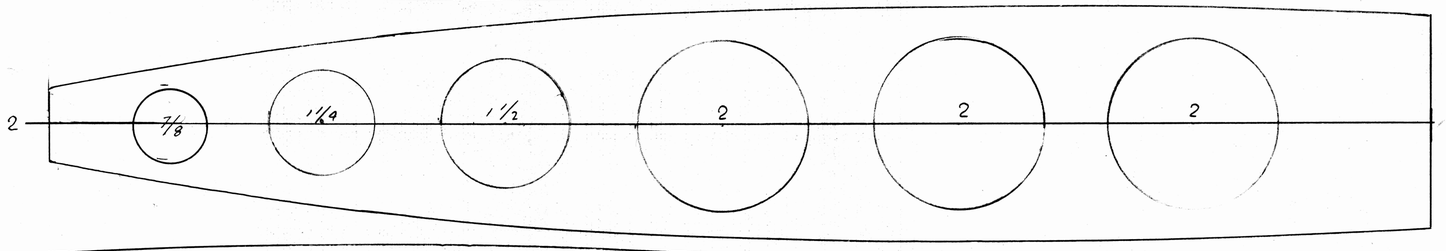
ELEVATOR IDLER ARMS & CLEVIS.
RUDDER CABLE BRACKETS
ENGINE MOUNT BRACKETS
DESIGN: OSPREY AIRCRAFT
SCALE: FULL & 1 1/2" = 1'
DWG. NO. 9

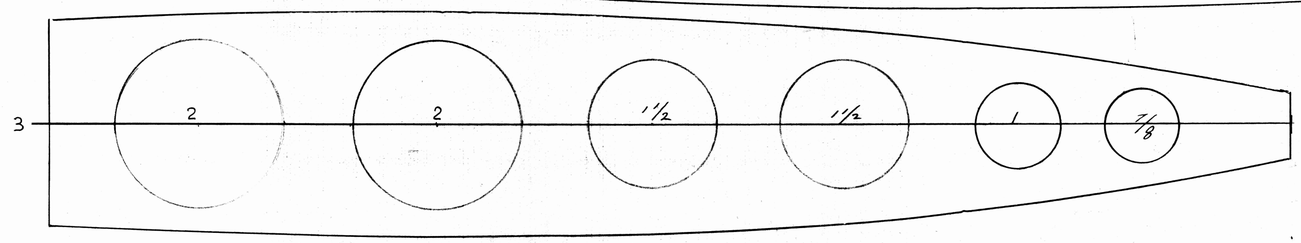
S/N 703 Sam Raterree

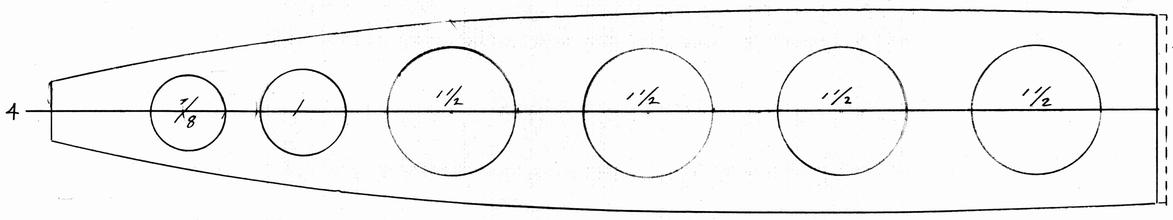
STABILIZER RIBS. 3/32 MAHOGANY PLY
SCALE FULL



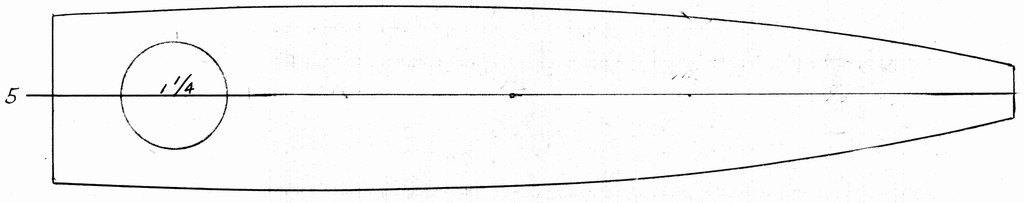


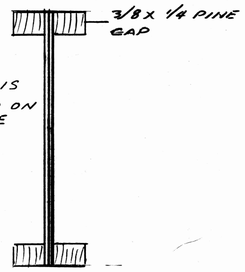


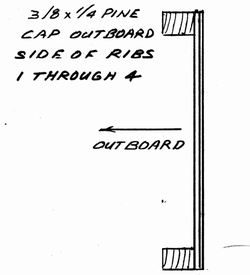


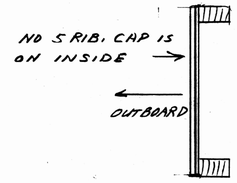


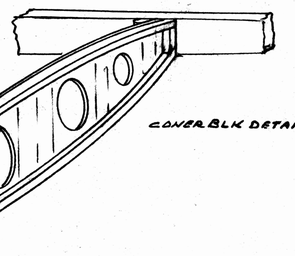
ADD 1/8" TO EA. RIB ON AFT SIDE FOR FITTING ON FINAL ASEMBLY (ONLY SHOWN HERE ON RIB 4)

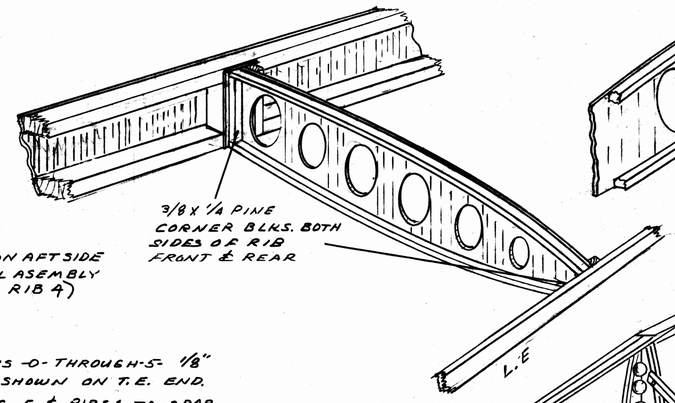




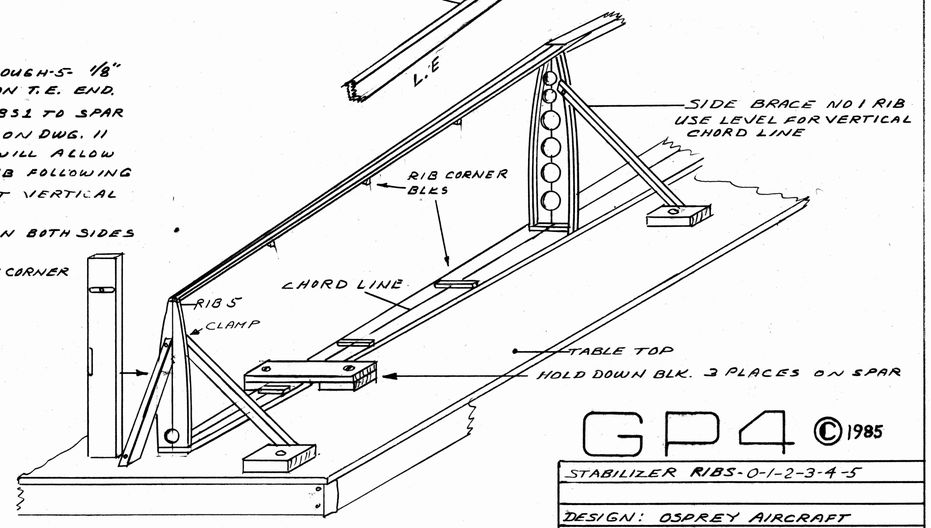








NOTE:
1. MAKE ALL RIBS -0- THROUGH-5- 1/8" LONGER THAN SHOWN ON T.E. END.
2. INSTALL RIBS 5 & RIB 1 TO SPAR TO DIMENSION SHOWN ON DWG. 11 THE ADDITIONAL 1/8" WILL ALLOW A HAND FIT OF EA. RIB FOLLOWING
3. STABILIZER IS BUILT VERTICAL ON TABLE TOP
4. DRAW CHORD LINES ON BOTH SIDES OF RIBS & SPARS
5. PRE GLUE ONE SIDE OF CORNER BLKS ON SPARS

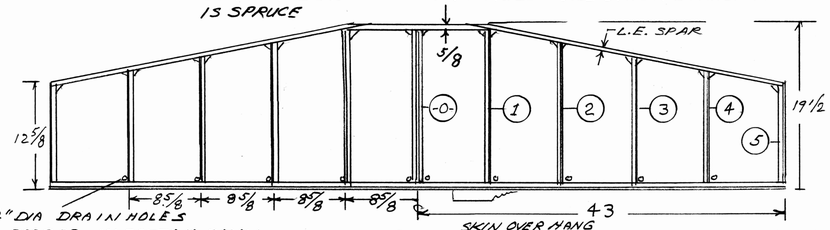


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STABILIZER RIBS-0-1-2-3-4-5
DESIGN: OSPREY AIRCRAFT
SCALE: FULL
DWG. NO. 10

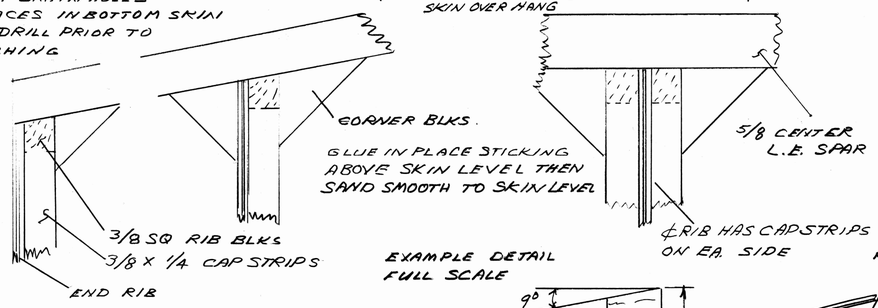
S/N 703 Sam Raterree

STABILIZER: SCALE 1/10
RIBS 3/32" MAHOBANY PLY, CAP STRIPS SPRUCE OR PINE
CORNER BLKS PINE OR SPRUCE ALL OTHER STRUCTURE
IS SPRUCE

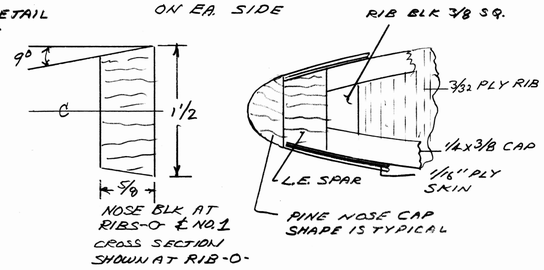


1/4" DIA DRAIN HOLES
10 PLACES IN BOTTOM SKIN
ONLY. DRILL PRIOR TO
VARNISHING

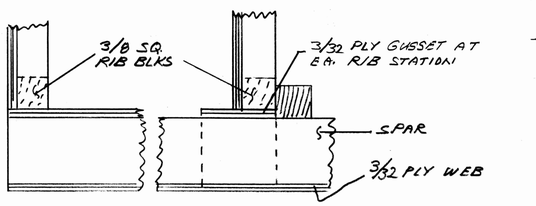
SKIN OVER HANG



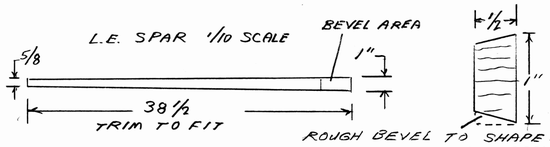
EXAMPLE DETAIL
FULL SCALE



NOSE BLK AT
RIBS-0 & NO.1
CROSS SECTION
SHOWN AT RIB-0-

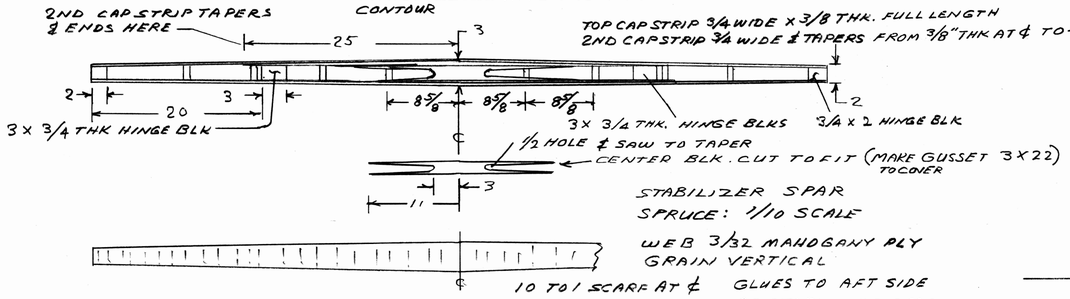


L.E. SPAR 1/10 SCALE



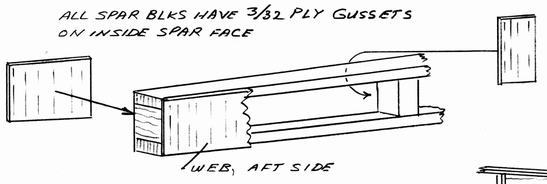
2ND CAP STRIP TAPERS
& ENDS HERE

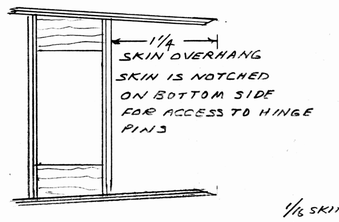
TOP CAP STRIP 3/4 WIDE X 3/8 THK. FULL LENGTH
2ND CAP STRIP 3/4 WIDE ℄ TAPERS FROM 3/8" THK AT ℄ TO-0- 25" OUT



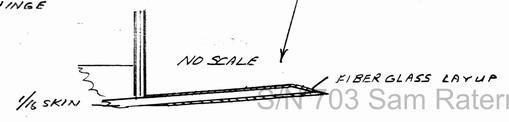
STABILIZER SPAR
SPRUCE: 1/10 SCALE

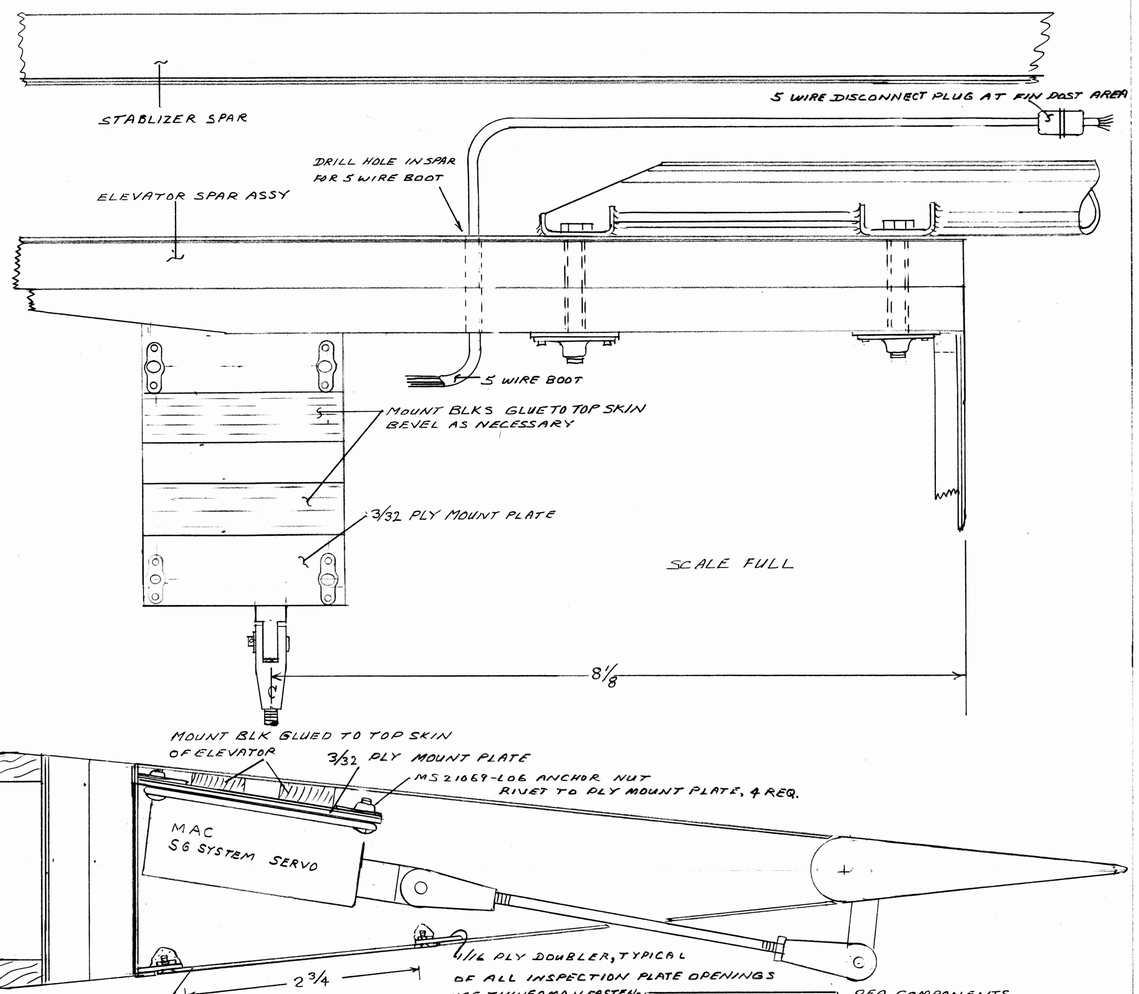
ALL SPAR BLKS HAVE 3/32 PLY GUSSETS
ON INSIDE SPAR FACE





TO REINFORCE THE PLY OVERHANG. FIRST
ALLOW ABOUT 1/8" GAP BETWEEN BALSA
FAIRING & OVERHANG. THEN FIBER GLASS
OVER HANG WITH 1 LAY UP OF 3 OR 4 OZ.
CLOTH

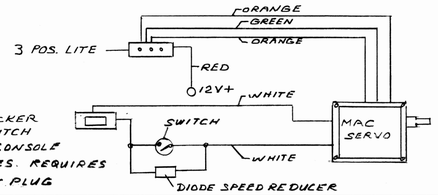




FLOX NUT IN PLACE



NO 4 FLUSH SCREWS 4 PLACES
TO HOLD .040 ALUM. DOOR.
GREASE NO 4 MACHINE SCREWS
THEN FLOX NUTS IN PLACE.
WHEN FLOX IS HALF
HARD REMOVE SCREWS



ROCKER
SWITCH
SUGGEST CENTER CONSOLE
FOR SWITCHES & LITES. REQUIRES
A 5 WIRE DISCONNECT PLUG

MAC ELECTRIC TRIM
1966 VINEYARD AVE
VISTA CA. 92083
PHONE 619-598-0592

REQ. COMPONENTS
MAC S6 SERVO & 5 WIRE BOOT 20'
ROCKER SWITCH
3 POS. IND. LITE.
DIODE SPEED REDUCER 1/2 SPEED
SWITCH FOR SPEED REDUCER

NOTE:
AFTER SERVO & PUSH ROD ASSY IS INSTALLED
AND ELEVATOR IS FINISHED PAINTED YOU
MUST BALANCE EA. SIDE SEPARATELY
THE SPEED REDUCER IS RECOMMENDED IN THE
TRIM SYSTEM TO REDUCE PITCH SENSITIVITY AT
SPEEDS OVER 150 MPH

S/N 703 Sam Raterree

GP 4 ©1985 OSPREY AIRCRAFT

STABILIZER, ELEVATOR TRIM
STATIC SOURCE
DESIGN: OSPREY AIRCRAFT
SCALE: 1/10 & FULL

DWG. NO. 11

ELEVATOR RIBS: 3/32 MAHOGANY- SCALE FULL

GRAIN DIRECTION, ALL RIBS

SPAR LOCATION

6

3

1/4x1/4 CAP STRIP

CORNER BLK

T.E.

5

2

CUT AS NECESSARY FOR TRIM TAB - LEFT SIDE.

4

1

1/4x1/4 CAP STRIP

NO 1 RIB DETAIL SCALE FULL

CORNER BLK.

T.E.

NOTE: ALL BUSHINGS USED SHOULD BE SLIGHTLY SHORTER THAN THE HOLE DEPTH (1/16 TO 1/32")

STAB. SPAR

.080 ALUM BACK PLATE

3/32 PLY GUSSETS

ANCHOR NUTS 366F-1032 RIVET TO BACK PLATES 12 REQ. THIS ASSEMBLY

MOUNT BLKS. 1 1/2 WIDE 2" HIGH & THICK ENOUGH TO ALIGN TORQUE TUBE WITH HINGE LINE

SPRUCE

.125 ALUM. FACE PLATES

BOLTS AN3-27A 4 REQ

TAP PILLOW BLK. 1/4-28 FOR GREASE FITTING

1/4 O.D. x 3/16 I.D. ALUM. BUSHINGS REQ AT ALL SPAR BOLTS

1/2

.080 ALUM BACK PLATE

PILLOW BLK. 1/2 THK ALUM

5/16

1/4-28 TAP

7/8 DIA

1

HOLE ¢

7/32

3/4 3/4

BOLT HERE

2

PILOT HOLE

TO BUILD PILLOW BLKS. START BY BOLTING TWO 1/2 THK x 3/4 x 2" ALUM BLKS TOGETHER. DRILL PILOT HOLE & DRILL 7/8 DIA. HOLE. CUT OUTSIDE CONTOUR. TAP FOR GREASE FITTING. SAND OUT ALL SAW MARKS & POLISH

NOTE: THE TORQUE TUBE MAY WARP SOME AFTER WELDING REHEAT IF NECESSARY & BEND FOR FREE ACTION WHEN BOLTED IN PLACE

9 7/8

3 3/4

ELEVATOR SPAR FACE

7/8 x .049 4130

NOTCH BALSA FAIRINGS FOR MOUNT BRACKETS

1 7/8

BOLTS AN3-7A NUTS AN365 } 3 REQ

3/16 3 PLACES

1/2

7/8

1/4

BEND LINES

CUT AFTER FOLDING

7/8

TORQUE MOUNT BRACKETS .063 4130 MAKE 4 SCALE FULL

ELEVATOR HORN .063 4130 SCALE FULL MAKE 2

1/4

1 1/4

7/8

3

2 1/8

1/4

3/8

7/8 DIA

SPACER 3/16 THK. ALUM. SCALE FULL MAKE 2

7/8 DIA

NOTCH 7/8 TORQUE TUBE SO THAT THE MOUNT BRACKETS ARE FLUSH TO O.D. OF TUBE

BOLT OR CLAMP TORQUE MOUNT BRACKETTS TO DUMMY SPAR

3/8 THK SPACER

WELD HORN IN THIS JIG, THEN CUT IN ¢

3/4" SPACER BLK

DUMMY SPAR

GP4

OSPREY AIRCRAFT

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ELEVATOR TORQUE TUBE:

ELEVATOR RIBS-1-2-3-4-5-6

DESIGN: OSPREY AIRCRAFT

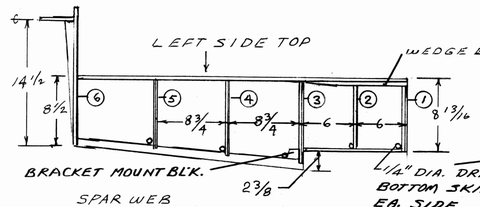
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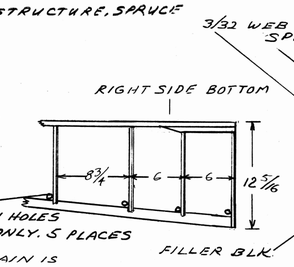
DWG. NO. 12

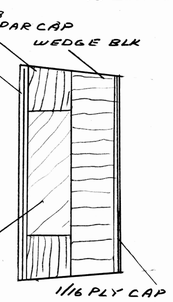
S/N 703 Sam Raterree

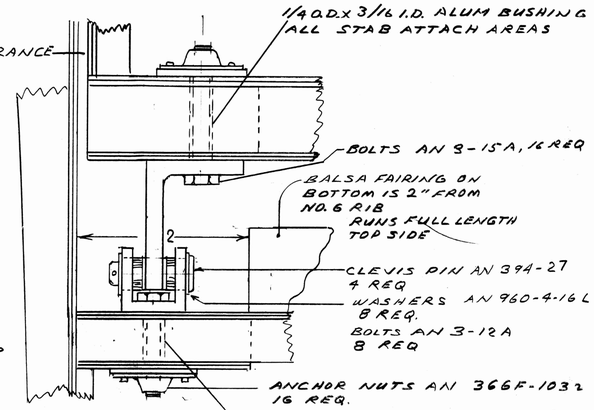
ELEVATOR: SCALE 1/10

RIBS 3/32 MAHOGANY PLY. CAP STRIPS PINE OR SPRUCE.
CORNER BLKS PINE OR SPRUCE. ALL OTHER STRUCTURE, SPRUCE

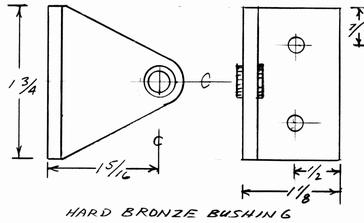




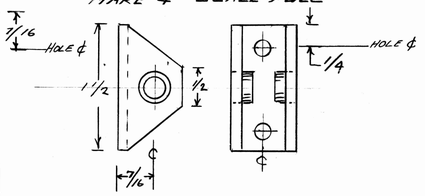




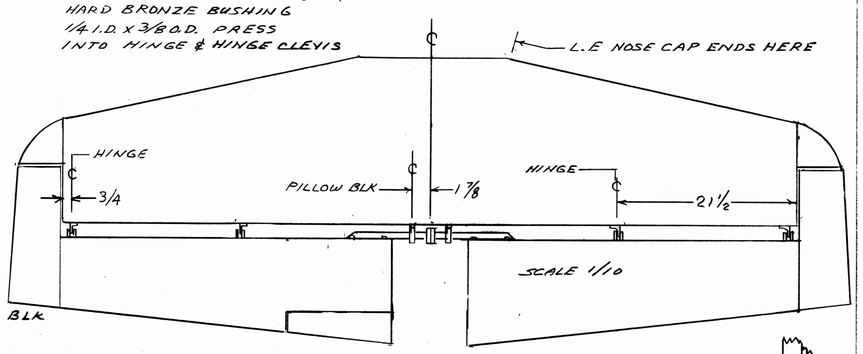
ELEVATOR HINGES
3/16 THK ALUM. 6061 T-6 OR EQUIVOLENT MAKE 4 SCALE FULL

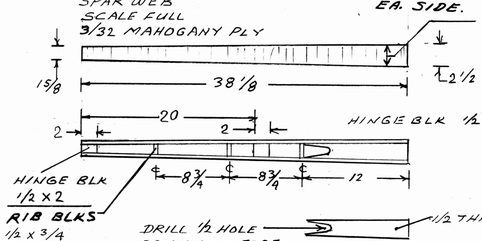


ELEVATOR HINGE CLEVIS
3/4 X 1/8 THK ALUM CHANNEL
MAKE 4 SCALE FULL

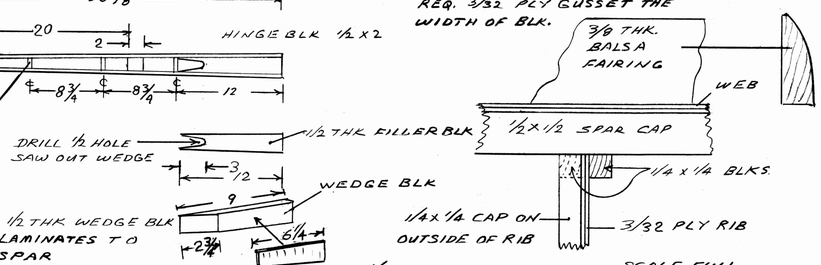


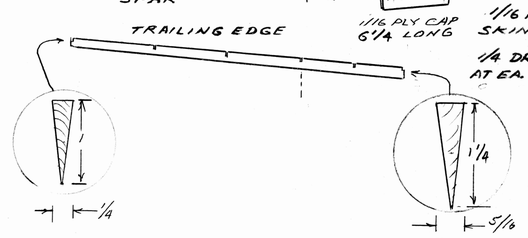
HARD BRONZE BUSHING
1/4 I.D. x 3/8 O.D. PRESS INTO HINGE & HINGE CLEVIS

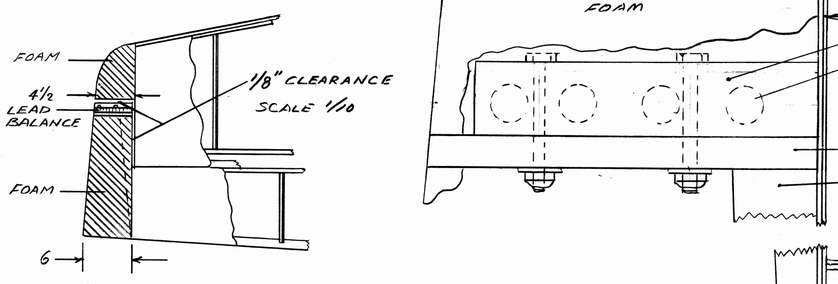


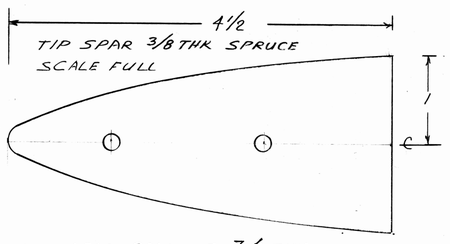


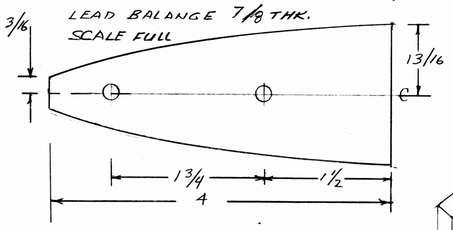
NOTE: ALL BLKS. IN SPAR REQ. 3/32 PLY GUSSET THE WIDTH OF BLK.

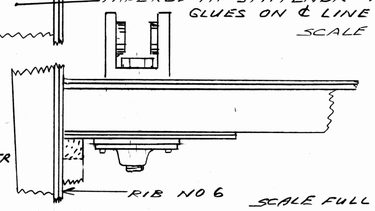


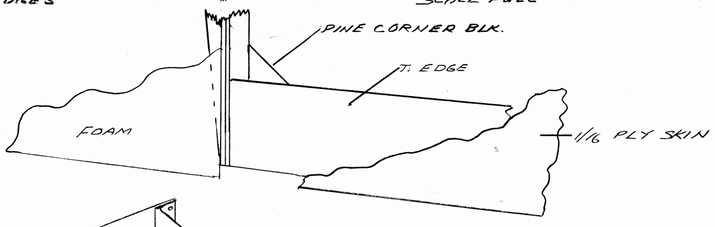


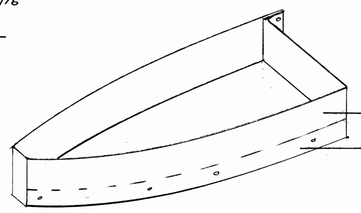


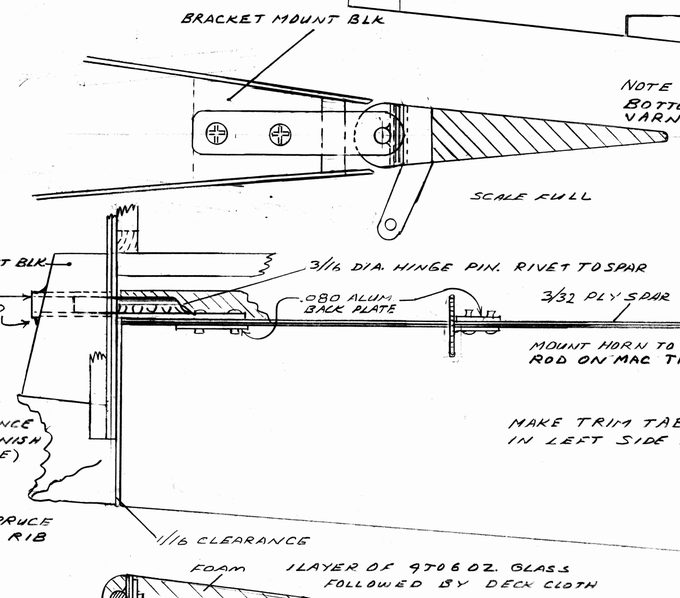




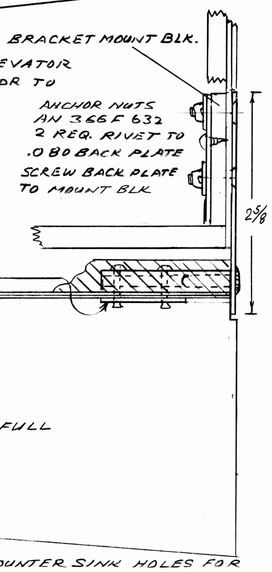


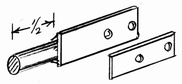




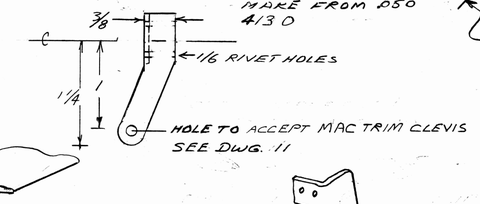


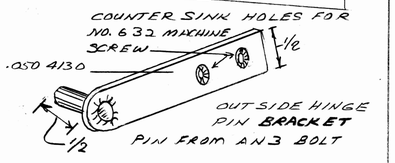
NOTE DRAIN HOLES IN ELEVATOR BOTTOM SKINS. DRILL PRIOR TO VARNISHING INSIDE





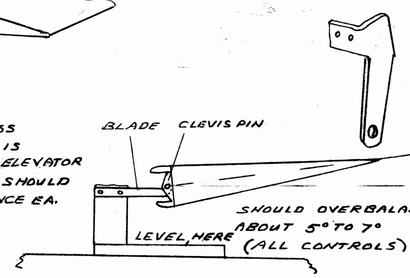
TRIM TAB HORN
SCALE FULL





NOTE: ROUT OUT .050 THK. SLOT ON END RIB NO 1 FOR A FLUSH MOUNT OF OUT SIDE HINGE PIN BRACKET

NOTE: ALL MOVABLE CONTROLS ARE MASS BALANCED WITH LEAD. THE LEAD IS I.S. DRILLED ON BOTTOM SIDE OF ELEVATOR AFTER FINISH PAINTING. THEY SHOULD SLIGHTLY OVER BALANCE. BALANCE EA. ELEVATOR SEPERATELY.



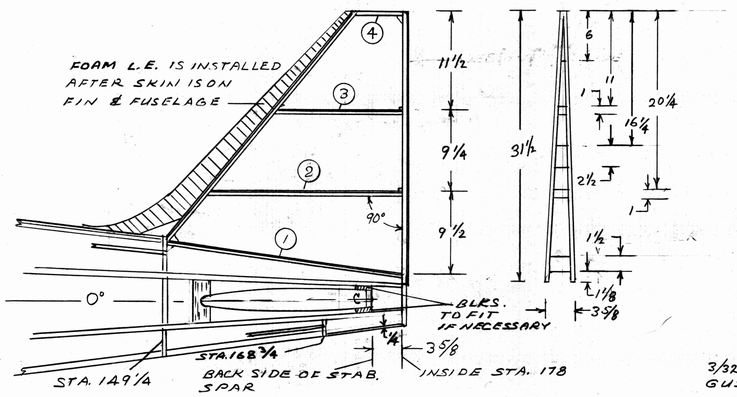
GP 4 © 1985 OSPREY AIRCRAFT

ELEVATOR: TRIM & BALANCE WT.
DESIGN: OSPREY AIRCRAFT
SCALE: 1/10 & FULL
DWG. NO. 13

S/N 703 Sam Raterree

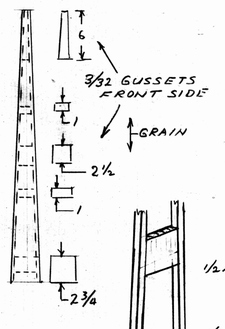
NOTE: THE ELEVATOR HORN IS 3 3/8 L ONG. IT MUST CLEAR THE BOTTOM BATTEN TO SWING FORE & AFT. ALLOW AT LEAST 1/8" CLEARANCE. IF NECESSARY RAISE THE STABIZER UP (STILL SET AT -0-) FOR THE ELEVATOR HORN TO CLEAR THE 1/4 THK BATTEN (SEE DWG 12 ELE. HORN)

FIN:
SCALE 1"/10

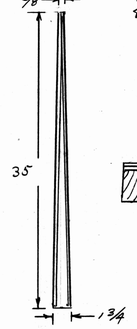


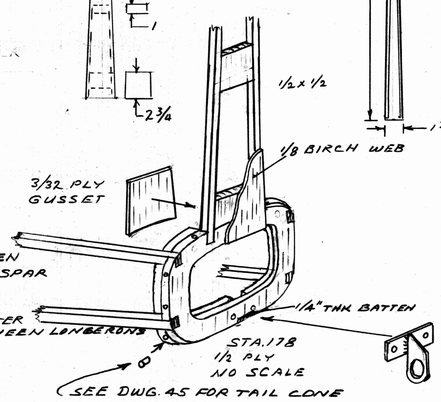
FIN SPAR 1/2 x 1/2. ALL BLKS. 1/2 THK.
SCALE 1"/10

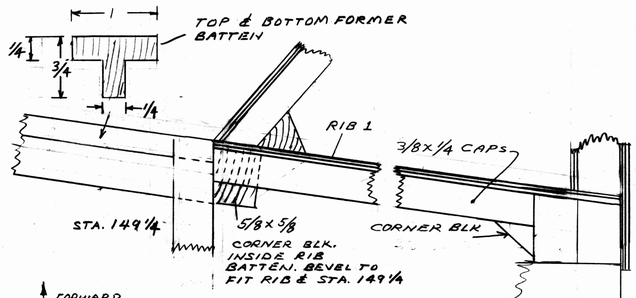
FIN WEB
1/8 BIRCH AFT SIDE
GRAIN

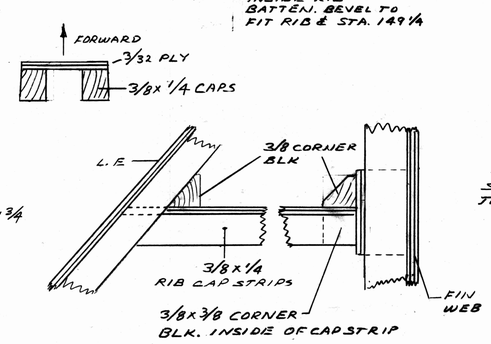


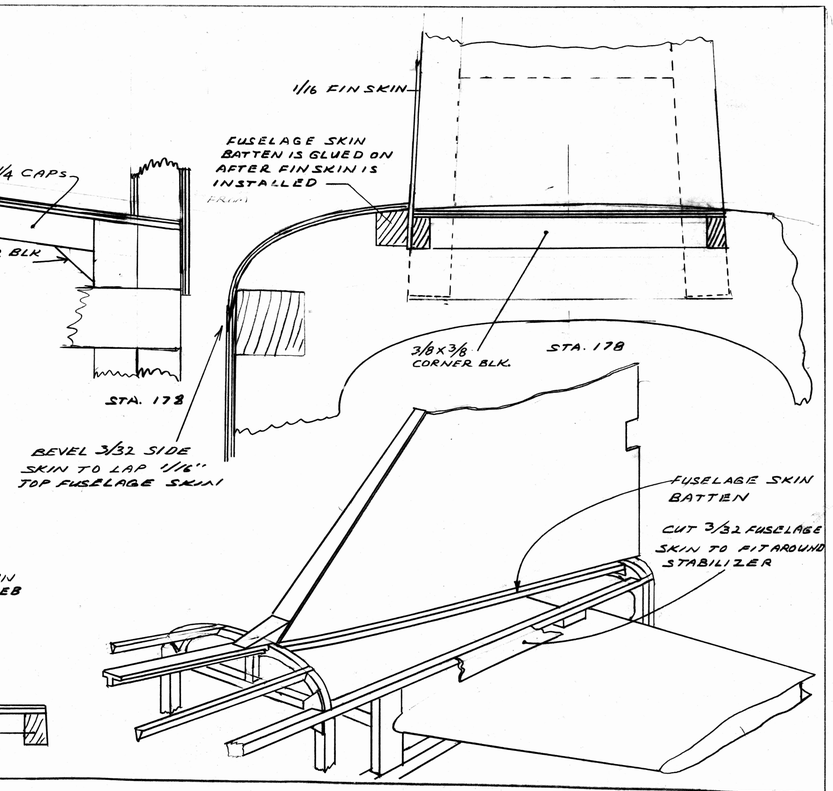
L.E. FIN SPAR
3/32 PLY
GRAIN





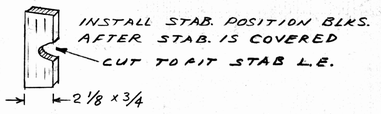


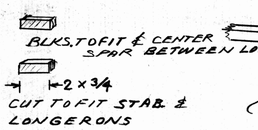




SET STABILIZER AT -0-

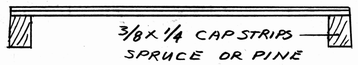
NOTE: SET CHORD LINE OF STABILIZER ON ℄ BETWEEN LONGERONS. AT REAR STAB. SPAR

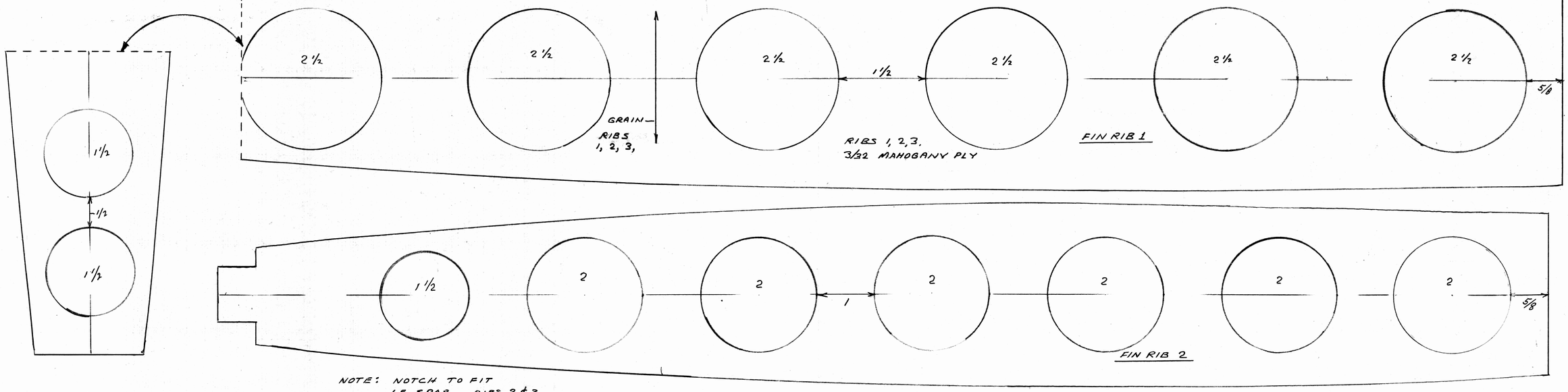




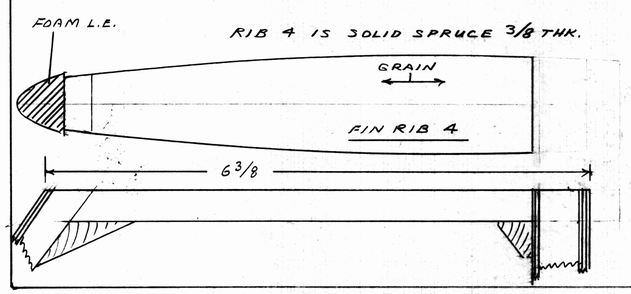
TAIL TIE DOWN SEE DWG. 15 FOR SCALE DWG

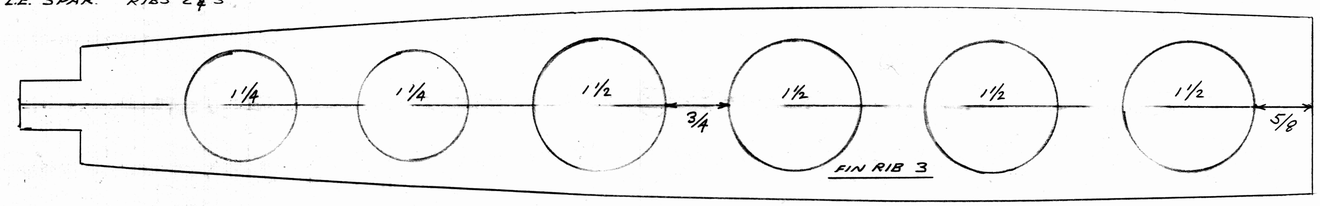
RIB CROSS SECTION





NOTE: NOTCH TO FIT L.E. SPAR. RIBS 2 & 3





GP 4 © 1985 OSPREY AIRCRAFT

FIN, & RIBS, 1, 2, 3, 4.

DESIGN: OSPREY AIRCRAFT
SCALE: 1/10, FULL
DWG. NO. 14

S/N 703 Sam Raterree

ALL RUDDER RIBS SHOWN FULL SCALE

RUDDER RIB 1

3/32 PLY

GRAIN

7/8 | 1 | 1 | 1 1/2 | 1 1/2 | 1/2 | 5/8

1 | 1 | 7/8

RIB 3 3/32 PLY

NOTE: DRAIN HOLES REQ. JUST AHEAD OF CORNER BLKS. & AT T.E.

RIB 4 3/32 PLY

1/4 x 1/4 CAP STRIPS GLUE ON BOTTOM SIDE OF RIBS 2, 3, 4

1/4 DRAIN HOLE

CORNER BLK.

T.E.

1/4 x 1/4 PINE OR SPRUCE CAP STRIPS GLUES TO TOP SIDE OF RIB 1

CORNER BLK.

T.E.

DRAIN HOLE

RIB 1

PINE L.E.

LEAD CASTING WITH BOLTS CAST IN PLACE. NOTE: LEAD IS UNDERSIZED TO ALLOW FIBERGLASS FILL & COVER

.050 ALUM BACK PLATE

832 BOLTS & NUTS

1/4 THK L.E. SPAR

RIB AHEAD OF RUDDER SPAR 1/4 THK SPRUCE

RUDDER SPAR

TOP RIB NO. 5 IS SOLID SPRUCE 3/8 THK

BALSA CAP

PINE L.E.

4

LEAD

NO SCALE

USE HIGH DENSITY FOAM LAYERS AS NECESSARY TO FIRM UP SEAT BOTTOMS. DESIGN FOAM SHAPE & THICKNESS TO BUILDER PILOT

RIGHT SEAT SHOWN LEFT SEAT HAS NO CUT OUT

LACE SEAT FRAME WITH 3/16" COTTON ROPE

SLIDE PIN

FIXED PIN

2 3/4

1/4 x 035 WELD ON BOTTOM SIDE

1/2

TOP VIEW OF LEFT SEAT SCALE 3" = 1'

5/8 x .049

SEAT RAIL AT REAR

SCALE FULL

REAR SEAT HEIGHT ADJUSTMENT BOTH SIDES OF EA. REAR SEAT SCALE FULL

DRILL 1/8 PILOT HOLE THEN 1/4" DIA HOLE TO ACCEPT 1/4 ADJUSTMENT BOLT

AN 3/5-4 WELD TO FRAME BOTTOM, 2 REQ EA. SEAT.

AN4 BOLT FULL 1028 THREAD

12

5/8 x .049

RT. SEAT SHOWN SCALE 3" = 1'

10 1/2

NOTE: IF HYDRAULIC GEAR IS USED THIS CUT OUT IS NOT NECESSARY

1 3/4

CUT OUT RT. SEAT ONLY

6 1/4

LEFT SIDE, NO CUT OUT

13

2 1/4

3 1/2

3/4 x .049

15 3/4

11°

.050 FINGER PATCH

5/8 .049

5/8 x .049

107°

12 5/8

COMPRESSION SPRING

HANDLE

WASHER

MAKE PIN FROM 1/4 BOLT

MAKE HANDLE FROM 3/16 BOLT

1/2

WELD END TO 3/8 TUBE

3/8

PIN

15/16

1

3/8 x .058

3 1/8

PIN ASSEMBLY SCALE FULL

SLIDE PIN ON RIGHT (LEFT SEAT)

" " " LEFT (RIGHT SEAT)

STA. 178

TAIL TIE DOWN LUG

TAIL CONE IS AVAILABLE PRE CASTED

INSIDE PLATE

SLOT TAIL CONE FOR TIE DOWN LUG

WOOD ENDS

ALUM.

MOLD FOR LEAD COUNTER WEIGHT

OVER SCALE

NOTE: GLASS OVERHANGS SKIN SLIGHTLY

1/16 SKIN

2 LAYERS 4 OZ LAMINIATION TO FORM A GLASS EDGE

.080 4130

1" DIA. SCALE FULL

1 1/2

3/4

3/16 HOLE

.080 4130

SCALE FULL

MAKE INSIDE PLATE TO MATCH BOLTS AN3-14A 2 REQ.

1/16 PLY SKIN GRAIN VERTICAL

5/8

SCALE 1"=1"

1 1/2

BALSA FAIRINGS

TYPICAL CROSS SECTION OF FIN & RUDDER ASSY.

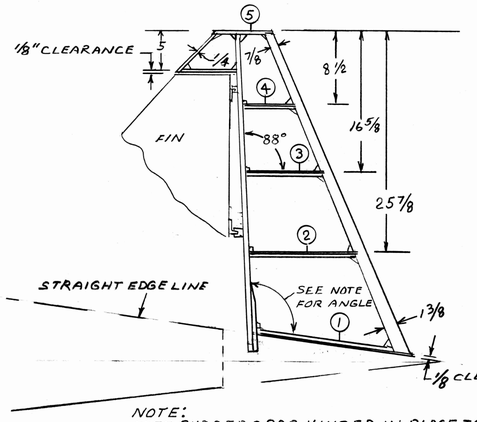
CLEVIS PIN ACCESS SLOTS ON FIN OVERHANG. REQ. IN 2 TOP HINGE PLACES & ONLY ON ONE SIDE. A SMALL .018 ALUM COVER PLATE SCREWED TO FIN SPAR IS AN OPTION

GP4 OSPREY AIRCRAFT ©1985

RUDDER RIBS SEATS
TAIL TIE DOWN LUG
DESIGN: OSPREY AIRCRAFT
SCALE: 1"=3" & FULL
DWG. NO. 15

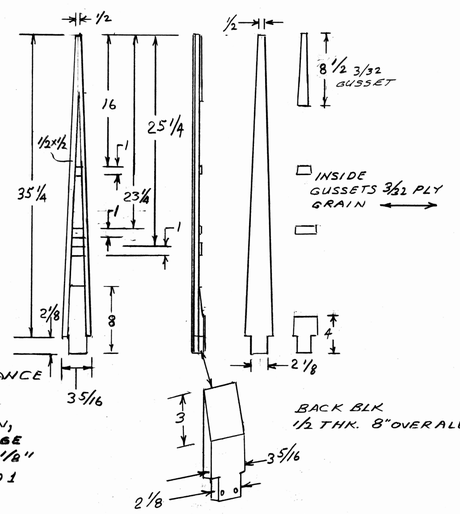
S/N 703 Sam Raterree

RUDDER:
1/10 SCALE

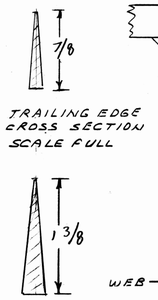


NOTE:
WITH RUDDER SPAR HINGED IN PLACE TO FIN, LAY STRAIGHT EDGE ALONG TOP OF FUSELAGE TO OBTAIN ANGLE OF RIB NO. 1 ALLOW 1/8" CLEARANCE BETWEEN TAIL CONE & RIB NO 1

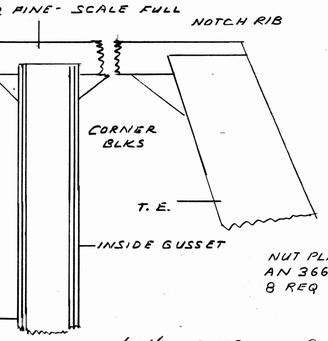
RUDDER SPAR
CAPS 1/2 X 1 1/2, ALL BLKS. 1 1/2 THK.

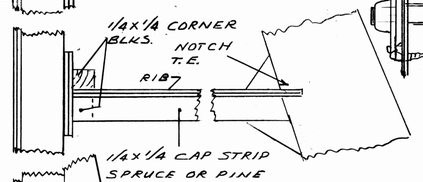


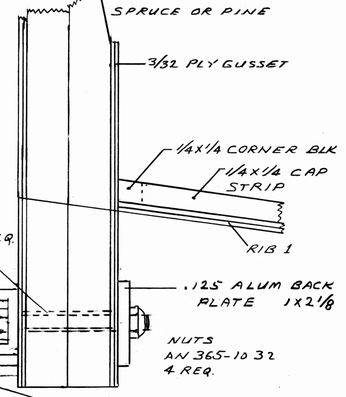
WEB 3/32 MAHOGANY PLY. GRAIN ⟷ FRONT SIDE OF RUDDER

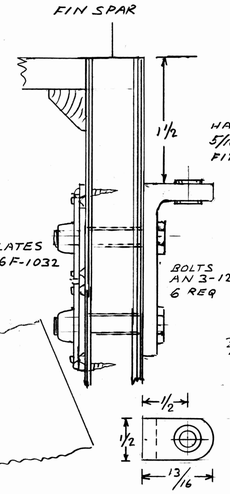


RIB 5 3/8 THK. SPRUCE OR PINE - SCALE FULL

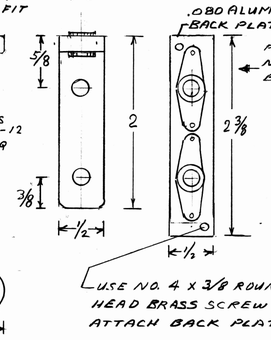






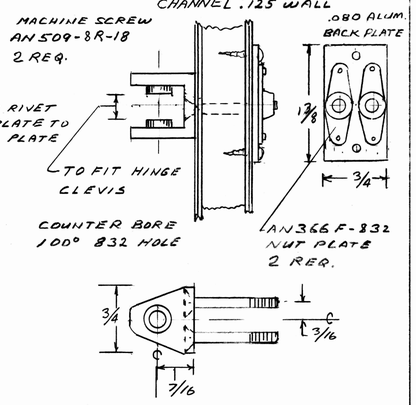


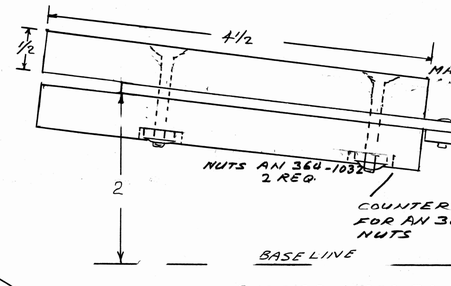
TOP FIN HINGE
3/16 ALUM. ANGLE STOCK 6061 T-6 OR EQUIVALENT SCALE FULL

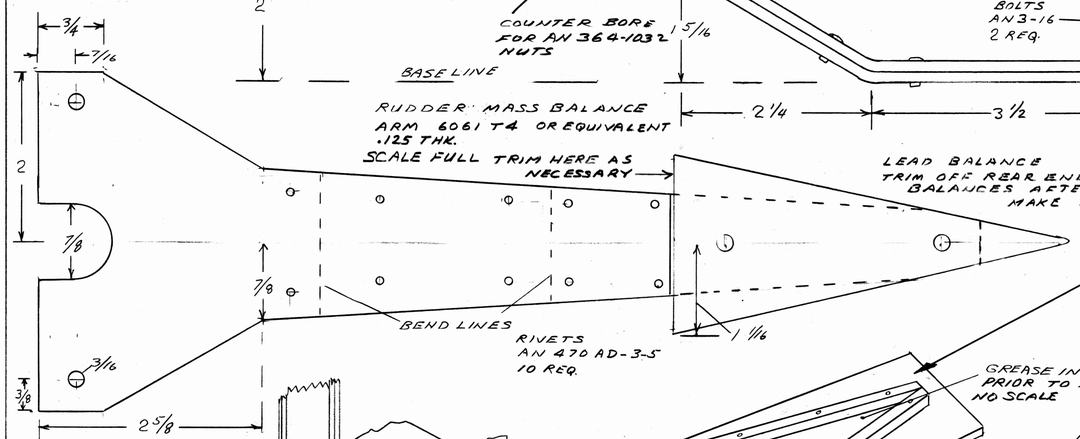


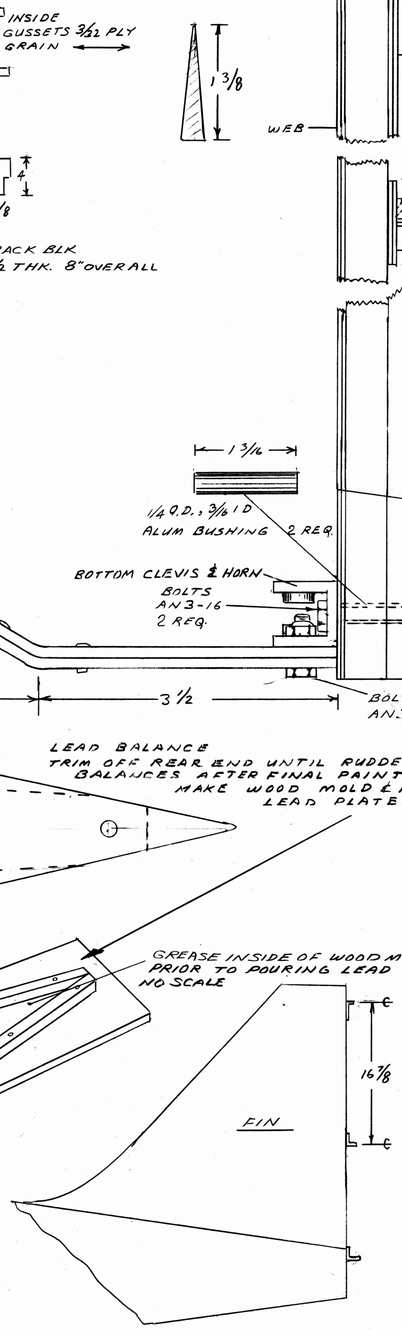
NOTE: ALL FIN HINGES MADE FROM 3/16 ALUM 6061 T-6
ALL RUDDER CLEVISES MADE FROM ALUM ANGLE 1/8 WALL 6061 T-6
ALL BUSHINGS ARE HARD BRONZE - 3/16 I.D. - 5/16 O.D.

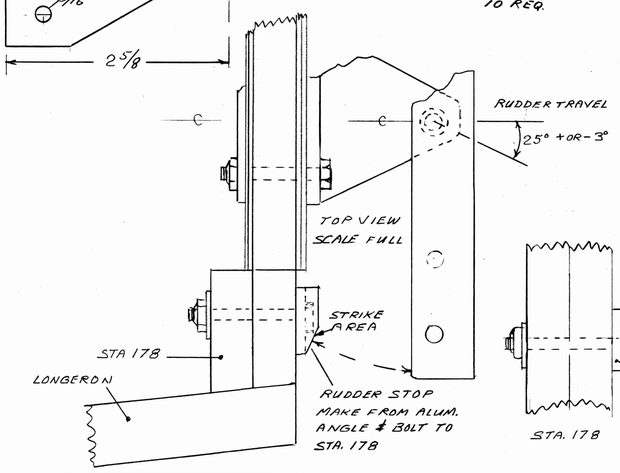
TOP RUDDER CLEVIS
3/4 x 3/4 6061 T-6 ALUM CHANNEL .125 WALL

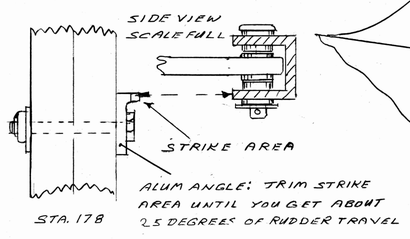


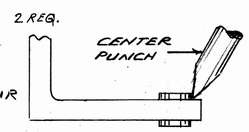






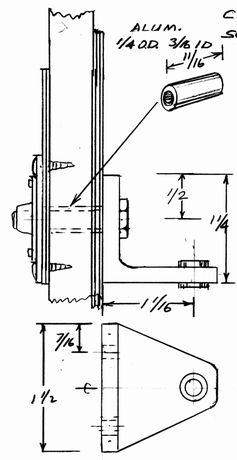






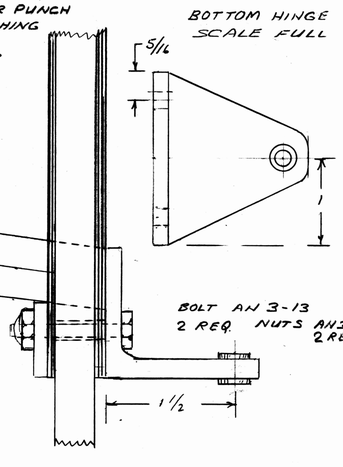
NOTE: IF YOU FIND ANY OF THE BRONZE BUSHINGS SLIGHTLY LOOSE YOU CAN CENTER PUNCH NEXT TO THE HOLE & BUSHING TO TIGHTEN IT UP. PUNCH 4 PLACES ON TOP AND BOTTOM SIDES

CENTER FIN HINGE
SCALE FULL

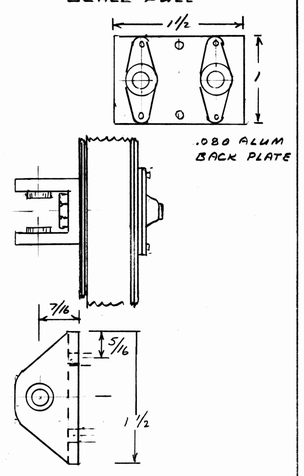


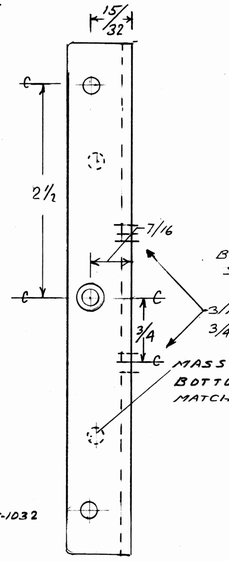
NOTE: 1/4 O.D. BUSHINGS REQ. AT ALL FIN & RUDDER SPAR ATTACHMENTS EXCEPT AT TOP RUDDER CLEVIS

BOTTOM HINGE
SCALE FULL



CENTER RUDDER CLEVIS
SCALE FULL





BOTTOM RUDDER CLEVIS & HORN
SCALE FULL

GP4 ©1985 OSPREY AIRCRAFT

RUDDER; MASS BALANCE, HINGES
DESIGN: OSPREY AIRCRAFT
SCALE: 1/10, FULL
DWG. NO: 16

S/N 703 Sam Raterree

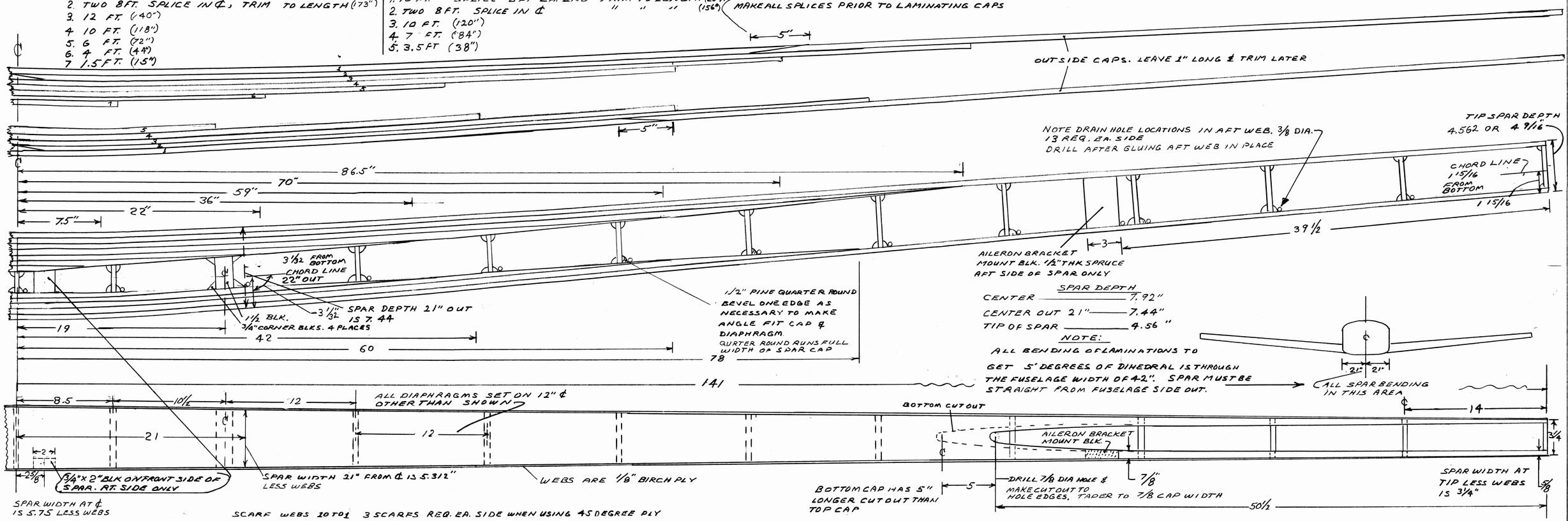
SPAR CAP LAMINATIONS: 1½" x 6" VERTICAL SPRUCE
SCALE 1/5

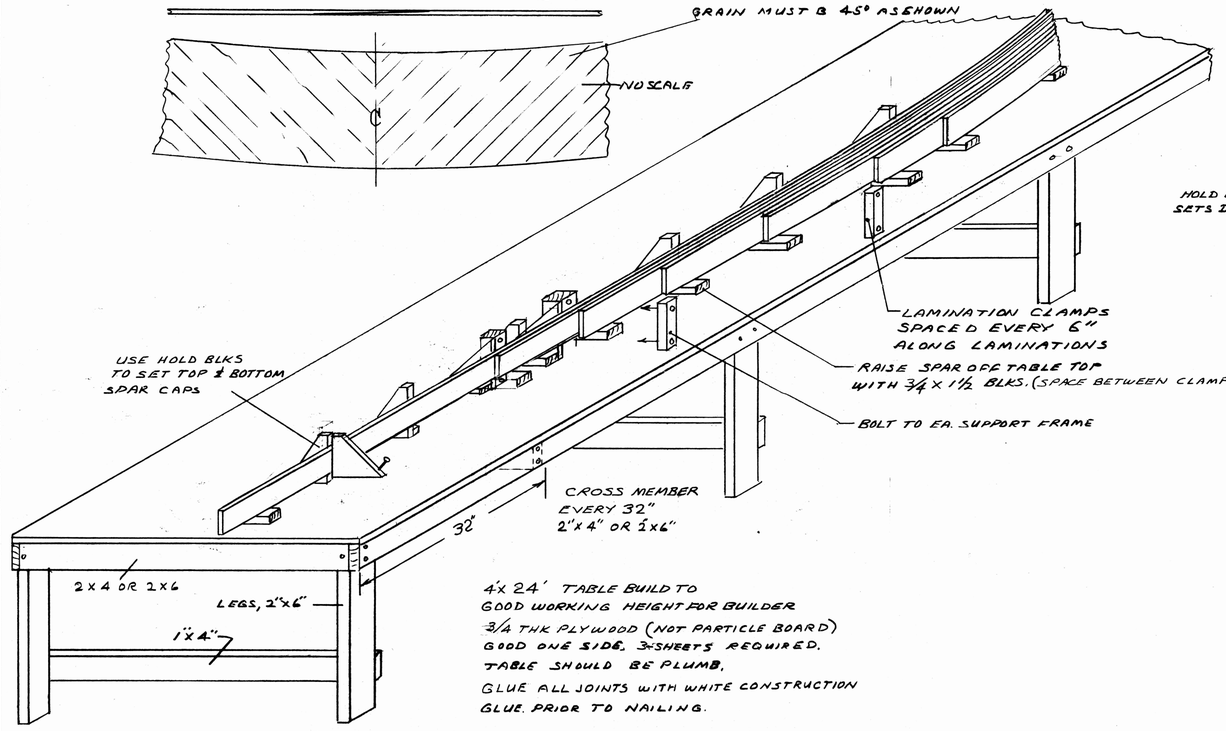
TOP CAP LENGTHS
1. 12 FT - SPLICE 8 FT. EA. END, TRIM TO LENGTH (284")
2. TWO 8 FT. SPLICE IN ℄, TRIM TO LENGTH (173")
3. 12 FT. (140")
4. 10 FT. (118")
5. 6 FT. (72")
6. 4 FT. (44")
7. 1.5 FT. (15")

NOTE:
ALLOW 1" ADDITIONAL LENGTH TO TOP & BOTTOM CAPS (OUTSIDE CAPS)
TRIM TO PROPER LENGTH ON SPAR ASSEMBLY.

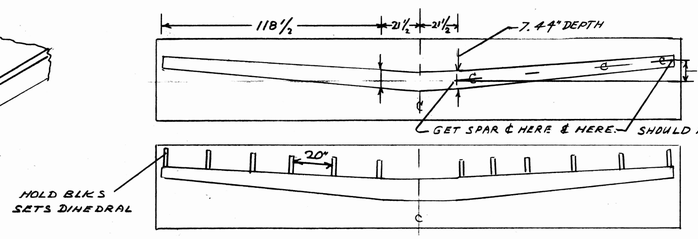
BOTTOM CAP LENGTHS
1. 10 FT. SPLICE 8 FT EA. END TRIM TO LENGTH (284") (156")
2. TWO 8 FT. SPLICE IN ℄ " " " "
3. 10 FT. (120")
4. 7 FT. (84")
5. 3.5 FT (38")

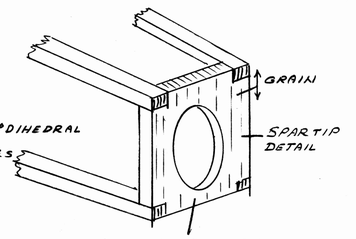
ALL SPLICES ARE 10 TO 1 (½" THK. CAP REQ 5" LONG SPLICE)
MAKE ALL SPLICES PRIOR TO LAMINATING CAPS



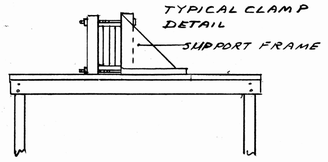


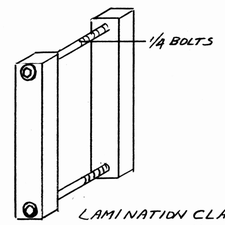
4'x 24' TABLE BUILD TO GOOD WORKING HEIGHT FOR BUILDER
¾ THK PLYWOOD (NOT PARTICLE BOARD) GOOD ONE SIDE. 3 SHEETS REQUIRED.
TABLE SHOULD BE PLUMB,
GLUE ALL JOINTS WITH WHITE CONSTRUCTION GLUE. PRIOR TO NAILING.



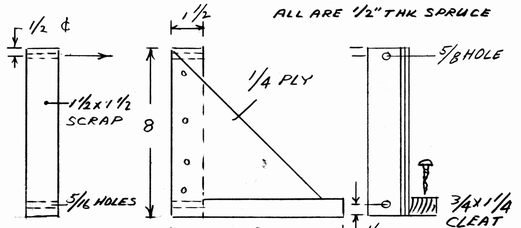


8X8 SUPPORT FRAMES SCREWED TO TABLE 24 REQ.





LAMINATION CLAMPS
18 REQ 6" SPACING



SUPPORT FRAMES 24 REQ.

RECOMMENDED GLUE TO LAMINATE CAPS

HUGHES EPOXY FPL-16A (30 MIN. WORKIN TIME AT 75 DEGREES F.)

T-88 EPOXY — 30 MIN WORKING TIME AT 70 DEGREES F.

WARNING

WHEN GLUING WITH EPOXY DO NOT TIGHTEN CLAMPS REAL TIGHT. LIGHT CONTACT IS ALL THAT IS REQ. FOR A GOOD BOND.

S/N 703 Sam Raterree

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MAIN WING SPAR
WORK TABLE
DESIGN: OSPREY AIRCRAFT
SCALE: 1/5
DWG. NO. 17

NO. 1

3/8

3/8

3/8

3/8

GLUE 3/8 THK WING WALK SUPPORT BATTEN TO OUT BOARD SIDE

3/8 x 5/16 CAP STRIPS GLUE TO IN BOARD SIDE

GRAIN

CUT OUT

CHORD LINE

ALLOW 3/8 SPACE BELOW TOP OF RIB FOR WING WALK BATTENS

WING WALK SUPPORT BATTEN

3/8

3/8

3/8

3/8" x 9/16

NO. 2

WING WALK SUPPORT BATTEN GLUE TO INBOARD SIDE

CUT OUT FOR FLAP BELLCRANK

RIB GRAIN

3/8 x 3/4 UP LOCK PLATE MOUNT BLK. (FRONT) BOTH SIDES OF RIB

CUT OUT

3/8 x 1" UPLOCK PLATE MOUNT BLK (REAR) OUT BOARD SIDE

CHORD LINE

3/8 x 1/2 COMP. MEMBER INBOARD SIDE

HASHED LINE IS INSIDE UP LOCK PLATE POSITION

3/8 x 7/16

NO. 3

REINFORCING BATTEN ON OPPOSITE SIDE OF RIB BATTEN

3/8 x 2 1/2 WHEEL STRUT BLK IN BOARD

3/8 x 5/16 CAP STRIP

3/8 x 3/4 FRONT MOUNT BLK OUT BOARD SIDE OF RIB

GRAIN

CUT OUT

CUT OUT

CHORD LINE

3/8 x 3/4 FRONT MOUNT BLK. FOR UP LOCK PLATE

REAR MOUNT BLK.

1/8" MAHOGANY PLY

3/8 x 1/2 COMP. MEMBER

3/8 x 2 1/2 BLK.

3/8 x 5/16 CAP STRIP, PINE OR SPRUCE ALL RIBS SHOWN THIS DWG.

NOTE: ALL 3/8 x 5/16 CAP STRIPS ARE ON OUT BOARD SIDE OF RIBS EXCEPT RIBS 1 & 11

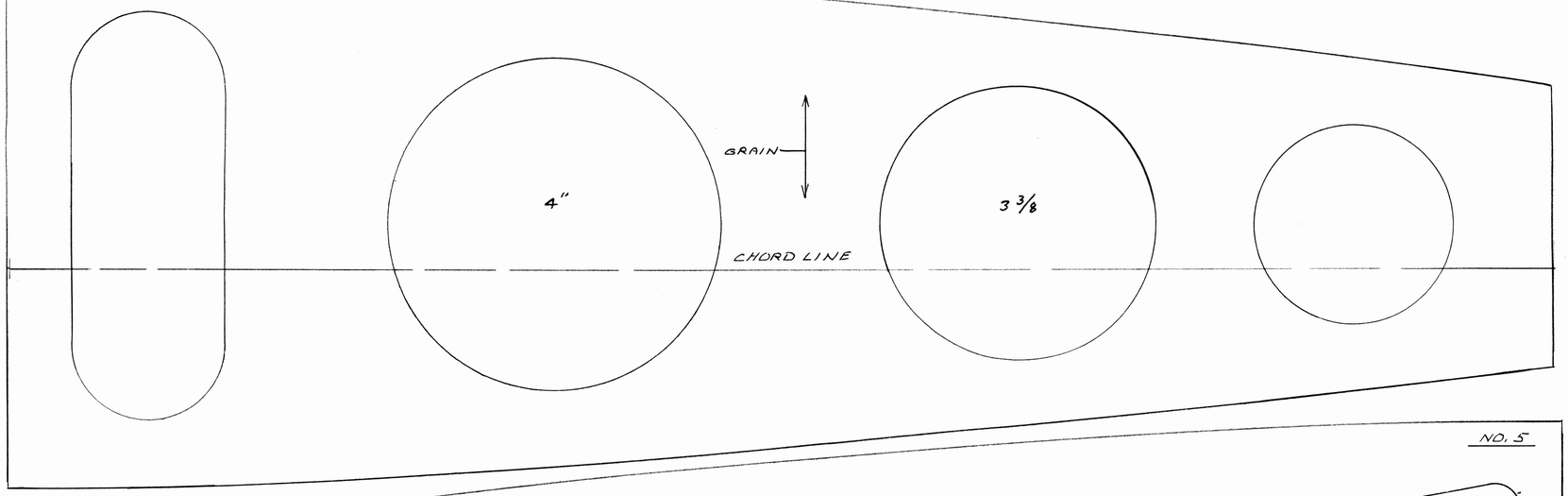
GP4 OSPREY AIRCRAFT

© 1985

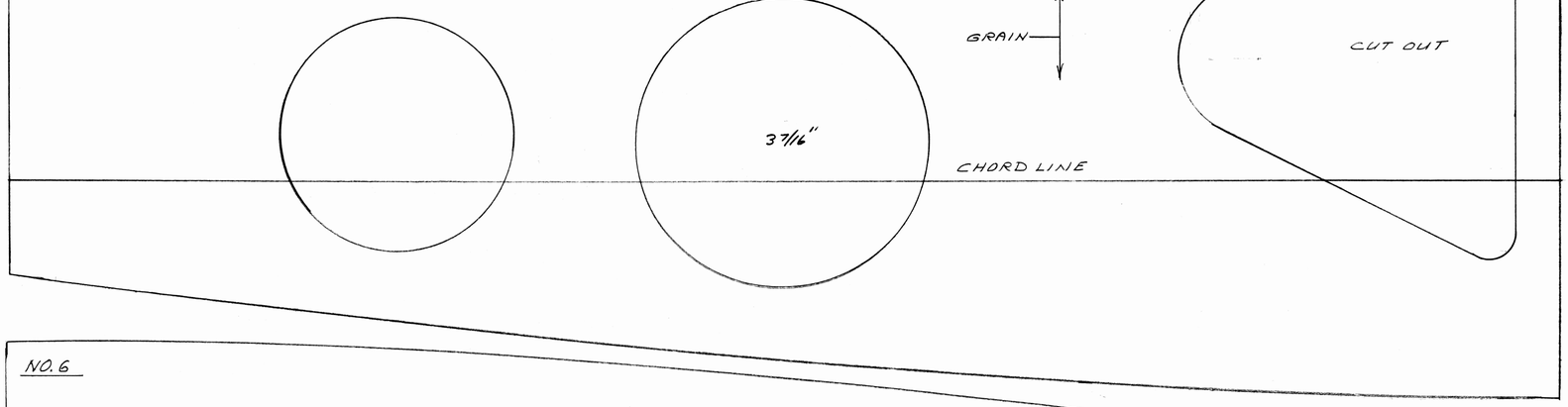
CENTER WING RIBS 1 2 & 3
WING SECTION 63$_4$ 212
1/8" THK MAHOGANY AIRCRAFT PLY
DESIGN: OSPREY AIRCRAFT
SCALE: FULL
DWG. NO. 18

S/N 703 Sam Raterree

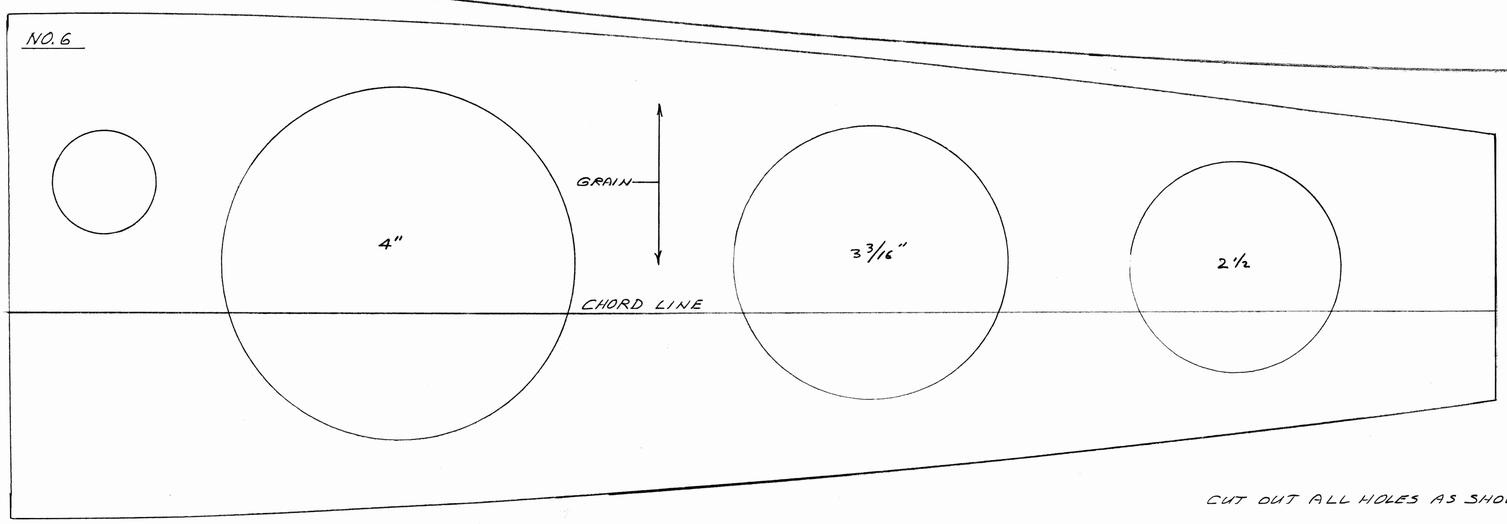
NO. 4

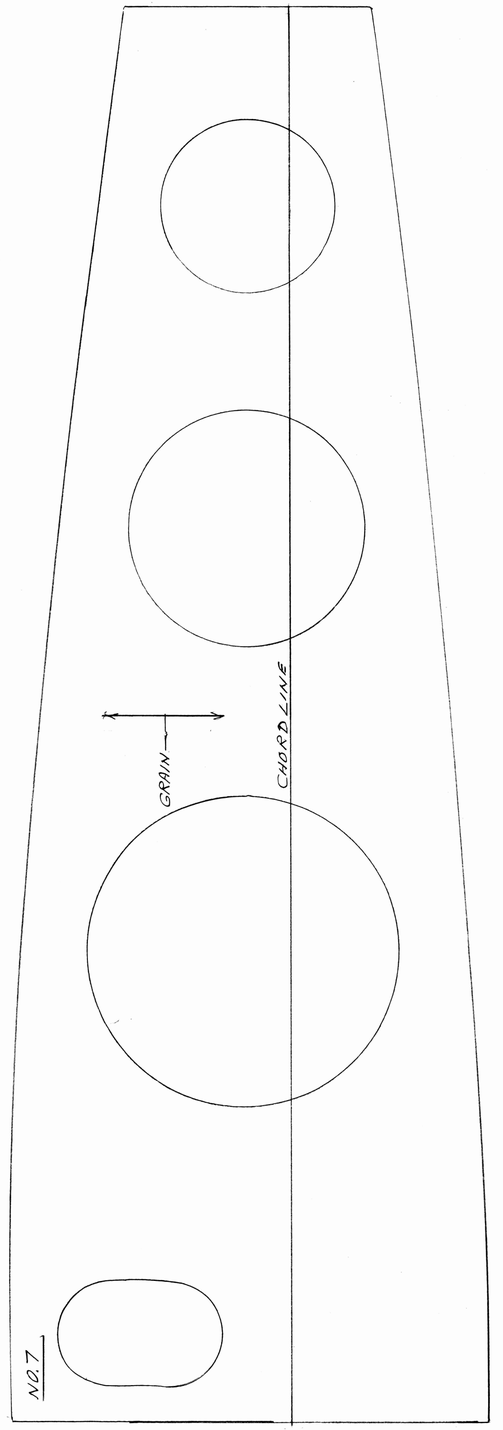


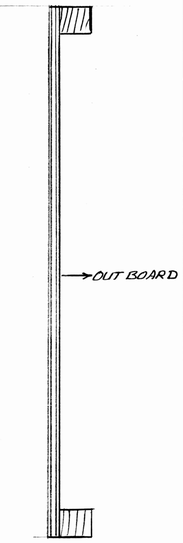
NO. 5



NO. 6







3/8 x 5/16 CAP STRIPS SPRUCE OR PINE- ALL RIBS SHOWN THIS DWG.

CUT OUT ALL HOLES AS SHOWN

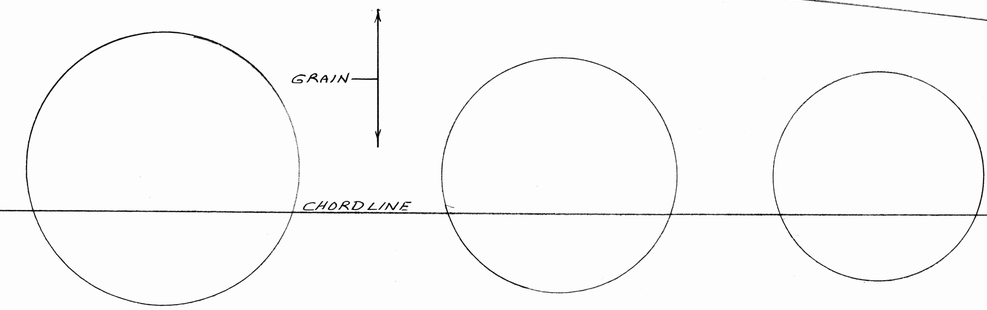
USE CIRCLE CUTTER IN DRILL PRESS MEDIUM SPEED. CUT L. & R. SIDE RIBS AT ONE TIME. CLAMP RIBS TO DRILL PRESS WHILE DRILLING HOLES (KEEP BLADE SHARP)

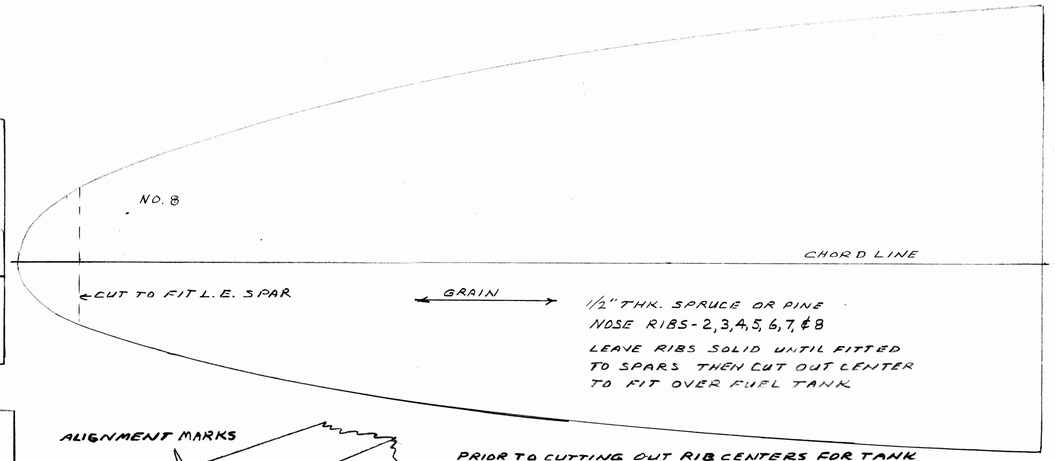
GP4 ©1985 OSPREY AIRCRAFT

CENTER WING RIBS #4, 5, 6, & 7
WING SECTION 63₁212
1/8" THK MAHOGANY AIRCRAFT PLY
DESIGN: OSPREY AIRCRAFT
SCALE: FULL
DWG. NO 19

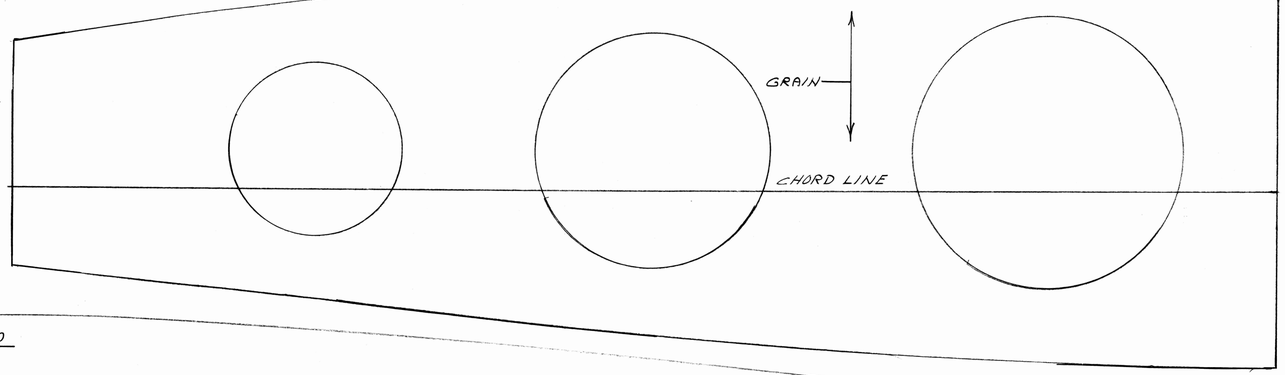
S/N 703 Sam Raterree

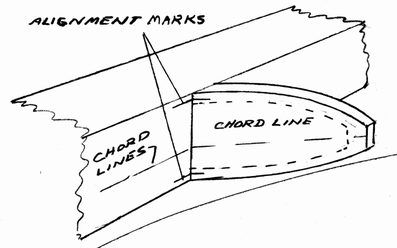
NO. 8



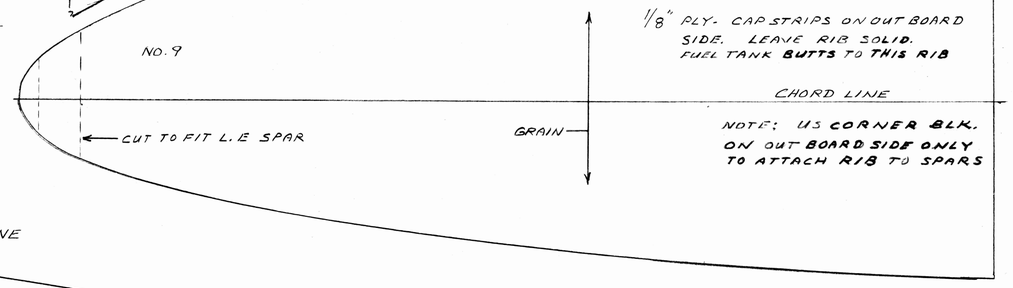


NO. 9

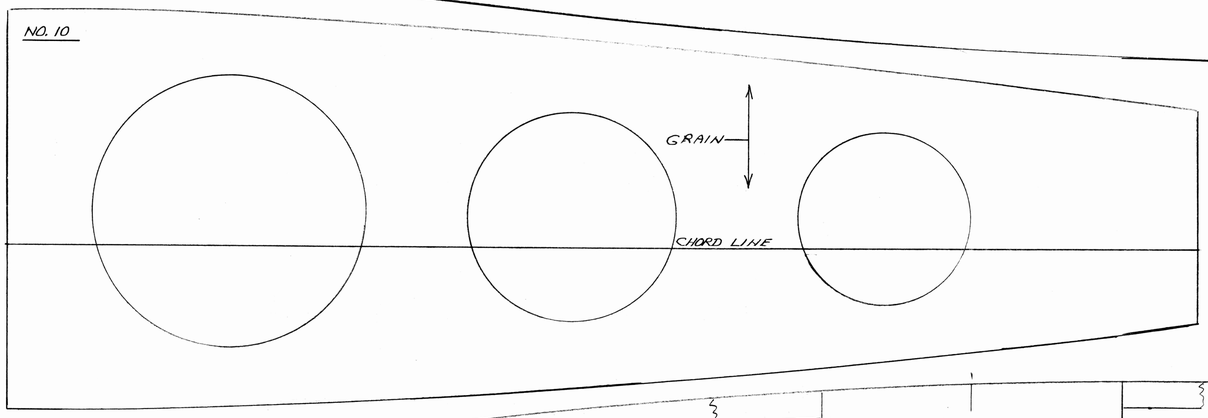


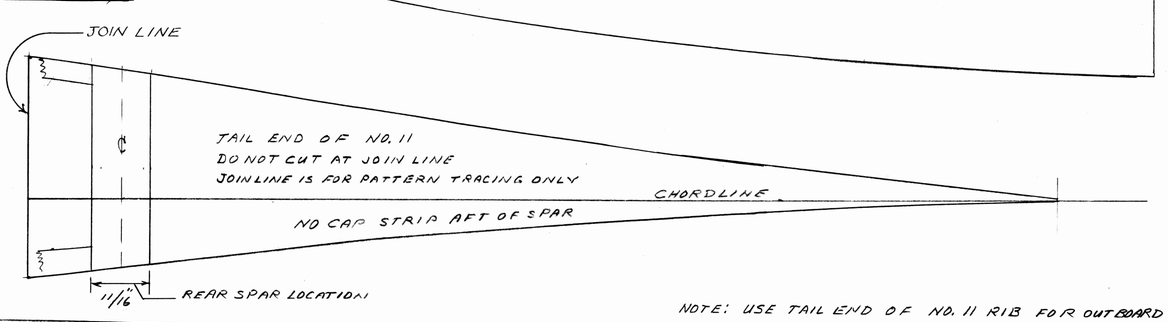


PRIOR TO CUTTING OUT RIB CENTERS FOR TANK ALIGN CHORD LINE FOR PROPER INCIDENCE THEN MAKE ALIGNMENT MARKS ON RIB & SPAR SO YOU CAN ALIGN RIB AFTER CENTER IS CUT OUT

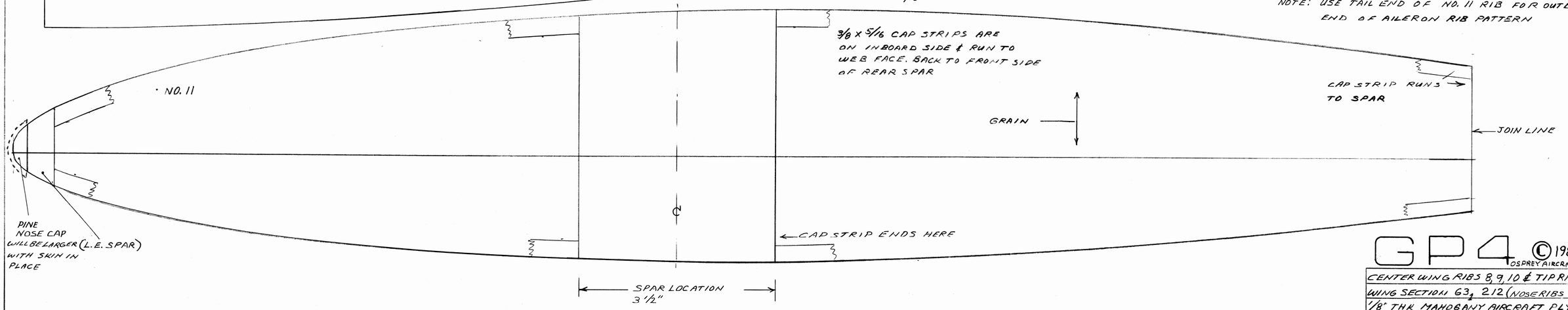


NO. 10





NOTE: USE TAIL END OF NO. 11 RIB FOR OUTBOARD END OF AILERON RIB PATTERN



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CENTER WING RIBS 8, 9, 10 & TIP RIB NO. 11
WING SECTION 63$_3$ 212 (NOSE RIBS 8 & 9
1/8" THK MAHOGANY AIRCRAFT PLY
DESIGN: OSPREY AIRCRAFT
SCALE: FULL
DWG NO. 20

S/N 703 Sam Raterree

NO. 1

GRAIN

3/32"

LOCATE FUEL HOSE FITTING AFTER FITTING TANK

CHORD LINE

1/8 THK PLY
3/8 x 5/16 CAP STRIPS ON INBOARD SIDE
FUEL TANK BUTTS TO OUTBOARD SIDE

PINE NOSE CAP WILL BE LARGER (L.E. SPAR) WHEN SKIN IS IN PLACE. ADD 7/32" RADIUS

A FEMALE TEMPLATE CAN BE MADE FROM THESE RIB DWG.S TO CHECK THE L.E. CONTOUR SEE DWG. BELOW

NO 2

GRAIN

1/2 THK SPRUCE OR PINE

GRAIN

CHORD LINE

CUT TO FIT L.E. SPAR

NO. 3

1/2" THK SPRUCE OR PINE

CHORD LINE

CUT TO FIT L.E. SPAR

NO. 4

1/2" THK SPRUCE OR PINE

GRAIN

CHORD LINE

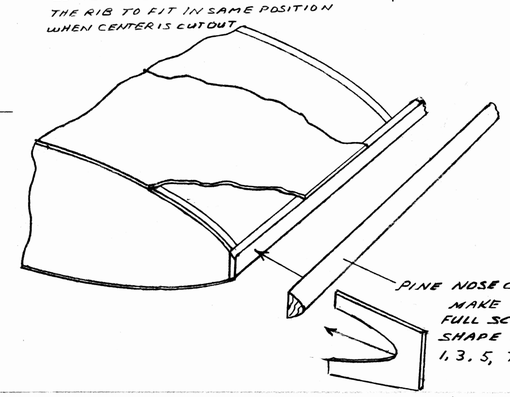
CUT TO FIT L.E. SPAR

MARK

CUT OUT FOR TANK

MARK

AFTER MATCHING CHORD LINES TO SPAR. BE SURE TO MARK TOP & BOTTOM OF SPAR & RIB. THIS ALLOWS THE RIB TO FIT IN SAME POSITION WHEN CENTER IS CUT OUT



PINE NOSE CAP
MAKE TEMPLATE FROM FULL SCALE RIB DWG. TO SHAPE NOSE CAP. RIBS 1, 3, 5, 7, 9, & 11 IS ADEQUATE

CUT TO FIT L.E. SPAR

CHORD LINE

GRAIN

1/2" THK SPRUCE OR PINE

NO. 5

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NOSES RIBS 1, 2, 3, 4, & 5
WING SECTION 63_1 2.12
1/8 THK AIRCRAFT PLY & 1/2" SPRUCE OR PINE
DESIGN: OSPREY AIRCRAFT
SCALE: FULL
DWG NO. 21

S/N 703 Sam Raterree

NO. 6

1/2" THK. SPRUCE OR PINE

GRAIN

CHORD LINE

CUT TO FIT L.E. SPAR

NO. 7

GRAIN

1/2" THK SPRUCE OR PINE

CHORD LINE

CUT TO FIT L.E. SPAR

NO. 10

GRAIN

CHORD LINE

CUT TO FIT L.E. SPAR

1/8" THK PLY

3/8 x 5/16 CAP STRIPS OUT BOARD

NO. 1

GRAIN

1/8" THK. PLY

3/8 x 5/16 CAP STRIPS INBOARD

LEAVE RIB SOLID MAKE 4, SEE NOTES

CHORD LINE

TRAILING EDGE

NO. 8

1"

CUT OUT

NO. 7
1/8 PLY

GRAIN

LEAVE RIB FULL, MAKE 4

CHORD LINE

NOTE: MAKE 4 NO. 7 RIBS
2 FOR AILERONS - 2 FOR FLAPS

NO. 6
1/8 PLY

1"

1"

CUT OUT

GRAIN

CHORD LINE

NO. 5
1/8 PLY

GRAIN

CUT OUT

1"

1 1/2

CHORD LINE

NO. 4
1/8 PLY

1 5/8"

1"

CUT OUT

CHORD LINE

NO. 3
1/8 PLY

GRAIN

CUT OUT

1"

1 5/8"

CHORD LINE

NO. 2

GRAIN
1/8 PLY

1 5/8

1"

CUT OUT

CUT OFF T.E. AS NECESSARY ON ALL INSIDE RIBS

TYPICAL T.E. CAP STRIP JOINT

A RIB
1/8 PLY

3/8 x 5/16 CAP STRIPS INBOARD

GRAIN

CHORD LINE

LEAVE RIB SOLID

INSTALL RIBS 1 & (A) AFTER FLAPS & AILERONS ARE FITTED TO HINGES FOR ADJUSTMENTS TO RIB GAPS

ALL T.E. FLAP & AILERON RIBS ARE 1/8" THK MAHOGANY PLY
CAP STRIPS ARE 1/4" X 1/4 PINE

NO. 9

NO. 10

CUT OUT

CHORD LINE

NOTE: MAKE 4 NO. 1 T.E. RIBS

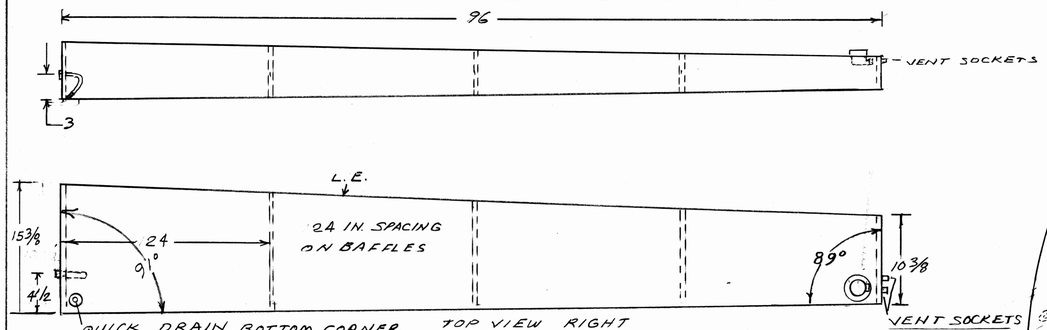
1. ONE IS USED FOR WING T.E.
   ONE IS USED FOR FLAP
2. THE FLAP CAP STRIPS GO OUTBOARD & ARE 1/4 X 1/4
3. CUT THE FORWARD END OF THE RIBS OFF TO DIMENSIONS SHOWN FOR FLAPS & AILERONS

GP4 OSPREY AIRCRAFT © 1985

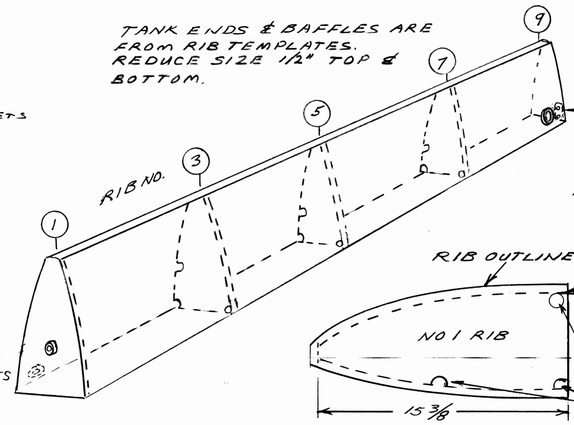
NOSE RIBS 6, 7, 10	
T.E. RIBS: 1, A, 2, 3, 4, 5, 6, 7, 8, 9, 10	
DESIGN: OSPREY AIRCRAFT	
SCALE: FULL	
DWG. NO. 22	

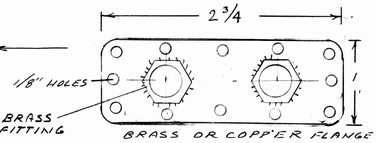
S/N 703 Sam Raterree

WING FUEL TANKS SCALE 1/10

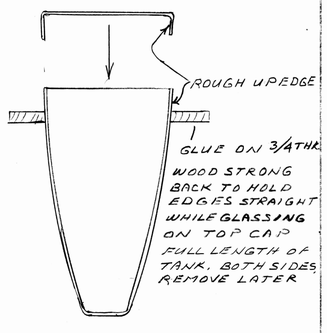


TANK ENDS & BAFFLES ARE FROM RIB TEMPLATES. REDUCE SIZE 1/2" TOP & BOTTOM.





BRASS OR COPP'ER FLANGE .050 SILVER SOLDER 2 FITTINGS 1/8" PIPE. GLASS FLANGE TO TOP AFT CORNER OF OUT BOARD END SCALE FULL

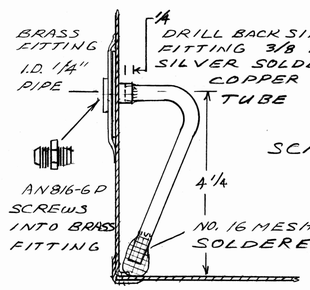


RIB OUTLINE (NO 1) TEMPLATE

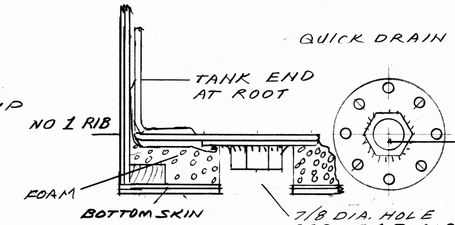
CUT DRAIN SLOTS 3 PLACES ON BAFFLES ONLY 1/2" DIA. BAFFLES 3, 5, & 7

FLAIR 1/4" VERSATUBE & COUNTER BORE PINE FILLER BLK. EPOXY IN PLACE

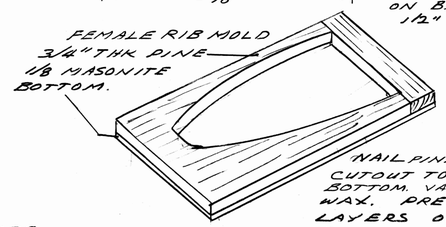




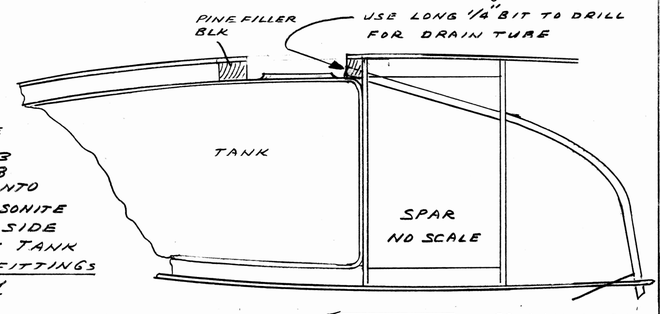
SCALE 1/2



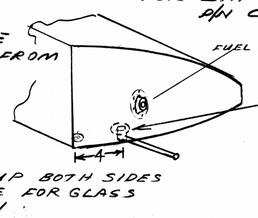
FEMALE RIB MOLD 3/4" THK PINE 1/8 MASONITE BOTTOM.

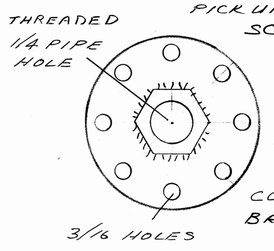


NAIL PINE RIB CUTOUT TO MASONITE BOTTOM. VARNISH & WAX. PRE RESIN 3 LAYERS OF 7-708 .02 CLOTH & LAY INTO MOLD. PRY OFF MASONITE BOTTOM & REVERSE SIDE FOR A LEFT & RIGHT TANK ENDS. PUT IN ALL FITTINGS PRIOR TO ASSEMBLY

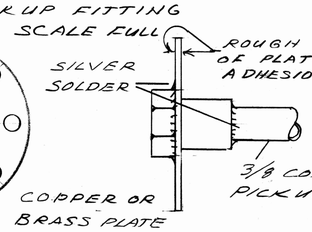


NOTE: TUBE IS CUT ON ANGLE

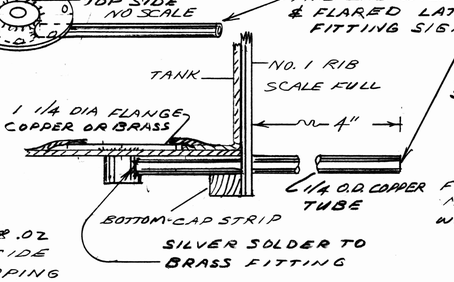




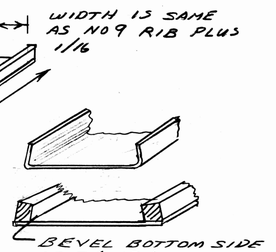
PICK UP FITTING SCALE FULL

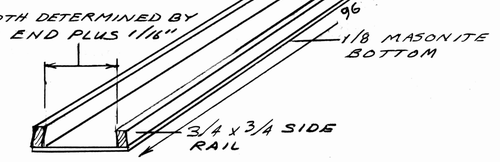


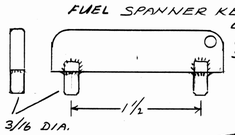
CUT SMALL HOLE IN CLOTH FOR OUTSIDE HEX PORTION OF FITTING.

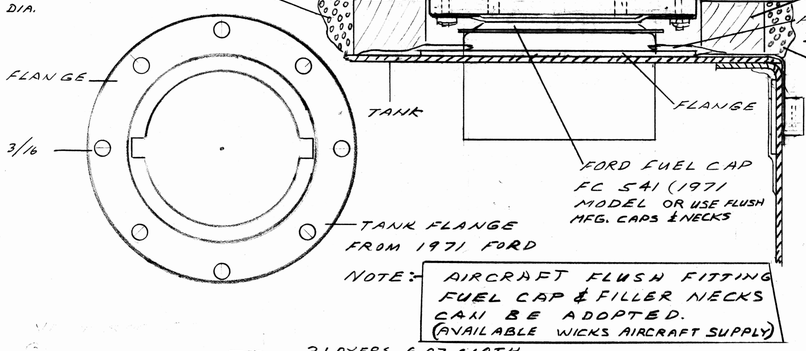


FITTING WILL BE AN 818-4D WITH AN 819-4D SLEEVE

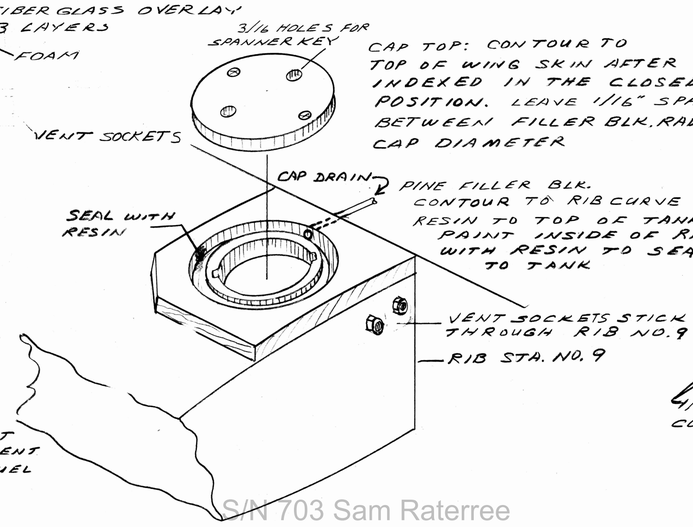




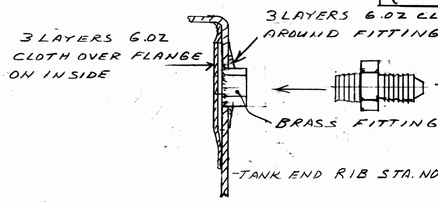




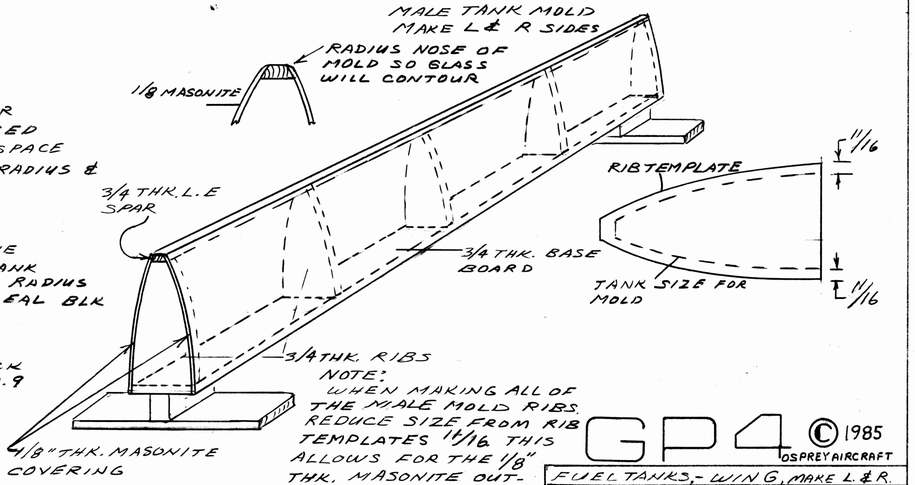
NOTE: AIRCRAFT FLUSH FITTING FUEL CAP & FILLER NECKS CAN BE ADOPTED. (AVAILABLE WICKS AIRCRAFT SUPPLY)



CAP TOP: CONTOUR TO TOP OF WING SKIN AFTER INDEXED IN THE CLOSED POSITION. LEAVE 1/16" SPACE BETWEEN FILLER BLK, RADIUS & CAP DIAMETER



CONNECTS TO 1/4" DIA. ALUM VENT LINE TO RAM AIR VENT & 1/4" DIA. LINE TO FUEL SIGHT GUAGE



NOTE: WHEN MAKING ALL OF THE MALE MOLD RIBS, REDUCE SIZE FROM RIB TEMPLATES 11/16. THIS ALLOWS FOR THE 1/8" THK. MASONITE OUTSIDE COVERING. VARNISH & WAX

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FUEL TANKS,- WING, MAKE L & R.
DESIGN: OSPREY AIRCRAFT
SCALE: 1/10, FULL
DWG. NO. 23

S/N 703 Sam Raterree

PRE FIT NOSE RIBS PRIOR TO CUTTING OUT CENTERS.

NO. 9 RIB

CHORD LINES

PAINT UNDERSIDE OF NOSE RIBS WITH RESIN TO SEAL PRIOR TO GLUING IN PLACE. RESIN TANK CAP BLK TO TANK & SAND FAIR WITH RIB CURVE

NOTE A

SHADED AREA IS L SHAPED SINGLE LAYER OF FIBERGLAS BDZ. RESIN TO TANK & RIB SIDES. (BOTH SIDES OF EA. RIB)

NOTE: PRIOR TO ATTACHING WING TANKS TO WING SPAR. ALL LND. GEAR ATTACH BOLTS MUST BE IN PLACE! SEE DWG. NO 36 7 BOLTS EA. SIDE

SIDE VIEW FULL SCALE

2 3/4

1 1/2" HOLE

3/4

PLY RIB NO. 11

MOUNT PAD

MATCH HOLES WITH WHELEN SOCKET PAD

AN 366F-832 ANCHOR NUTS 3 REQ EA. TIP

TOP VIEW FULL SCALE

POS. LIGHT RED LEFT SIDE GREEN RIGHT SIDE

3 WIRE PLUG

832 MACHINE SCREW 2 REQ.

MOUNT PLATE .080 ALUM

STROBE BULB

PITOT TUBE SOCKET

FORM STREAMLINE SOCKET FROM .032 STEEL PLATE. WELD UP BACK EDGE & FILE & FILL

832 MACHINE SCREW 2 REQ.

2

BRACKET 050 4130 BOLTS AN 3-7 2 REQ

WEB

SPAR CAP

WEB

ANCHOR NUTS 366F-1032 2 REQ. RIVET TO .080 ALUM BACK PLATE

BOTTOM OF RIGHT SPAR CAP

2 1/2

2 1/8

WELD BACK SIDE & FILE. USE FILLER FOR FINISHED EDGE

SCALE FULL

MATCH HOLES TO PITOT TUBE

HEATED PITOT TUBE AN 5812 12 VOLT DC AERO INST. CO. INC P/N PH 502-12

NOTE A:

AFTER FAIRING SPAR TO RIBS OVER TANK. FIBERGLAS RIBS TO TANK. & SAND RIB TOPS. USE 2" WIDE MASKING TAPE & SEAL OFF BOTTOM OF L.E. SPAR TO TANK. POUR IN 2 LB. DENSITY POLYEURTHANE FOAM, COVERING TANK ABOVE RIB HEIGHT (NO. 11 RIB) SAND SMOOTH WITH TOP OF RIBS. TURN WING OVER, REMOVE TAPE & FINISH BOTTOM SIDE SAME WAY. THE FOAM INSURES THE TANK AGAINST A LEAK & HELPS STIFFEN THE SKIN PROFILE. SEE NOTE ON LND. GEAR ATTACH BOLTS UPPER LEFT

WING WALK 1/10 SCALE

NO 1 RIB

NO 2

INSTALL WING WALK BOTH SIDES 3/4 x 3/8 SPRUCE 11 IN. APART

1"

3/4 x 3/8

SUPPORT BATTEN 1/2 x 1/2 SPRUCE

RIB

BAND SAW SUPPORT BATTEN TO RIB CURVE. GLUE 3/8 IN. BELOW RIB SURFACE. ON RIBS 1 & 2. WING WALK BATTENS MUST BE PLANE WITH WING SURFACE

RAM AIR VENT TUBE SIDE PROFILE AT NO 11 RIB

KEEP SIGHT VENT CLOSE TO TOP SKIN OUT TO THE TIP, AS WELL AS RAM AIR VENT

3/16"

SPAR AFT SIDE

BRAKE LINE TO WHEEL

BRAKE LINES 3/16" NYLAFLOW. RUN FROM BRAKE CYL. TO WHEEL IN ONE PIECE

LINE CLIPS .032 ALUM. NO. 4 x 3/8 WOOD SCREW BRASS OVAL

LEADING EDGE SPAR BEVEL TO FIT RIB CURVE AFTER INSTALATION

1 3/8"

SEE DWG. 21 FOR PINE NOSECAP DETAIL

1/2" THK SPRUCE

2 1/8

1/2 x 1/2 NOSE RIB

CHORD LINES DRAWN ON SPAR & RIBS. BOTH SIDES

3/8 x 3/8 CORNER BLK. BOTH SIDES PINE OR SPRUCE

1/8 PLY RIB

3/8 x 1/4 CAP STRIP

TYPICAL RIB ATTACHMENT FRONT & REAR SPAR ALL CORNER BLKS HAVE SLIGHT BEVEL TO FIT CORNER

NOTE: USE 3/16 O.D NYLO-FLOW TUBING FOR BRAKE LINES. ROUTE FROM WHEEL, TO ℄ OF SPAR. UNDER SPAR. USE A POLY-FLO FITTING UNION NO. 262 JUST IN FRONT OF SPAR IN THE NOSE WHEEL TUNNEL. ROUTE DOWN EA. SIDE OF NOSE WHEEL TUNNEL TO FRONT OF TUNNEL. DRILL 2 - 3/16 HOLES IN THE TOP OF THE TUNNEL LID CLOSE TO FIRE WALL. ROUTE TUBING UP THROUGH LID TO BRAKE CYLINDERS. LOOP TUBING OVER TOP & BACK DOWN TO CYLINDERS TO GIVE TUBING FLEXING ROOM AS CYLINDERS MOVE FORE & AFT. SECURE TUBING IN PLACE (REQUIRED TUBING & FITTINGS)

WHEEL: 268-P MALE CONNECTOR 3/16 x 1/8-2 REQ (BRASS POLY FLOW)

CYLINDER: 269 P MALE CONNECTOR 3/16 x 1/8 2 REQ " " "

TUBING: 24' 3/16 NYLO-FLOW NOTE. USE BRASS 259 INSERTS ON ALL FITTINGS (4 REQ.)

3/16 NYLAFLOW LINE

BRASS INSERT AT EA. FITTING

SCALE 1/10

RIBS 1 2 3 4 5 6 7 8 9 10 11

FITTING AN 818-4D WITH AN 819-4D SLEEVE SAME ON OTHER END 2 EA. REQ.

21 1/4

PLY SIDE CAP STRIP

BRAKE LINE UNDER SPAR

PITOT LINE

FUEL TANK

PITOT TUBE & BRAKE LINES 1/4 DIA 3003-0 VERSITUDE. SOFT ALUM. FIT TUBING & FLAIR ENDS IN PLACE. NOTE: TUBING RUNS UNDER SEAT RAIL

CAP STRIP SIGHT GUAGE VENT LINE & SUMP

14 5/8 INSIDE

PLY SIDE

24

90°

BRAKE LINE DOWN TO WHEEL

PITOT LINE

STROBE WIRE

HEATED PITOT TUBE SOCKET

SIGHT GUAGE VENT LINE

WHELEN POS. & STROBE LIGHT PT NO. A429PR

TRIM RAM AIR VENT LATER

CAP STRIP PLY SIDE

CAP STRIP

JUST UNDER 12"

COIL EXTRA STROBE WIRE FOR FUTURE HOOK UP

WING WALK NOT SHOWN FOR CLARITY

12

RIB SPACING IS 12" FROM RIB 3 TO RIB 10. USE PLY ℄ TO PLY ℄ FOR MEASURE

RUN GROUND WIRE & POS. WIRE FOR HEATED PITOT TUBE NEXT TO STROBE WIRE

20 3/4

CAP STRIP

A RIB

BULKHEAD FITTING AN 832-4D WITH AN 924-4D NUT 2 REQ.

5

NOTE: DO NOT INSTALL RIB 1 & RIB (A) UNTIL THE FLAPS & AILERONS ARE HUNG ON THEIR HINGES. YOU CAN ADJUST THE 5" MEASURE TO THE BUTT FLAP RIB NO1

NOTE: WHEN FITTING PITOT & BRAKE LINES, INSTALL LND. GEAR TO INSURE CLEARANCE PITOT LINE, RAM AIR VENT, & SIGHT GUAGE VENT ARE 1/4" ALUM VERSATUBE

NOTE: STIFFENER BATTENS ARE DELETED FROM THIS DWG FOR CLARITY. SEE DWG. 37-A FOR DETAIL

NO 9 RIB SHOULD GLUE TO END OF TANK. CAP STRIP IS ON OUT SIDE

NOTE: D STANDS FOR DRAIN HOLES IN WING BOTTOM SKINS. HOLES ARE 5/16" DIA. DRILL PRIOR TO VARNISHING INSIDE. 17 PLACES EA. SIDE

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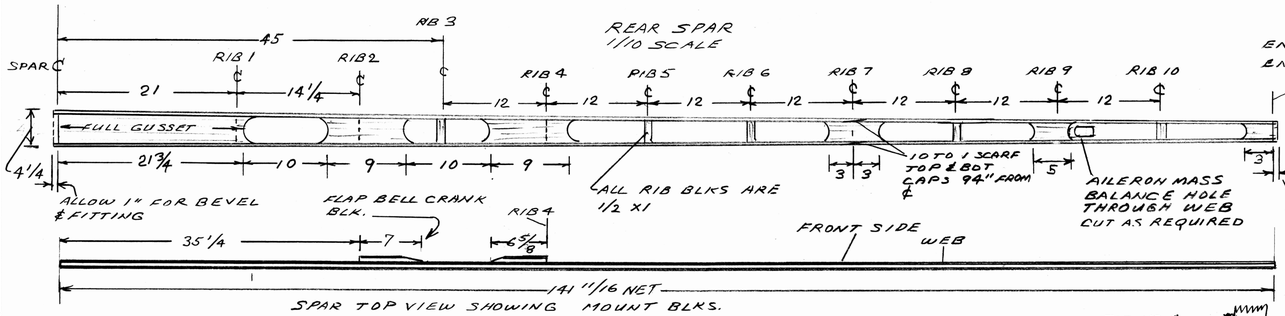
WING, & COMPONENTS

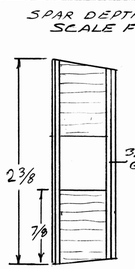
DESIGN: OSPREY AIRCRAFT

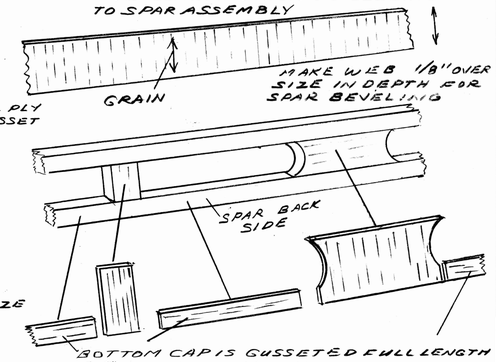
SCALE: 1/10 & FULL

DWG. NO. 24

S/N 702 Sam Raterree

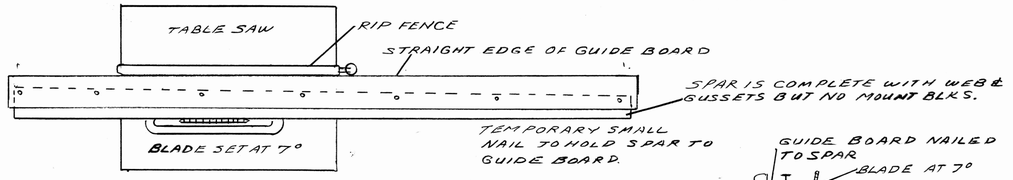


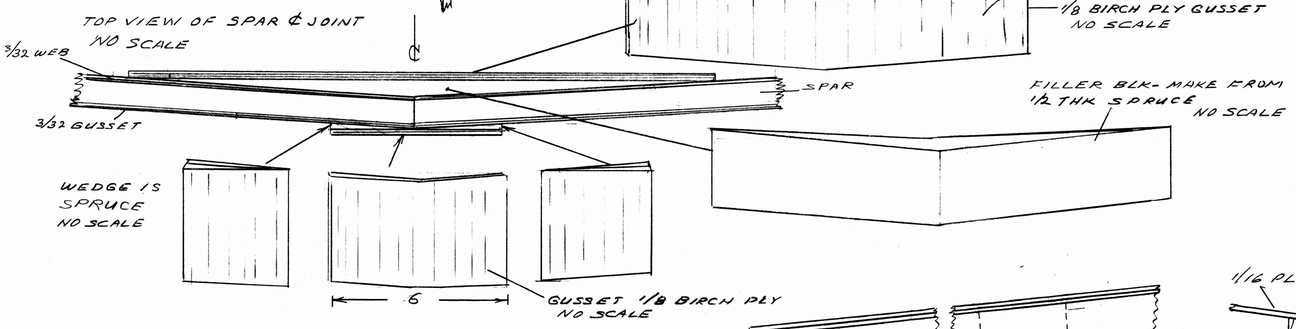


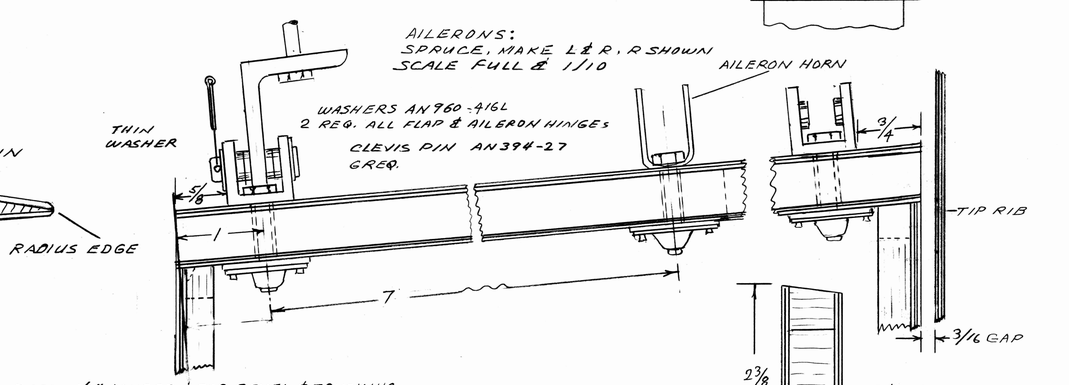


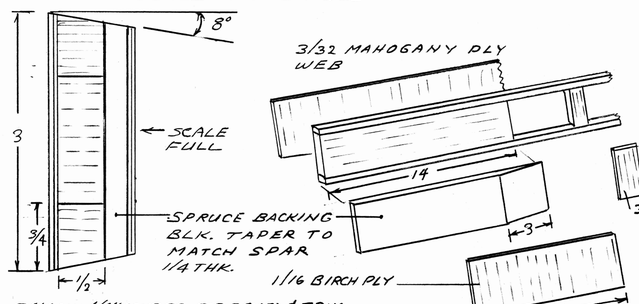
MAKE SPARS 1/8" OVER SIZE IN DEPTH FOR TRIM TO 4 1/4 TO 2 3/8

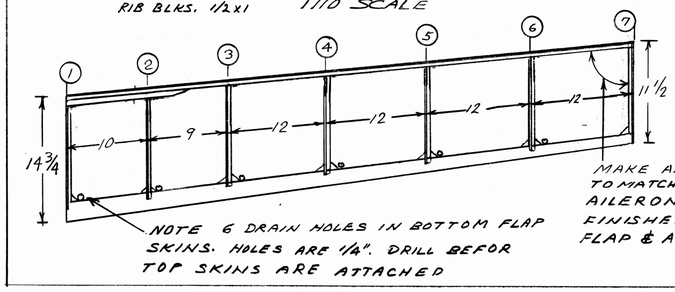
SUGGESTED METHOD TO TAPER EDGES TO 7°
NO SCALE

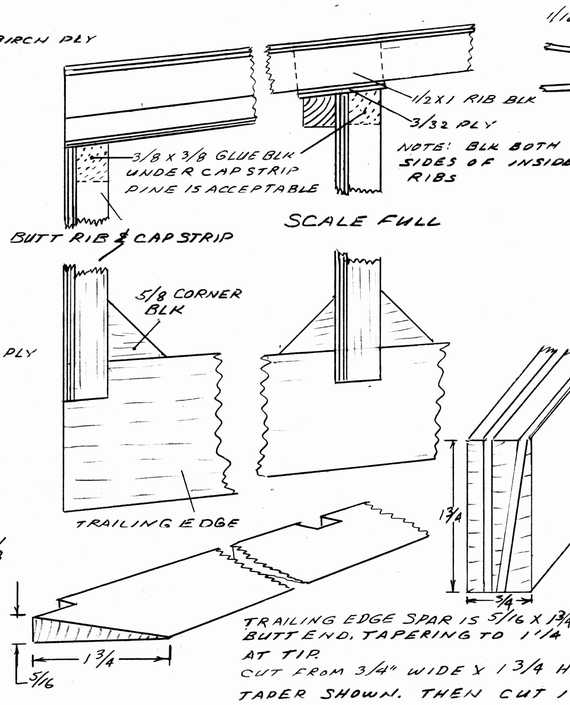












MAKE ANGLE TEMPLATE TO MATCH BUTT END OF AILERON. APPROX 85° FINISHED GAP BETWEEN FLAP & AILERON IS 3/16"

AFTER FINISH PAINTING, AILERONS SHOULD BALANCE SLIGHTLY T.E. HIGH. ABOUT 5° CLEVIS PIN REST ON BLADE ONEA. END.

NOTES:

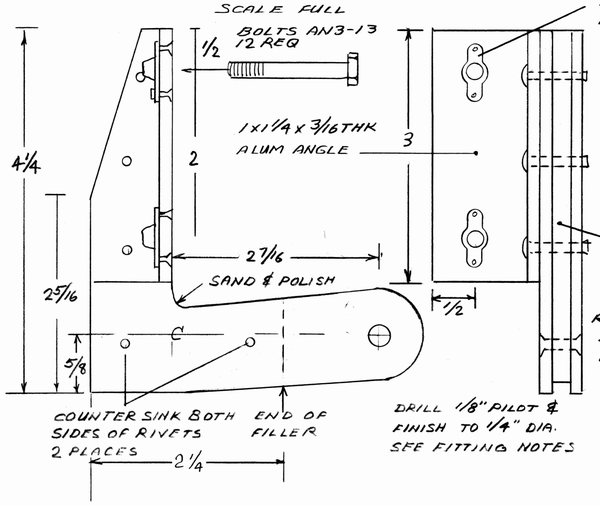
1. AILERONS & FLAPS ARE COVERED WITH 1/16 MAHOGANY PLY.
2. FIT TOP & BOTTOM SKINS. MARK OFF GLUE AREAS ON TOP SKIN. FIT HINGES. & GLUE ON BOTTOM SKIN.
3. MASK OFF GLUE AREA ON TOP SKIN. THEN VARNISH TOP SKIN & ALL OF THE INSIDE OF BOTTOM SKIN PLUS THE STRUCTURE. (ONE THINNED COAT PLUS TWO) MORE COATS
4. GLUE ON TOP SKIN. PAINT GLUE ON BOTH SURFACES TO BE JOINED.

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REAR WING SPAR.
FLAPS & AILERONS
DESIGN: OSPREY AIRCRAFT
SCALE: 1/10 & FULL
DWG. NO. 25

S/N 703 Sam Raterree

FLAP HINGE CLEVIS NO.1
MAKE L. & R.- RIGHT SHOWN
.125 ALUM. 6061 T-6 OR EQUIVALENT
SCALE FULL



ANCHOR NUTS
AN 366F-1032
2 REQ. EA. HINGE
USE CLEVIS AS HOLE GUIDE
TO DRILL SPAR.
RIVET ANCHOR NUTS

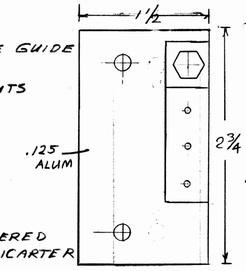
RIVETS
AN 470-4-12 AP
3 REQ. EA. HINGE

FILLER IS TEMPERED
MASONITE OR MICARTER
1/4" THK

RIVETS
AN 426-4D
2 REQ. EA. HINGE

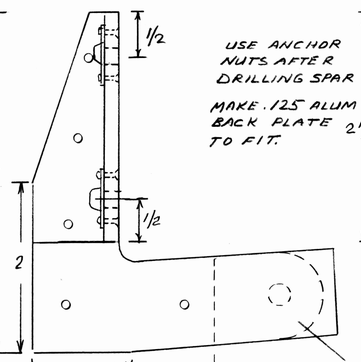
DRILL 1/8" PILOT & FINISH TO 1/4" DIA.
SEE FITTING NOTES

NO.1 FLAP UP STOP & BACK PLATE
MAKE L & R - RIGHT SHOWN
USE NO 3 UP STOP DWG. FOR DETAIL



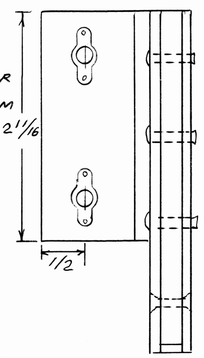
SPAR BACK PLATE. USED ON T.E. SIDE OF SPAR AT EA. HINGE. .125 ALUM
UP STOPS USED ON 1 & 3 HINGES ONLY.
MAKE BACK PLATE FOR NO 2 HINGE 1" WIDE 2 3/4" HIGH & FIT TO HOLE PATTERN

FLAP HINGE CLEVIS NO.2
MAKE L & R. RIGHT SHOWN
SCALE: FULL

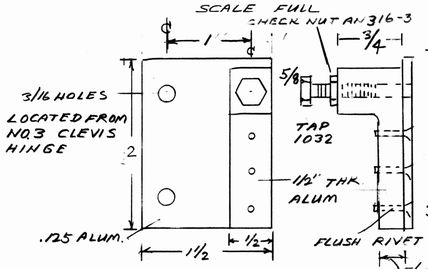


DRILL & RADIUS END AFTER FITTING TO FLAP. USE 1/8" PILOT HOLE.
SEE FITTING NOTES (A)

USE ANCHOR NUTS AFTER DRILLING SPAR
MAKE .125 ALUM BACK PLATE TO FIT.

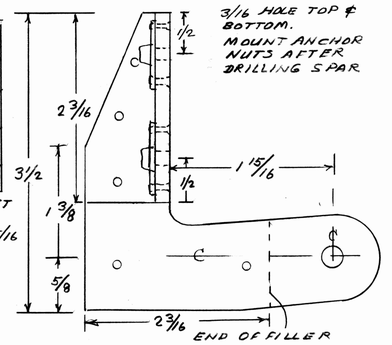


NO. 3 FLAP UP STOP & BACK PLTE
MAKE L & R.- RIGHT SHOWN
SCALE FULL



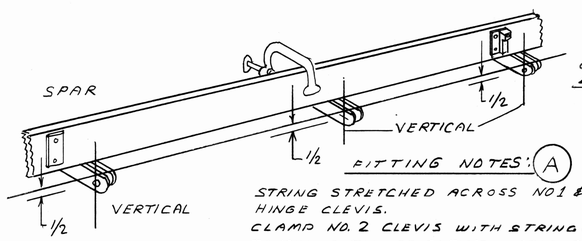
NOTE:
FLAP UP STOP IS LOCATED BACK SIDE OF SPAR AT NO 3 FLAP HINGE CLEVIS
STOP BOLT IS AN 3 WITH FULL LENGTH 1032 THREADS

FLAP HINGE NO. 3
MAKE L. & R. SCALE: FULL



USE 1/8" PILOT HOLE PRIOR TO FITTING TO FLAP

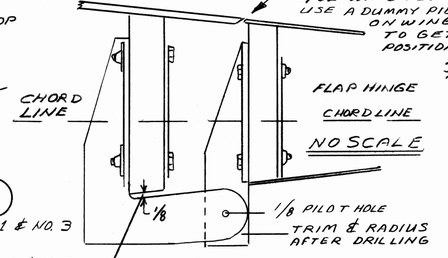
FLAP UPSTOP



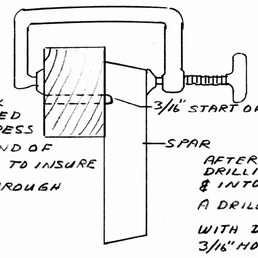
FITTING NOTES: (A)
STRING STRETCHED ACROSS NO 1 & NO 3 HINGE CLEVIS.
CLAMP NO. 2 CLEVIS WITH STRING JUST TOUCHING TOP OF CLEVIS. MEASURE DOWN 1/2" FOR HOLE & (THIS INSURES ALL 3 CLEVIS HOLE POINTS ARE ALIGNED) NOW MARK & CENTER PUNCH FOR 1/4" HOLE.

USE 3/32 PLY AS FITTING GUIDE

FLAP SKIN IS 1/16 PLY. SHOULD BE FLUSH WITH 3/32" WING PLY ON TOP
USE A DUMMY PIECE OF PLY ON WING & FLAP TO GET CORRECT POSITION.



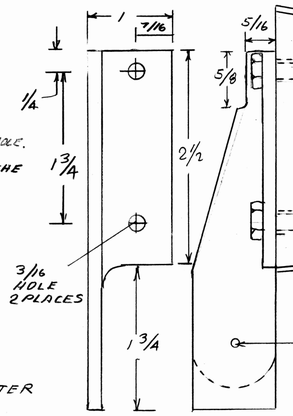
DRILL BLK
3/16 HOLE DRILLED ON DRILL PRESS
USE SOME KIND OF DRILL GUIDE TO INSURE 90° HOLES THROUGH SPAR.

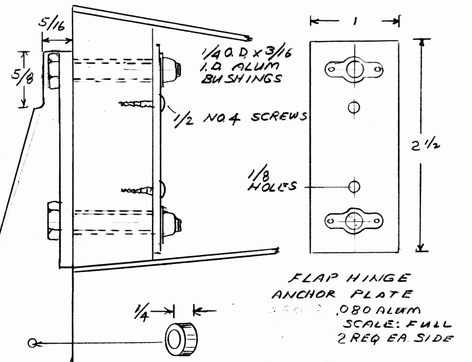


AFTER SPAR IS MARKED BY DRILLING THROUGH FITTING HOLES & INTO SPAR ABOUT 3/16"
A DRILL GUIDE SHOULD BE USED TO GET 90° HOLE.
WITH DRILL BLK. CLAMPED IN PLACE, DRILL THE 3/16" HOLES THROUGH SPAR.
NOW TAKE 1/4" BIT & DRILL THROUGH BLK. & SPAR.
YOU CAN THEN PUSH IN 1/4 O.D. x 3/16 I.D. ALUM BUSHINGS.
BUSHINGS SHOULD BE JUST SLIGHTLY LESS THAN THE WOOD THEY GO THROUGH

FITTING NOTES:
BOLT FLAP HINGE TO FLAP.
POSITION HINGE CLEVIS WITH 1/8" UNDER SPAR
SLIDE FLAP HINGE THROUGH CLEVIS WITH WING & FLAP CHORD LINES PARALLEL. WING & FLAP SKINS SHOULD EE FLUSH.
DRILL 1/8" PILOT HOLE THROUGH FLAP HINGE USING CLEVIS AS GUIDE. AFTER 3 HINGES ARE PILOT DRILLED REAM FOR 1/4" CLEVIS PINS

FLAP HINGE 1 & 2
3/16 THK x 1 x 1 ALUM ANGLE
MAKE L & R. R SHOWN. SCALE FULL

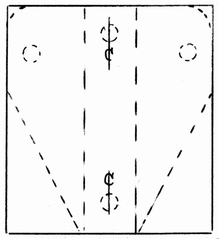




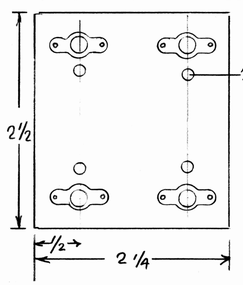
FLAP HINGE ANCHOR PLATE
.080 ALUM
SCALE: FULL
2 REQ EA SIDE

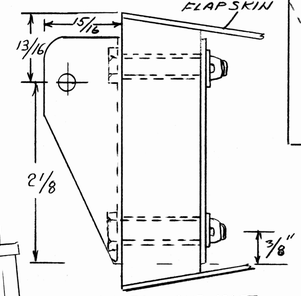
AFTER FITTING FLAP HINGES DRILL OUT 1/8" PILOT HOLE TO DRESS IN HARD BRONZE BUSHING 3/8 O.D. x 1/4 I.D.
3 REQ.

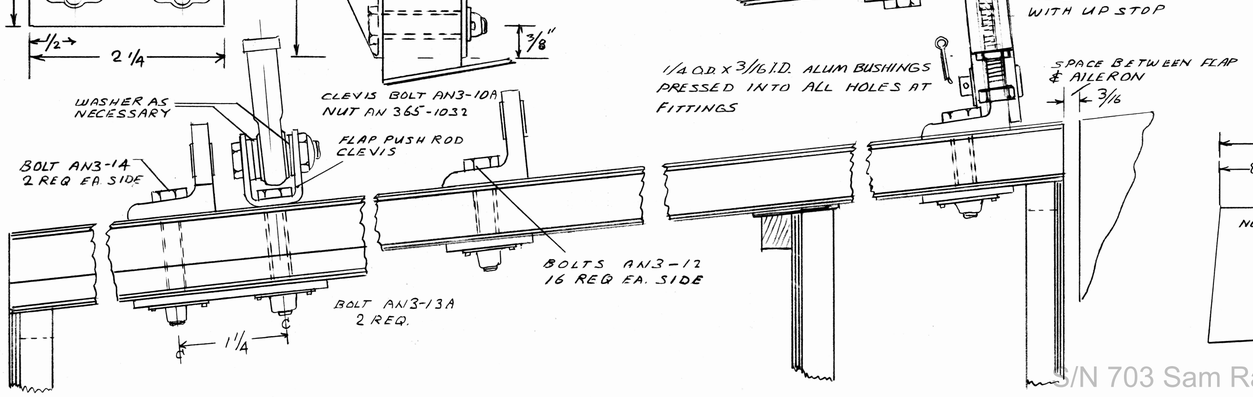
FLAP PUSH ROD CLEVIS
.063 4130. FOLD PRIOR TO CUTTING & DRILLING SCALE: FULL

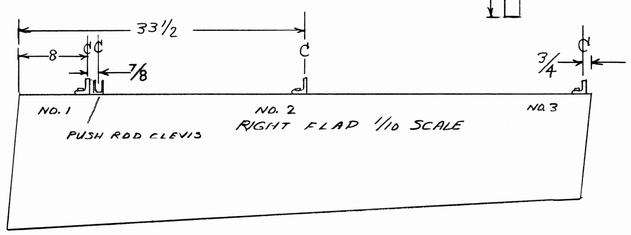


FLAP-PUSH ROD CLEVIS BACK PLATE (1 REQ EA. SIDE)
.080 ALUM - USE NO 4 x 1/2 WOOD SCREWS TO ATTACH ALL BACK PLATES WITH ANCHOR NUTS AN 366F-1032 16 REQ
SCALE: FULL





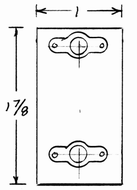


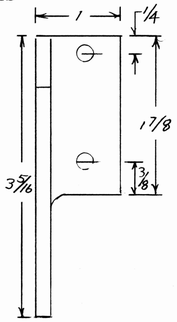


TYPICAL
5/8
BUSHING 1/16 SHORTER THAN WOOD
APPLIES TO ALL BUSHINGS
1/16

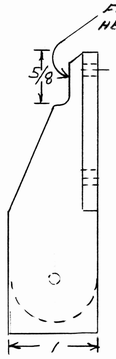
FLAP HINGE NO 3
3/16 THK ALUM ANGLE
MAKE L & R, R. SHOWN
SCALE FULL

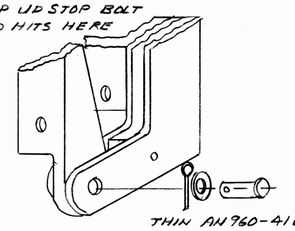
NO.3 FLAP BACK PLATE, 1 REQ EA. SIDE





FLAP UP STOP BOLT HEAD HITS HERE





THIN AN 960-416L WASHERS
CLEVIS PIN AN 394-17
3 REQ EA. SIDE

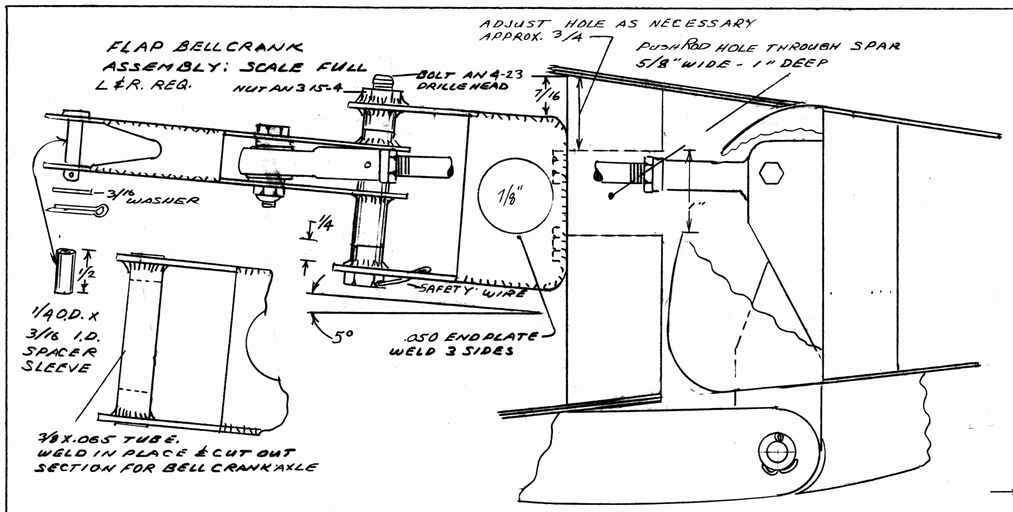
GP 4 ©1985 OSPREY AIRCRAFT

FLAP HINGES
FLAP UP STOPS
DESIGN: OSPREY AIRCRAFT
SCALE: FULL & 1/10
DWG. NO. 26

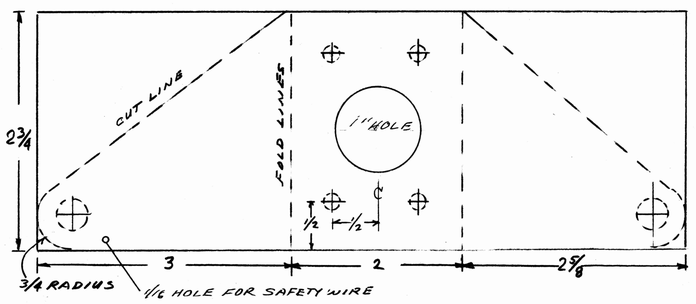
S/N 703 Sam Raterree

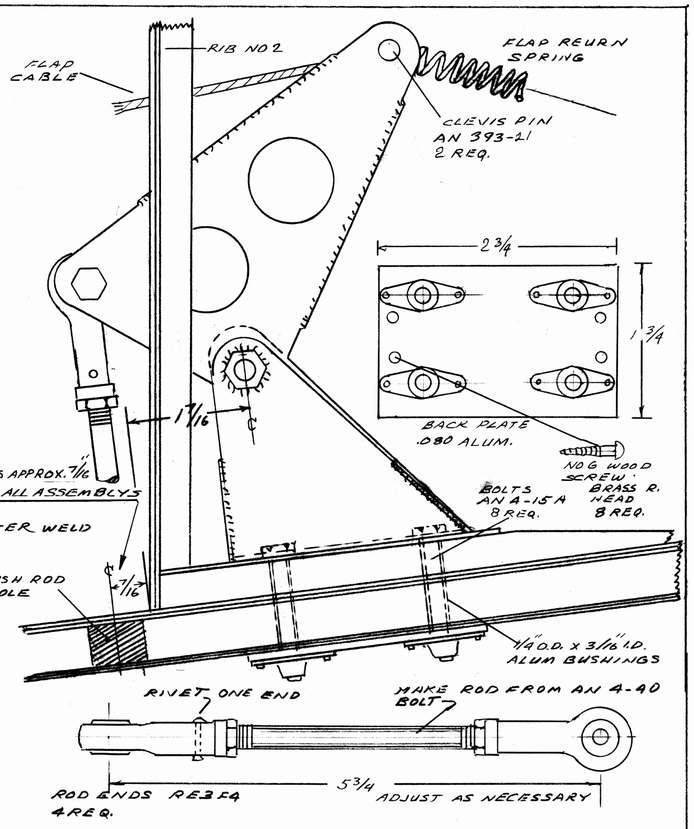
FLAP BELLCRANK ASSEMBLY: SCALE FULL

L & R. REQ.

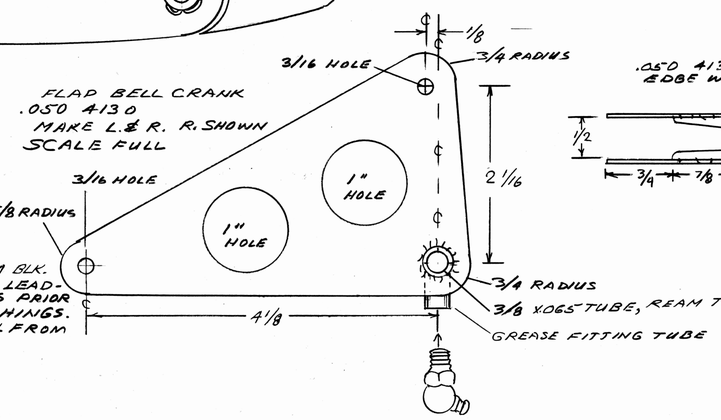


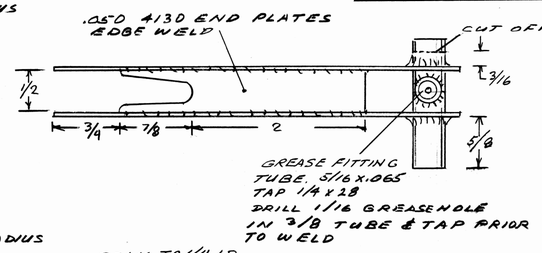
FLAP BELL CRANK CLEVIS .063 4130 SCALE FULL



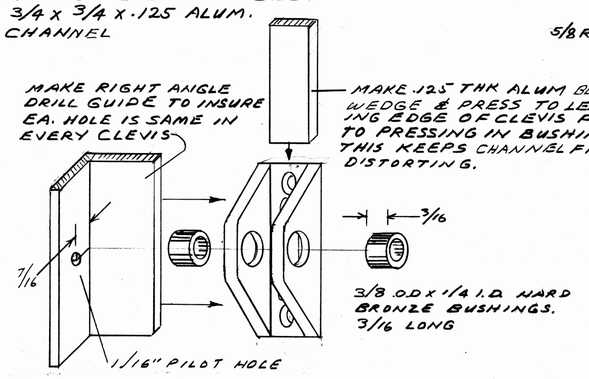


FLAP BELL CRANK .050 4130 MAKE L & R. R. SHOWN SCALE FULL

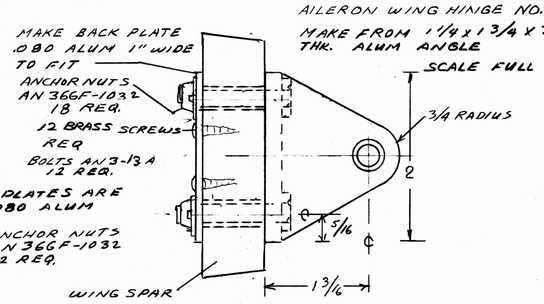




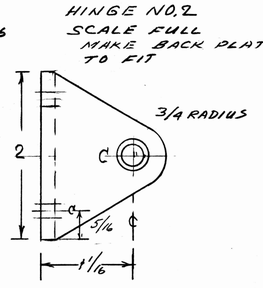
AILERON CLEVIS HINGES: 3/4 x 3/4 x .125 ALUM. CHANNEL



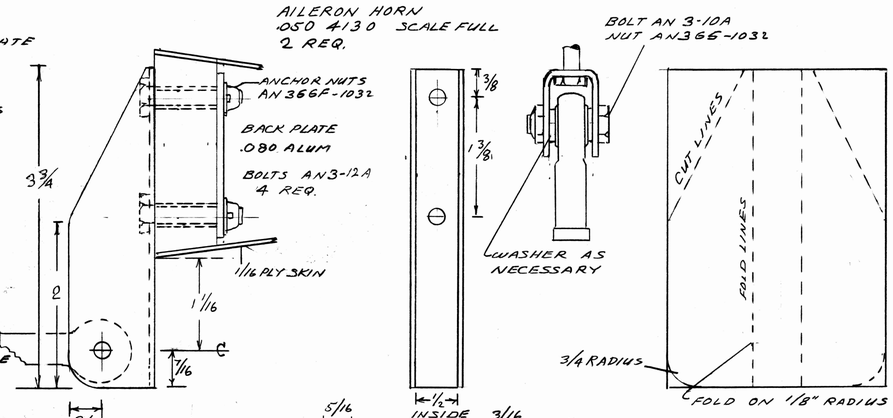
AILERON WING HINGE NO. 1



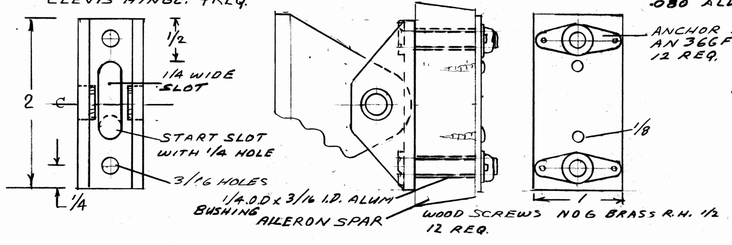
HINGE NO. 2



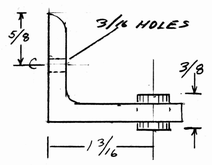
AILERON HORN .050 4130 SCALE FULL 2 REQ.

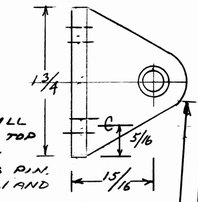


NO 1 & 2 AILERON CLEVIS HINGE. 4 REQ. SCALE FULL

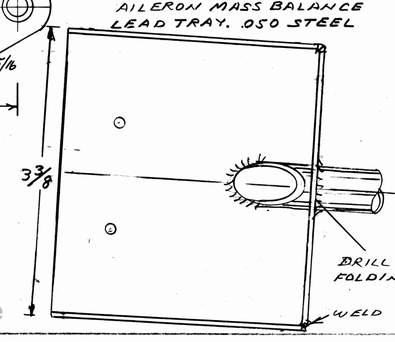


HINGE NO 3 SCALE FULL MAKE BACK PLATE TO FIT

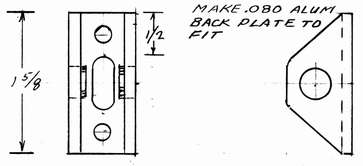




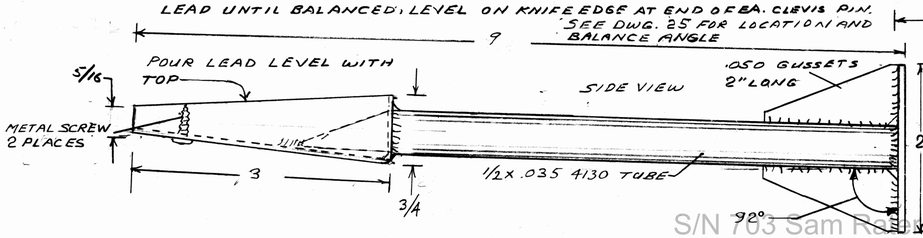
AILERON MASS BALANCE LEAD TRAY. .050 STEEL

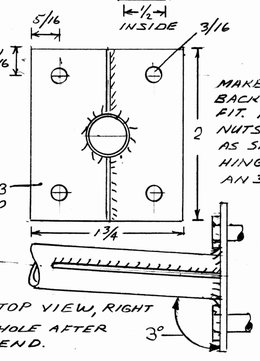


NO 3 AILERON CLEVIS HINGE SCALE FULL



AILERON MASS BALANCE: MAKE L & R - RIGHT SHOWN - SCALE FULL POUR LEAD INTO TRAY ALLOWING SOME TO ENTER TUBE. FILL TO TOP OF LEAD TRAY. AFTER AILERON IS IN FINISH PAINT, DRILL HOLES IN LEAD UNTIL BALANCED; LEVEL ON KNIFE EDGE AT END OF EA. CLEVIS PIN. SEE DWG. 25 FOR LOCATION AND BALANCE ANGLE





GP4 ©1985 OSPREY AIRCRAFT

FLAP BELLCRANK ASSEMBLY	
AILERON HINGES, AILERON MASS BALANCE	
DESIGN: OSPREY AIRCRAFT	
SCALE : FULL	
D.WG. NO. 27	

S/N 703 Sam Rasree

PUSH ROD IS APPROX 6 5/16" LONG. BEARING HOLE TO BEARING HOLE

RETRACT HANDLE PILLOW BLK.

SEAT RAIL ENDS HERE

AN4-5A

ANCHOR NUTS 4 REQ

PILLOW BLK. PLATE .125 4130

AN4-6AA LONG BOLTS

PILLOW BLK. PLATE FLANGE SEE DWG. 29 FOR DETAILS

ALUM BUSHINGS 3/8 X.065 DRILL OUT TO 1/4" I.D. 8 REQ

.125 ALUM SPAR PLATE

1/8" BIRCH WEB

BOLT AN4-14A 2 REQ

CONTROL STICK TORQUE TUBE PILLOW BLK

BOLTS AN3-5A 6 REQ.

AN 960-616 WASHER

AXLE 7/8 X.095

SEE DWG.29 FOR DETAIL

CLEVIS FOR NOSE GEAR PUSH ROD .050 4130 SCALE FULL

7/8 X.058

3/8 X.035

1/2 X.035

18°

3 5/16

2 1/4

3/8 X.065 BUSHING WELD BOTH SIDES REAM TO 1/4 I.D.

PIVOT ARM 5/8 X.058 SQUARE TUBE

.063 FINGERPATCH

ROD END BEARING HEIM HF4 2 REQ.

BOLT AN4-14A

1 X.058 SPACER TACK TO AXLE

7/8 X.058

1/8

5/16

1 1/8

2 5/8

SEE DWG 31 FOR HANDLE DETAILS & .063 FINGER PATCH

SEAT RAIL

1/4 DIA

9/16

3/4

6 3/4

SPAR ¢

SPAR FACE

NOSE WHEEL WELL WING ATTACH FITTING NOT SHOWN FOR CLARITY

3/16 HOLES ATTACH PLATE TO ANGLE BRACKET THAT IS BOLTED TO SPAR (SEE DWG 29)

ANCHOR NUTS MS21069-3 4 REQ. BOTTOM SIDE OF PLATE 3/16 HOLES MUST MATCH PILLOW BLK. BOLTS

1/4" HOLES ATTACH AFT SIDE OF PLATE TO SEAT RAILS

2 3/4

1 9/16

1 3/16

2 5/8

PILLOW BLK. PLATE. .125 4130. SCALE FULL

3/4 X.035 SQ. MOUNT TUBE

PILLOW BLK. BRACKET

CABLE ASSIST BUSHINGS NOT SHOWN FOR CLARITY

3

MACHINE BRASS BEARING PLUG FOR PRESS FIT INTO 7/8 X.065 AXLE SCALE FULL

3/8" BORE

9/16

7/8 I.D.

1/2

HARD BRONZE BUSHING PRESSED INTO .125 ALUM. SPAR PLATE. 2 REQ. SCALE FULL

ACTUATING PUSH ROD 3/8 X.065

USE AN4 BOLTS FOR ENDS CUT & RIVET

1

2 1/4

1

BEARING BRACKET .125 4130

BEND TO ALIGN WITH BRASS BEARING PLUG. HEAT IF NECESSARY

BRACKET IS OFFSET TO RIGHT. SEE DWG 29

3/16" SLOTTED HOLES FOR TWO AN3-5A BOLTS

7/8

1 3/4

2"

WELD AN 6 BOLT TO BOTTOM BRACKET & CUT TO 5/8" SHANK LENGTH

PILLOW BLK. BRACKET .063 4130 4 REQ.

.125 THK. PILLOW BLK. PLATE

3/8

3/4 X 3/4 MOUNT TUBE. WELD BRACKET ON 3 SIDES TACK WELD UNTIL STICK TORQUE TUBE IS ALIGNED

1 7/16

2 7/16

1 3/4

1/4

¢ BOLTS: AN 3-24A 2 REQ.

RETRACT HANDLE PILLOW BLK. MAKE FROM 1/2 X 1 ALUM BLK 2 REQ. SCALE FULL 2024-T3

7/8 DIA HOLE

3/16 HOLES

2 13/16

1/2

NOTES: TO DRILL BEARING HOLES IN PILLOW BLKS., DRILL 3/16 BOLT HOLES FIRST & BOLT BLKS TOGETHER. THEN DRILL 1/8 PILOT HOLE FOR BEARING HOLE

TAP 1/4 X 28 FOR GREASE FITTING DRILL NO 3 DRILL BITT

CONTROL STICK PILLOW BLK. MAKE FROM 1/2 X 3/4 ALUM. BLK. 2 REQ. SCALE FULL

2 1/4

15/16

1" DIA ¢

3/4

3/8

1/4

CONTROL STICK PILLOW BLK 1/2 X 3/4 2024T-3 ALUM SCALE FULL

BOLT AN 3-17A 2 REQ.

1/2

MAKE SPACERS FROM 3/8 X.058 TUBE. GRIND CURVED RADIUS ON ROD END SIDE

1/4 HOLE

.080 4130

2 1/2

75°

.080 4130

3/16 HOLE

.080 4130

2 5/8

2 5/8

NOTE:

SUGGEST A WOOD MOCK UP OF WALKING BEAM TO CHECK RETRACT TRAVEL PRIOR TO FINISH FLIGHT HARDWARE

WARNING: WHEN USING ADJUSTABLE ROD END AT EA. END OF THE PUSH ROD. PIN ONE END AFTER ALL ADJUSTMENTS

THREADED ROD END AN 490 HT 8P 4 REQ.

RIVETS AN 470-410 AD 2 REQ. EA. END

ROD END CW3B-14 4 REQ.

1/2 X.035 WELDED INTO 5/8 X.058 PUSH ROD.

LEFT PUSH ROD LENGTH 46" BORE ¢ TO BORE ¢

RIGHT " " " 40 3/8 " " "

SUGGEST WOOD MOCK UP PRIOR TO FLIGHT HARD WARE

WOOD MOCK UP

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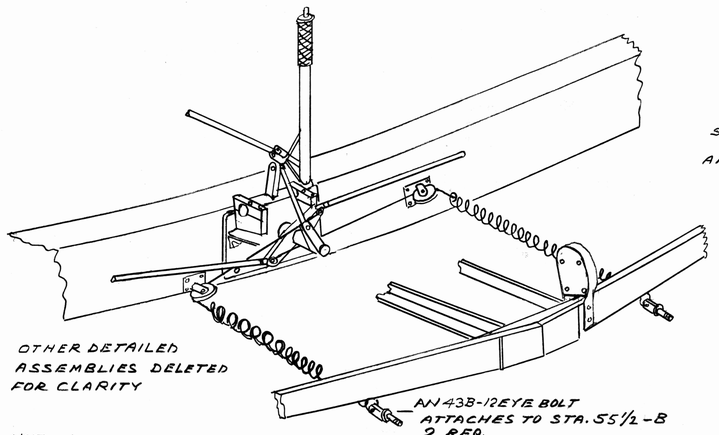
MAIN LANDING GEAR RETRACTING LINKAGE, WALKING BEAM DETAILS

DESIGN: OSPREY AIRCRAFT

SCALE FULL

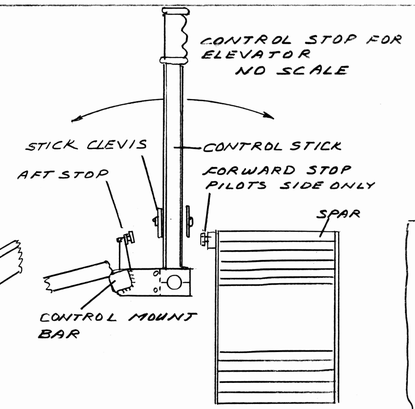
DWG. NO: 28

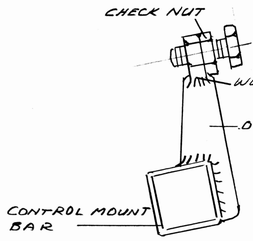
S/N 703 Sam Ratchee



OTHER DETAILED ASSEMBLIES DELETED FOR CLARITY

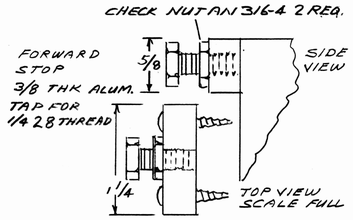
AN 43B-12 EYE BOLT ATTACHES TO STA. 55 1/2 - B 2 REQ. SEE DWG. 4 FOR EYE BOLT BLK. DETAIL

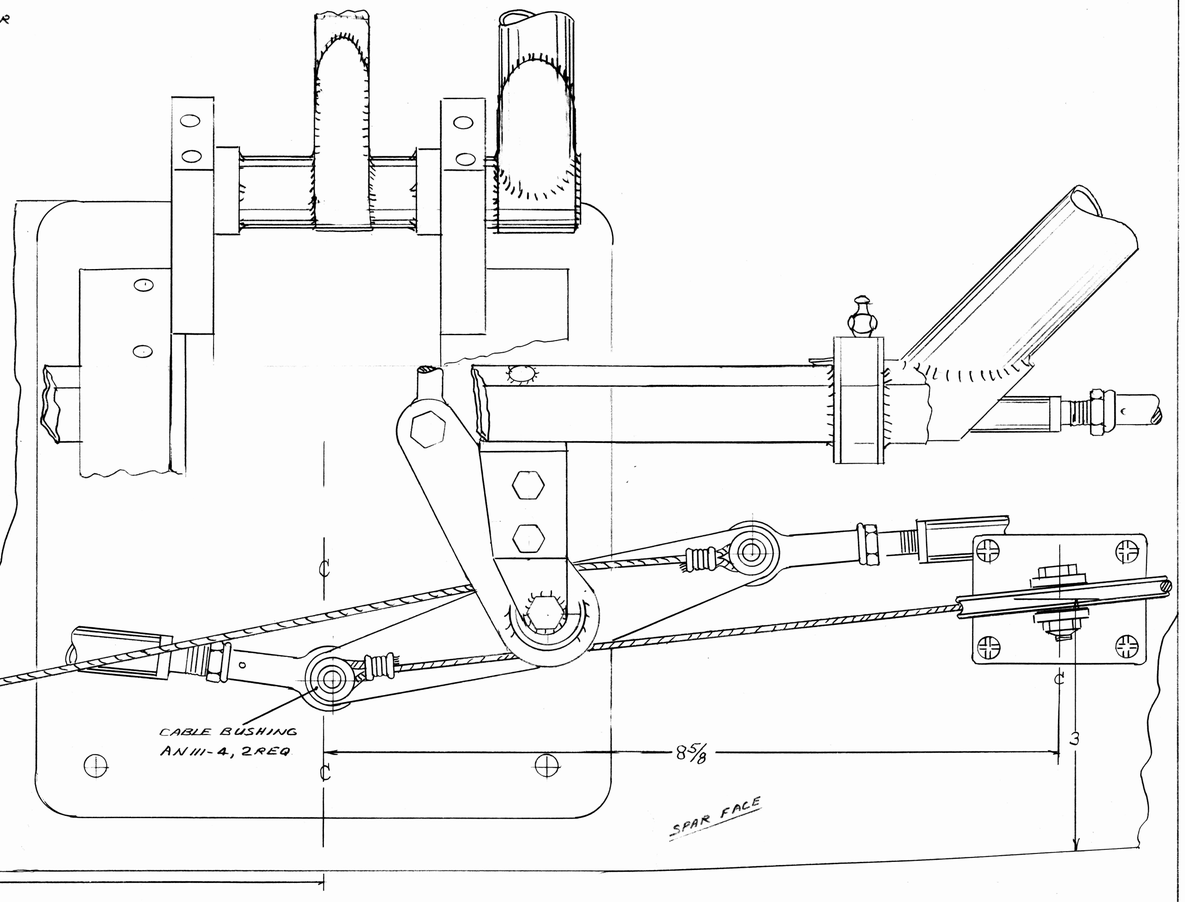


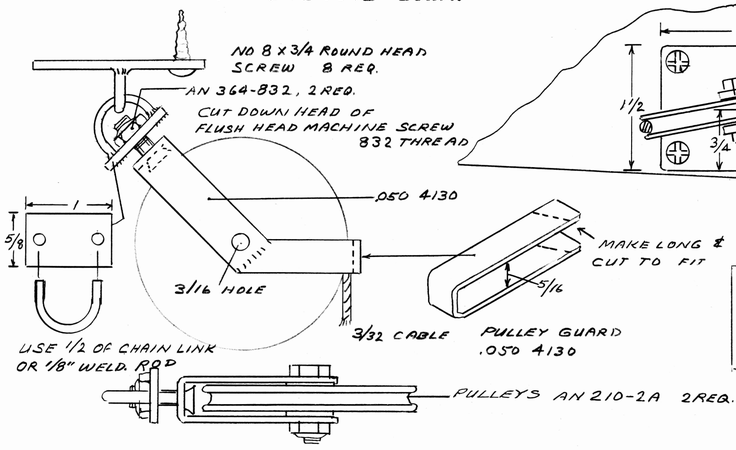


ALIGN BOTH STOPS SO THAT THE STICK CLEVIS STRIKES THE ADJUSTING BOLTS AT THE BOTTOM SIDE OF THE STICK CLEVIS

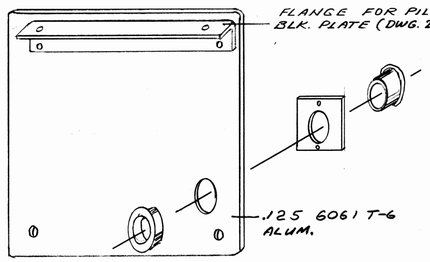
REQUIRES 22° T 23° UP ELEVATOR & 12° TO 13° DOWN.

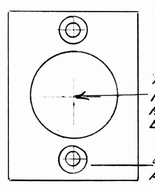


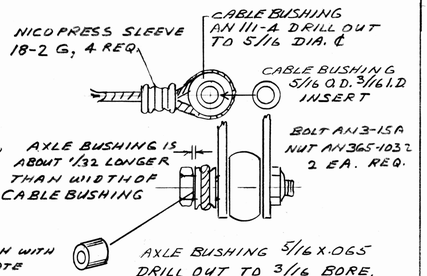




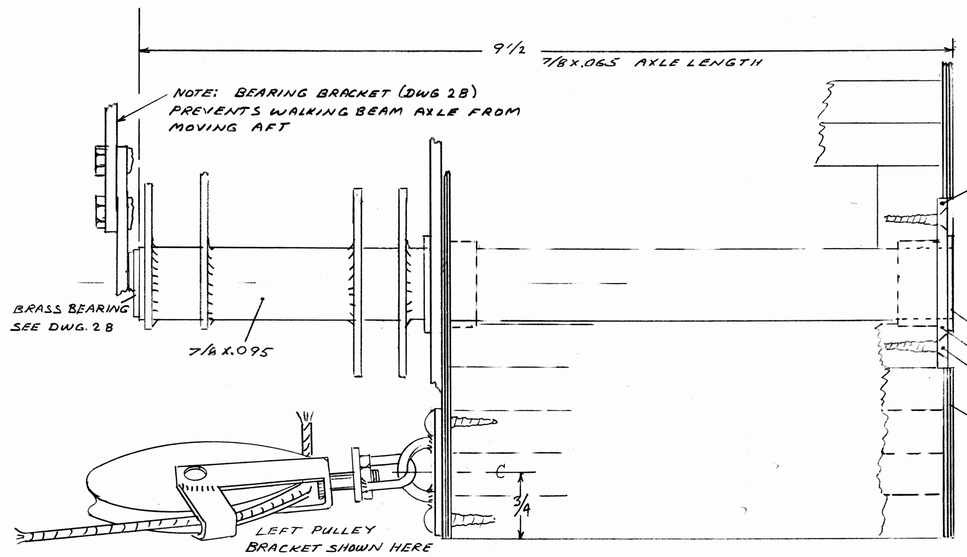
NOTE: IF THE CAMBER IN THE MAIN LAND. GEAR DOORS IS NOT EXCESSIVE THE RETRACTING LOAD ON THE GEAR HANDLE WILL BE REDUCED. THE WALKING BEAM ASSIST SPRINGS MAY NOT BE NECESSARY. SEE GEAR DOORS DWG. 43

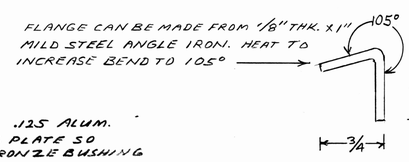


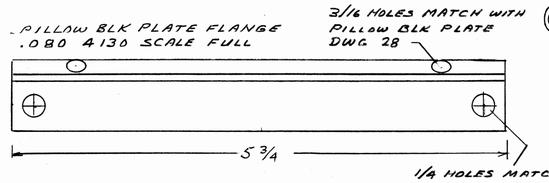




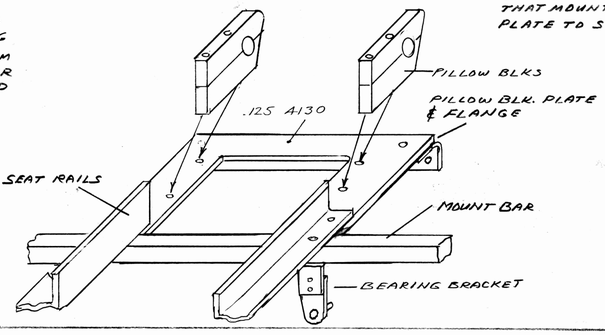
AXLE BUSHING 5/16 X .065 DRILL OUT TO 3/16 BORE. BUSHINS MUST BE SLIGHTLY LONGER THAN WIDTH OF CABLE BUSHING. THIS ALLOWS THE BOLT TO BE TIGHTENED UP AGAINST THE ROD END & THE CABLE BUSHING IS FREE TO ROTATE AROUND THE AXLE BUSHING. GREASE ON ASSEMBLY







NOSE WHEEL WELL WING ATTACH FITTINGS ON RIGHT SIDE COVERS BRONZE BUSHING PREVENTING WALKING BEAM AXLE FROM MOVING FORWARD. THIS IS WHY SPAR WEB HAS BUSHING PLATE RECESSED

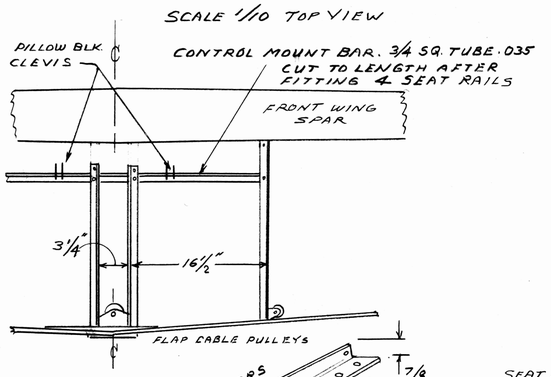


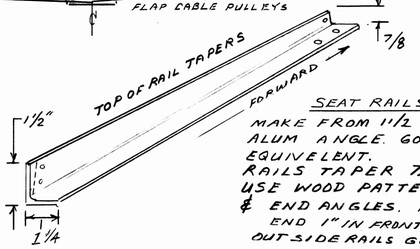
GP 4 © 1985 OSPREY AIRCRAFT

WALKING BEAM ASSIST CABLES
CONTROL STOPS FORE & AFT
DESIGN: OSPREY AIRCRAFT
SCALE: FULL
DWG. NO. 29

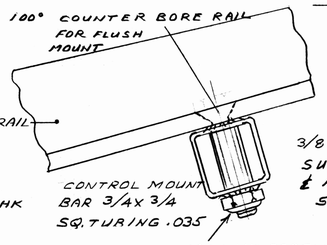
S/N 703 Sam Raterree

SCALE 1/10 TOP VIEW





SEAT RAILS (4 REQ)
MAKE FROM 1 1/2 X 1 1/4 X 3/16 THK ALUM ANGLE. 6061-T6 OR EQUIVELENT.
RAILS TAPER 7/8 TO 1 1/2.
USE WOOD PATTERN FOR LENGTH & END ANGLES. NOTE: INSIDE RAILS END 1" IN FRONT OF CONTROL MOUNT BAR. OUTSIDE RAILS GO FROM SPAR TO SPAR

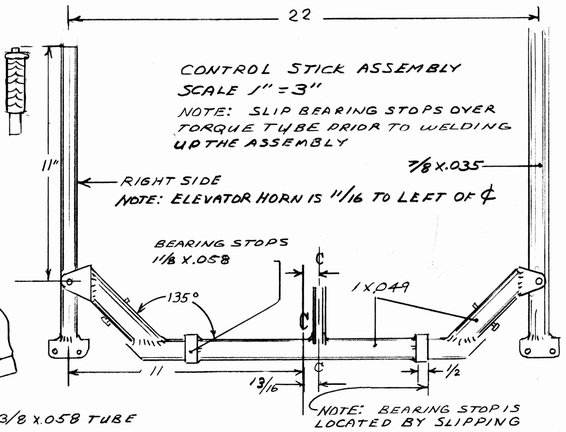


MACHINE SCREWS MS24694-S109, 4 REQ
NUT AN 365-428, 4 REQ.

NOTE: IF A CUSTOM STICK HANDLE IS USED THE TOTAL HEIGHT OF THE STICK FROM PIVOT POINT IS 11"

CONTROL STICK ASSEMBLY
SCALE 1" = 3"

NOTE: SLIP BEARING STOPS OVER TORQUE TUBE PRIOR TO WELDING UP THE ASSEMBLY

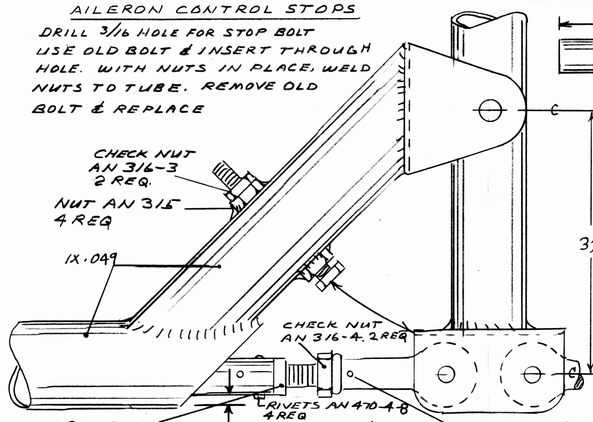


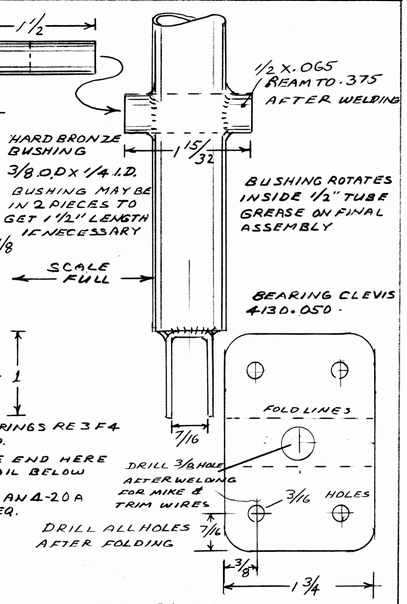
3/8 X .058 TUBE SURFACE WELD & FILE FLAT AREA FOR SEAT RAIL MOUNTING. 4 PLACES

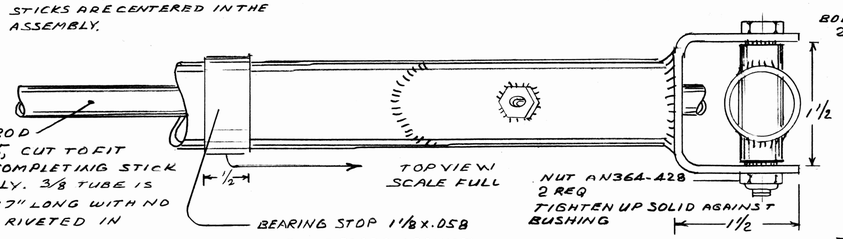
NOTE: BEARING STOP IS LOCATED BY SLIPPING STOP UP AGAINST PILLOW BLK. & TAC WELD. AFTER STICKS ARE CENTERED IN THE ASSEMBLY.

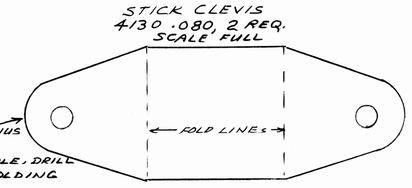
AILERON CONTROL STOPS

DRILL 3/16 HOLE FOR STOP BOLT USE OLD BOLT & INSERT THROUGH HOLE. WITH NUTS IN PLACE, WELD NUTS TO TUBE. REMOVE OLD BOLT & REPLACE

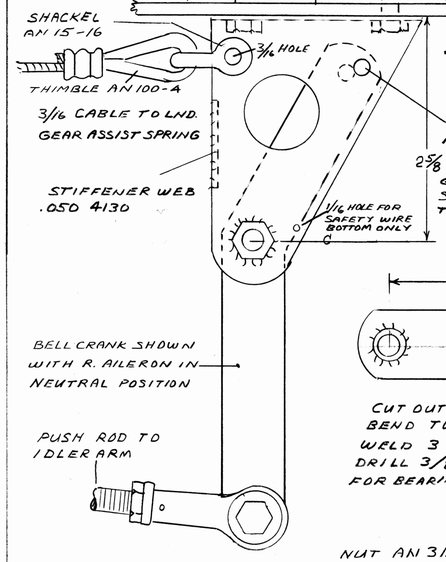








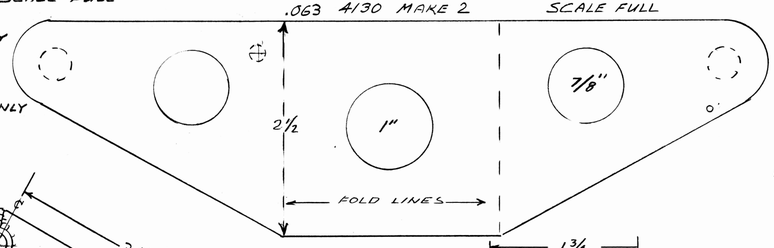
NOTE: ON ALL FOLDED PIECES LEAVE EXTRA MATERIAL. SHAPE TO SIZE & DRILL HOLES AFTER FOLDED

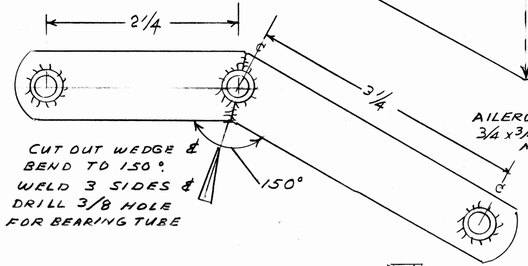


AILERON BELL CRANK ASSEMBLY
TOP VIEW - RIGHT SIDE SHOWN
MAKE L & R BRACKETS
SCALE FULL

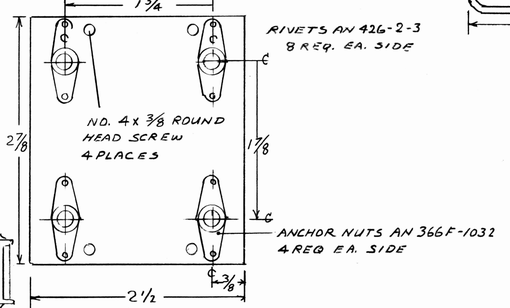
3/16 HOLE FOR MOUNTING PULLEY BRACKET TO STRETCH LND. GEAR ASSIST SPRING. HOLE IN TOP OF BRACKET ONLY
2 5/8

BELL CRANK BRACKET .063 4130 MAKE 2 SCALE FULL

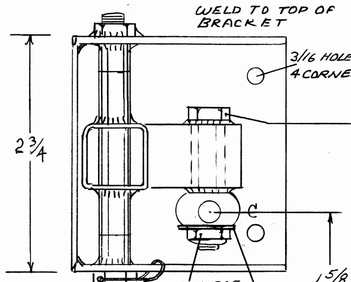


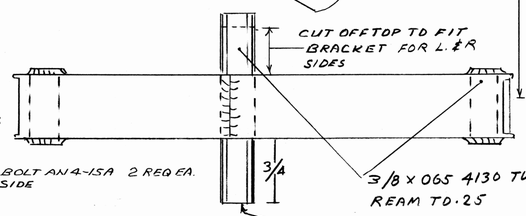


AILERON BELL CRANK 3/4 X 3/4 X .035 SQ. TUBE MAKE L & R. SCALE FULL

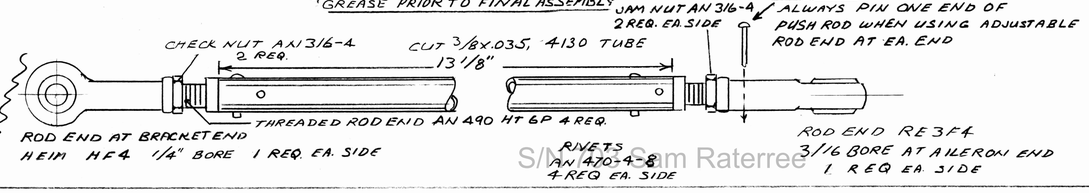


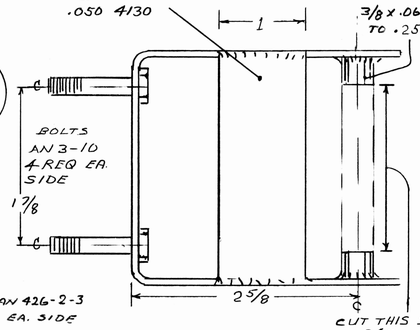
AILERON BRACKET MOUNT PLATE .080 ALUM. 2 REQ. SCALE FULL



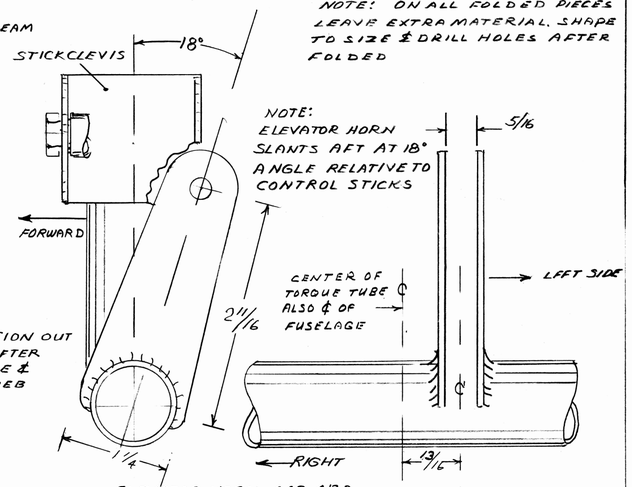


NOTE: GREASE PRIOR TO FINAL ASSEMBLY

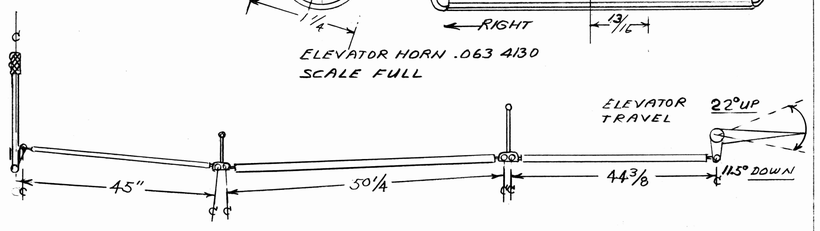




CUT THIS SECTION OUT OF 3/8" TUBE AFTER WELDING TUBE & STIFFENER WEB



ELEVATOR HORN .063 4130 SCALE FULL



S/N [illegible] Sam Raterree

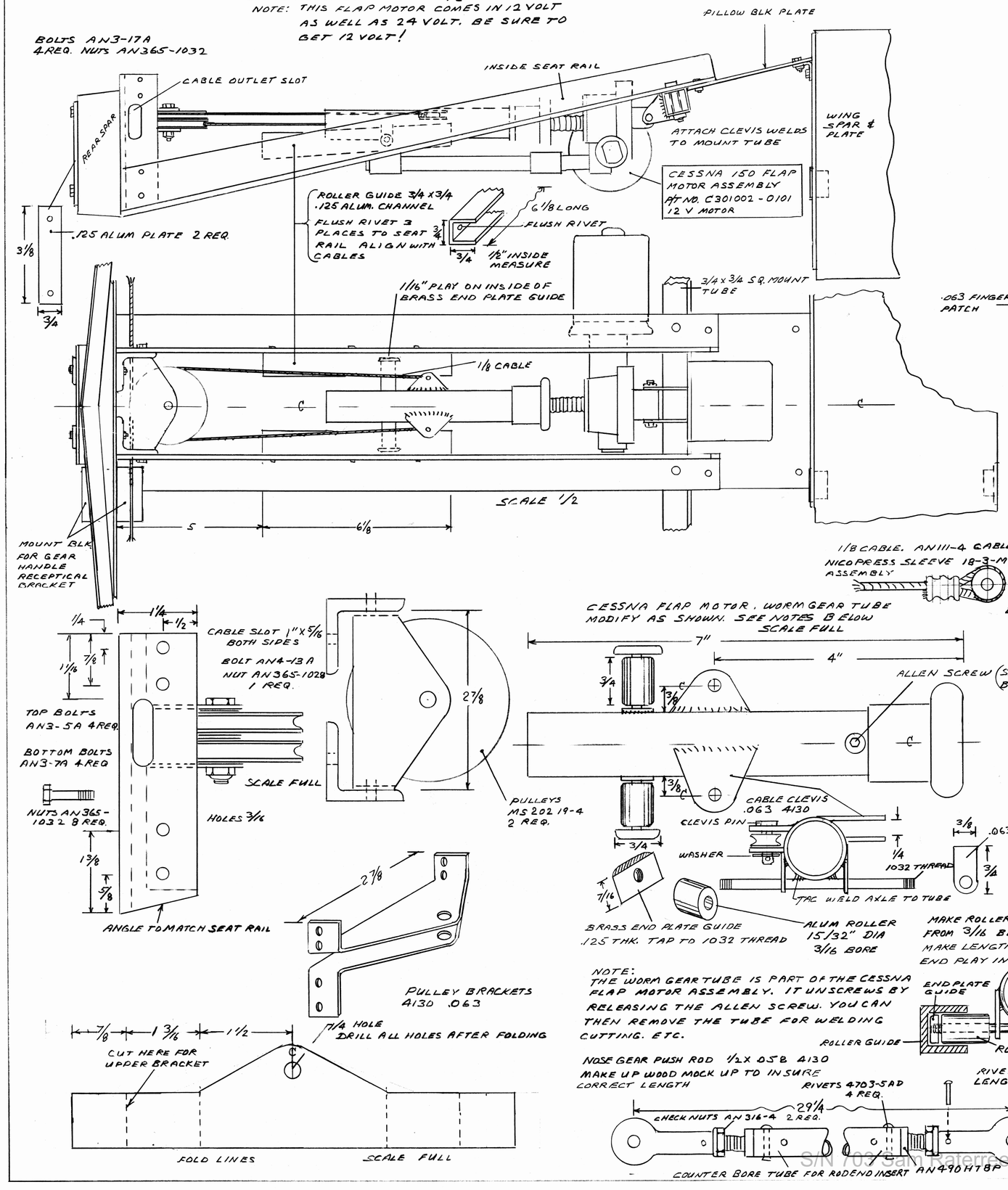
GP4 ©1985 OSPREY AIRCRAFT

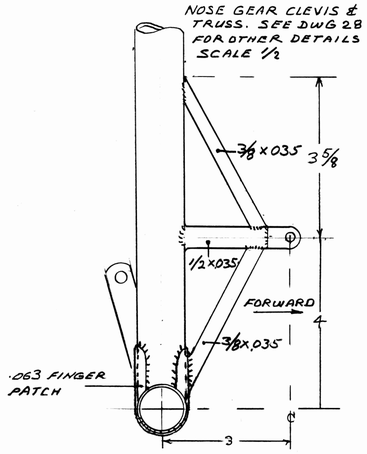
CONTROL STICK ASSEMBLY	
AILERON BELL CRANK ASSEMBLY	
DESIGN: OSPREY AIRCRAFT	
SCALE: 1/10 - 1"=3" & FULL	
DWG. NO. 30	

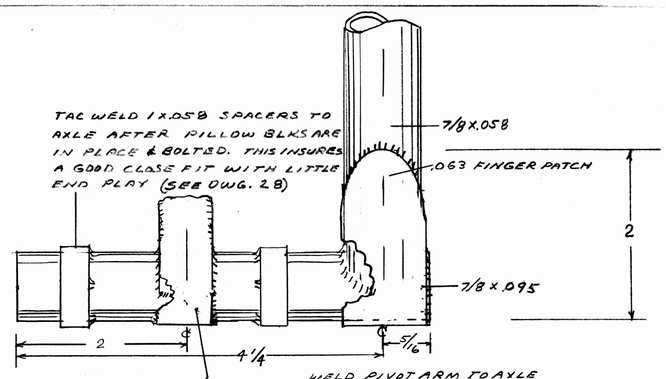
CENTER SEAT RAILS SHOWING FLAP MOTOR DRIVE ASSEMBLY SCALE 1/2

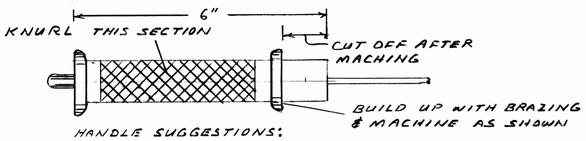
NOTE: THIS FLAP MOTOR COMES IN 12 VOLT AS WELL AS 24 VOLT. BE SURE TO GET 12 VOLT!

BOLTS AN3-17A 4 REQ. NUTS AN365-1032

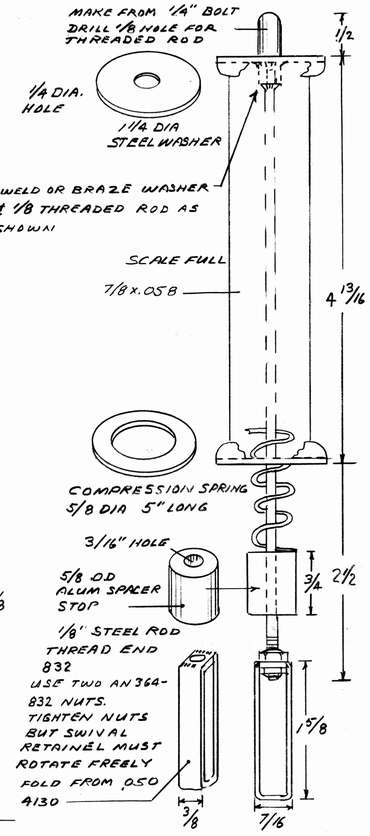








HANDLE SUGGESTIONS:
1 1/4 DIA WASHER CAN BE BRAZED USING A HEAVY BUILD UP FOR MACHING A THICK GRIP STOP. THE 7/8 x .058 TUBE IS LEFT EXTRA LONG (6") TO CHUCK IN LATHE FOR MACHING. CHROME AFTER MACHING SCALE 1/2



1/8 CABLE. AN111-4 CABLE BUSHING 4 REQ
NICOPRESS SLEEVE 18-3-M 8 REQ. IN TOTAL ASSEMBLY

CLEVIS PINS FOR BUSHING. MS 20392-2C17 2 REQ.

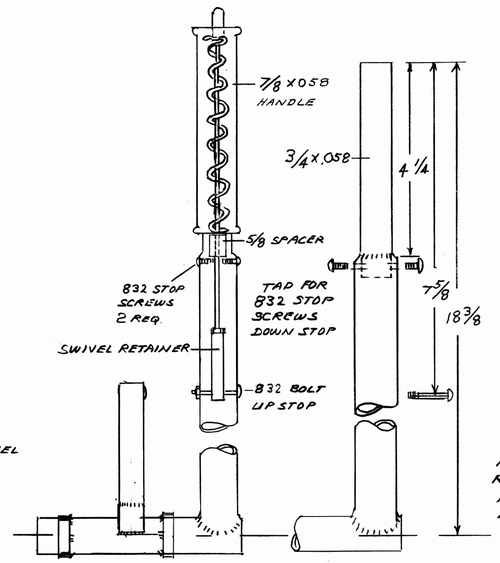
CESSNA FLAP MOTOR, WORM GEAR TUBE MODIFY AS SHOWN. SEE NOTES BELOW SCALE FULL

NOTE:
THE WORM GEAR TUBE IS PART OF THE CESSNA FLAP MOTOR ASSEMBLY. IT UNSCREWS BY RELEASING THE ALLEN SCREW. YOU CAN THEN REMOVE THE TUBE FOR WELDING CUTTING. ETC.

MAKE ROLLER AXLE FROM 3/16 BOLTSTOCK
MAKE LENGTH TO ALLOW 1/16" END PLAY IN ROLLER GUIDE CHANNEL

NOSE GEAR PUSH ROD 1/2 x .058 4130
MAKE UP WOOD MOCK UP TO INSURE CORRECT LENGTH

ROD ENDS F34-14 2 REQ.



LAND GEAR RETRACT HANDLE SCALE 1/2

GP 4 © 1985 OSPREY AIRCRAFT

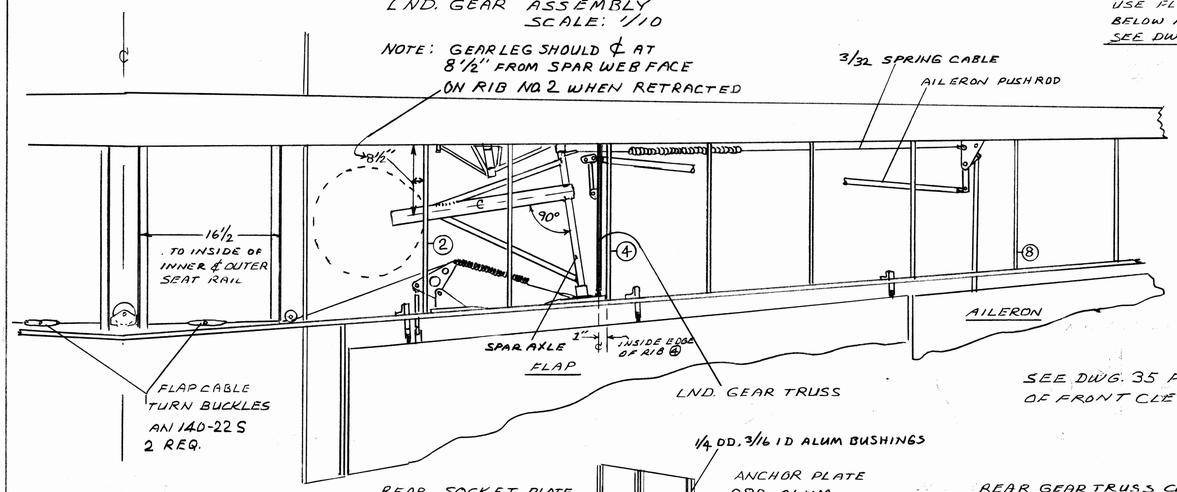
FLAP MOTOR ASSEMBLY
LANDING GEAR RETRACT HANDLE

DESIGN: OSPREY AIRCRAFT
SCALE: 1/2 & FULL
DWG. NO. 31

S/N 709 Sam Raterree

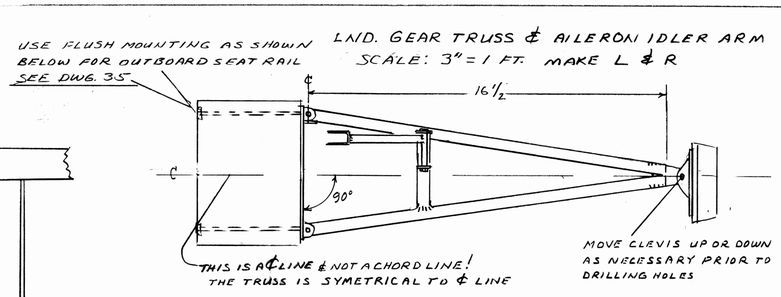
LND. GEAR ASSEMBLY
SCALE: 1"/10

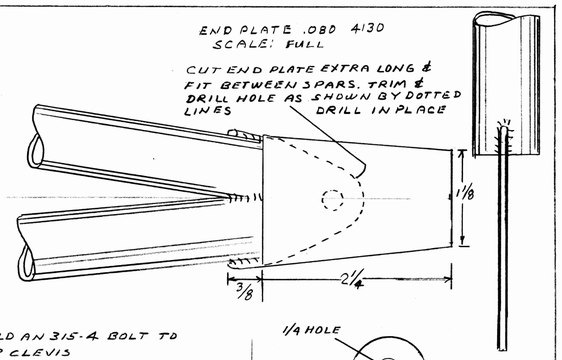
NOTE: GEAR LEG SHOULD ℄ AT 8½" FROM SPAR WEB FACE ON RIB NO 2 WHEN RETRACTED

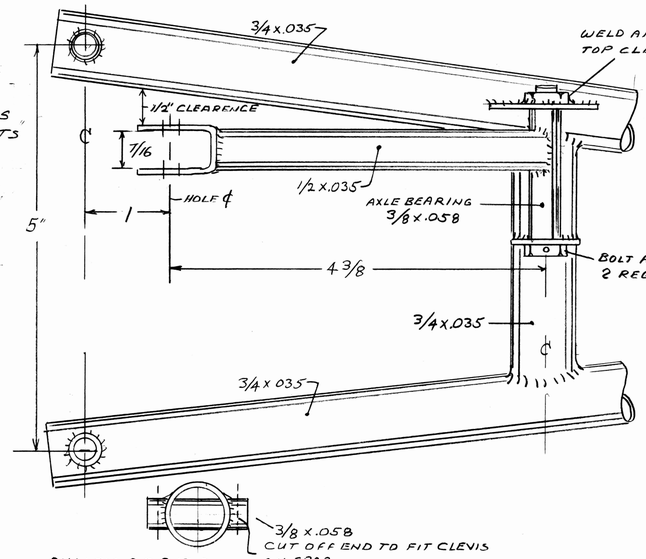


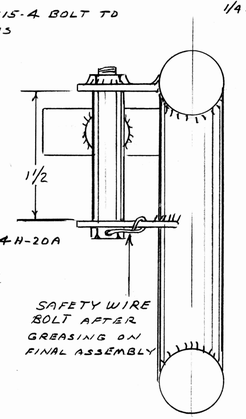
SEE DWG. 35 FOR DETAILS OF FRONT CLEVIS & BOLTS

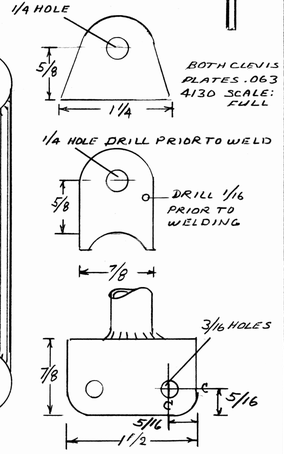
LND. GEAR TRUSS & AILERON IDLER ARM
SCALE: 3" = 1 FT. MAKE L & R



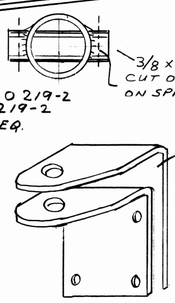








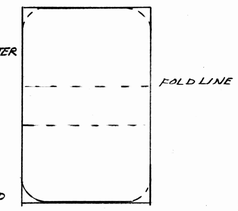
PULLEY 20219-2
ANN0.15 219-2
2 REQ.

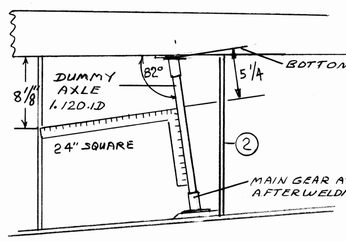


4 EA. 3/32" RIVET HOLES MATCH DRILL WITH SEAT RAIL ATTACH BRACKET SPACE CLEVIS BY USING PULLEY BOLTED IN PLACE AS WIDTH GUIDE

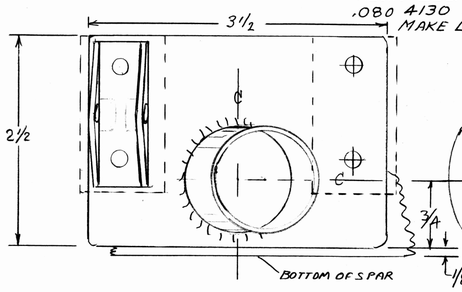
RIVETS ARE AN 470AD-3-4 4 REQ. EA. SIDE

IDLER ARM CLEVIS
.050 4130
DRILL ALL HOLES AFTER FOLDING
SCALE: FULL

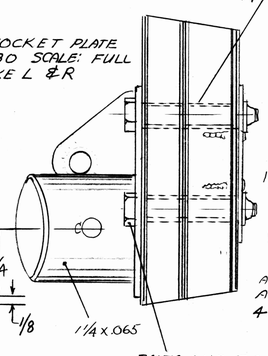


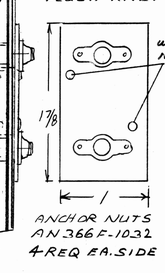


SHIFT REAR SOCKET PLATE AS NECESSARY TO POSITION DUMMY AXLE

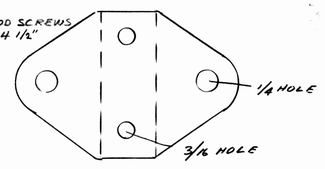


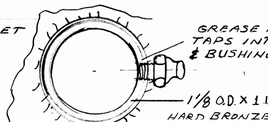
REAR SOCKET PLATE .080 4130 SCALE: FULL MAKE L & R

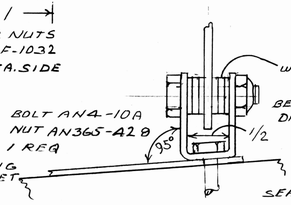


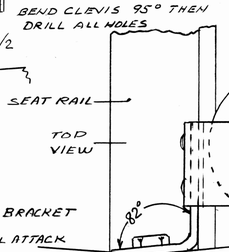


REAR GEAR TRUSS CLEVIS
.063 4130 MAKE 2
SCALE: FULL

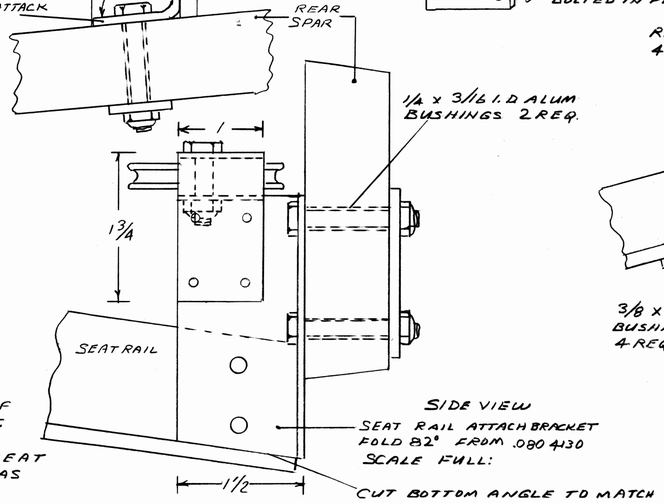


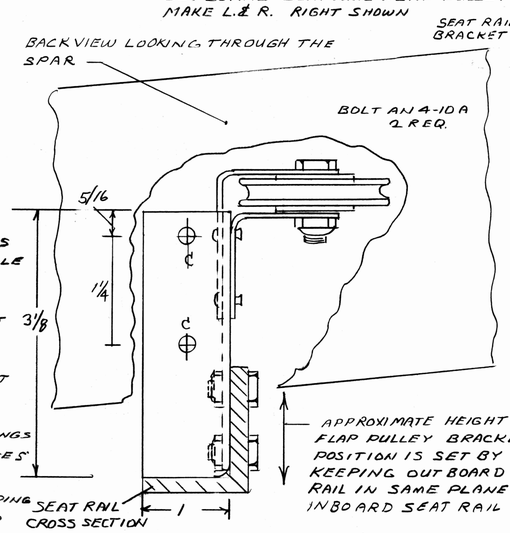






OUTBOARD SEAT RAIL FLAP PULLEY BRACKET
MAKE L & R. RIGHT SHOWN

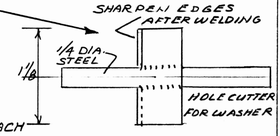




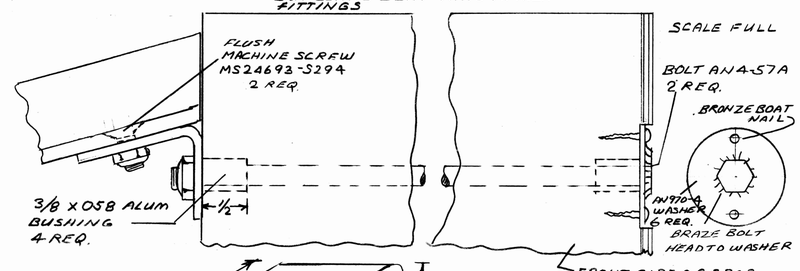
NOTES:

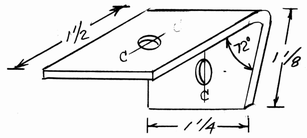
1. CUT MAIN GEAR SOCKETS ABOUT 3" LONG (CUT TO LENGTH AFTER WELDING)
2. MAKE SOCKET PLATES FRONT & REAR & BOLT FRONT PLATE TO 3/16" ALUM BEARING PLATE.
3. MAKE DUMMY AXLE FROM ANY METAL TUBE. ENDS MUST BE 1.20 I.D. TO SLIP INSIDE SOCKETS SOCKETS MUST BE GROUND AT THE PROPER ANGLE TO FIT PLAIN TO THE SOCKET PLATES. CHORD WISE ABOUT 82° TO SPAR FACE
4. WITH AXLE IN PLACE INDEX SOCKET TO SOCKET PLATE. REMOVE PLATE & TAC WELD SOCKET TO PLATE
5. BOLT ASSEMBLY UP AGAIN & CHECK ALIGNMENT WITH DUMMY AXLE.
6. FINISH WELDING SOCKETS TO PLATE, SAND BLAST ALL SCALE OUT OF SOCKETS. FIT BUSHINGS AFTER FIRST SEEING THAT THE 1" I.D. ROTATES FREELY ON SPAR AXLE. (1 INCH O.D)
7. DRILL HOLE THROUGH SOCKET & BUSHING FOR TAPPING OF GREASE FITTING. GRIND OFF THREADED END OF GREASE FITTING SO IT DOES NOT INHIBIT ROTATION BUT WILL KEEP BUSHING FROM SLIDING OUT OF SOCKET.

NOTE: DO NOT USE 1⅛" DIA. WOOD BIT. MUST HAVE ¼" GUIDE TO ℄ WASHER



OUTBOARD SEAT RAIL ATTACH FITTINGS



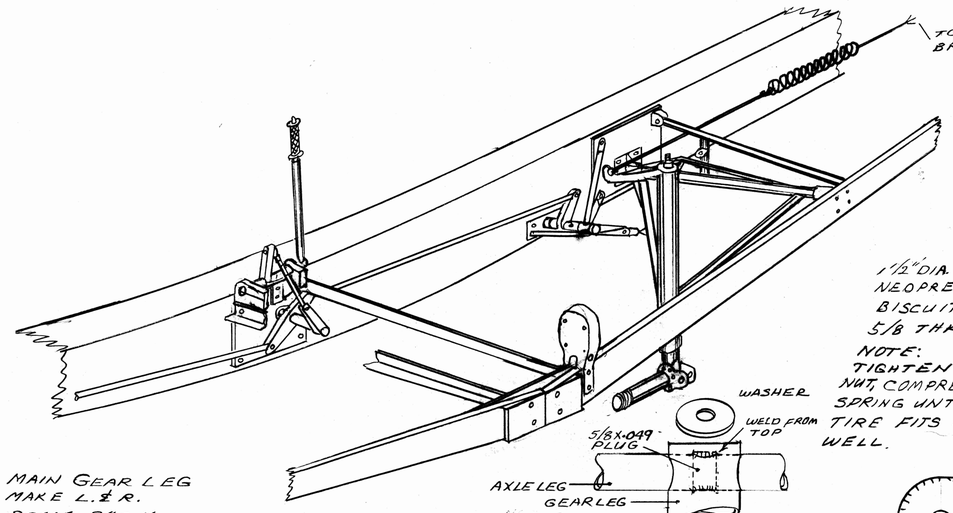


OUTBOARD MAIN SPAR SEAT RAIL BRACKET .080 4130 MAKE 2

GP4 OSPREY AIRCRAFT ©1985

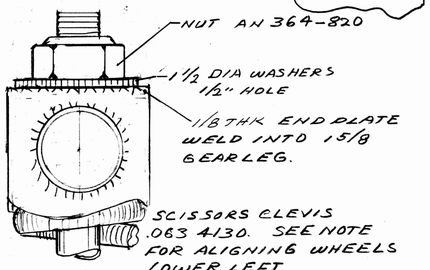
MAIN LND. GEAR RETRACT ASSEMBLY
AILERON IDLER ARM
FLAP PULLEYS & BRACKET
DESIGN: OSPREY AIRCRAFT
SCALE: 1"/10, 3" = 1 FT., FULL
DWG. NO. 32

S/N 703 Sam Raterree



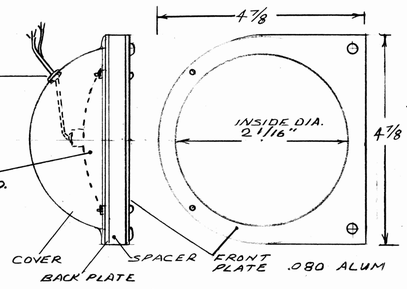
MAIN GEAR LEG
MAKE L. & R.
SCALE 3" = 1'

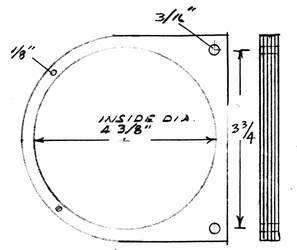




NOTE:
TIGHTEN 1/2" NUT, COMPRESSING SPRING UNTILL TIRE FITS WHEEL WELL.

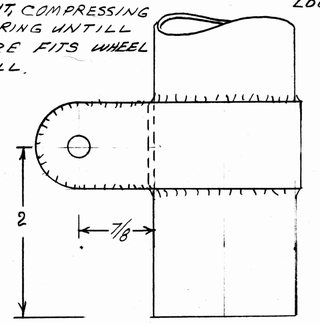
LANDING LIGHT. G.E. 4509 2 REQ.
SCALE 1 1/2

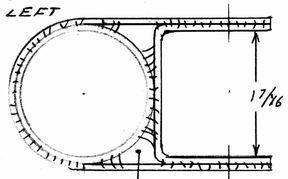




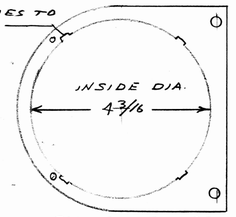
3/8 PLY SPACER MAHOGONY OR BIRCH

1. DRILL 1" HOLE THROUGH GEAR LEG
2. DRILL 5/8" HOLE THROUGH AXLE LEG 5 3/16 FROM FRONT OF AXLE LEG.
3. SLIP AXLE LEG THROUGH GEAR LEG & INSERT 5/8" PLUG
4. WELD PLUG THROUGH TOP OF GEAR LEG. ROTATE & WELD OTHER END.
5. ALIGN PLUG WITH WASHER & WELD IN WASHER
6. WELD AXLE LEG TO GEAR LEG



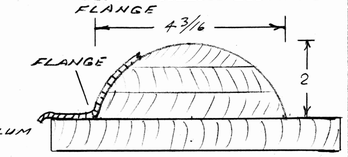


FILL AREA WITH WELD TOP & BOTTOM

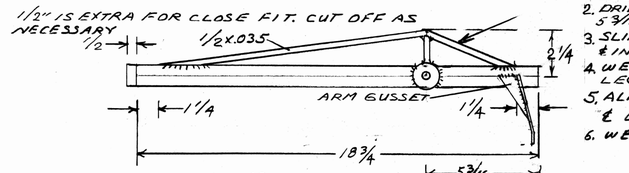


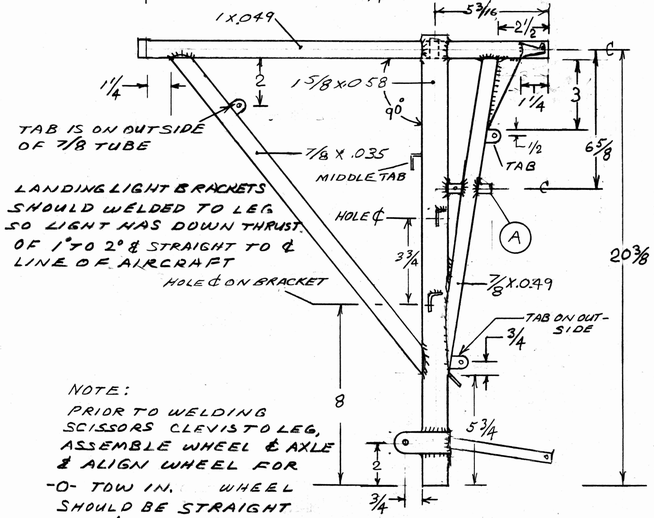
BACK PLATE .080 ALUM

TURN DOME COVER MOLD FROM PINE BLK. VARNISH & WAX OVER 3 LAYERS OF 7.02 CLOTH. ALLOW CLOTH TO FLANGE

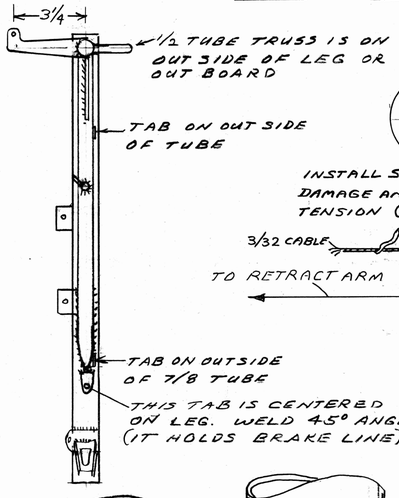


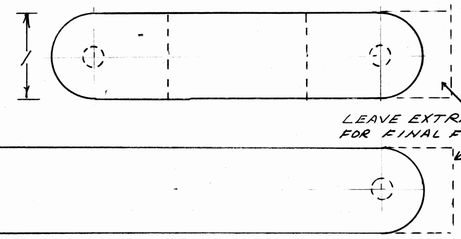
1/2" IS EXTRA FOR CLOSE FIT. CUT OFF AS NECESSARY



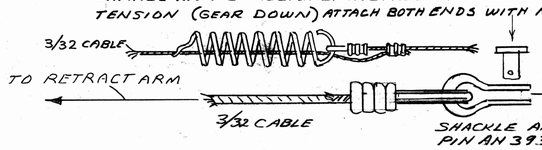


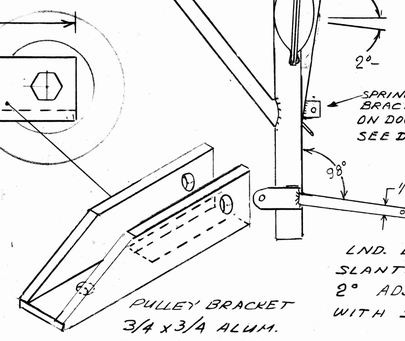
NOTE:
PRIOR TO WELDING SCISSORS CLEVIS TO LEG, ASSEMBLE WHEEL & AXLE & ALIGN WHEEL FOR -0- TOW IN. WHEEL SHOULD BE STRAIGHT TO ℄ LINE OF AIRCRAFT

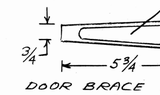




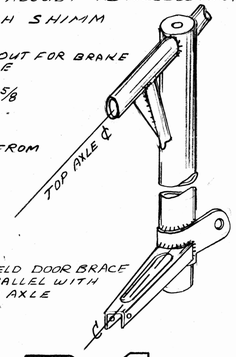
INSTALL SAFTY CABLE INCASE SPRING BRAKES IT WONT DAMAGE ANY STRUCTURE. INSTALL WHILE SPRING IS AT FULL TENSION (GEAR DOWN) ATTACH BOTH ENDS WITH NECO SLEEVE





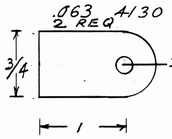


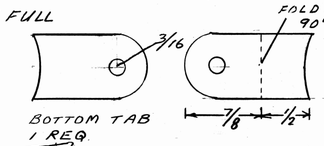
DOOR BRACE FOLD FROM .050 4130

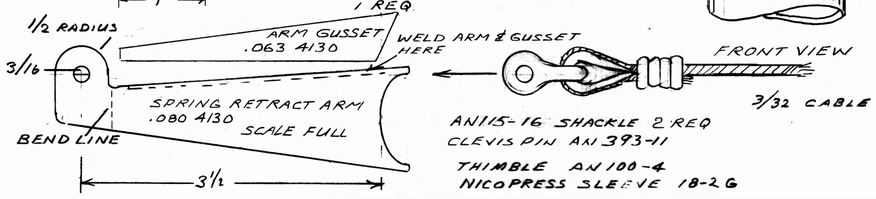


(A) 1/2 X .065 TUBE SHOULD EXTEND IN & BE TRIMED TO ALIGN WITH LINK ROD END ATTACHMENT.

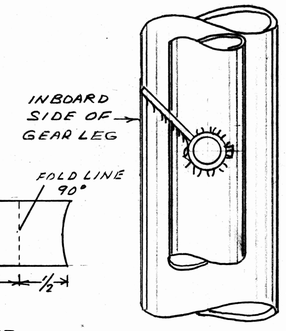
UPPER TABS .063 4130 2 REQ SCALE FULL

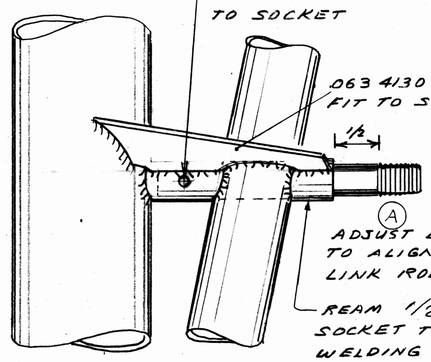






AN115-16 SHACKLE 2 REQ
CLEVIS PIN AN 393-11
THIMBLE AN 100-4
NICOPRESS SLEEVE 18-2G

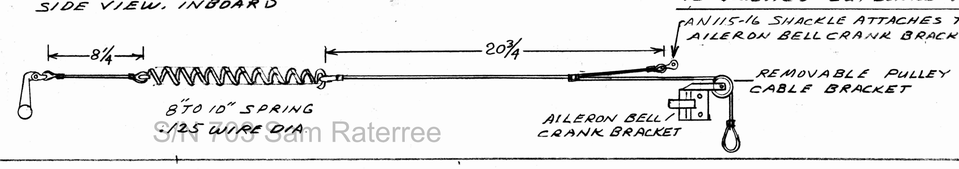




SIDE VIEW. INBOARD

AN-6 STUD
MAKE FROM AN 6 BOLT NUT IS MS20365-624

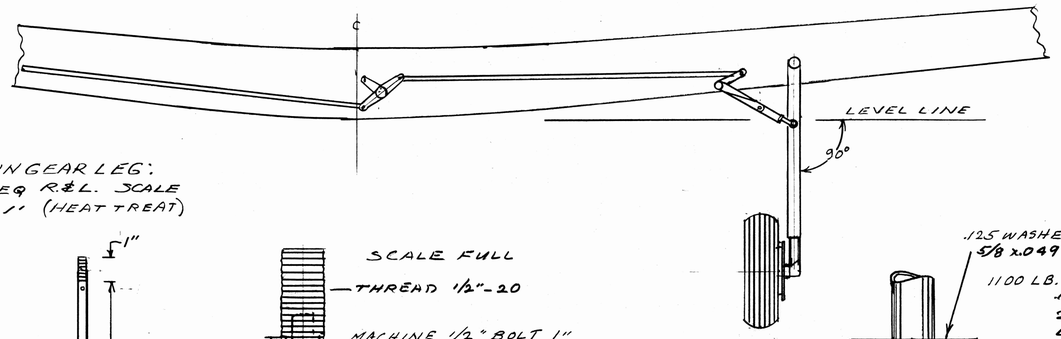
TO APPLY SPRING TENSION TO RETRACT ARM, AN EXTENDED CABLE IS RUN OVER A PULLEY & OUT THE BOTTOM OF THE WING THROUGH THE INSPECTION DOOR. THE SPRING IS STRETCHED UNTIL THE SHACKLE REACHES THE 3/16 HOLE IN THE AILERON BRACKET & THEN BOLTED. THE PULLEY IS REMOVED & THE EXTENDED CABLE IS PUSHED OUTBOARD INSIDE THE WING



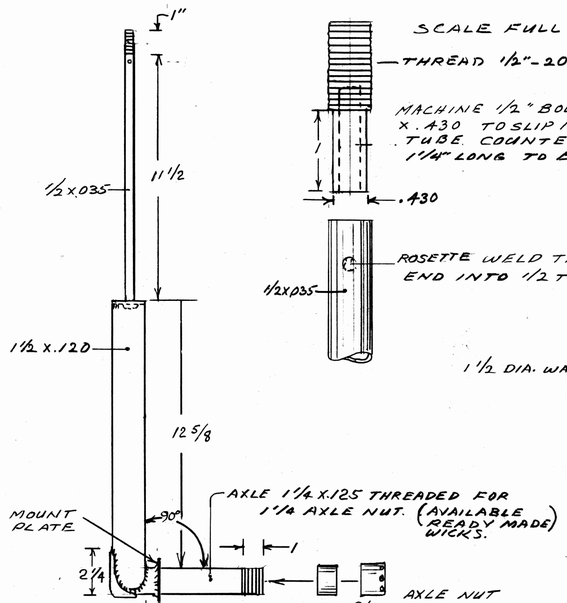
S/N 100 Sam Raterree

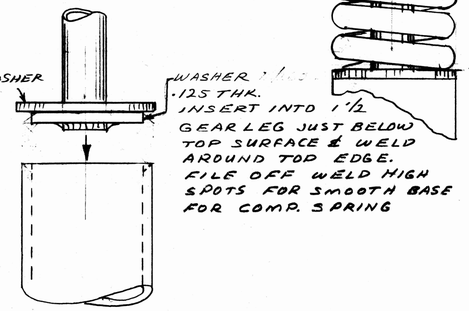
GP 4 ©1985 OSPREY AIRCRAFT

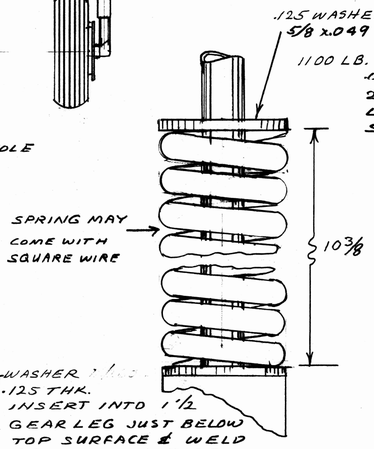
MAIN LANDING GEAR
LND. LIGHT
DESIGN: OSPREY AIRCRAFT
SCALE: FULL, 1/2, & 3" = 1'
DWG. NO. 33



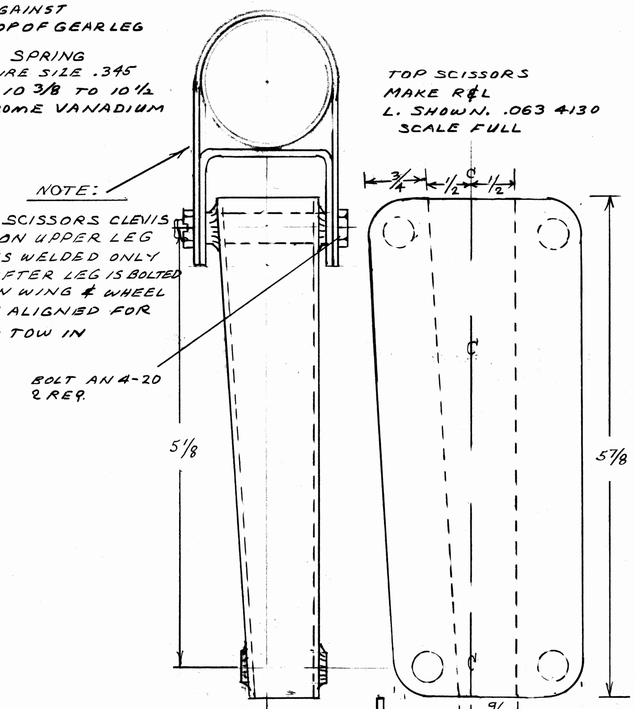
MAIN GEAR LEG:
2 REQ R&L. SCALE
3" = 1' (HEAT TREAT)

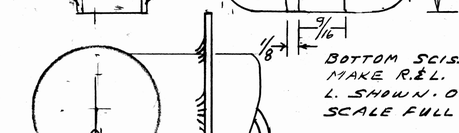


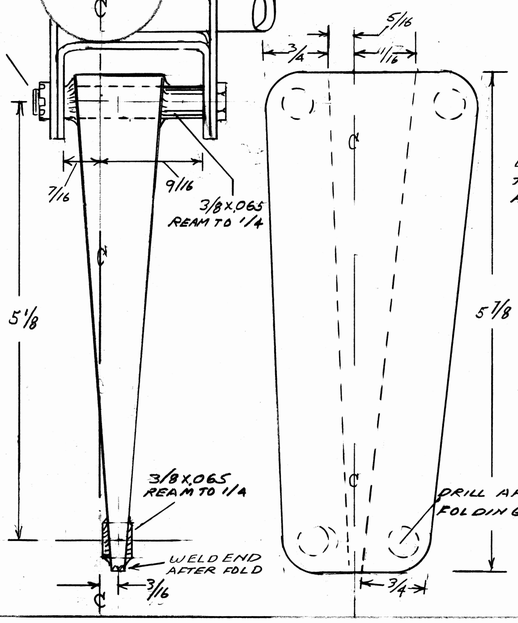




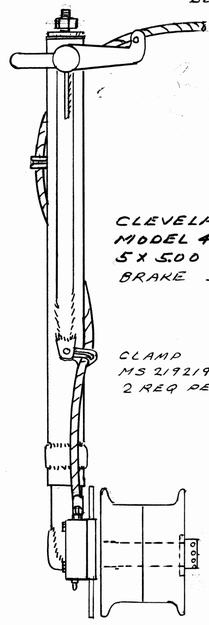
MAIN GEAR COMPRESSION SPRINGS. 2 REQ. SPRING NO. 9-24-40-36
MFG. DANLEY DVE SET
2115 S. 54th AVE
CHICAGO, ILLINOIS 60650-2209
PHONE: 800-243-2659
(SEE DWG. 52 FOR NOSE GEAR SPRING)







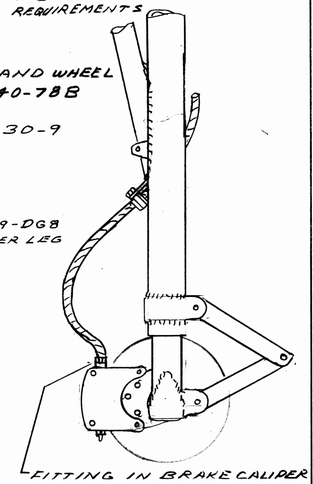
NOTE:
BRAKE LINES. USE NYLO-FLOW TUBING 3/16 DIA. FROM BRAKE CYL. TO WHEEL. USE DWG. BELOW FOR LINE ROUTING.



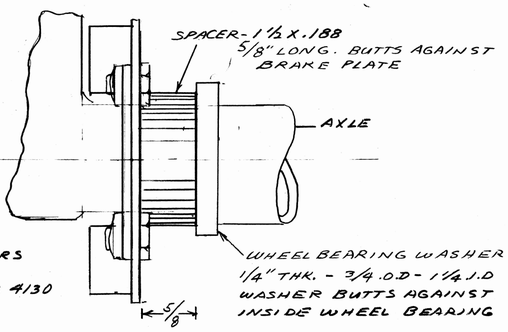
LINE BREAKS ON EA. SIDE OF NOSE GEAR TUNNEL JUST IN FRONT OF MAIN SPAR. USE BRASS NYLA-FLOW FITTINGS WITH 3/16 NYLO FLOW LINES
SEE DWG. NO 24 FOR FITTING REQUIREMENTS

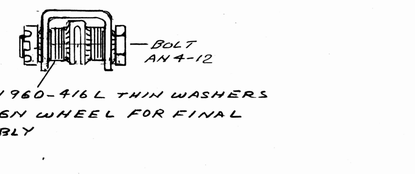
CLEVELAND WHEEL
MODEL 40-78B
5 x 5.00
BRAKE 30-9

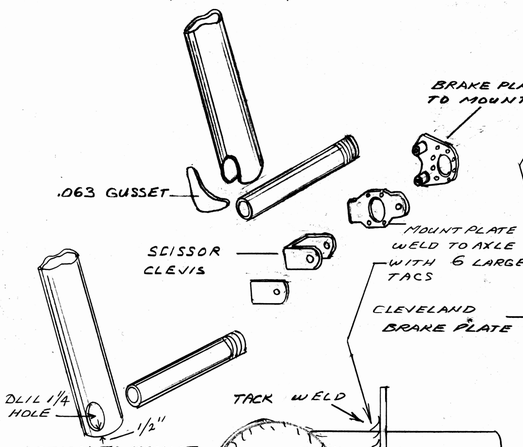
CLAMP
MS 21929-DG8
2 REQ PER LEG

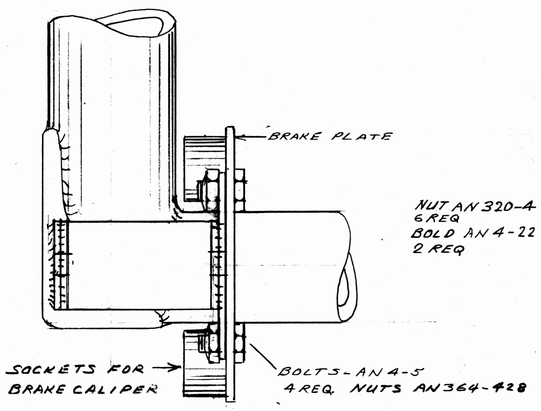


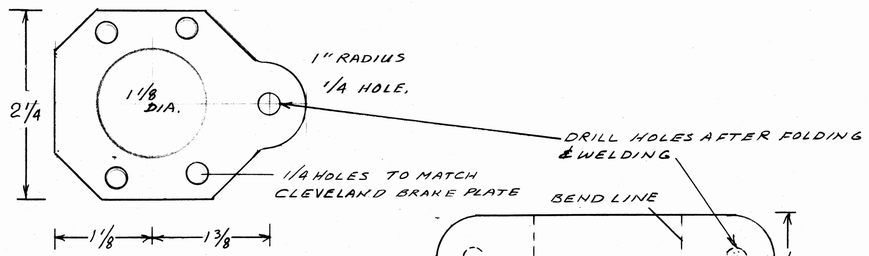
FITTING IN BRAKE CALIPER
BRASS NYLOFLOW 268P-0302







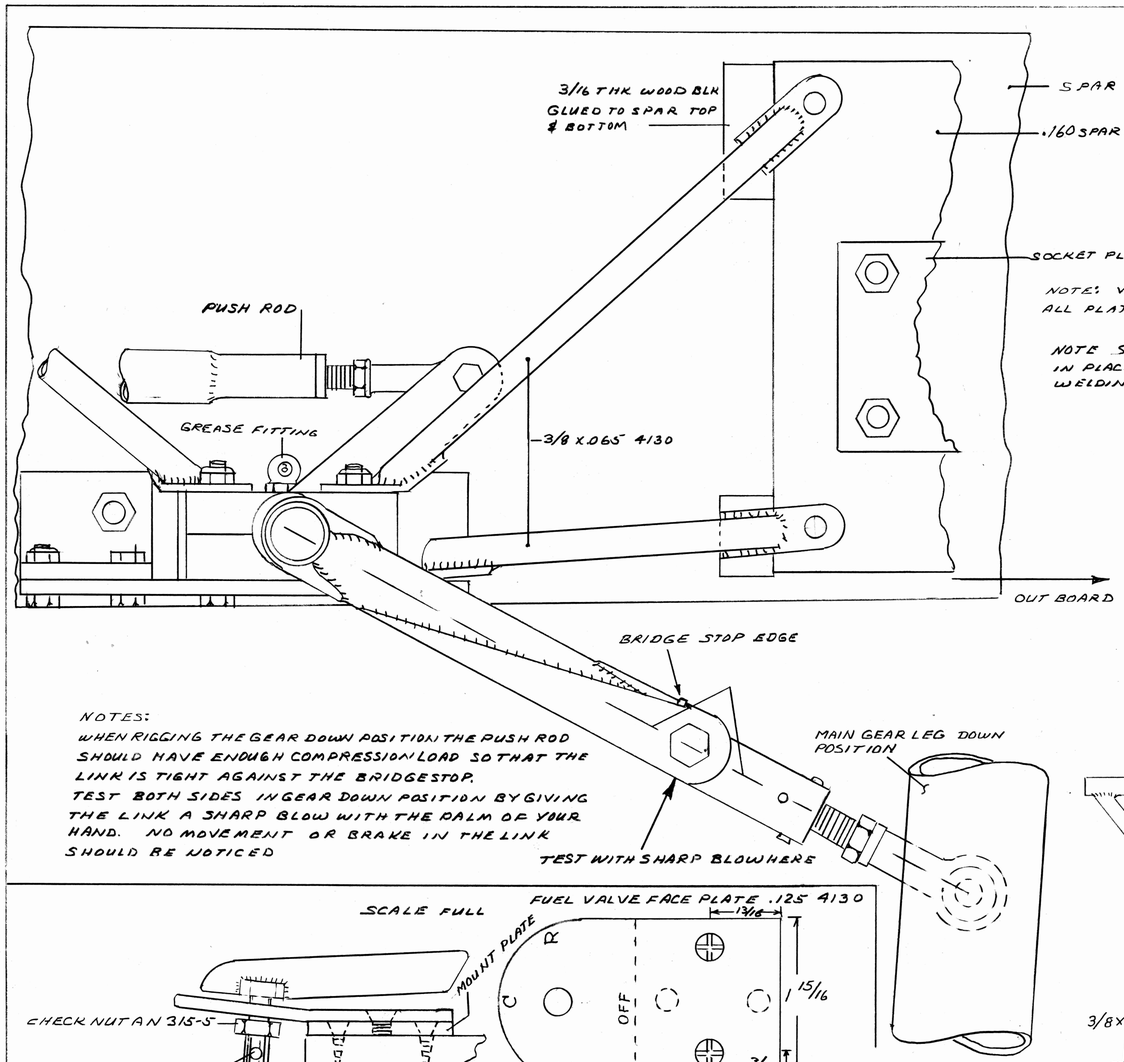




S/N 703 Sam Raterree

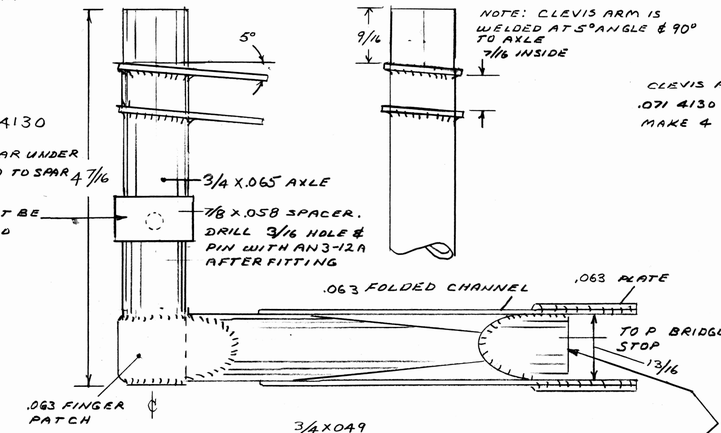
GP4 ©1985 OSPREY AIRCRAFT

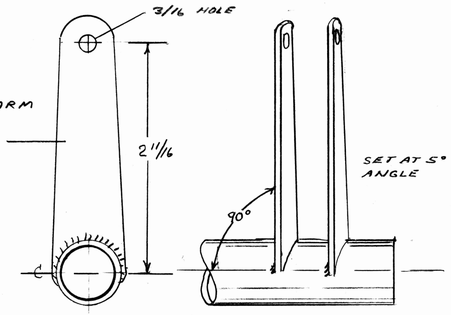
LANDING GEAR LOWER LEG, SCISSORS
DESIGN: OSPREY AIRCRAFT
SCALE: 1/10, 3"=1', FULL
DWG. NO 34



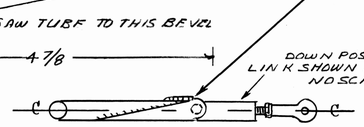
NOTES:
WHEN RIGGING THE GEAR DOWN POSITION, THE PUSH ROD SHOULD HAVE ENOUGH COMPRESSION LOAD SO THAT THE LINK IS TIGHT AGAINST THE BRIDGESTOP.
TEST BOTH SIDES IN GEAR DOWN POSITION BY GIVING THE LINK A SHARP BLOW WITH THE PALM OF YOUR HAND. NO MOVEMENT OR BRAKE IN THE LINK SHOULD BE NOTICED

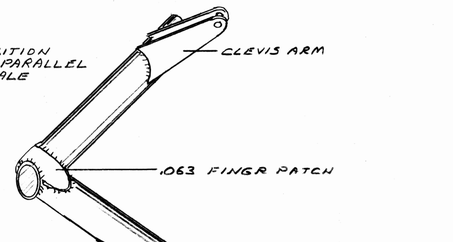
RETRACTING LINK & AXLE MAKE LEFT & RIGHT
RIGHT SHOWN

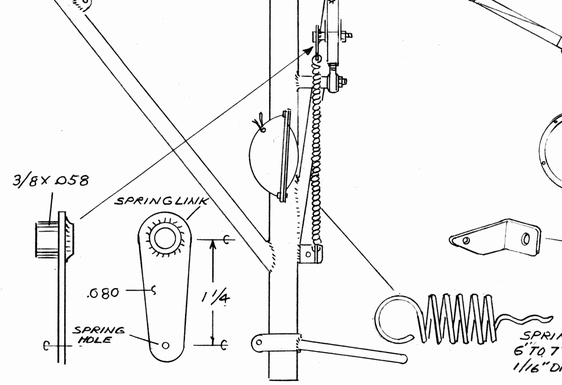




FILE BRIDGE STOP UNTIL LINKS ARE PARALLEL WHEN BOLTED

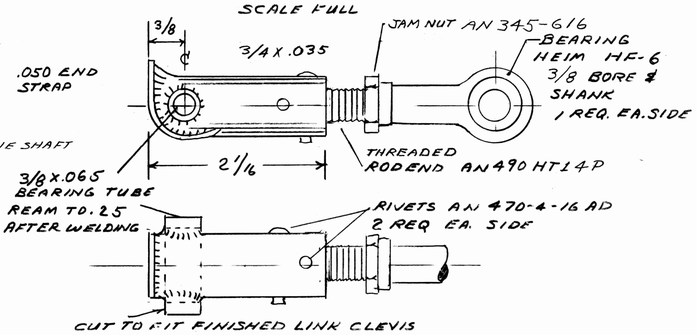


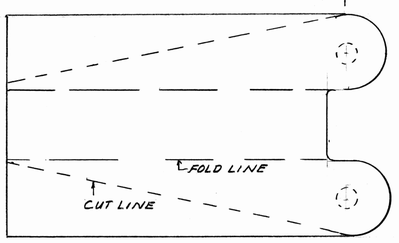




SPRING IS APPROX 5/8 DIA 6 TO 7" LONG. WIRE SIZE ABOUT 1/16" DIA. HARDWARE STORE ITEM

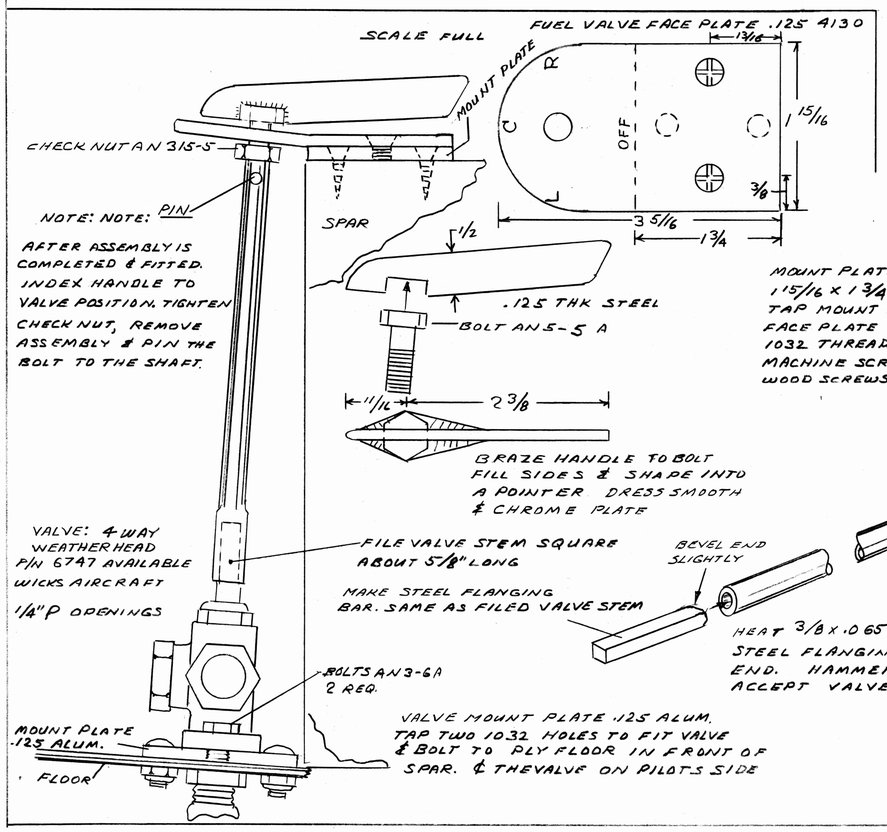
SHORT LINK MAKE 2
SCALE FULL





FOLDED CHANNEL .063 4130. FOLD PRIOR TO CUTTING & DRILLING. INSIDE MEASURE AFTER FOLDING IS 13/16 2 REQ.

SCALE FULL



MOUNT PLATE: .125 ALUM.
1 15/16 X 1 3/4
TAP MOUNT PLATE FOR FACE PLATE MACHINE SCREWS 1032 THREAD
MACHINE SCREWS - MS 24693-S269 2 REQ.
WOOD SCREWS NO 8 X 3/4 2 REQ.

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RETRACTING LINK: HEAT TREAT
MAKE LEFT & RIGHT: RIGHT SHOWN
DESIGN: OSPREY AIRCRAFT
SCALE: FULL
DWG. NO. 35

S/N 703 Sam Raterree

BOLT AN4-61 2 REQ. EA. SIDE
NUT AN365-428 12 REQ. EA. SIDE

BOLTS AN4-54A 4 REQ EA. SIDE

BOLT AN4-52A 2 REQ. EA. SIDE

BOLT AN4-51A 2 REQ. EA. SIDE

DRILL ALL HOLES 90° TO AFT FACE OF SPAR

90°

.050 4130 BACK PLATE SCREW TO SPAR NO. 6 X 1/2

ALUM BUSHINGS 3/8 O.D X 1/4 I.D. 1/2" LONG 14 REQ. EA. SIDE

CUT HOLES IN SPAR WEB TO ACCEPT ANCHOR NUTS. SPAR PLATE WILL THEN LAY FLUSH

.060 ALUM SPAR PLATE

ANCHOR NUTS MS21047-4 4 REQ.

3/16 ALUM ANGLE MOUNT BRACKET

9/16

1/4

1 1/2

.160 ALUM 6061 T-6 BEARING PLATE

3/8 X.065 DRILL I.D. TO 1/4"

BOLTS AN4-6A 4 REQ EA. SIDE

1/4

1/4 X.065

45° GREASE FITTING 4 REQ EA. SIDE

82° TO SPAR FACE

82° TO SPAR FACE

1 1/4

1/2

BOLT AN4-13A NUT AN365-428 2 REQ EA SIDE

LNDGEAR TRUSS

TAP FOR GREASE FITTING

1/4

1 1/2

1 1/2

BEARING HOLE 3/4 REAM ON ℄ REAR BEARING.

1/2" ALUM. BAR STOCK 6061 T6

1 7/8

COUNTER SINK FOR NO. 6 SCREW

.050 4130 BACK PLATE

HARD BRONZE BUSHING 1 1/8 O.D X 1 I.D. 1" LONG 2 REQ. EA. SIDE

MACHINE AS NECESSARY TO FIT TIGHT INSIDE SOCKETS

NOTE:
THE HARD BRONZE BUSHINGS MAY HAVE TO BE RELIEVED INSIDE UP TO .015 FOR FREE ROTATION OF AXLES. A CLOSE TOLERENCE FIT IS NOT NECESSARY IF IT TENDS TO BIND ON ROTATION.

BRONZE BOAT NAIL 3/4"

GRIND BOLT HEADS TO 1/8" THK. & BRAZE TO AN 970-4 WASHERS 10 REQ.

AN 970-4 WASHERS
DRILL 1/16" HOLE FOR BOAT NAILS

BRAZE BOLTS TO WASHERS AFTER GRINDING HEADS TO 1/8" THK.
COUNTER BORE FOR ALUM. BUSHINGS 11/16" DEEP. THEN COUNTER BORE WITH WASHER BIT AS SHOWN BELOW.
BOLT HEAD MUST BE FLUSH WITH SPAR FACE. (THE FUEL TANKS LAY FLAT AGAINST THE SPAR WEB)

PAINT WASHERS & BOLT ENDS & GLUE INTO RECESSED HOLES

SHARPEN EDGES

WASHER WIDTH

1/2

3/8 X.035 TUBE

NOTES
GREASE FITTING HOLES:
DRILL NO3 BIT SIZE THROUGH BUSHING SOCKET & BUSHING.
TAP 1/4 X 28 HOLE THROUGH BOTH.
BUSHING IS HELD IN SOCKET BY GREASE FITTING. GRIND OFF TAPPERED THREAD AS NECESSARY SO AXLE ROTATES FREELY.

3/8

1

.050 THK. STEEL MOUNT PLATE

NOTE: CLEVIS HAS TO MATCH HOLES IN LND. GEAR TRUSS 5" TO ℄ HOLES TOP & BOTTOM. DRILL AFTER FOLDING

3/32" MAIN GEAR ASSIST CABLE RUBS ON MICARTA BLK. DURING PART OF THE DOWN CYCLE

FEET BRACKETS .080 4130

3/8 X.065 ALL 3 BRACE TUBES

NO DEDAIL OF RETRACT ASSEMBLY SHOWN FOR CLARITY

BOLTS AN3-15A NUTS AN365-1032

3

1/2

3/8

REAR FACE OF SOCKET ℄

1 1/4 X.065" SOCKET

SOCKET PLATE .080 4130

2 1/2

6

3

SOCKET ℄ IS 3" TO BOTTOM OF SPAR AT THIS POINT

1 1/2

3/4

AN3-6A 4 REQ.

.080 NOTCH IN BOTTOM BEARING BLK. FOR FOOT MOUNT

1/2

2 1/4

5/8

BEARING ℄ AT SPAR

8 3/8

51

MAIN GEAR SOCKET ℄ IS 51" TO ℄ OF AIRCRAFT AT SOCKET BASE

OUT BOARD

FRONT BEARING 3/4" ALUM. 6061 T-6 BAR STOCK

1/2

3/16

1 1/2

1 1/2

3/4

2 5/8

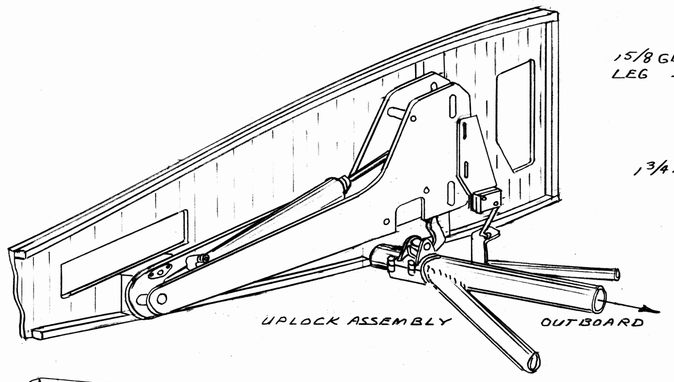
BOLT 1/2 X 3/4 BAR STOCK TOGETHER THEN DRILL & REAM 3/4" DIA. BEARING HOLE

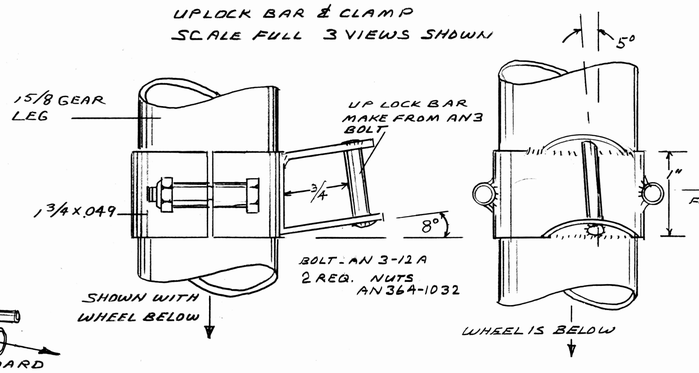
GP 4 © 1985 OSPREY AIRCRAFT

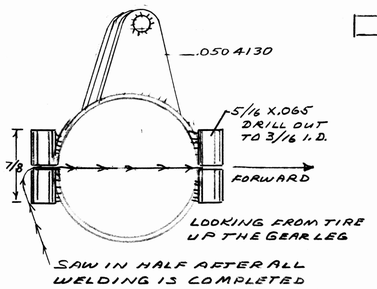
RETRACTING LINK ASSEMBLY
LEFT & RIGHT SIDE REQ. (RIGHT SHOWN)
DESIGN: OSPREY AIRCRAFT
SCALE: FULL
DWG. NO. 36

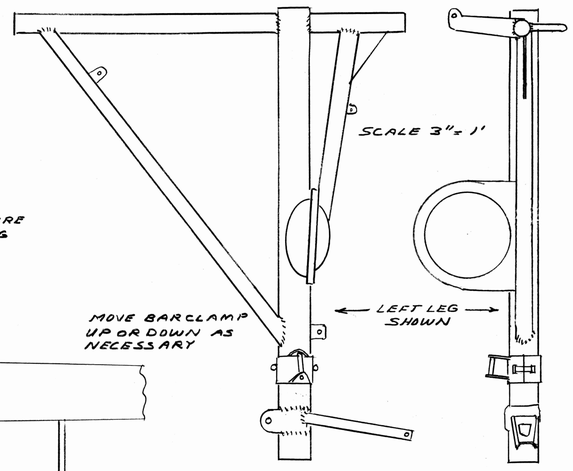
S/N 703 Sam Raterree

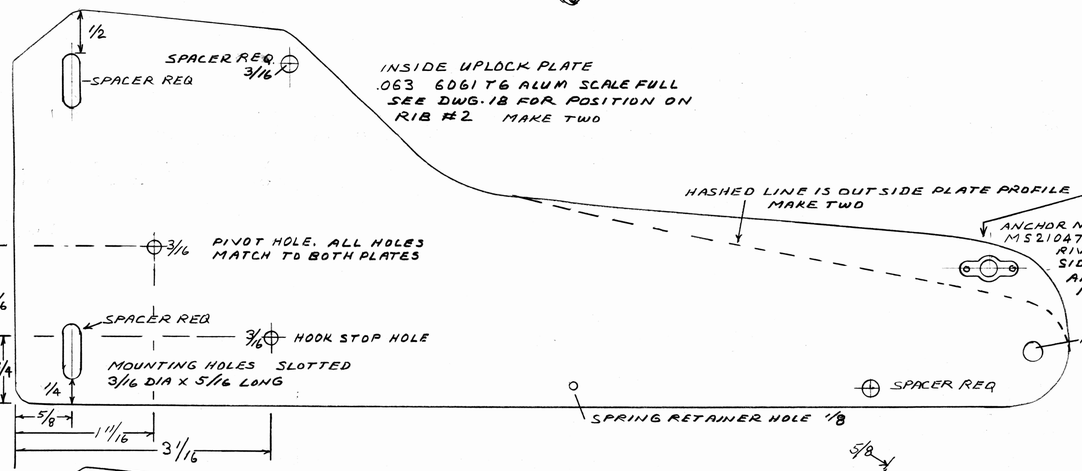
UPLOCK BAR & CLAMP
SCALE FULL 3 VIEWS SHOWN

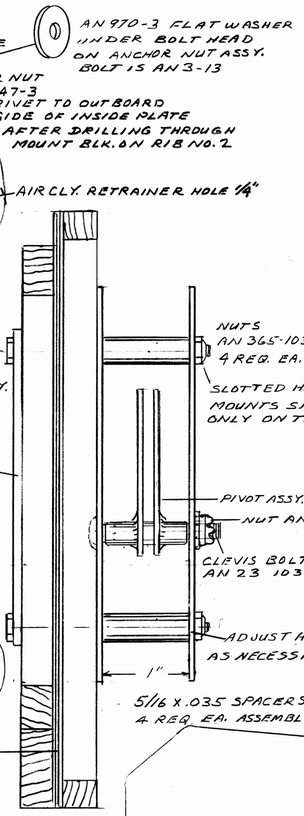


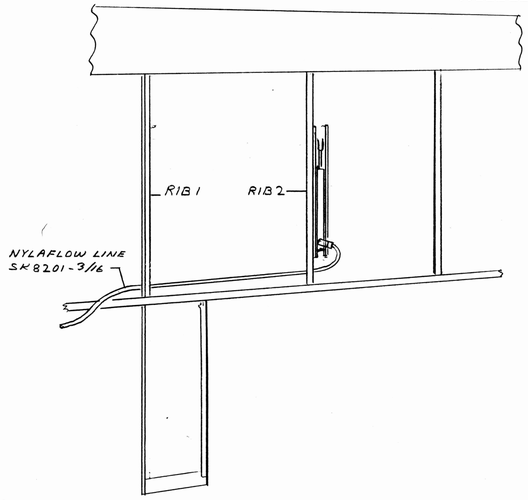












NOTES:

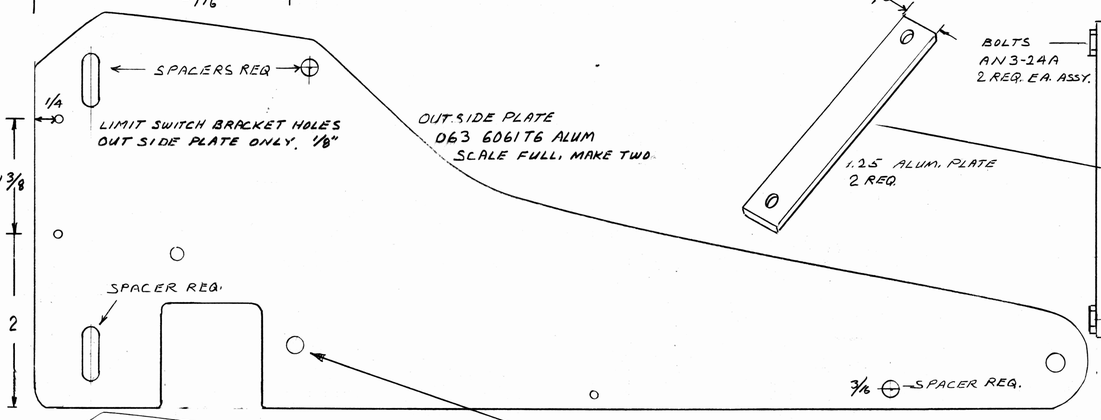
THE UPLOCK SYSTEM UTILIZES A SMALL AUTOMOTIVE AIR PUMP. TO PULL THE MAIN LND. GEAR UP INTO THE WHEEL WELLS. THE UPLOCK HOOK ROTATES TO AN ON CENTER POSITION LOCKING THE WHEELS UP. THE HOOK LIFTS THE GEAR ABOUT 5/8 OF AN INCH AFTER ENGAGING THE UPLOCK BAR. THE AIR PUMP IS STARTED ACTUATING TWO AIR CYLINDERS WHEN THE GEAR HANDLE IS PUSHED INTO THE UP-RECEPTICAL BETWEEN THE SEATS. THE AIR IS RELEASED DEACTIVATING THE CYLINDERS WHEN THE HANDLE IS PULLED OUT OF THE RECEPTICAL.

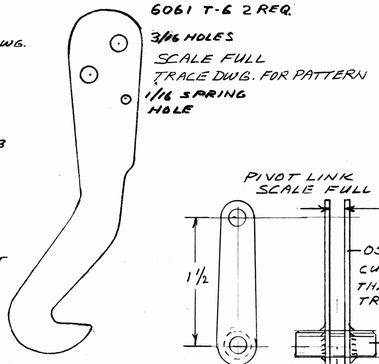
THE SYSTEM IS FAIL SAFE AS ANY RELEASE OF AIR UNLOCKS THE GEAR. POWER LOSS, AIR LEAK, ETC.

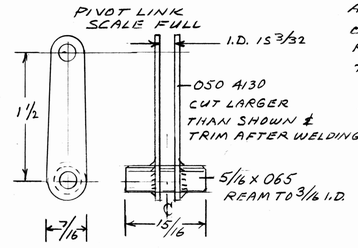
THE AERODYNAMIC DOWN LOAD ON THE MAIN GEAR REQUIRES AN UPLOCK SYSTEM DUE TO THE HIGH SPEEDS OF THE GP-4. THIS SYSTEM ALLOWS THE PILOT TO MAKE A NORMAL TAKE OFF, ACCELERATE UP AS HIGH AS 115, & RETRACT THE GEAR WITH ASSURANCE THAT THE UPLOCKS WILL ENGAGE AUTOMATICALLY.

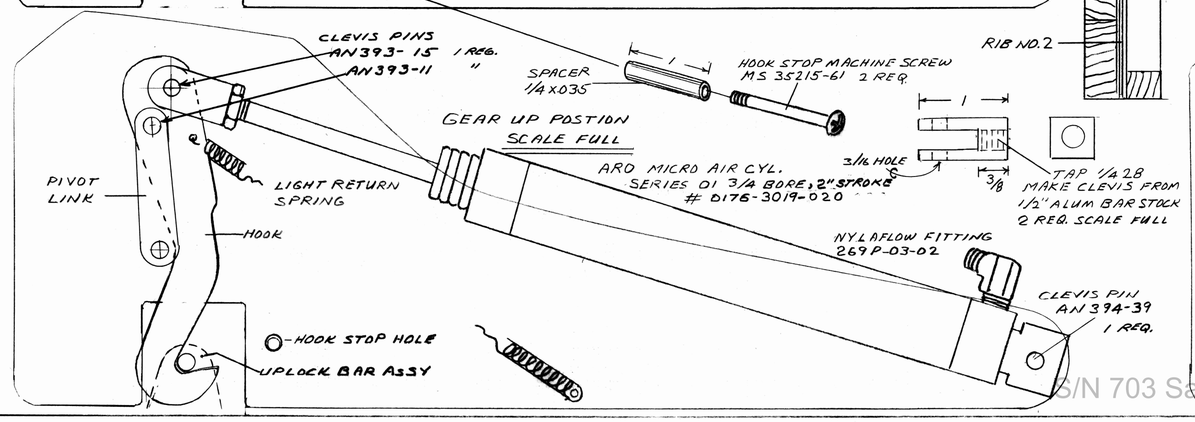
NOTE:

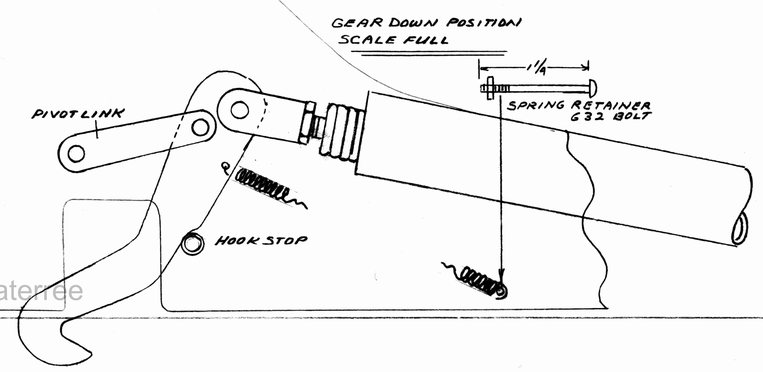
DWG. 56 SHOWS AN ALTERNATE WAY TO CLOSE THE INBOARD GEAR DOORS. USING THE UPLOCK AIR SOURCE. IT WORKS VERY WELL. ITS NOW USED ON THE GP-4 PROTOTYPE









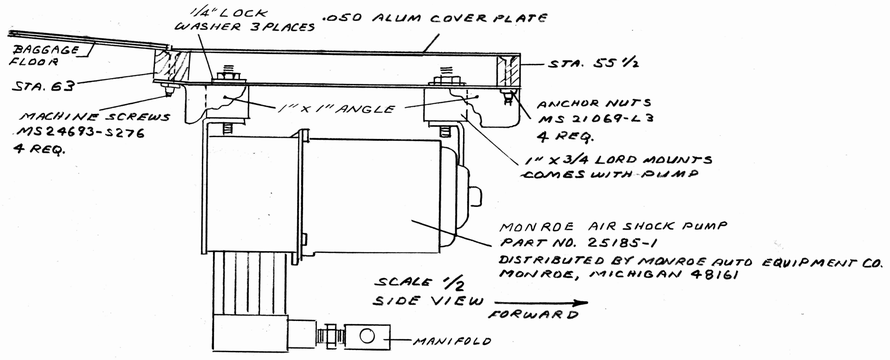


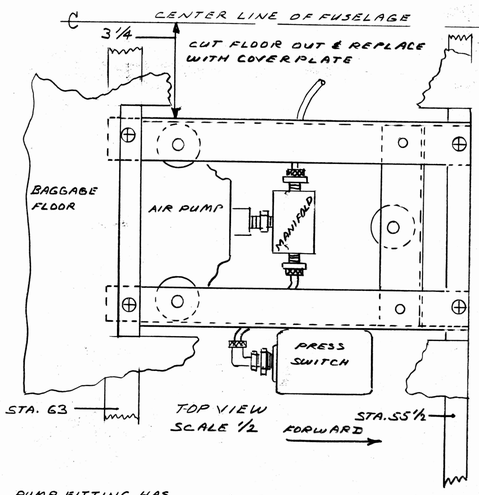
S/N 703 Sam Ratenee

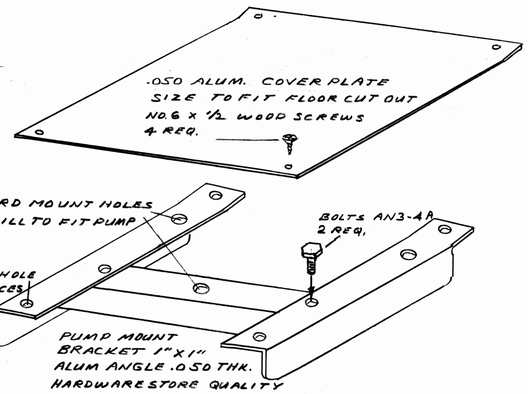
GP 4 © 1985 OSPREY AIRCRAFT

LND. GEAR UP LOCKS
AIR CYLINDER ASSEMBLY

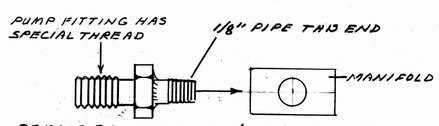
DESIGN: OSPREY AIRCRAFT
SCALE: 3"=1', 1 1/2"= 1', FULL
DWG. NO. 37



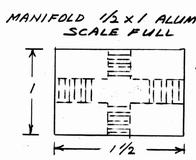


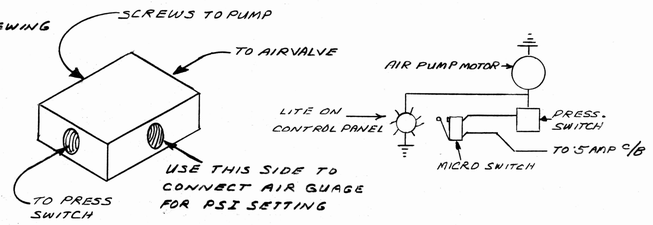


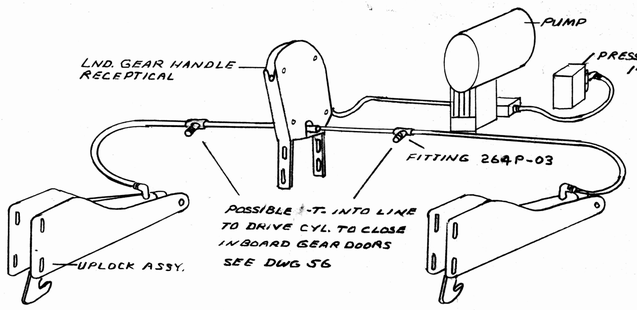
PRESSURE SWITCH
FURNAS PART NO. 69MB6
AVAILABLE AT AIRCOMPRESSOR REPAIR SHOPS
SWITCH CUTS IN AT 80 PSI & STOPS AT 100 PSI.
REMOVE COVER & ADJUST SCREWS TO CUT IN AT 100 PSI & OFF AT 120 PSI. USE PRESS. GUAGE THAT COMES WITH AIR PUMP. GUAGE IS NOT NECESSARY FOR FINAL INSTALLATION.
FURNAS PRESS SWITCH HAS FEMALE 1/4 PIPE OUTLET. USE 1/4 TO 1/8 PIPE BRASS REDUCER



REMOVE PUMP FITTING & MODIFY BY CUTING OFF END OF NYLAFLOW 268P-03X02 & SILVER SOLDER TO PUMP FITTING.
USE LOCK TIGHT CEMENT WHEN SCREWING BACK INTO PUMP





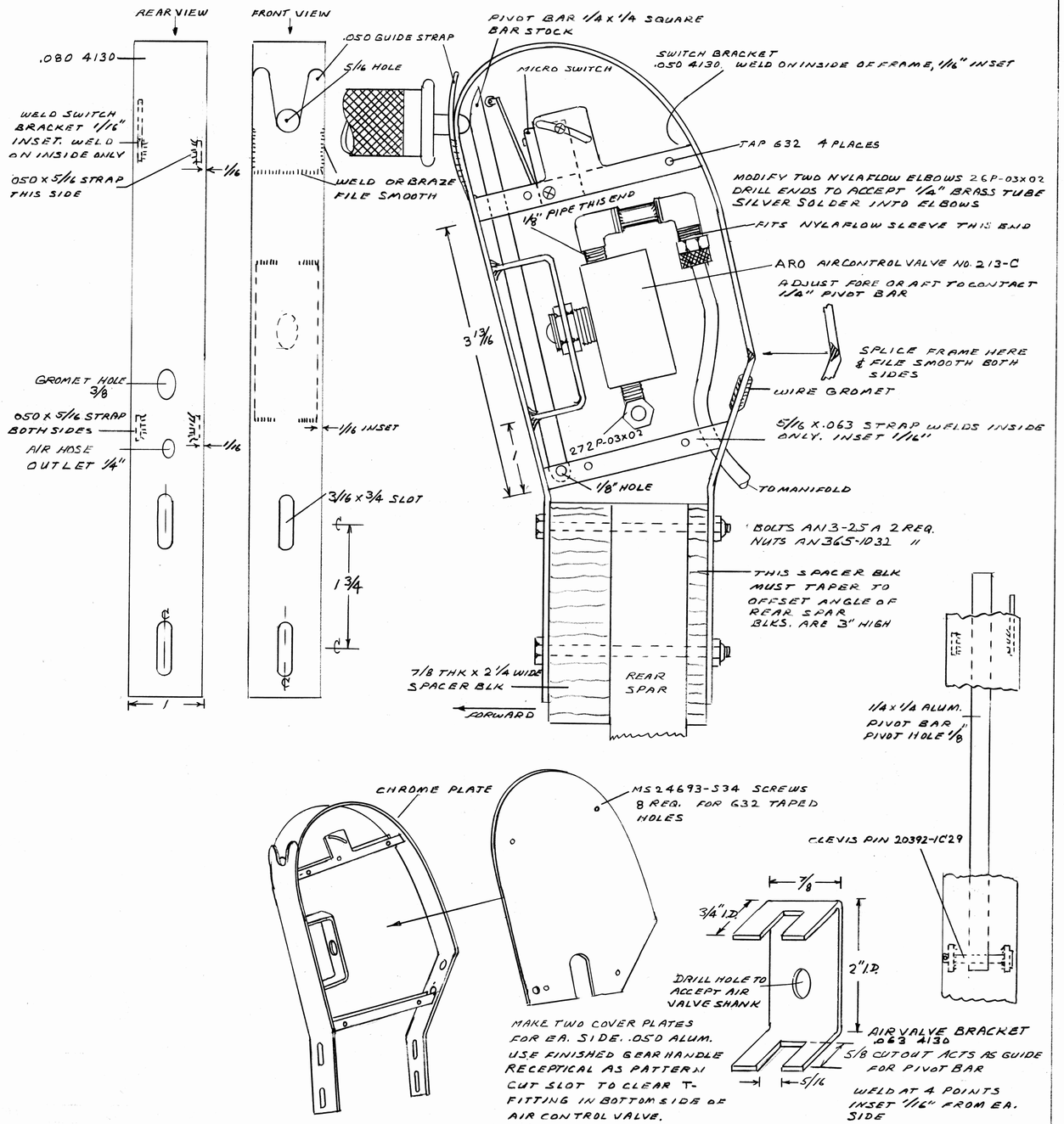


LIST OF NYLAFLOW FITTINGS REQ. FOR UPLOCK ASSEMBLY

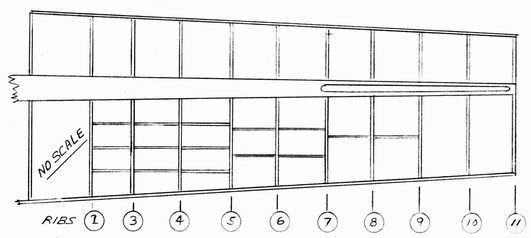
272P-03X02	1 EA.
268P-03X02	3 EA.
269P-03X02	5 EA.

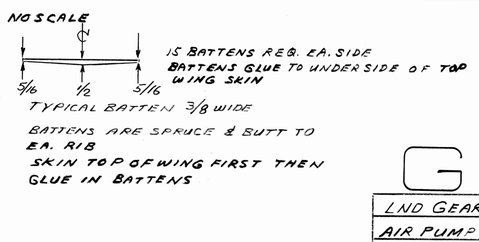
BRASS INSERTS 230X4 10 EA.
NYLAFLOW TUBING SKB201-3/16 15 FT.
NOTE: USE TEFLON TAPE ON ALL PIPE THREAD FITTINGS
BENCH PRESSURE CHECK ASSEMBLY

GEAR HANDLE RECEPTICAL
SCALE FULL



MAKE TWO COVER PLATES FOR EA. SIDE. .050 ALUM.
USE FINISHED GEAR HANDLE RECEPTICAL AS PATTERN
CUT SLOT TO CLEAR T-FITTING IN BOTTOM SIDE OF AIR CONTROL VALVE.

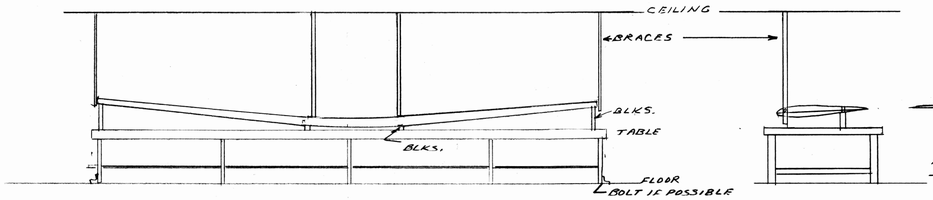




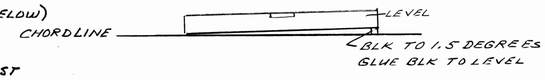
GP 4 © 1985 OSPREY AIRCRAFT

LND GEAR UPLOCKS	
AIR PUMP & VALVE ASSEMBLY	
DESIGN: OSPREY AIRCRAFT	
SCALE: FULL, 1/2	
DWG. NO. 37-A	

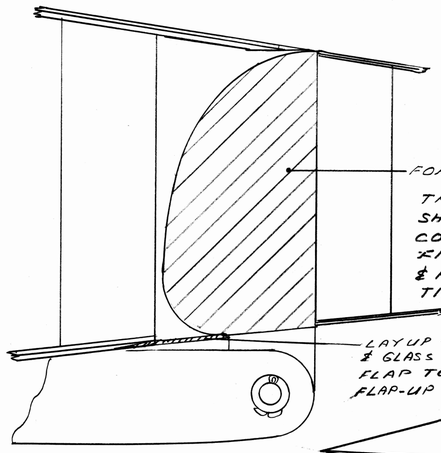
S/N 703 Sam Raterree



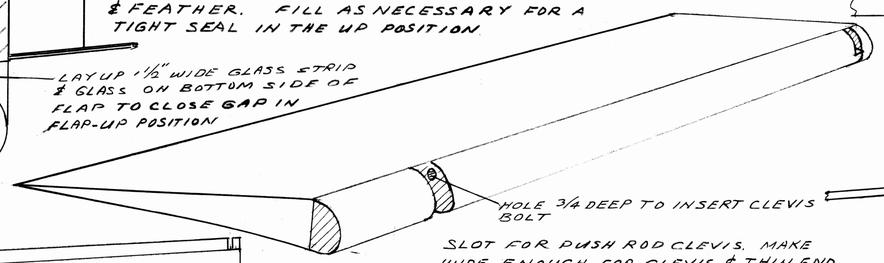
READ BUILDING INSTRUCTION **CAREFULLY**
IN SKINNING SEQUENCE: (SEE GLUING NOTE BELOW)



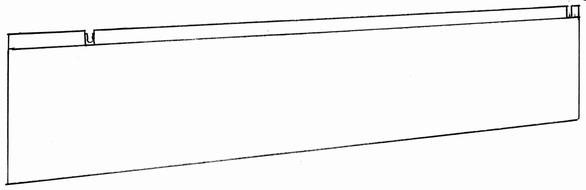
NOTE: SKIN TOP SIDE FIRST
WHEN GLUING THE WING SKINS TO THE STRUCTURE, LEAVE THE SKIN UNDER THE FUEL TANK AREA RAW WOOD. (RIB 1 THROUGH 9 & AFT SIDE OF MAIN SPAR) SPREAD THIS AREA WITH GENEROUS AMOUNTS OF GLUE AS WELL AS THE TANK FOAM AREA THAT MATES TO THE SKIN.
AFT OF THE MAIN SPAR THE UNDERSIDE SKINS GET VARNISHED EXCEPT OVER RIB CAPS, REAR SPARS ETC. WHEN ONE SIDE IS SKINNED IT IS EASY TO VARNISH THE INSIDE. THE FINAL SKIN MUST BE PREVARNISHED PRIOR TO GLUING TO THE STRUCTUR.
SEE PAGES 22, 23, 24, BUILDERS MANUEL FOR FURTHER DETAILS



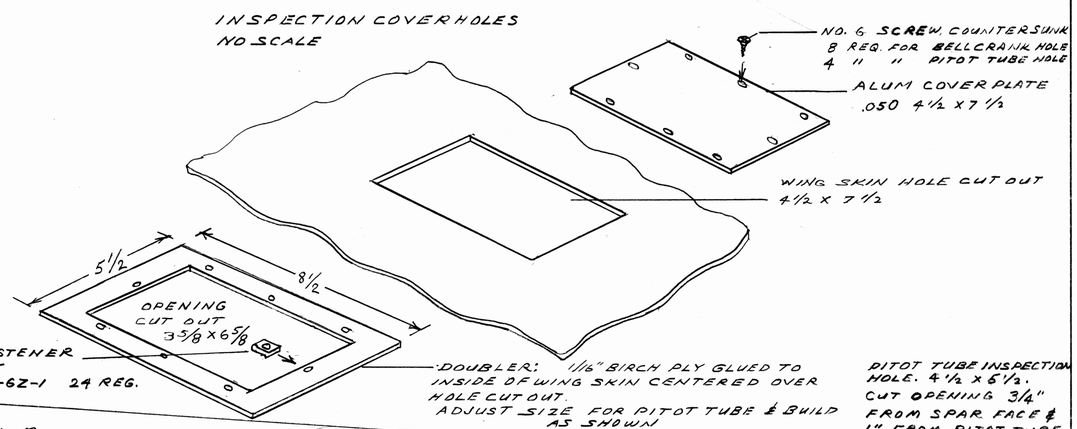
TAPER SLIGHTLY FROM BUTT END TO TIP. SHAPE OF NOSE PROFILE, NOT CRITICAL COVER FULL LENGTH WITH 3 TO 4 OZ FIBERGLASS. LAP ONTO FLAP SKIN 1 1/2" & FEATHER. FILL AS NECESSARY FOR A TIGHT SEAL IN THE UP POSITION

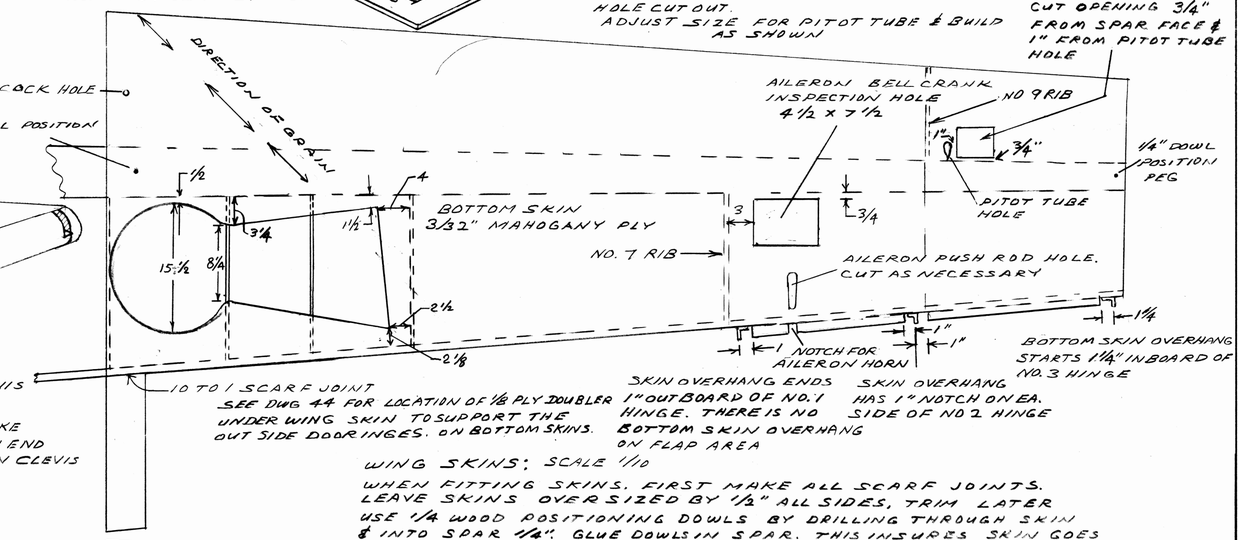


SLOT FOR PUSH ROD CLEVIS. MAKE WIDE ENOUGH FOR CLEVIS & THIN END WRENCH ON EA. SIDE TO TIGHTEN CLEVIS BOLT

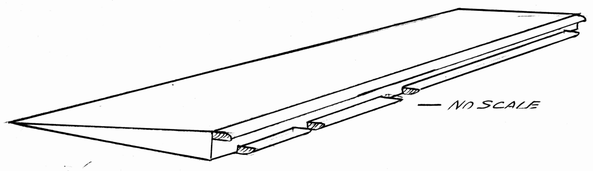


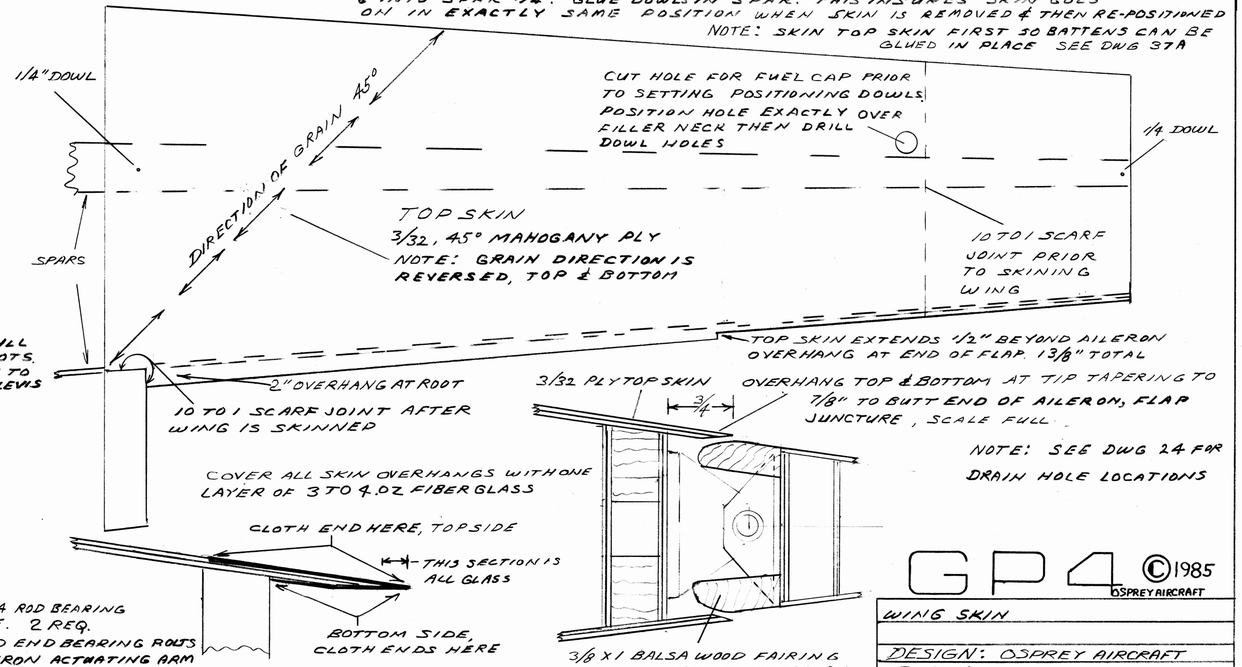
INSPECTION COVER HOLES
NO SCALE





WING SKINS: SCALE 1/10
WHEN FITTING SKINS, FIRST MAKE ALL SCARF JOINTS. LEAVE SKINS OVERSIZED BY 1/2" ALL SIDES, TRIM LATER
USE 1/4 WOOD POSITIONING DOWLS BY DRILLING THROUGH SKIN & INTO SPAR 1/4". GLUE DOWLS IN SPAR. THIS INSURES SKIN GOES ON IN EXACTLY SAME POSITION WHEN SKIN IS REMOVED & THEN RE-POSITIONED
NOTE: SKIN TOP SKIN FIRST SO BATTENS CAN BE GLUED IN PLACE SEE DWG 37A

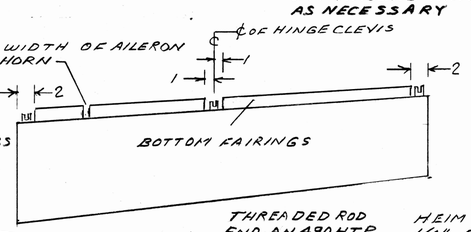




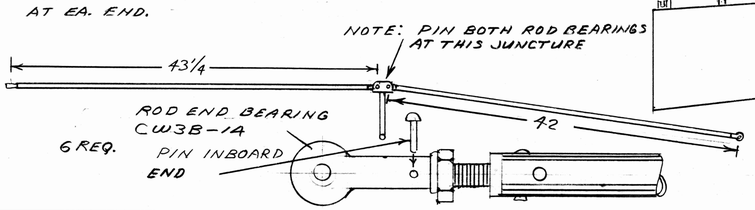
NOTE: SEE DWG 24 FOR DRAIN HOLE LOCATIONS

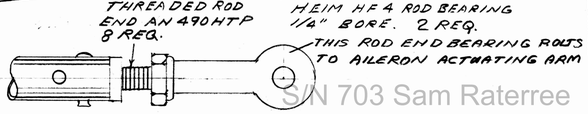
BOTTOM BALSA FAIRING: SCALE 1/10

TOP FAIRING IS FULL LENGTH WITH NO SLOTS. RELIEVE UNDERSIDE TO FIT AROUND HINGE CLEVIS AS NECESSARY



AILERON PUSH RODS:
1/2 x .035 4130 STEEL.
OUTBOARD ROD (42" LONG) USES 3/16 BORE ROD BEARING ON IN BOARD END & 1/4" BORE ON OUTBOARD END.
IN BOARD ROD (43 1/4 LONG) USES 3/16 BORE ROD BEARINGS AT EA. END.





S/N 703 Sam Raterree

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WING SKIN
DESIGN: OSPREY AIRCRAFT
SCALE: 1/10, FULL
DWG NO. 38

SIGHT GAUGE; WING TANKS

AN 818 4D
AN 815 4D
AN 818 4D
1/4" ALUM VERSITUBE
5/8 ALUM CHANNEL TRIM ONE EDGE TO 5/16 USE TABLE SAW WOOD CUTTING BLADE
NO. 6 x 5/8 FLATHEAD WOOD SCREW TOP & BOTTOM LONGERON
5/16
1/2 VINYL SIGHT GAUGE TUBING
FORWARD
NO SCALE
7
SPAR
FLOOR
TO DRAIN SUMP
3/8
CHANNEL CALIBRATED IN GALLONS OF FUEL
INSIDE SKIN
FLOOR
FLEX LINE AEROQUIP 303
CONNECTIONS AT BOTH END OF AEROQUIP HOSE REQUIRES.
AN 818 4D 2 EA, (4 TOTAL)
AN 815 4D 2 EA (2 TOTAL)

SIGHT GUAGE VENT LINE TUBE TO 1/4" VERSATUBE LINE FROM WING TIP. SEE DWG. 27
ROUTE 1/4" ALUM. TUBING DOWN FORE SIDE OF ALUM CHANNEL, AFT THROUGH SPAR WEBS TO 1/4" VERSATUBE UNDER SEAT AREA.
NOTE: IF FUEL GETS INTO VENT LINES INTO A LOW AREA THE LINE WILL NO LONGER VENT PROPERLY & WILL GIVE A FALSE READING. SEE DWG. 49 FOR DRAIN SUMP DETAIL

1/4 COPPER TUBE
SOFT SOLDER
3/8 COPPER TUBE
CLAMP AT BOTH ENDS
AN 818 4D
1/2" VINYL TUBE
FLOAT: CARVE FROM CLARK WHITE FOAM 6 TO 12 LB. DENSITY. (URETHANE-POLYESTER) AVAILABLE WICKS AIRCRAFT
5/8 ALUM CHANNEL
FLOOR
BRASS OR COPPER BRACKET
3/8 COPPER
1/4 "
SILVER SOLDER
AN 818 4D COUPLING
SOLDER 2 WIRES ACROSS TOP OF TUBE TO KEEP BEAD FLOAT FROM STICKING

NO 7 x 3/4 SCREW
DOUBLE CLAMP
1 3/4
C
SCALE FULL

NOSE WHEEL WELL ATTACH BRACKET 3/16 THK. ALUM ANGLE 1 1/4 x 2" MAKE L & R. (LEFT SHOWN) SCALE FULL
FRONT SIDE OF SPAR
POSITION BRACKETS ON INSIDE OF WHEEL WELL THEN USE SPAR PLATE 1/8" HOLES THROUGH SPAR AS DRILL GUIDE
3/4 x 1 3/8 UPRIGHT OF WELL WALL
3/8
1 1/4
1 3/4
9" LONG OVERALL

AN FITTINGS REQ TO PLUMB SIGHT GUAGES
AN 818-4D, 4 EA.
AN 819-4D 4 EA.
AN 815-4D 4 EA.

ALUM 1/4 O.D x 3/8 I.D BUSHING
BOLT AN3-14A 6 REQ
NUT AN365-1032 6 REQ
WASHER AN 970-3 6 REQ

REAR MAIN SPAR FITTING MAKE L & R. SCALE FULL
FRONT MAIN SPAR FITTING MAKE L & R SCALE FULL

INSIDE SKIN
LONGERON
2" UPRIGHT
OUTSIDE SKIN
SCALE FULL
5/8
BOLT AN 5-16A 2 REQ
BUSHINGS. ALUM.
1/4 O.D x 3/16 I.D
7/16 O.D x 5/16 I.D
9/16
REAR SPAR
AN 970-5 WASHER 2 REQ
1/8 BIRCH PLY WEDGE GLUED TO SPAR FACE BOTH SIDES
REAR SPAR
7/16 O.D x 5/16 I.D ALUM. BUSHING IS CENTERED IN SPAR & RUNS FULL SPAR WIDTH
MAIN WING SPAR
SPACE TO FIT INSIDE OF WHEEL WELL

NOTE: DRILL ALL SPAR PLATE HOLES WHILE PLATES ARE IN PLACE SEE NOTES
REAR SPAR ATTACH FITTING.
3/16 THK. 1 1/2 x 1 1/2 ALUM. ANGLE
6061 T-6 OR EQUIVALENT
MAKE R & L SCALE FULL

LOOKING FROM AFT OF FITTING LEFT SIDE NO SCALE
5/8
1 5/8
1 5/8
3/4
7/8
MS 24694-S60-22 REQ. PLUS 22 AN 365-1032 NUTS
ATTACH PLATE .090 STEEL (REAR SPAR SHOWN) 2 REQ.
DETERMINE HOLE BY DRILLING THROUGH 7/16 BUSHING IN REAR SPAR (WING MUST BE SET)
CROSS SECTION OF REAR SPAR. BUSHING
C
LOOKING FROM AFT OF FITTING LEFT SIDE NO SCALE
MAIN SPAR ATTACH PLATES SCALE FULL 4 REQ. .090 STEEL

3/4
1/2
1 1/2
1 1/2
1 1/2
3 3/4
2 7/8

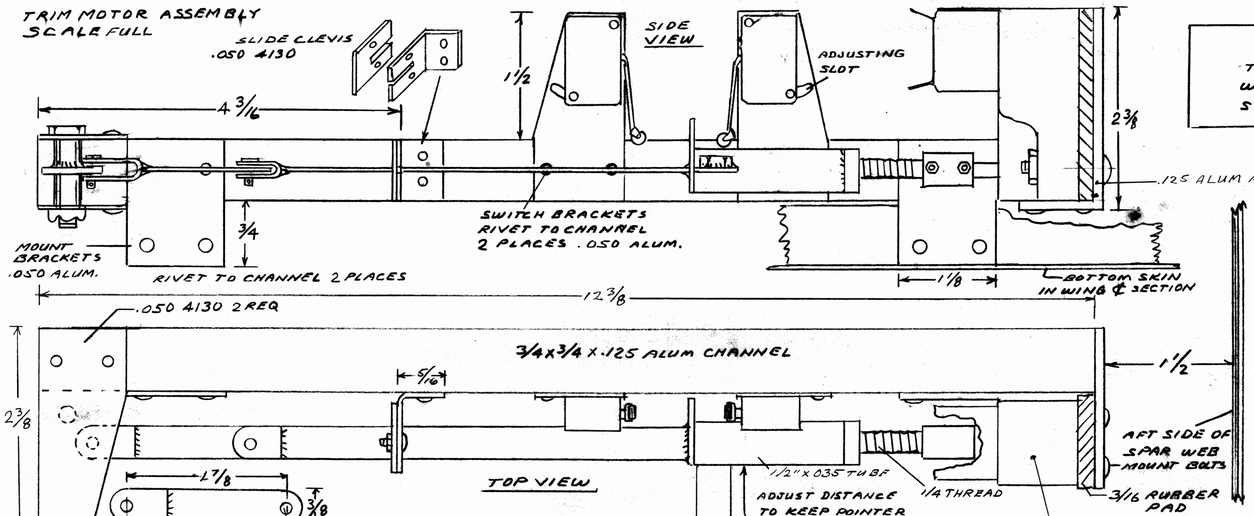
NOTES: (WING FITTINGS)
1. SET WING AT 1.5 DEGREES POSITIVE & LEVEL TIP TO TIP
2. POSITION FUSELAGE WITH DATUM 0 DEGREES & LEVEL. USE SEVERAL LAYERS OF RESIN SOAKED MAT UNDER LONGERON AT SPAR JOINT. USE WAX PAPER ON TOP OF SPAR.
3. AFTER RESIN SETS, MARK HOLE POSITION ON FUSELAGE SIDE & DRILL 1/4" HOLES. PRESS IN 1/4 O.D BUSHINGS. (USE DRILL GUIDE BLK.)
4. USE BUSHINGS AS DRILL GUIDE & DIMPLE ALUM. SPAR FITTINGS & .090 ATTACH PLATES.
5. DRILL PRESS FINISHED 3/16 HOLES TROUGH FITTINGS. COUNTER BORE STEEL PLATES & BRAZE MS 24694-S60 MACHINE SCREWS
6. USE SAME PROCESS THROUGH SPARS.
7. RESIN UNDER FITTINGS AT THE FUSELAGE SIDES & THE ℄ OF MAIN SPAR. BOLT FITTINGS PERMANENTLY IN PLACE BE FOR RESIN HARDENS.

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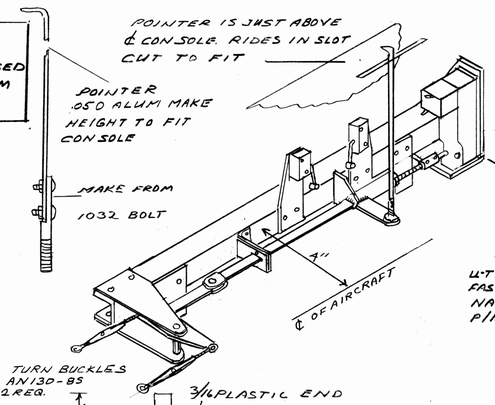
SIGHT FUEL GAUGE; WING ATTACH FITTINGS
DESIGN: OSPREY AIRCRAFT
SCALE: FULL
DWG. NO: 39

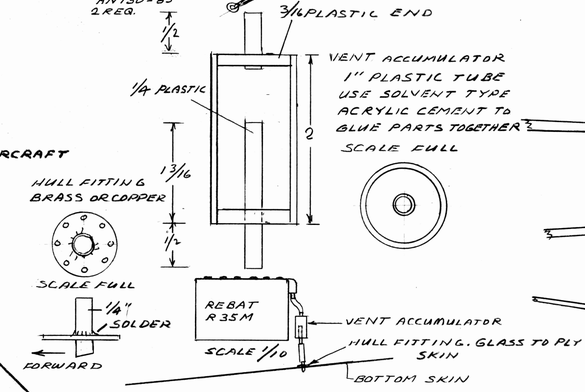
S/N 703 Sam Ratenee

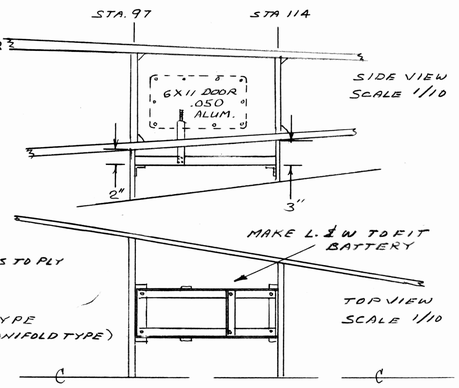
TRIM MOTOR ASSEMBLY
SCALE FULL

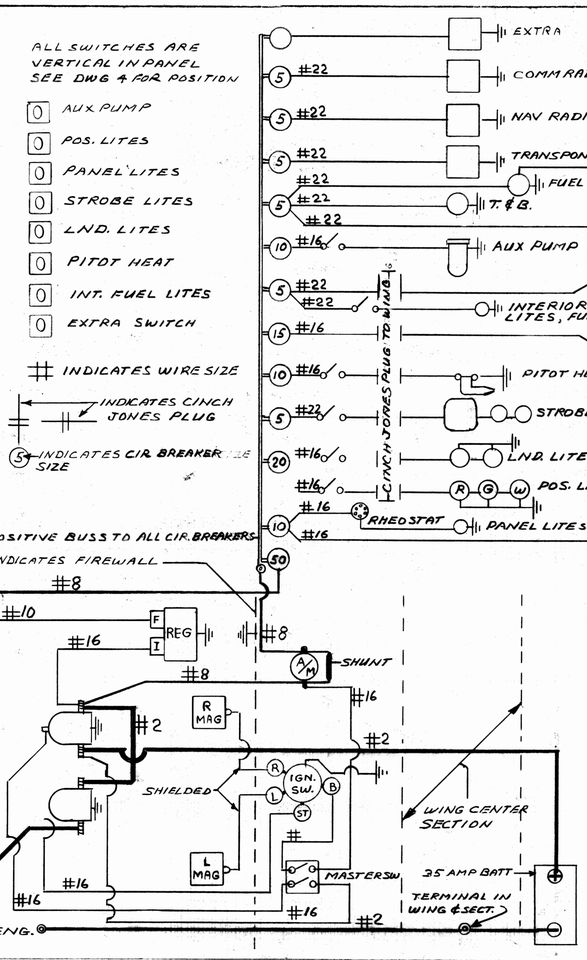


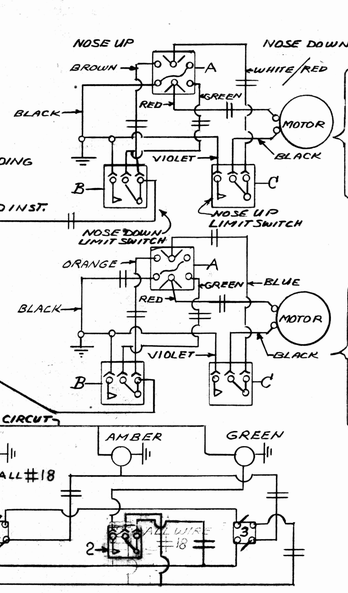
NOTE:
THIS TRIM ASSY. IS NOT USED WHEN USING THE MAC TRIM SYSTEM. SEE DWG. 11











TRIM TAB ELEVATOR WIRING DIAGRAM
A- DPDT CONTROL STICK SWITCH
B- SPDT MICRO SWITCH NORMALLY CLOSED TAB UP- NOSE DOWN LIMIT SWITCH
C- SPDT MICRO SWITCH NORMALLY CLOSED TAB DOWN- NOSE UP LIMIT SWITCH

FLAP SWITCH WIRING DIAGRAM
FLAP MOTOR ASSY IS FROM CESSNA 150 P/N C 301 002-0101
A- DPDT FLAP SWITCH ON INST. PANEL
B- SPDT LIMIT SWITCH - DOWN NORMALLY CLOSED
C- SPDT LIMIT SWITCH - UP NORMALLY CLOSED

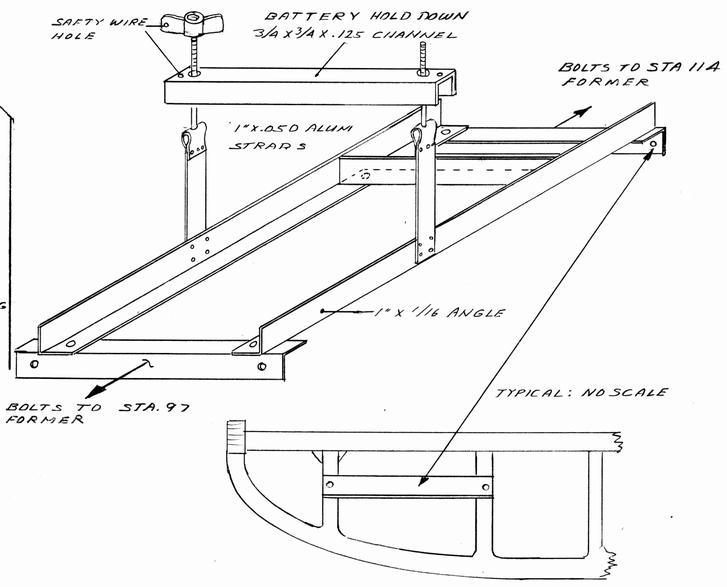
- ○ FLAP SWITCH SYSTEM REQ. 5 PIN CINCH-JONES PLUG
- ○ MAIN DETACH REQ. 6 PIN CINCH-JONES PLUG
- ○ GEAR LITE SYSTEM REQ 6 PIN CINCH-JONES PLUG
- ○ TRIM TAB SYSTEM REQ 5 PIN CINCH-JONES PLUG

SWITCHES 1 & 3 DPDT, (TOP) GEAR UP, SWITCH CLOSED - GEAR DOWN, SWITCH OPEN
1- AT RIGHT GEAR (BOTTOM) GEAR DOWN, SWITCH CLOSED - GEAR UP, SWITCH OPEN
3- AT LEFT GEAR

SWITCH 2, SPDT, (TOP) DEPRESSED, CLOSED - FREE, OPEN
AT RETRACT HANDLE (BOTTOM) DEPRESSED, OPEN - FREE, CLOSED

GEAR UP & LOCKED, SHOWS RED ONLY - GREEN OFF AT RETRACT SWITCH, AMBER OFF AT GEAR
EITHER SIDE NOT LOCKED UP, AMBER SHOWS ONLY
GEAR DOWN & LOCKED, SHOWS GREEN ONLY. AMBER OFF AT RETRACT SWITCH, RED OFF AT GEAR
DURING RETRACTION, AMBER SHOWS, GREEN OFF AT RETRACT SWITCH, RED OFF AT GEAR

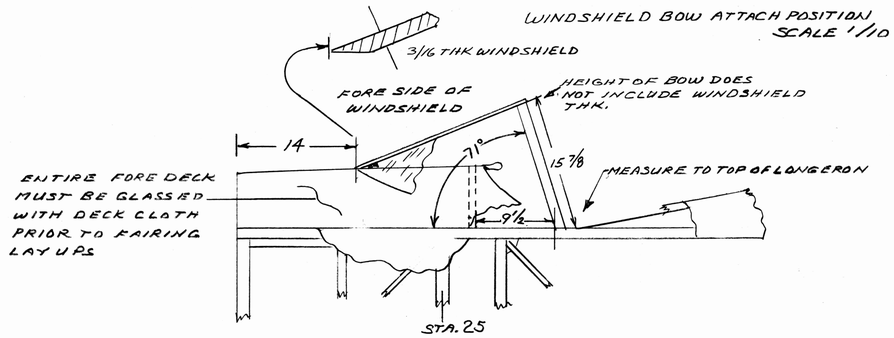
GEAR DOWN - IF GREEN & RED SHOW, BOTH SWITCHES OPEN
" " - IF GREEN & AMBER SHOW, RETRACT SWITCH OPEN
GEAR UP - IF RED & AMBER SHOW, ONE GEAR SWITCH OPEN
" " - IF RED & GREEN SHOW, RETRACT SWITCH OPEN

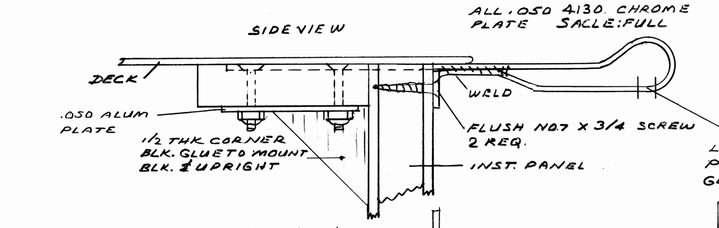


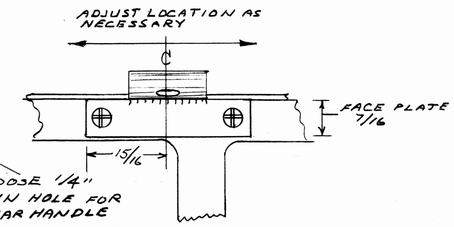
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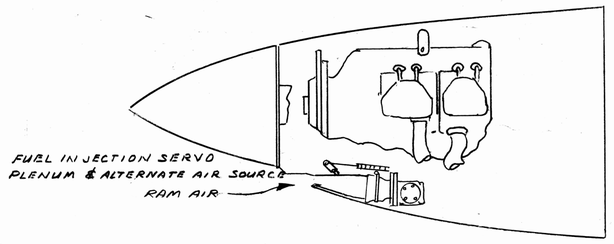
WIRING DIAGRAM, BATTERY INSTALLATION
TRIM MOTOR ASSEMBLY
DESIGN: SCOTT KEMPER (WIRING DIAGRAM)
SCALE: FULL
DWG. NO. 40

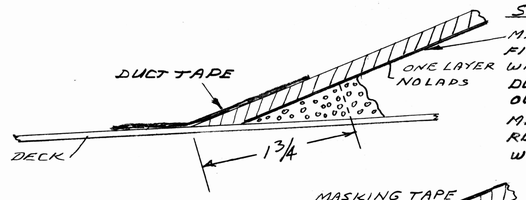
S/N 703 Sam Ratcliffe







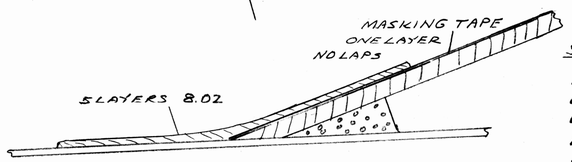




STEP 1

MASK INSIDE OF WINDSHIELD AFTER FITTING TO DECK & BOW. WAX TAPE WITH MOULD RELEASE WAX. DUCT TAPE WINSHIELD IN POSITION ON OUT SIDE

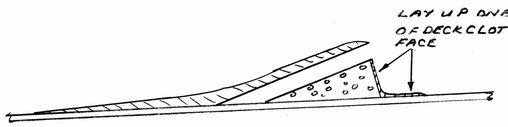
MAKE SLURRY OF MICROSPHERES & HOT RESIN. FILL AS SHOWN ALL AROUND PERIMETER WHEN DRY, REMOVE SHIELD & TRIM ABOUT 1 3/4



STEP 2

MASK OUTSIDE OF WINSHIELD UP AT LEAST 3" & WAX. NOTE: COVER UNMASKED AREA WITH SARAN WRAP FOR PROTECTION.

LAY UP 5 LAYERS OF 8.0z CLOTH AROUND OUT SIDE PERIMETER (ALL LAYERS SINGLE WETTING)



STEP 3

REMOVE WINDSHIELD & TRIM FAIRING AS SHOWN

NO SCREWS ARE NECESSARY AROUND DECK PERIMETER.

FINAL WINDSHIELD IS SET IN SILACONE SEALENT

NOTES:

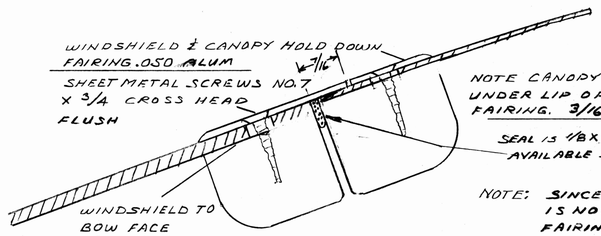
WINDSHIELD BOW MUST BE BEVELED AS NECESSARY TO MEET UNDER FACE OF WINDSHIELD.

USE C CLAMPS TO HOLD ALUM FAIRING IN PLACE THEN DRILL 1/16" HOLE THROUGH FAIRING & PLEXIGLAS SPACED 3" ON ℄.

REMOVE & DRILL COUNTER SUNK HOLES FOR NO 7 SCREWS IN FAIRING

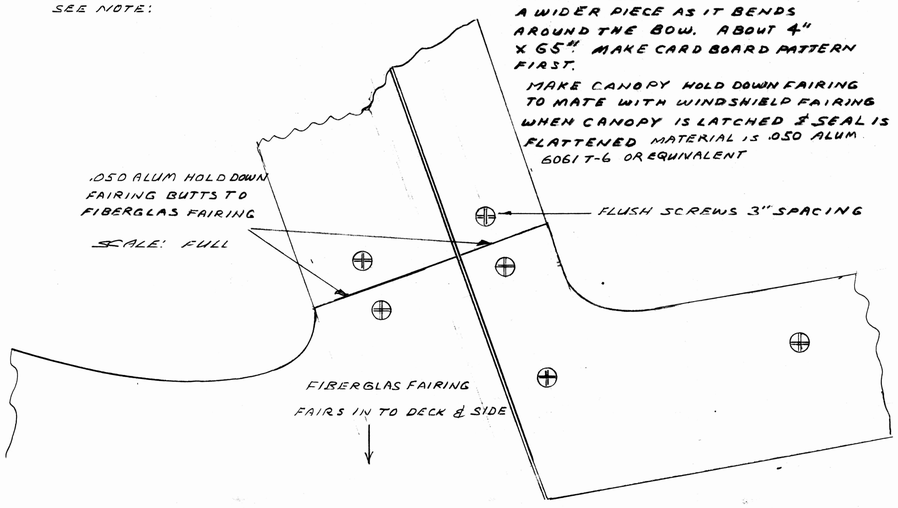
ENLARGE HOLES IN PLEXIGLAS TO 5/16" USE PLEXIGLAS DRILL BIT.

TO FIT USE A 1/2" NO 7 WOOD SCREW. REPLACE WITH 3/4" NO 7 ON FINAL ASSEMBLY



NOTE: SINCE WINSHIELD & BOW FACE IS NOT 90° THE HOLD DOWN FAIRING MUST BE MADE FROM A WIDER PIECE AS IT BENDS AROUND THE BOW. ABOUT 4" x 65". MAKE CARD BOARD PATTERN FIRST.

MAKE CANOPY HOLD DOWN FAIRING TO MATE WITH WINDSHIELD FAIRING WHEN CANOPY IS LATCHED & SEAL IS FLATTENED MATERIAL IS .050 ALUM 6061 T-6 OR EQUIVALENT



FINAL ASSEMBLY

BOWS MUST BE FINISH PAINTED

DECK UNDER WINDSHIELD FINISH PAINTED, MAG COMPASS FITTED

CANOPY FRAME FINISH PAINTED

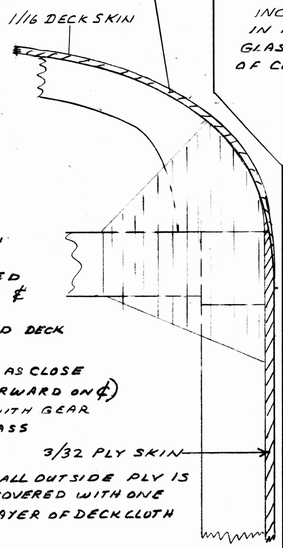
YOU CAN NOW PUT WINDSHIELD & CANOPY TOGETHER.

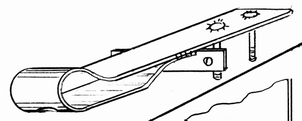
USE SILACONE SEALER AROUND DECK PERIMETER

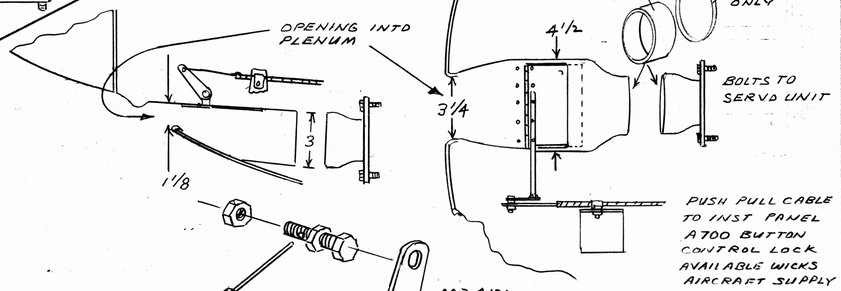
CAUTION: MOVE MAG. COMPASS AS CLOSE TO WINDSHIELD AS POSSIBLE (FORWARD ON ℄) TO MINIMIZE COMPASS ERROR WITH GEAR HANDLE SO CLOSE TO THE COMPASS

TYPICAL CROSS SECTION OF FUSELAGE SIDE SKIN

GLUE 3/32 PLY ON SIDES INTO A FAIR CURVE







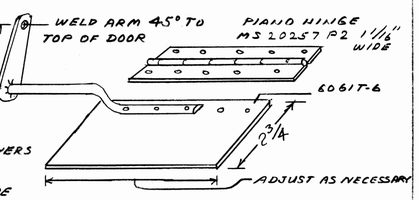
NOTES:

THE SHAPE OF THE AIR INTAKE PLENUM REDUSES THE VELOCITY OF INCOMING RAM AIR THUS INCREASING THE PRESSURE. THIS GIVES A SMALL INCREASE IN MANIFOLD PRESSURE.

ALTERNATE AIR IS DRAWN FROM INSIDE THE COWLING FOR TAXIE OPERATION OR WHEN DUSTY FLIGHT CONDITIONS EXIST. IT IS ALSO RECOMMENDED IN ICING CONDITIONS.

IF THE PLENUM CHAMBER IS NOT AVAILABLE IT CAN BE MADE BY SHAPING A SOLID BLOCK OF FOAM & COVERING WITH 3 LAYERS OF 8 OZ CLOTH WELL RESINED.

DIG OUT THE FOAM & SAND THE INSIDE SMOOTH. CARE SHOULD BE TAKEN TO INSURE A SMOOTH TRANSITION OF AIR FLOW THROUGH THE PLENUM CHAMBER. USE ROUNDED CORNERS ON ALL SIDES OF THE COWLING INTAKE. TRY TO STAY AWAY FROM SHARP CORNERS ANYWHER THAT THE AIR IS TRAVELING.



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WINDSHIELD; GEAR HANDLE LOCKS, SERVO PLENUM
DESIGN: OSPREY AIRCRAFT
SCALE: 1/10, FULL
DWG: NO. 41

S/N 703 Sam Raterree

NOSE GEAR DOOR

SCALE 1/10

ROUTE OUT RECESS 1/8 DEEP X 1/4 WIDE FOR NOSE GEAR DOOR

5/8 X 2 3/4 RECESS

ROUTE SLOT FOR DOOR HINGES

SHOWN UPSIDE DOWN HERE

NOTE: DOOR CUT TO FIT OPENING SCALE 1/10

3/32 PLY

6 1/2

25 1/4

3/32 PLY TOP

1/2 FOAM CAP (GLUE ON DOOR)

ALLOW 3/8 LIP ALL SIDES

HOLLOW OUT FOR NOSE TIRE IF NECESSARY & RE GLASS

ESTABLISH CAMBER FORE & AFT TO FIT BOTTOM RECESS AS NECESSARY FORE & AFT CURVE IS VERY SLIGHT!

TABLE

STAPLE ℄

COVER FOAM & LIP 1 LAYER 8.02 FIBERGLASS AFTER SETTING CAMBER COVER BOTTOM 1 LAYER 8.02 AFTER TOP LAYER SETS.

5 X 11

10

5 X 11

2

6 3/4 X 19 1/2 BOTTOM COVER PLATE. .040 ALUM.

FLUSH BUTT JOINT AT FORMERS 54 1/4 B 25

5 3/4

5

4 4

℄

SCALE 1/10

ALLOW 3/4 TO 1" CLEARANCE BETWEEN TIRE & WELL

3/16

1/16 PLY BOTTOM COVER

NOTE: ALLOW 3/16 GAP FOR MATING 1/16 PLY WING CENTER SECTION TO BUTT AGAINST. THIS GIVES FUSELAGE & WING JUNCTURE A FLUSH JOINT.

WING CENTER SECTION PLY OVER LAPS FORMER

STA. 54 1/4 B

BUTT JOINT

1/16 PLY

STA. 55 1/2 B

SCALE FULL

FUEL LINE FITTING AN 816-6D 2 REQ

ATTACH BRACKETS INSIDE TUNNEL

1/16 SKIN

TYPICAL PLATE INSTALATION THROUGHOUT

1/16 BIRCH PLY DOUBLER GLUES TO 1/16 SKIN

TINNERMAN NUT NAS 395 A1784-6Z1

STA FORMER 55 1/2 B

3/16 GAP AREA

ELECTRIC FUEL PUMP COVER .040

.040 ALUM PLATE

NO. 6 SHEET METAL SCREW (FLAT)

.040 ALUM

STA. FORMER 25

3/16 GAP

ACCESS HOLE TO FUEL SIGHT GUAGE FITTING

SLOT FOR FUEL LINE FITTING (AN 816-6D) AS WING SLIDES INTO POSITION

FUEL LINE FROM VALVE SIDE TO AUX PUMP SIDE

FORMER IS SAME CONTOUR AS STA. 25

FORMER IS SAME CONTOUR AS STA. 55 1/2 B

3/16 HOLE

COUNTER SINK FOR NO 8 FLAT SCREW 3/4" LONG

5/8

2 3/4

15/16

1 1/8

MAKE FRONT & REAR HINGE FRONT SHOWN .050 4130 SCALE FULL

PIANO HINGE MS 20257P4 1 1/2 x 16 LONG FOR GEAR DOOR

3/4" GEAR DOOR BATTEN

3/32 SKIN

SPAR

RIB NO. 1

3/32 SKIN

3 1/2

2 15/16

.050 4130

RETRACTING ARM REAR HINGE BRACKET ONLY

DOOR HINGE .050 4130 SCALE FULL. MAKE FRONT & REAR

WELD 3/16 PIN

15/16

3/32 PLY DOOR

1/8 COUNTER SUNK RIVET 4 PLACES

FOAM WILL COVER HINGE BRACKET

RETRACTING ARM ON REAR HINGE ONLY

2

2

1

GEAR DOOR BATTEN 3/4 x 2 1/2 SPRUCE SCALE 3" = 1'

8

1 1/4 DIA

2 1/8

6 1/2

1 7/8

1 1/2

1 3/8

1/2

NOTCH FOR SPAR

SPAR

NOTCH FOR REAR SPAR

10

30 1/4

BRIDGE BLK. EA. BATTEN TO STIFFEN BLK IS 8" LONG

FRONT SPAR

NO SCALE

NOTCH FORMER & BATTEN

SPAR BOTTOM

1/2 PLY

FRONT SPAR

CUT BATTEN 1/2 x 1 1/4 & PLANE SLIGHT CROWN TO CONFORM WITH FUSELAGE BOTTOM PROFILE

1/2 x 3/4 BATTEN 6 REQ.

ACRYLIC SUMP

NOTCH BATTEN & FORMER

SUMP DRAIN SEE DWG. 49

1/2 PLY

3/4 X 2 1/2 GEAR DOOR BATTEN

REAR SPAR

GP 4 ©1985 OSPREY AIRCRAFT

WING - FUSELAGE JUNCTURE & WING & SECTION
DESIGN: OSPREY AIRCRAFT
SCALE 1/2, 1" = 3" & FULL
DWG. NO. 42

S/N 703 Sam Raterree

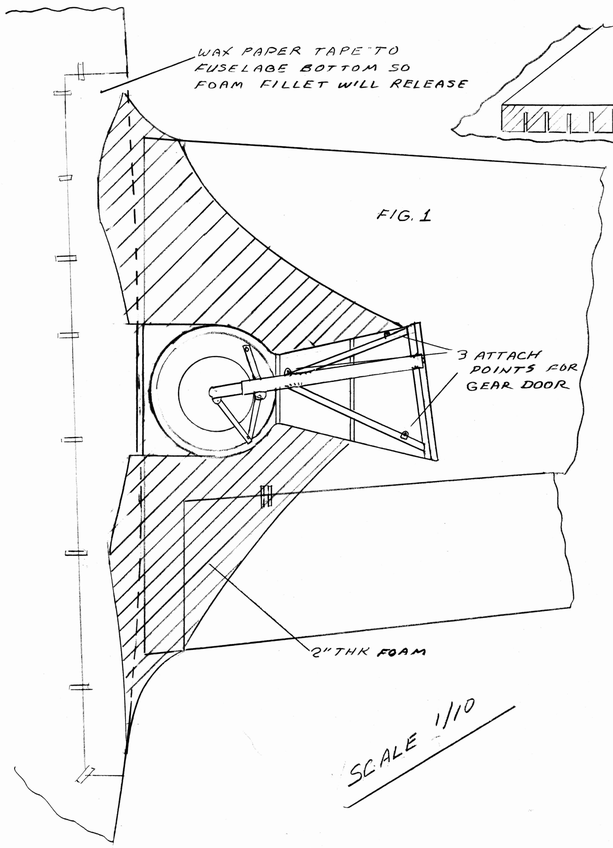
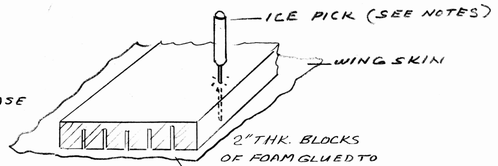
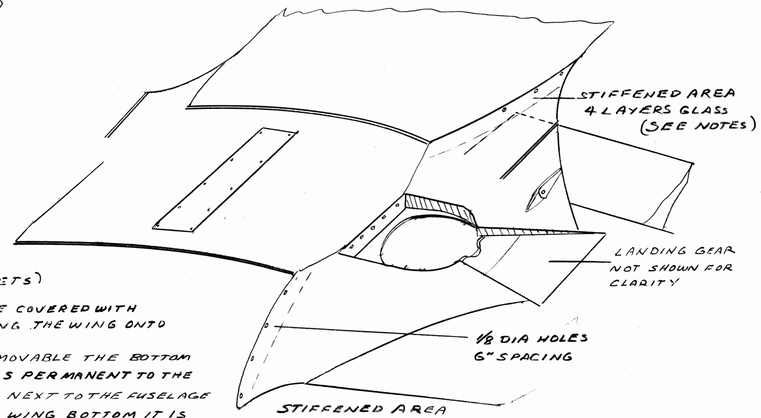
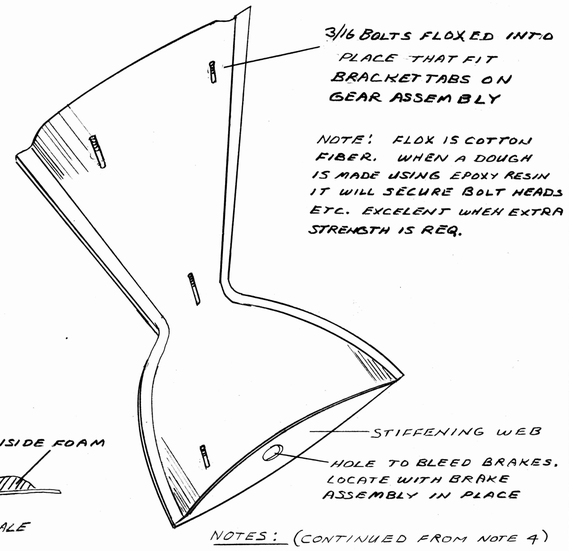


FIG. 1

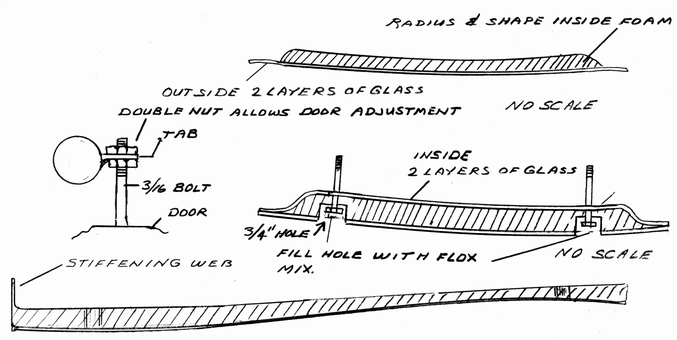






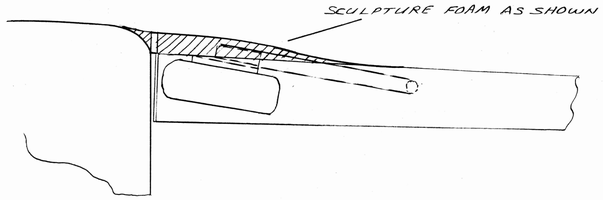
NOTES: (WING & GEAR FILLETS)

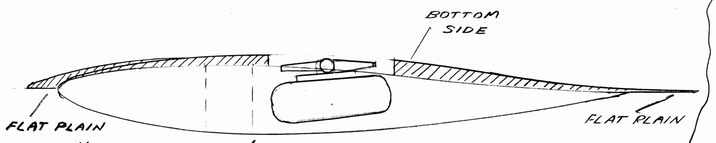
FUSELAGE & WING SHOULD BE COVERED WITH FIBER GLASS **PRIOR** TO SETTING THE WING ONTO THE FUSELAGE.
SINCE THE WING **MUST** BE REMOVABLE THE BOTTOM FOAM & GLASS FILLET, WHICH IS PERMANENT TO THE WING, REQUIRES **WAX** PAPER NEXT TO THE FUSELAGE AFTER FOAM IS GLUED TO THE WING BOTTOM IT IS **SCULPTURED** AS IN **FIG. 1, 2, 3.** TO GET BOTH SIDES **THE SAME (OR CLOSE)** USE AN ICE PICK TO GUAGE DEPTH AFTER SETTING UP YOUR OWN STATIONS WING BOLTS **SHOULD BE IN PLACE ON BOTH SPARS PRIOR TO FOAMING.**
AFTER BOTH SIDES ARE SHAPED, APPLY MICRO BALOON PASTE TO FILL THE FOAM. LAY UP 1 LAYER OF 8 OZ. CLOTH. ALLOW **CLOTH TO EXTEND BEYOND** FOAM IN THE FUSELAGE AREAS. **BUILD THIS EXTENTION UP BY ADDING 3 MORE LAYERS** TO STIFFEN FILLED NAT SUPPORTED BY FOAM. FEATHER EDGES.
BEFOR REMOVING WING DRILL A SERIES OF 1/8" HOLES THROUGH FILLET EDGE & FUSELAGE PLY ABOUT 6" SPACING. AFTER WING IS REMOVED A BLIND FASTENER (RIV NUT) IS SECURED IN THE FUSELAGE PLY SKIN. USE EPOXY WHEN PRESSING IN FASTENER FOR **ADDED** STRENGTH. **USE A NO. 6 FLAT MACHINE SCREW ON RE-ASSEMBLY**



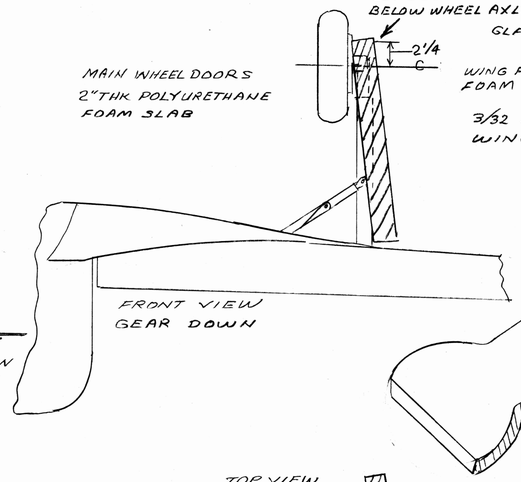
NOTES: (CONTINUED FROM NOTE 4)

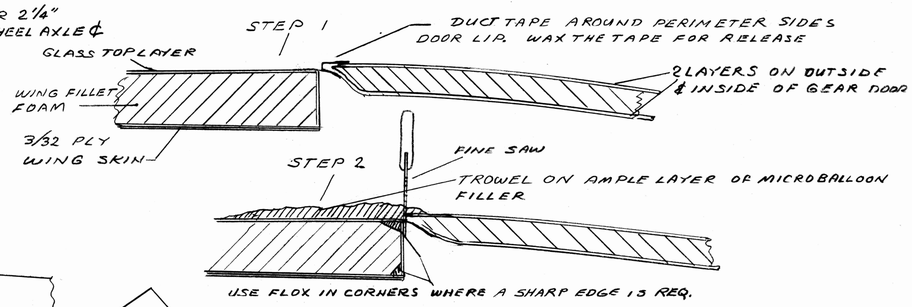
5. AFTER EPOXY RESIN SETS REMOVE DOORS & RADIUS FOAM ON INSIDE.
6. LAY UP 2 LAYERS 8.0Z GLASS. EXTENDING ON TO OUTSIDE LIP & UP ON STIFFENING WEB
7. DRILL 3/16 DIA HOLES THROUGH OUTSIDE GLASS THROUGH TABS ON GEAR LEGS WITH DOOR POSITIONED TO GEAR LEG
8. ENLARGE HOLE ON OUTSIDE & FILL WITH FLOX. PUSH IN 3/16 BOLTS INTO TABS. FLOX SHOULD COVER BOLT HEAD.
9. USE SPACERS AS NECESSARY TO POSITION DOOR SO THAT THE LIP IS CLOSE TO EDGE OF WHEEL OPENING. USE FILLER AS SHOWN. USE FINE SAW AROUND PERIMETER
10. IF YOUR AFTER THE ULTIMATE IN DRAG REDUCTION YOU SHOULD USE THE TECHNIQUE SHOWN AT LEFT, STEPS 1, 2, & 3 THIS PROCEDURE CAN BE USED IN FITTING THE CANOPY, ALL COVER PLATES, & MANY AREAS WHERE A FLUSH JOINT IS DESIRED

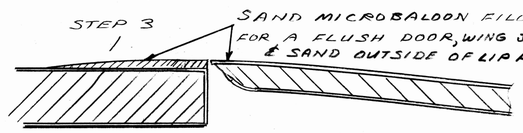




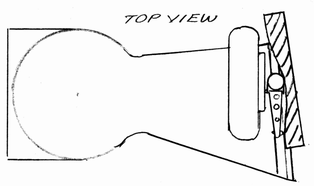
NOTE: **ON FRONT & REAR FILLET IT IS A FLAT PLAIN ON WING TOP SIDE. THIS ALLOWS MATING TOP WING FILLET TO JOIN THERE**

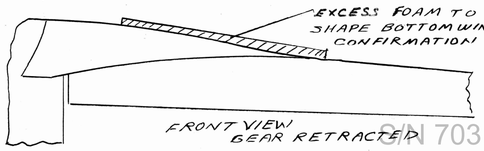






NOTE: **PRIOR TO FITTING DOORS GEAR LEG SHOULD BE LOCKED IN THE UP LOCK & POSITIONED WITH PRESSURE AWAY FROM THE GEAR LEG BUMP BLK. ABOUT 3/16" SPACE BETWEEN BLK. & LEG.** SEE DWG 37





NOTES:

1. AFTER CUTTING DOOR TO MATCH OPENING HOLLOW OUT INSIDE UNTIL DOOR LAYS AGAINST THE 3 ATTACH POINTS (SEE FIG 1) AND STILL HAS ENOUGH FOAM TO SHAPE THE OUT SIDE CONFIRMATION OF THE WING BOTTOM. (GEAR RETRACTED)
2. AFTER SHAPING OUTSIDE OF DOORS LAY WAX PAPER OR MOLD RELEASE AROUND ENTIRE PERIMETER OF WHEEL WELL OPENING
3. GEAR RETRACTED, LAY DOOR INTO OPENING. PLACE BLOCKS INSIDE SO DOOR IS SUPPORTED
4. LAY UP 2 LAYERS OF 8.0Z GLASS EXTENDING OUT ONTO WING ABOUT 1" (OVER WAX PAPER) (USE EPOXY RESIN FOR ALL DOORS) (NOTES CONT.)

NOTE: **DUCT TAPE** IS A VERY GOOD RESIN RELEASE MATERIAL. IT CAN BE USED IN PLACE OF WAX PAPER OR SARAN WRAP

S/N 703 Sold Retrofit

GP 4 ©1985 OSPREY AIRCRAFT

WING FUSELAGE FILLETS
MAIN WHEEL DOORS
DESIGN: OSPREY AIRCRAFT
SCALE 1/10
DWG. NO. 43

NOTE: SEE DWG 56 FOR ALTERNATE SYSTEM FOR CLOSING THE INBOARD GEAR DOOR

INBOARD WHEEL DOOR
NO SCALE

MAIN WHEEL DOOR

PULLEY BRACKET BOLTED TO NO 1 RIB

LND. GEAR ACTUATING TUBE

TO CLOSE

OUTBOARD WHEEL DOOR, SPRING LOADED AGAINST MAIN WHEEL DOOR

SPRING SECURED TO SEAT RAIL

SLIDING GUIDE STOP

SLIDING GUIDE STOP IS ADJUSTABLE WITH HOSE CLAMPS

NICOPRESS SLEEVE 1B1G

VERY LIGHT SPRING KEEPS CABLE SLACK OUT IN OPEN POSITION 1/8" O.D.

NOTE:
CUT HOLES IN NO. 1 RIB FOR SPRING & CABLE ACCESS

1

.050 4130
2 REQ.

NYLON

NO SCALE

1/16 CABLE

NICOPRESS SLEEVE

NO. 1 RIB

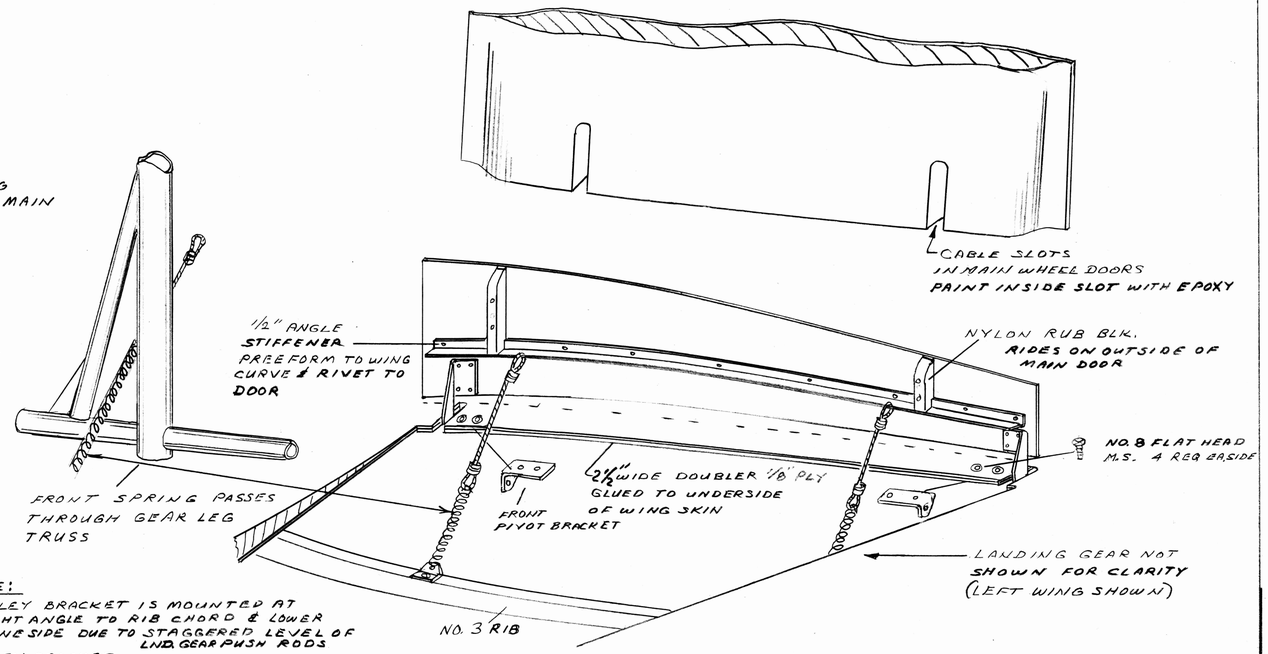
NO. 2 RIB

NO. 3 RIB

TYPICAL SPRING FASTENER

RIB

1/2" ALUM ANGLE



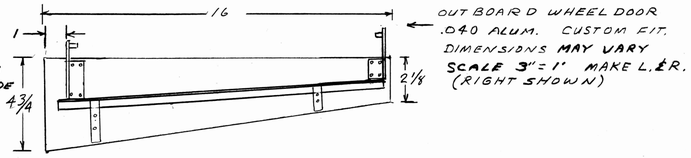
NOTE:
PULLEY BRACKET IS MOUNTED AT SLIGHT ANGLE TO RIB CHORD & LOWER ON ONE SIDE DUE TO STAGGERED LEVEL OF LND. GEAR PUSH RODS

PULLEY BRACKET
1/8 THK ALUM. ANGLE
2 REQ.

FOLD UP PULLEY GUIDES FROM .032 ALUM 3/8 WIDE

PULLEYS AN 210-1A
2 REQ.

1/16 DIA CABLE



16 1/4

FORWARD

GRAIN

5 1/4

7

3/32 PLY

POP RIVETS

IN BOARD WHEEL DOOR CUSTOM CUT PLY TO FIT OPENING. DIMENSION SHOWN MAY VARY

PIANO HINGE MS 20257PA (1 1/2 WIDE)

3/16 HOLE ℄

15/16

1 LAYER 8 OZ.

1 1/8 ARCH

SCALE FULL

1 3/4

3 1/2

FOAM

1 LAYER 8 OZ.

THIN 1/8 WASHER

SOLDER NO. 8 M.S. TO LIGHT STEEL OR BRASS PLATE. EPOXY TO 3/32" PLY DOOR

NUTS AN 364-832
4 REQ.

NO.1 RIB

.050 ALUM BACK PLATE 5/8 X 1 1/2

BOLTS AN3-6A
4 REQ.

NUTS AN 364-1032
6 REQ.

SCALE FULL

1 1/2

AN3-7A 2 REQ

1" .063 4130 DOOR ARM

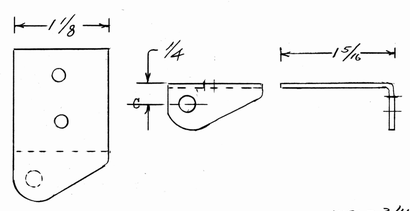
SPRING 6" LONG 1/4 O.D. PULLS DOOR OPEN HARDWARE STORE VARIETY

PIANO HINGE PIN

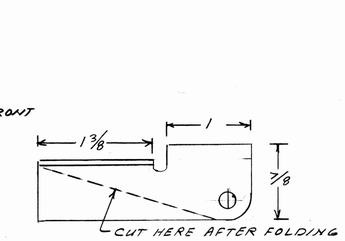
EDGE WELD .050 FLANGE TO DOOR ARM

THE 15/16" PLACEMENT OF CABLE HOLE TO HINGE PIN ℄ IS IMPORTANT. THIS SHORT 15/16" MOMENT ALLOWS THE TIRE TO CLEAR THE OPEN DOOR BEFOR THE GEAR ACTUATING TUBE STARTS TO TIGHTEN THE CABLE, CLOSING THE DOOR

OUTSIDE GEAR DOOR PIVOT BRACKET MAKE 2 FRONT 3 & 2 REAR .050 THK 4130 SCALE FULL



OUTSIDE GEAR DOOR HINGE BRACKET (FRONT) RIGHT SHOWN .050 4130 MAKE L & R
SCALE FULL



REAR HINGE
MAKE L & R; RIGHT SHOWN
SCALE FULL

ADJUST AS NECESSARY

5/8 PUSH ROD

1/4" STEEL TUBE

3/4 X .058

FLOX IN AN3 BOLTS TO HOLD HORN

ADJUST LENGTH OF HORN TO CYL. TRAVEL FOR CLOSURE. (MAKE MOCK UP HORN IF NECESSARY)

MOUNT HORN TO LINE UP WITH CYL. LOCATION

ALTERNATE DOOR CLOSURE (SEE DWG 56)

THIS CLOSURE DESIGN WORKS VERY WELL ON THE PROTOTYPE. I CONSIDER IT AN IMPROVEMENT. RP

NOTE: THIS CLOSURE ASSY. WOULD DELETE MOST OF THE INNER DOOR CLOSURE ASSY. SEE DWG. 56 FOR DETAIL. THE AIR DRIVEN DOOR CLOSURE IS A BUILDERS OPTION

GP 4

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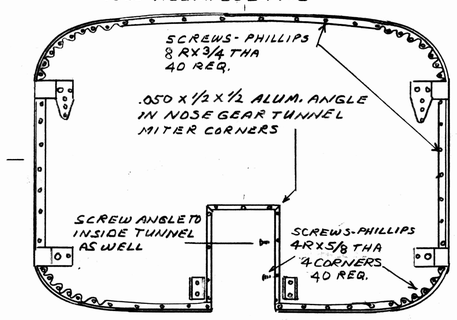
INBOARD WHEEL DOOR, OUTBOARD WHEEL DOOR, HINGE BRACKETS

DESIGN: OSPREY AIRCRAFT
SCALE: 3" = 1' & FULL
DWG. NO. 44

S/N 703 Sanctioned

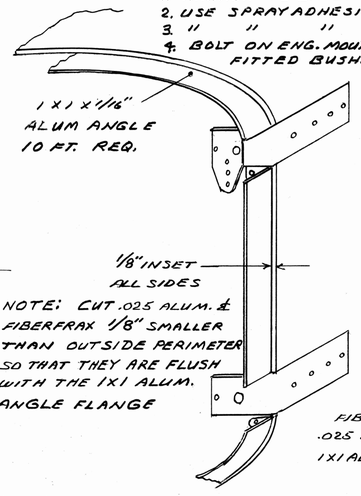
FIRE WALL - STA. -0- SCALE 1"1/2 = 1'

1/8" BIRCH PLY
1/16" ASBESTOS OR FIBERFRAX P/N 970F
.025 ALUM. 2024-T3

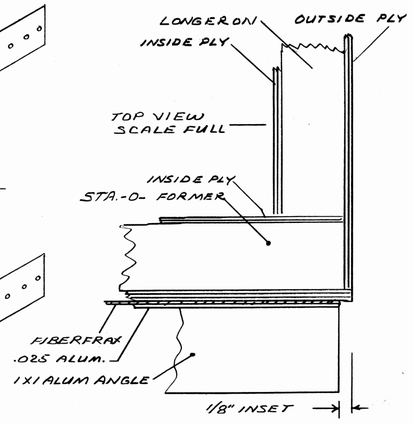


NOTE: ALUM FIREWALL & ASBESTOS LAYERS ARE INSET 1/8" ALL SIDES SO COWL WILL FIT FLUSH TO FUSELAGE

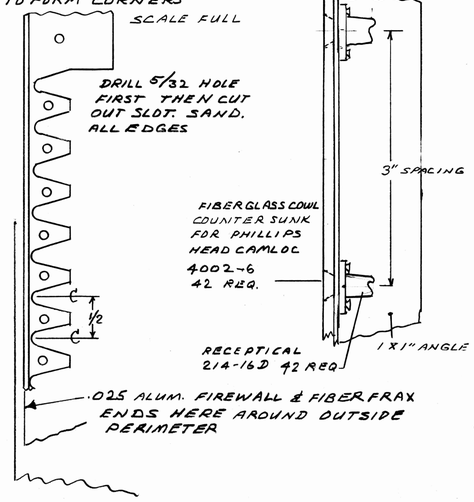
NOTES: STA. -0-
1. VARNISH 1/8 BIRCH PLY 3 COATS.
2. USE SPRAY ADHESIVE TO ATTACH FIBERFRAX
3. " " " " " ALUM SHEET.
4. BOLT ON ENG. MOUNT BRACKETS THROUGH PREVIOUSLY FITTED BUSHED HOLES.

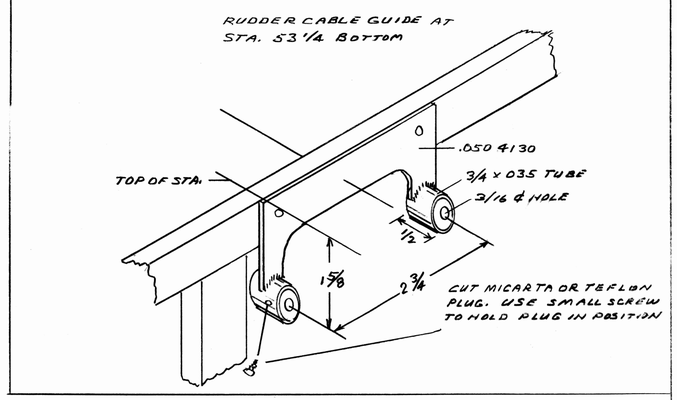


NOTE: CUT .025 ALUM. & FIBERFRAX 1/8" SMALLER THAN OUTSIDE PERIMETER SO THAT THEY ARE FLUSH WITH THE 1X1 ALUM. ANGLE FLANGE



CUT ANGLE AS SHOWN TO FORM CORNERS



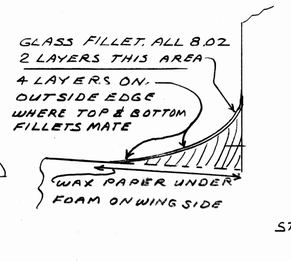


TOP WING FILLET
SCALE 1"/10

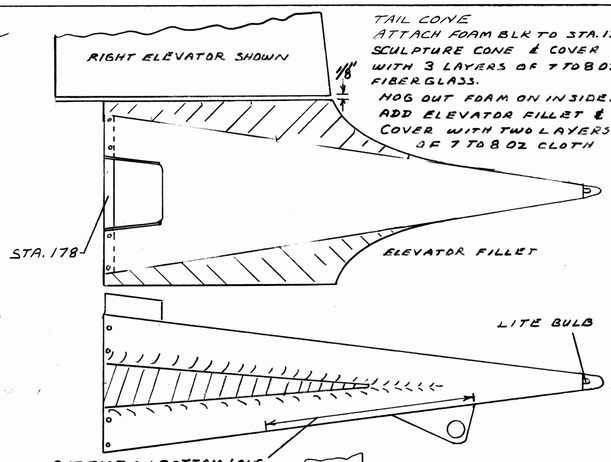
PUT IN WING ATTACH BOLTS PRIOR TO STARTING
2 LB. DENSITY POLYEURTHANE FOAM BLK. SCULPTURED TO SHAPE.
FOAM IS GLUED TO FUSELAGE SIDE ONLY

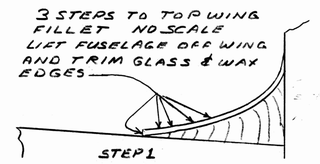


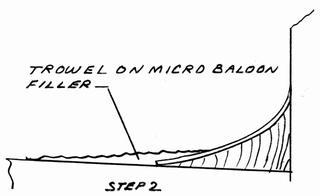
GLASS FILLET. ALL 8 OZ.
2 LAYERS THIS AREA
4 LAYERS ON OUTSIDE EDGE WHERE TOP & BOTTOM FILLETS MATE
WAX PAPER UNDER FOAM ON WING SIDE

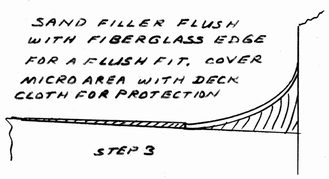


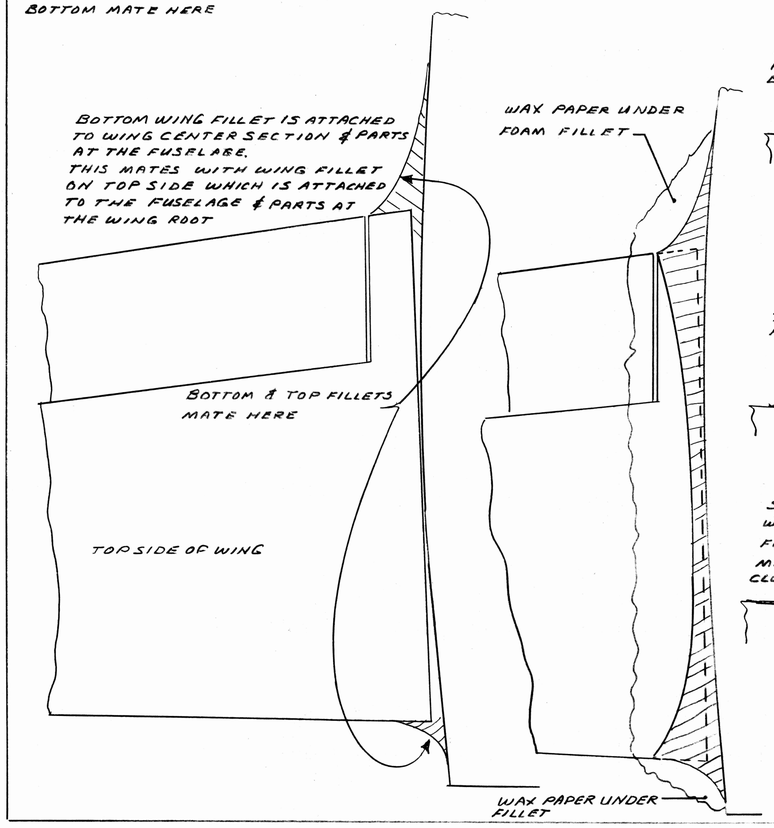
TAIL CONE
ATTACH FOAM BLK TO STA. 178
SCULPTURE CONE & COVER WITH 3 LAYERS OF 7 TO 8 OZ. FIBERGLASS.
HOG OUT FOAM ON INSIDE. ADD ELEVATOR FILLET & COVER WITH TWO LAYERS OF 7 TO 8 OZ CLOTH



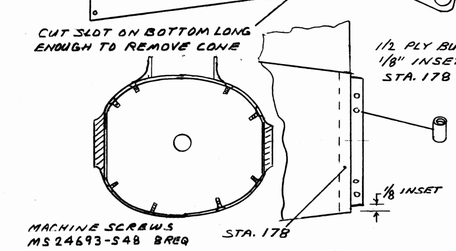


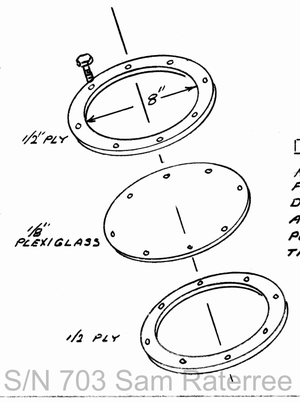


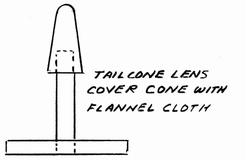




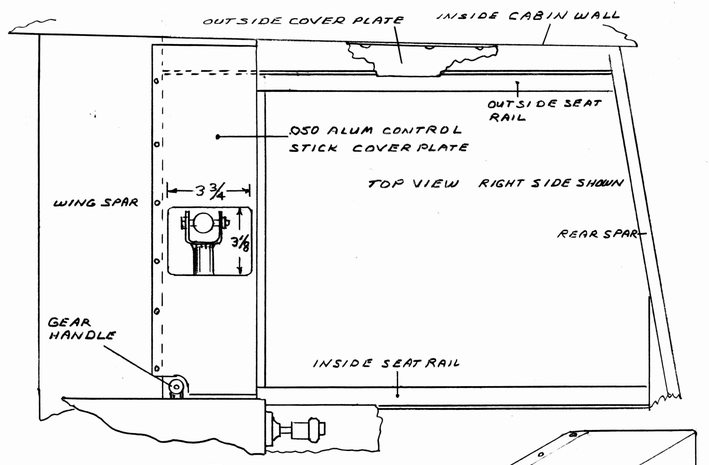
CUT SLOT ON BOTTOM LONG ENOUGH TO REMOVE CONE

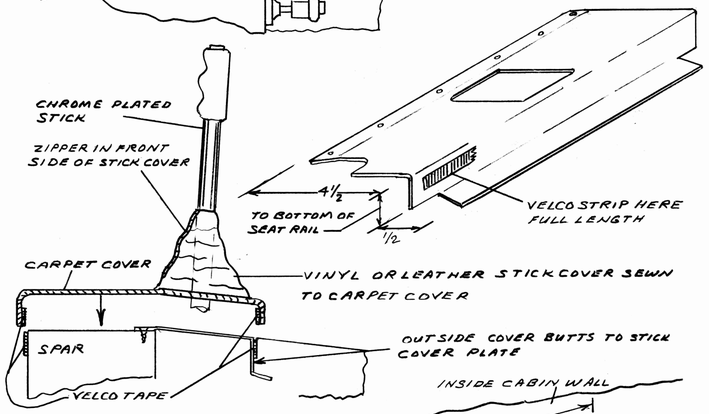


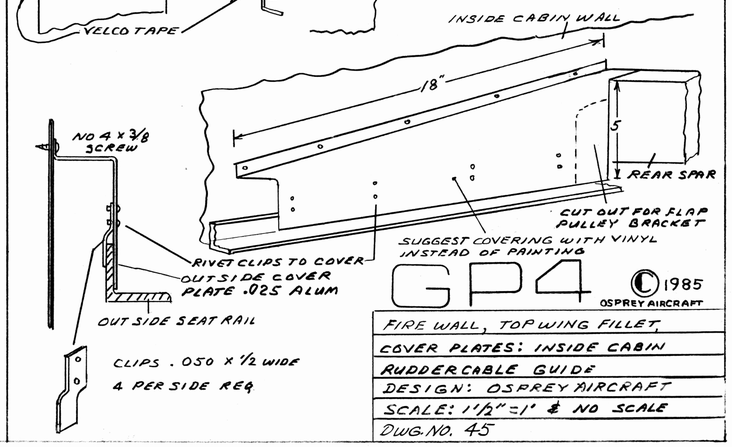




NOTE: 8" DIA. STRETCH FRAME PLATE IS NEEDED DUE TO SHARP STRETCH PT. AT CONE TIP. WHITE TAIL POS. LITE IS ATTACHED TO TRUSS INSIDE TAIL CONE



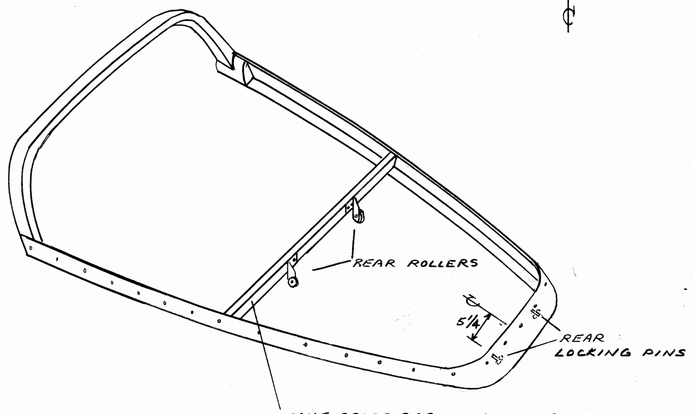




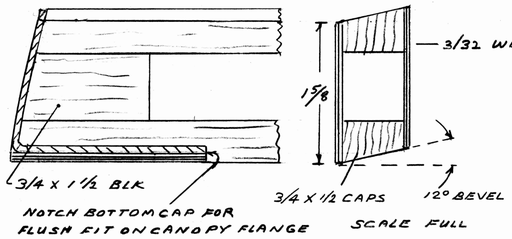
GP4 © 1985 OSPREY AIRCRAFT

FIRE WALL, TOP WING FILLET,
COVER PLATES: INSIDE CABIN
RUDDER CABLE GUIDE
DESIGN: OSPREY AIRCRAFT
SCALE: 1"1/2 = 1' & NO SCALE
DWG. NO. 45

S/N 703 Sam Raterree

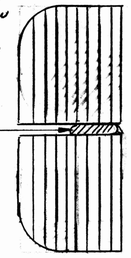


CANOPY CROSS BAR AT STA. 63



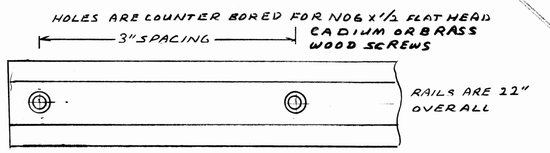
WINDSHIELD & CANOPY BOW TEMPLATE SCALE FULL

FINISHED CANOPY & WIND SHIELD BOW ARE ROUNDED AS SHOWN IN FINISHED CONDITION

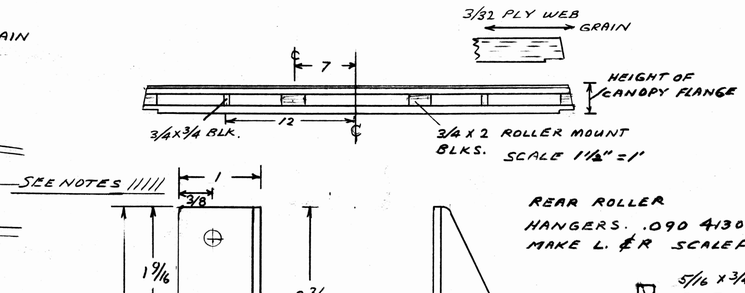


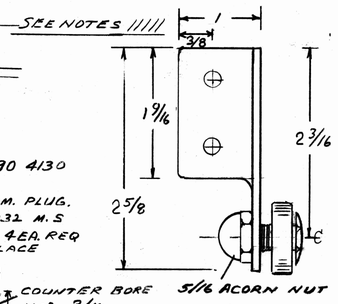
WEATHER STRIP SEAL AVAILABLE HARDWARE STORE

FRONT CANOPY RAILS

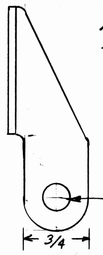


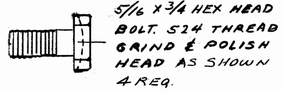
NOTE: SMALLER SIZES OF RAILS MAY BE USED IF THE ROLLER BEARING USED FITS THE CHANNEL. IF MILD STEEL IS USED I SUGGEST CHROME PLATING ALL TRACKS. OTHERWISE USE STAINLESS STEEL ABOUT .035 THK.

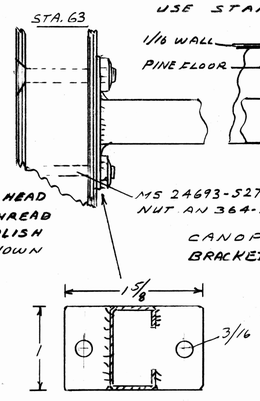


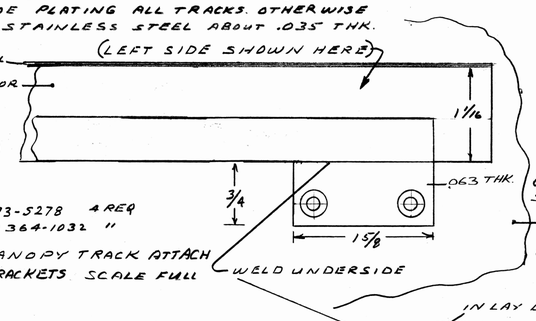


REAR ROLLER HANGERS. .090 4130 MAKE L. & R. SCALE FULL

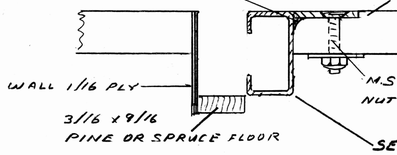




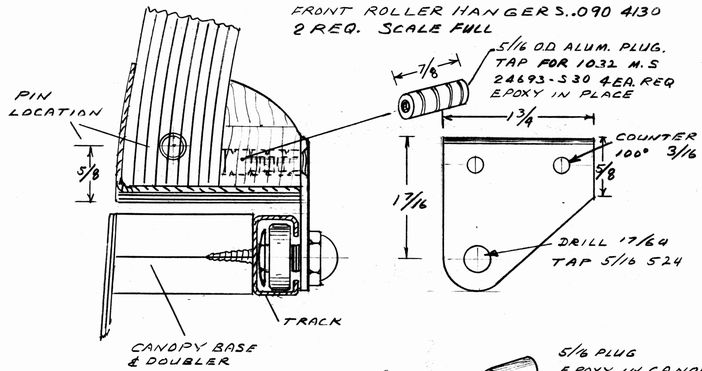


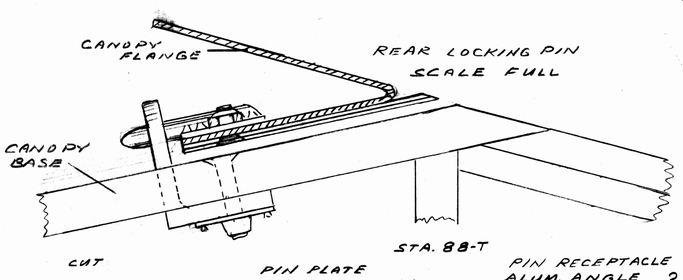


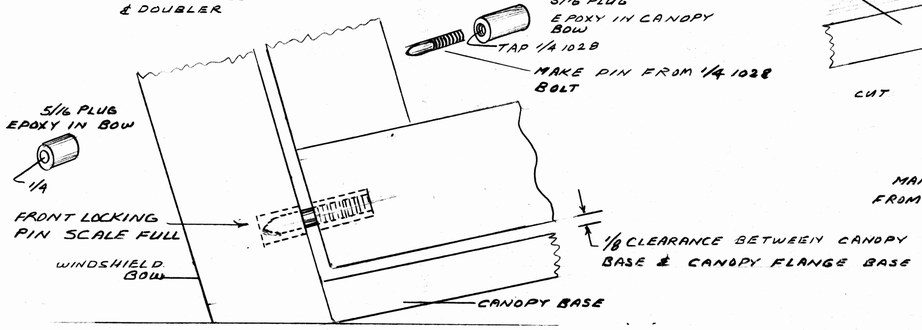
CANOPY TRACK ATTACH BRACKETS SCALE FULL

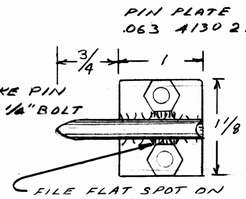


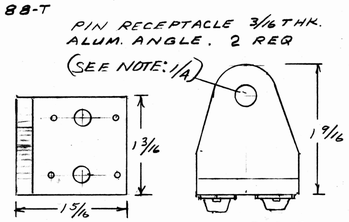
FRONT ROLLER HANGERS. .090 4130 2 REQ. SCALE FULL











NOTE: //////

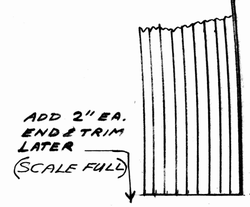
THE "1/16" SKIN FROM STA. 63 TO FORMER AT REAR OF CANOPY IS PUT ON IN TWO SECTIONS AS IT IS A COMPOUND CURVE. AFTER DECK CLOTH COVERS THIS AREA, (SHOWN SHADED) FOAM OVER THE PLY & SCULPTURE A COMPOUND CURVED TRANSITION FROM CANOPY TO FUSELAGE

NOTE:

INSTALL ALL LOCKING PINS AFTER CANOPY IS SLIDING. BOLT PINS TO CANOPY FLANGE. CUT SLOTS FOR PIN RECEPTACLE THROUGH CANOPY BASE & INSTALL. LET CANOPY CLOSE & THE PIN WILL & PUNCH THE PIN RECEPTACLE. NOW DRILL 1/4" HOLE.

BE SURE CANOPY BOW & WINDSHIELD BOW WITH GLASS INSTALLED, END UP THE SAME HEIGHT. (NOTE: WIND SHIELD IS 3/16" THK., SLIGHTLY THICKER THAN CANOPY GLASS.) THE BOW SEAL & LOCK SHOULD BE FITTED PRIOR TO PIN PLACEMENT TO INSURE PERFECT ALIGNMENT.

ITS VERY IMPORTANT THAT THE 4 CANOPY TRACKS BE INSTALLED IN SAME PLANE & PARALLEL OR THE CANOPY WILL BIND AT SOME POSITION



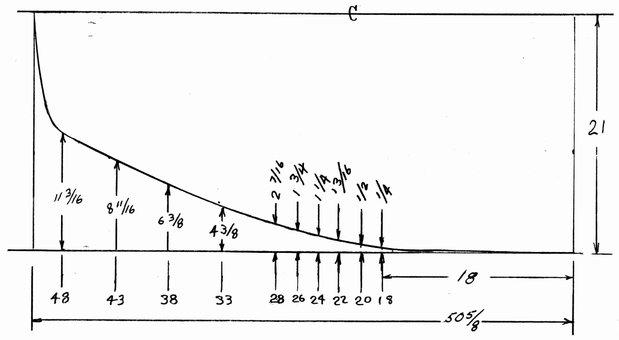
GP4 OSPREY AIRCRAFT ©1985

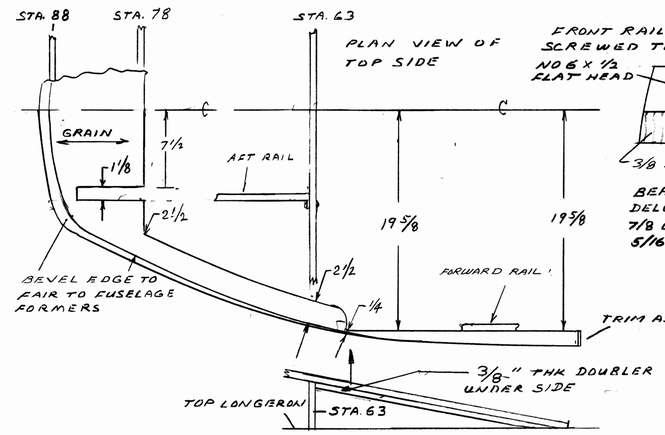
CANOPY BOW: ROLLER BRACKETS, TRACK BRACKETS	
DESIGN: OSPREY AIRCRAFT	
SCALE: FULL	
DWG. NO. 46	

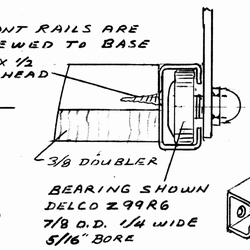
S/N 703 Sam Raterree

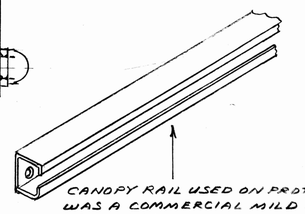
FUSELAGE CANOPY BASE 1/2 MAHOGANY PLY
SCALE 1 1/2" = 1'

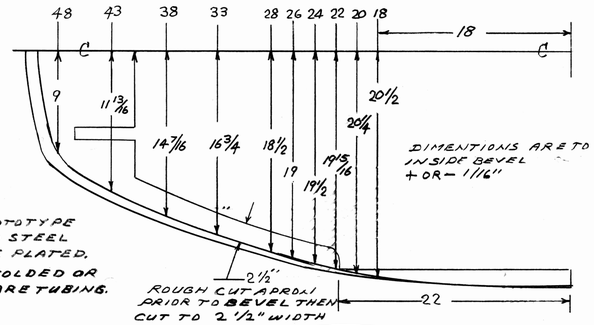
PLAN VIEW

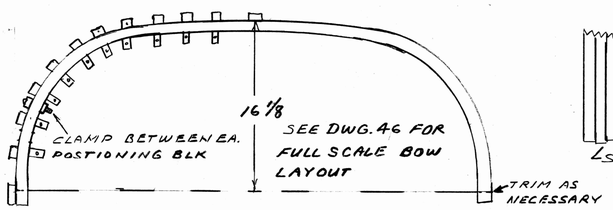








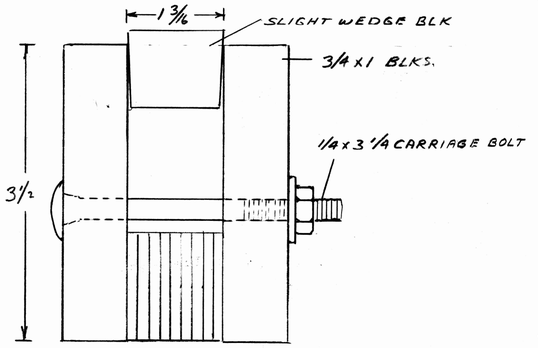




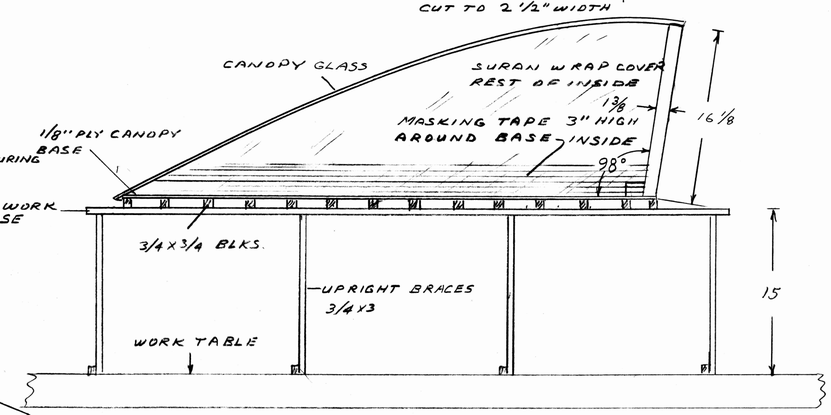


WINDSHIELD & CANOPY ARE THE SAME SHAPE. LAMINATE 9 LAYERS OF SPRUCE 1/8 THK X 1 1/2 64" LONG. FINISH WIDTH 1 3/8

1/4 SCALE FULL

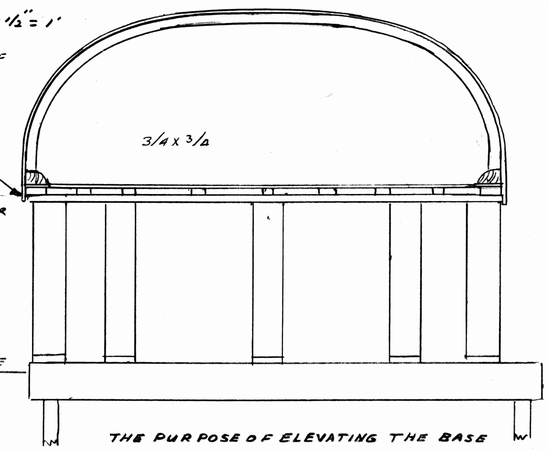


SUGGESTED CLAMP
24 REQ. SCALE FULL



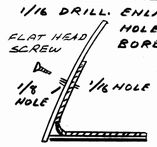
SCALE 1 1/2" = 1'

NOTE
ANGLE MUST MATCH ANGLE OF WIND SHIELD BOW. DWG. NO 41

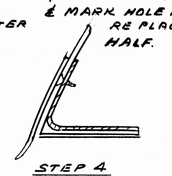


THE PURPOSE OF ELEVATING THE BASE ASSEMBLY 15" IS TO ALLOW ROOM TO REACH UNDER THE CANOPY GLASS TO MAKE THE FLANGE LAY UP. THE CANOPY IS MASKED AT LEAST 3" UP ON THE INSIDE & WAXED. THE CANOPY IS THEN USED FOR THE SKIRT MOLD. USE SHORT LENGTHS OF CLOTH AROUND THE CURVED BACK AREA OVERLAPING 2" TO 3". THE INSIDE UNMASKED AREA ABOVE THE MASKING TAPE SHOULD BE COVERED WITH SARAN WRAP TO INSURE NO RESIN CONTACT. USE MASONITE BOW TEMPLATE TO HOLD CANOPY TO SHAPE DURING LAY UP. BOW IS INSTALLED AFTER LAYUP FLANGE IS FINISHED TRIMMED

STEP 1
ATTACH CANOPY WITH SMALL METAL SCREW. START WITH 1/16 DRILL. ENLARGE CANOPY HOLE TO 1/8 & COUNTER BORE FOR SCREW



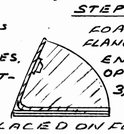
STEP 2
LAYUP OUTSIDE FLANGE. REMOVE & TRIM. REMOVE EVERY OTHER SCREW & MARK HOLE IN OUTSIDE FLANGE & DRILL 1/16" HOLE RE PLACE SCREWS & MARK & DRILL THE OTHER HALF.



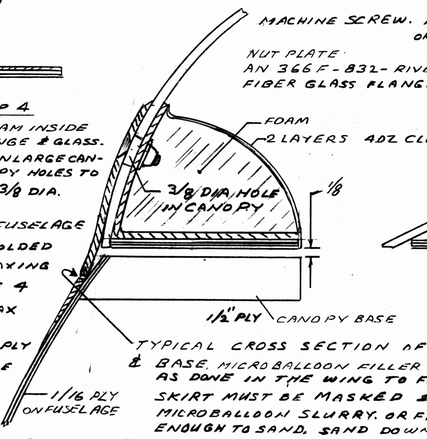
STEP 3
DRILL BOTH FLANGES FOR 832 SCREW & INSTALL NUT PLATES. COUNTER BORE OUTSIDE FLANGE



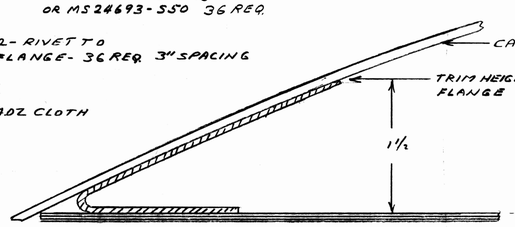
STEP 4
FOAM INSIDE FLANGE & GLASS. ENLARGE CANOPY HOLES TO 3/8 DIA.

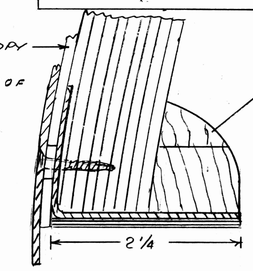


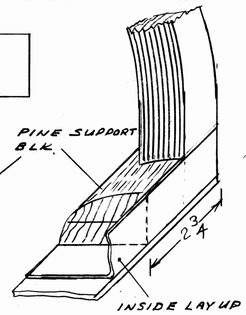
CANOPY IS PLACED ON FUSELAGE OUTSIDE FLANGE IS MOLDED BY MASKING CANOPY & WAXING TAPE FOR A RELEASE. THE 4 LAYERS OF 8.OZ CLOTH. WAX PAPER OR WAXED TAPE SHOULD BE USED ON THE PLY FUSELAGE SKIN UNDER THE OVERLAP.
THE OUTSIDE FLANGE IS MADE PRIOR TO DRILLING FINAL HOLES FOR NUT PLATES SO THAT ALL IS LINED UP



TYPICAL CROSS SECTION OF CANOPY & BASE. MICROBALLOON FILLER IS USED ALL AROUND CANOPY BASE AS DONE IN THE WING TO FUSELAGE FILLET. THE CANOPY SKIRT MUST BE MASKED & WAXED PRIOR TO APPLING THE MICROBALLOON SLURRY. OR FILLER. AFTER SLURRY DRYS WELL ENOUGH TO SAND. SAND DOWN TO THE TAPE & YOU SHOULD BE ABLE TO SLIDE THE CANOPY & REMOVE IT. YOU THEN SAND THE RIDGE SLIGHTLY TO OPEN UP THE JUNCTURE FOR FUTURE PRIMING & PAINTING. ABOUT 3/64" OR JUST UNDER 1/16







NO. 8 X 3/8 BRASS OR CADMIUM WOOD SCREW. PHILLIPS HEAD PREFERED. USED TO ATTACH CANOPY & WIND SHIELD TO BOWS 40 REQ. 3" SPACING & ON BOW

GP 4 © 1985 OSPREY AIRCRAFT

CANOPY BASE (CANOPY & WIND SHIELD IS AVAILABLE- GEE BEE (208-242-0332) 18415 2nd. AVE. So. SEATTLE WA. 98148)
DESIGN: OSPREY AIRCRAFT
SCALE: 1 1/2" = 1' & FULL
DWG. NO. 47

S/N 703 Sam Raterree

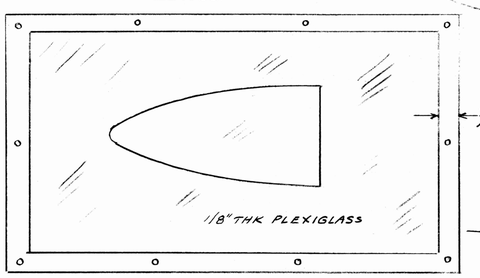
SEE DWG. 24 FOR STROBE & POS. LITE INSTALATION IN THIS PLEXIGLASS SECTION

TOP PROFILE OF MOLD
SCALE: FULL

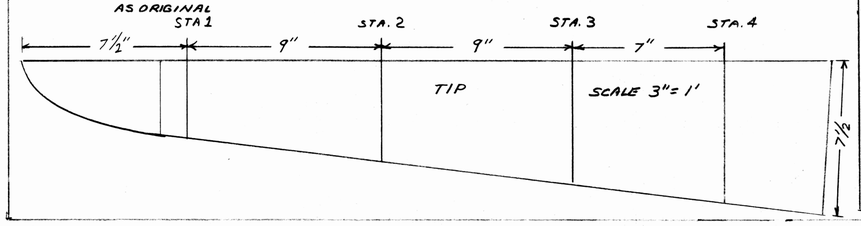
SIDE PROFILE OF MOLD
SCALE: FULL

CROSS SECTION OF MOLD AFT SIDE
SCALE FULL

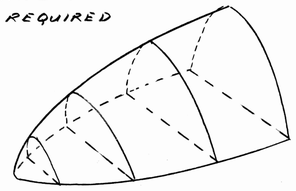
NOTE: WHEN STRETCHING HEATED GLASS IT WILL FLAIR OUT SOME. YOU CAN CUT THE BOTTOM FLAIRED PART OFF TO MAKE THE LENSE.

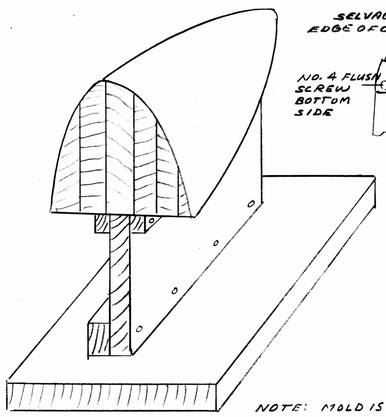


PLY STRETCH FRAME 3/4 PLY 8"x14" O.D.
HEAT IN 350° F. OVEN FOR 3 MIN & STRETCH DOWN OVER MOLD. USE GLOVES & TWO PEOPLE, WORK FAST!
SUGGEST HEATING A SAMPLE FIRST. YOU CAN RE-HEAT & GLASS WILL GO FLAT AS ORIGINAL

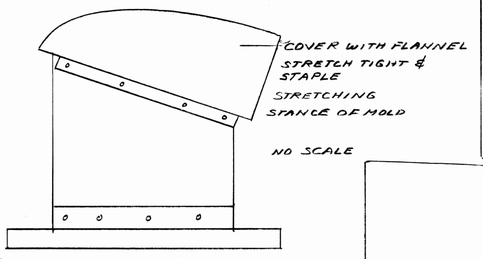


LENS MOLD
LAMINATE 3/4" THK. PINE
L. & R. REQUIRED

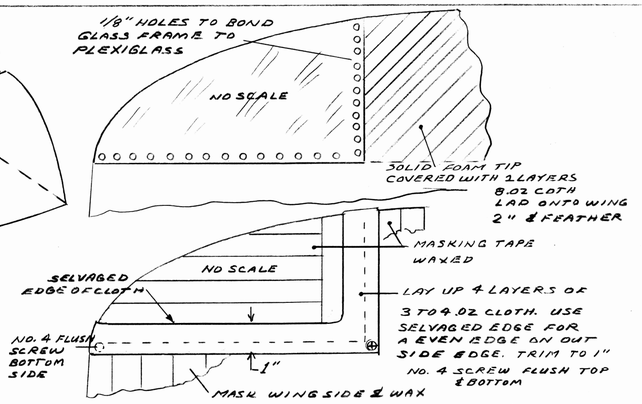


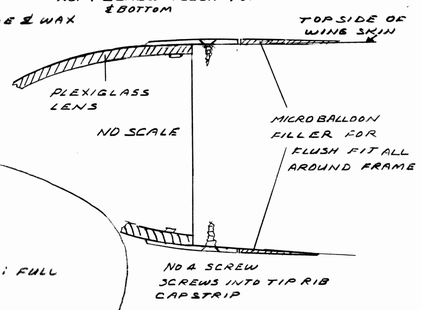


NOTE: MOLD IS 1/8" SMALLER AROUND PERIMETER OF TIP RIB



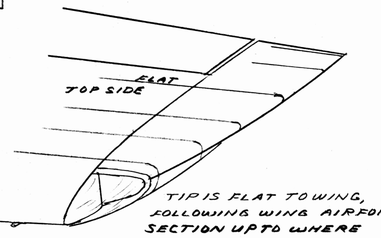
NO SCALE





NO 1 STA. SCALE: FULL

STA. 2 SCALE: FULL

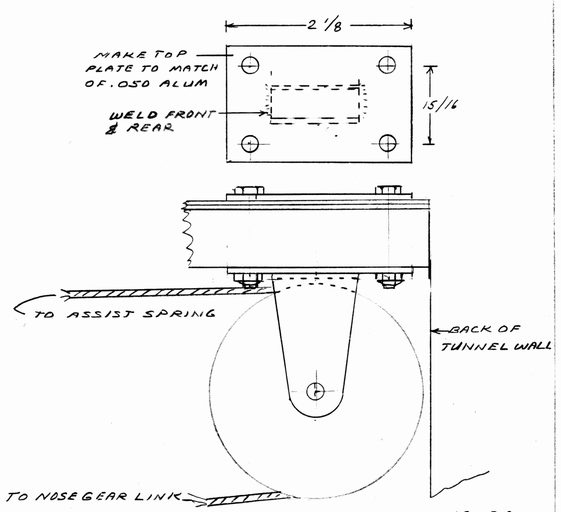


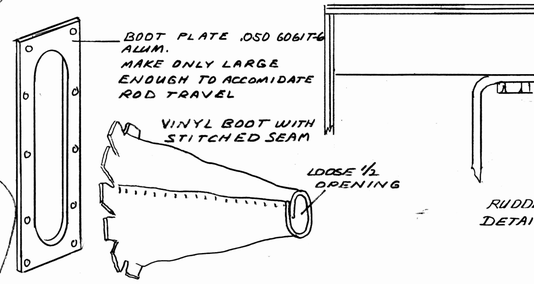
TIP IS FLAT TO WING, FOLLOWING WING AIRFOIL SECTION UP TO WHERE RADIUS STARTS

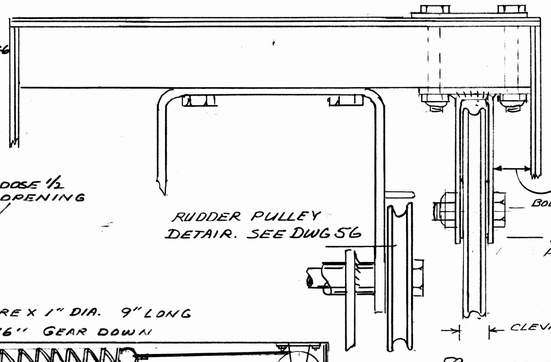
STA. 4 SCALE FULL

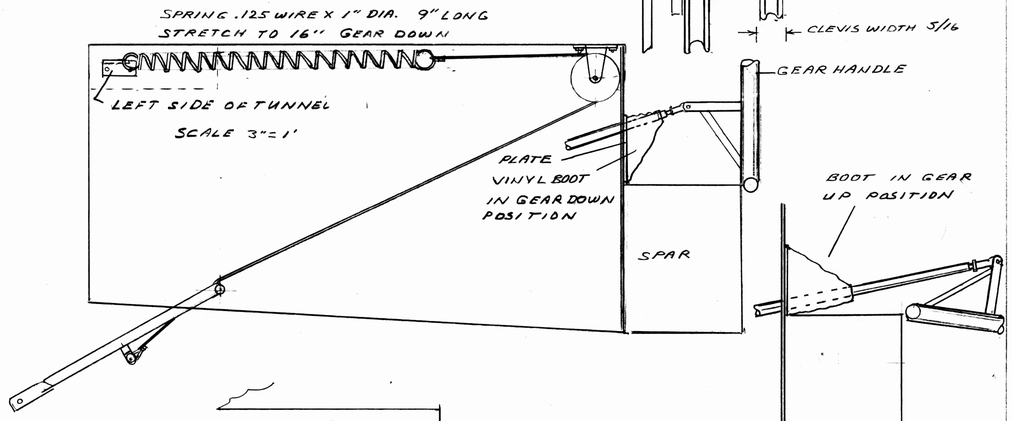
STA. 3 SCALE: FULL

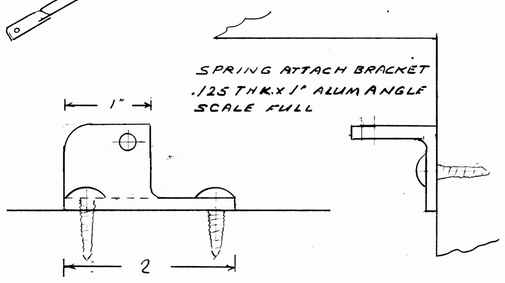
PULLEY BRACKET
.050 4130 SCALE: FULL











GP 4 ©1985 OSPREY AIRCRAFT

WING TIP, NOSE GEAR ASSIST SPRING ASSEMBLY	
DESIGN: OSPREY AIRCRAFT	
SCALE: 3" = 1' & FULL	
DWG. NO. 48	

S/N 703 Sam Raterree

NOSE GEAR SCISSORS
4130 STEEL SCALE FULL
(HEAT TREAT)

CLOSE TOLERANCE FIT TO CLEVIS.

3/8 x .065 REAM TO 1/4 I.D.

GUSSET .063

1 1/2 x 1 1/2 x .065 SQ. TUBING

CLEVIS .063 4130. FOLD TO INSIDE WIDTH OF 3/4 WELD TO 1/2" SQ. TUBE DRILL 1/4 HOLE & THEN SHAPE AS SHOWN

3/8 x .065 REAM TO 1/4 I.D.

NOTE: CARE MUST BE TAKEN TO REAM ALL HOLES & HAND FIT SCISSORS PARTS TO CLEVIS TO INSURE A NO SHIMMY CONDITION

NOTE FAIRING OVERHANG IS 7/16" AROUND BOW

WEATHERSTRIP

.050 X 6061-T6 ALUM. FAIRING

WINDSHIELD

WINDSHIELD BOW

CANOPY GLASS

SLOT END

LATCH PIN

TAP .125 PLATE FOR 3/16-1032 MACHINE SCREW

.063 4130 SPRING TAB

SPRING

.125 PLATE

TAP PLATE FOR NO.6 MACHINE SCREW STOP AFTER FITTING LATCH PIN

FLUSH WELD 1/4" PIN STOP TO SLOTTED PLATE

3/16" SLOT

.063 STOP AFTER ADJUSTMENT 2 PLACES

DRILL & TAP STOP HOLE AFTER ASSEMBLY

.050 4130

COUNTER BORE FOR NO 6 FLUSH 1/2" SHEET METAL SCREWS

TAP 10-32 2 PLACES

COUNTER BORE FOR NO 7 x 5/8 SHEET METAL SCREWS 6 PLACES

.125 4130 PLATE

(SEE LATCH DETAIL DWG. 50)

BRAZE EA. SIDE, CUT NOTCH & SHAPE AS SHOWN. CHROME PLATE

.125 STEEL CENTER

CUT SLOT 1/8" WIDE x 5/16 IN TOP OF SHAFT

TAP FOR NO. 4 MACHINE SCREW

MAKE 1/4" SHAFT FROM 1/4" BOLT TO LENGTH AS NECESSARY.

COUNTER BORE SLIGHTLY & FLUSH WELD. DRESS SMOOTH & CHROME PLATE

TAP 10-32

SPRING HOLE

.125 STEEL

START WITH 1/4" HOLE

RUDDER TRAVEL IS LIMITED BY THE COUNTERWEIGHT STRIKING THE FUSELAGE SKIN. POSITION THE COUNTER WEIGHT JUST SHORT OF THE PLY SKIN & WELD A SHORT 1/4" TUBE TO THE TOP OF EA. TAIL TRUSS TOP TUBES THAT STOPS THE RUDDER HORN OF FURTHER TRAVEL. (SEE DWG. 16)

APPROX. 20° TRAVEL

UP 22° + OR - 1°

DOWN 12° + OR - 1°

STA. 178

STA 53 3/4 B

FULL FLAP TRAVEL 36° DOWN

UP 12° + OR - 1°

TURN BUCKLES IN CENTER CONSOLE

STA. 78

PARALLEL WITH WING RIBS

DOWN IS SET AUTOMATIC WITH DIFFERENTIAL BELL CRANK. APPROX. 9°

MODIFIED B32-4D FITTING SCALE FULL

MACHINE TO 1/4 DIA AS SHOWN

1/4" DIA

STA. 25, NOSEWHEEL TUNNEL

PUSH RODS TO RUDDER PEDAL TORQUE TUBE ARMS

TO STEERING BAR

RIG PUSH RODS SO THE DIFFERENTIAL BELL CRANK IS PARALLEL WITH WING RIBS WITH AILERONS ON ℄ & CONTROL STICKS ON ℄. ADJUST STICK SIDE STOPS UNTIL AILERONS SHOW 12° UP.

NUT AN 924-4D

WASHER

SUMP CAP AN 929-4D 2 REQ.

2 1/2 x 2 1/2 x .050 ALUM MOUNT PLATE 2 REQ.

3/8 x 1/4 I.D. PLASTIC COUPELER

1/4 DIA ACRYLIC TUBES 3/4" LONG. 3EA. CEMENT TUBES & 1/8" THK. END PLATES TO 1/4 DIA. ACRYLIC TUBE. USE ACRYLIC SOLVENT CEMENT

TUNNEL WIDTH

PULLEY BRACKET FOR NOSE GEAR ASSIST SPRING NOT SHOWN FOR CLARITY

STA. 25

SEE DWG 56 FOR DETAIL

TO TOP OF SIGHT GUAGE

TOP VIEW

SIGHT GUAGE VENT LINE SUMPS 2 REQ. SCALE FULL

SAF-AIR DRAIN VALVE CAV-110 1/8" NPT 2 REQ.

VALVE IS DRAINABLE INSIDE WHEEL WELL

VINYL HOSE COUPLER

MOUNT LOW AS POSSIBL. UNDER SEATS ON RIB NO 1

NOTE: THIS IS AN ALTERNATE DRAIN VALVE SUMP (BUILDERS CHOICE) MOUNTS IN SAME PLACE SEE DWG RIGHT SIDE THIS PAGE

3/8 OD BRASS OR COPPER

BRASS COUPLER AUTOMOTIVE TYPE 1/8 PIPE

END VIEW

THIN WALL BRASS, COPPER OR STEEL TUBE 1" DIA SOLDER IN ENDS & TUBES AS SHOWN

STA. 25 RUDDER CABLE BRACKET .071 4130 STEEL SCALE FULL

FOLD LINES

INSIDE MEASURE AFTER FOLDING

SEE DWG NO. 56 FOR DETAILS ON THIS PULLEY BRACKET

TO ENG. FUEL PUMP

NO. 6 AEROQUIP WITH FIRESHIELD GASCOLATOR

SENDING UNIT FLOAT 17 GAL ℄ TANK

RAM VENT

3/8 ALUM. LINE

SIGHT GUAGE & VENT LINE

FUEL FILLER CAP

RAM AIR VENT - STICKS OUT L.E. SPAR 7/8"

18.5 GAL WING TANK

VENT LINES GO TO END OF TIP RIB & KEEP HIGH AS POSSIBLE TO TOP SKIN

ELCT. AUX PUMP 25 PSI.

3/8 ALUM LINE

QUICK DRAIN

QUICK DRAIN

NO. 6 AEROQUIP

NO. 4 AEROQUIP

UNION CONNECTOR

3/8 ALUM LINE

SIGHT GUAGE DRAIN VALVE & SUMP

NOTE: SUMP MUST BE IN LOWEST POINT OF VENT LINE ASSEMBLY

GEAR DOOR BATTEN

SPAR

SUMP

SUMP DRAIN CAP & MODIFIED B32-4D FITTING

SUMP SHOWN UPSIDE DOWN HERE SEE DWG 42

USE STAND OFFS TO HOLD 3/8" FUEL LINE CLEAR OF ALL ASSEMBLIES

DRILL HOLES IN SPAR WEBS TO PUSH AEROQUIP HOSES THROUGH SPAR. DO NOT DRILL INTO SPAR CAPS

NOTE: AEROQUIP OR STRATOFLEX HOSE MIL-N 8794 P/N IS 303-6H MAX PRESSURE IS 2,000 PSI

HOLES FOR FUEL HOSES ARE THROUGH THE PLY WEB.

REGULATOR

5/8 I.D. HOSE TO VACUUM PUMP

3/8" I.D. HOSE

FILTER

AN 816-6D FITTING 4 REQ.

A/H

D/G

VACUUM GUAGE

NOTE: MOUNT REG. & FILTER TO BE ACCESSIBLE

GP4 ©1985 OSPREY AIRCRAFT

FLIGHT CONTROL LAYOUT, VACUME SYSTEM	
NOSE GEAR SCISSORS; FUEL SYSTEM	
STA. 25 PULLEY BRACKET, CANOPY LATCH	
DESIGN: OSPREY AIRCRAFT	
SCALE: FULL	
DWG. NO: 49	

S/N 703 Sam Raterree

PIVOT PLATE: .125 4130
SCALE FULL 2 REQ.-RIGHT & LEFT

BOLT AN3-14A - 4 REQ. EA. SIDE

ALUM BUSHING

ANCHOR NUT 366F-832-4 REQ EA. SIDE
RIVET TO .080 x 1 3/4 x 1 ALUM PLATE

ALUM. PLATE

6

3/8

3/8

1 3/4

SAFETY WIRE TAB

WELD 5/16-24 NUT TO BEARING TUBE

BORE 5/8 DIA. HOLE IN WELL WALL TO RECEIVE BEARING TUBE

1 1/16

BOLT AN 5-16 2 REQ

7/16 X .065 REAM TO 5/16

3/4

3/32 WHEEL WELL SKIN

1/8 PLY GUSSET

ASSIST SPRING BRACKET. RT. SIDE ONLY

CANOPY LATCH DETAIL
SEE DWG. 49 FOR DIMENTIONS
SET LATCH FOR A SNAP FIT.
SOME FORCE SHOULD BE NECESSARY TO UNLATCH CANOPY FROM WINDSHIELD

CANOPY GLASS

CANOPY BOW

.050 HOLD DOWN FAIRING
NO.7 x 3/4 SCREWS

SLIDES

CANOPY SEAL 1/8 x 3/8 WETHERSTRIP GLUES TO TOP OF WINDSHIELD BOW, AFT SIDE

WINDSHIELD

NO6 x 1/2 SCREWS 2 REQ

NOTE: ALL SCREWS ARE STAINLESS FLAT HEAD SHEET METAL SCREWS

.125 4130 PLATE

NO7 x 5/8 6 REQ.

SLOTTED PLATE .063 4130

1032 MACHINE SCREWS 2 REQ.

FILLER STOPS ON FORWARD SIDE AFTER ADJUSTING LATCH AGAINST SEAL LENGTH OF STOPS AS NECESSARY

NOSE GEAR TRUSS TUBE
3/4 x .058 SCALE 3"=1'

SEE BOOT SEAL FOR PUSH ROD. DWG. 48

3/4 x .058

TO ℄ OF 3/4 x .058 TUBE
(NOSE GEAR PIVOT) TRUSS

90°

3 3/4

2 1/8

3/4

RETRACT PUSH ROD

PIVOT PLATE

RETRACT LINK PIVOT POINT 6 1/4 AFT OF FIRE WALL & 3/4 FROM WELL BOTTOM ON ℄

6 1/4

.063 BULK HEAD

1 1/2

1/2 x 1/2 x .065 SQ. TUBING

1 1/2

1 7/8

2 1/16

.080 4130

1 1/2

2 1/2

BOLT - AN5-21
NUT - CASTLE AN 310-5

℄ 1/4 x .035

7/16 x .065 REAM TO 5/16

3 3/8

RETRACT LINK
SCALE FULL
NOTE: HEAT TREAT

1 7/8

℄

WELD .050 FINGER PATCH ON BOTTOM SIDE OF JOINT

1

3 3/4

.063 BULK HEAD: WELD INTO BACK SIDE PRIOR TO WELDING TO 1/2 SQ. TUBING

11/16

1 1/2

SAW A WEDGE OUT OF 1/2 SQ. TUBING TO GET CORRECT ANGLE THEN WELD TOP, BOTTOM & ONE SIDE (4 PLACES)

HOLE FOR TOW BAR

NO. 5 x 1/2 SHEET METAL SCREW

1/2 x 1/2 ALUM ANGLE AROUND FIREWALL WELL

RETRACT PUSH ROD

NOTE: ENG. MOUNT NOT SHOWN FOR CLARITY.
STEERING ASSY. NOT SHOWN FOR CLARITY

3 3/8

1 5/16

.050 FINGER PATCH BOTH SIDES

10 3/8

DRILL I.D. OF SLEEVE 21/64 & TAP 3/8 x 24

END WELD 1/2 SLEEVE

1 1/4

ROSETTE WELD BOTH SIDES

15/16

1"

ROD END
HEIM MD46-1/6
1 REQ.

CHECK NUT AN 316-6

1/2 x .095 SLEEVE

5/8 x .058

6 1/4

1/2 DEGREE NO SCALE

NOTE: SURFACE THE STOP PLATE UNTIL LINK IS JUST SLIGHTLY PAST CENTER IN THE DOWN LOCK POSITION. NOT OVER 1/2 OF A DEGREE

STOP PLATE

RADIUS TO FIT LINK & SURFACE AS NECESSARY

CLEVIS NO SCALE

3/8 x .065, REAM TO 1/4 I.D.

SN: 108 Sam Raterree

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NOSE GEAR ASSEMBLY

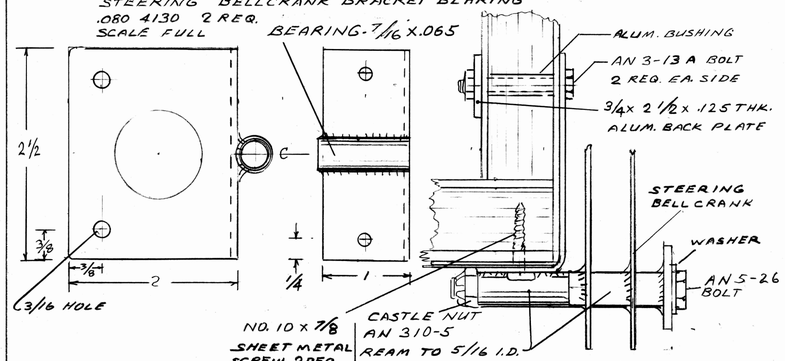
HEAT TREAT RETRACT LINK 38-45 R/C

DESIGN: OSPREY AIRCRAFT

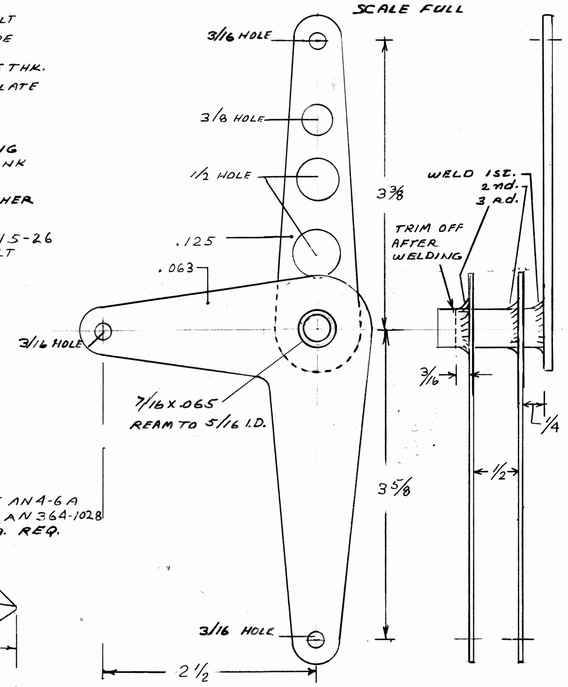
SCALE: 3"=1', FULL

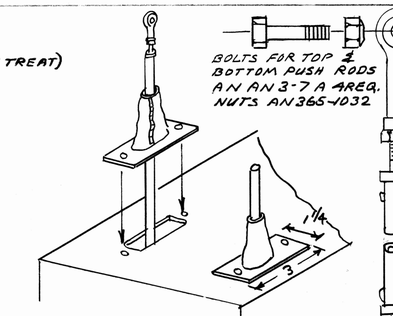
DWG. NO. 50

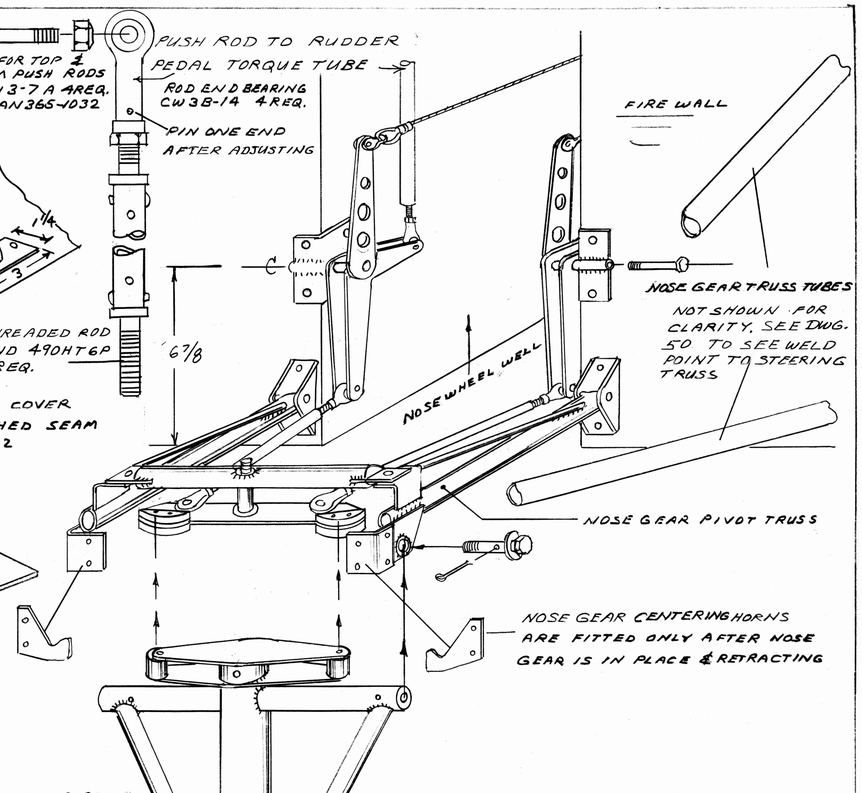
STEERING BELLCRANK BRACKET BEARING
.080 4130 2 REQ.
SCALE FULL



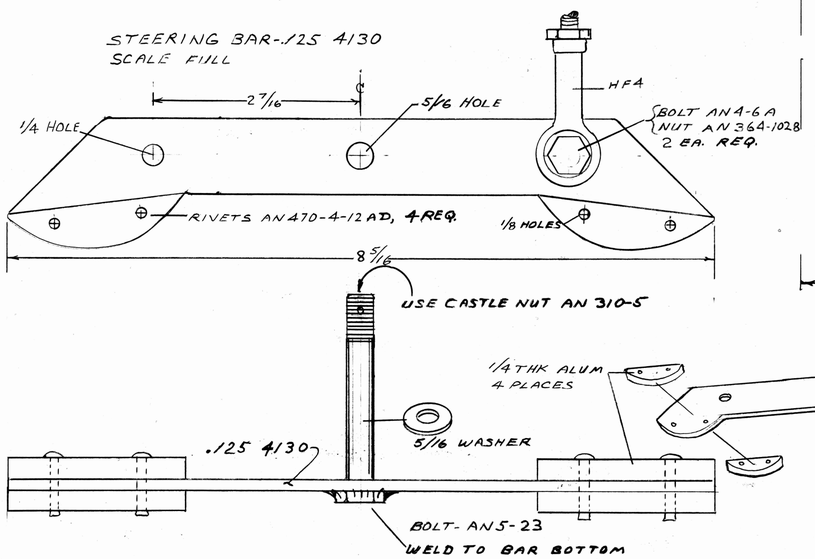
STEERING BELL CRANK
4130 STEEL: MAKE LEFT &
RIGHT. RIGHT SHOWN. NOTE: (HEAT TREAT)
SCALE FULL



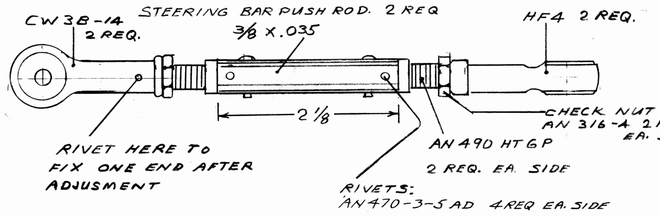


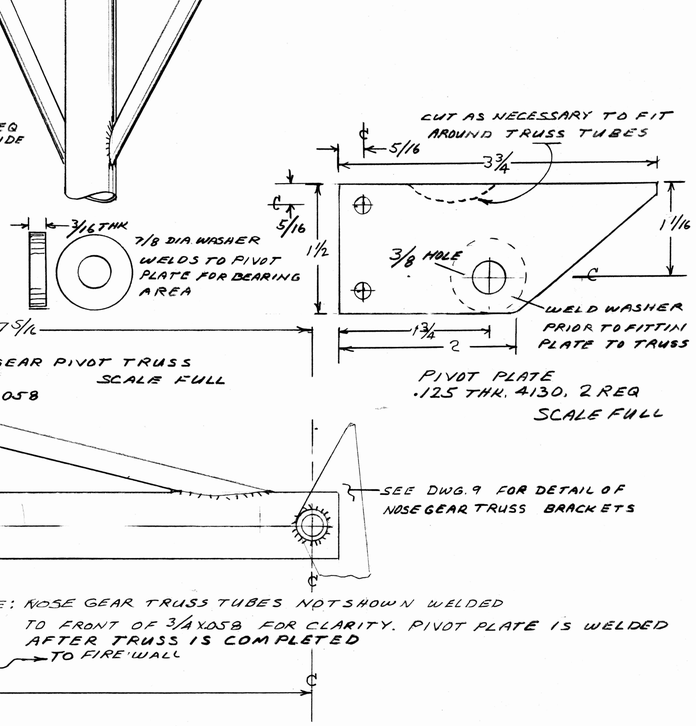


STEERING BAR-.125 4130
SCALE FILL

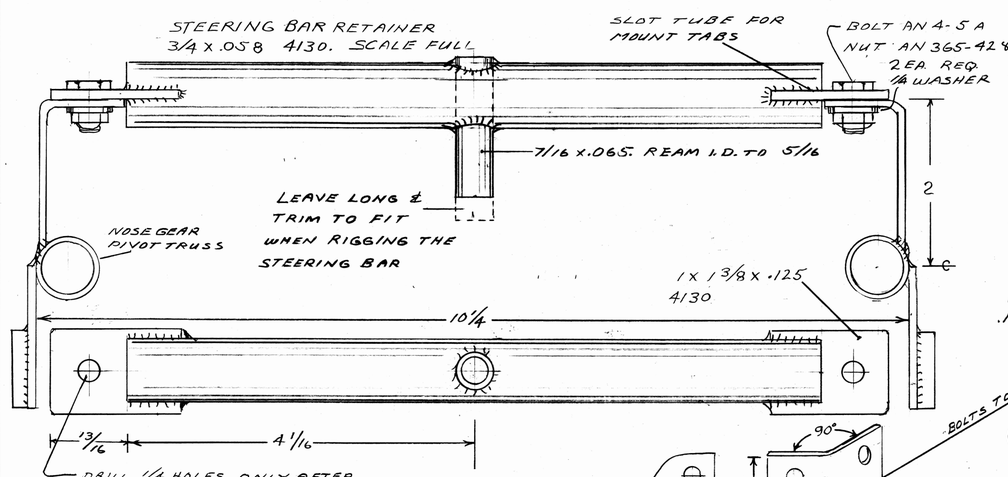


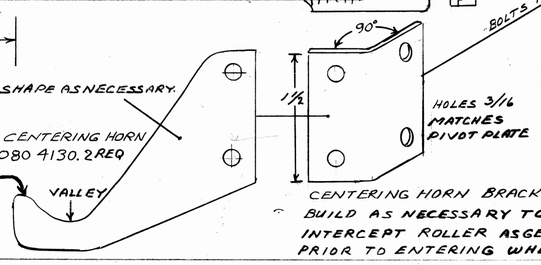
STEERING BAR PUSH ROD. 2 REQ





STEERING BAR RETAINER
3/4 x .058 4130. SCALE FULL



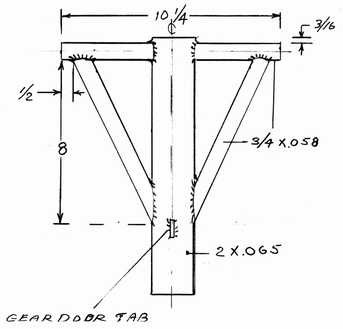


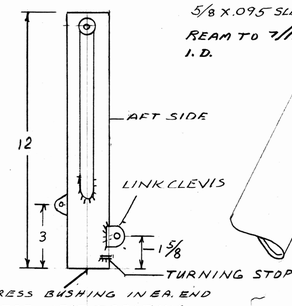
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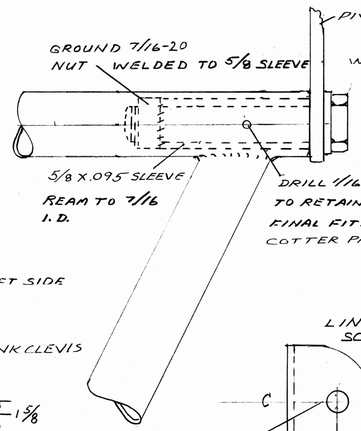
NOSE GEAR STEERING TRUSS	
DESIGN: OSPREY AIRCRAFT	
SCALE: FULL	
DWG. NO. 51	

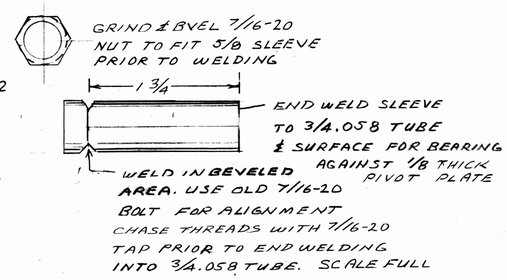
SN 703 San Rafael

NOSE GEAR UPPER STRUT
SCALE: 3" = 1' 4130 STEEL TUBING
HEAT TREAT
38-45 R/C





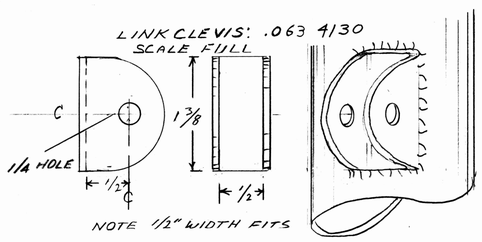


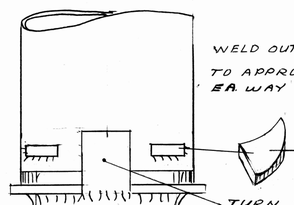


NOTES: ALIGNING STRUT STEERING ARM TO WHEEL FORK:

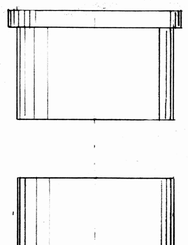
1. ASSEMBLE MIDDLE & BOTTOM STRUT WITH SCISSORS BOLTED & STRUT RETAINER BOLT
2. SLIP STRUT STEERING ARM IN PLACE & ALIGN WITH WHEEL FORK
3. DRILL 1/8" PILOT HOLE THROUGH STRUT STEERING ARM & MIDDLE STRUT, 1/2" BELOW TOP
4. ENLARGE PILOT HOLE TO 1/4". REMOVE STRUT STEERING ARM & ENLARGE 1/4" HOLE TO 3/8" IN MIDDLE STRUT ONLY.
5. WELD IN 3/8" X.065 COMPRESSION TUBE & FILE SO THAT STEERING ARM WILL SLIP BACK ON STRUT.
6. WITH STEERING ARM IN PLACE REAM OUT TO 1/4 & BOLT WITH AN4-20A
7. REPEAT FOR 2ND. HOLE THAT IS 1" FROM TOP OF STRUT & 90 DEGREES TO 1ST. HOLE

COMPRESSION SPRING DANLEY # 9-2A32-26 (SEE DWG. 34 FOR DANLY ADDRESS)
LENGTH: 8 INCHES
DIA. 1 3/16"
EACH 1/10" OF TRAVEL
REQUIRES 44.3 LBS.
FULL TRAVEL OF STRUT
IS 2" 886 LBS.



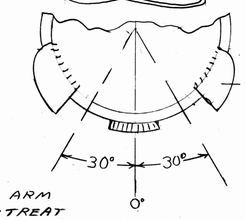




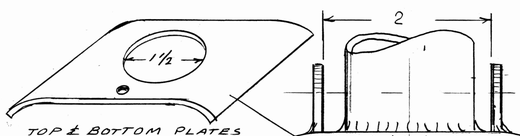




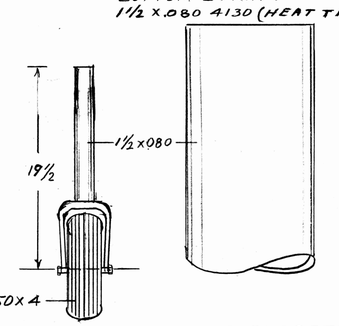
MACHINE BUSHINGS FOR PRESS FIT IN TOP & BOTTOM OF UPPER STRUT. I.D. OF 2 X.065 TUBE IS 1.870
I.D. OF BUSHING FITS 1 5/8 MIDDLE STRUT.
BUSHINGS ARE HARD BRONZE
2 REQ.

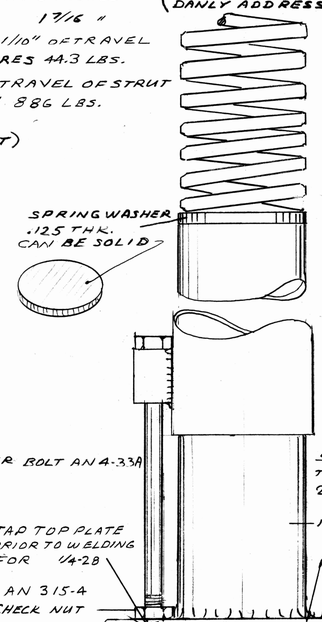


STRUT STEERING ARM
SCALE FULL HEAT TREAT

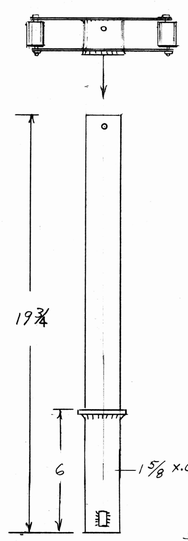


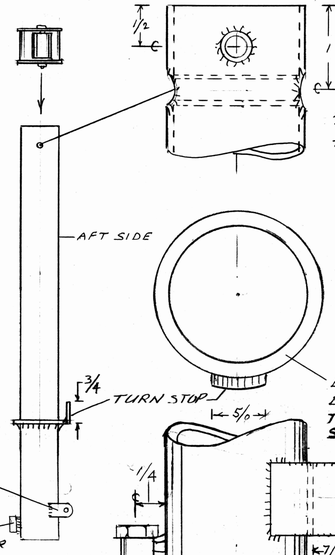
BOTTOM STRUT:
1 1/2 X.080 4130 (HEAT TREAT)

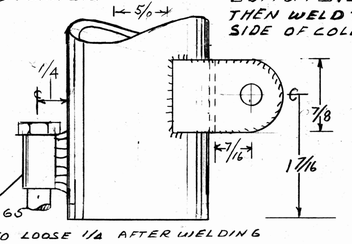


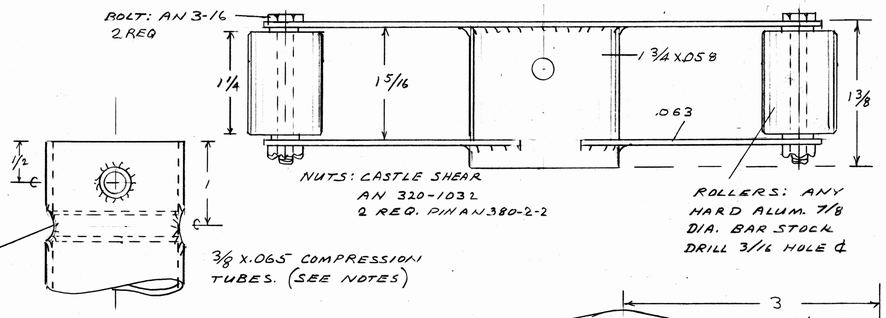


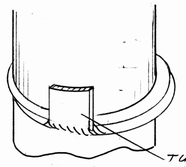
MIDDLE STRUT: 1 5/8 .050 4130
SCALE: 3" = 1' HEAT TREAT
38-45 R/C

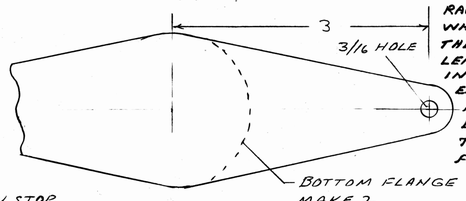


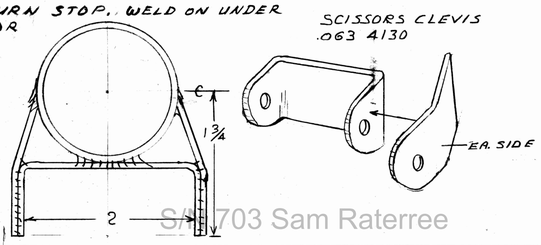




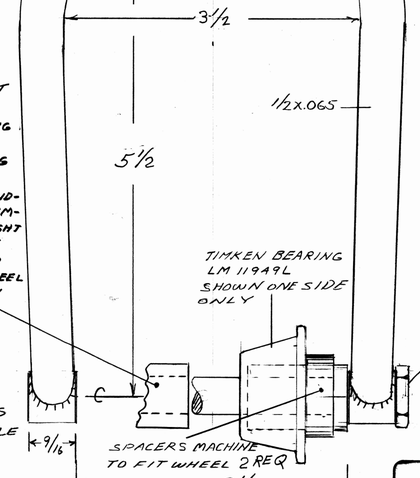








MAKE 3/4" DIA. SPACER JUST LONG ENOUGH BETWEEN BEARINGS TO KEEP BEARING RACE TIGHT AGAINST THE WHEEL WHEN TIGHTENING THE AXLE NUT. ADJUST LENGTH OF SPACER BY SANDING FOR A CLOSE ADJUSTMENT. AXLE MUST BE TIGHT IN THE FORK BUT THE BEARINGS ARE NOT SO TIGHT TO PREVENT WHEEL FROM SPINING FREELY



WHEEL IS GERDES A-1230 AVAILABLE WICKS AIRCRAFT

WHEEL IS 4" WITH TAPERED BEARINGS. THE BEARING SHOWN HAS 3/4" DIA I.D.. THIS REQUIRES 2 MACHINED ALUM. SPACERS TO POSITION THE WHEEL IN THE FORK & ALLOW BEARING ADJUSTMENT.
BOLT AXLE IS AN 7-47, NUT IS CASTLE AN 320-7. COTTER PIN IS AN 380-3-3
TIRE SIZE IS 10 X 3.50-4. 4 OR 6 PLY RATING.. USE 45 LBS. AIR PRESSURE

GP4 ©1985 OSPREY AIRCRAFT

NOSE GEAR STRUT ASSEMBLY
STRUT STEERING ARM
TOP, MIDDLE & BOTTOM STRUTS
DESIGN: OSPREY AIRCRAFT
SCALE: 3" = 1' & FULL
DWG. NO. 52

S/N 703 Sam Raterree

1/16" MAHOGANY PLY

TOP FUSELAGE SKIN STA-0-TO39

BOT. FUSELAGE STA.-0-TO 25

BOT. FUSELAGE STA. 25 TO S3 1/4

GRAIN

1/16" MAHOGANY PLY

TOP FUSELAGE SKIN STA. 88 TO 178

TOP FUSELAGE SKIN STA. 88 TO 178

GRAIN

TOP FUSELAGE SKIN STA. STA. 42 TO 88

ELEVATOR SKIN ONE SIDE

1/16" MAHOGANY PLY

2 BOT SKIN STA. 53 1/4 TO 78

INSIDE SKIN OF STA.-0-

ELEVATOR SKIN ONE SIDE

GRAIN

AILERON SKIN ONE SIDE

1/16" MAHOGANY PLY

2 BOT. SKIN STA 78 TO 168 3/4

GRAIN

FLAP SKIN ONE SIDE

1/16" MAHOGANY PLY

2 FIN SKINS

2 RUDDER SKINS

GRAIN

22"x24"

22"x24"

ELEVATOR SKIN ONE SIDE

SCARF AS SHOWN

22x24 GRAIN

SCARF LINE

22x24 GRAIN

THIS PIECE MAKES UP 22x43" SCARF TO 47x48" FOR 3 FLAP SKINS

1/16" MAHOGANY PLY

3 AILERON SKINS

47"x 48"

SCARF THIS PIECE TO 22"x 43" PIECE MAKES 3 FLAP SKINS

GRAIN

SCARF LINE

ELEVATOR SKIN ONE SIDE

1/16" MAHOGANY PLY

2 STABILIZER SKINS

GRAIN

3/32" MAHOGANY PLY

FUSELAGE SIDE STA.-0-TO 97

GRAIN

FUSELAGE SIDE 97 TO 178 ONE SIDE

FUSELAGE SIDE -0-TO 97

SCARFS LENGTHWISE TO INSIDE FUSELAGE WALLS -0-TO 25

3/32 MAHOGANY PLY

2 INSIDE FUSELAGE WALL STA.-0- TO 78

GRAIN

LOWER BOT. BAGGAGE COMPT. BACK SIDE STA. 78

FLOOR STA.-0-TO 25

OUTSIDE WALL NOSE GEAR TUNNEL

STA.-0-TO 25

3/32 MAHOGANY PLY

FUSELAGE SIDE STA. 97 TO 178 ONE SIDE

INSIDE WALLS NOSE GEAR TUNNEL STA.-0-TO 25

FLOOR STA.-0-TO 25

GRAIN

TUNNEL TOP

TOP OF BAGGAGE COMPT.

STABILIZER RIBS 11 EACH

L.E. FIN SPAR

12 ELEVATOR RIBS

5 RUDDER RIBS

RUDDER SPAR WEB

3/32" MAHOGANY PLY

FIN RIB ①

FIN RIB ②

REAR WING SPAR WEBS & GUSSETS

FLAP SPAR WEBS

AILERON SPAR WEBS

BAGGAGE FLOOR

GRAIN

3/32" MAHOGANY PLY 45°

GRAIN

SCARF THIS END

RIGHT WING TOP

3/32" MAHOGANY PLY 45°

SCARF THIS END

LEFT WING TOP

GRAIN

3/32" MAHOGANY PLY 45°

SCARF THIS END

LEFT WING BOT.

GRAIN

3/32" MAHOGANY PLY 45°

GRAIN

SCARF THIS END

RIGHT WING BOT.

3/32" MAHOGANY PLY 45°

TIP WING SKIN

4 EA.

GRAIN

SCARF THIS PIECE TO COMPLETE WING TIP. SCARF HERE

NOTE: LAY OUT TIPS SO THAT GRAIN WILL MATCH A&L. TOP & BOT. WING SKINS. USE 10 TO 1 SCARF ALL JOINTS.

1/8" MAHOGANY PLY

CENTER RIBS

NOSE RIB

A RIB

CENTER RIBS

NOSE RIB

GRAIN

1/8" BIRCH PLY

INST. PANEL GUSSET

OUT SIDE FIRE WALL STA.-0-

CANOPY BASE

GRAIN

1/8" BIRCH PLY 45°

MAIN SPAR WEBS

GRAIN

1/2" MAHOGANY PLY

INST. PANEL

STA. 88T

STA. 78 BOT

STA. 97 BOT

STA. 168 3/4 BOT.

STA. 114 TOP

STA. 97 TOP

STA. 132 TOP

149 1/2 TOP

149 1/2 BOT

STA. 114 BOT

STA. 132 BOT.

NOTE: IT IS ACCEPTABLE TO RUN GRAIN OTHER THAN SHOWN FOR 1/2" THK FUSELAGE FORMERS IF NECESSARY

NOTES: BE CAREFULL TO LAY OUT EACH SHEET PRIOR TO CUTTING. IF A MISTAKE IS MADE A 10 TO 1 SCARF FIX IS ACCEPTABLE

NACA DUCT:
SCALE FULL 2 REQ.

INSIDE SKIN

RAMP SUPPORT BLK

1/16" PLY RAMP

CABIN AIR OUTLET IS 1 7/8 x 3

1 1/4

1 7/8

RADIUS INLET EDGE

45° END BLK

45°

OUT SIDE SKIN

1

3/4 x 1 1/4 UPRIGHT AT STA. 25

STA. 12

OUT SIDE SKIN

6 3/4

3

1/2" SQUARES

SCALE FULL

1/16" PLY RAMP FLOOR

RAMP SUPPORT BLK

RAMP WALLS

3

6 3/4

6 3/4

3 1/8

RAMP WALL

INSIDE

OUT SIDE

45° END BLK

PINE OR SPRUCE 3/4" THK. STOCK

30/32

10 TO 1 SCARF JOINT FOR 3/32 THK. PLY.

30/32

ALL PLY JOINTS REQ A 10 TO 1 SCARF

SHEET METAL SCREWS

2 1/4x 2 1/4 CAP

SHEET METAL SCREWS NO 4 x 1/4

3

TOP VIEW

1/10 SCALE EYE BALL VENT NO. SW 2 100M 2 REQ.

PLENUM FITS AGAINST SIDE WALL & BUTTS AGAINST BOTTOM OF INST. PANEL

FOLD UP PLENUM FROM SOFT .025 ALUM.

EYEBALL END SHOULD BE 2 1/4 x 2 1/4" MINIMUM

NACA DUCT LOCATION (1 EA. SIDE)

2 1/2

1/10 SCALE SIDE VIEW

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PLYWOOD LAY OUT

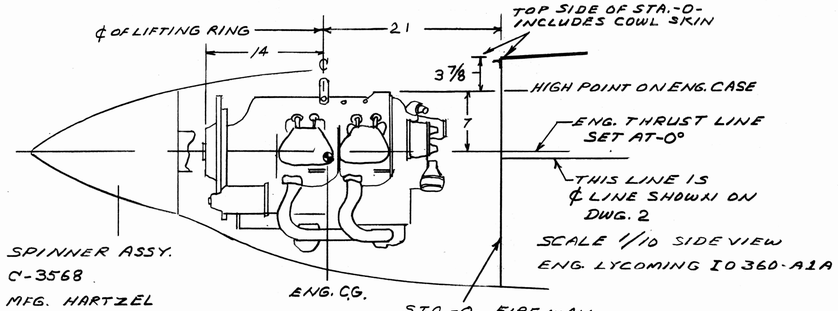
NACA DUCT

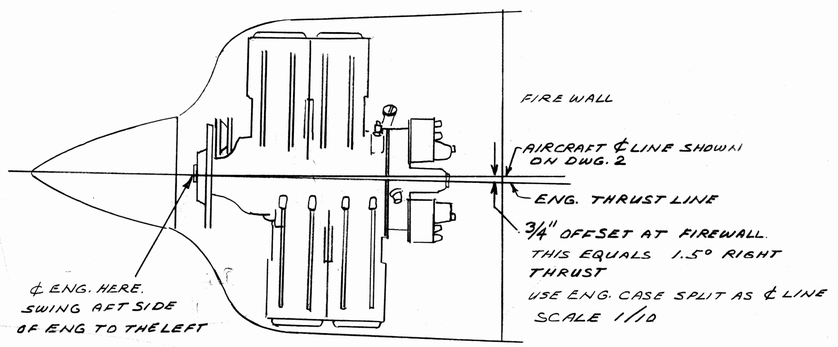
DESIGN: OSPREY AIRCRAFT

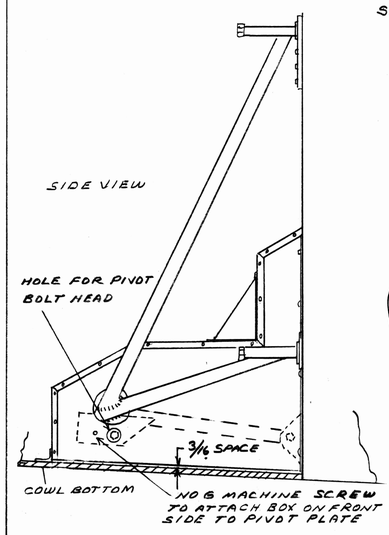
SCALE: 1/20 1/10 & FULL

DWG. NO. 53

S/N 703 Sam Raterree

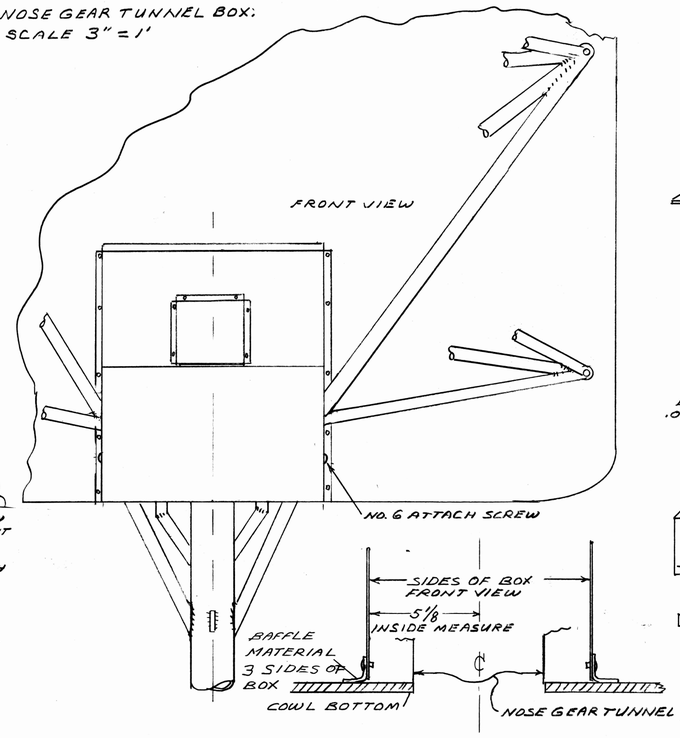


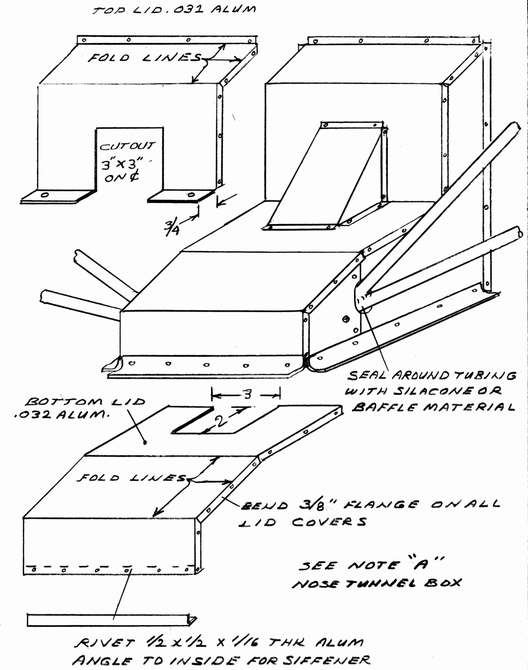


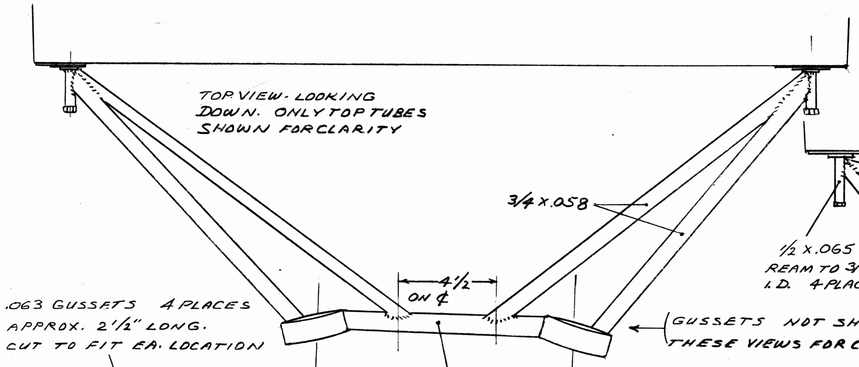


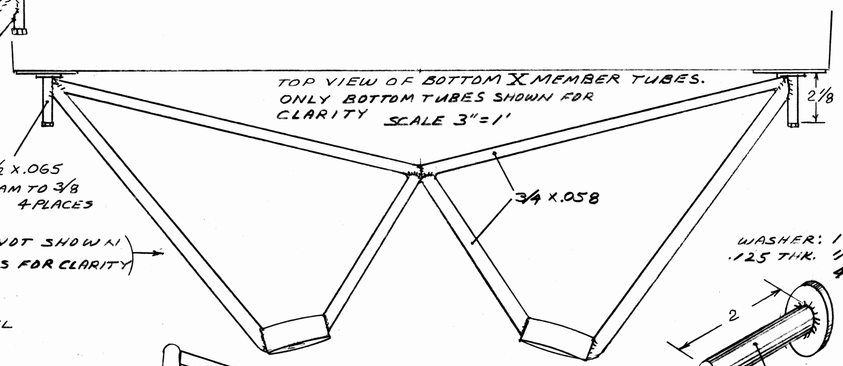
CUT BOTTOM SIDE OF BOX TO MATCH COWL BOTTOM. ALLOW 3/16" SPACE TO ATTACH BAFFLING MATERIAL. BAFFLE MATERIAL FOLDS OUTWARD & PRESSES AGAINST COWL BOTTOM.

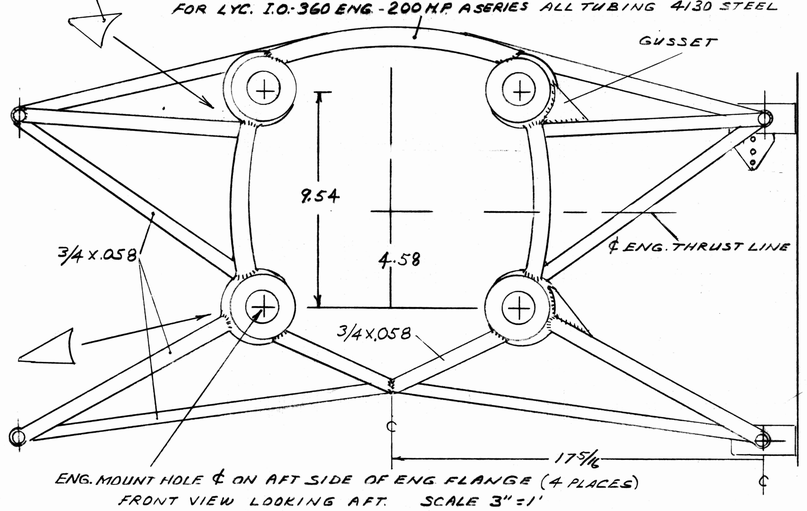
NOSE GEAR TUNNEL BOX:
SCALE 3" = 1'

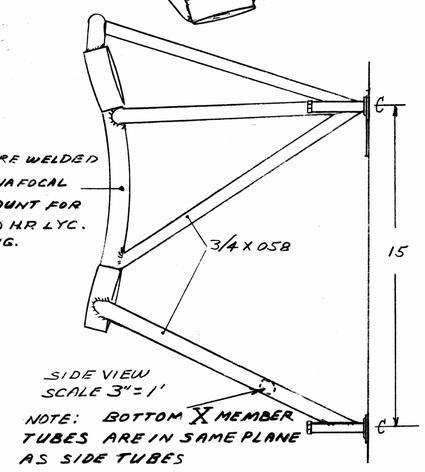




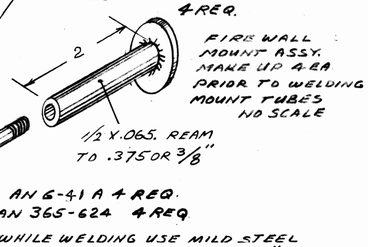






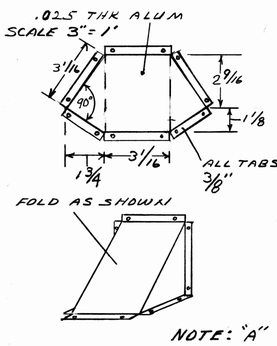


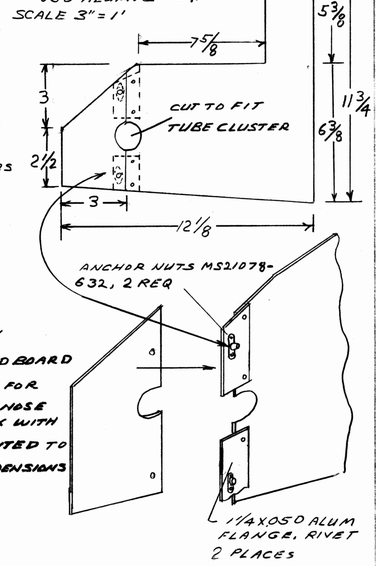
NOTE: BOTTOM X MEMBER TUBES ARE IN SAME PLANE AS SIDE TUBES



BOLT AN 6-41 A 4 REQ.
NUT AN 365-624 4 REQ

NOTE: WHILE WELDING USE MILD STEEL HARDWARE STORE BOLTS 3/8" x 4 1/2 4 REQ.





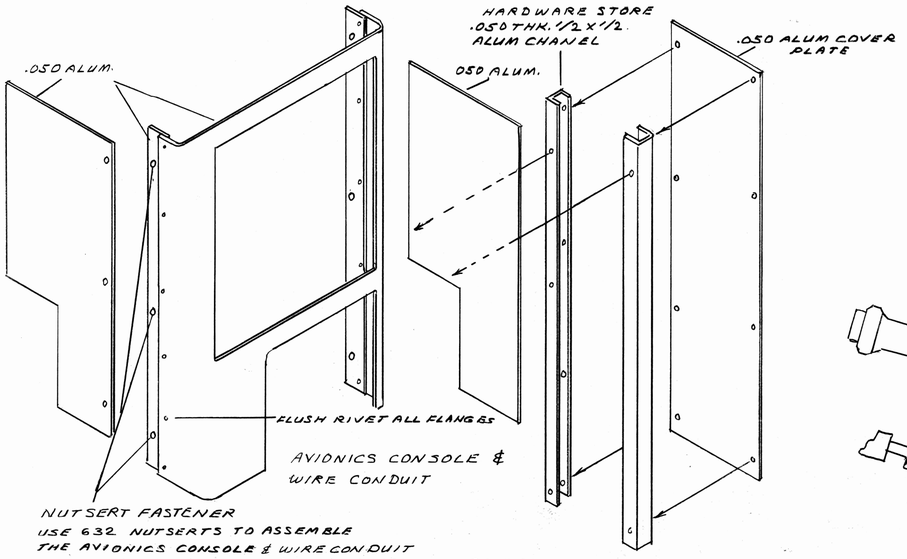
NOTE: "A"
MAKE CARDBOARD TEMPLATES FOR FITTING THE NOSE TUNNEL BOX WITH ENGINE MOUNTED TO FIREWALL. DIMENSIONS MAY VARY

NOTE:
COMPLETE AS MUCH OF THE WELDING AS POSSIBLE BEFOR REMOVING THE MOUNT & ENG. USE FIRE SHIELDS ALL AROUND THE FIRE WALL MOUNT ASSY & ENG.
TO FINISH THE WELDS IN THE HARD TO REACH AREAS, REMOVE THE MOUNT & BOLT THE 4 CORNERS TO A RIDGED PLY SHEET WITH FIRE SHIELDING UNDER THE MOUNT. FINIS ALL WELDS & STRESS RELIEVE ALL WELDED CLUSTERS,
NOTE: IF READY MADE ENG. MOUNT IS PURCHASED USE THAT MOUNT AS A DRILL GUIDE TO BORE THROUGH THE FIREWALL

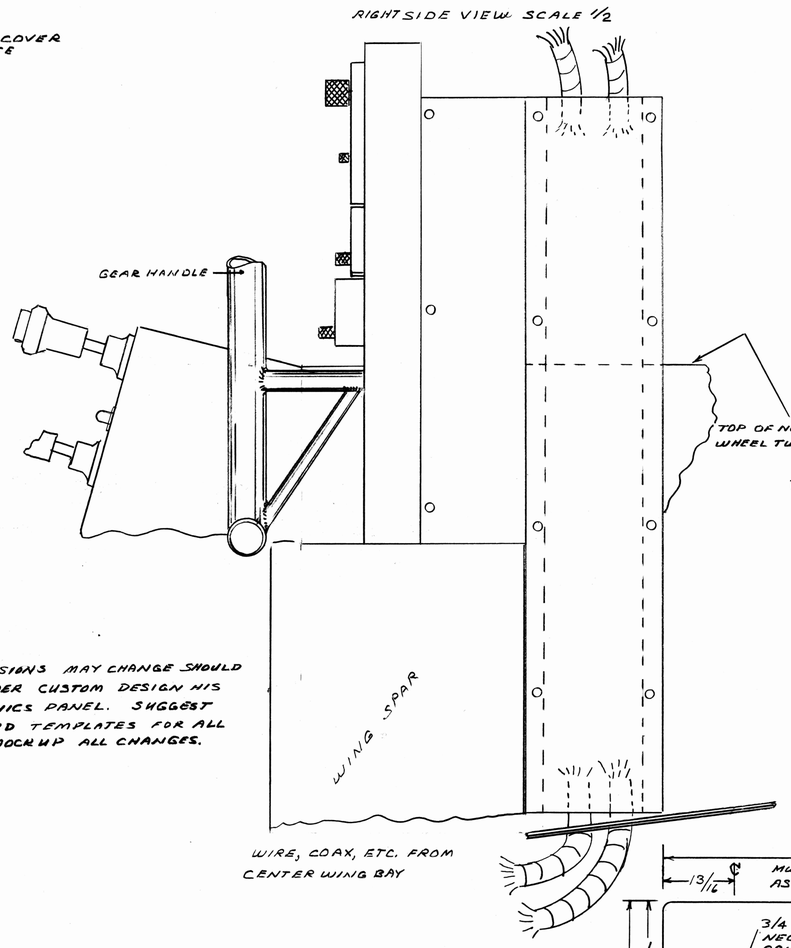
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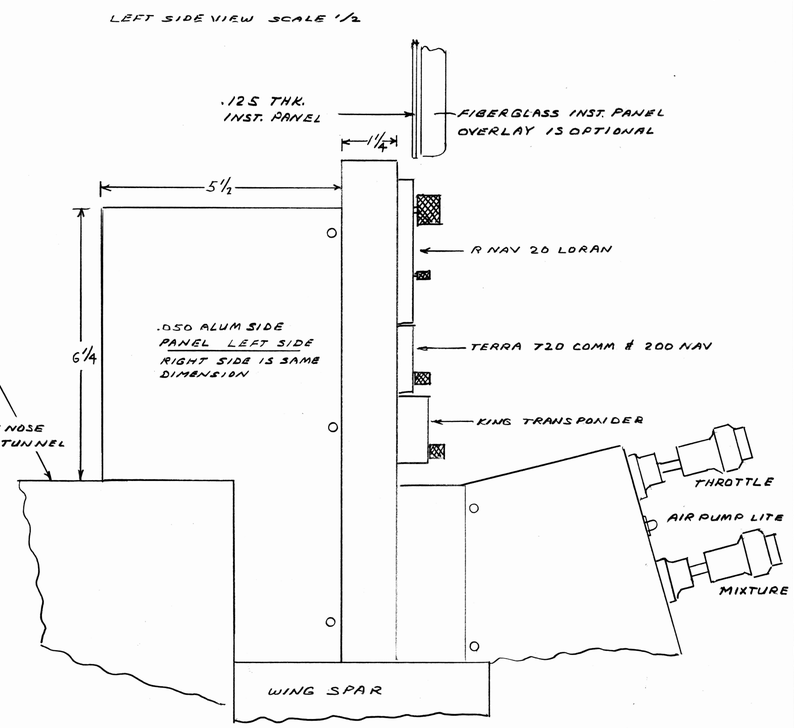
ENG. MOUNT FOR LYCOMING IO-360 A1A	
NOSE WHEEL TUNNEL BOX	
DESIGN: OSPREY AIRCRAFT	
SCALE: 1/10, 3"=1' & FULL	
DWG. NO. 54	

S/N 703 Sam Raterree

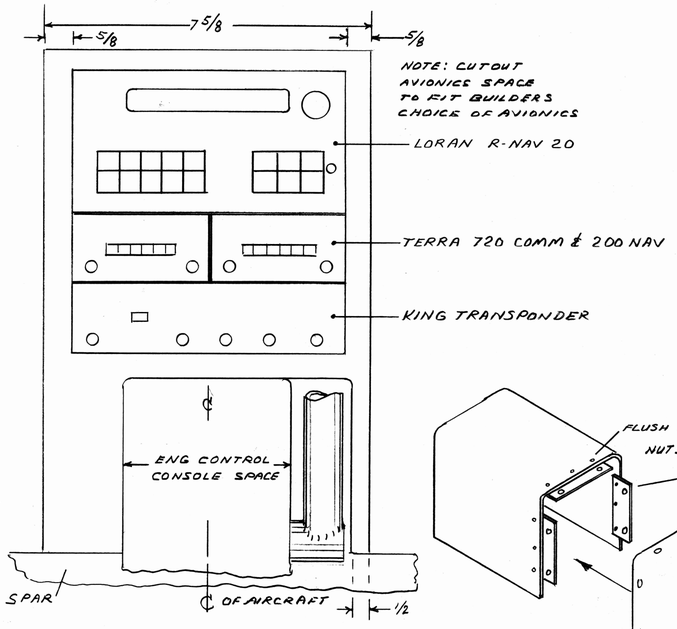


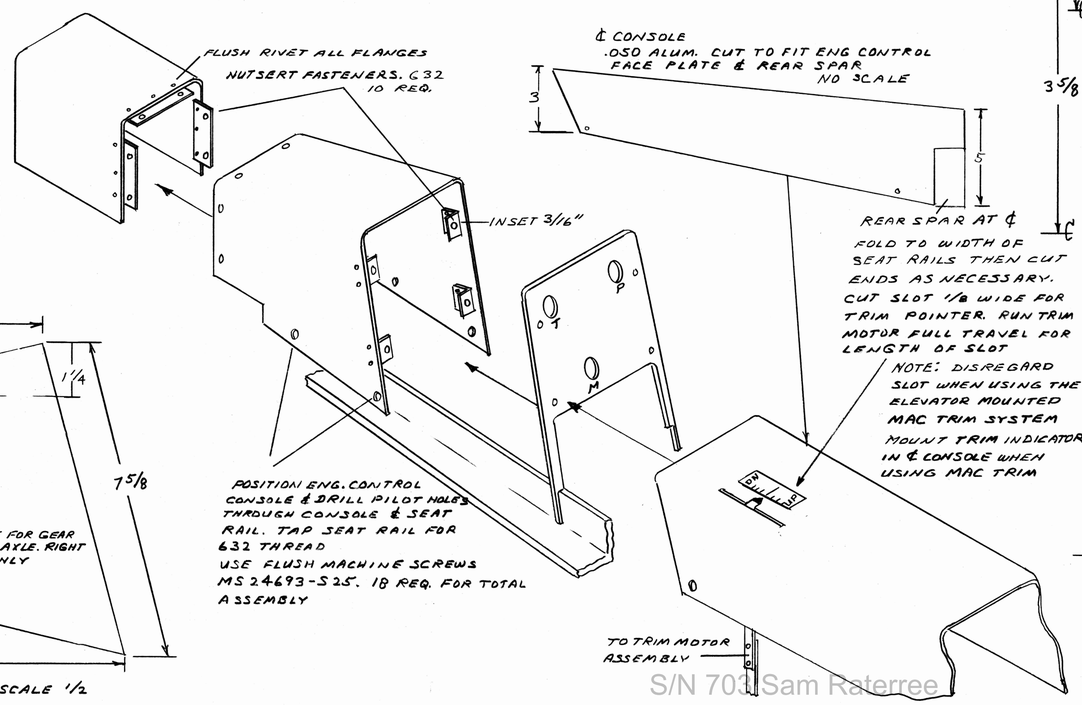
NUTSERT FASTENER
USE 632 NUTSERTS TO ASSEMBLE
THE AVIONICS CONSOLE & WIRE CONDUIT
FLUSH MACHINE SCREWS ARE MS 24693-S25 20 REQ.

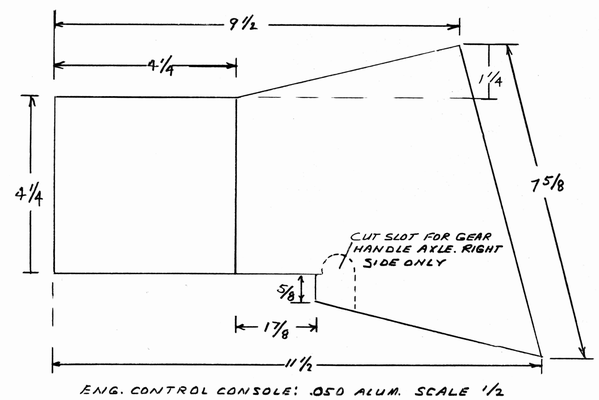




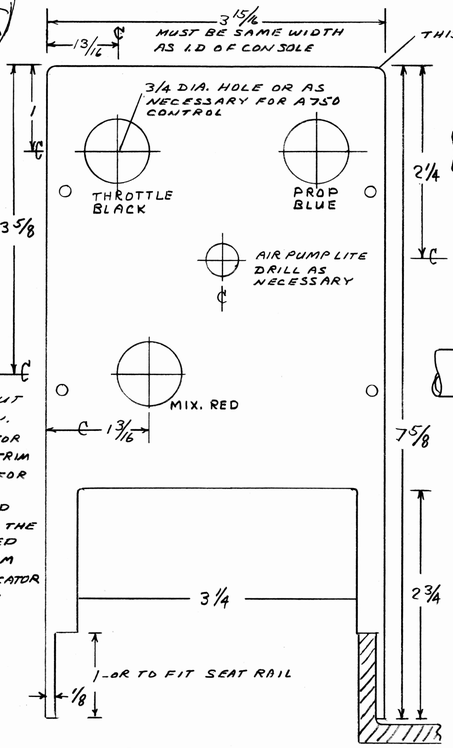
NOTE: ALL DIMENSIONS MAY CHANGE SHOULD THE BUILDER CUSTOM DESIGN HIS OWN AVIONICS PANEL. SUGGEST CARD BOARD TEMPLATES FOR ALL UNITS & MOCK UP ALL CHANGES.



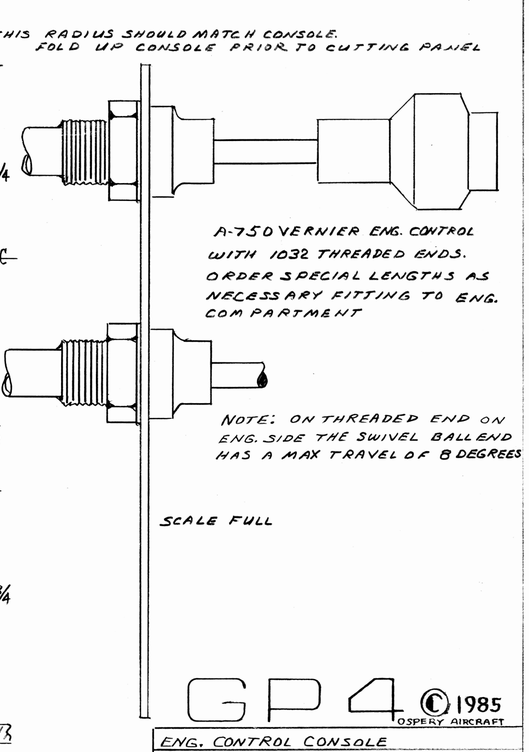




ENG. CONTROL CONSOLE: .050 ALUM. SCALE 1/2



ENG. CONTROL FACE PLATE
.125 ALUM 6061 T-6
SCALE FULL



GP 4 ©1985 OSPERY AIRCRAFT

ENG. CONTROL CONSOLE
CENTER SEAT RAIL CONSOLE
AVIONICS CONSOLE
DESIGN: OSPERY AIRCRAFT
SCALE: 1/2 & FULL
DWG. NO. 55

S/N 703 Sam Raterree

NOTE:

THE NOSE GEAR DOOR WILL TEND TO CLOSE IF THE AIRCRAFT IS SLIPPED PRIOR TO RETRATING. THIS IS WHY THE GEAR DOOR IS LOCKED IN THE OPEN POSITION

WHEN NOSE GEAR IS RETRACTED THE LINK STRIKES THE PIN FIRST RELEASING THE LOCK BAR. THE LINK THEN CONTINUES TO TRAVEL STRIKING THE PULLEY WHEEL CLOSING THE DOOR

PIN — LOCKBAR IS IN FRONT OF L BRACKET LOCKING DOOR OPEN — LOCK BAR PIVOTS HERE RELEASING DOOR TO CLOSE

COWL — PIANO HINGE — COWL DOOR — LINK — LINK STRIKES PIN HERE — DOOR SHOWN IN A LOCKED OPEN POSITION

LINK SCALE FULL

EYE BOLT AN 438-6 — FORKED ROD END AN 486-3P — THIS END REQ. CLEVIS PIN MS 20392-2C15

SCALE: 3"= 1'

COWL DOOR CLOSED & FLUSH WITH COWL

EDGE OF TUNNEL IS ROUTED TO ACCEPT A FLUSH FITTING DOOR

NOSE GEAR DOOR CLOSED & FLUSH WITH BOTTOM

BOTTOM COWL SHOWN BOTTOM SIDE UP SCALE 3"= 1'

FORWARD — LOUVERS — COWL DOOR — 9 3/16 — 2 1/4 — 3 5/8 — 1 3/16 — 4 3/8 — 10 1/4

2 1/2

.050 THK 3/4" ANGLE STIFFENER RIVET TO BOTTOM COWL 20" LONG

PIANO HINGE 20001P4 9 3/16 LONG

5/8 — 1 1/2 FOAM — 3/32 PLY

2 LAYERS 8.0Z FIBER GLASS BOTH SIDES OF DOOR

MACHINE SCREWS MS 35190-253 4 REQ.

RIVET HINGE TO PLY. 1" SPACING

ANCHOR NUTS MS 21069-L08 4 REQ RIVET TO PIANO HINGE

LAY UP FIBERGLASS DOOR STOP DOWN EA. SIDE

COWL — CROSS SECTION OF DOOR

SCALE FULL

3/16 HOLE IN CLEVIS — RIVET CLEVIS TO PLY — CLEVIS .050 4130 — 3/4 — C — 3

AIR CYLINDER IS ARO 0176-4019-040

2 REQ. CYL. IS SPRING LOADED OPEN

AIR CLOSES THE DOOR AS CYL. RETRACTS. THE UPLOCKS ENGAGE AT SAME TIME

SPAR — MOUNT BLKS. GLUE TO 1/16 PLY SKIN — AIR CYL. — DOOR HORN — NYLO FLOW BRASS FITTING 268P-03X02 — NYLO FLO 3/16 LINE — T-INTO AIR SOURCE — DOOR

TOP VIEW 1/10 SCALE

FLOX AN 3 BOLT & CLEVIS BRACKET TO MOUNT BLK — 9/16 — COUNTER SINK BOLT IN BLK — SIDE VIEW — AIR CYL — ADJUST TO CYL. WIDTH — CLEVIS .050 4130 — FLOX — 1/4" CLEVIS PIN — WING SKIN AT FUSELAGE BOTTOM — 1/4" THK. MOUNT BLK GLUE TO BOT. SKIN

ROD END AURORA XM 3 2 REQ. GOES TO CYL. — AN 4 CHECK NUT — SPAR — NO SCALE — DOOR

2 3/4 — 1 3/8 — ROD END TO DOOR HORN AURORA MW 3 4 REQ. AN 3 CHECK NUT — MAKE PUSH ROD FROM 3/16 BOLT THREAD ENDS TO 1032 ADJUST LENGTH AS NECESSARY — .063 4130 — SCALE FULL — 1/4" TUBE REAM TO 3/16 BORE

NOSE GEAR RETRACT BRACKET .071 THK. 4130 SCALE: FULL

CABLE GUIDE EA. SIDE — PULLEYS MS 20219-2 2 REQ. — BOLT AXLE AN 4-36 NUT AN 320-A COTTER PIN 380-2-2

BOLTS AN 3-13A 4 REQ. — 1 3/4 — 2 7/16 — RUDDER CABLE — 3/8 X .058 — .080 4130 — WASHERS AN 960-416 2 REQ.

BOLT AN 3-7A 2 REQ. — NUT AN 365-1032 2 REQ. — ROD END HF3 2 REQ. — SCREEN DOOR SPRING — CHECK NUT AN 360-1032

C — 1 7/16 — 1/2 — 5/8 — 90° — 3/16 HOLES — 1/2 — 2 1/2

ANCHOR NUT MS 21069-L3 2 REQ. RIVET NUTS TO .050 ALUM PLATE 1" X 2 SCREW PLATE TO TOP OF TUNNEL LID — TUNNEL LID

PULLEY MS 24566-1B 1 REQ. — BOLTS AN 3-12A 2 REQ — MACHINE SCREWS — 5/16 — RETAINER PIN & COLLOR — LIGHT COMPRESSION SPRING. — 3/8 X .058 — 3/8 X .058 SPACER AS NECESSARY — NUTS AN 365-832 2 REQ. — .050 SPRING TAB TOP & BOTTOM SPRING IS LIGHT. ABOUT 3/16 O.D.

1/4 — 1 7/16 — BAR FACE IS 45° TO PIVOT ARM — .071 4130 — 1 — 1 3/16 — STRETCH-O-RING OVER PULLEY TO SERVE AS A BUMPER TIRE

LOCK BAR SCALE: FULL — 1/2 — .050 THK — C 3/16 PIVOT HOLE

MAKE PIN FROM AN 4-40A ROUND THE HEAD AS SHOWN

3/8 — 1 3/8 — 1/16 HOLE IN ARM — SAW IN HALF AFTER WELDING — 3/16 HOLE DRILL AFTER WELDING — 1/2

L BRACKET .071 THK. 4130 SCALE: FULL

1/4 — 1 3/4 — 3/16 HOLE — LOOSE 3/8 HOLE C — 1/2 — 3/16 — 3/8 X .058 TUBE

CLEVIS - AN 486-3P — CHECK NUT AN 316-4

MACHINE SCREWS MS 35206-248 — CLEVIS PIN MS 20392-2C9 — TOP & BOTTOM ARMS ARE 1/2" LONG SPRING HOLE TO C OF 1/2 TUBE

SPRING ARM .050 4130 — 1/16 HOLE — 1/2 — 1/4 X .035 TUBE LEAVE LONG UNTIL WELDED — LOCK BAR CLAMP SCALE FULL — 3/4 I.D.

C 3/8 — 2 1/4 — .050 ALUM. PLATE 2 1/4 X 2 5/8 — ANCHOR NUTS MS 21069-L3 4 REQ.

.050 ALUM PLATE — RUDDER CABLES

7/8 — 1/2 — NOSE WHEEL DOOR PUSH ROD .035" X 1/4

DRILL END OF TUBE 3/16 ID & WELD IN STUD

MAKE STUD FROM AN 3-14A 2 REQ

THIS PUSH ROD IS APPROX. 11 1/2" LONG HOLE C TO HOLE C SUGGEST A PUSH ROD MOCK UP TO INSURE CORRECT LENGTH

NOTE MAKE MOCK UP OF 3/8 X .058 PUSH ROD TO INSURE CORRECT LENGTH

PULLEY-O-RING — 1/2 — NUT AN 365-10.33 — BOLT AN 3-7A — 7/8 — 1.2 5/16 (CLEVIS WIDTH)

PULLEY CLEVIS SCALE FULL

17" — 1" — 1/2 — 1 — 1/2 — 3/8 X .058 — 1 1/8

GP4

© 1985 OSPREY AIRCRAFT

NOSE GEAR DOOR - LOCK ASSEMBLY

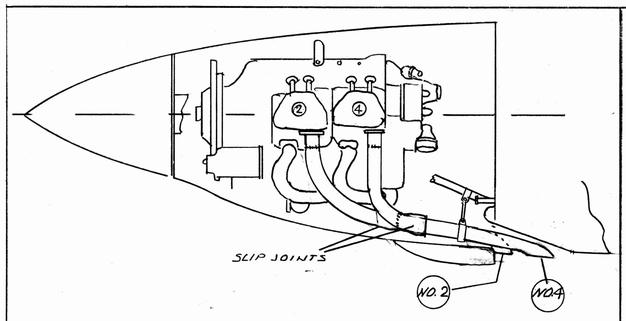
NOSE GEAR COWL DOOR

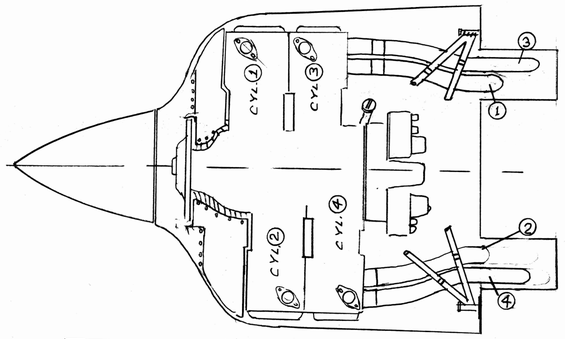
DESIGN: OSPREY AIRCRAFT

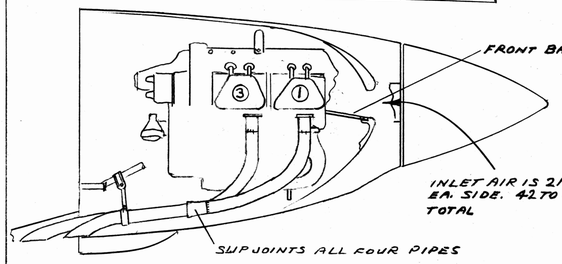
SCALE: 3"= 1', FULL

DWG. NO. 56

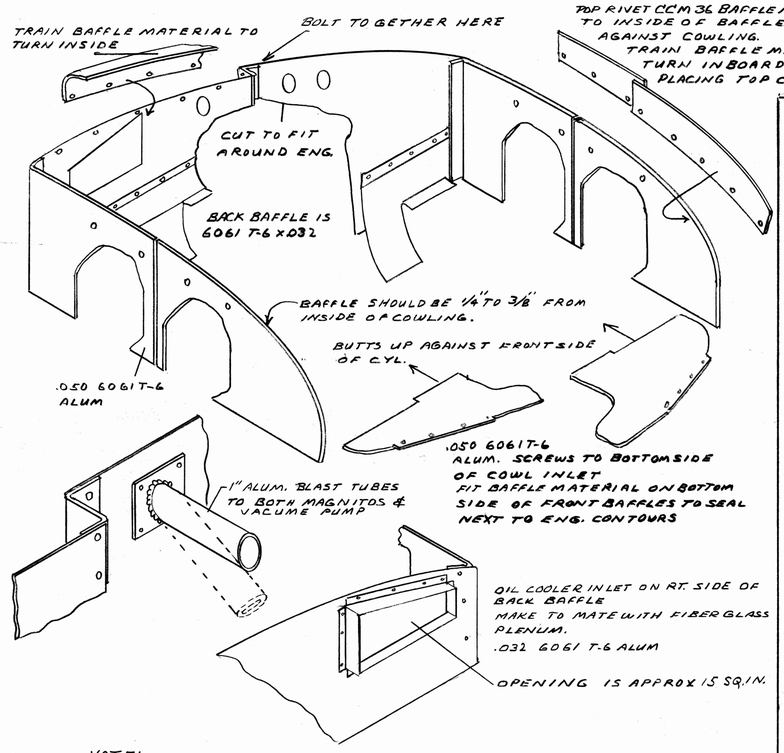
S/N 703 Sam Raterree



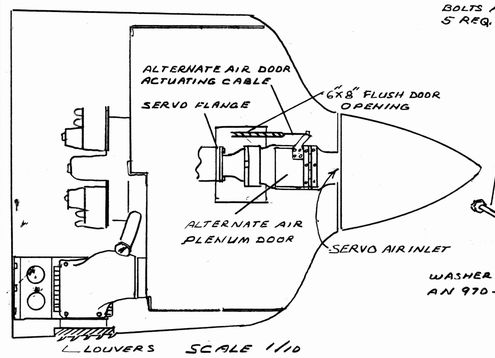




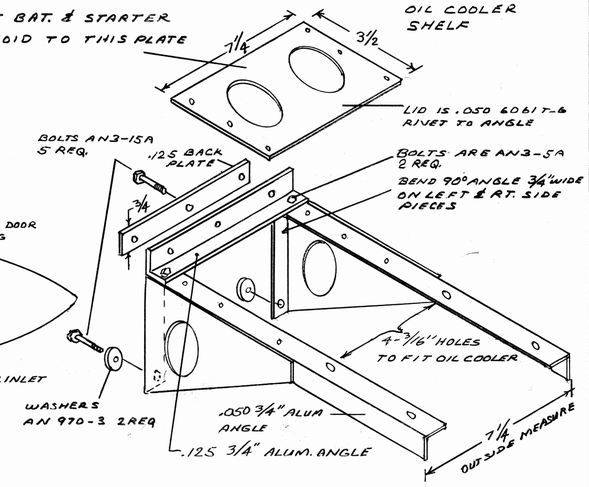
INLET AIR IS 21.2 SQ.IN. EA. SIDE. 42 TO 45 SQ IN TOTAL

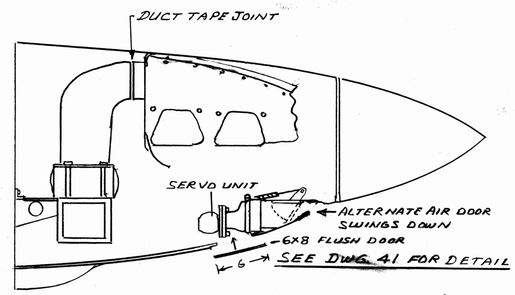


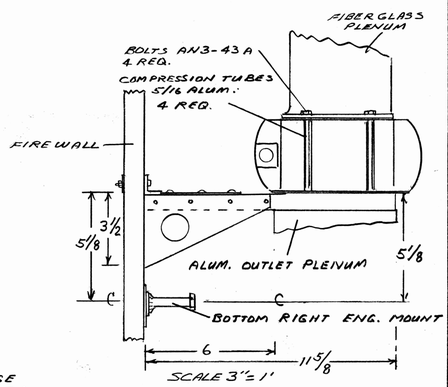
NOTE:
SUGGESTED EXHAUST SYSTEM IS MADE FROM PRE-BENT ELBOWS & PRE-FORMED SLIP JOINTS. HELI-ARC WELDED. ALL TUBING IS 1 3/4 X .035 STAINLESS STEEL. MILD STEEL, AVAILABLE FROM MUFFLER SHOPS, CAN BE USED AS A MOCK UP TO DETERMINE ELBOWS REQUIRED & COWL CLEARENCE.

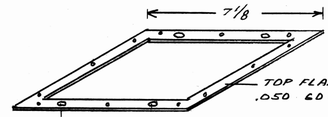


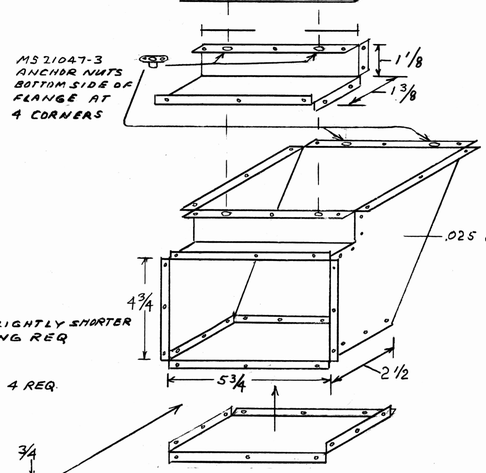
SCALE 1"=1'0

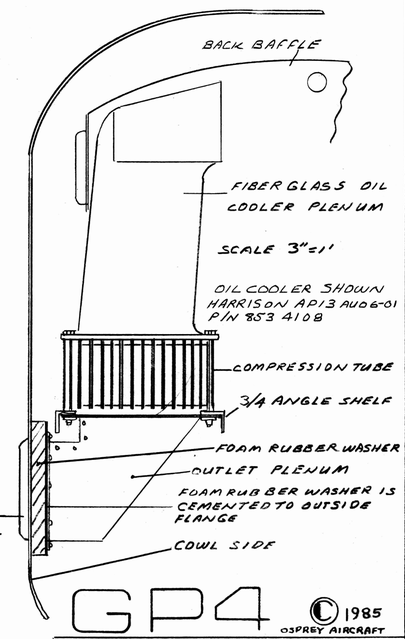


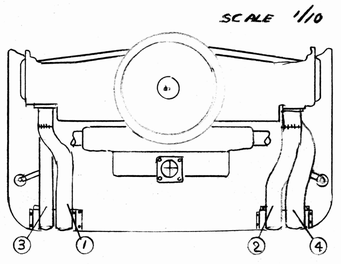




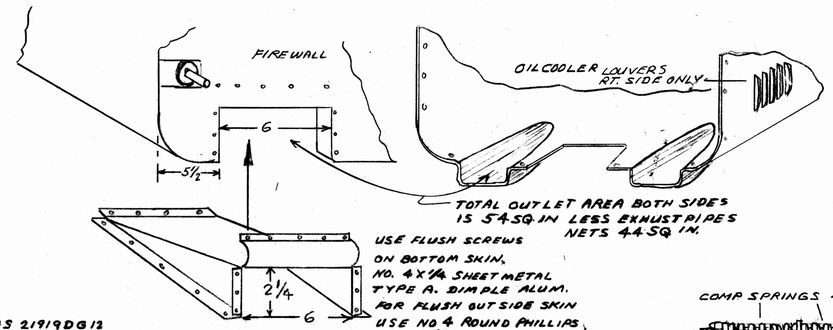


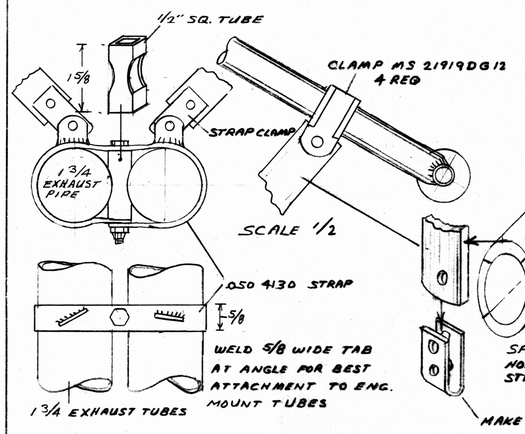


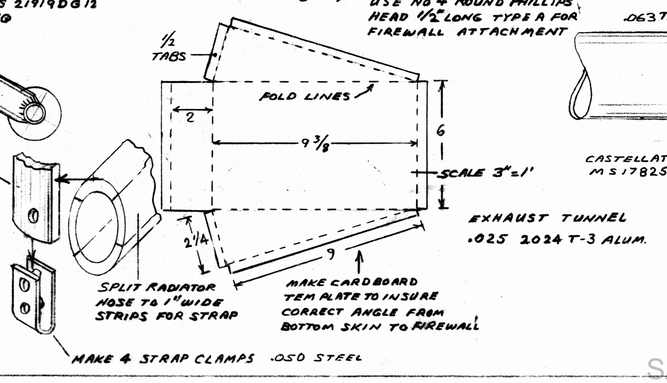




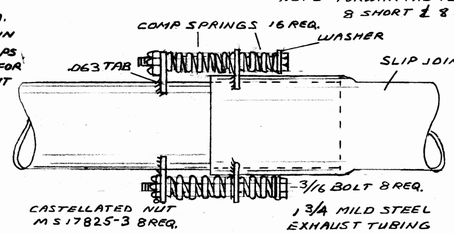
SCALE 1/10



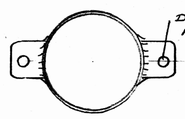


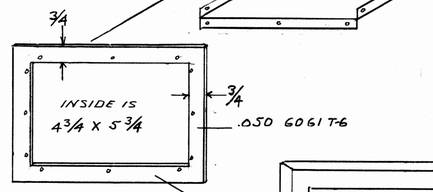


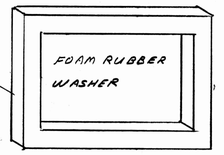
EXHAUST TUNNEL .025 2024 T-3 ALUM.



NO SCALE





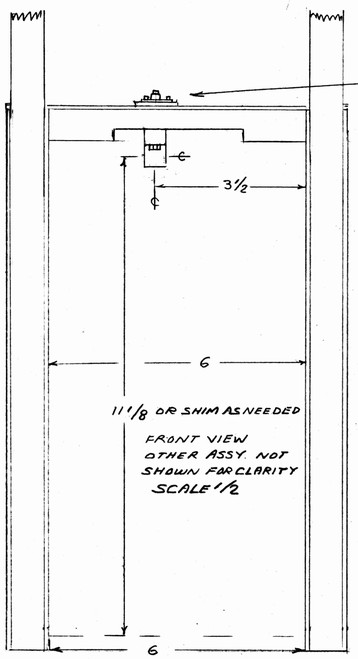


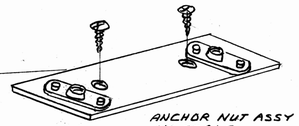
NOTE:
OIL COOLER ON PROTOTYPE IS A HARRISON AP 13 AUG 6-01 P/N 853 4108.
ANY EQUIVALENT AIRCRAFT COOLER CAN BE USED MUST HAVE 13 RIBS FOR ADEQUATE COOLING

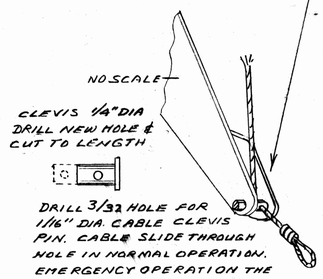
GP4 © 1985 OSPREY AIRCRAFT

ENG. EXHAUST - BAFFLES - OIL COOLER
ASSEMBLY -
DESIGN: OSPREY AIRCRAFT
SCALE 1/10, 1/2, & 3"=1'
DWG. NO. 57

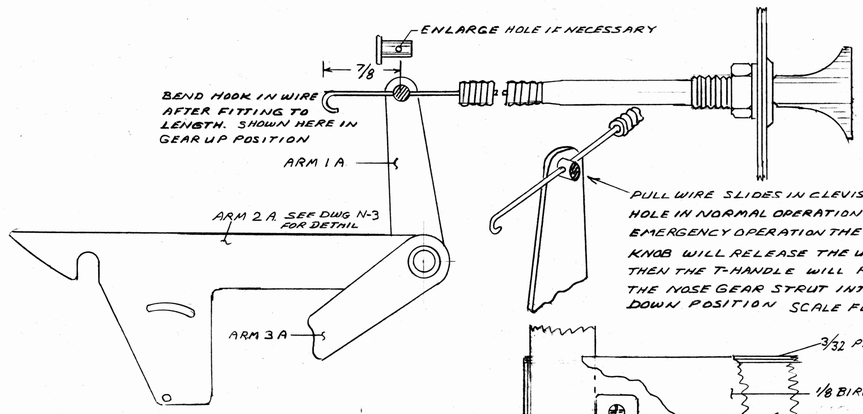
S/N 703 Sam Raterree

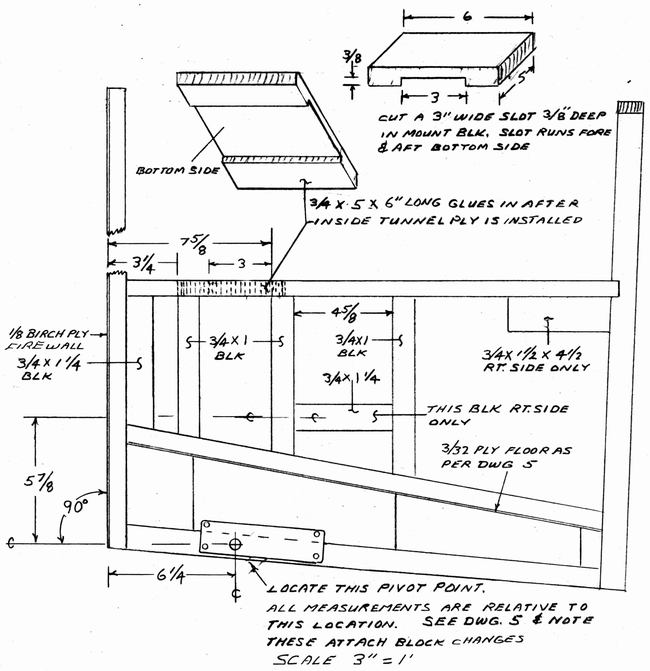


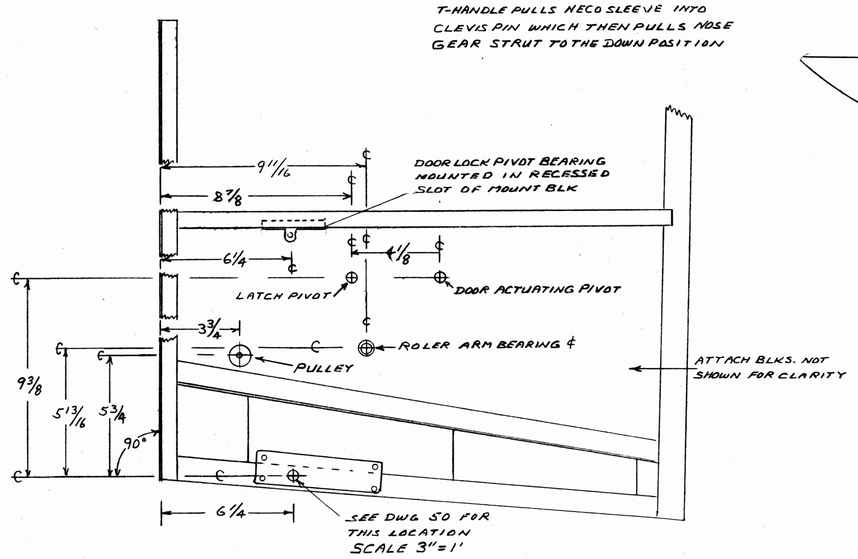


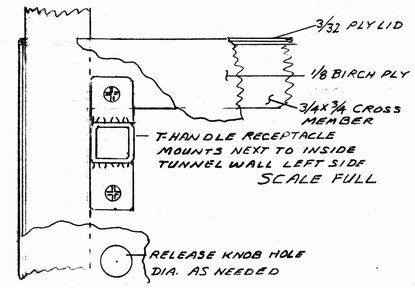


VERY LIGHT SPRING: ABOUT 5 1/2" LONG 1/4" DIA COILS ABOUT 3/32 WIRE DIA. OR LESS AVAILABLE HARDWARE STORE. SPRING KEEPS SLACK OUT OF CABLE IN NORMAL OPERATION. MOUNTS LEFT SIDE









GP4 © 1996 OSPREY AIRCRAFT

HYDRAULIC LANDING GEAR:
NOSE GEAR TUNNEL. GEAR UP POSITION
SCALE: FULL, 1/2, & 3"=1'
DESIGN: OSPREY AIRCRAFT
DWG. NO. N-1

S/N 703 Sam Raterree

DWG 51 GP-4 PLANS
LENGTHEN RUDDER CABLE HORN 1 INCH TO 4 3/8 ALL OTHER ARMS AS PER DWG 51
MOUNTS AS SHOWN ON GP-4 DWG 51

4 3/8

RIGHT SIDE SHOWN
SCALE FULL

1/8" STUD
NOTE CHANGE ON SPACING NOW 1/8" FROM STEERING ARM. 1/8" STUD (DWG 51 SHOWS 1/4" SPACING.)

7/16 X .065 REAM TO 5/16

1/8"

AN 4-6A

AN 365-A

AN 3-12 USE PLATE AND ANCHOR NUT ON TOP SIDE

.071 THK. 4130

3 1/8

PULLEYS ARE SAME AS SHOWN ON GP-4 DWG. 56
PULLEY BRACKET SHOWN HERE REPLACES MANUAL RETRACT SYSTEM BRACKET SHOWN ON DWG 56.
CABLE IS NOW CLOSE TO TOP OF TUNNEL BUT IN SAME TUNNEL LOCATION AS SHOWN IN GP-4 DWG. 56

RT. SIDE OF TUNNEL

DOOR SPRING: ABOUT 4" LONG. RT. SIDE OF TUNNEL TOP
ABOUT 1/2" DIA COILS. WIRE SIZE 1/16 TO 5/64
STRETCH IS ABOUT 11" PRELOAD ABOUT 9"
SHOULD OPEN DOOR INTO LOCKED OPEN POSITION

ARM 3
ARM 2
ARM 1

LINK ASSY. NOT SHOWN COMPLETE FOR CLARITY

AN 818-4 COUPLING WITH MS 20819-4 SLEEVE

MS 20822-4D ELBOW

SPRING IS ABOUT 7 1/4" LONG
ABOUT 5/8" DIA. COILS. WIRE SIZE ABOUT 1/16" DIA OR 5/64
STRETCH ABOUT 15", PRELOAD ABOUT 5"

CABLE: 1/16 X 7X7-GV
NEOPRESS SLEEVE 18-1-C 2 REQ.

CABLE 3/32 X 7X7 GV
NEOPRESS SLEEVE 18-2-G 2 REQ.

TUNNEL DOOR HINGES LEFT SIDE

TUNNEL WALL RT. SIDE
SCALE FULL

AN 970-4 WASHER

SPRING SHACKLE
080 4130
5/16 HOLE: LOOSE FIT TO 5/16 SPACER
SCALE FULL

1/8 DIA.

MS 24694-S99

AN 970-4

3/8 X .058 SPACER

5/16 X .035 SPACER
DRILL I.D. TO 1/4

TO MANIFOLD
SEE DWG. M-5 & M-9

ROUTE AEROQUIP 303-4 HOSE UNDER SPAR FROM CYL. TO MANIFOLD

SPRING BRACKET
1/2 x 1/2 ALUM ANGLE
SCREW TO INSIDE OF TUNNEL LEFT SIDE
BRACKET USED 2 PLACES
ATTACH WITH 2 NO 6 X 5/8 LONG SHEET METAL SCREWS

1 1/4

NOTE: ALL SPRINGS SHOWN THIS DWG. ARE AVAILABLE FROM MOST HARDWARE STORES

3/16 HOLE

NO SCALE

NO. 8 HOLE

.125 ALUM OR FOLD 90° FROM .063 4130

NOTE: ROLLER RIDES ALONG CYL. SHAFT. ROLLER BEARING CAN BE WASHERED TO ℄ ON ROUND SHAFT

BEARING

WASHER AS NECESSARY TO ℄ ON SHAFT

CYL. SHAFT

MACHINE SCREWS-MS 35190-253 4 REQ

1 3/16

2 1/2

HINGE PIN SEE DWG 42 FOR DOOR DETAIL
SCALE 1/2

TUNNEL DOOR PUSH ROD

ROD END AURORA MW-3 2 REQ.

CHECK NUT AN 316-3 2 REQ.

BOLT AN 3-6A
NUT MS 20365-1032

1032 THREADED STUD
BRAZE OR WELD INTO 1/4 x .035 TUBE

9 3/16

APPROX LENGTH. SUGGEST DUMMY ROD PRIOR TO FINISHED ROD SCALE FULL

7/8

3/4

SPACER BLK
6061 T-6 ALUM 3/8" THK

COUNTER BORE HOLE WASHER SIZE FOR FLUSH FIT

WASHER AN 970-4

ALUM. SPACER BLK

CYL.

MACHINE SCREW MS 24694-S63 2 REQ.

NUT MS 20364-1032 2 REQ.

WASHERS

NUT AN 310-4
BOLT AN 4-16

MS 20822-4D ELBOW 2 REQ.

CYL. ATTACH BRACKET
SCALE FULL

20 3/4

FULL EXTENTION
7 1/2" TO 8" OF TRAVEL REQ.

ML 198790 PHD

SCALE 1/2

AN FITTING FACES AFT BOTH ENDS

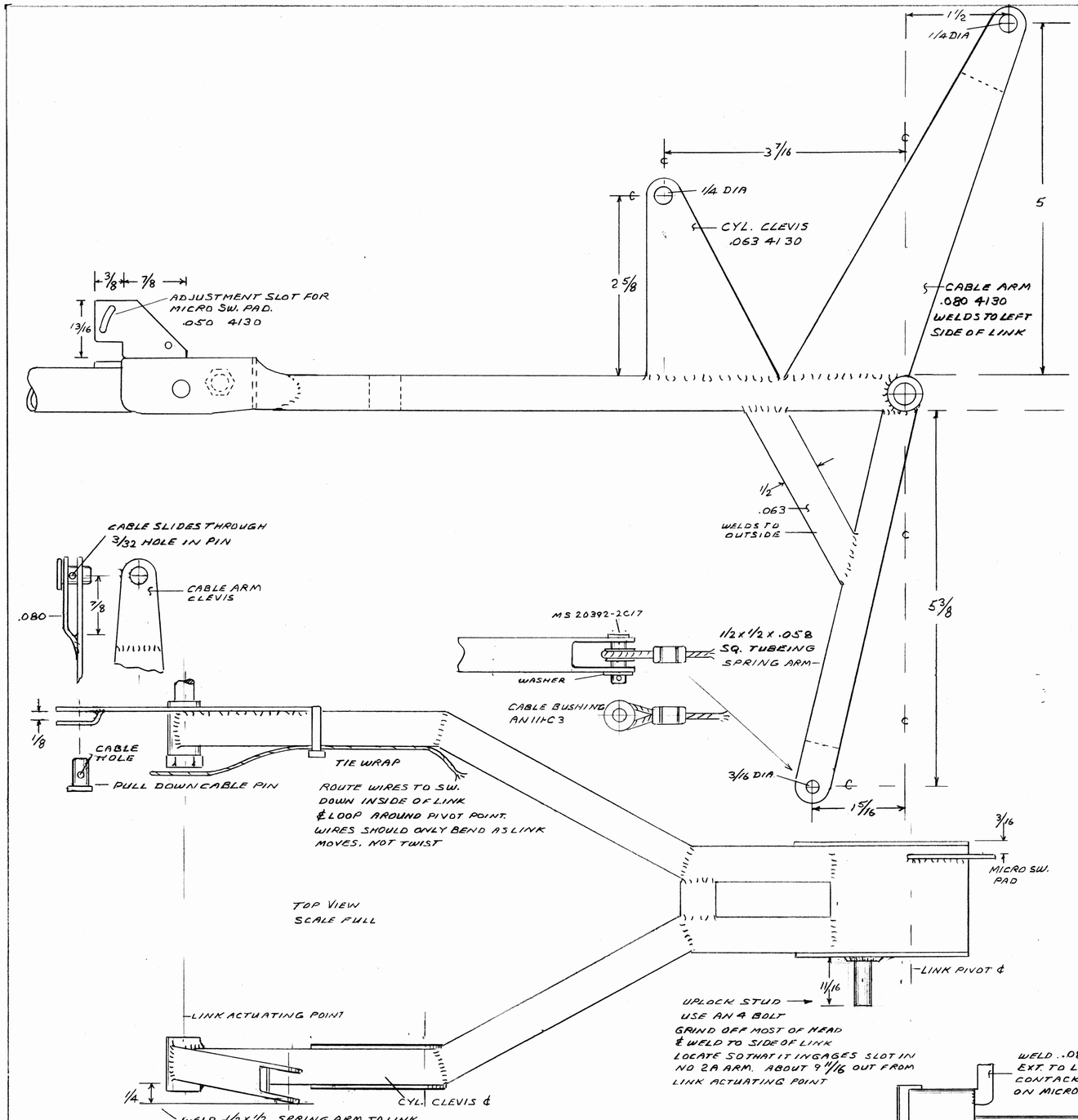
MS 20822-4D 2 REQ.

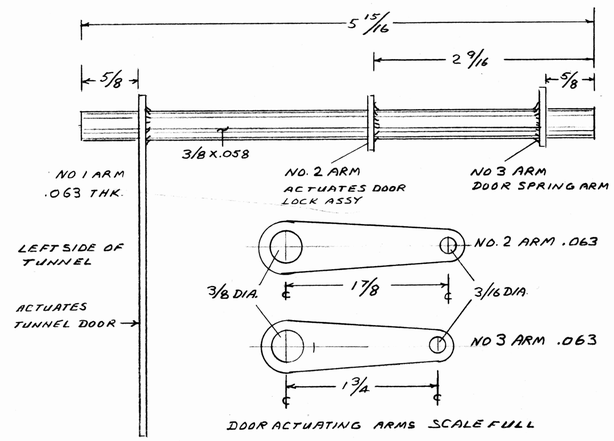
CYL. AVAILABLE FROM DON AUSTIN
220 E. DLEDIN RD.
COLUMBUS, OH. 43214
PHONE 614-447-9478

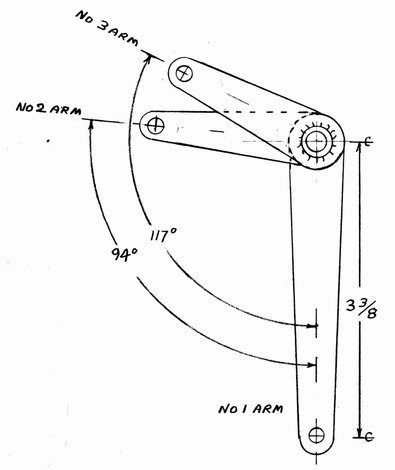
GP 4 © 1996 OSPREY AIRCRAFT

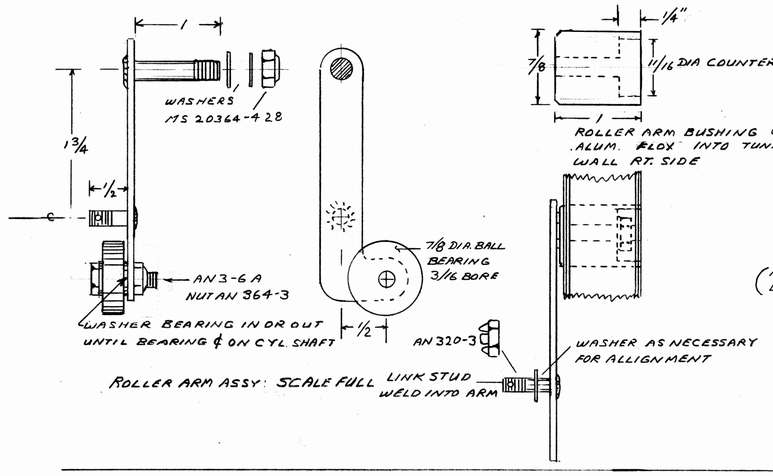
HYDRAULIC LANDING GEAR
NOSE GEAR TUNNEL, GEAR DOWN POS.
SCALE: FULL 1/2 & 3"=1'
DESIGN: OSPREY AIRCRAFT
DWG NO. N-2

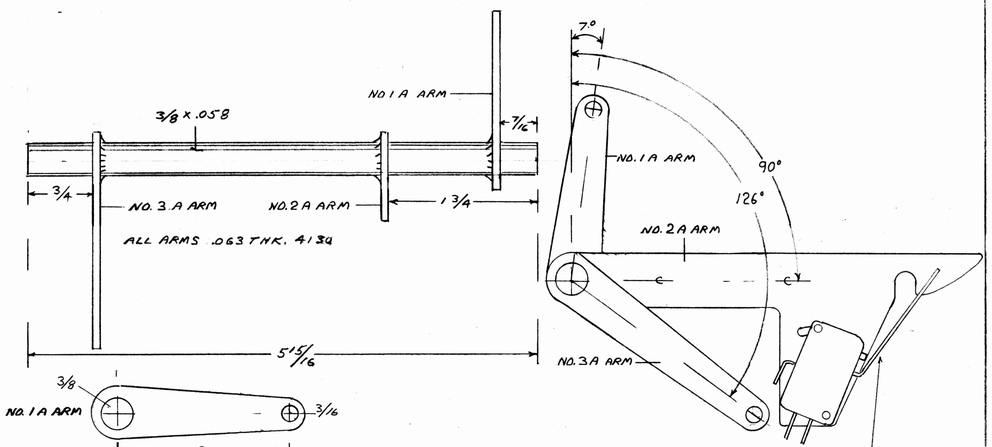
S/N 703 Sam Raterree









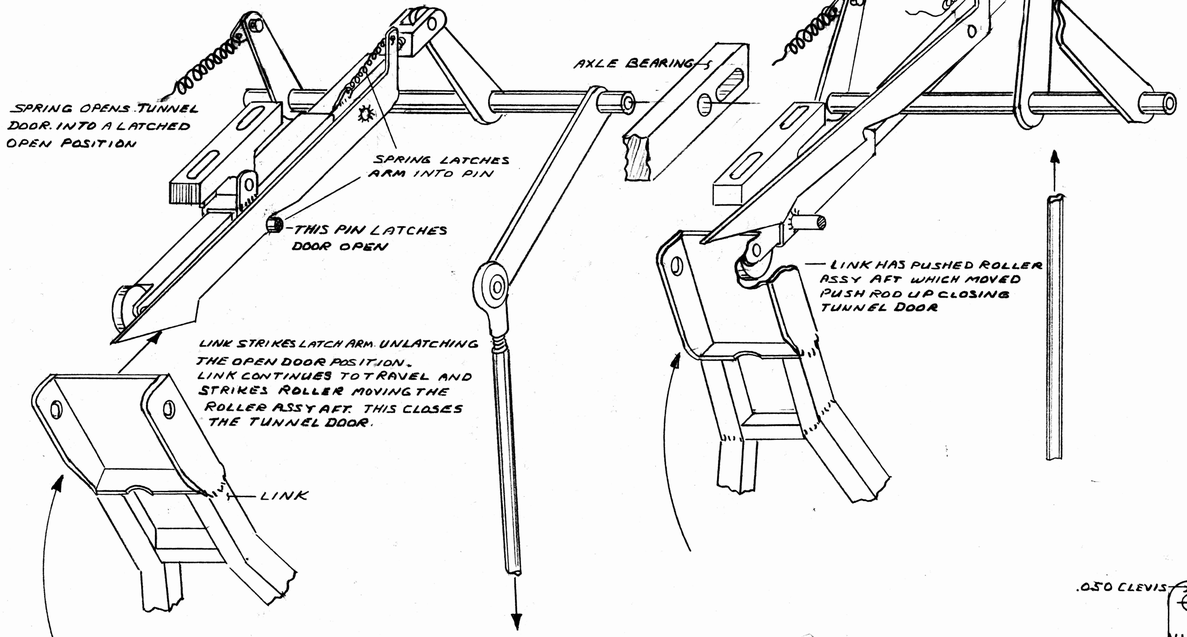


GP4 © 1996 OSPREY AIRCRAFT

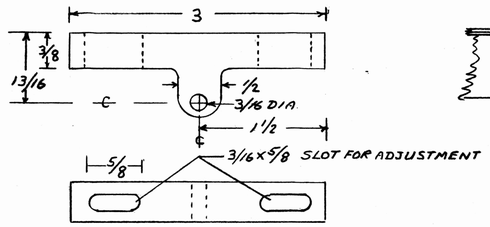
HYDRAULIC LANDING GEAR
NOSE GEAR COMPONENTS
SCALE: FULL
DESIGN: OSPREY AIRCRAFT
DWG. NO. N-3

S/N 703 Sam Waterree

DOOR ACTUATOR LOCK ASSY. LOCKED OPEN SHOWN HERE
NO SCALE

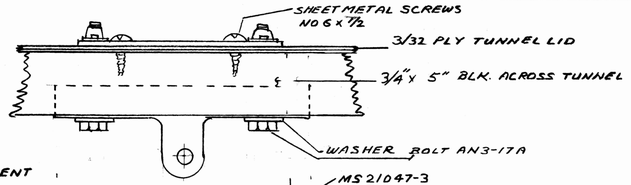


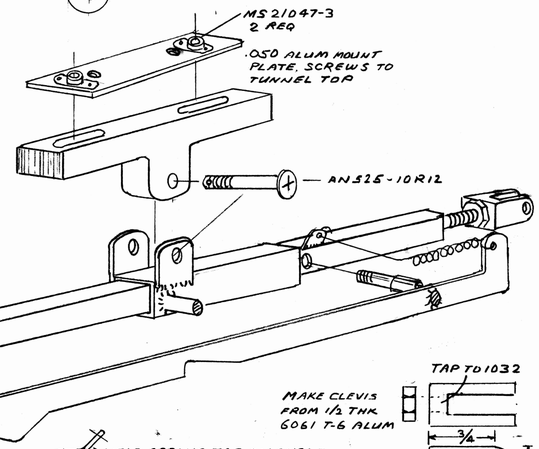
TUNNEL DOOR CLOSED POSITION

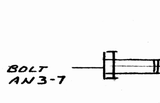


TUNNEL DOOR LOCK BEARING BLK.
6061 T-6 ALUM. SAW FROM 1/2" THK BLK.
SCALE: FULL

NOTE: BEARING BLK CAN BE SHIMMED DOWN IF NECESSARY. USE PLY SHIM & LONGER BOLTS



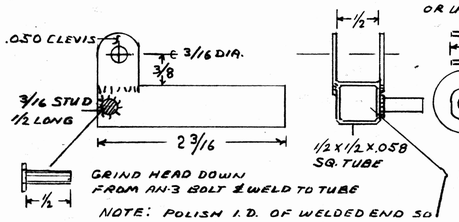




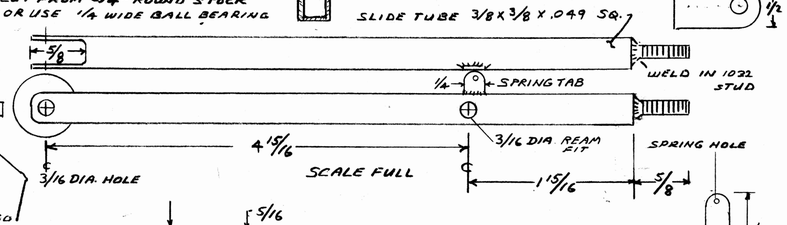
ROLLER 3/4 DIA. 3/16 BORE
CUT FROM 3/4" ROUND STOCK
OR USE 1/4 WIDE BALL BEARING

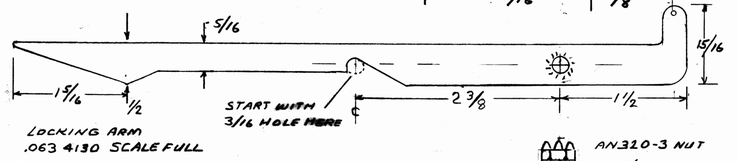


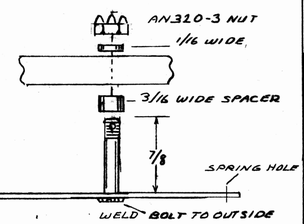
SLIDE TUBE 3/8 x 3/8 x .049 SQ.

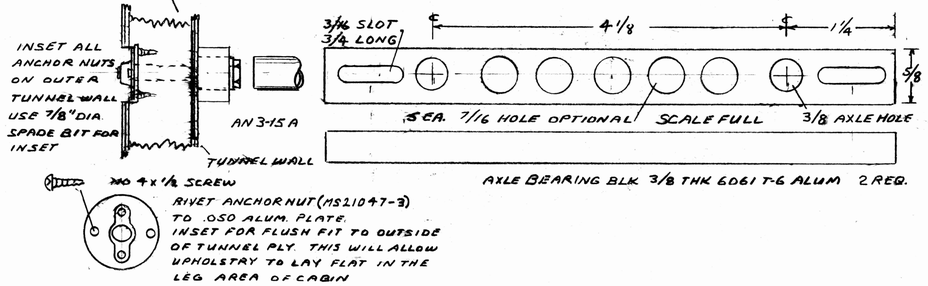


NOTE: POLISH I.D. OF WELDED END SO THAT SLIDE TUBE SLIDES FREELY

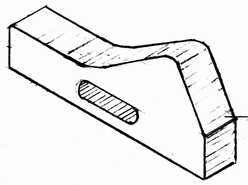


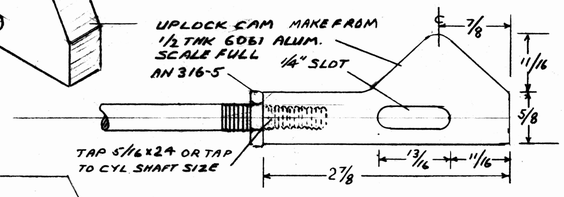


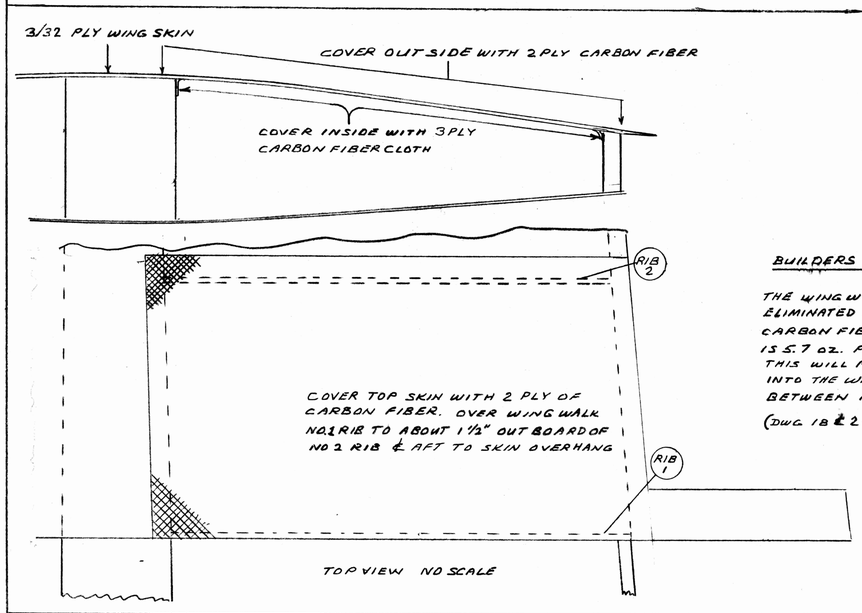




AXLE BEARING BLK 3/8 THK 6061 T-6 ALUM 2 REQ.







BUILDERS OPTION

THE WING WALK BATTENS & BATTEN SUPPORT CAN BE ELIMINATED IF THE WALK AREA IS SUPPORTED WITH 2 8 2 CARBON FIBER CLOTH WITH EPOXY RESIN. 2 8 2 CARBON FIBER IS 5.7 oz. PER SQ.YD.
THIS WILL ALLOW THE TIRE TO RETRACT ABOUT 1/2" FURTHER INTO THE WHEEL WELL. YOU MUST NOT VARNISH THE INSIDE SKIN BETWEEN RIB 1 & 2 TO LAY UP THE 3 PLY.

(DWG 18 & 24 SHOW BATTEN DETAIL)

GP4 © 1996 OSPREY AIRCRAFT

HYDRAULIC LANDING GEAR
NOSE GEAR COMPONENTS
SCALE: FULL
DESIGN: OSPREY AIRCRAFT
DWG NO. N-4

S/N 703 Sam Raterree

NOSE GEAR TUNNEL MOUNT ANGLE AS PER DWG 39

BOLTS AN4-67A

BOLTS AN4-57A AS PER DWG 32

52" TO SPAR ℄

12 13/16

SOCKET BEARING ℄

.160 SPAR PLATE 6061-T6 ALUM

AN 815-4D UNION 4 REQ. EA SIDE
AN818-4 NUT COUPLING WITH MS 20819-4 (NOTE: STEEL FITTINGS)

DOWN — UP

MS20822-4D
15 REQ.
NOTE: ANGLE AS NECESSARY
USE TEFLON TAPE ON ALL PIPE FITTINGS

CLAMP

3

1/4 X .035, 6061 T-6 ALUM TUBE FLARED FOR 818-4 STEEL COUPLING
USE HARD PLUMBING JUST PAST RIB 3
THEN AEROQUIP FLEX HOSE TO CYL FITTINGS

3/4 x 3/4 SQ TUBE AS PER DWG 30

DOWN SIDE TO MANIFOLD

UP SIDE TO MANIFOLD

OIL DYNE PUMP BOLTS SPACE AS NECESSARY

2

1

3/4 x 3/4 X .125 ALUM ANGLE
BOLT TO UNDERSIDE OF SEAT RAILS
RT SIDE ONLY HYDRAULIC PUMP ASSY MOUNTS UNDER SEATS. (EITHER SIDE) RT. SIDE PREFERED AS SHOWN
SPACE RAILS FAR ENOUGH AFT FOR NICE EASY BEND IN HOSES

TRIP ARM BEARING

MOUNT DOUBLER IS 3 LAYERS OF 1/8" PLY GLUED TO RIB 2. 5" LONG BETWEEN CAP STRIPS SEE DETAIL B

MICRO SW ADJUST SCREW

82°

82°

5

6

7

8

9

10

11

12

13

14

15

NOTE: WHEN SETTING UP WHEEL STRUT LENGTH YOU WANT THE TIRE TO CLEAR RIB NO.1 BY 1/2" WHEN RETRACTED. YOU DO THIS BY PRELOADING THE DANLEY COMP. SPRING. YOU CAN ADD A 1 1/2" DIA. ALUM PLUG IF NECESSARY TO INCREASE STRUT LENGTH TO SET UP SOME PRELOAD.

PLUG IF NEEDED ON BOTTOM OF COMP. SPRING

UPLOCK STUD
USE AN4 BOLT & WELD TO STRUT

90°

7/8

4

WHEEL DOOR

DOOR SPRING OPENS DOOR

TO PUMP RESERVOIR

GEAR DOOR BATTEN AS PER DWG 42

ALL FLEX HOSES ARE NO. 4 AEROQUIP (SEE DWG. M9)

TO MANIFOLD

ELBOW MS 20822-4D 3 REQ. AT VALVE

POSSIBLE EMERGENCY DUMP VALVE LOCATION (WHITEY #B42XT HF4-BKB)
SET BELOW FLAP CABLES & IN BETWEEN ℄ SEAT RAILS
USE EXTENSION UP THROUGH CONSOLE COVER TO ON/OFF HANDLE (TURNS 90°)

NOTE: IF YOU CAN'T FIND THE WHITEY VALVE LOCALLY AT YOUR HYDRAULIC OUTLET IT IS AVAILABLE FROM FOLLOWING.
FLORIDA VALVE & FITTING CO. 1203 N. ORANGE AVE. ORLANDO, FL. 32804 PHONE 407-894-7191
ALSO AT
OAKLAND VALVE & FITTING CO. 2441 SPRIG CT. CONCORD CA. 94520. 8509 PHONE 925-676-4100

3/8 x 1 MOUNT BLK
LOCATE FORE & AFT LOCATION BY POSITIONING STRIKE PLATE & AXLE HUB AS GEAR IS RETRACTED (DETAIL A)

RIB 1

RIB 2

RIB 3

RIB 4

3/8 CAP STRIP

3/8 THK DOUBLER WITH 1/16 PLY CAP

.160 THK ALUM SPACER

SEE A

FLAP HINGE BLK

3/8 THK DOUBLER WITH 1/16 PLY CAP

86°

86°

1 3/4

5

12

14 5/8

24

20 3/4

GREASE FITTING: TAP BEARING SOCKET 1/4 28

NOTE: LINK TRUNION & GEAR TRUNION ARE 82° TO THE SPAR WEB & ARE 12 13/16" APART ON ℄ LOCATE GEAR TRUNION ℄ FIRST WHICH IS 52" OUTBOARD FROM SPAR ℄ THEN MEASURE BETWEEN TRUNION BEARING ℄ TO FIND 12 13/16" SPACING OF TRUNIO AXLES

(A) THE HASH LINES INDICATE THAT THE AFT SIDE OF THE REAR SPAR MAY HAVE TO BE BLOCKED IN TO MOUNT THE ALUM. REAR LINK TRUNION BEARING WHEN REAR SPAR WAS BUILT FROM GP-4 PLAN # 25 TOP LEFT OF PAGE

LEGEND:

1. HYDRAULIC PUMP. (OILDYNE 108AM19BL-3HT)
2. PUMP MOUNT RAILS
3. UPLOCK RELEASE CABLE (EMERGENCY)
4. WHEEL DOOR ACTUATOR
5. UPLOCK TRIP ARM (EMERGENCY)
6. TRIP ARM BEARING "
7. UP LOCK BEARING
8. UPLOCK
9. UPLOCK CAM
10. LINK TRUNION BEARING
11. BEARING MOUNT PLATE
12. LINK ASSY.
13. HYDRAULIC CYL
14. GEAR TRUNION
15. CYL. CLEVIS

DETAIL A

3/8 x 1 MOUNT BLKS FOR DOOR ACTUATOR ON IN BOARD SIDE OF RIB NO 1
NO SCALE SEE DWG M-8 FOR LOCATION

12 1/2 + FULL EXTENTION CYL. HAS 4 1/2" OF TRAVEL

SCALE 1/2 2 REQ.

DETAIL B

4

3-1/8" THK PLY SHEETS GLUED TO RIB 2 TO MOUNT UPLOCK ASSY.

5"

RIB 2

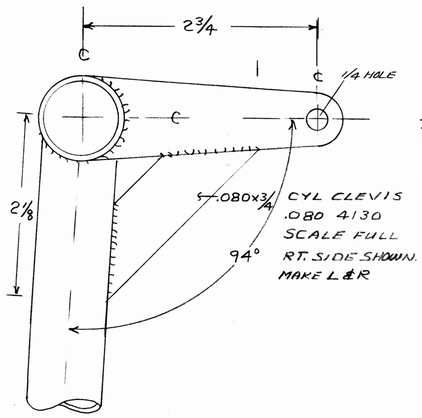
RT. SIDE SHOWN

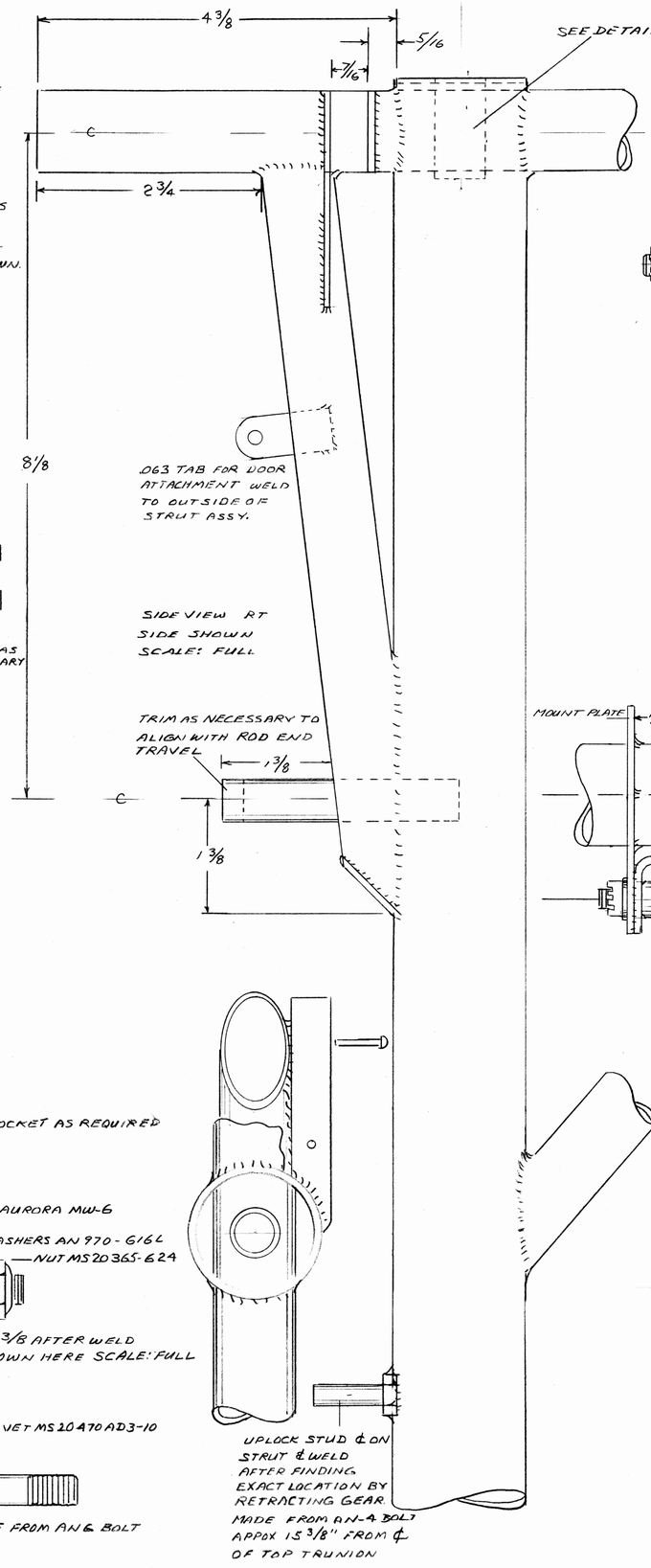
MAIN GEAR & NOSE GEAR CYLINDERS AVAILABLE FROM DON AUSTIN
220 E. DUEDIN RD.
COLUMBUS, OH. 43214
PHONE: 614-447-9478
CYL MAY DIFFER IN APPEARENCE BUT HAS CORRECT THROW ETC.

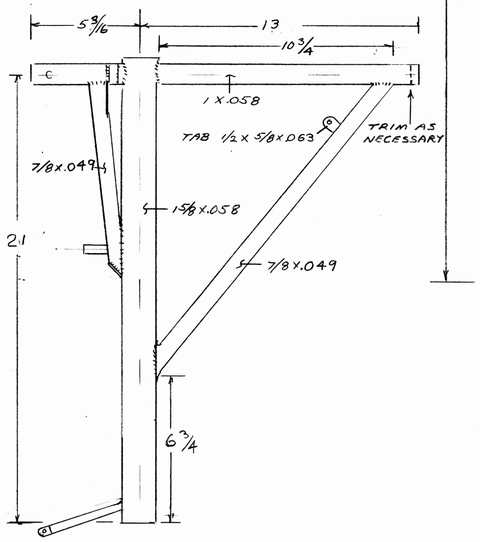
GP-4 © 1999 OSPREY AIRCRAFT

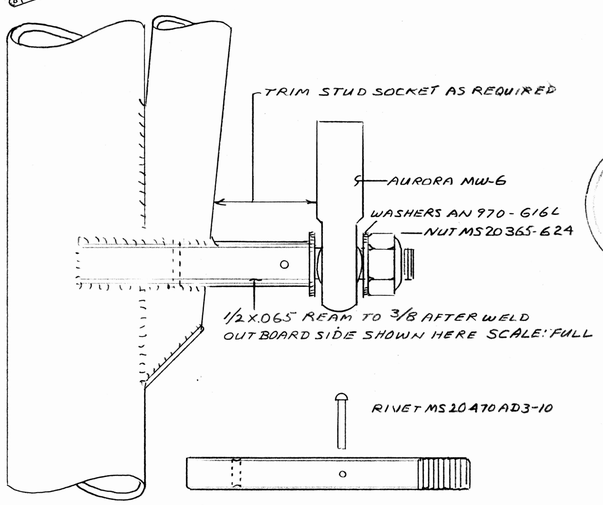
MAIN GEAR HYDRAULICS
TOP VIEW RT. SIDE SHOWN
SCALE: 1/2
DESIGN: OSPREY AIRCRAFT
DWG NO. M-5 - REVISED

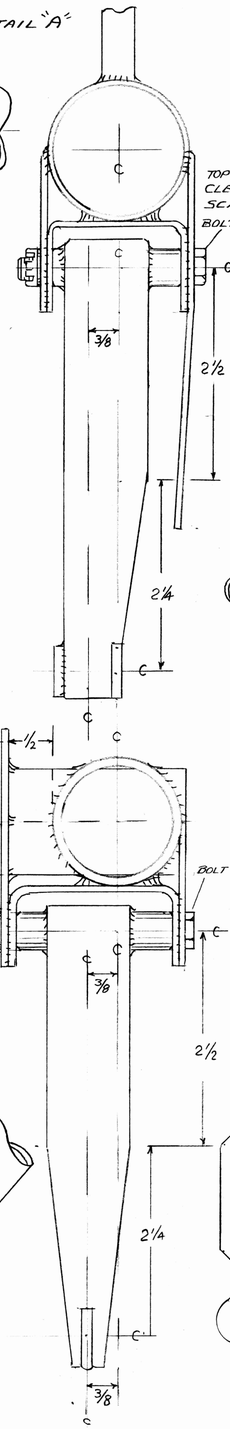
S/N 703 Sam Raterree

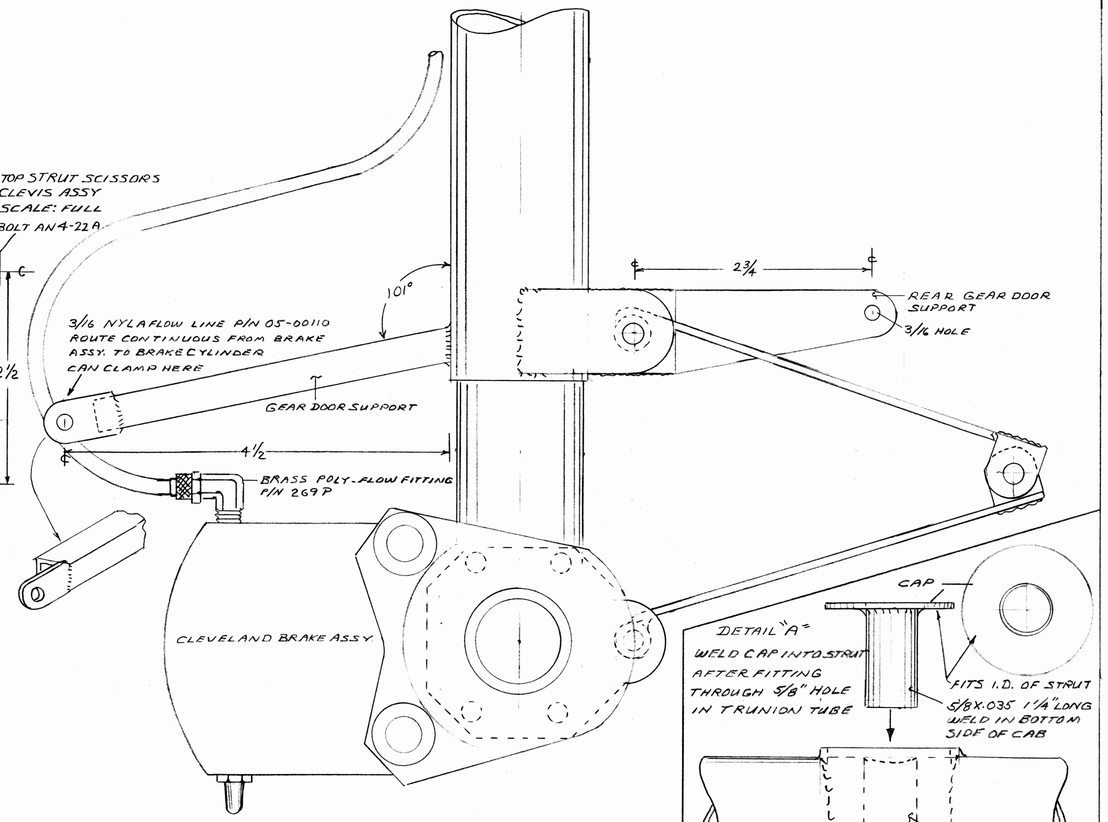


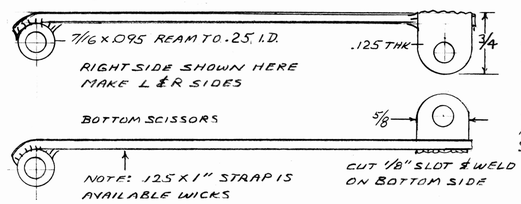


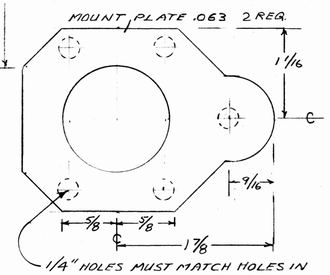


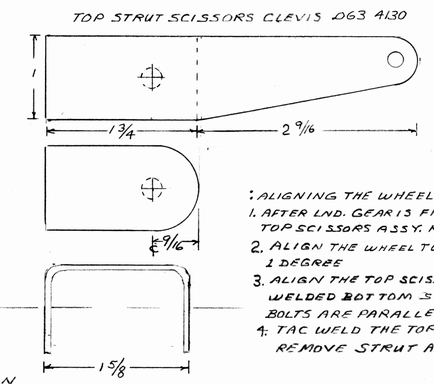


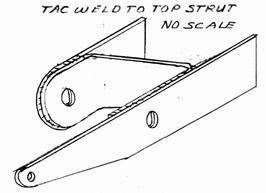


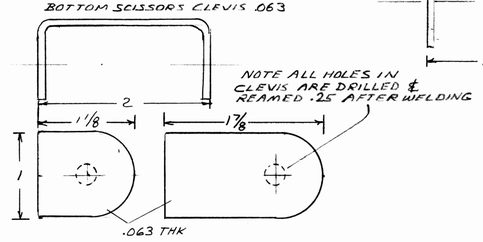












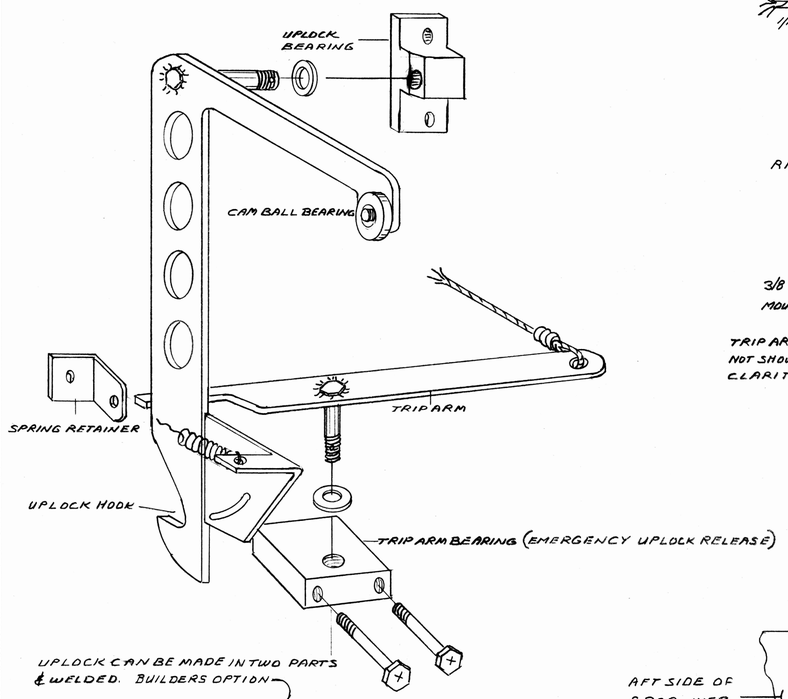
: ALIGNING THE WHEEL FOR SCISSORS ASSY:
1. AFTER LND. GEAR IS FITTED IN THE WING WELD UP THE TOP SCISSORS ASSY. READY TO WELD TO TOP STRUT.
2. ALIGN THE WHEEL TO A SLIGHT TOE OUT POSITION. ABOUT 1 DEGREE
3. ALIGN THE TOP SCISSORS CLEVIS WITH THE ALLREADY WELDED BOTTOM STRUT CLEVIS UNTIL THE CLEVIS BOLTS ARE PARALLEL.
4. TAC WELD THE TOP SCISSORS ASSY TO STRUT REMOVE STRUT ASSY & FINISH WELDING

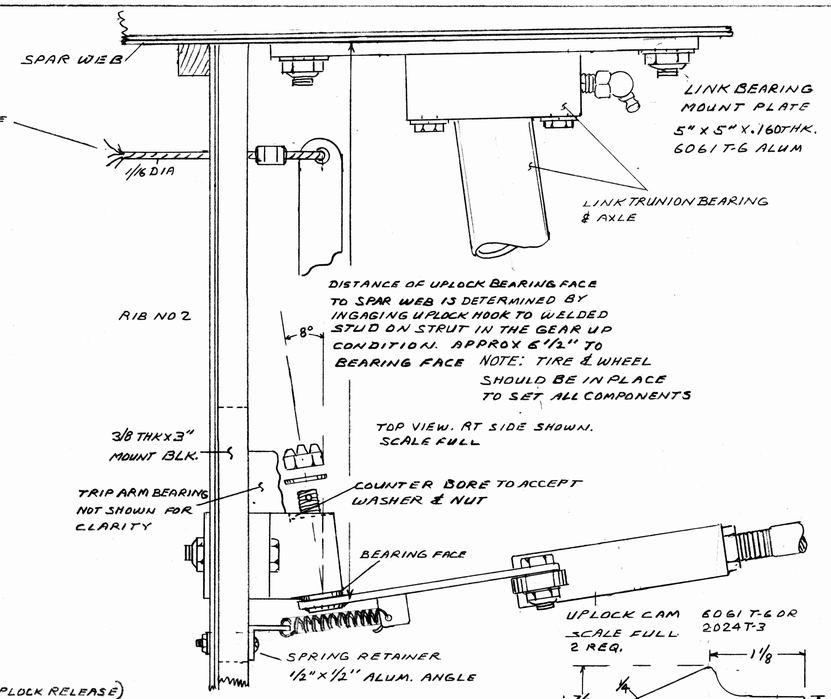
GP-4 © 1999 OSPREY AIRCRAFT

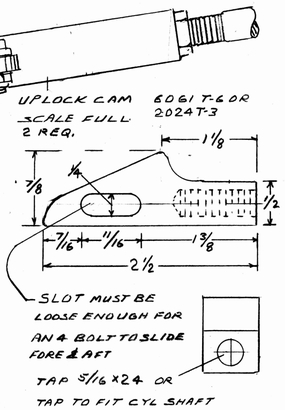
HYDRAULIC LANDING GEAR
TOP MAIN GEAR TRUSS RT. & LFT. REQ.
DESIGN: OSPREY AIRCRAFT
SCALE: FULL & 3" = 1 FT.
DWG NO. M-6

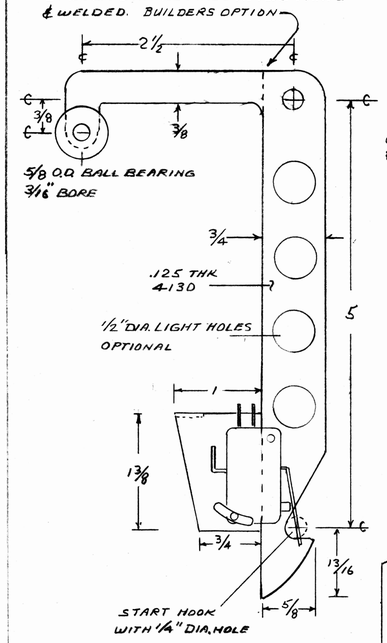
S/N 703 Sam Raterree

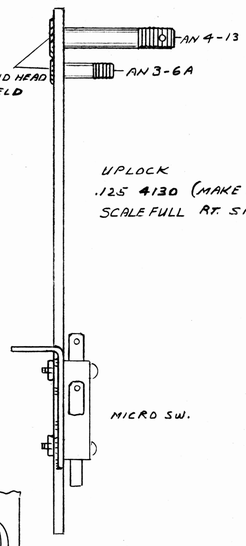
NOTE: THE EMERGENCY UPLOCK RELEASE CABLE SHOULD ROUTE DOWN THE SPAR TO THE INSIDE OF THE CABIN AREA. A PULL RING ON EACH SIDE WILL RELEASE THE UPLOCK. IT SHOULD BE OUT OF THE WAY BUT ACCESSIBLE TO THE PILOT.
LOCATION OF THE PULL RING IS THE BUILDERS CHOICE

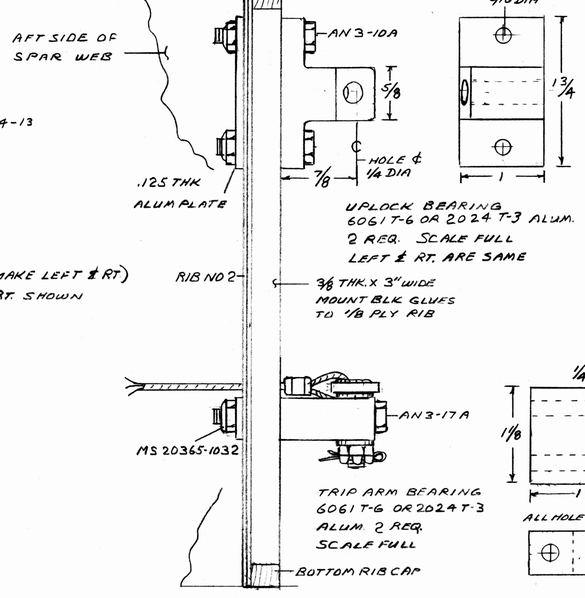


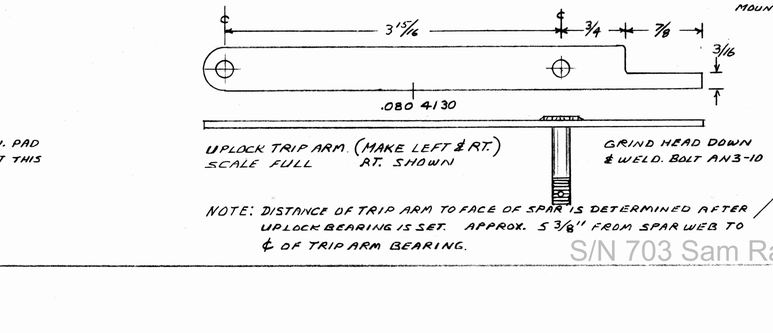


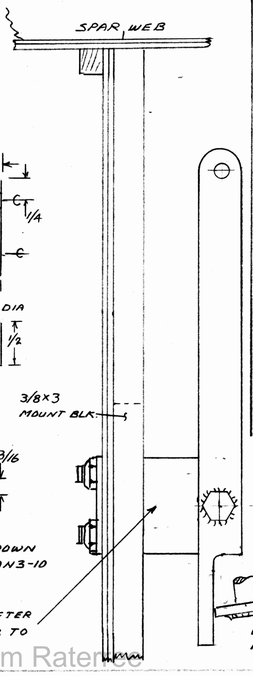


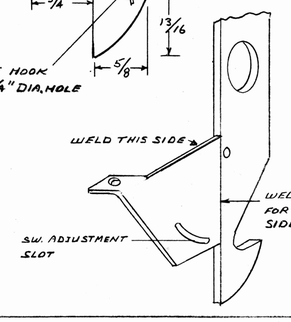


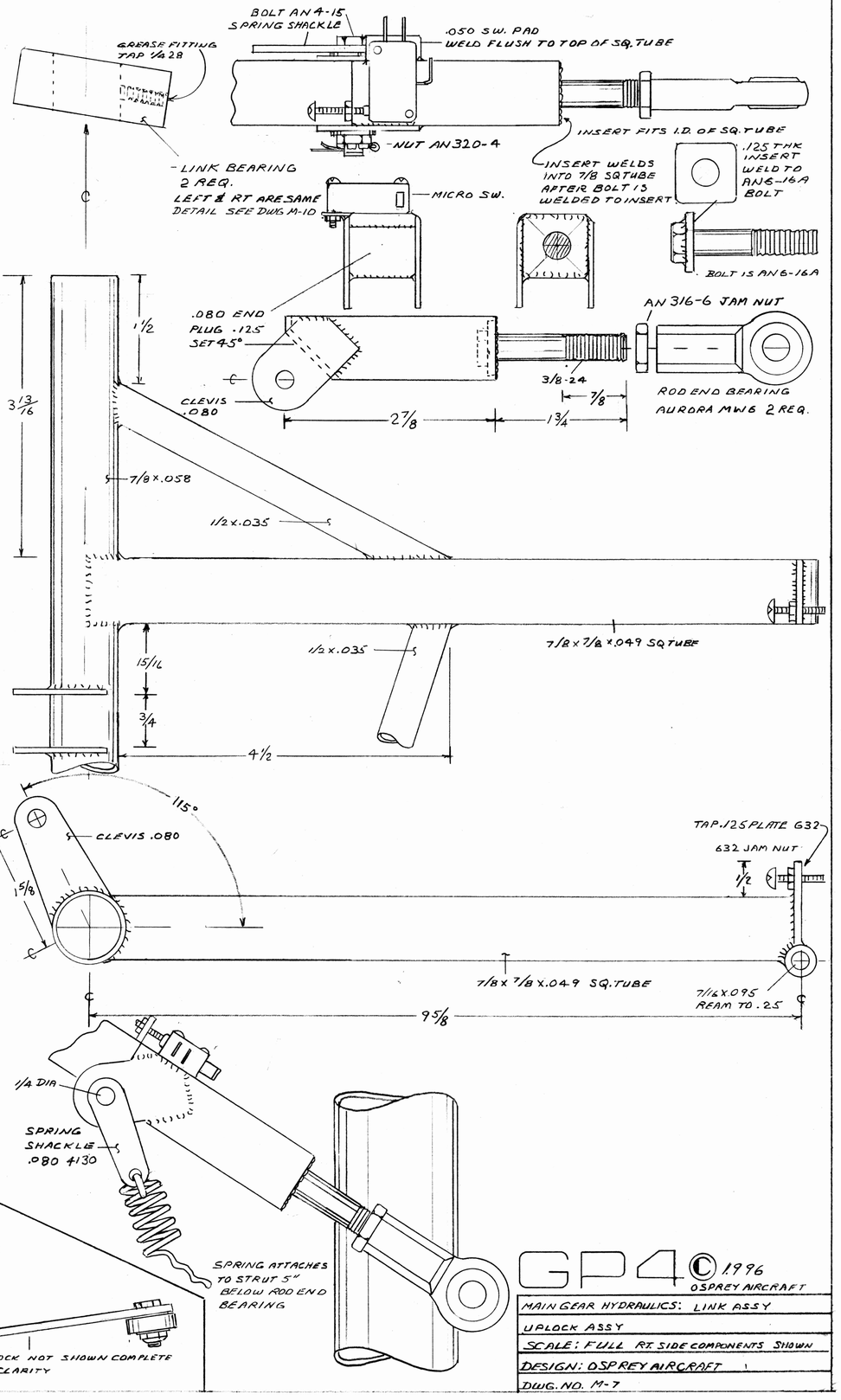












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MAIN GEAR HYDRAULICS: LINK ASSY
UPLOCK ASSY
SCALE: FULL RT. SIDE COMPONENTS SHOWN
DESIGN: OSPREY AIRCRAFT
DWG. NO. M-7

S/N 703 Sam Ratenee

SPAR STRUT ASSY
SCALE 1/2

NOTE UPLOCK BALLBEARING & SLOT POSITION GEAR UP

MS 20822-4D

RIB NO. 1

UPLOCK STUD

SEE DWG. M-7 FOR SPRING RETURN & MICRO SW DETAIL

1/4" ALUM LINE

AN 815-4 UNION
AN 818-4 STEEL COUPLING WITH MS 20819 STEEL SLEEVE

AEROQUIP #4 HOSE P/N 303-H

NOTE: ROUTE ALL FLEX HOSES SO THAT AS THE CYL. MOVES UP OR DOWN THE HOSE BENDS UP & DOWN. DON'T ROUTE WHERE THE HOSE HAS TO TWIST OR ROTATE TO THE CYL. CONNECTION AS THE CYL MOVES.

NOTE: THE SQUAT SW. PREVENTS THE POSSIBILITY OF RETRACTING THE GEAR PRIOR TO LIFT OFF. THE GEAR MOTOR WILL NOT RUN UNTIL THE STRUT IS EXTENDED, ACTUATING THE MIRCO SW. THIS SW. COMPLETES THE CIRCUT

STRUT COMPRESSED
SW. IS OPEN

WELD COUNTER SUNK 4-40 SCREW TO BACK SIDE OF MOUNT PLATE PRIOR TO WELDING PLATE TO STRUT

MS20364-820
2 REQ

CHECK NUT
AN 316-8
1 REQ.

STRUT FULLY EXTENDED
ACTUATING SW.

WASHER

USE LOCK WASHERS ON ALL MICRO SW. MOUNT SCREWS
SCREWS ARE 4-40 x 5/8 LONG

2 1/2" DIA. ALUM DISK
.125 THK. ℄ HOLE IS 1/2"

DISK CUT AWAY FOR CLARITY

SQUAT SW.
LEFT STRUT ONLY
SCALE FULL

NOTE UPLOCK BALL BEARING & SLOT POSITION

GEAR DOWN POSITION
SCALE 1/2

SPAR WEB

BOLTS AN3-15A
4 REQ.

2 1/4

3/4

3/16 DIA.

3/8 DIA
LOOSE FIT

1 1/4

3/8

WHEEL DOOR ACTUATOR BEARING
6061-T6 OR 2024-T-3 ALUM. 4 REQ
SCALE FULL

DOOR CLOSED

AXLE NUT
AXN 1 1/2 x 12

DOOR OPEN

3/8 x 3/8 x .035
SQ. TUBING

3/8 x 3/4 MOUNT
BLK. 4 REQ.

MACHINE SCREW
AN 526-10R10

DOUBLE JAM NUT
315-3

RIB NO1 RT. SIDE
SHOWN

SPRING RETAINER
1/2 x 1/2 ALUM
ANGLE

SPAR WEB

GEAR DOOR BATTEN
SEE DWG. 42

BOTTOM CAP STRIP
OF RIB NO1

ROD END BEARING
AURORA MW3 4 REQ.

BRAZE OR WELD 1032 MACHINE SCREW INTO 1/4 x .035 PUSH ROD

MAKE PUSH ROD TO LENGTH AFTER DOOR IS HINGED IN PLACE

3/16

3/4

5/8

MOUNT BEARINGS SO THAT THE STRIKER PLATE CENTERS ON THE AXLE NUT AS THE GEAR STRUT COMES UP

STRIKER PLATE
.063 4130

3/8 x 3/8 x .035 SQ TUBING

1 3/4

6 1/2

15°

2

4 3/4

63°

2 7/8

WHEEL DOOR ACTUATOR
MAKE LEFT & RT.
RT. SHOWN SCALE FULL

RIB NO.1
TOP VIEW

1/4" DIA. LOOSE FIT

SPRING SHACKLE
.050 4130

3/8 x 3/8 x .035 SQ.

SPACER 1/4" O.D. 3/16 I.D.

WASHER 1/4" BORE

SPACER
1/2 x .058 LENGTH AS NEEDED

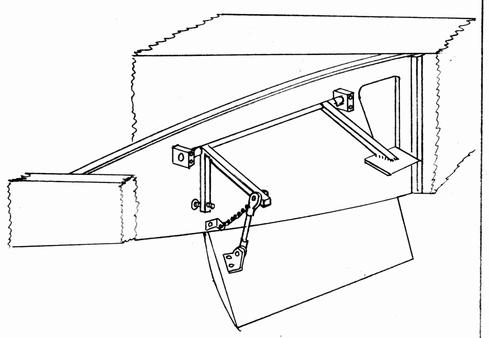
1 5/8

3/4

ANCHOR NUTS
MS21047-3
8 REQ.

PLATE IS .050 ALUM
4 REQ

4 3/4

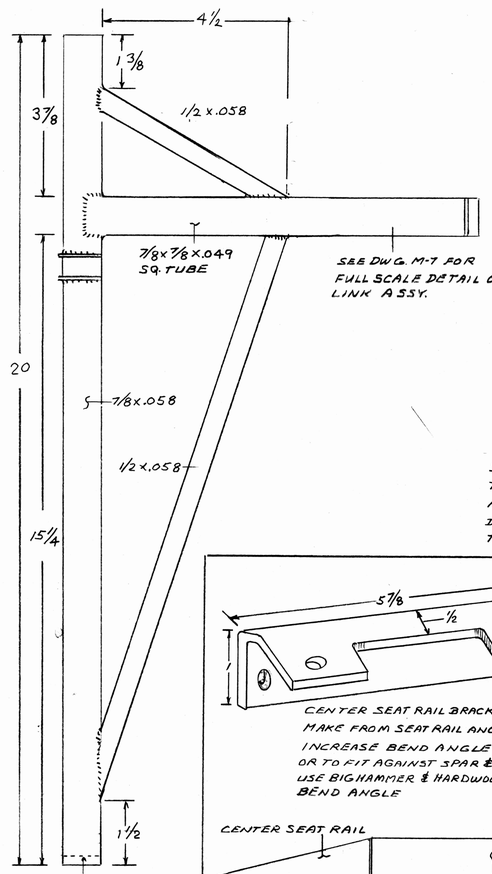


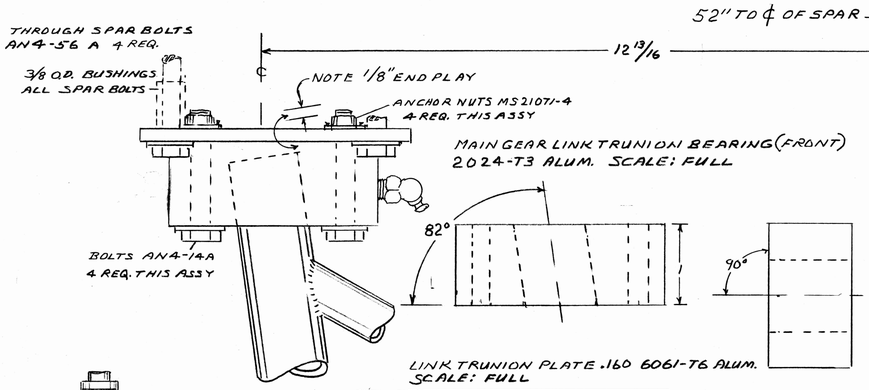
GP4 © 1996 OSPREY AIRCRAFT

MAIN GEAR HYDRAULIC
DOOR ACTUATOR RT. SIDE. SQUAT SW. LEFT
SCALE: 1/2 & FULL
DESIGN: OSPREY AIRCRAFT
DWG. NO. M-8

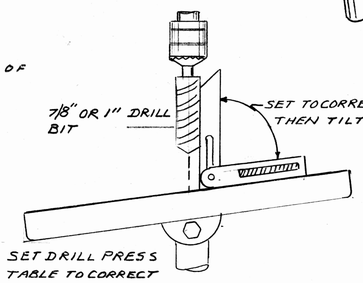
S/N 703 Sam Raterree

LINK TRUNION: SCALE 1/2



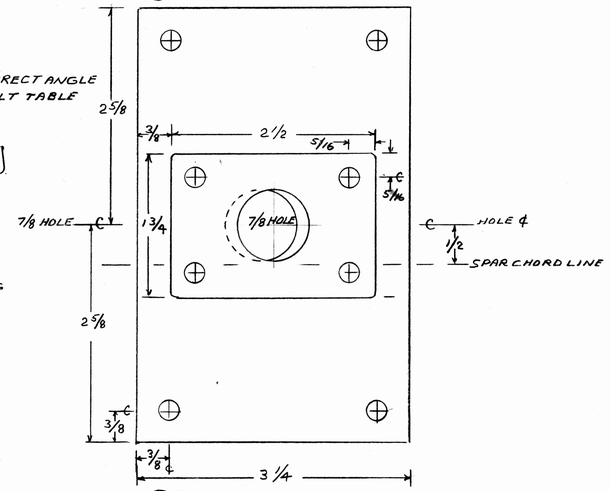


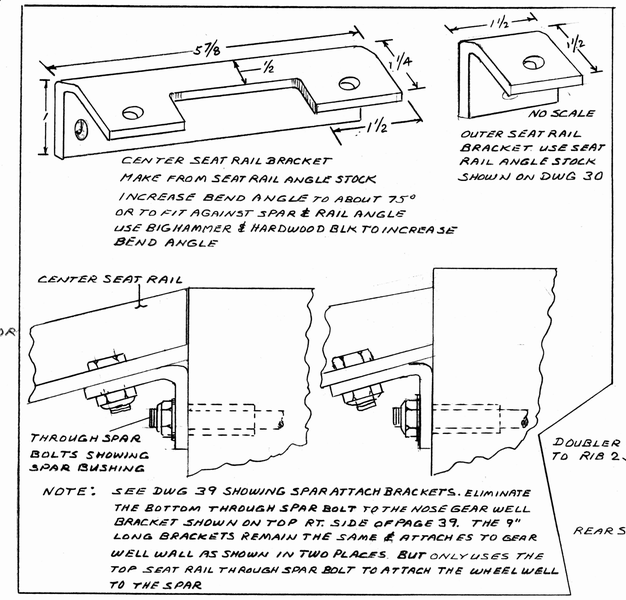
MAIN GEAR LINK TRUNION BEARING (FRONT)
2024-T3 ALUM. SCALE: FULL



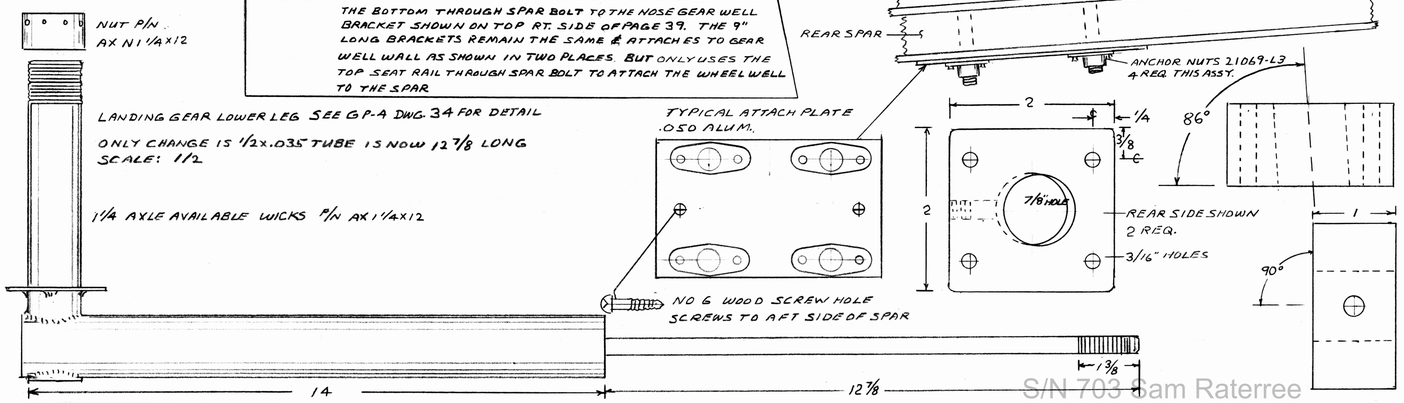
SET DRILL PRESS TABLE TO CORRECT ANGLE TO DRILL BEARINGS. DRILL 1/4" PILOT HOLE FIRST BEFOR GOING TO 1" & 7/8" DRILL BITS

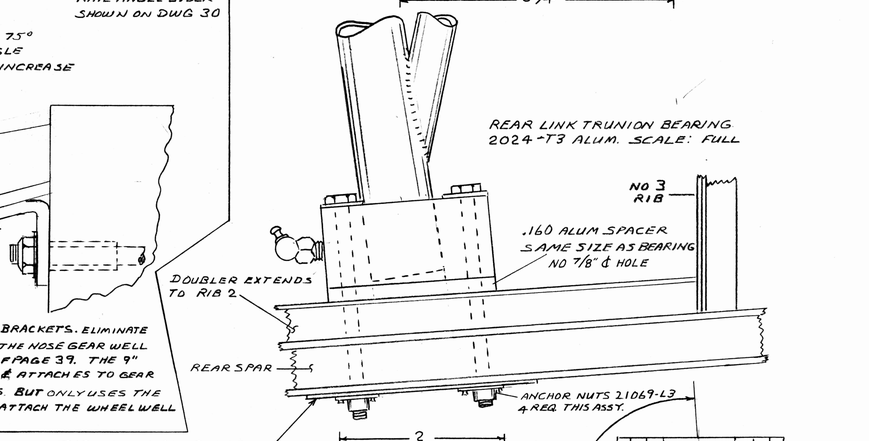
LINK TRUNION PLATE .160 6061-T6 ALUM.
SCALE: FULL

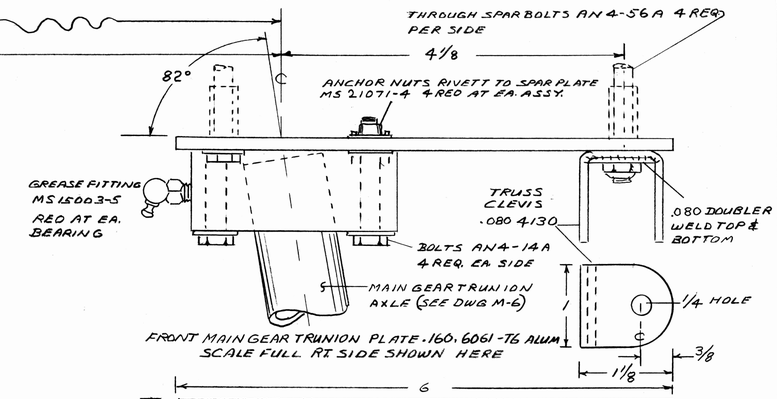


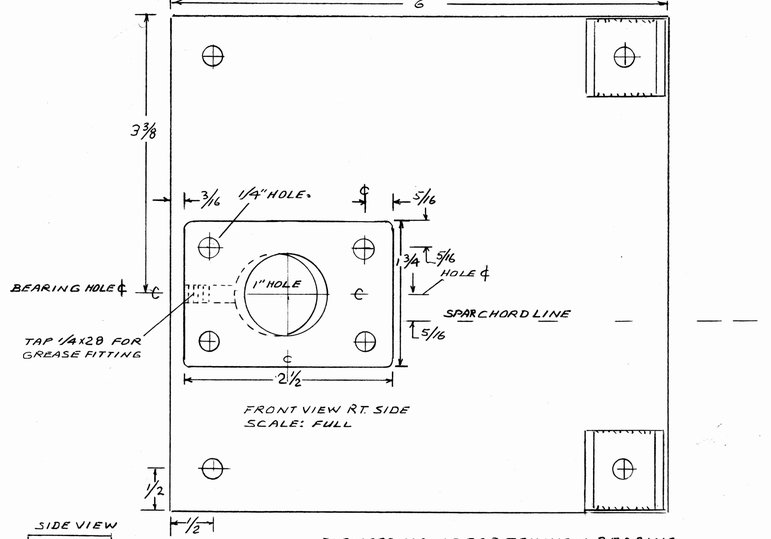


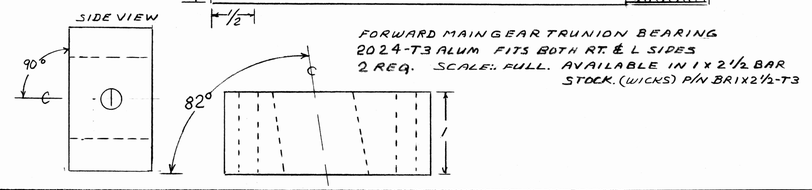
NOTE: SEE DWG 39 SHOWING SPAR ATTACH BRACKETS. ELIMINATE THE BOTTOM THROUGH SPAR BOLT TO THE NOSE GEAR WELL BRACKET SHOWN ON TOP RT. SIDE OF PAGE 39. THE 9" LONG BRACKETS REMAIN THE SAME & ATTACHES TO GEAR WELL WALL AS SHOWN IN TWO PLACES. BUT ONLY USES THE TOP SEAT RAIL THROUGH SPAR BOLT TO ATTACH THE WHEEL WELL TO THE SPAR





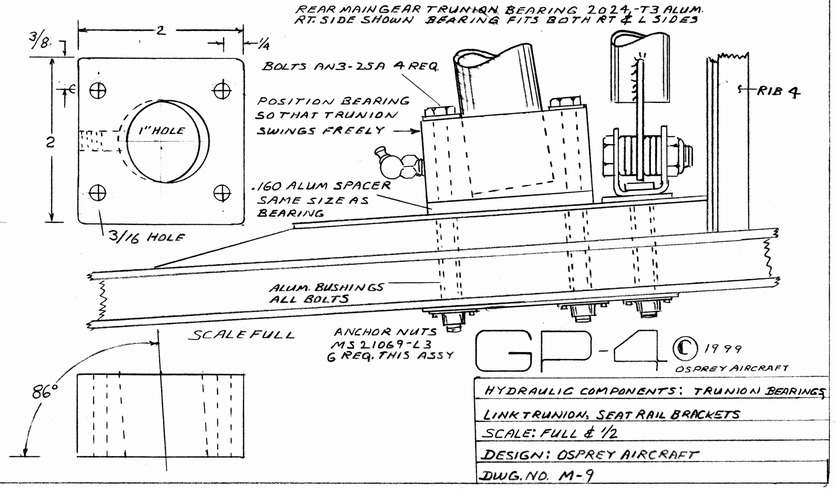






FORWARD MAIN GEAR TRUNION BEARING
2024-T3 ALUM FITS BOTH RT & L SIDES
2 REQ. SCALE: FULL. AVAILABLE IN 1 x 2 1/2 BAR STOCK. (WICKS) P/N BR1X2 1/2-T3

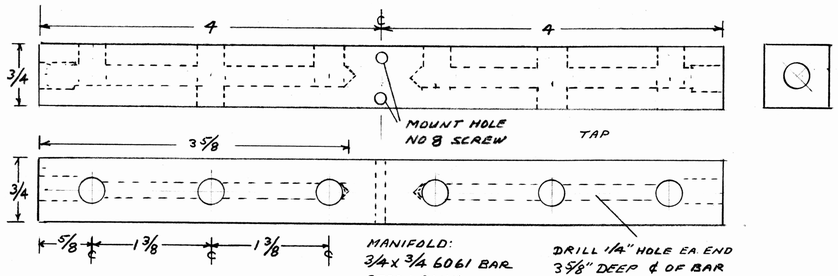
REAR MAIN GEAR TRUNION BEARING 2024-T3 ALUM.
RT. SIDE SHOWN BEARING FITS BOTH RT & L SIDES

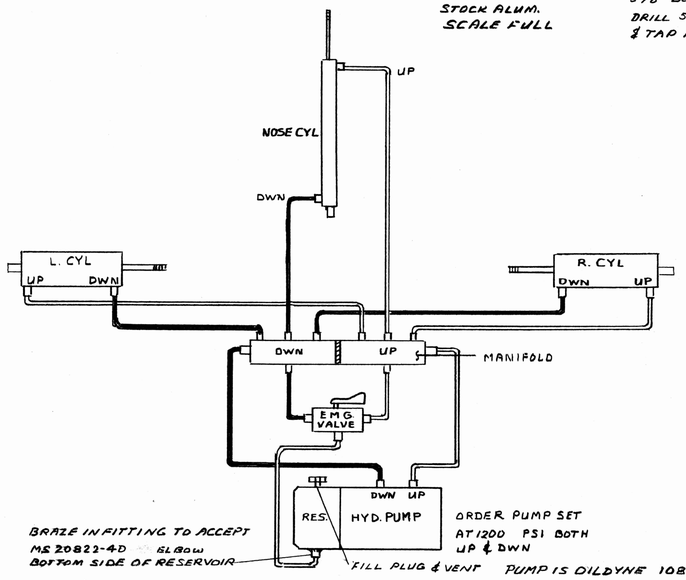


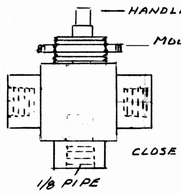
GP-4 © 1999 OSPREY AIRCRAFT

HYDRAULIC COMPONENTS: TRUNION BEARINGS
LINK TRUNION, SEAT RAIL BRACKETS
SCALE: FULL & 1/2
DESIGN: OSPREY AIRCRAFT
DWG. NO. M-9

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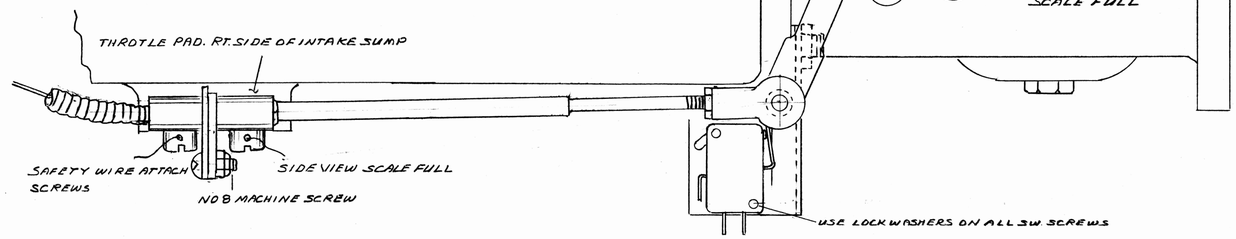


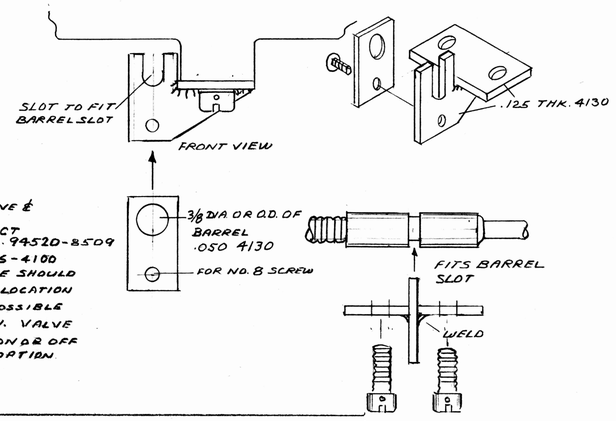




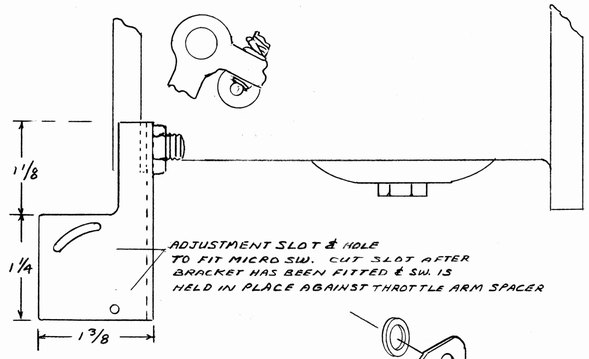
EMERGENCY DUMP VALVE
WHITEY B42XT HF4 BKB
AVAILABLE: OAKLAND VALVE & FITTING CO. 2441 SPRING CT CONCORD CA. 94520-8509 PHONE 925-676-4100
CLOSE TO SCALE

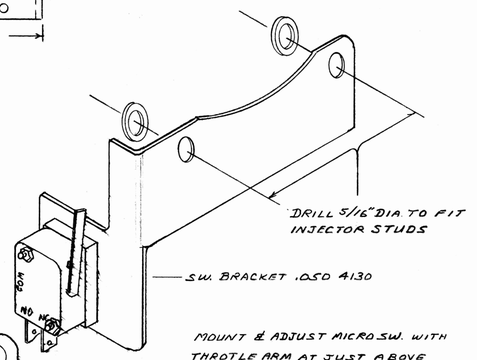
NOTE: EMG. DUMPVALVE SHOULD MOUNT IN CONVENIENT LOCATION TO PILOT. BUT OUT OF POSSIBLE ACCIDENTAL OPERATION. VALVE TURNS 90 DEGREES FOR ON OR OFF LOCATION IS BUILDERS OPTION SEE DWG. M-5

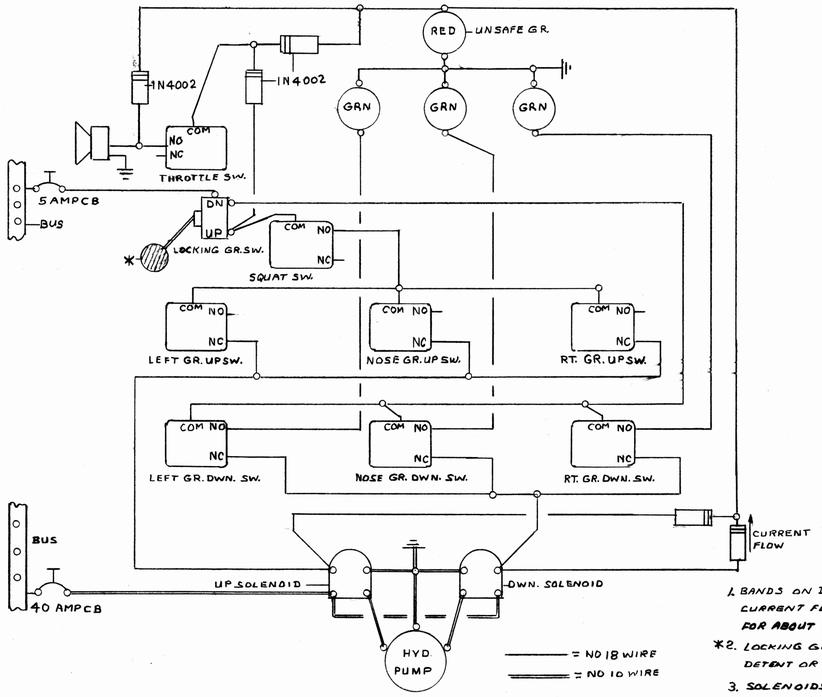




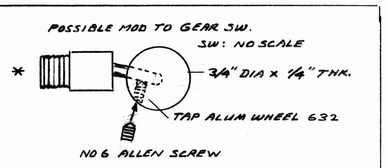
NOTE:
SUGGEST YOU CALL YOUR LOCAL HYDRAULIC PARTS & EQUIP DEALER. HE CAN ORDER THE VALVE, PUMP & POSSIBLY GET THE PHD CYLINDERS



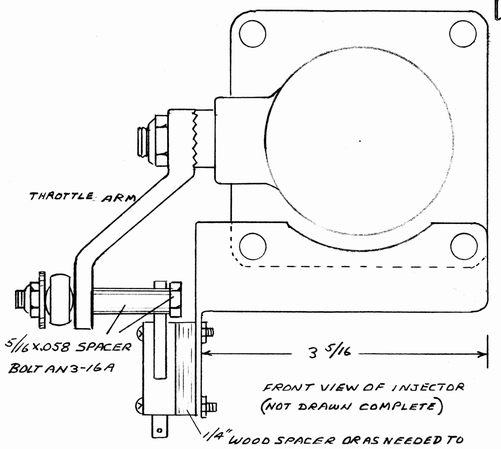




1. BANDS ON DIODE IN4002 SHOW CURRENT FLOW & VALUE GOOD FOR ABOUT 1 AMP HORN
*2. LOCKING GEAR SW. SHOULD HAVE A DETENT OR PULL TO MOVE UP OR DWN.
3. SOLENOIDS ARE AUTO STARTER TYPE
4. ONLY 2 WIRE SIZES ARE USED NO. 18 & NO10 SEE LEGEND



*GEAR SW.
SUGGEST PIPER, BEECHCRAFT, CESSNA FOR LOCKING TYPE SW.



S/N 703 Sam Raterree

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HYDRAULIC LANDING GEAR
THROTTLE SW. ASSY WIRING DIAGRAM
PLUMBING DIAGRAM
DESIGN: OSPREY AIRCRAFT SCALE: FULL
DWG. NO. M-10