

The "CHILTON"

HIGH PERFORMANCE LIGHT MONOPLANE



"A REAL AEROPLANE IN MINIATURE."

(Photo—Neil Rankin)

CHILTON AIRCRAFT · HUNGERFORD · BERKS · ENGLAND.

The CHILTON Monoplane sets an entirely new standard among ultra-light aircraft as regards safety, practical performance and economy.

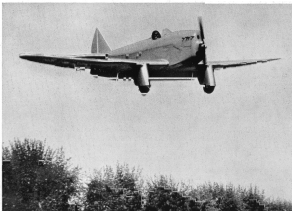
The engine is well-known for its complete reliability. The basic design is one which has been tested by countless millions of miles on the road and thousands of hours in the air. It requires practically no attention at all, and will continue to give its full power for hundreds of hours between overhauls, and is far smoother and quieter than most aero engines.

The CHILTON is of orthodox construction and design, embodying the latest aeronautical practice, but nothing that has not proved highly satisfactory in actual use. Its strength is far in excess of all normal requirements and, needless to say, only the best materials and workmanship are used.

The cruising speed of 100 m.p.h. is vastly superior to that of any other machine of this type, and allows of really practical cross-country flying, even against strong headwinds. The landing speed is only 35 m.p.h. This remarkable speed range is achieved largely by the use of split trailing edge flaps, which reduce the landing speed, and also confer the advantages of a flat or steep gliding angle at will. The landing itself is supremely simple and the run short. The take-off also is short and the climb rapid.

These features, combined with a really trustworthy engine, provide the highest possible degree of safety. The ease of handling, both in the air and on the ground, is quite exceptional for this or any other type of aircraft. The controls are light and powerful but not unduly sensitive. All these points and the excellent view obtained from the cockpit inspire the pilot with quite an astonishing degree of confidence right from the start.

As regards economy the CHILTON is no less outstanding, combining as it does a performance hitherto only associated with engines of far greater power, with a low first cost and the running expenses of a motor cycle. Both engine and airframe require very little maintenance, spares for the former, should they be required, are instantly available from any Ford dealer. The actual running costs amount to far less than a half-penny a mile at 100 miles per hour.



From "Flight"

With flaps down the CHILTON can be landed safely in the smallest spaces.

I.P.T.O.

WEIGHTS

Tare Weight	...	...	598 lbs.
Pilot	...	...	160 lbs.
Luggage	...	...	20 lbs.
Fuel	...	...	62 lbs.
Normal All-up Weight	...	...	640 lbs.
Maximum Permissible	...	...	700 lbs.

DIMENSIONS

Span	...	...	24 ft.
Length	...	...	18 ft.
Height	...	...	4 ft. 10 ins.
Track	...	...	6 ft.
Wing Area	...	...	77 sq. ft.
Wing Loading	...	...	8.3 lbs. sq. ft.

PERFORMANCE

Maximum Speed	...	...	112 m.p.h.	Take-off Run	...	...	80 yds.
Cruising Speed	...	...	100 m.p.h.	Landing Run	...	...	50 yds.
Landing Speed	...	...	33 m.p.h.	Range	...	...	300 miles
Rate of Climb	...	...	620 ft./min.	Fuel Consumption	...	...	68 m.p.g.

POWER UNIT.

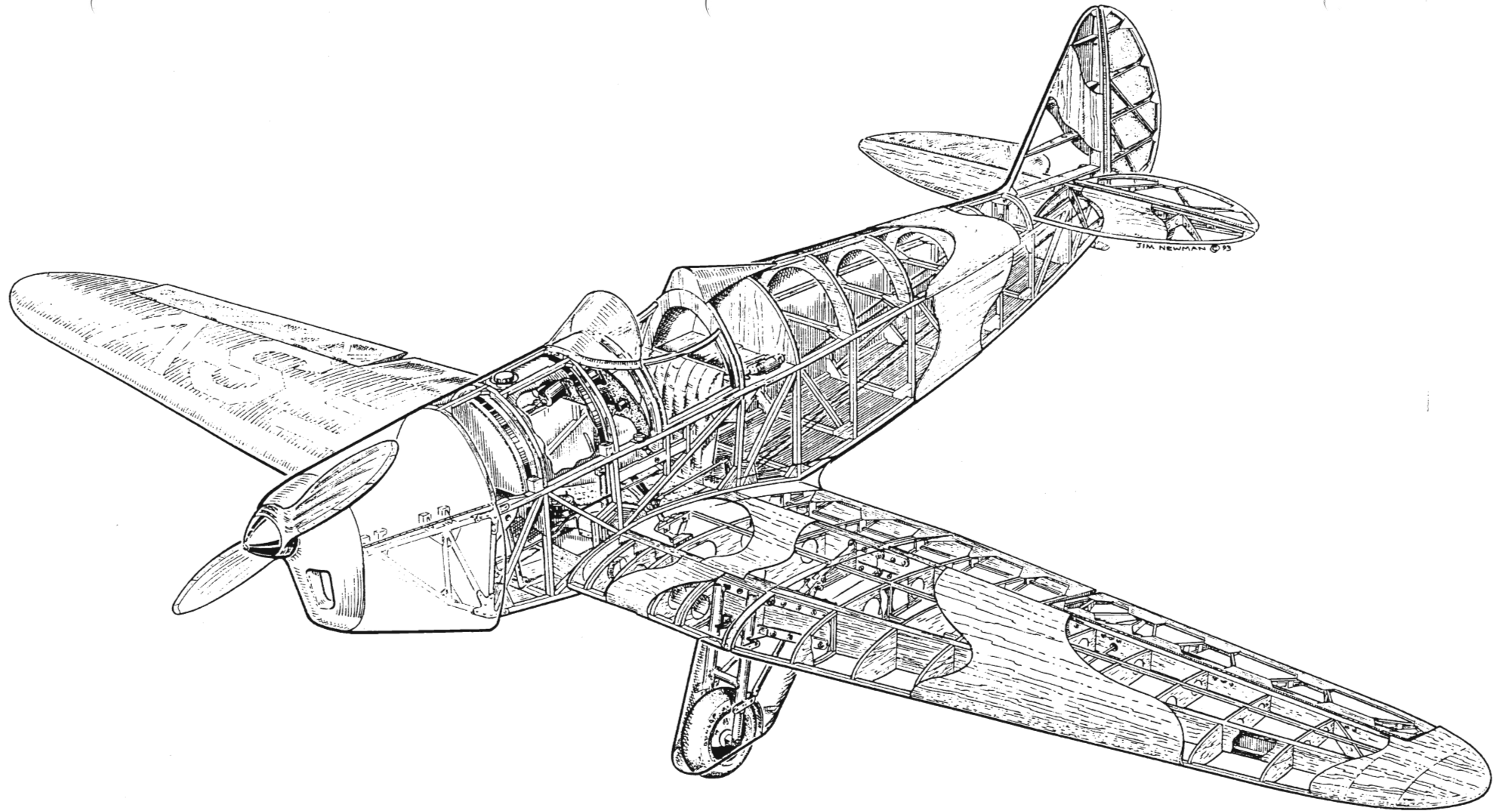
Converted Ford 10 Engine, 4-cyl. Dual Ignition, Water Cooled.
Maximum Power 52 h.p. at 3,500 r.p.m.

SPECIFICATION

Single water monoplane; wooden construction; exceptionally clean aerodynamic design; split trailing edge flaps; wide track streamline undercarriage; 4 ins. spring travel; low pressure tyres; sprung tail skid; fully enclosed control cabin; differential alternator; roomy draught-proof cockpit; pneumatic upholstery; safety belt; two luggage compartments; streamline headrest; full set of instruments, including Air Speed Indicator, Rev-counter, Oil Pressure Gauge, Water Thermo, Altimeter, Cross-level and Compass.

Price £315

ex Works.



CHILTON LIGHT MONOPLANE.

Fitted with Train 4T Engine, 44 H.P., 4-Cylinder, Air Cooled.

PERFORMANCE.

Maximum Speed	...	...	125 m.p.h.
Cruising Speed	...	...	112 m.p.h.
Landing Speed	...	...	35 m.p.h.
Take-off Run	...	...	60 yards
Landing Run	...	...	50 yards
Rate of Climb	...	...	1000 feet per minute
Standard Range	...	...	400 miles
Range with extra Tanks up to 1000 miles.			

WEIGHTS.

Empty weight	...	370 lbs.
Pilot	...	160 lbs.
Petrol and Oil	...	70 lbs.
Luggage	...	50 lbs.
Total Weight	...	<u>650 lbs.</u>

LOADINGS.

Wing Loading	...	8.4 lbs. sq. ft.
Power Loading	...	14.8 lbs. h.p.
Maximum Permissible Weight	...	<u>700 lbs.</u>

Petrol Consumption ... 2½ gallons per hour.

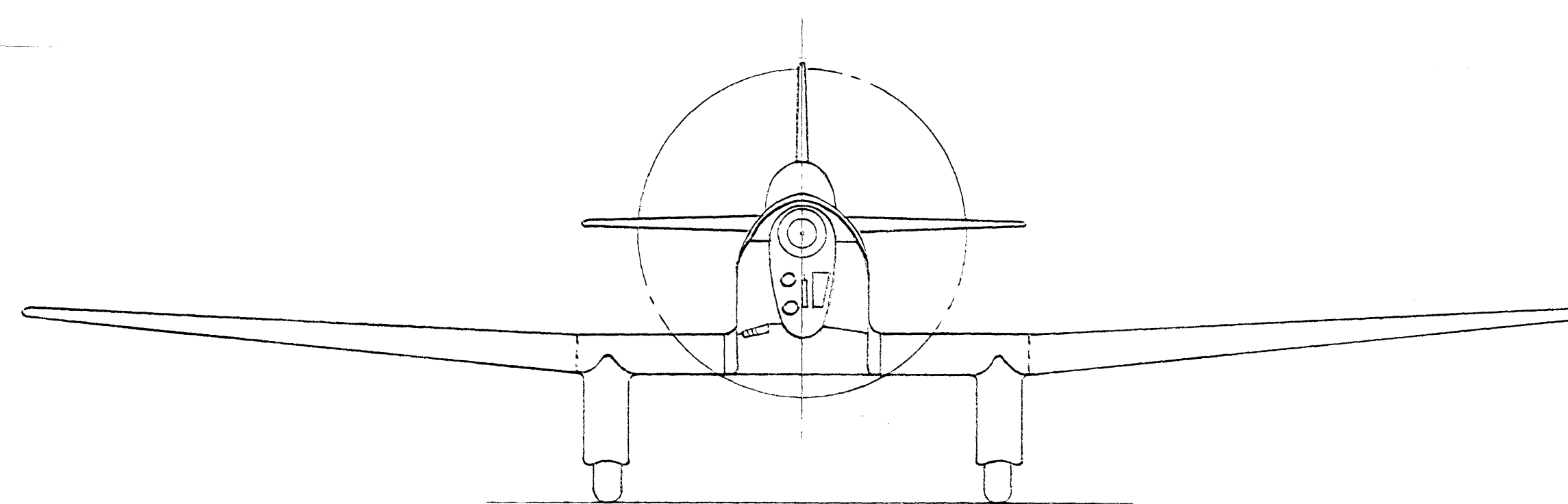
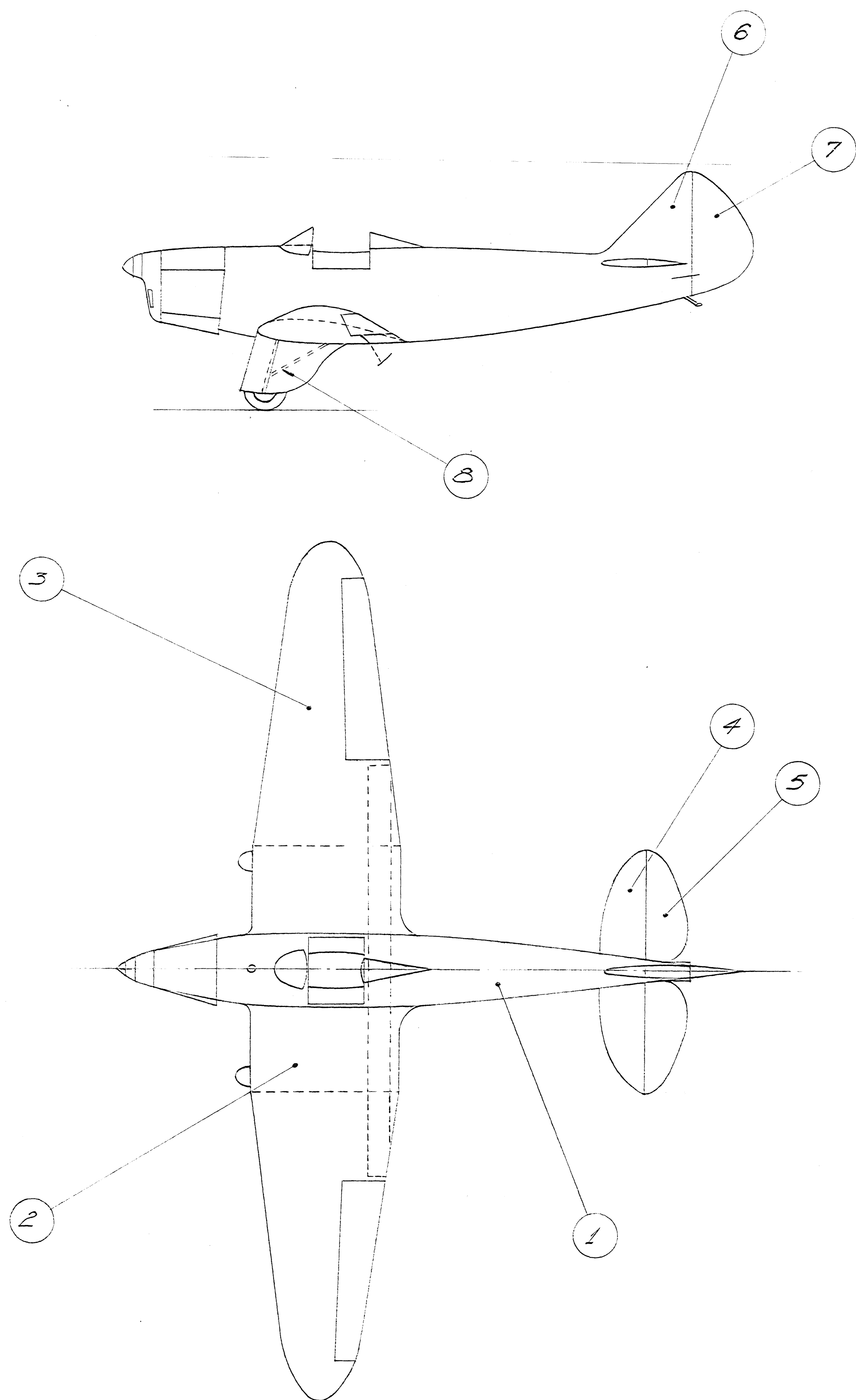
Oil Consumption ... ½ pint per hour.

All other particulars are the same as for standard Chilton with Carden-Ford Motor.

This model is particularly recommended for use in hot climates and at high altitudes owing to its large reserve of power and excellent take-off.

The Train is a 4-cylinder inverted in-line engine of the under-head camshaft type, giving 44 h.p. at 2300 r.p.m., and is fitted with dual ignition and dual petrol pumps. This engine is fitted in a large number of different continental light aeroplanes and holds the world's records in its class for speed over 500 and 1,000 kilometers.

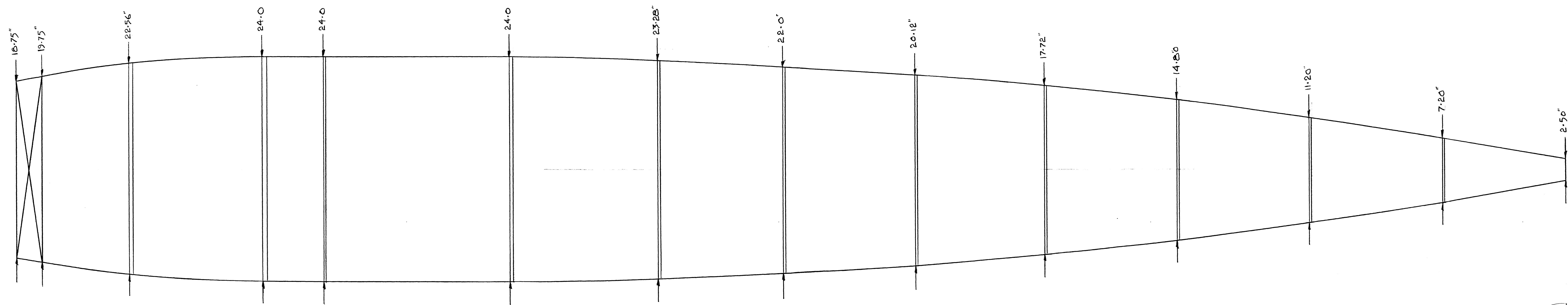
Price **£375** ex Works.



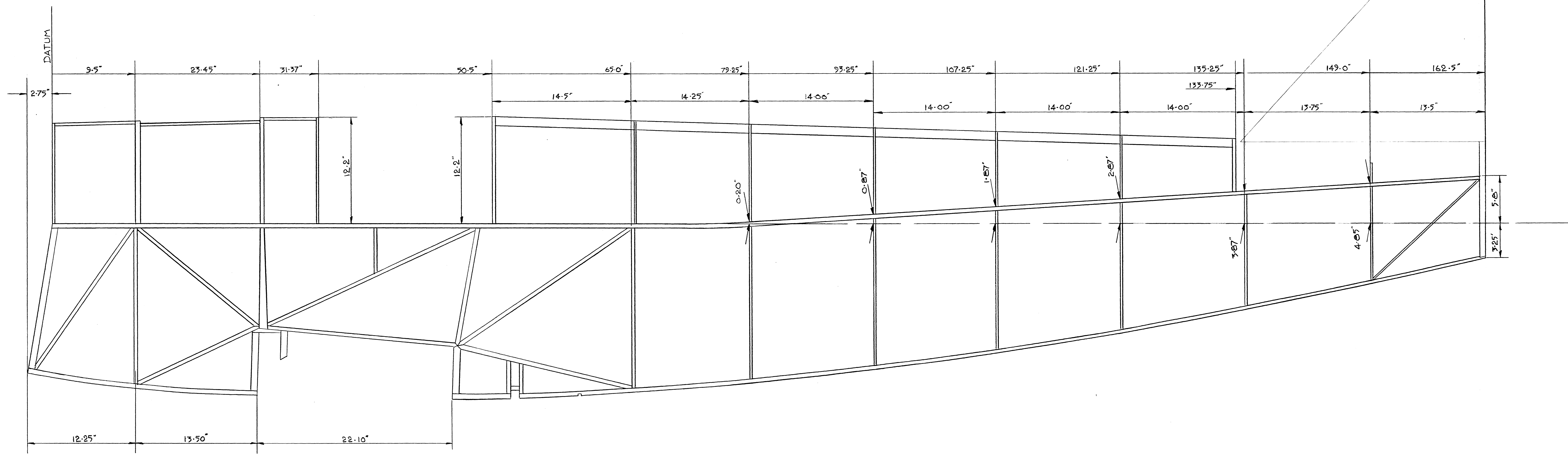
CHILTON MONOPLANE

SPAN.	24 FT
LENGTH.	17.5 FT
HEIGHT.	5 FT
WIDTH (WINGS DETACHED).	7.2 FT
WEIGHT EMPTY.	370 LB
PILOT.	160 LB
FUEL AND OIL.	70 LB
LUGGAGE.	50 LB
WEIGHT LOADED.	650 LB
WING LOADING.	8.4 LB. SQ. FT.
POWER LOADING.	14.8 LB. HP
MAXIMUM SPEED.	125 M.P.H.
CRUISING SPEED.	112 M.P.H.
LANDING SPEED.	35 M.P.H.
INITIAL RATE OF CLIMB.	1000 FT. MIN.
NORMAL RANGE.	400 MILES.
TAKE-OFF RUN.	65 YDS.
LANDING RUN.	50 YDS.

3	M.06	UNDERCARRIAGE ASSEMBLY
7	T.05	RUDDER
6	T.06	FIN
5	T.01	ELEVATOR
4	T.01	TAIL PLANE
3	W.01	S.A. WING
2	C.01	S.A. CENTRE SECTION
1	F.02	S.A. FUSELAGE
ITEM No	DRG No	DESCRIPTION
D	I.R.	ISSUE
T		CHILTON AIRCRAFT
C		MAT. SPEC. (LATEST ISSUE)
APP'D		
DATE ISSUED	SCALE	FINISH
	1/24	
ASS'D ON	LIMITS (UNLESS STATED)	1/6 OFF
DESCRIPTION	DRG	F01
GENERAL ARRANGEMENT		

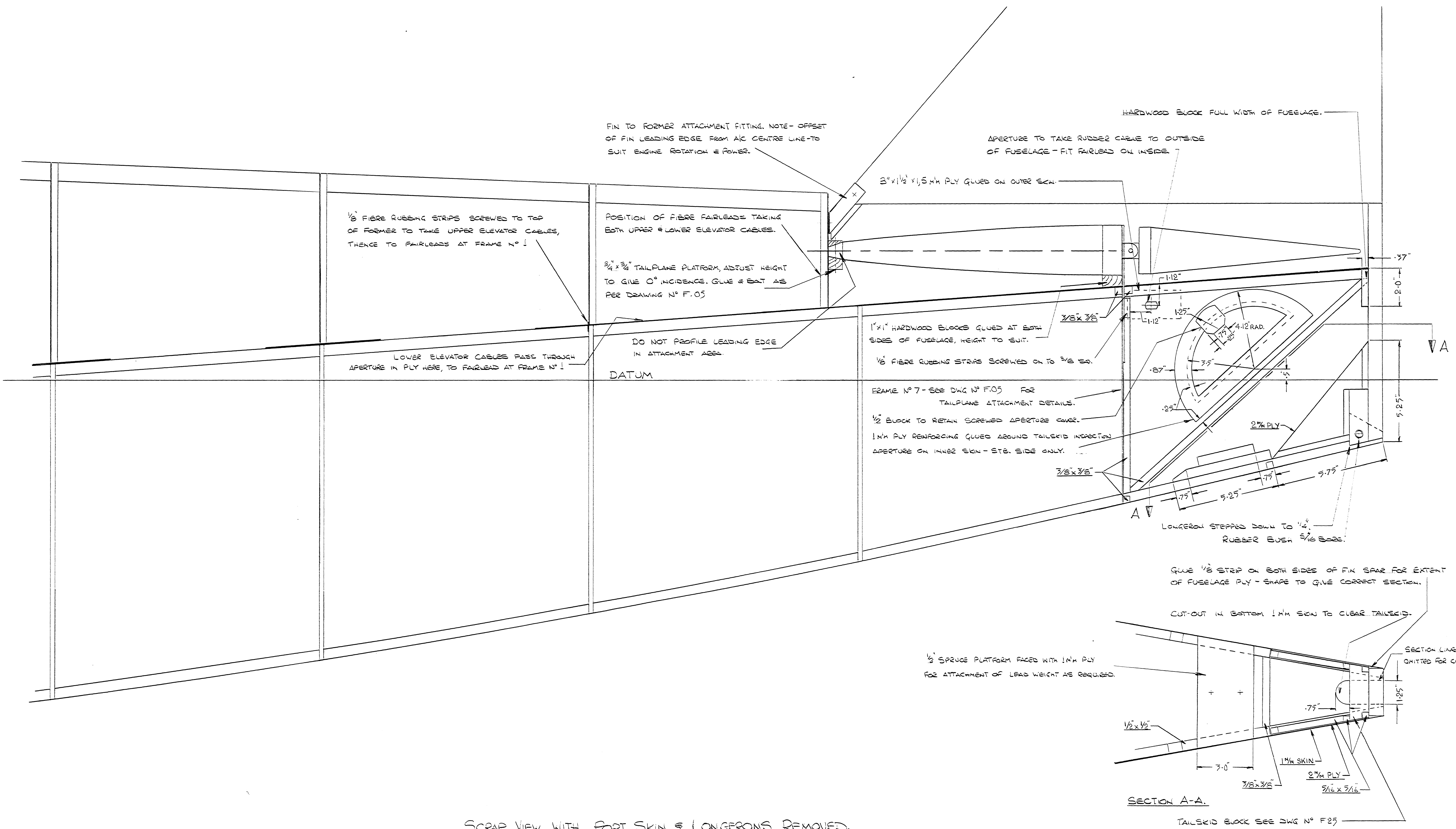


FUSELAGE - TOP VIEW

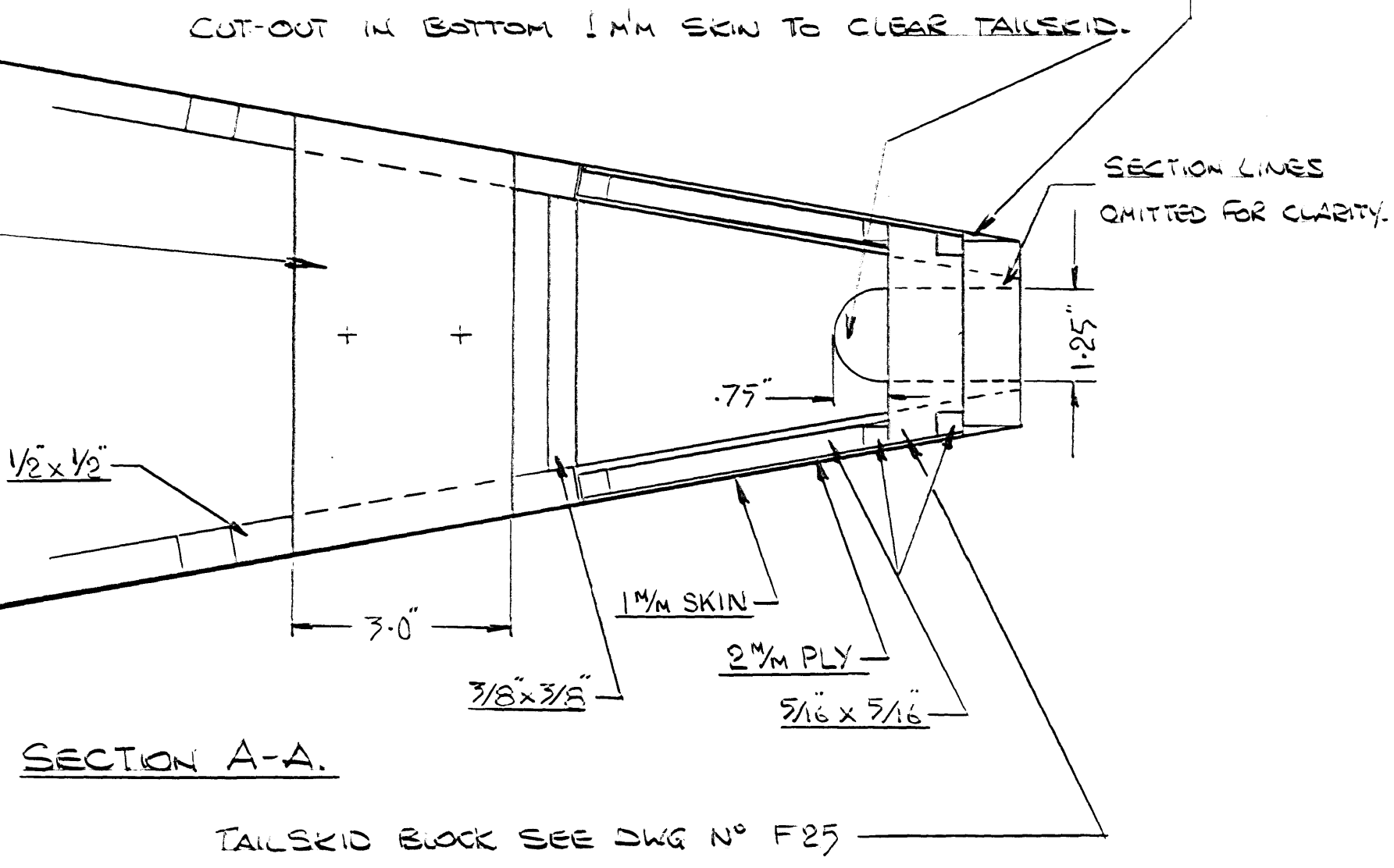


CHILTON DW1A - FUSELAGE ELEVATION

D	2	ISSUE		CHILTON AIRCRAFT	
T				SPEC. (LATEST ISSUE)	
C			MAT		
APPD.				PROCESSES	
DATE ISSUED		SCALE		FINISH	
ASSMD. ON		LIMITS (UNLESS STATED)		No. OFF	
DESCRIPTION	FUSELAGE ELEVATION			DRG. No.	F.02



SCRAP VIEW WITH PORT SKIN & LONGERONS REMOVED.

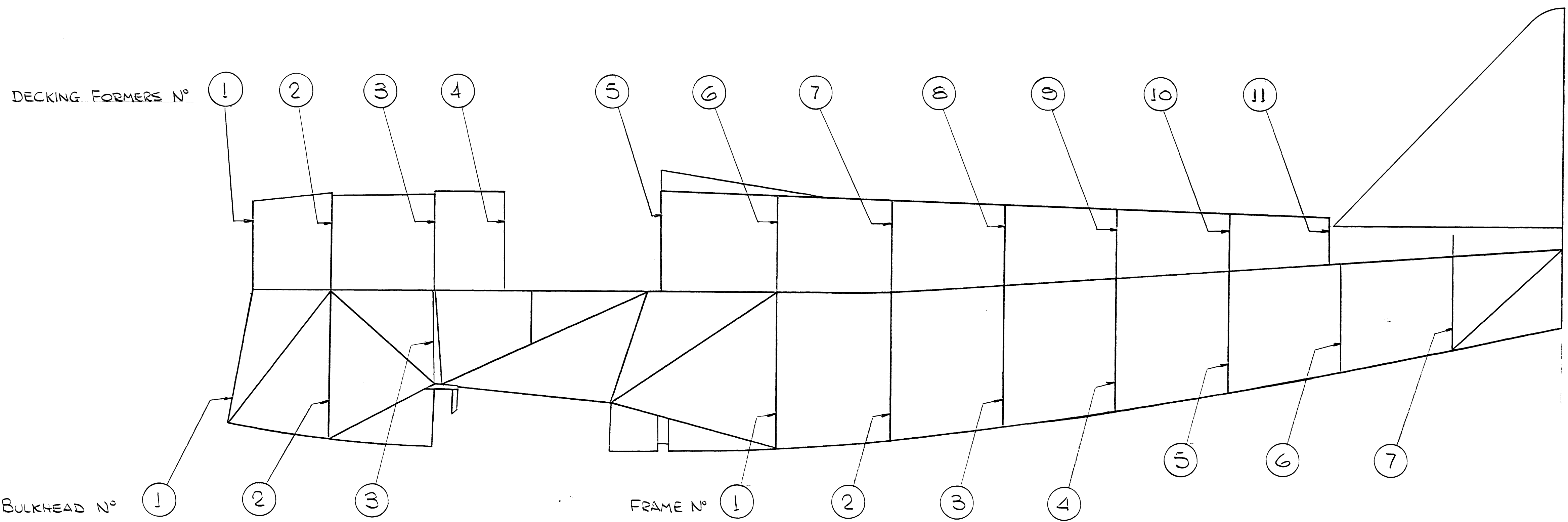


SECTION A-A.

TAILSKID BLOCK SEE DWG N° F.25

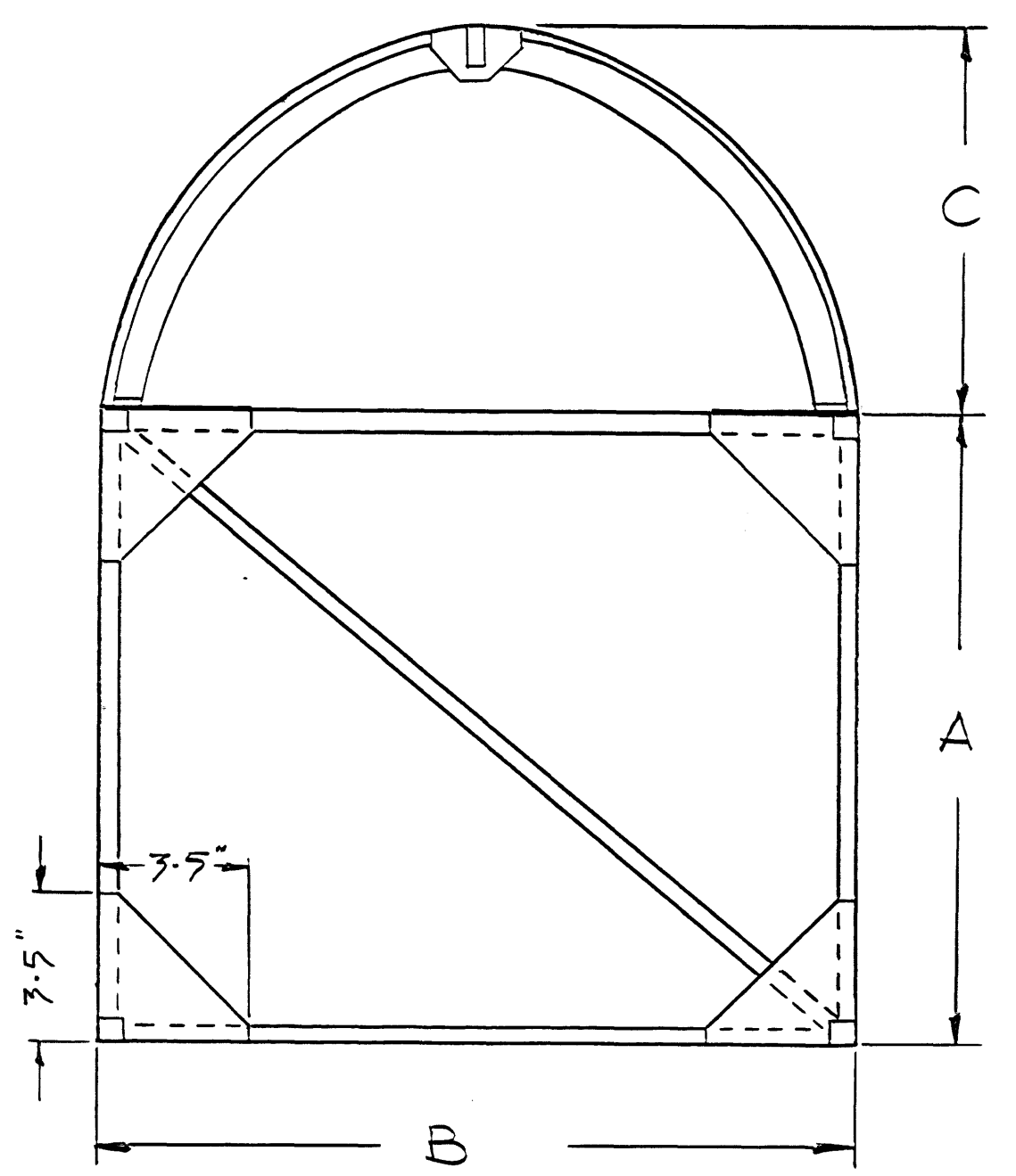
NOTE - 2 MM REINFORCING PLY CUT TO FIT AROUND TAILSKID BLOCK.

D R N		ISSUE	CHILTON AIRCRAFT	
C			MAT	SPEC. (LATEST ISSUE)
APPD.				
DATE ISSUED	SCALE	FINISH	PROCESSES	
ASSMD ON	LIMITS (UNLESS STATED):		No OFF	
DESCRIPTION	DRG No.			
REAR FUSELAGE			F.04	



BULKHEAD N°

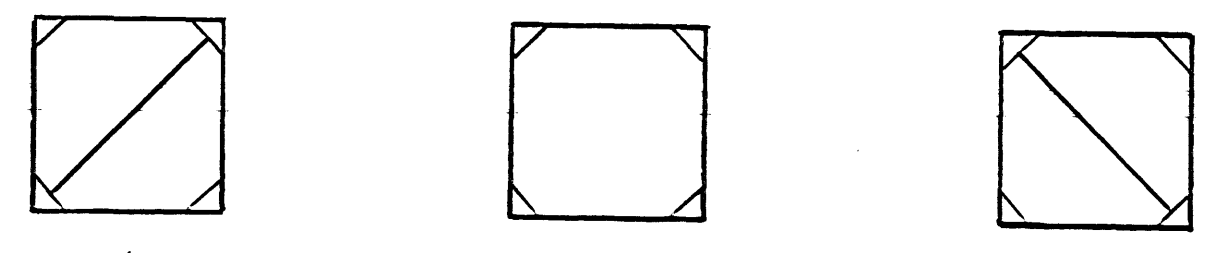
FRAME N°



ALL FRAME STRUCTURE - $\frac{1}{2}$ " x $\frac{1}{2}$ "
 1MM PLY GUSSETS ON BOTH SIDES.

FRAME	TYPE	A	B	C
1	*	19.4	23.28	11.9
2	Y	18.5	22.0	11.3
3	Z	17.4	20.12	10.2
4	X	16.4	17.72	8.8
5	Z	15.0	14.8	7.3
6	Y	13.3	11.2	-
7	*	11.3	7.1	-

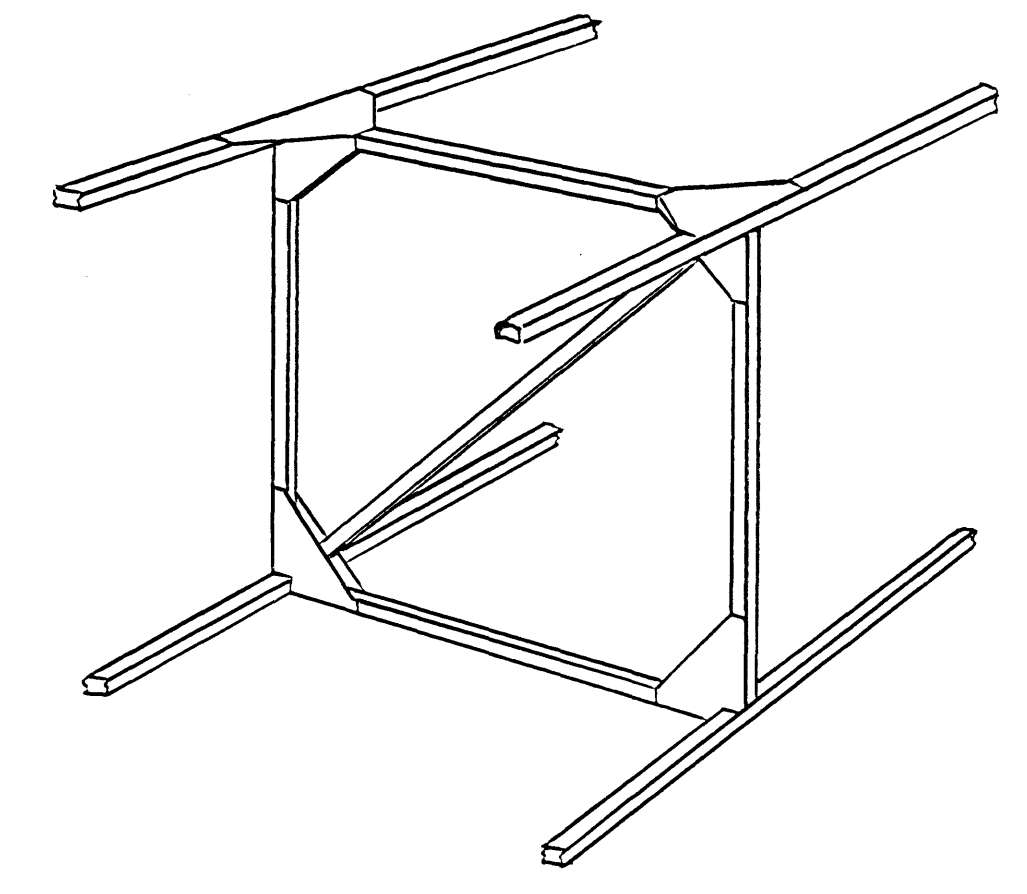
NOTE - * FOR CONSTRUCTION DETAILS OF THESE
 FRAMES REFER TO DRG N° F10 AND DRG N° F11



FRAME TYPE

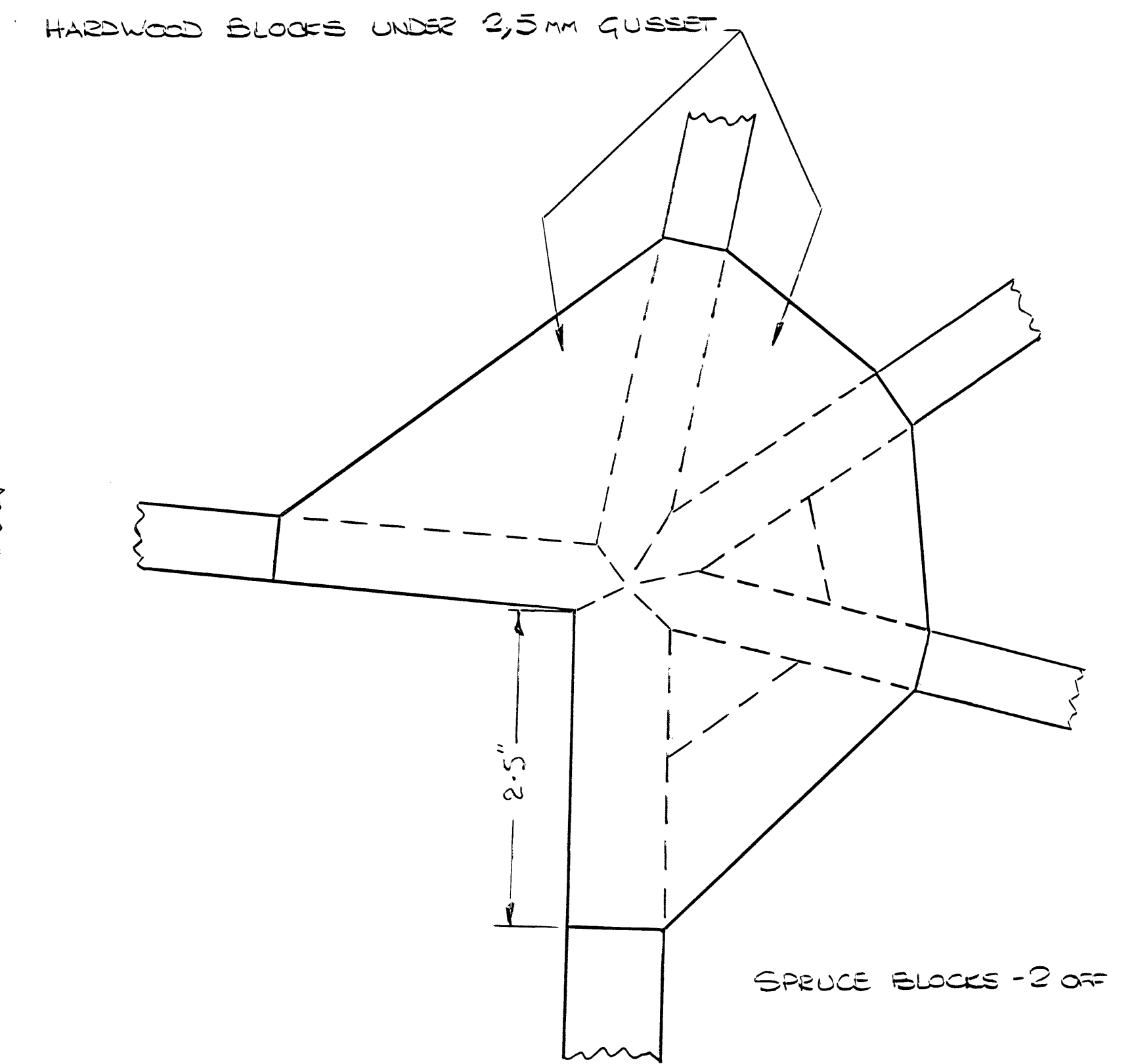
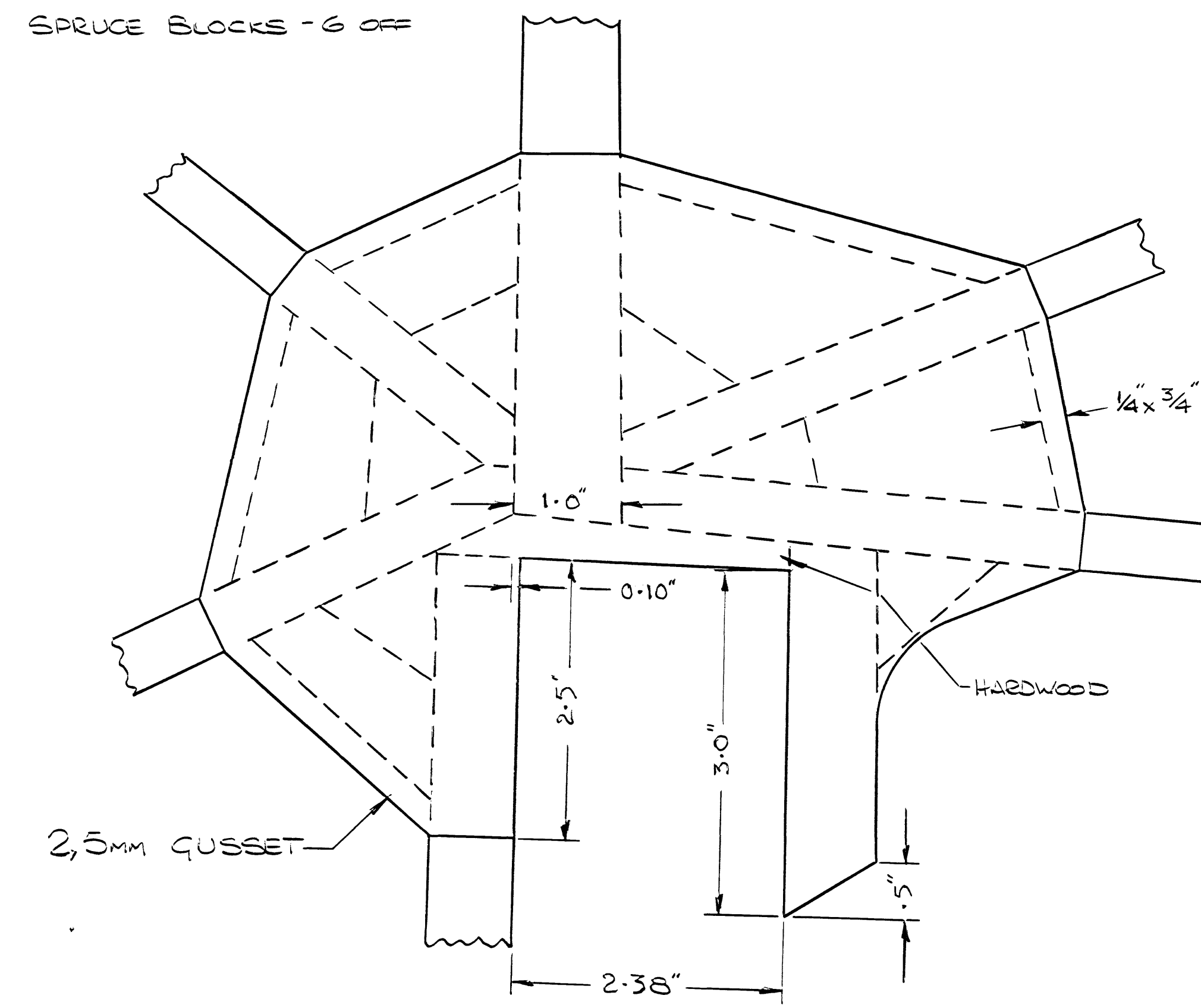
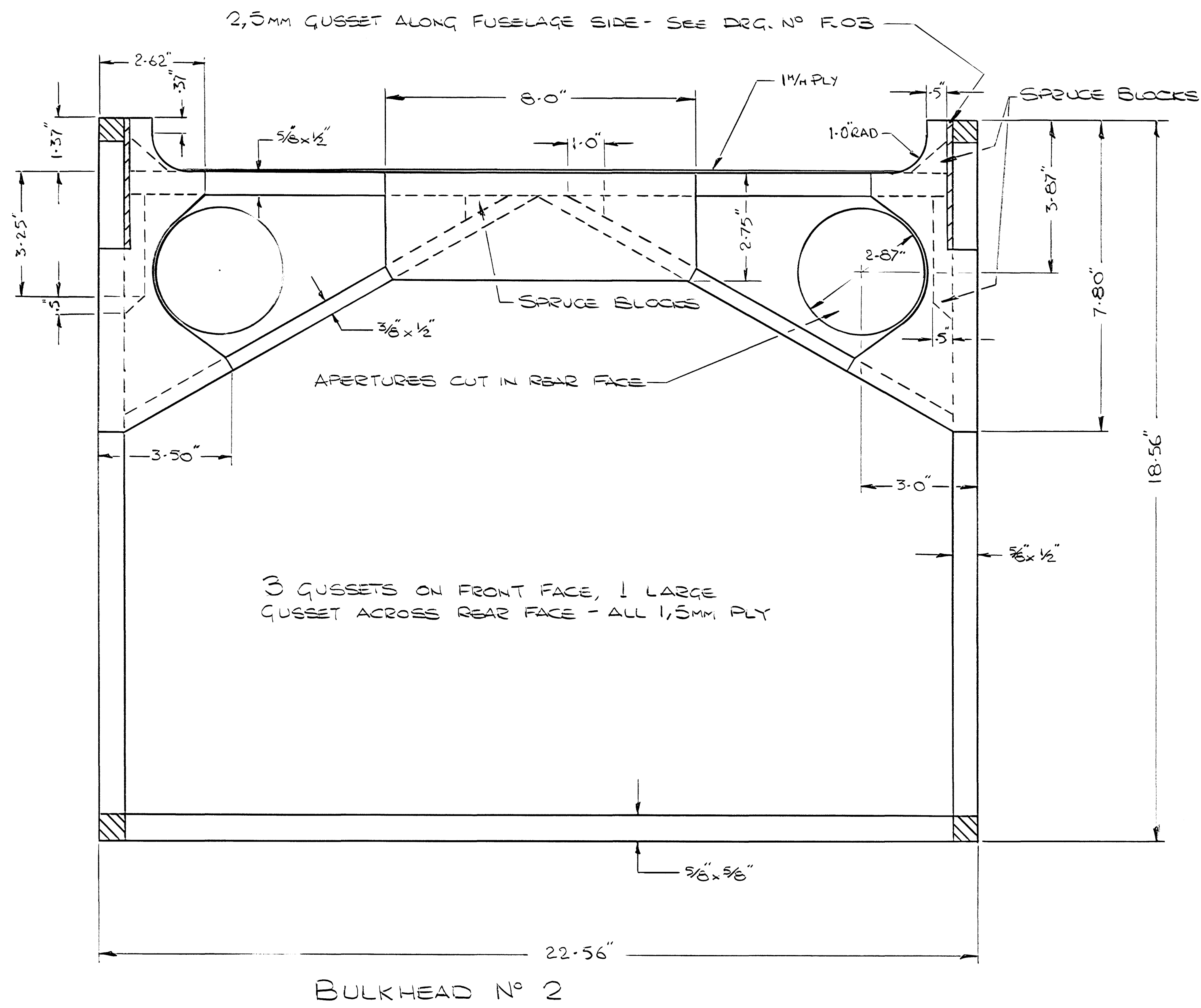
X Y Z

FRAMES AS VIEWED FROM THE REAR



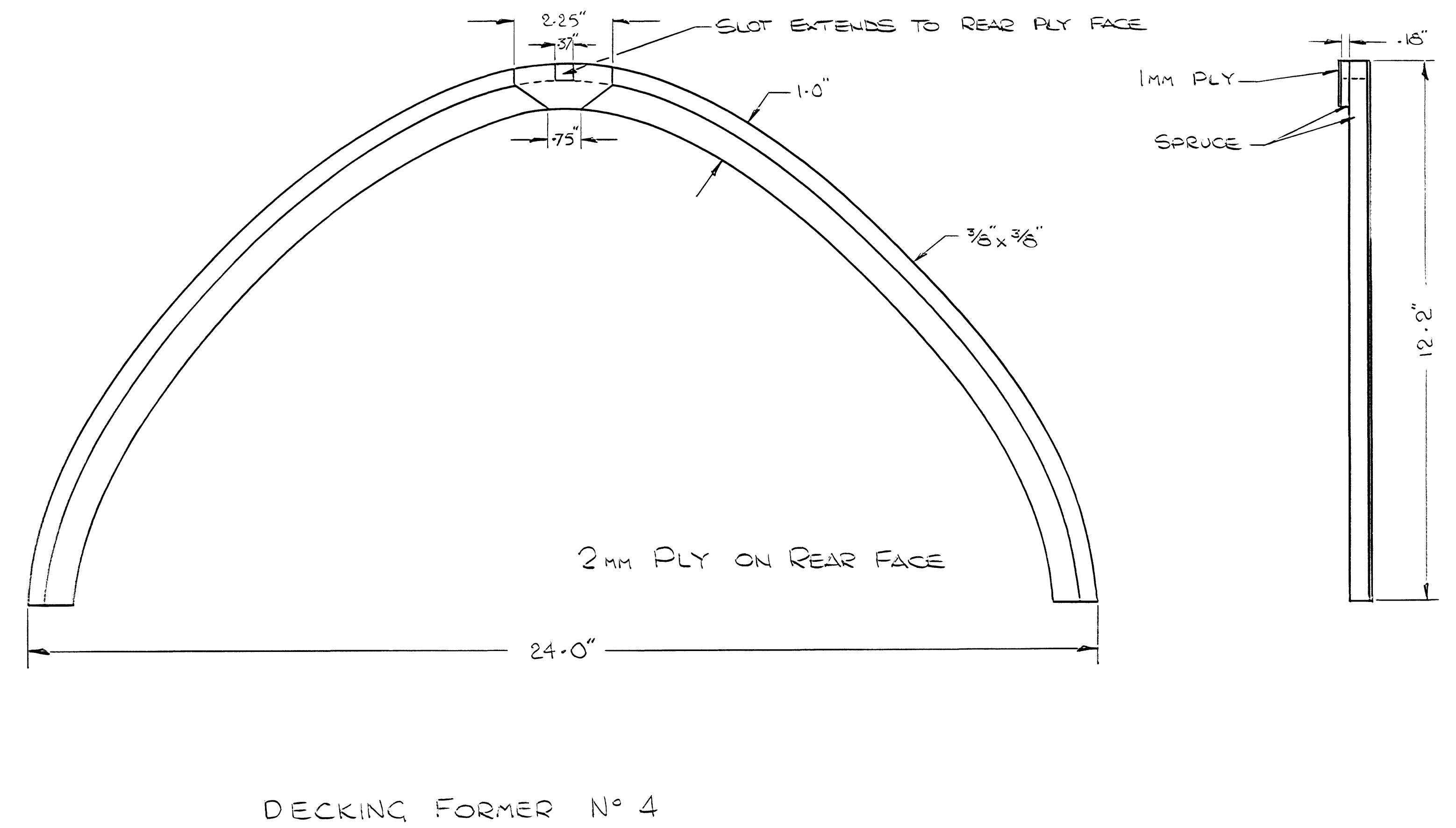
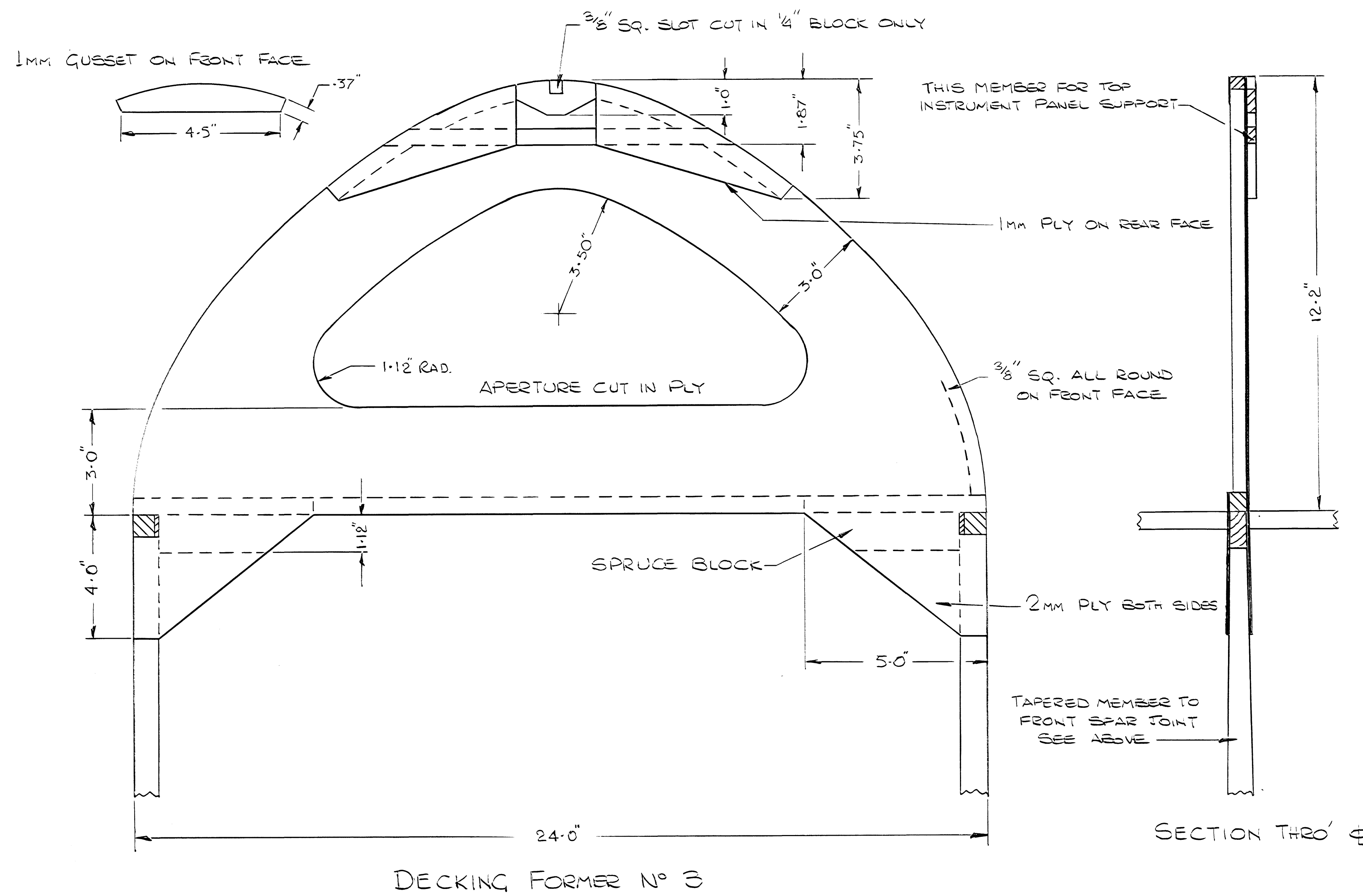
TYPICAL FRAME ASSEMBLY.

D	RN	ISSUE	CHILTON AIRCRAFT	
T			SPEC. (LATEST ISSUE)	
C			MAT	
APPD.				
DATE ISSUED	SCALE	FINISH	PROCESSES	
ASSMD. ON	LIMITS (UNLESS STATED)		No. OFF	
DESCRIPTION			DRG. No.	
FUSELAGE FRAMES			F.07	

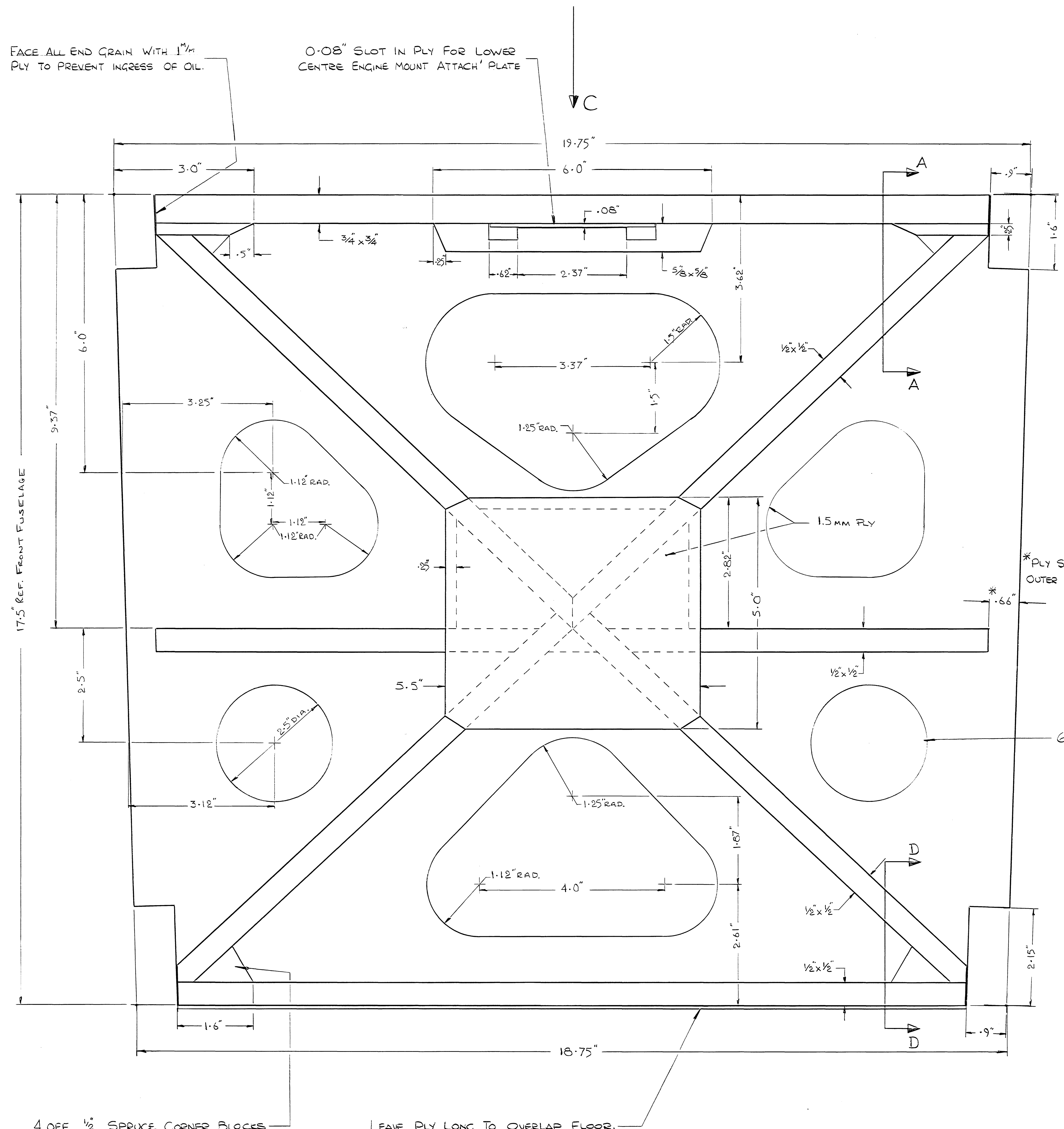


FRONT SPAR JOINT FULL SIZE REAR SPAR JOINT

NOTE: - BOTH JOINTS SET AT 2° TO DATUM

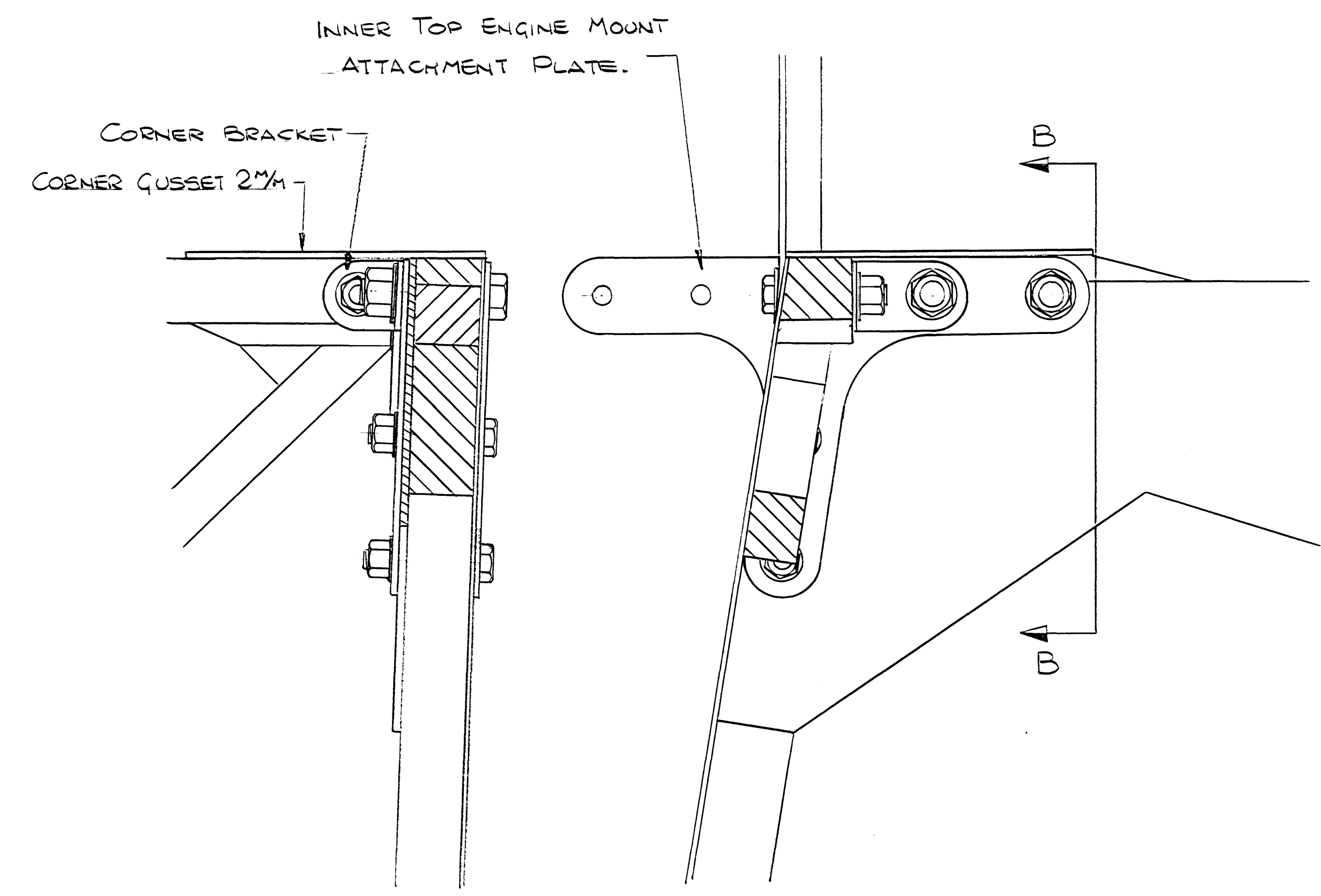


D	R	ISSUE	CHILTON AIRCRAFT	
T			MAT	SPEC. (LATEST ISSUE)
C				
APPD.				
DATE ISSUED	SCALE	FINISH	PROCESSES	
ASSMD. ON	LIMITS (UNLESS STATED)		No. OFF	
DESCRIPTION	FUSELAGE DETAILS		DRG. No.	F.09



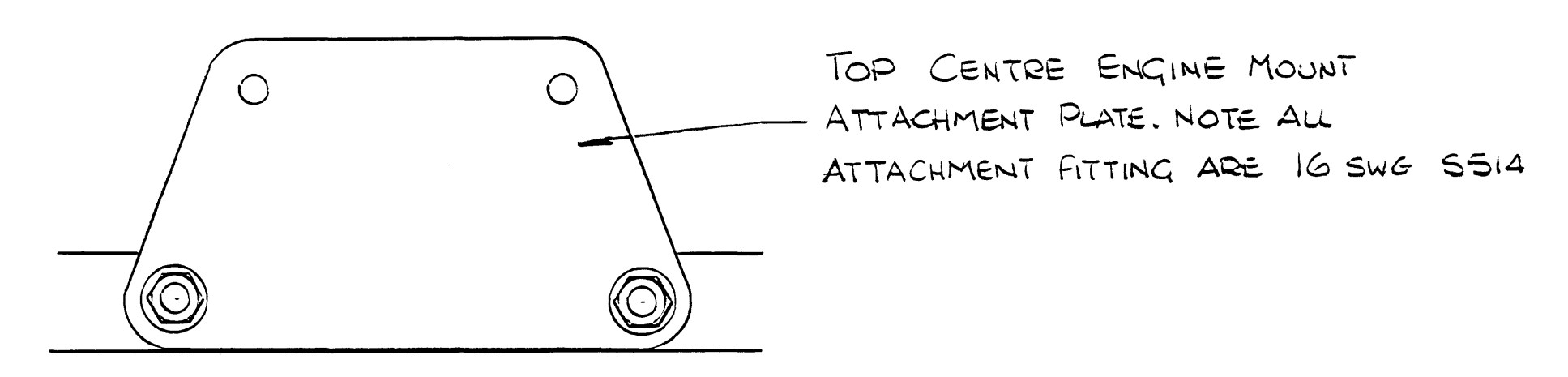
FACE ALL END GRAIN WITH 1³/₄"
PLY TO PREVENT INGRESS OF OIL.

0.08" SLOT IN PLY FOR LOWER
CENTRE ENGINE MOUNT ATTACH' PLATE



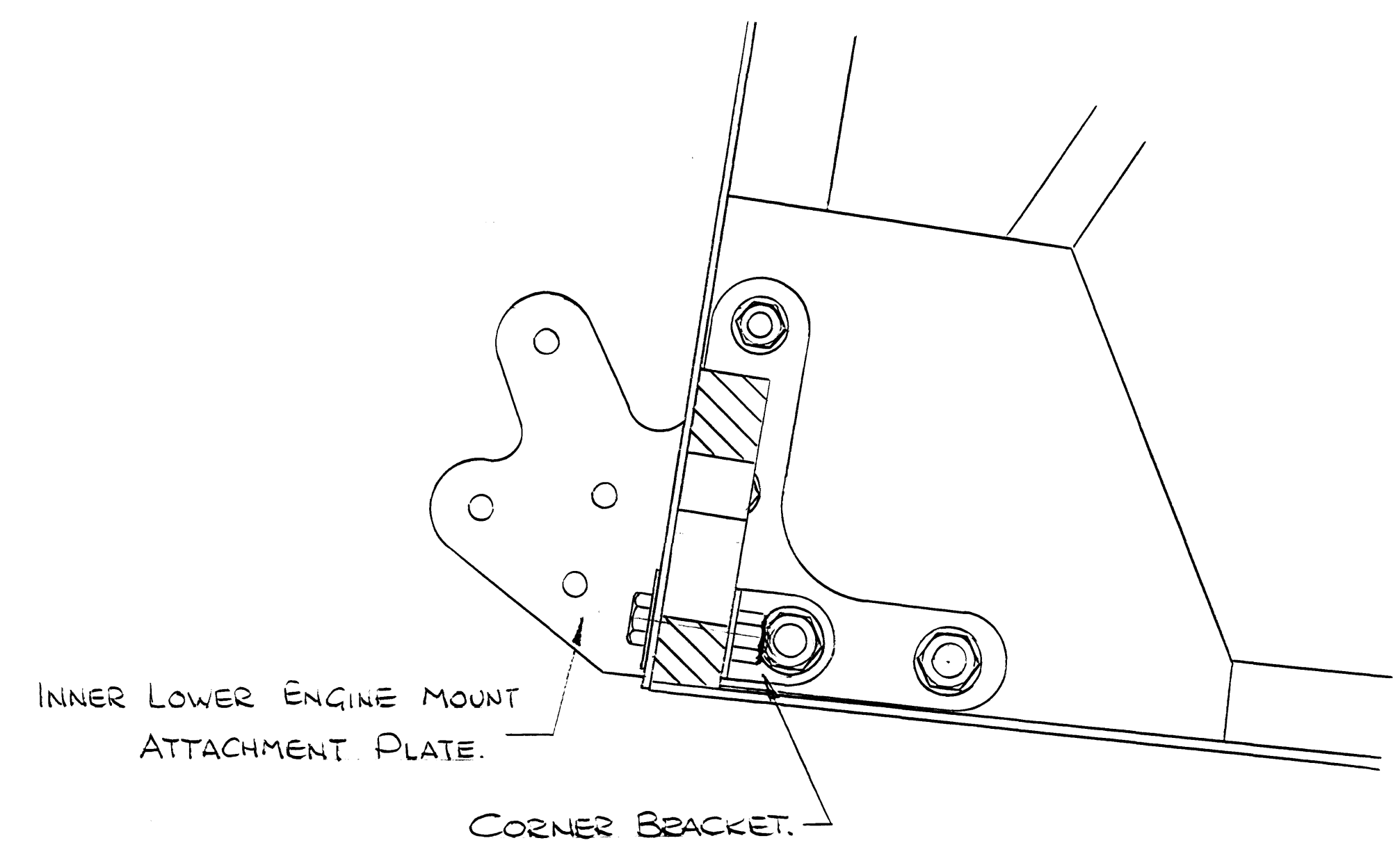
ASSEMBLY VIEW ON B-B

ASSEMBLY VIEW ON A-A



ASSEMBLY VIEW ON 'C'

6 APERTURES CUT IN PLY



ASSEMBLY VIEW ON D-D.

*PLY SHOULD OVERLAP
OUTER FUSELAGE SKIN.

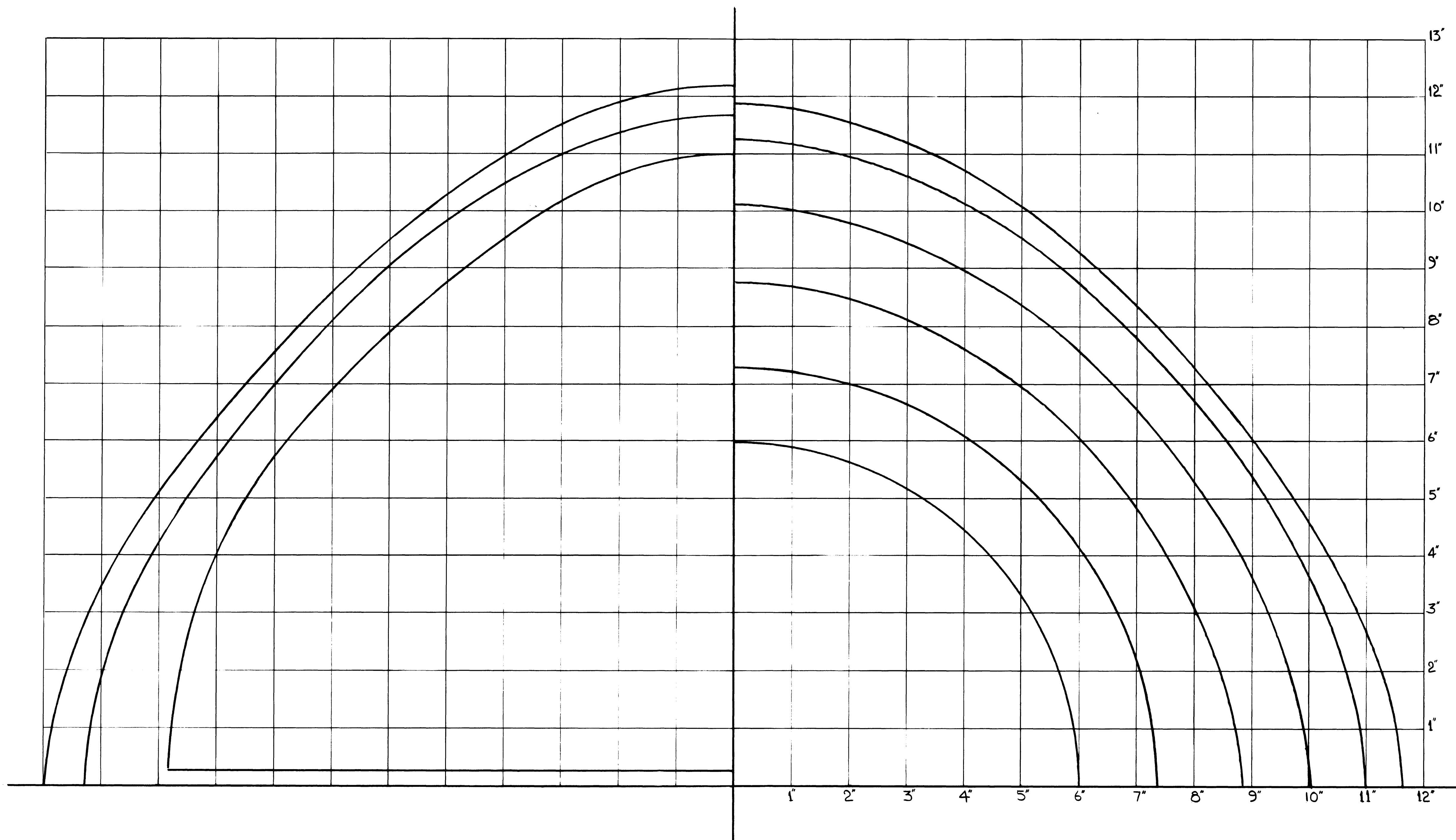
TOP CENTRE ENGINE MOUNT
ATTACHMENT PLATE. NOTE ALL
ATTACHMENT FITTING ARE 16 SWG SS14

4 OFF 1/2 SPRUCE CORNER BLOCKS

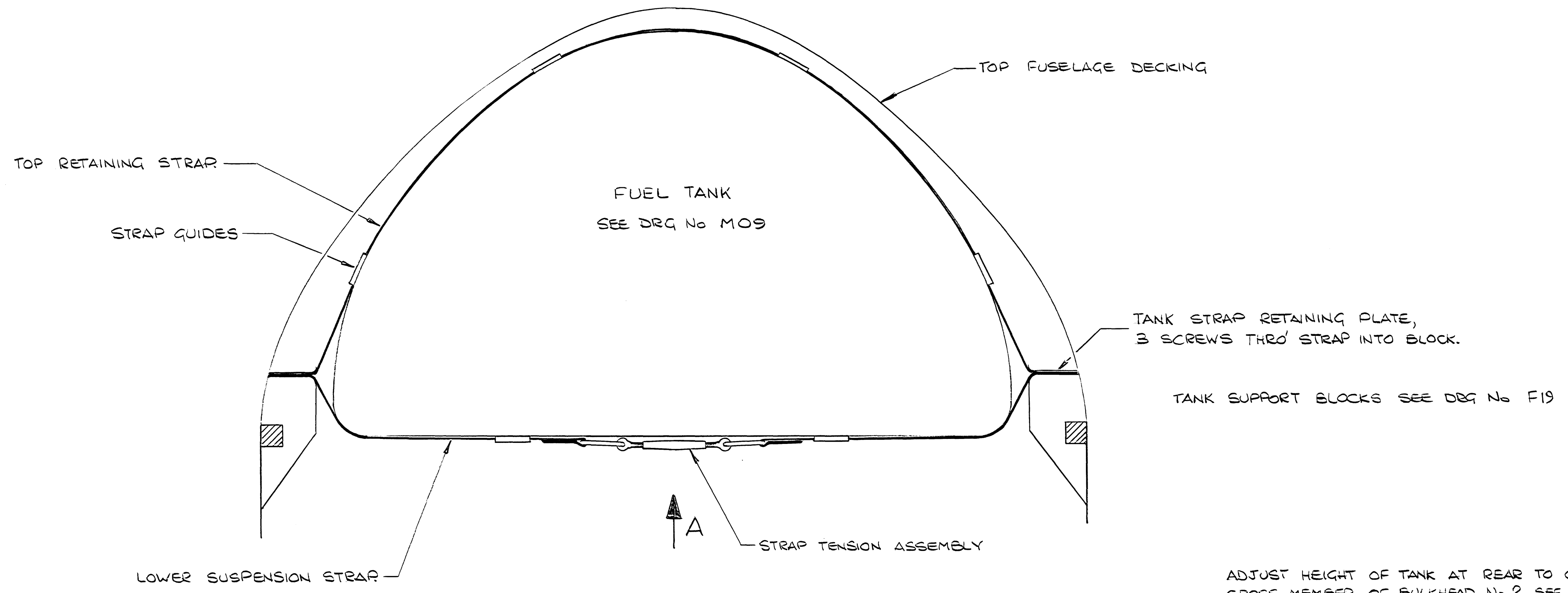
LEAVE PLY LONG TO OVERLAP FLOOR.

BULKHEAD N° 1 DWIA

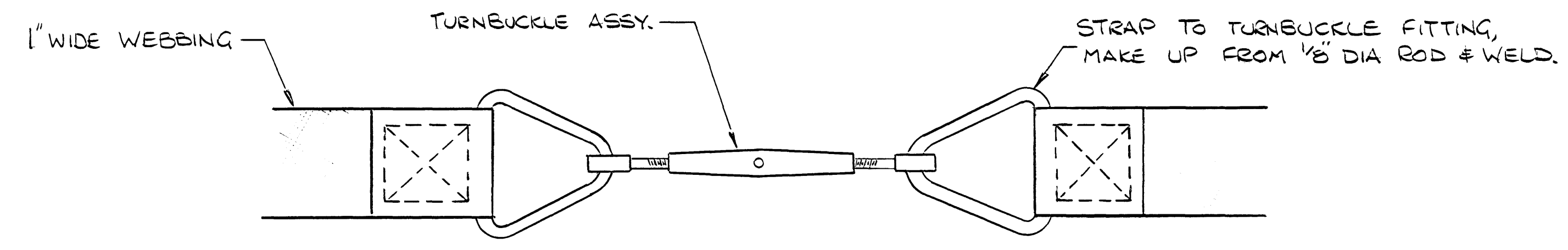
D. R. N.	ISSUE	CHILTON AIRCRAFT	
T.		MAT SPRUCE	SPEC. (LATEST ISSUE)
C.		BIRCH PLY	
APPD.			
DATE ISSUED	SCALE	FINISH	PROCESSES
ASSMD. ON	LIMITS (UNLESS STATED)	No. OFF	
DESCRIPTION	DRG. No.		
BULKHEAD 1	F.12		



D	RN	ISSUE		CHILTON AIRCRAFT	
T					
C				MAT	SPEC. (LATEST ISSUE)
APPD.					
DATE ISSUED		SCALE		FINISH	PROCESSES
ASSMD. ON		LIMITS (UNLESS STATED)		No. OFF	
DESCRIPTION	FUSELAGE DECKING			DRG. No.	F.15



ADJUST HEIGHT OF TANK AT REAR TO CLEAR CROSS MEMBER OF BULKHEAD No 2. SEE DRG No F09



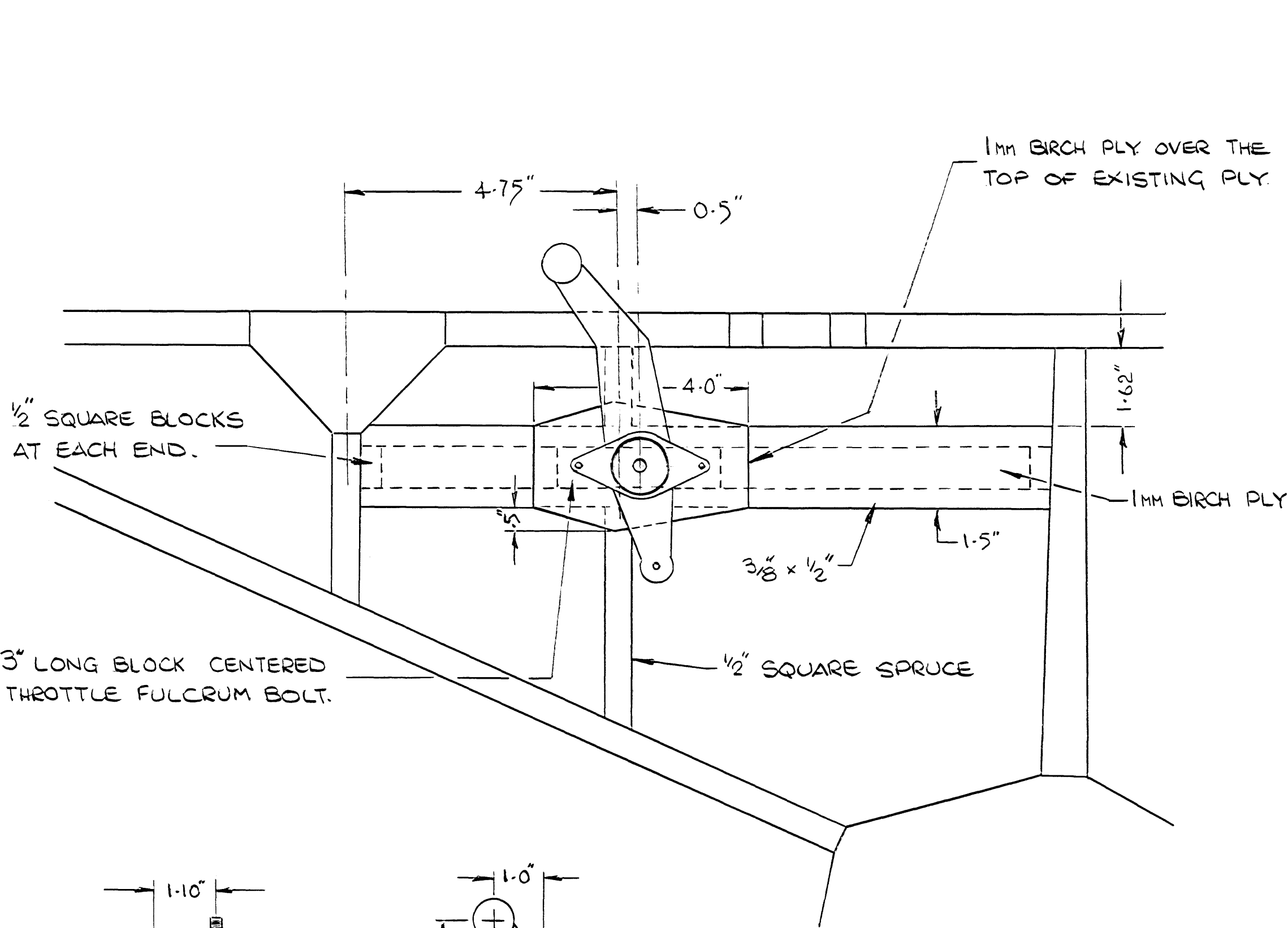
VIEW ON ARROW 'A' - FULL SIZE

NOTE: FRONT TANK SUSPENSION STRAPS ARE THE SAME AS THE REAR.

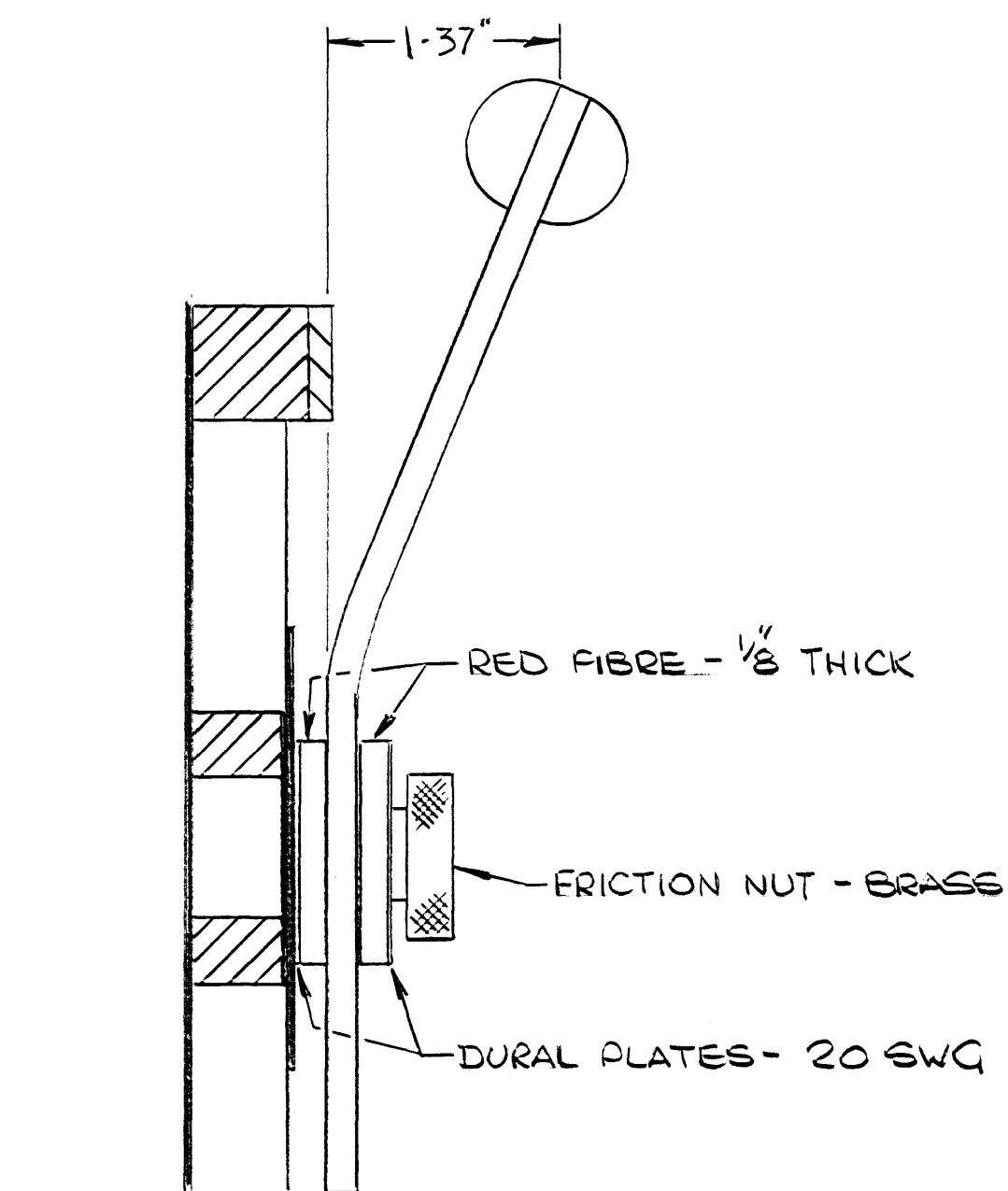
FUEL TANK SUSPENSION - REAR

D	RN	ISSUE		CHILTON AIRCRAFT	
T.					
C				MAT	SPEC. (LATEST ISSUE)
APPD.					
DATE ISSUED		SCALE		FINISH	PROCESSES
ASSMD. ON		LIMITS (UNLESS STATED)		No. OFF	
DESCRIPTION	FUEL TANK SUSPENSION			DRG. No.	F.16

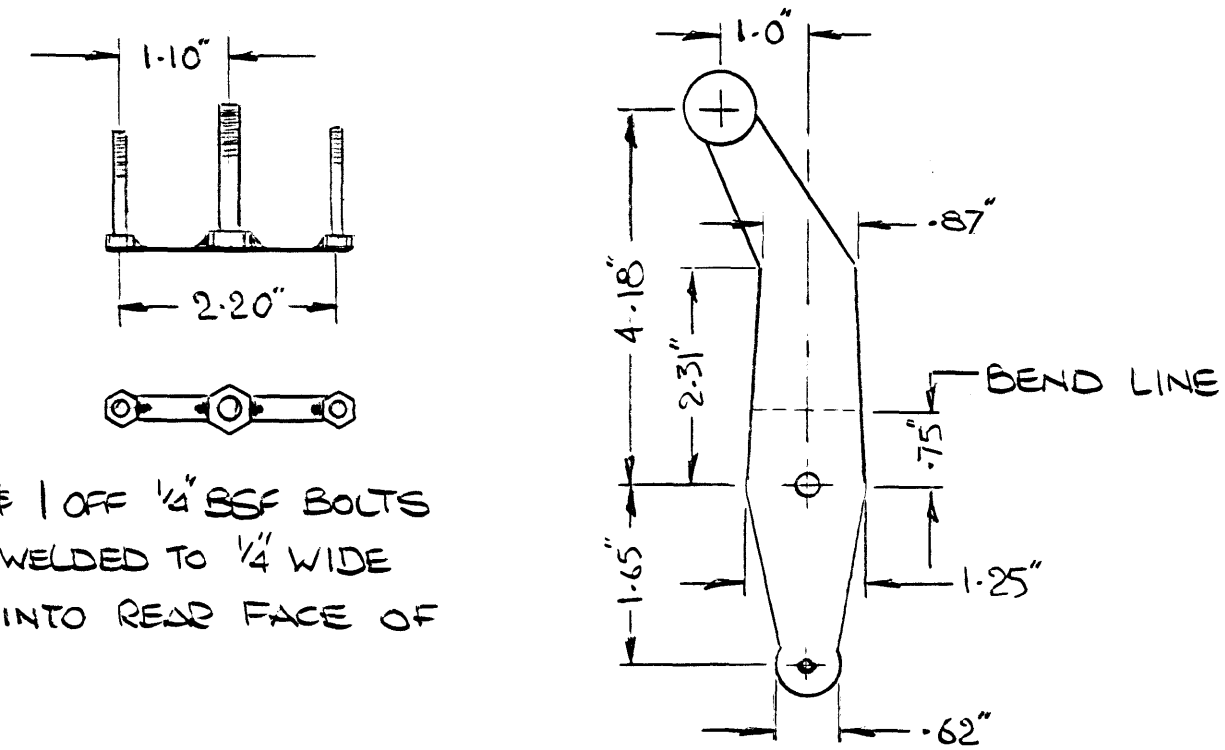
THROTTLE ASSY PORT SIDE AS FITTED IN G-AFSV



1/2 x 3" LONG BLOCK CENTERED ON THROTTLE FULCRUM BOLT.



THROTTLE ASSY - FULL SIZE

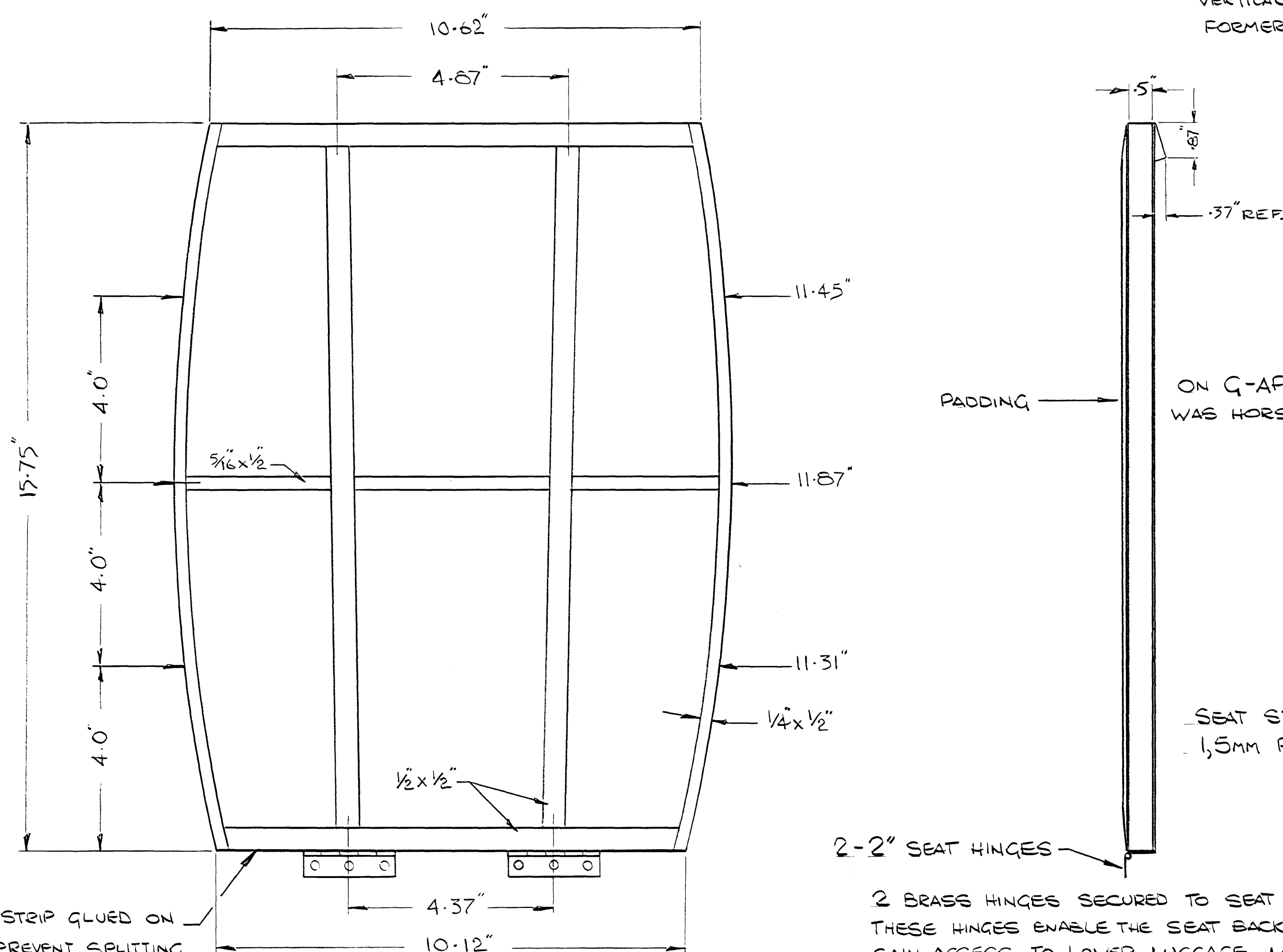


THROTTLE LEVER 3/16 DURAL.

2 OFF 2BA # 1 OFF 1/2 BSF BOLTS WITH HEADS WELDED TO 1/4 WIDE STRIP - LET INTO REAR FACE OF BLOCK.

NOTE:- ON CHILTON G-AFSV, A FIRE EXTINGUISHER WAS SCREWED TO THE REAR OF THE SEAT. HOWEVER, IT IS RECOMMENDED THAT TWO EXTRA SPRUCE CROSS MEMBERS BE INCORPORATED INTO STRUCTURE ON CENTRES THAT COINCIDE WITH THOSE OF THE EXTINGUISHER MOUNTING BRACKET.

ANGLED SPRUCE CROSS MEMBER ON REAR FACE OF SEAT, ANGLE TO COINCIDE WITH VERTICAL CONTACT FACE ON BECKING FORMER NO 5.

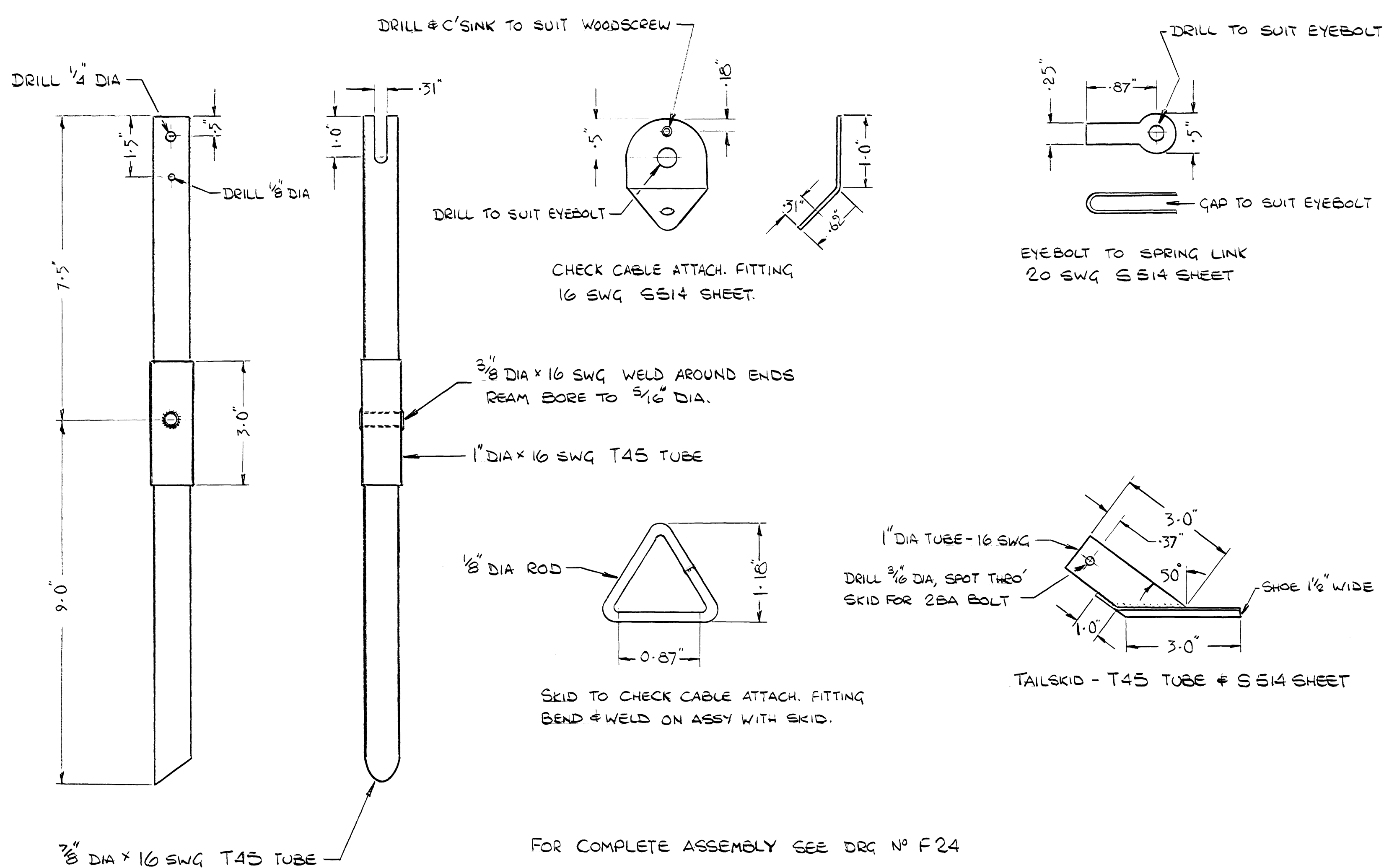


1.5mm PLY FACING STRIP GLUED ON BOTTOM FACE TO PREVENT SPLITTING

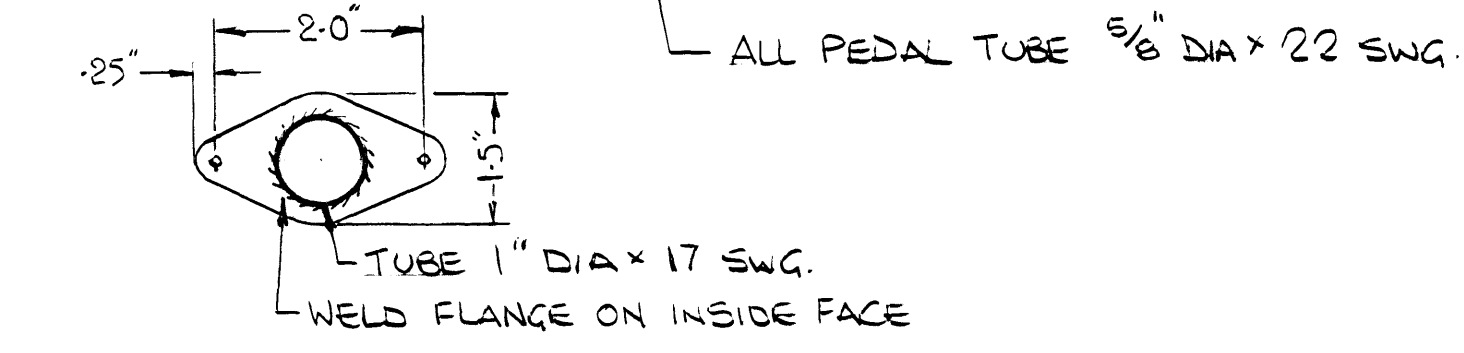
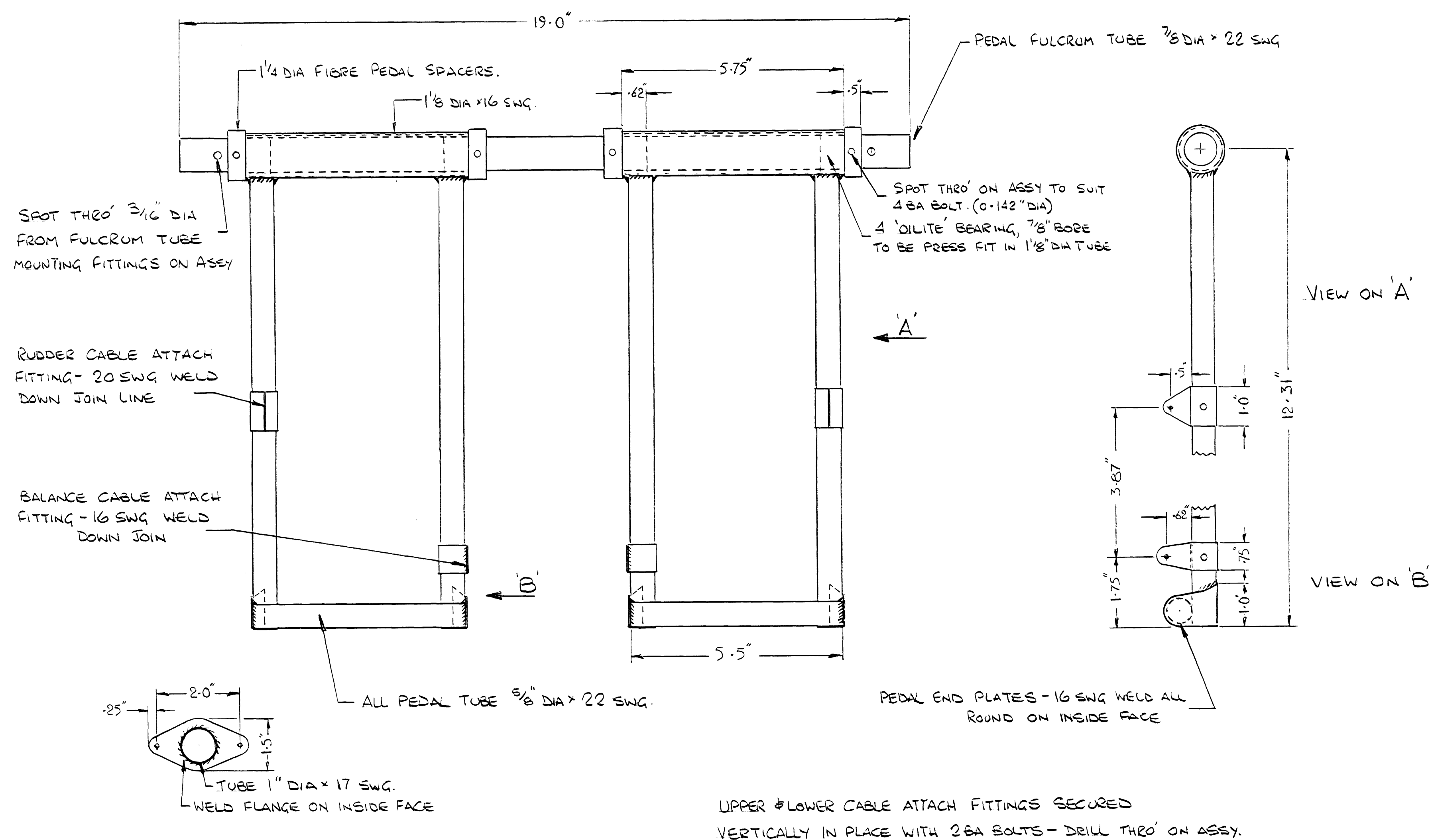
2-2" SEAT HINGES

2 BRASS HINGES SECURED TO SEAT BOTTOM BY BRASS WOOD SCREWS - THESE HINGES ENABLE THE SEAT BACK TO BE HINGED FORWARD TO GAIN ACCESS TO LOWER LUGGAGE LOCKER AREA.

PILOTS BACK REST - REAR VIEW. SHOWN WITHOUT 1.5mm PLY FOR CLARITY



FOR COMPLETE ASSEMBLY SEE DRG NO F24



DETERMINE EXACT FLANGE ANGLE ON ASSY WITH FUSELAGE SIDE
MOUNTING FLANGE - 20 SWG MATL. S514

FULCRUM TUBE MOUNTING FITTING - 2 OFF

UPPER & LOWER CABLE ATTACH FITTINGS SECURED VERTICALLY IN PLACE WITH 2BA BOLTS - DRILL THRO' ON ASSY.

D	T.N.	ISSUE	CHILTON AIRCRAFT	
T.	C		MAT T-45 TUBE	SPEC (LATEST ISSUE)
APPD.			S514 SHEET	
DATE ISSUED	SCALE	FINISH	PROCESSES	
ASSMD ON	LIMITS (UNLESS STATED)	NO OFF		
DESCRIPTION	FUSELAGE DETAILS		DRG. NO.	F.17

NOTE: - SCARFE ANGLE IS PLANNED ON OUTER FACE OF 1MM DECKING PLY. SEE BELOW

2 BA MUSH HEAD SCREW SECURES PANEL TO BRACKET

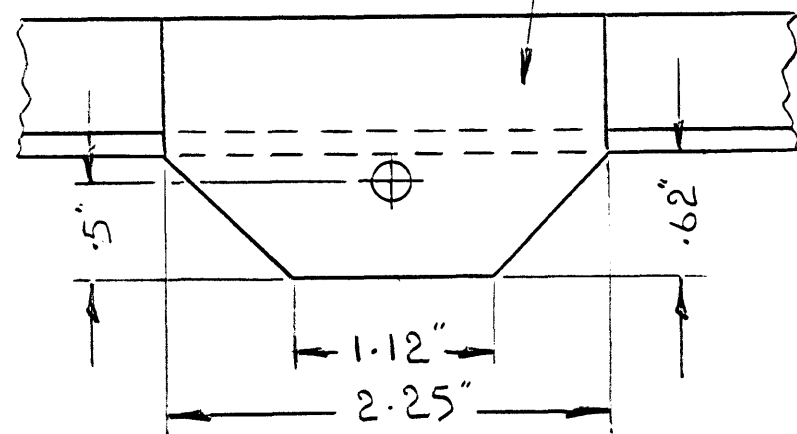
RUBBER ANTI-VIBRATION MOUNTS 2 OFF TOP # 2 OFF BOTTOM - 1" DIAMETER

2 OFF 1/4" PANEL MOUNT BOLTS

SPRUCE BLOCK

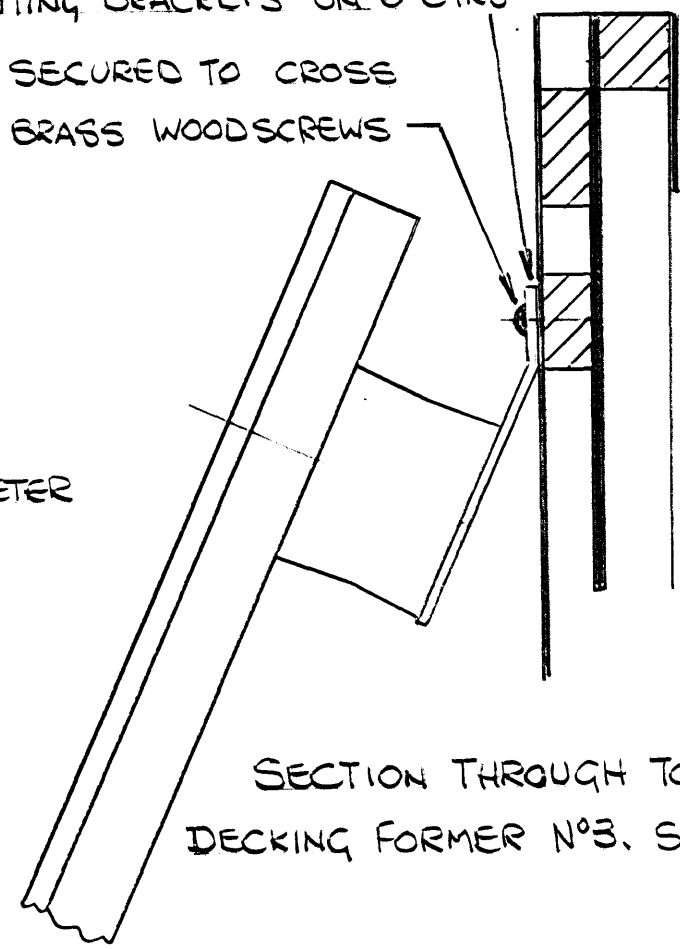
LOWER PANEL ATTACHMENT

1.5MM PLY BOTH SIDES



UPPER PANEL ATTACHMENT

2 UPPER MOUNTING BRACKETS ON 6" CTRES EACH BRACKET SECURED TO CROSS MEMBER WITH 2 BRASS WOODSCREWS

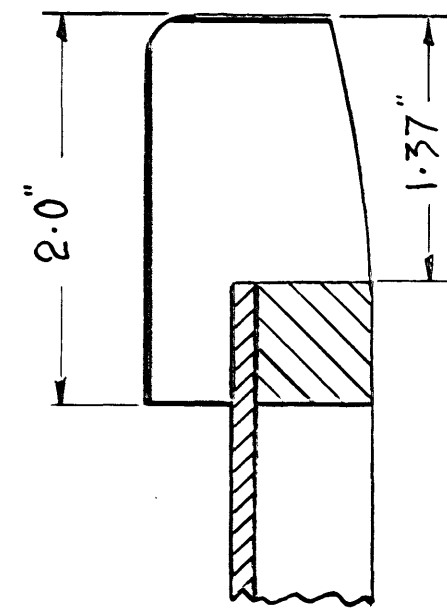


SECTION THROUGH TOP OF DECKING FORMER N°3. SEE DWG. N° F09

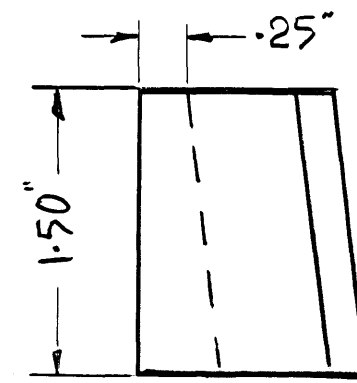
FOR INSTRUMENT PANEL SEE DWG N° F20

FRONT BLOCK

1 OFF AS DRAWN - 1 OFF OPPOSITE HAND.

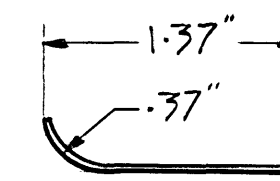
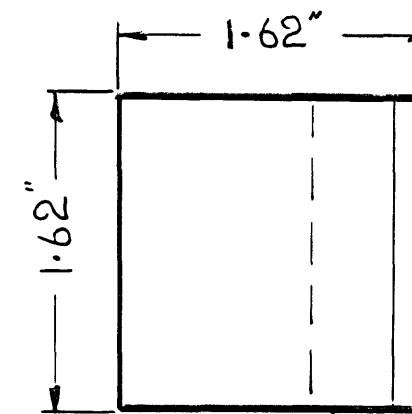
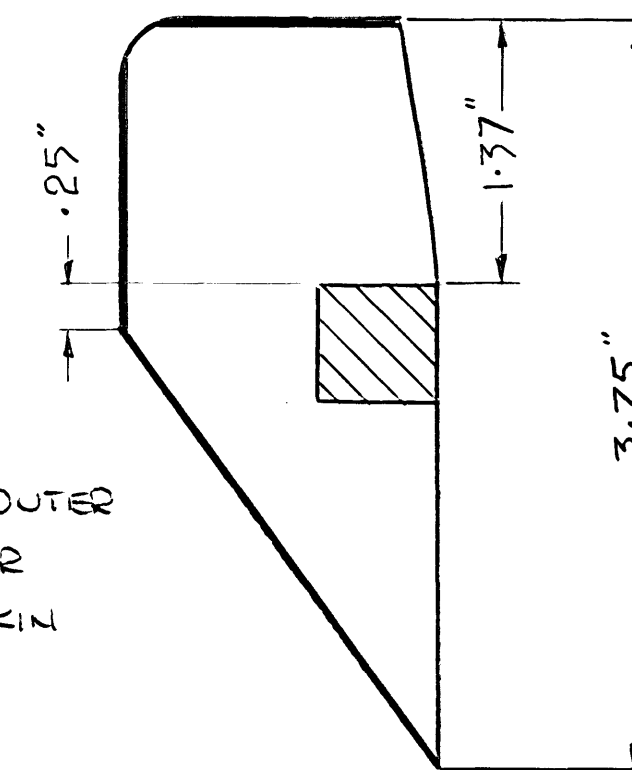


BLOCKS GLUED TO OUTER SKIN - PROFILE UPPER PORTION TO SUIT SKIN

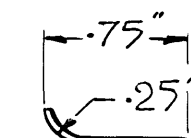
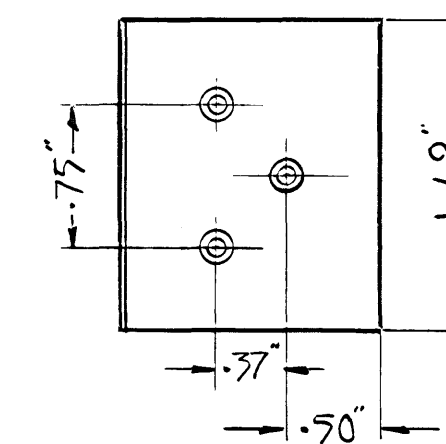


REAR BLOCK

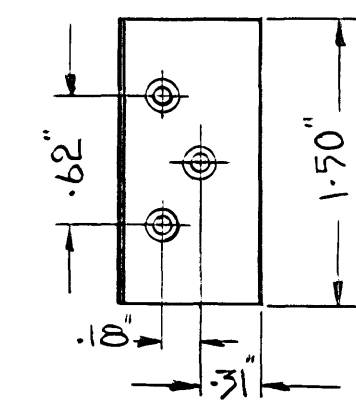
2 OFF



TANK STRAP RETAINING PLATES - 2 OFF EACH. MATL: S514 14SWG



DRILL # COUNTERSINK HOLES TO SUIT A N°6 x 1" BRASS WOODSCREW. (.135" DIA.)



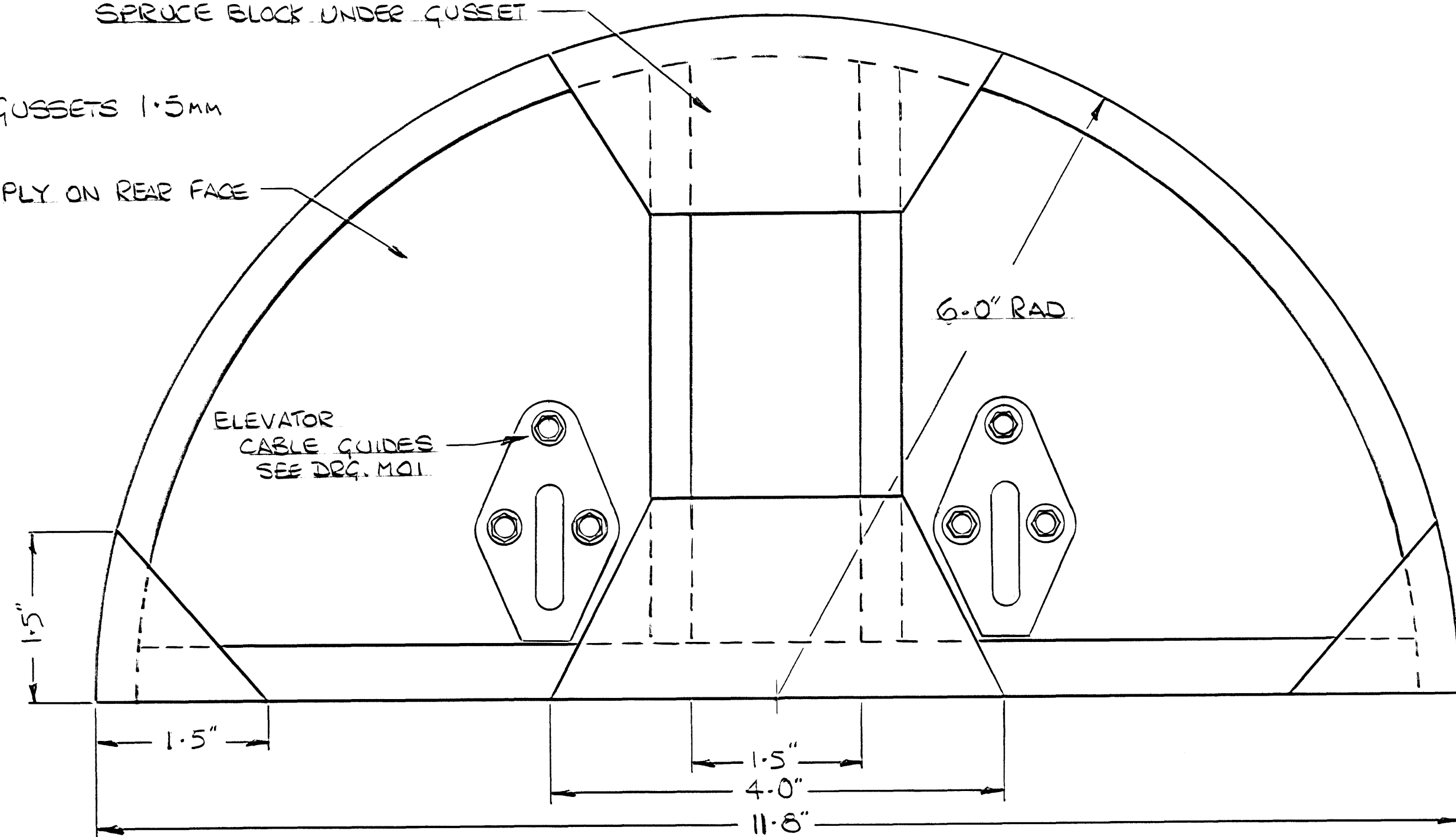
FACE BLOCKS ALL OVER WITH 1MM PLY TO HELP PREVENT SPLITTING.

DECKING FORMER N° 11

SPRUCE BLOCK UNDER GUSSET

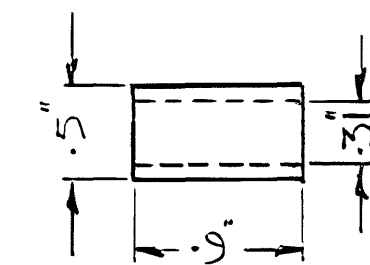
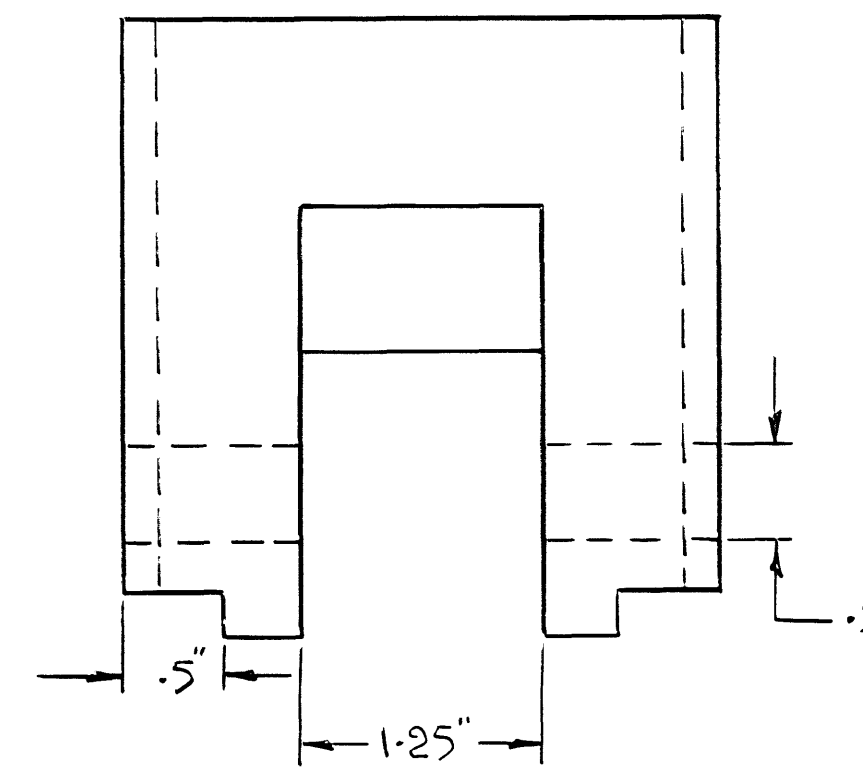
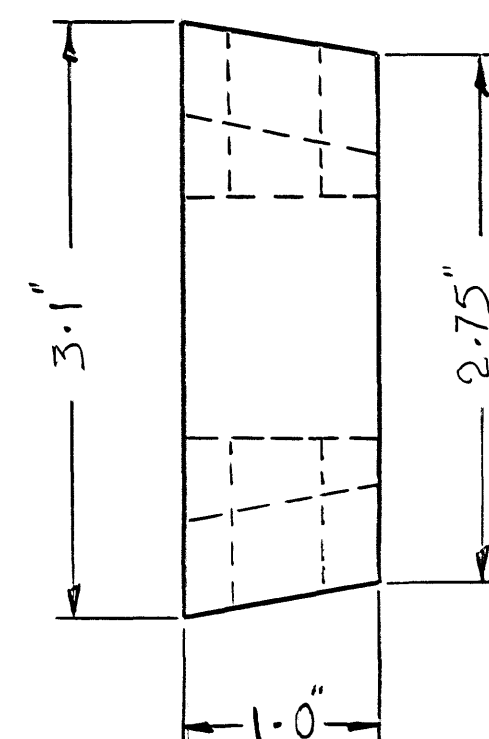
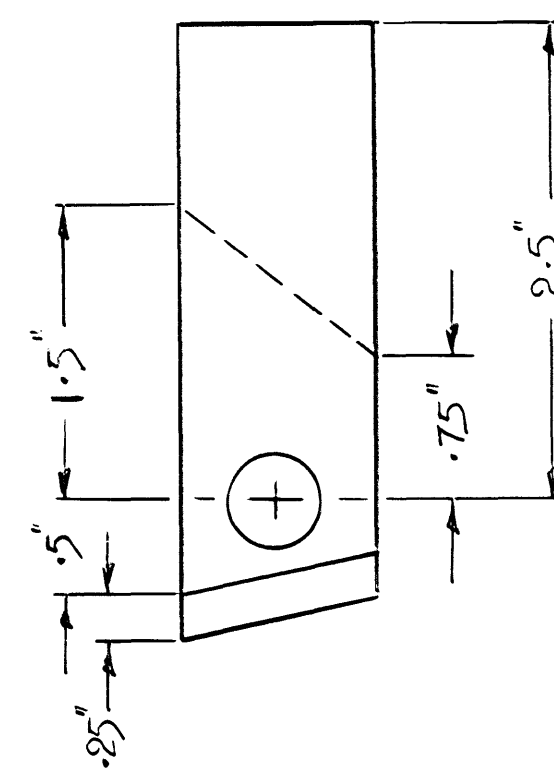
ALL GUSSETS 1.5MM

1.5MM PLY ON REAR FACE



BLEND 6.0" RAD IN TO BASE DIMENSION

HARDWOOD TAILSKID MOUNTING BLOCK



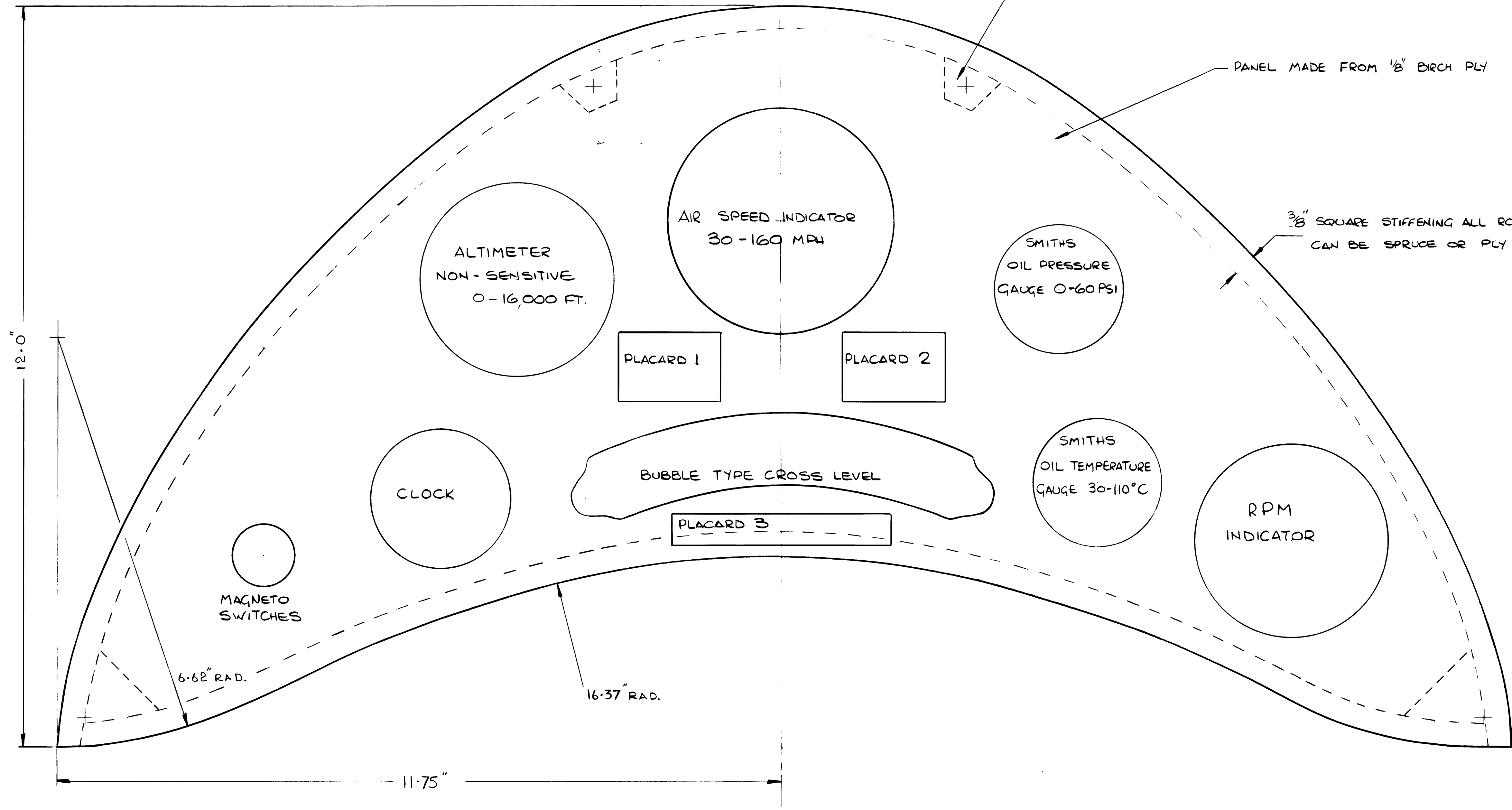
2 OFF RUBBER BUSH FOR MOUNTING TAILSKID FULCRUM BOLT - PRESS FIT IN BLOCK

DRN	ISSUE	CHILTON AIRCRAFT	
T.		MAT.	SPEC. (LATEST ISSUE)
C.			
APPD.			
DATE ISSUED	SCALE	FINISH	PROCESSES
ASSMD. ON	LIMITS (UNLESS STATED)	No. OFF	
DESCRIPTION		DRG. No.	F.19
FUSELAGE DETAILS			

4 PIECES 3/8" SPRUCE FOR LOCAL REINFORCEMENT
IN PANEL ATTACHMENT AREA.

PANEL MADE FROM 1/8" BIRCH PLY

3/8" SQUARE STIFFENING ALL ROUND
CAN BE SPRUCE OR PLY



PLACARD 1 READS -
 CHILTON
 STALL 45
 GLIDE 55
 CLIMB 60
 CRUISE 110

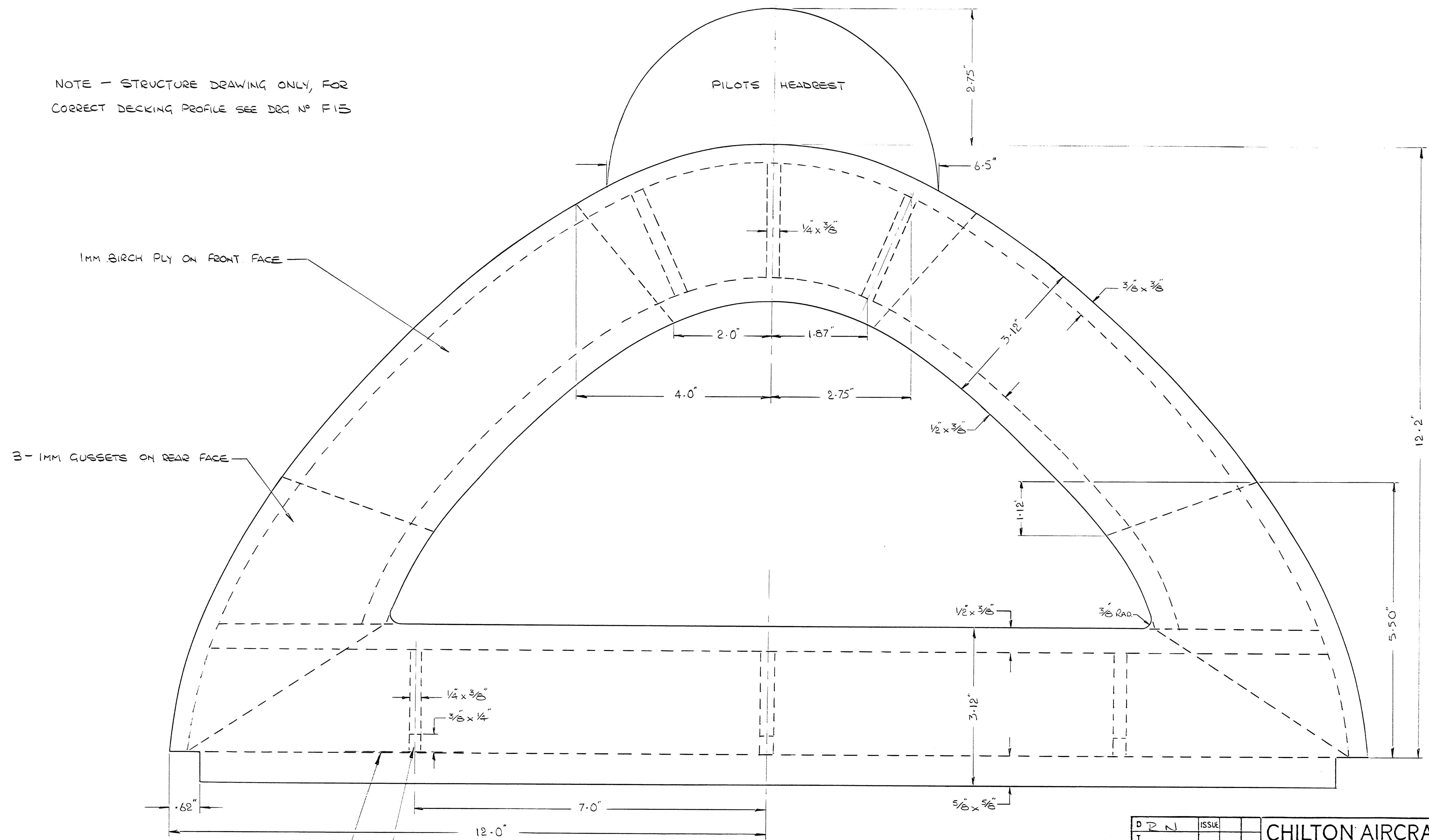
PLACARD 2 READS -
 TRAIN 4T
 MAX RPM 2350
 CRUISE 2100
 MIN. OIL PRES. 15 PSI
 MAX. OIL TEMP. 75°C

PLACARD 3 READS - FLAPS MUST NOT BE USED OVER 60 MPH

INSTRUMENT PANEL - FULL SIZE.
 INSTRUMENT LAYOUT AS FITTED IN G-AFSV

DRN	ISSUE			CHILTON AIRCRAFT	
T				MAT	SPEC. (LATEST ISSUE)
C					
APPD.					
DATE ISSUED	SCALE	FINISH	PROCESSES		
ASSMD. ON	LIMITS (UNLESS STATED)	No. OFF			
DESCRIPTION	INSTRUMENT PANEL			DRG. No.	F.20

NOTE - STRUCTURE DRAWING ONLY, FOR
CORRECT DECKING PROFILE SEE DRG NO F15



1MM BIRCH PLY ON FRONT FACE

3-1MM GUSSETS ON REAR FACE

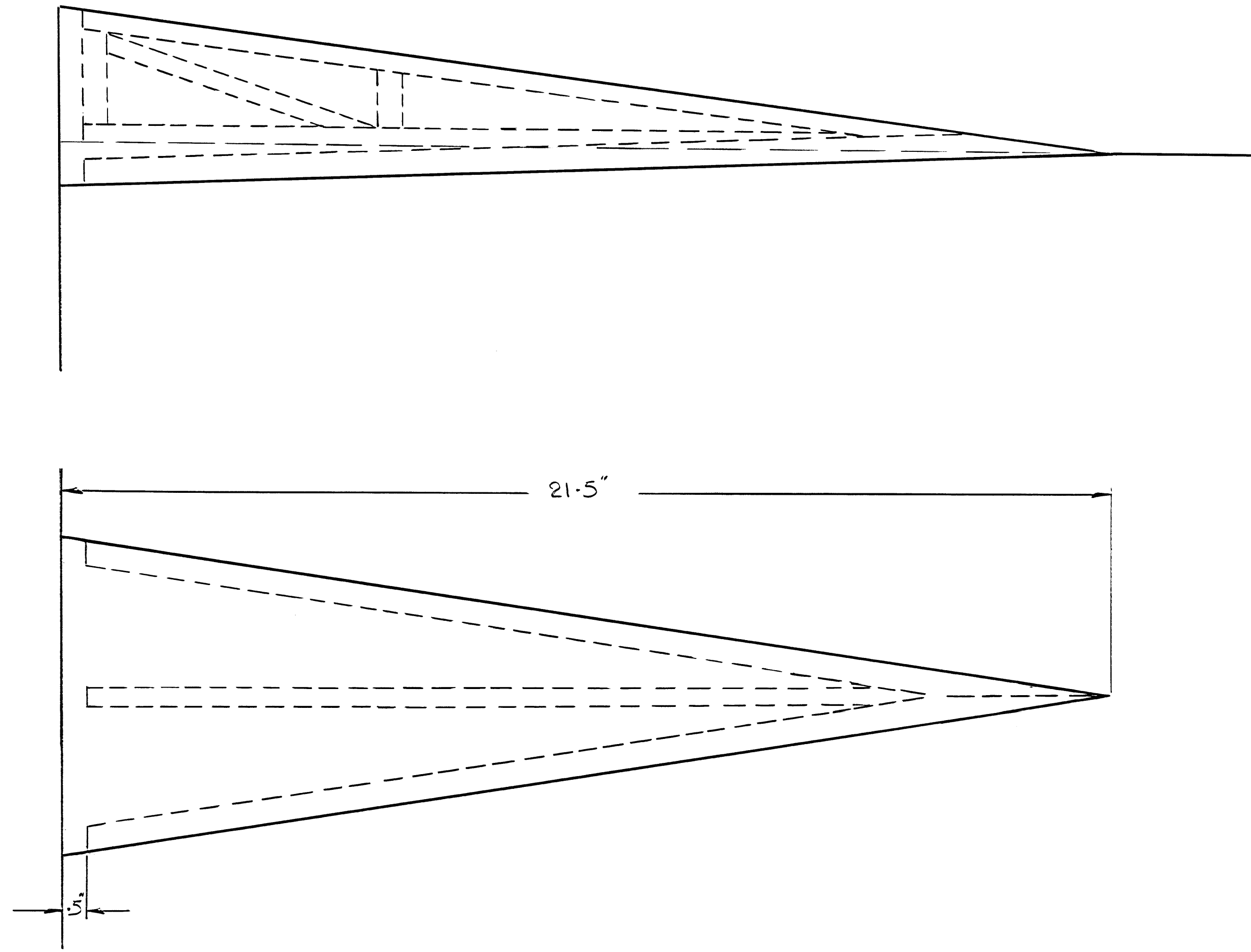
PILOTS HEADREST

1MM LUGGAGE LOCKER FLOOR

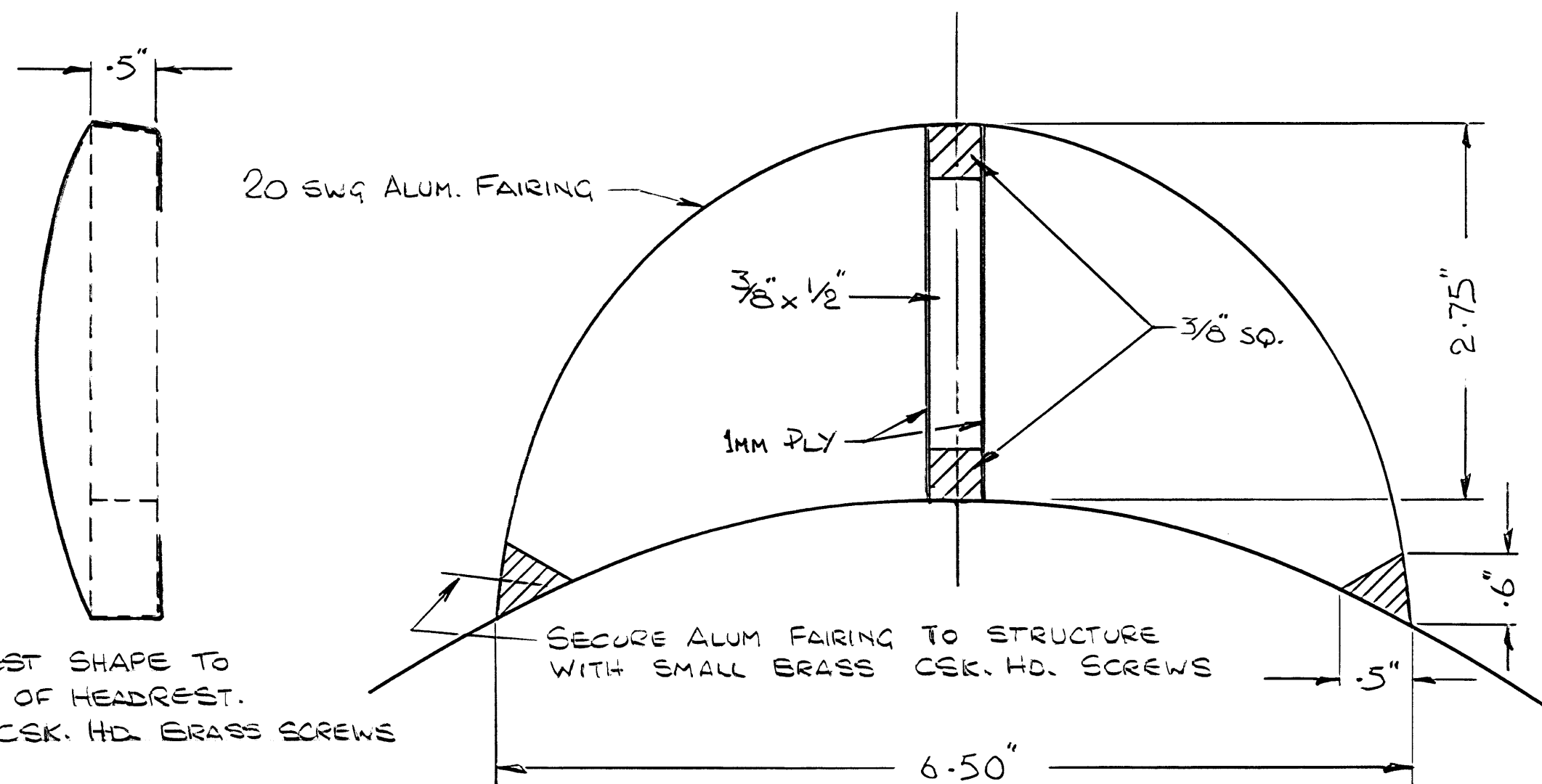
STIFFENERS ON LUGGAGE LOCKER FLOOR

DRN	ISSUE	CHILTON AIRCRAFT	
T.		MAT SPRUCE	SPEC. (LATEST ISSUE)
C.		BIRCH PLY	
APPD.			
DATE ISSUED	SCALE	FINISH	PROCESSES
ASSMD. ON	LIMITS (UNLESS STATED)	No. OFF	
DESCRIPTION	DRG. No.		
DECKING FORMER 5	F.21		

HEADREST STRUCTURE

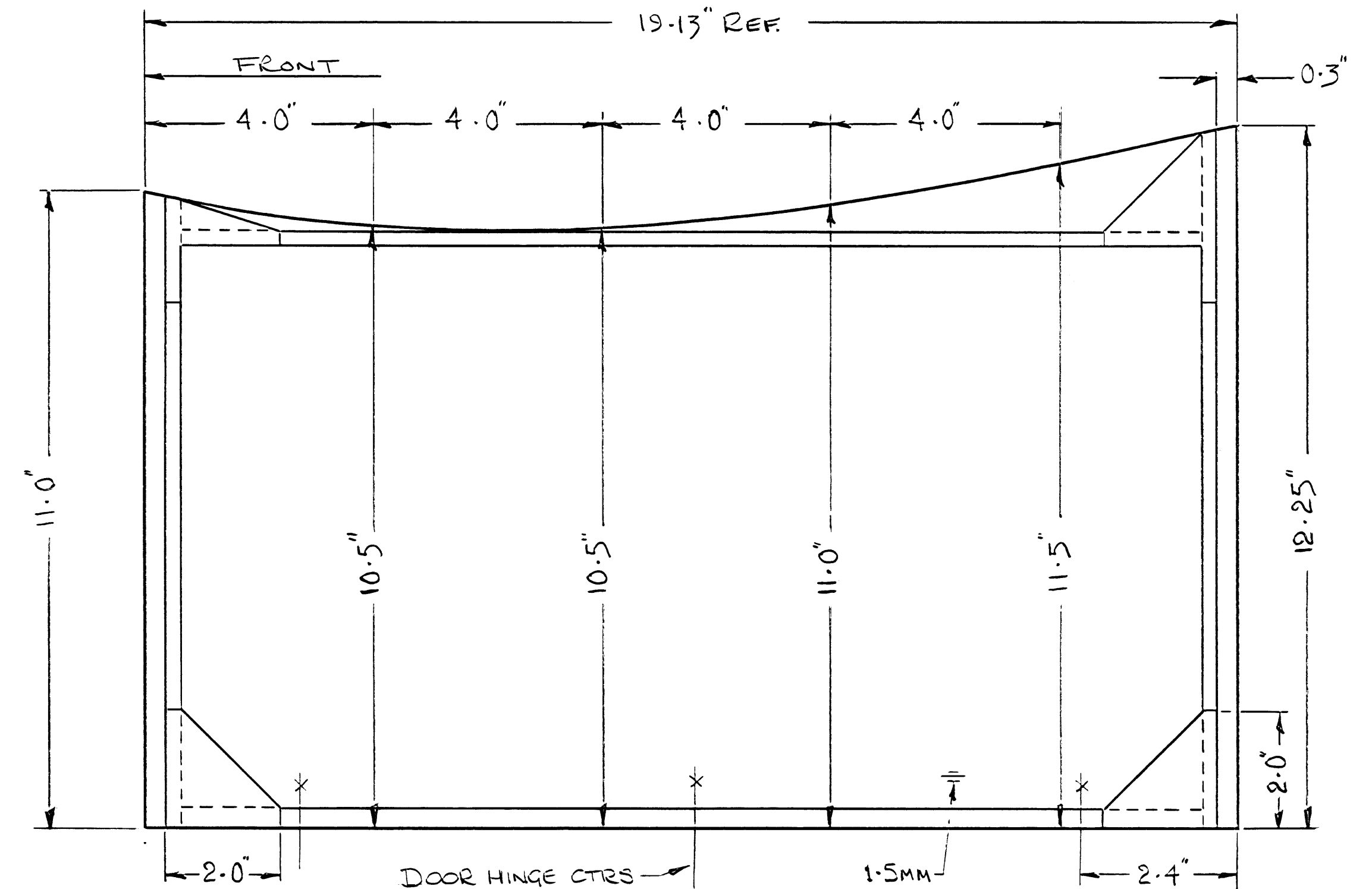


HEADREST - FULL SIZE



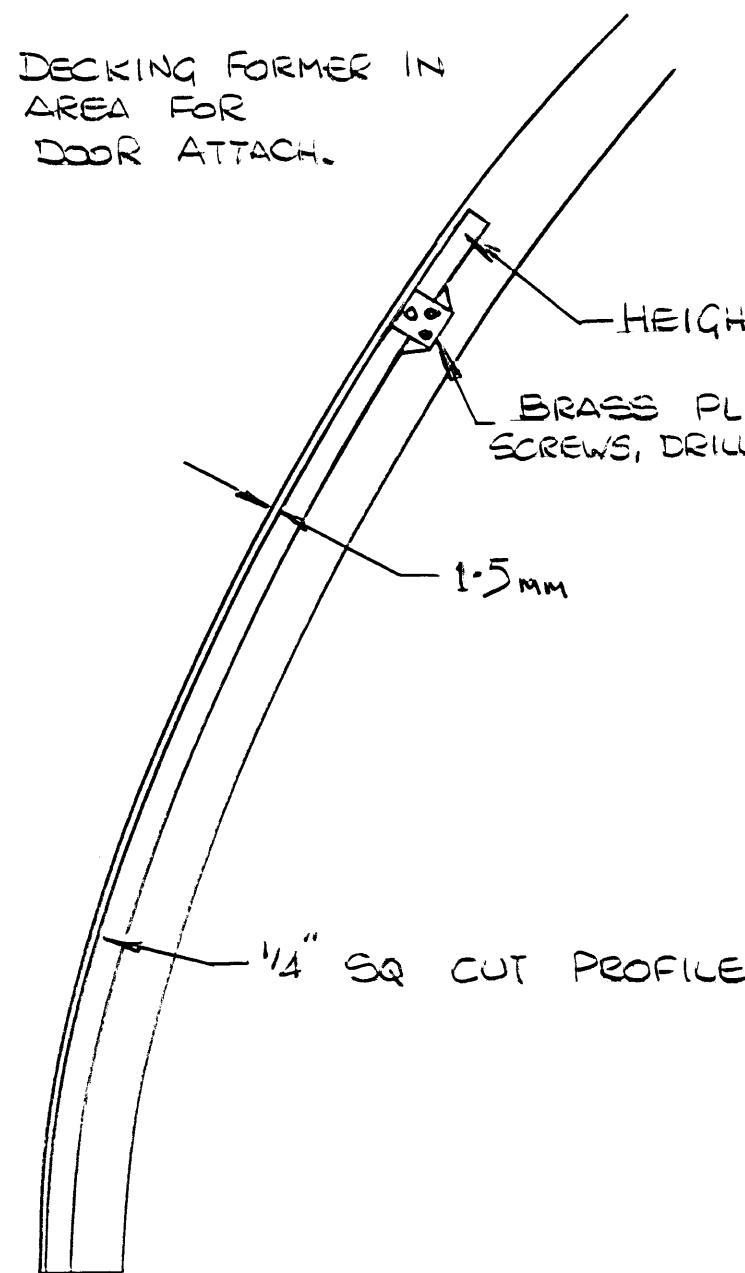
PADDED HEADREST SHAPE TO FIT INTO FRONT OF HEADREST. SECURE WITH CSK. HD. BRASS SCREWS

COCKPIT DOOR - STARBOARD SIDE

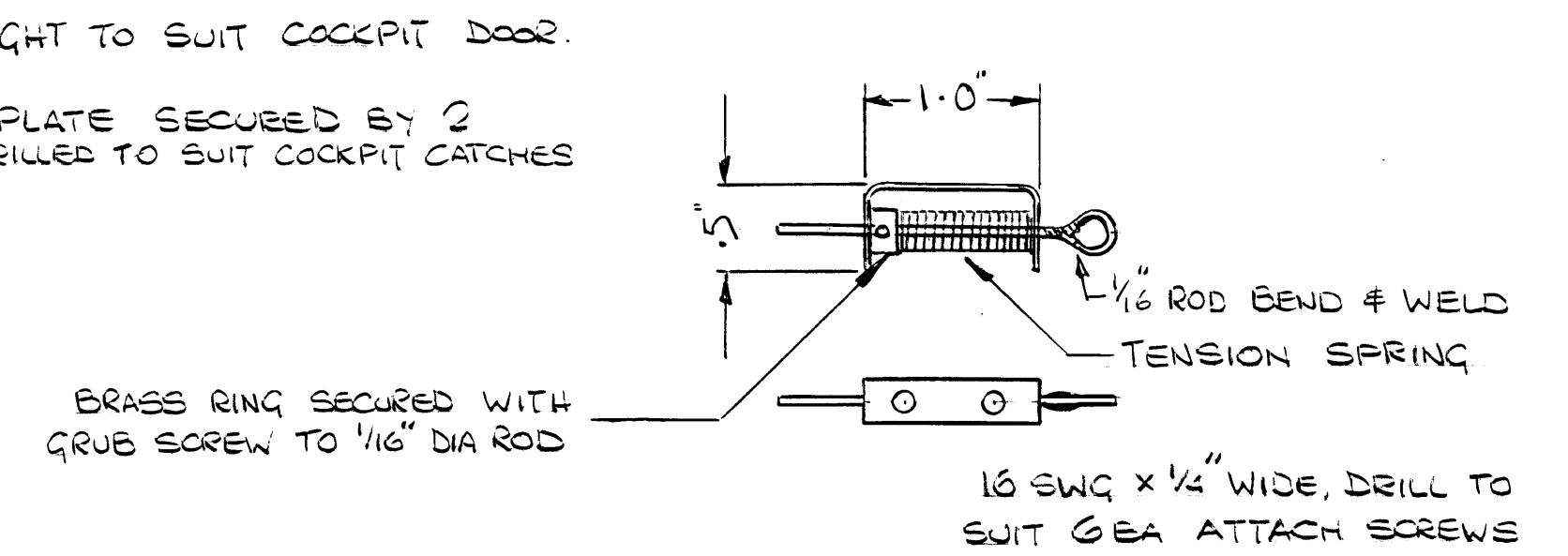


NOTE:- RECESS HINGE THICKNESS INTO LOWER DOOR FRAME
ALL CORNER GUSSETS 1MM PLY, TOP CORNER GUSSETS CUT AWAY TO FIT CATCHES IN CORNERS

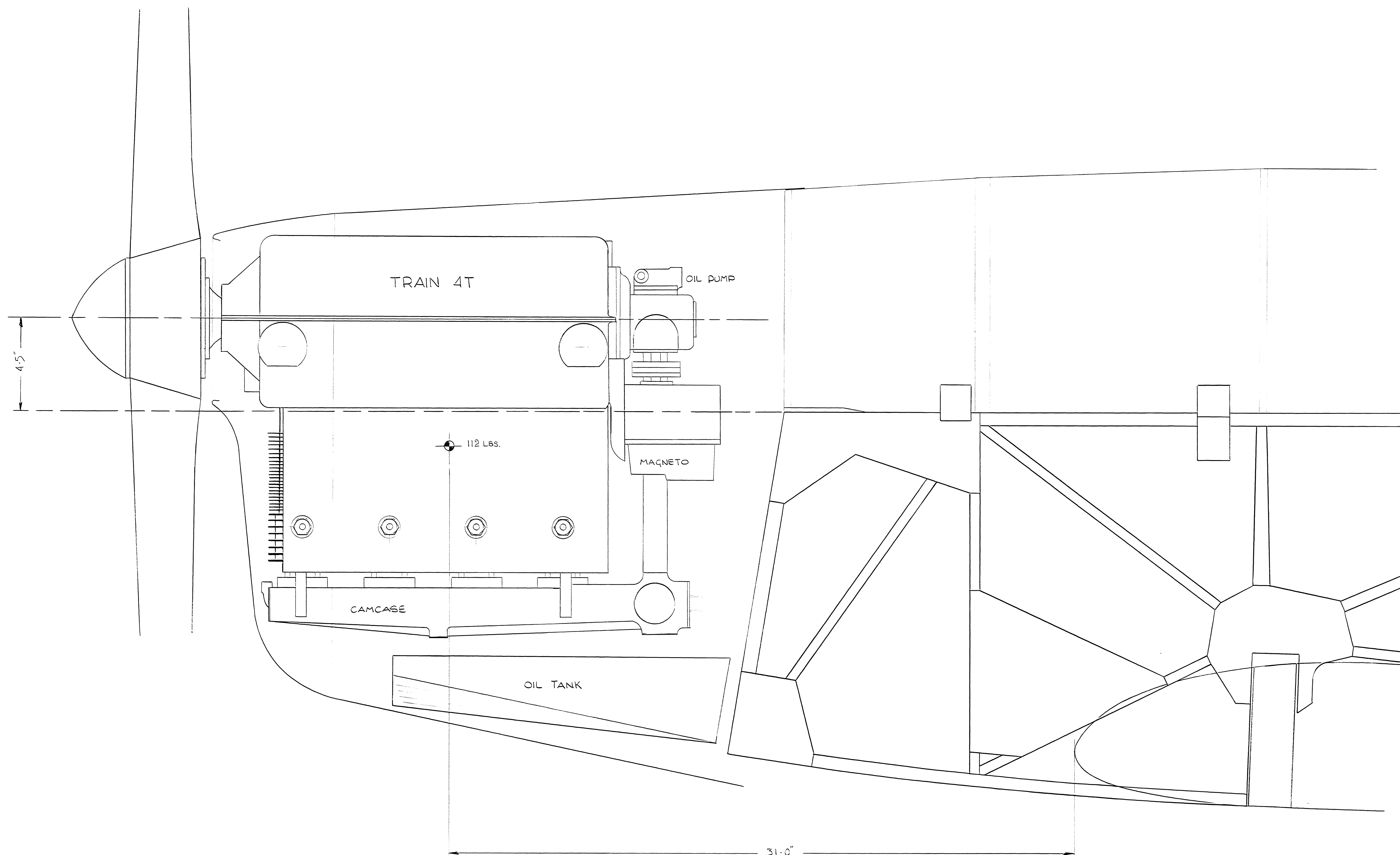
TYPICAL DECKING FORMER IN COCKPIT AREA FOR DOOR ATTACH.



COCKPIT DOOR CATCHES - 4 OFF

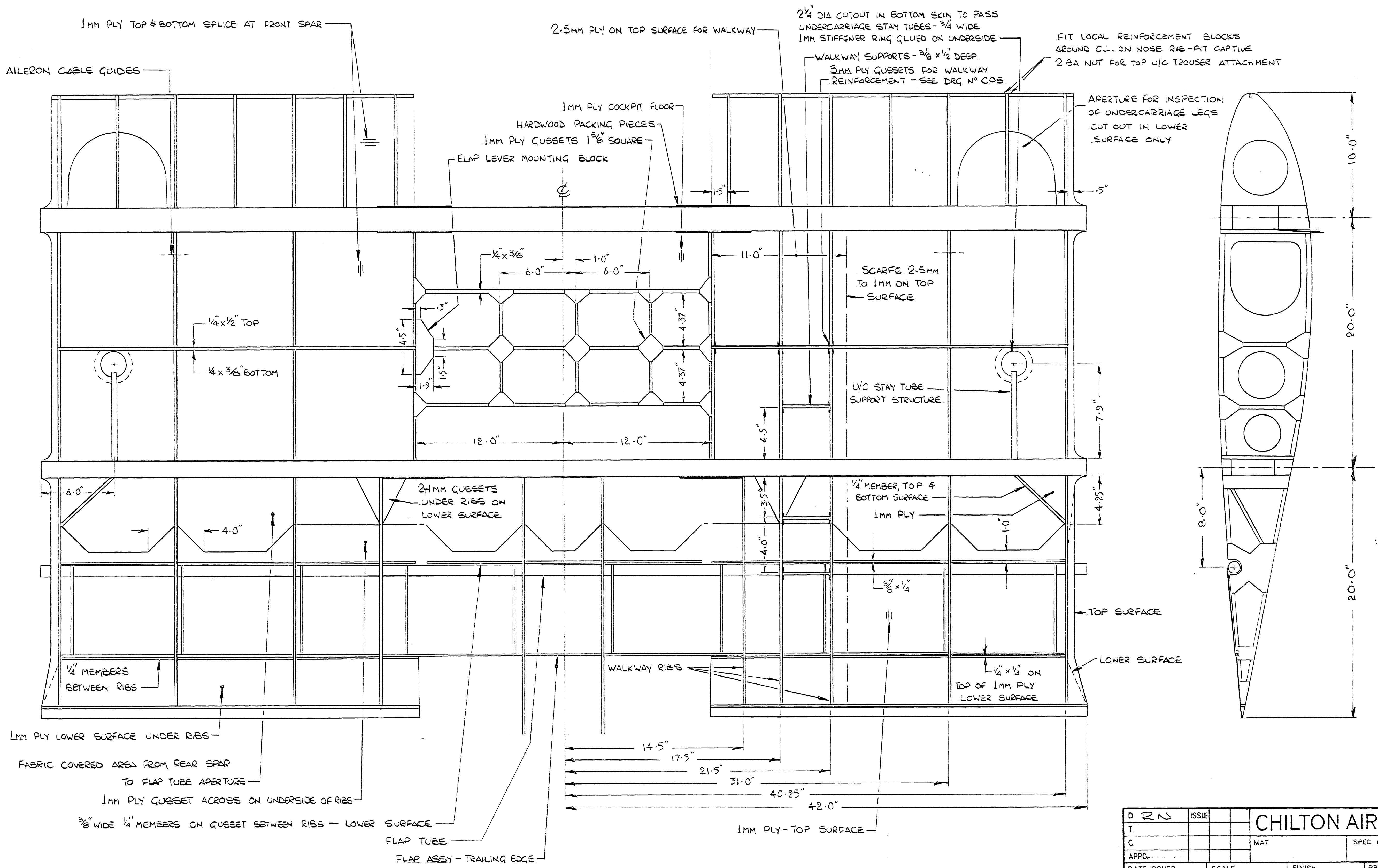


D	R N	ISSUE	CHILTON AIRCRAFT	
T.			MAT	SPEC. (LATEST ISSUE)
C.				
APPD.				
DATE ISSUED	SCALE	FINISH	PROCESSES	
ASSMD ON	LIMITS (UNLESS STATED)	No OFF		
DESCRIPTION	FUSELAGE DETAILS		DRG. No.	F.22



BASIC LAYOUT - TRAIN 4T ENGINE IN DWIA G-AFSV

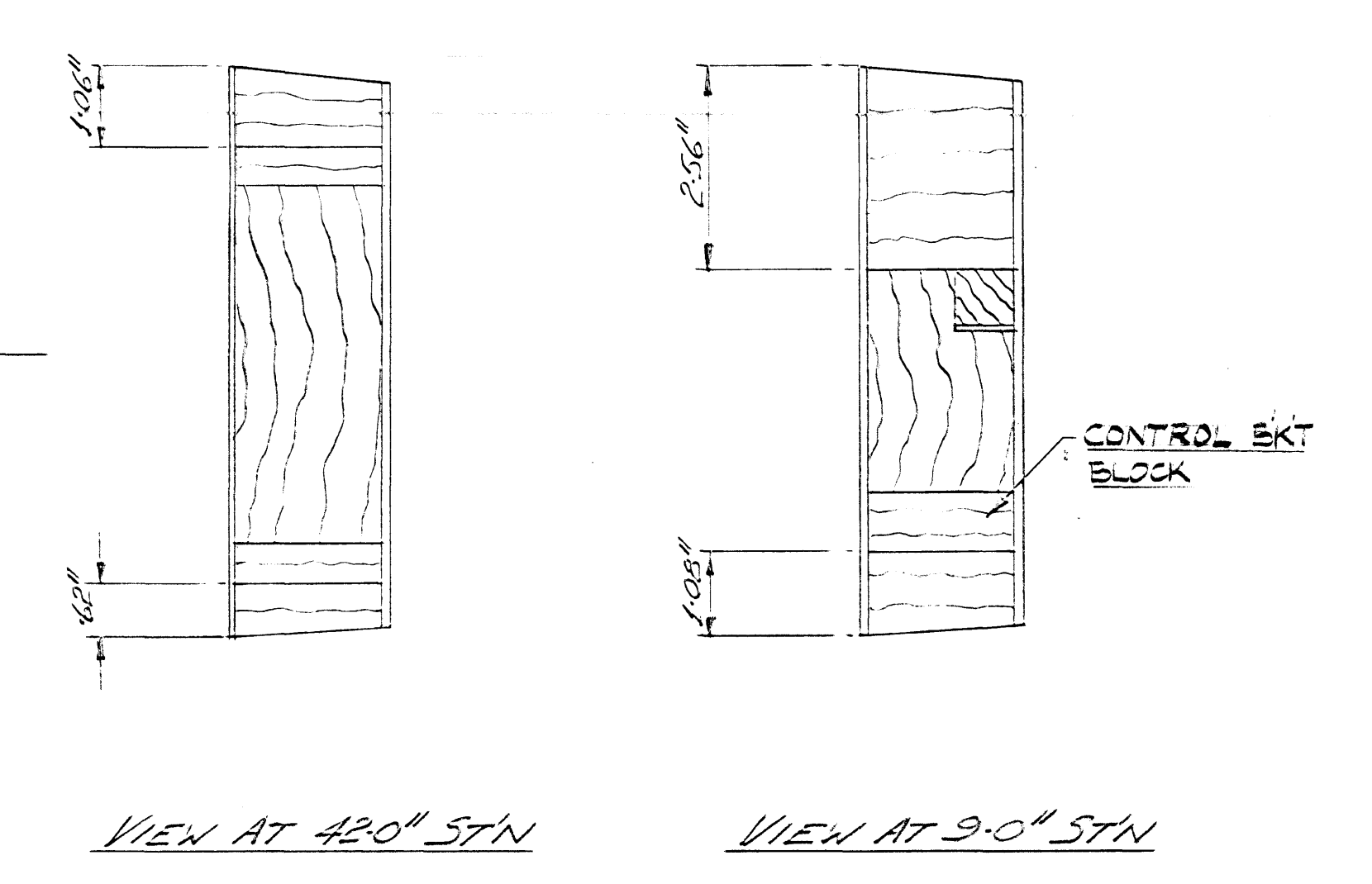
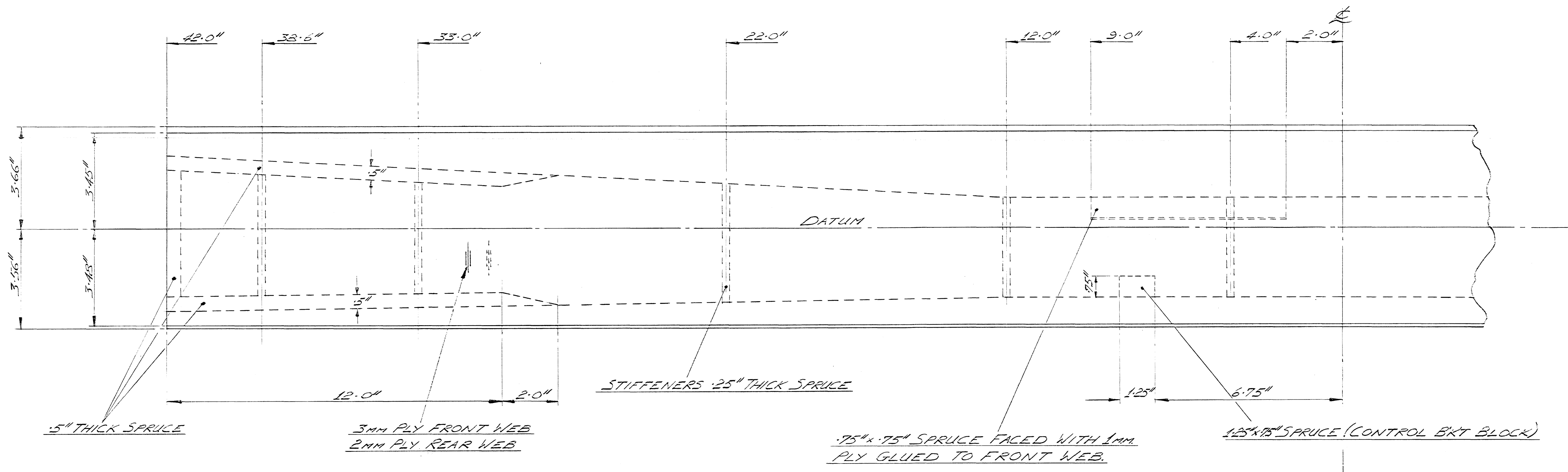
DRN	ISSUE	CHILTON AIRCRAFT	
T			
C		MAT	SPEC (LATEST ISSUE)
APPD:			
DATE ISSUED	SCALE	FINISH	PROCESSES
ASSMD ON	LIMITS (UNLESS STATED)		NO. OFF
DESCRIPTION	DRG. No.		
TRAIN ENGINE LAYOUT			F.23



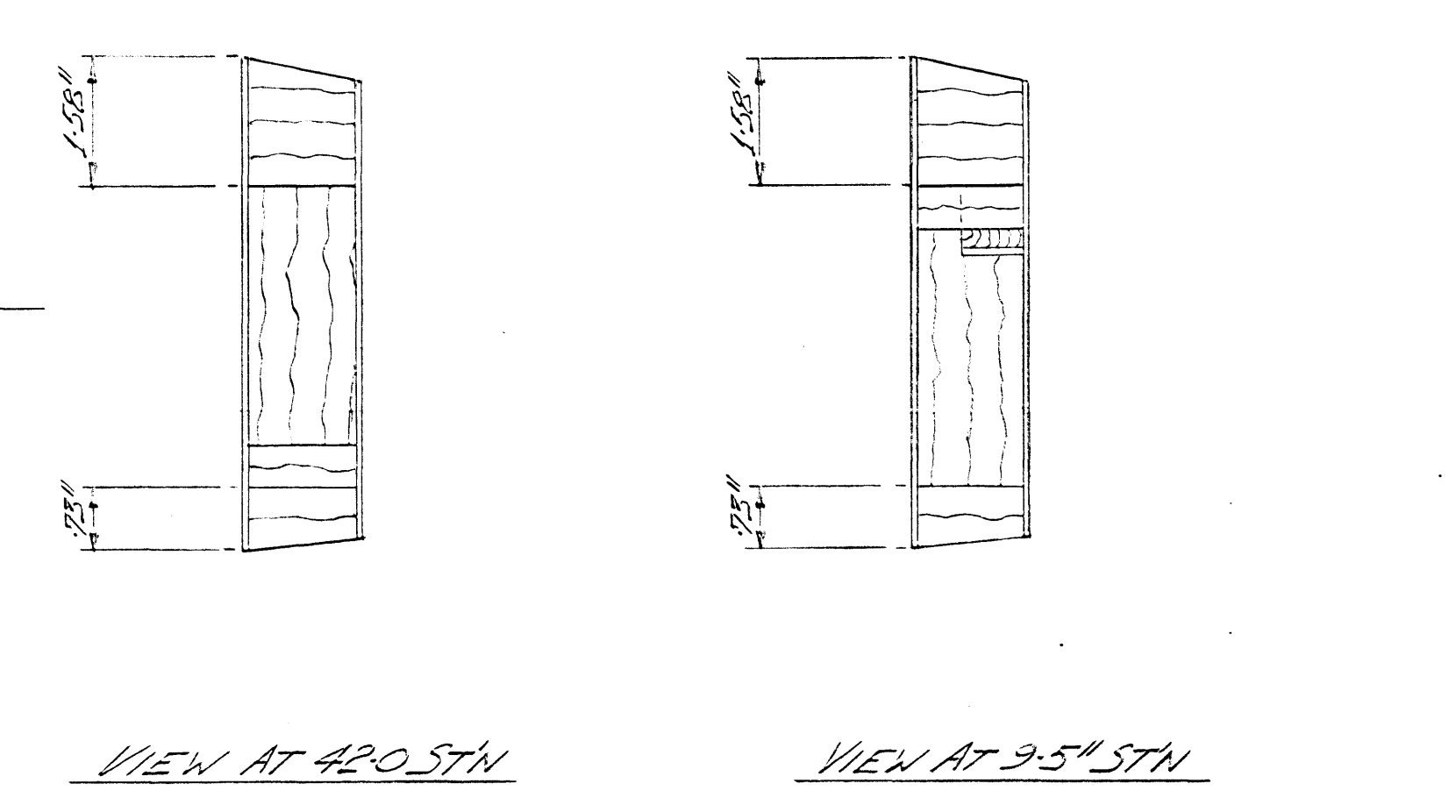
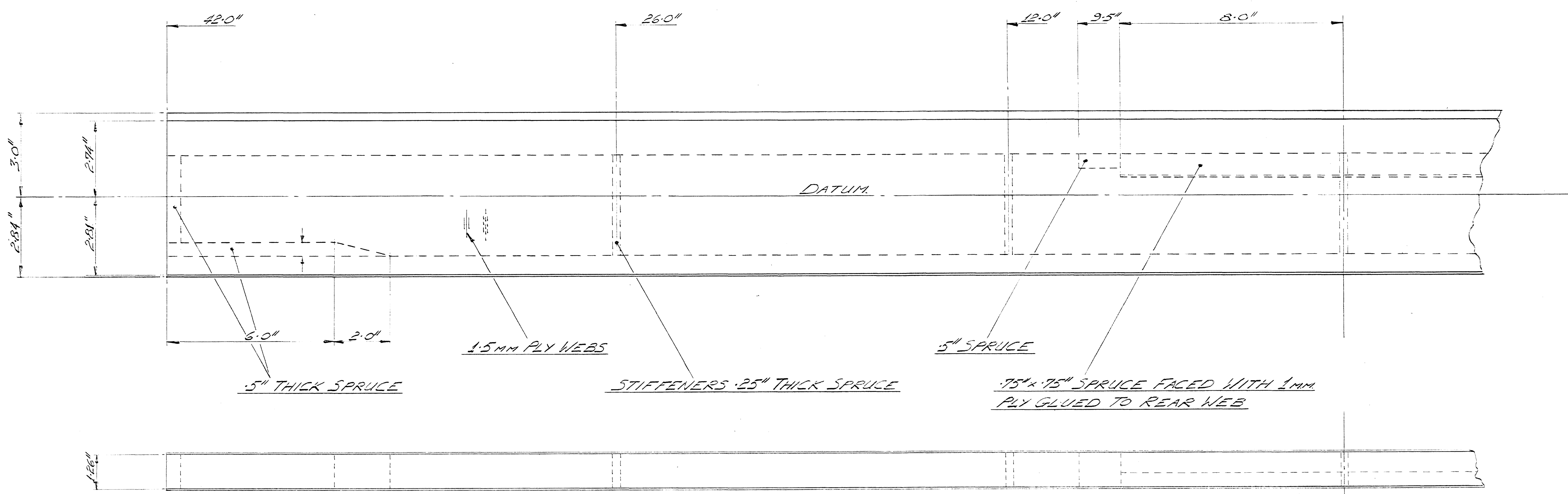
CENTRE SECTION - TOP VIEW.

TOP SKIN & WING ATTACHMENT FITTINGS OMITTED FOR CLARITY.

D	R N	ISSUE	CHILTON AIRCRAFT	
T.			MAT	SPEC. (LATEST ISSUE)
C.				
APPD.				
DATE ISSUED	SCALE	FINISH	PROCESSES	
ASSMD. ON	LIMITS (UNLESS STATED):		No. OFF	
DESCRIPTION	CENTRE SECTION G.A.		DRG. No.	C.01



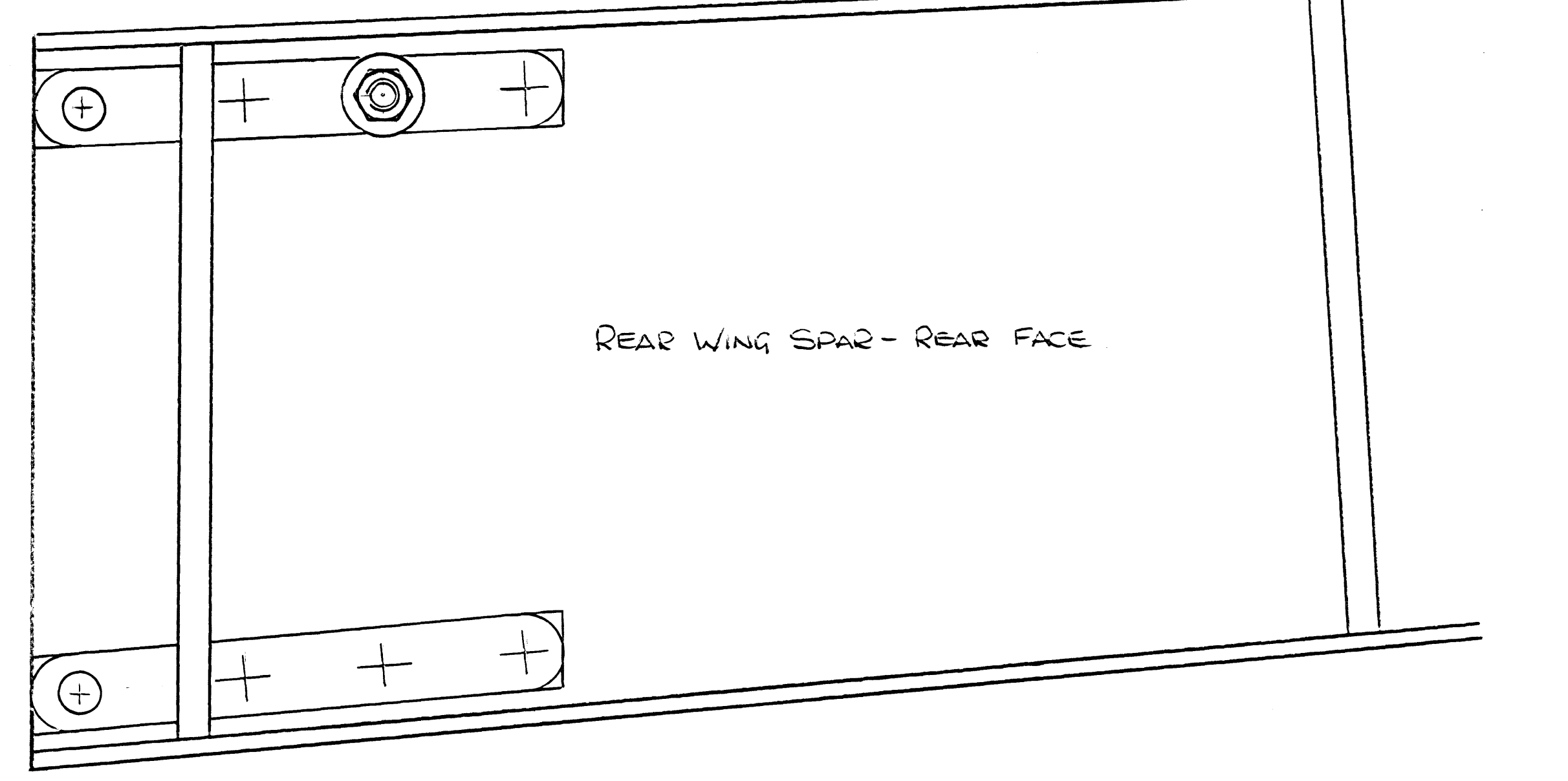
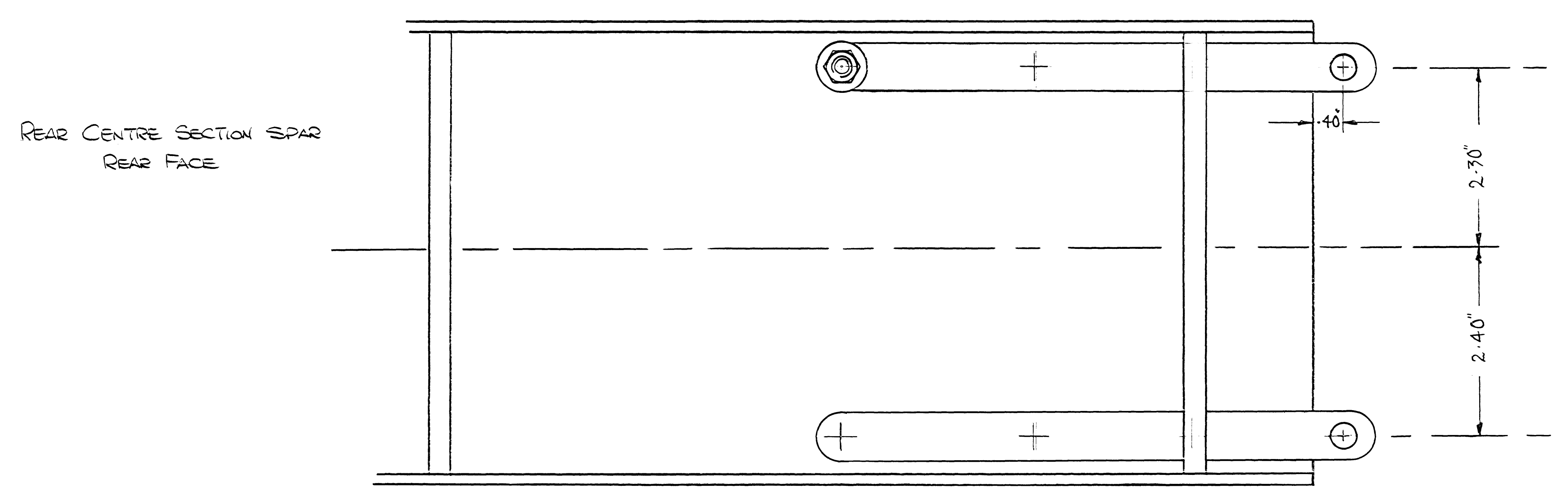
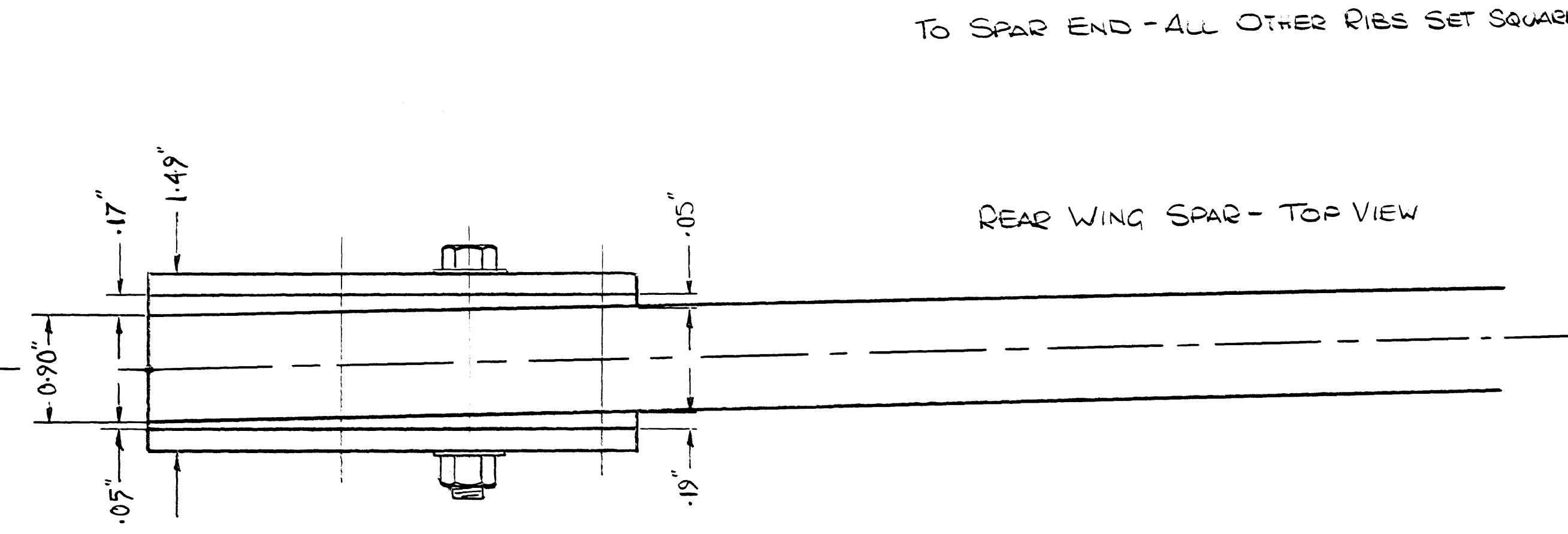
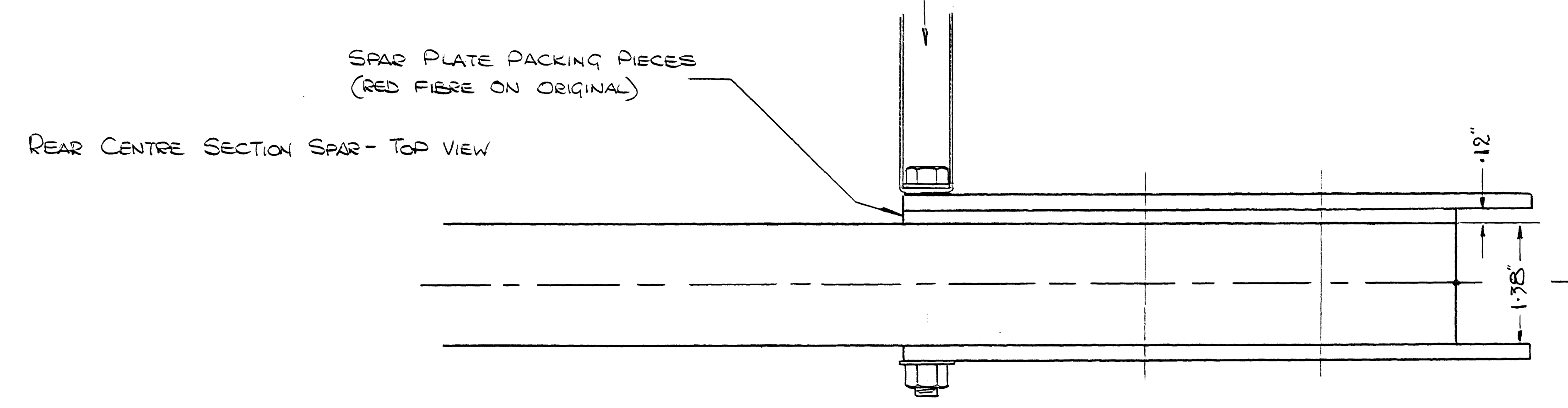
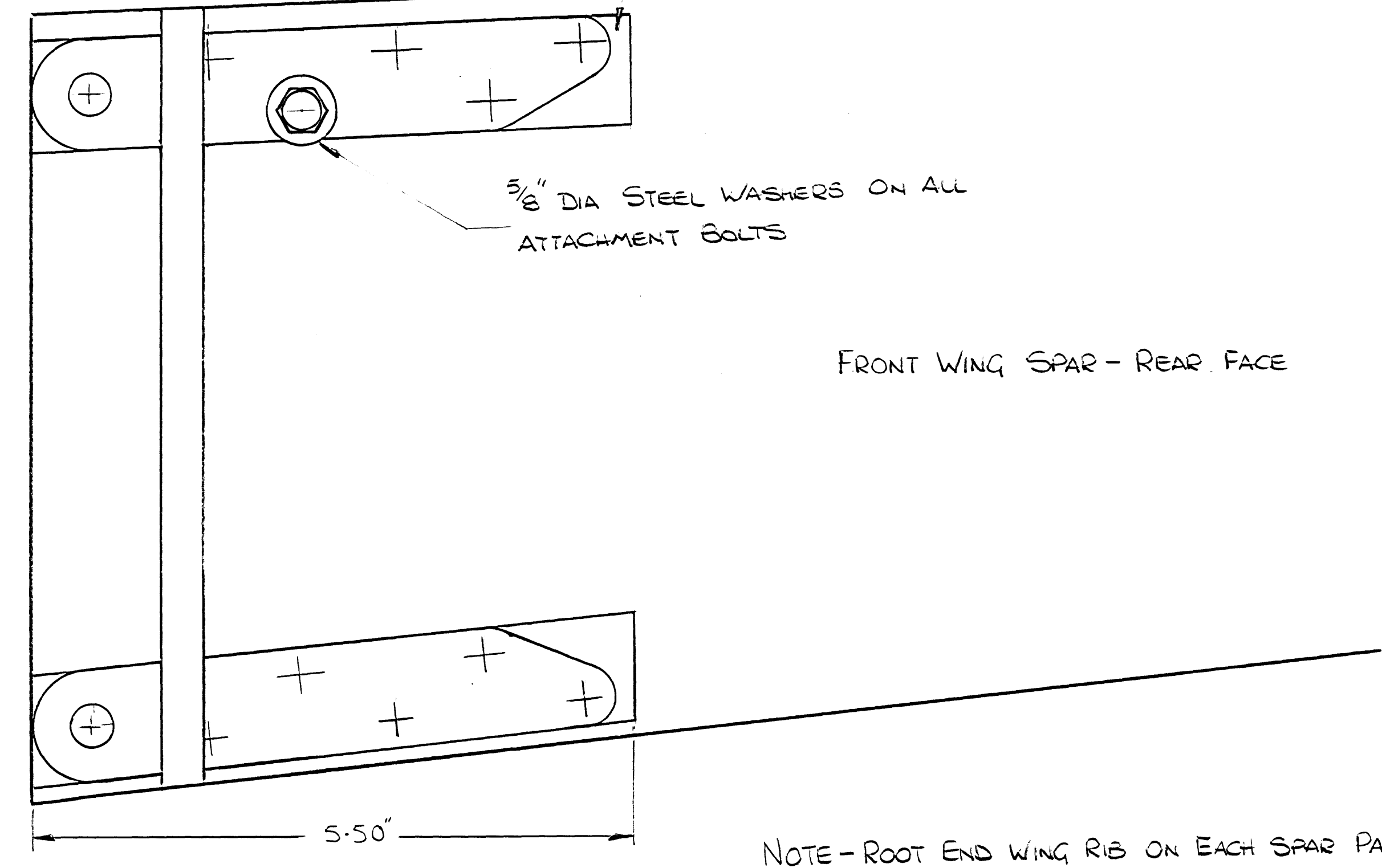
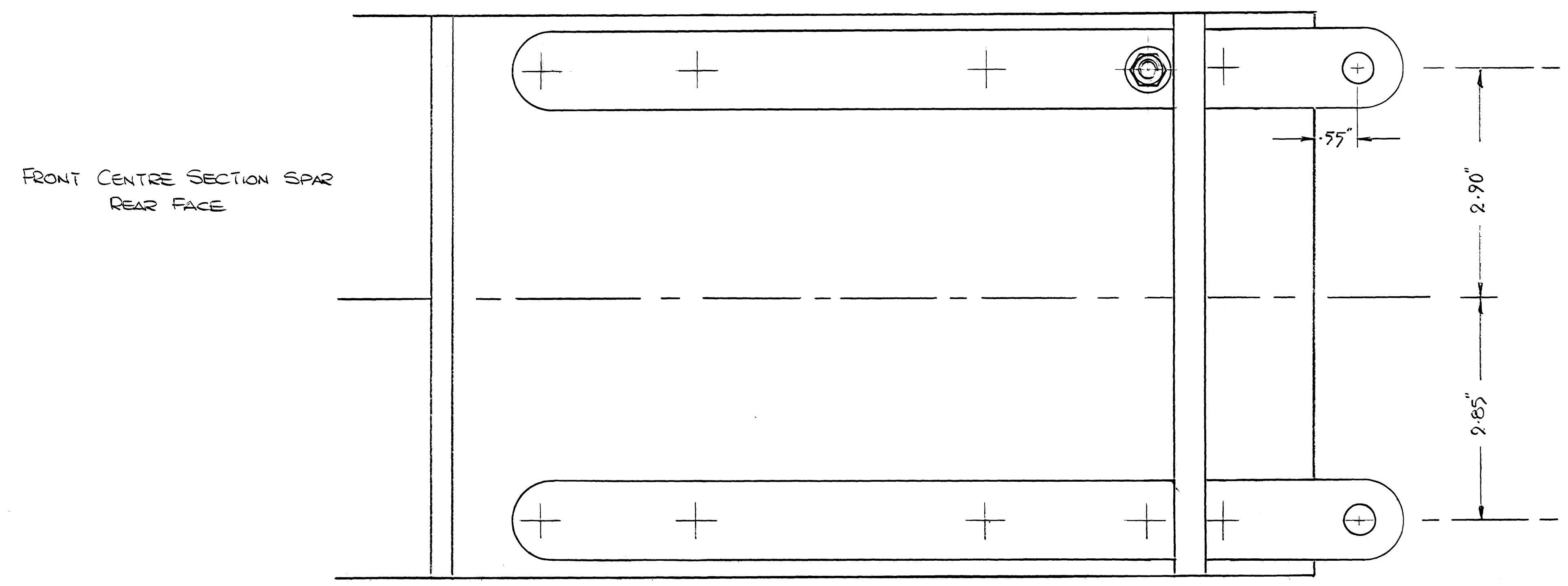
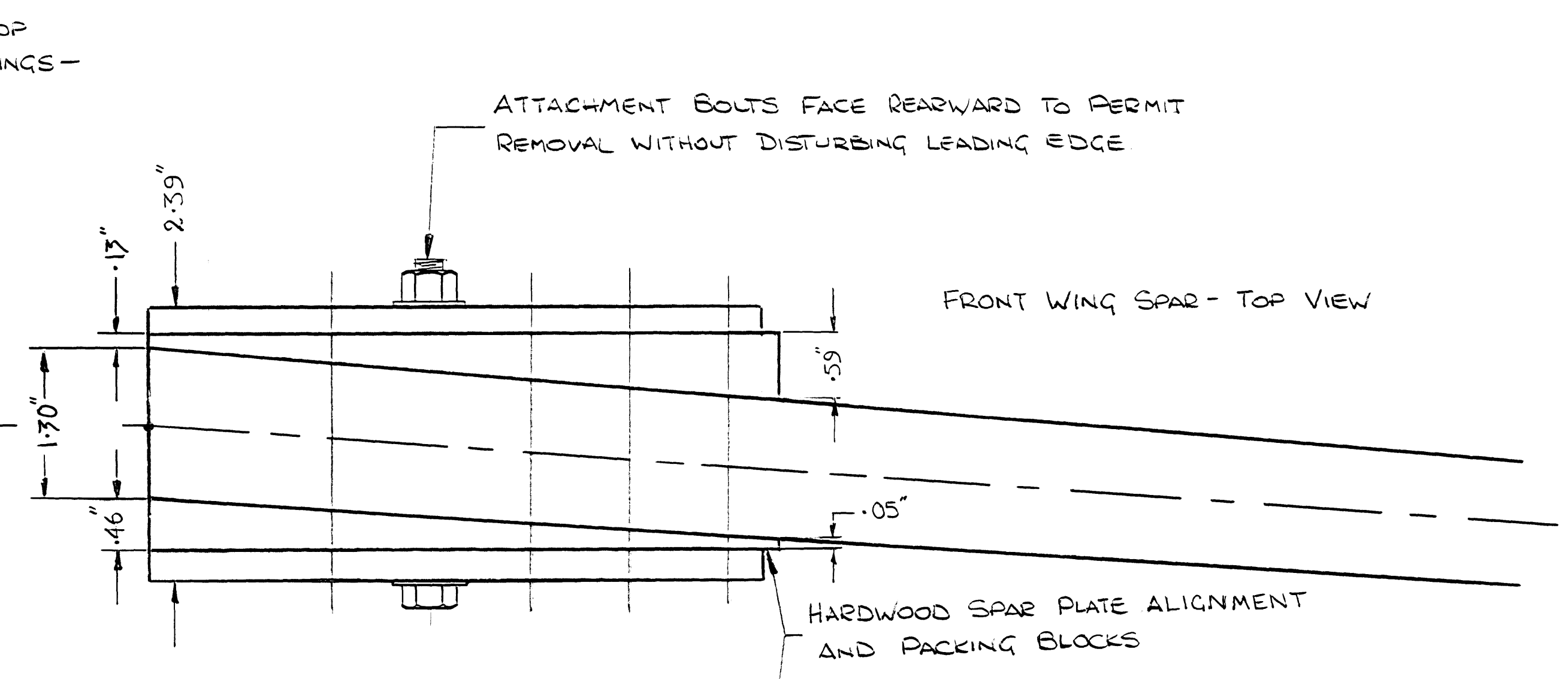
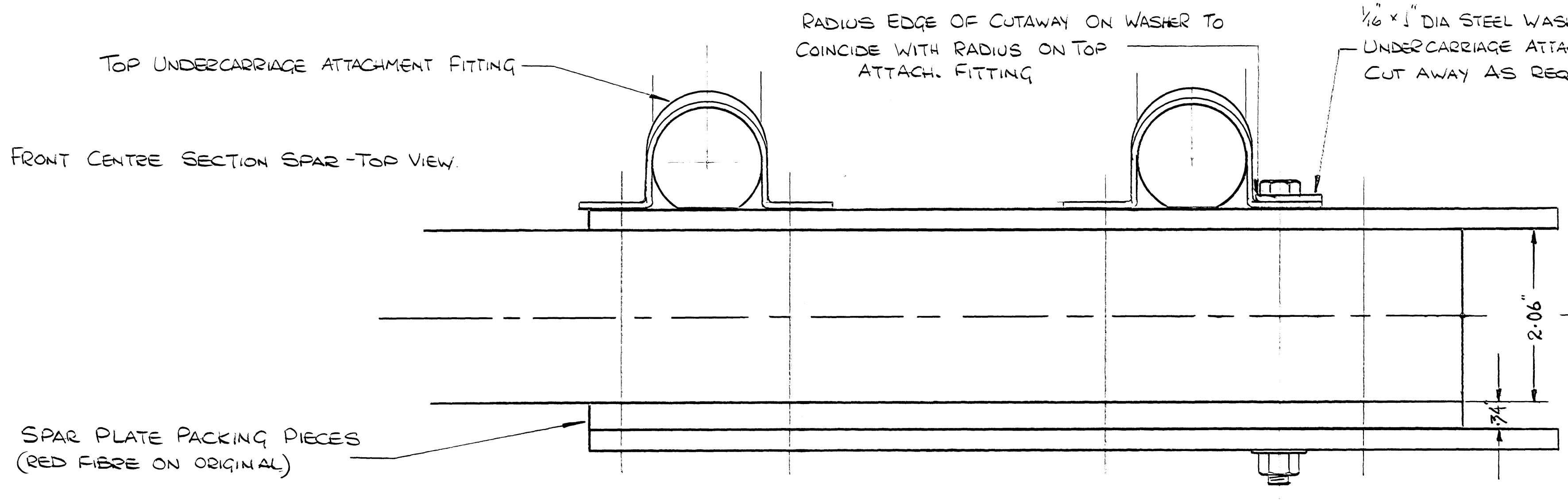
FRONT CENTRE SECTION SPAR
VIEWED FROM FRONT



REAR CENTRE SECTION SPAR
VIEWED FROM REAR

BOTH SPARS ARE SYMMETRICAL ABOUT E.
SPAR FLANGES MAY BE LAMINATED IF DESIRED
LAMINATIONS APPROX. .5" THICK

D	TR	ISSUE	CHILTON AIRCRAFT	
T			MAT. SPRUCE	SPEC. (LATEST ISSUE)
C			BIRCH PLY	DTD 36A, V3
APPD				
DATE ISSUED	SCALE	FINISH	PROCESSES	
AS SHD ON	1/2"	1/2"	LIMITS (UNLESS STATED) 1/6 OFF	
			+ .04" - 0"	
DESCRIPTION			DRG 11	
FRONT AND REAR CENTER SPARS			C.02	

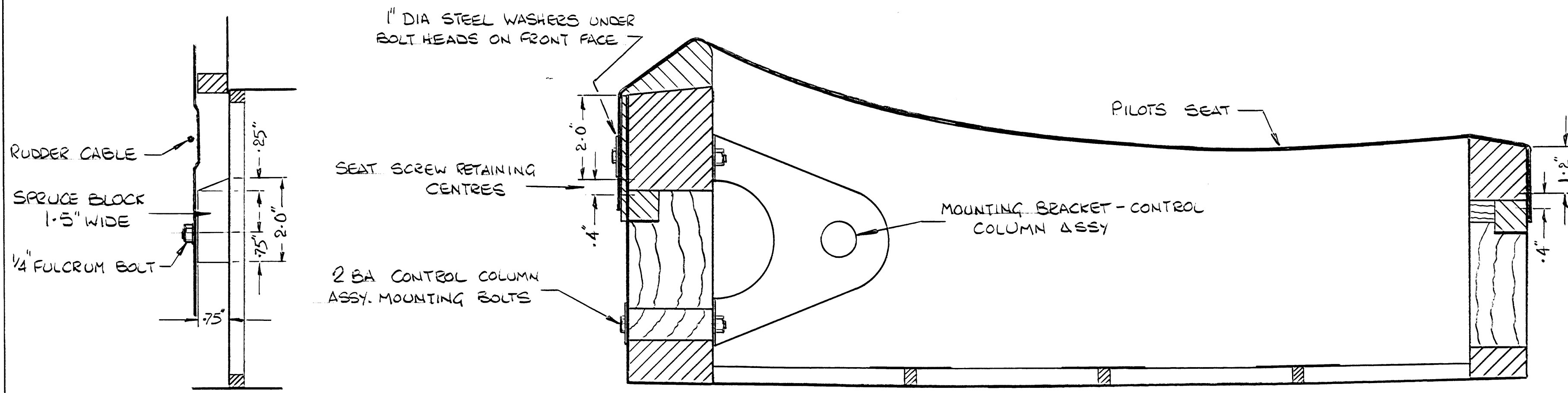
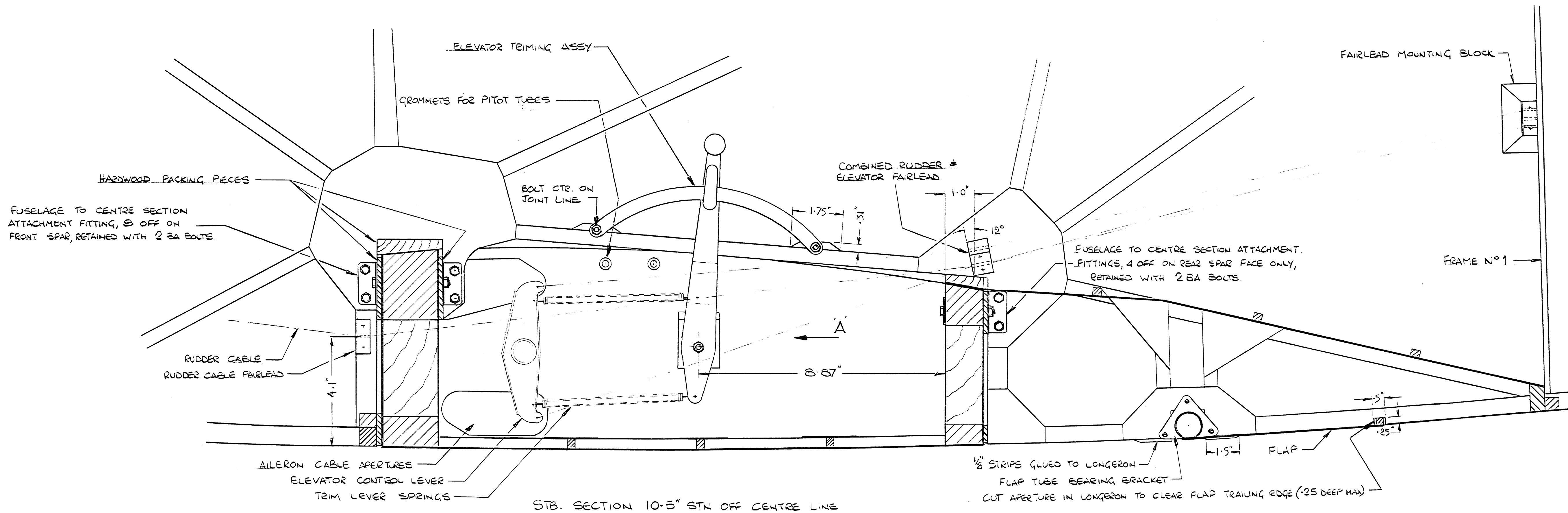


NOTE - SOME BRITISH A.Q.S. SERIES BOLTS, OF NEW MANUFACTURE, CAN BE AS MUCH AS 0.0035" SMALL ON NOMINAL DIAMETER. THUS ALL BOLT SHANKS SHOULD BE CHECKED WITH A MICROMETER AND UNDERSIZE. REAMERS USED AS REQUIRED TO MAINTAIN GOOD LOCATION DIAMETERS.

NOTE - ALL ATTACHMENT PIN HOLES THROUGH ROOT END WING SPARS MUST BE 1/16" ON DIA CLEARANCE ON PIN DIA.

CENTRE SECTION TO WING SPAR ATTACHMENT - STARBOARD SIDE.

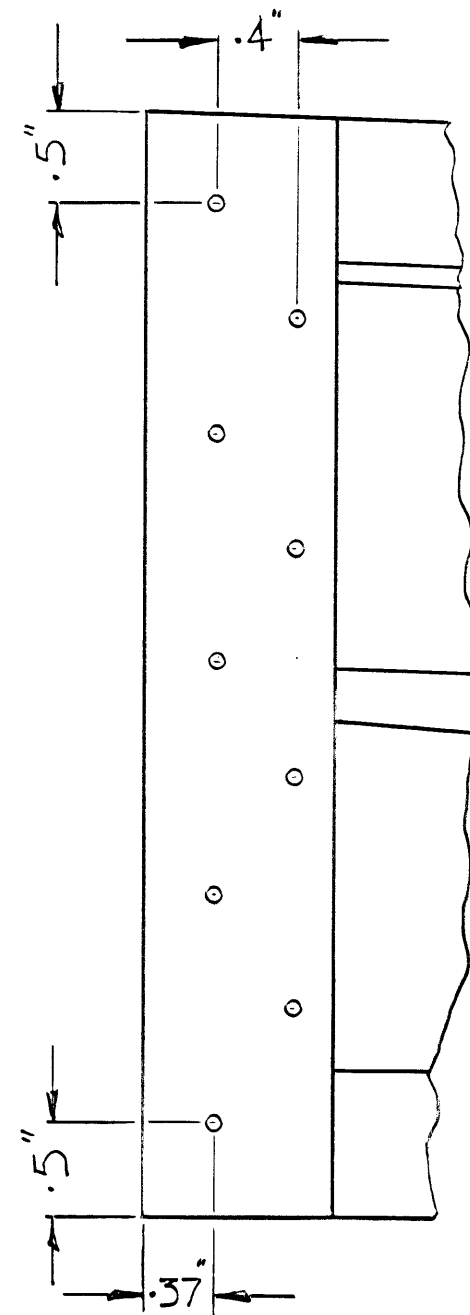
D R N		ISSUE	CHILTON AIRCRAFT	
T.			MAT	SPEC. (LATEST ISSUE)
C.				
APPD.				
DATE ISSUED	SCALE	FINISH	PROCESSES	
ASSMD. ON	LIMITS (UNLESS STATED)	No. OFF		
DESCRIPTION	DRG. No.		C.08	
C/S TO WING ATTACHMENT				



TRIM LEVER MOUNTING - VIEW A

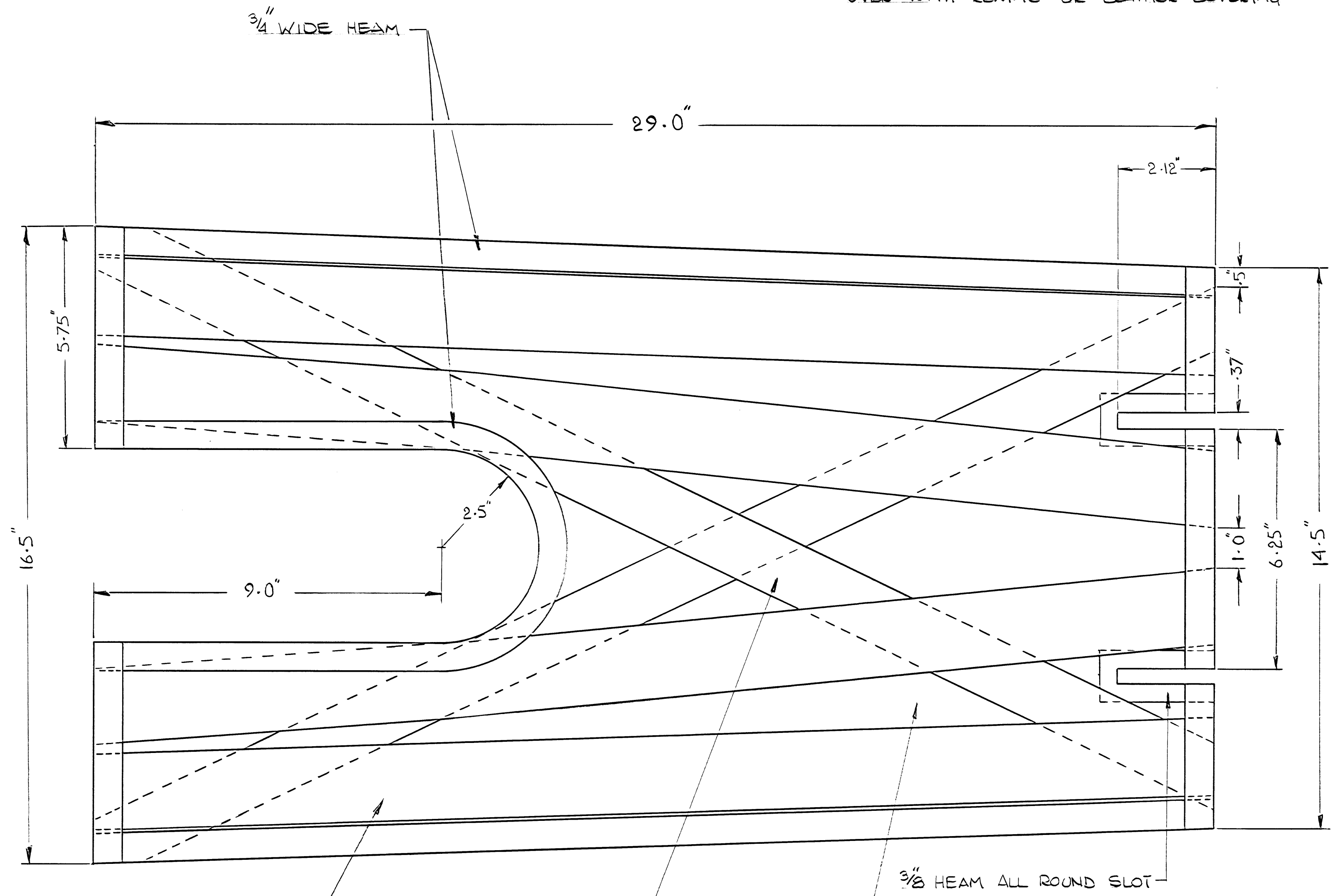
STB. SECTION 6.0" STN. OFF CENTRE LINE
DECKING & SEAT BACK OMITTED FOR CLARITY

DRN	ISSUE	CHILTON AIRCRAFT	
T.		MAT.	SPEC. (LATEST ISSUE)
C.			
APPD.			
DATE ISSUED	SCALE	FINISH	PROCESSES
ASSMD. ON	LIMITS (UNLESS STATED)	No. OFF	
DESCRIPTION	DRG. No.		
C/S TO FUSELAGE STB.	C.11		



HOLE CENTRES FOR FRONT ATTACHMENT SCREWS.

1" WIDE HEAM ON FRONT & REAR OF SEAT TURNED OVER WITH REXINE OR LEATHER COVERING

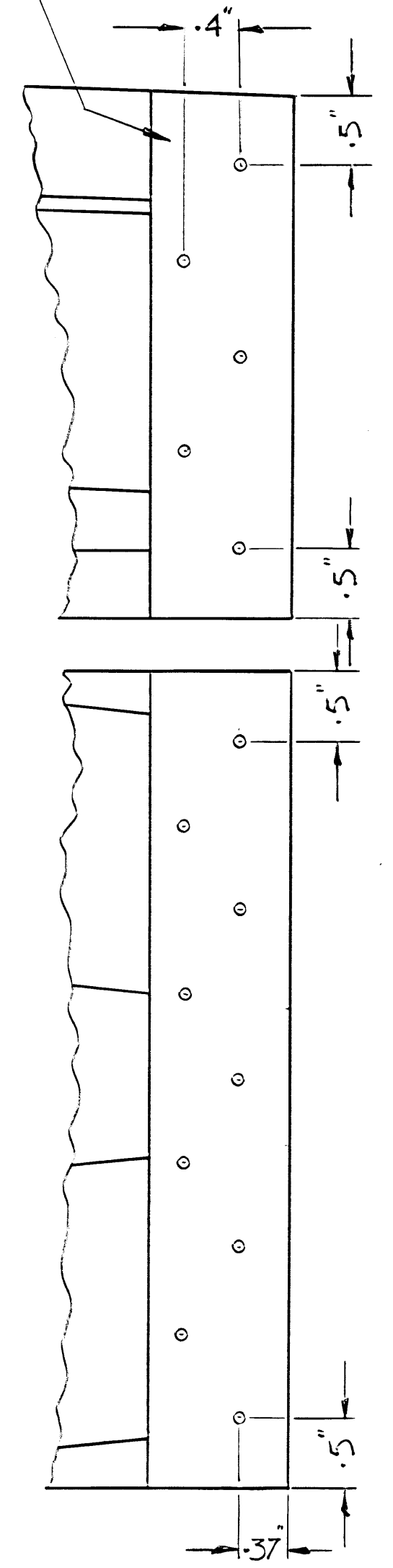


FOUR LENGTHS OF WEBBING 2" WIDE

TWO LENGTHS OF WEBBING 1 1/2" WIDE

SEAT-HEAVY DUTY CANVAS

3/8 HEAM ALL ROUND SLOT



HOLE CENTRES FOR REAR ATTACHMENT SCREWS

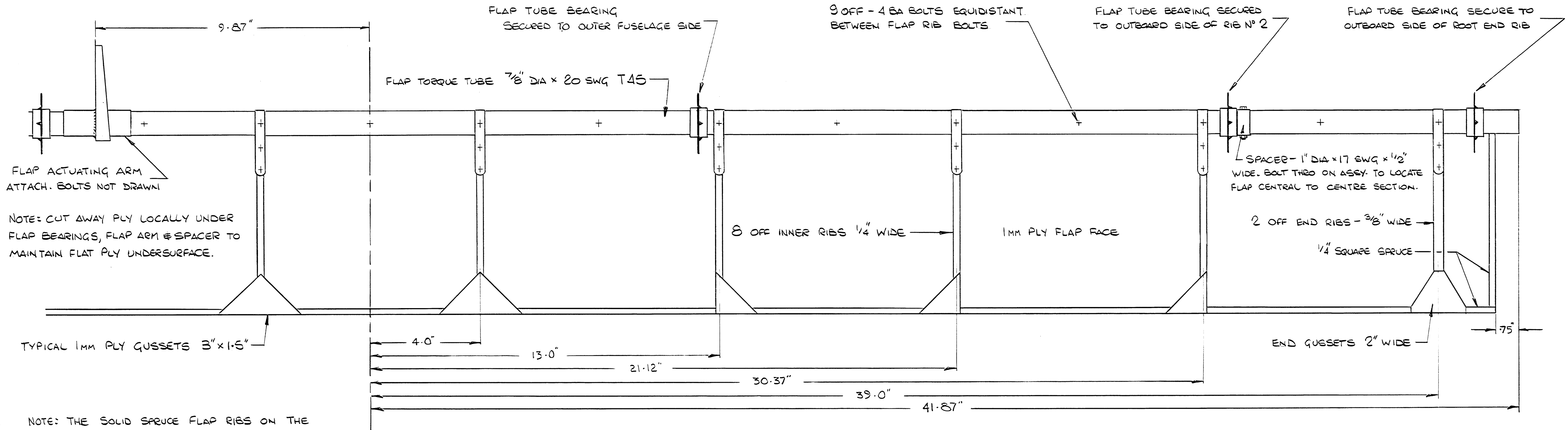
FABRIC WEBBING STITCHED TO CANVAS SEAT WITH FOUR ROWS OF STITCHING ALONG LENGTH OF WEBBING

TWO SLOTS AT REAR OF SEAT TO CLEAR SUPPORT RIBS FOR LUGGAGE LOCKER FLOOR

SEAT- AS VIEWED FROM UNDERSIDE

DRN	ISSUE	CHILTON AIRCRAFT	
T.		MAT CANVAS	SPEC. (LATEST ISSUE)
C.		# WEBBING.	
APPD.			
DATE ISSUED	SCALE	FINISH	PROCESSES
ASSMD. ON	LIMITS (UNLESS STATED)	No. OFF	
DESCRIPTION	SEAT		DRG. No. C.13

CENTRE SECTION FLAP - PLAN VIEW STB SIDE

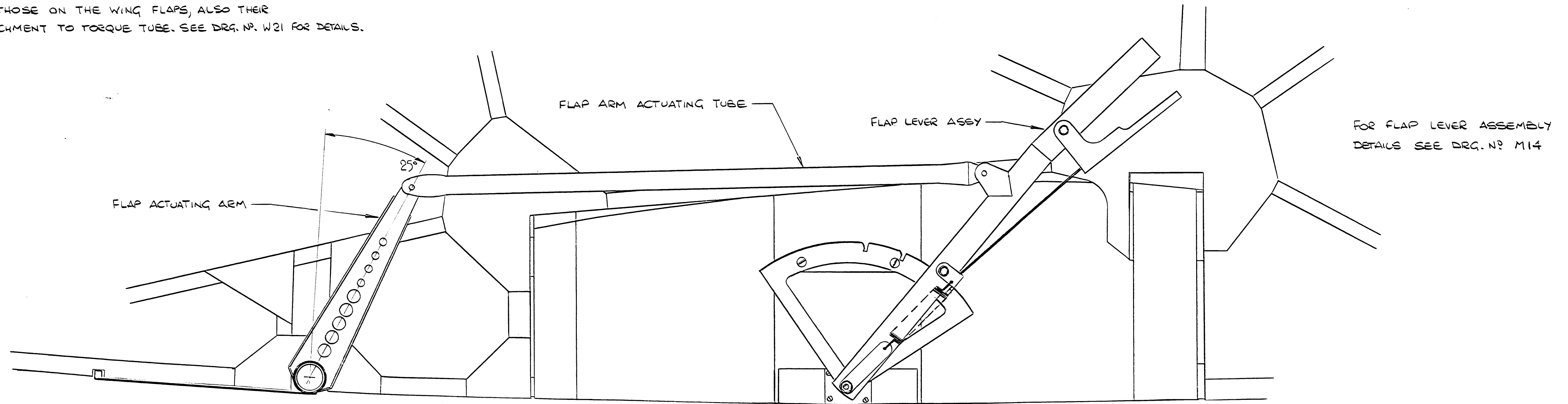


FLAP ACTUATING ARM ATTACH. BOLTS NOT DRAWN

NOTE: CUT AWAY PLY LOCALLY UNDER FLAP BEARINGS, FLAP ARM & SPACER TO MAINTAIN FLAT PLY UNDERSURFACE.

TYPICAL 1MM PLY GUSSETS 3" x 1.5"

NOTE: THE SOLID SPRUCE FLAP RIBS ON THE C/S FLAP ARE IDENTICAL IN CONSTRUCTION TO THOSE ON THE WING FLAPS, ALSO THEIR ATTACHMENT TO TORQUE TUBE. SEE DRG. NO. W21 FOR DETAILS.



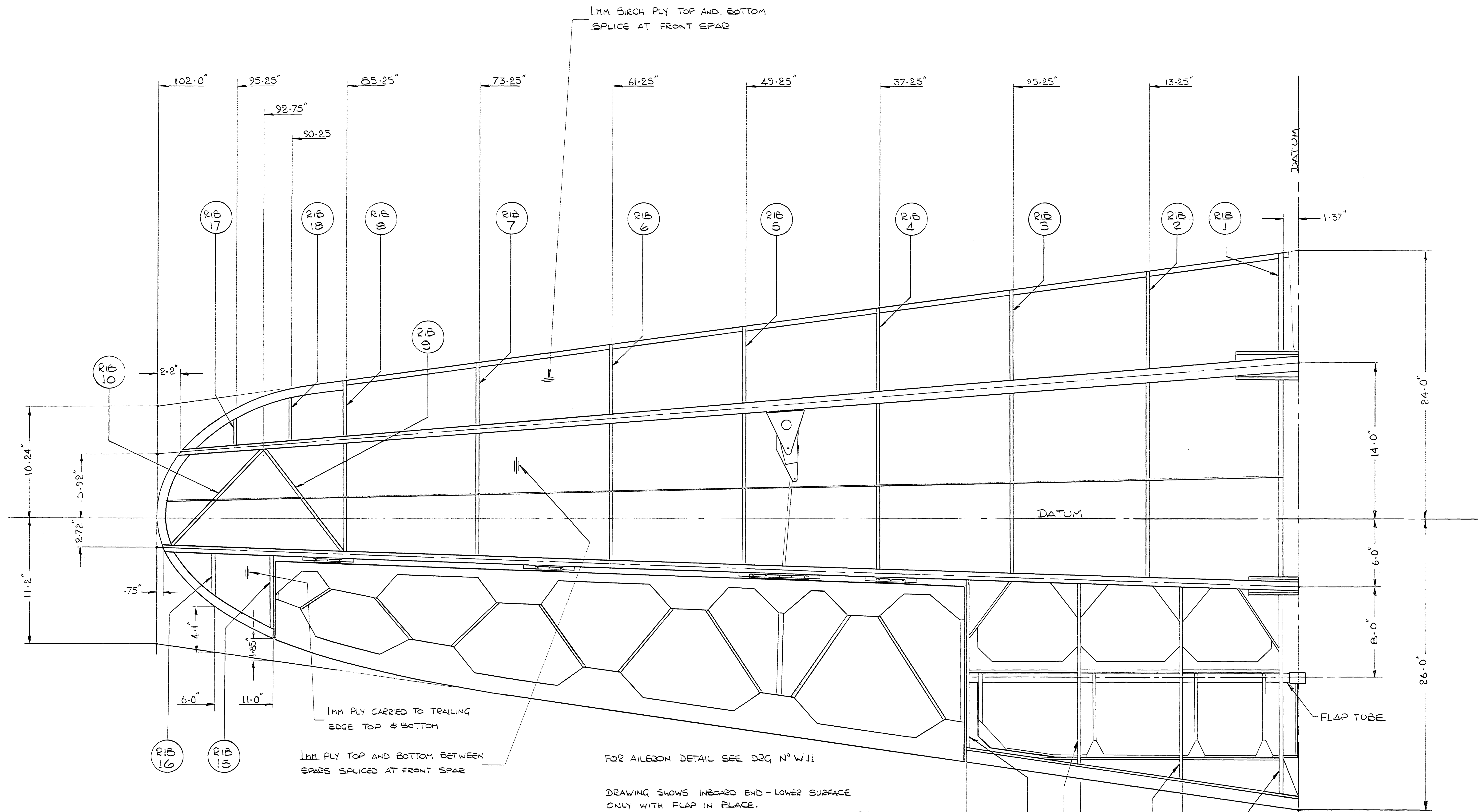
FOR FLAP LEVER ASSEMBLY DETAILS SEE DRG. NO. M14

FLAP ARM SECURED TO FLAP TORQUE TUBE WITH 3- 2BA BOLTS SPOT THROUGH ON ASSEMBLY.

FLAP ASSEMBLY - PORT SIDE

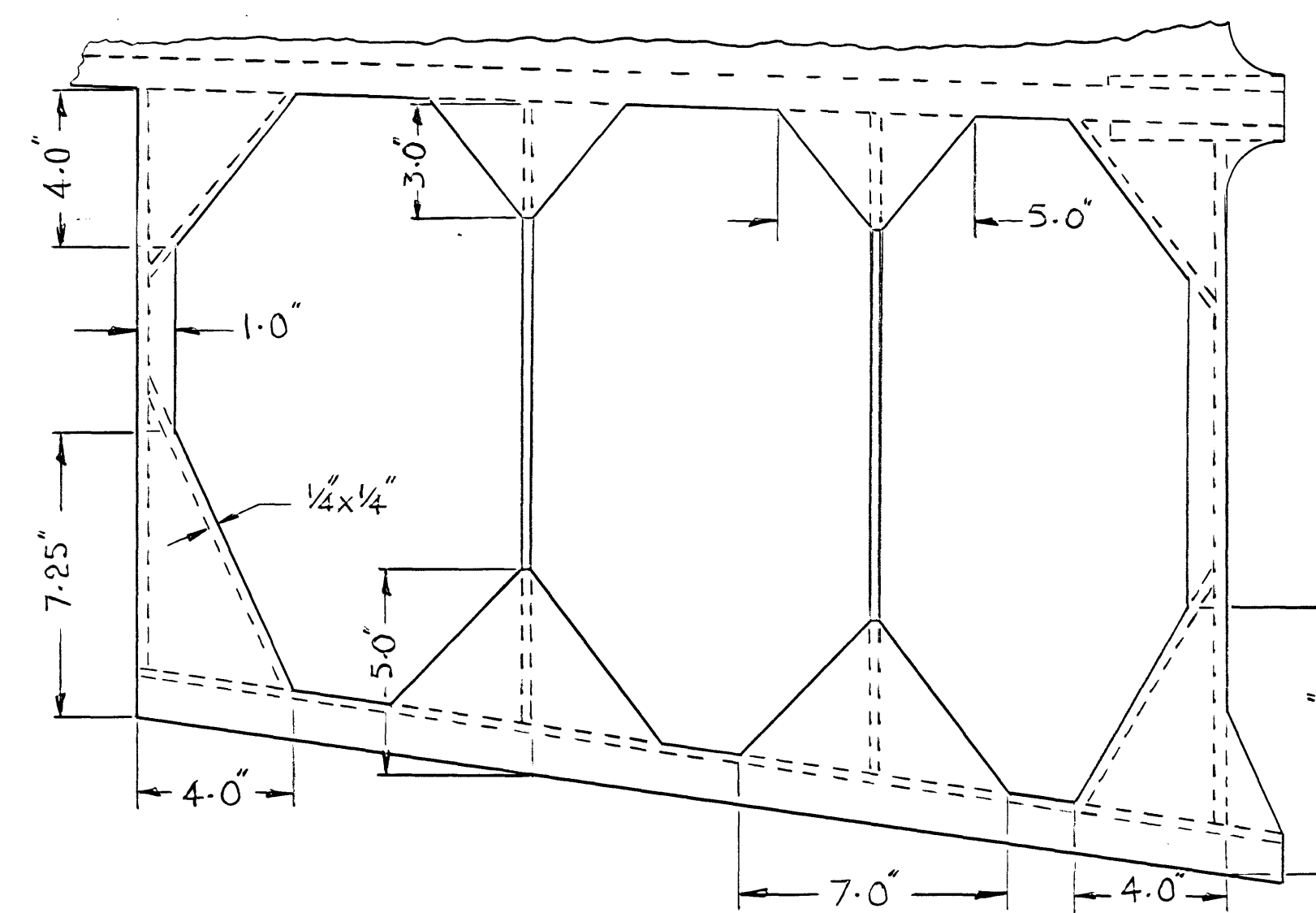
THE CENTRE SECTION FLAP IS SYMMETRICAL APART FROM THE FLAP ACTUATING ARM.

D. RN	ISSUE	CHILTON AIRCRAFT	
T.		MAT	SPEC. (LATEST ISSUE)
C.			
APPD.			
DATE ISSUED	SCALE	FINISH	PROCESSES
ASSMD. ON	LIMITS (UNLESS STATED)	No. OFF	
DESCRIPTION	DRG. No.		
CENTRE SECTION FLAP		C.14	



WING TIP BOW LAMINATED FROM SPRUCE.

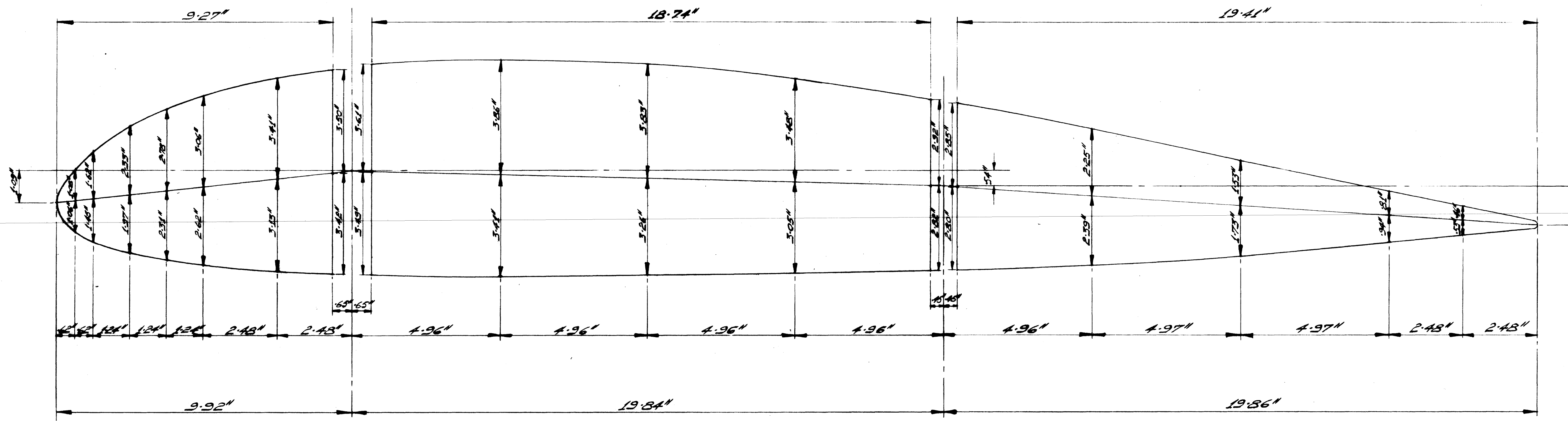
DETAIL OF UPPER SURFACE AT INBOARD END
PRIOR TO FABRICATING - ALL GUSSETS 1MM PLY



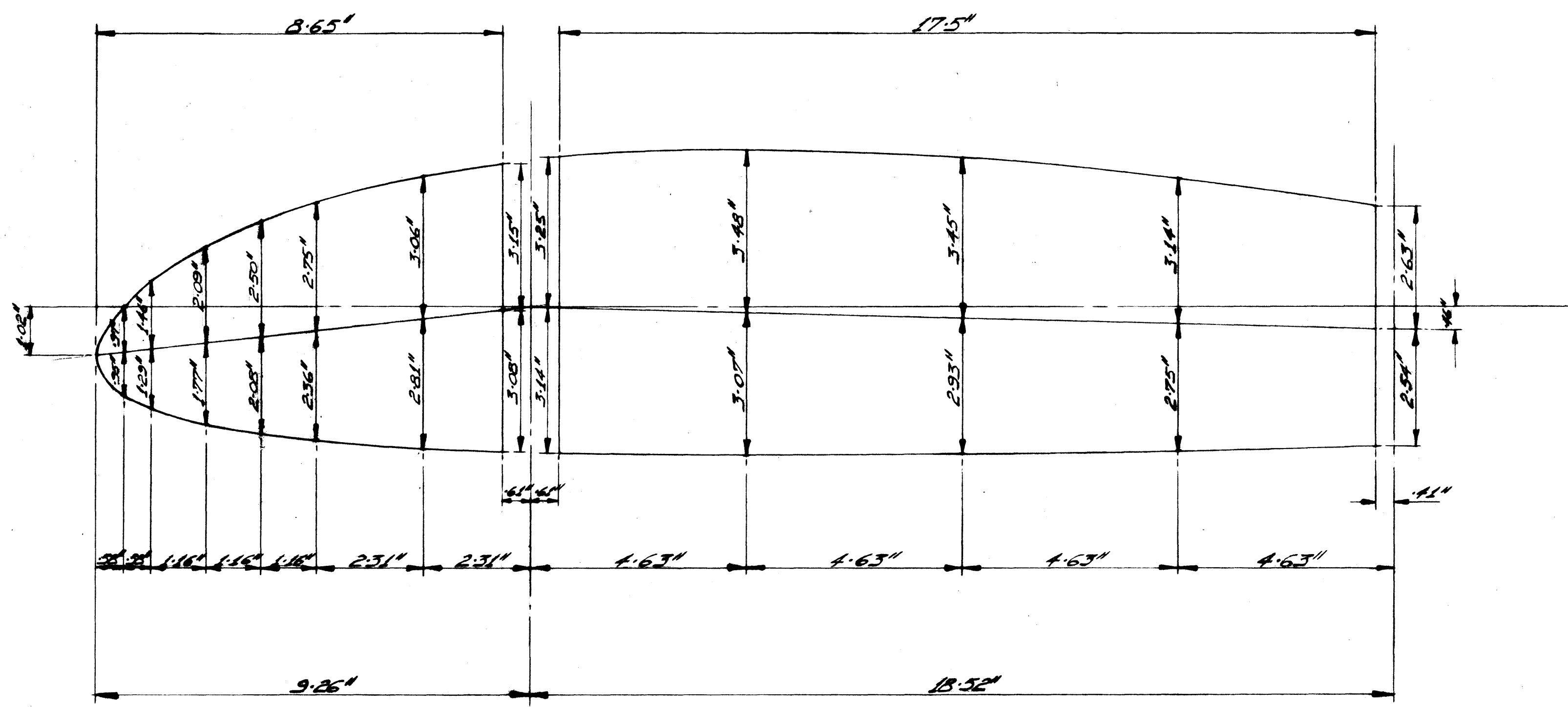
PORT WING

PLAN VIEW WITH UPPER COVERING OMITTED FOR CLARITY

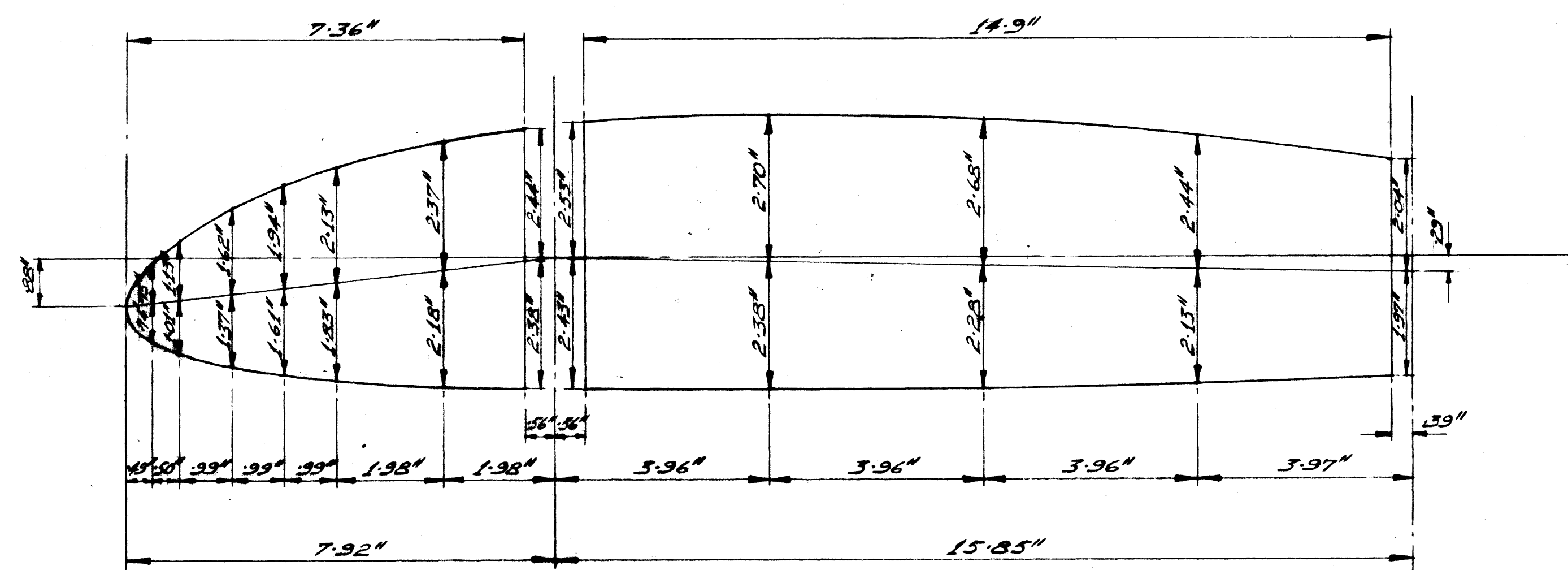
D	R	N	ISSUE	CHILTON AIRCRAFT	
T.				MAT	SPEC. (LATEST ISSUE)
C.					
APPD.					
DATE+ISSUED	SCALE	FINISH	PROCESSES		
ASSMD ON	LIMITS (UNLESS STATED)	No OFF			
DESCRIPTION	WING G.A.			DRG. No.	W.01



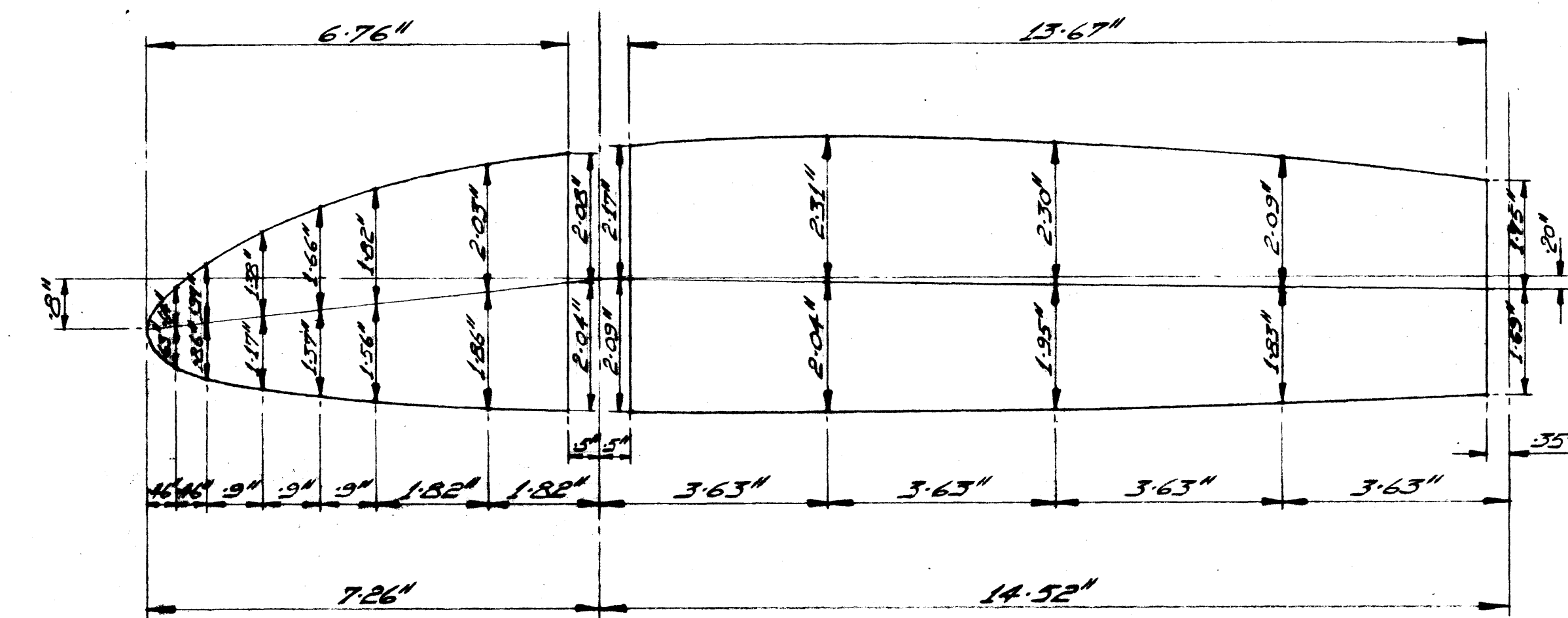
RIB 1+11



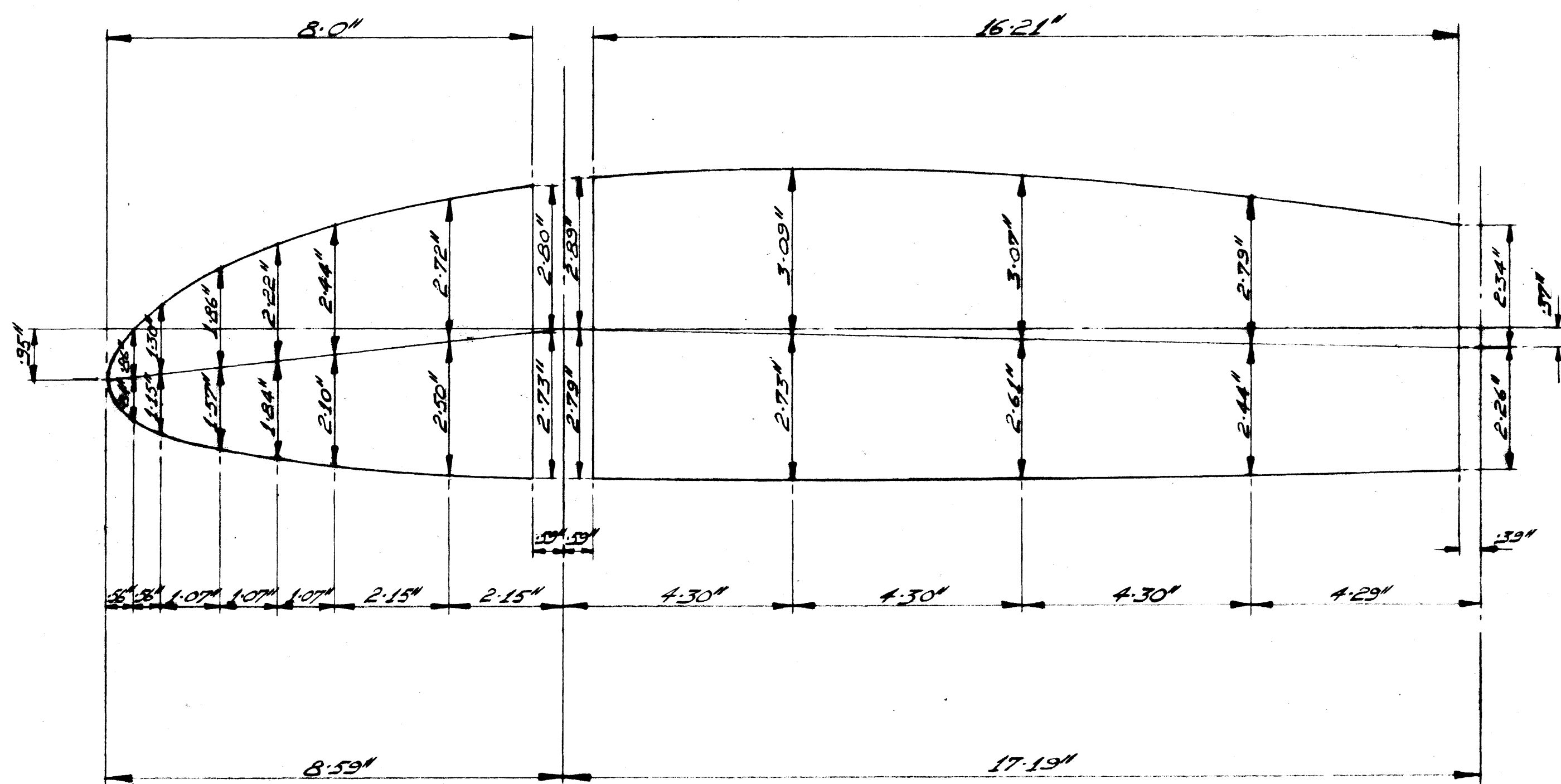
RIB 2



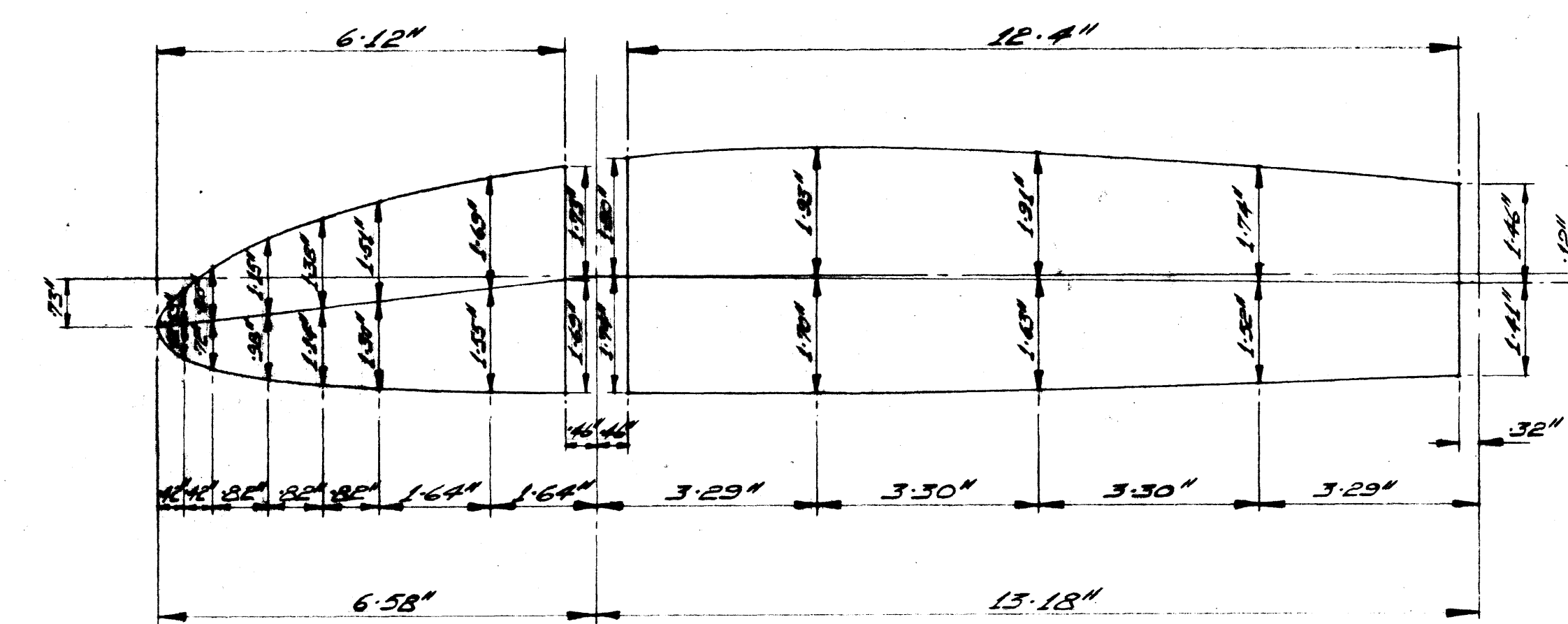
RIB 4



RIB 5

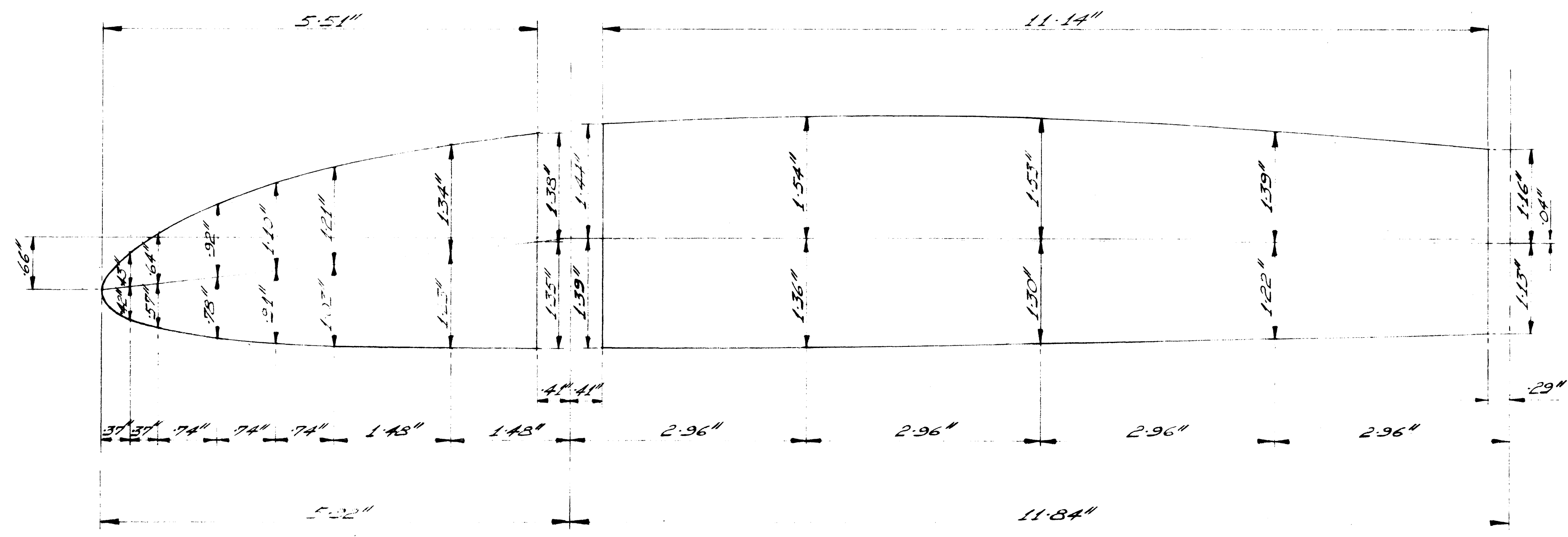


RIB 3

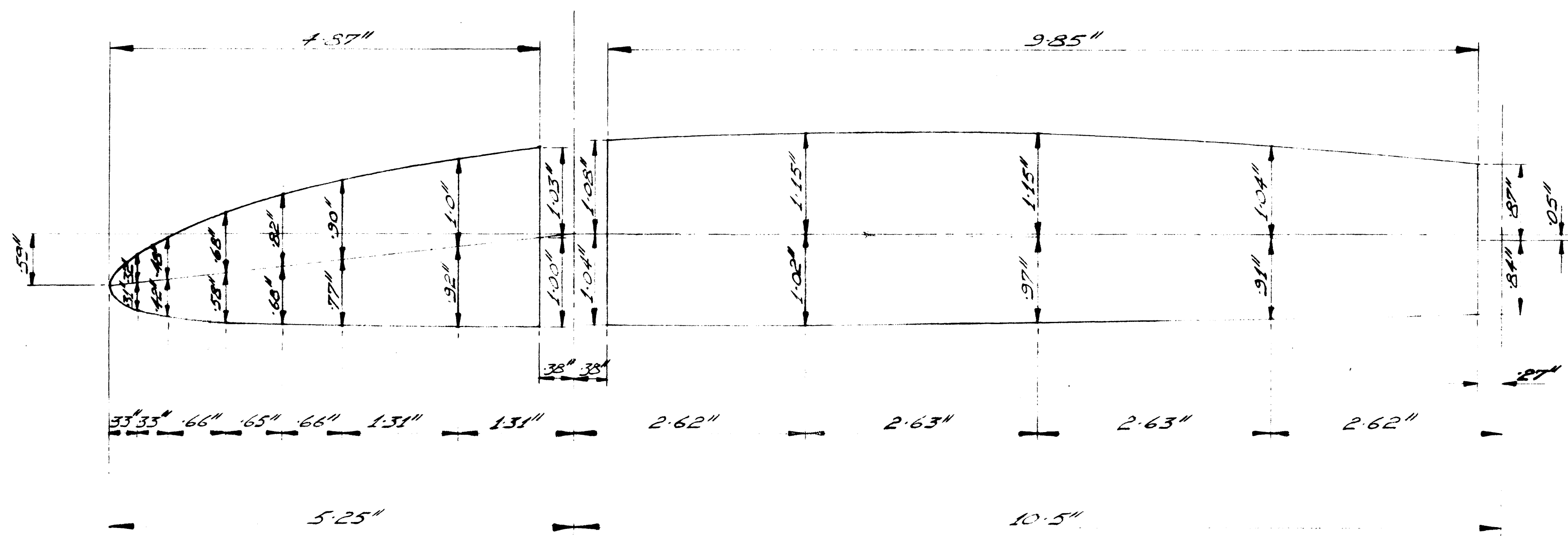


RIB 6

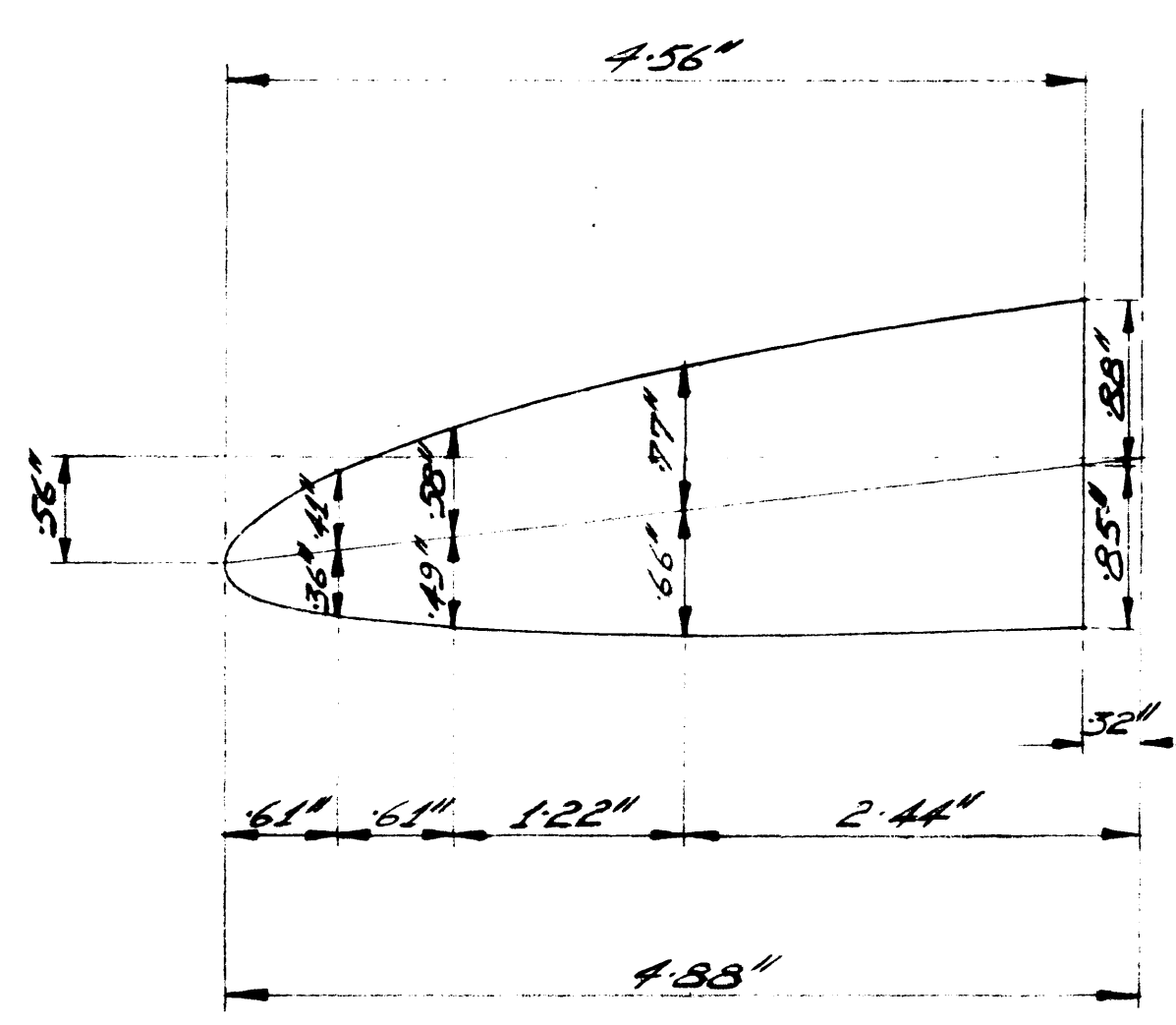
D	IR	DATE	CHILTON AIRCRAFT.	
T				
C			MHT	SPEC LATEST ISSUE
APPD				
DATE ISSUED	SCALE	FINISH	PROCESSES	
	1/2			
ASSMD ON	LIMITS (UNLESS SPEC'D)	No. OFF		
DESCRIPTION PROFILE OF DRG NO. 16				
WING RIBS 1 TO 6				
				W.03



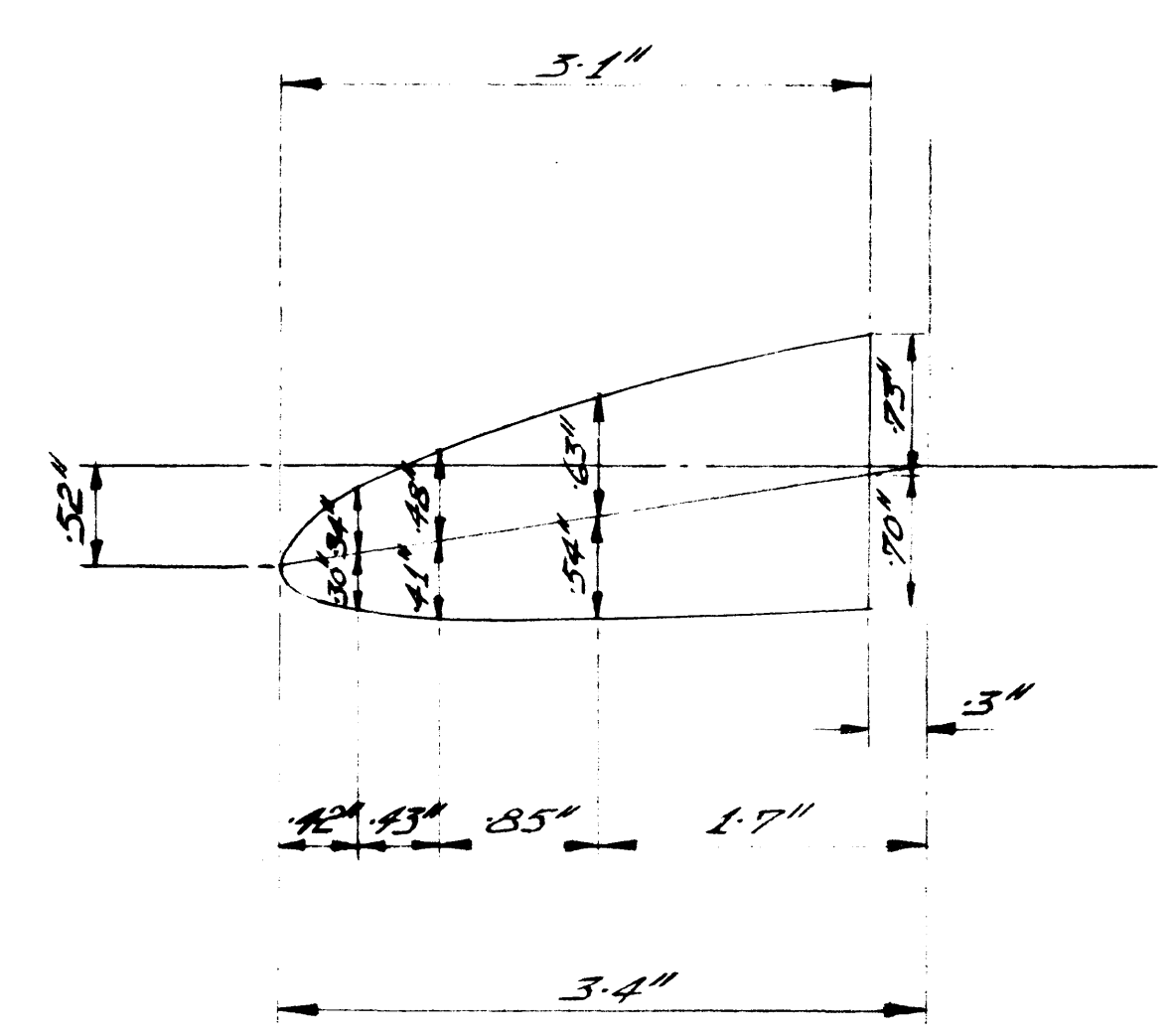
RIB 7



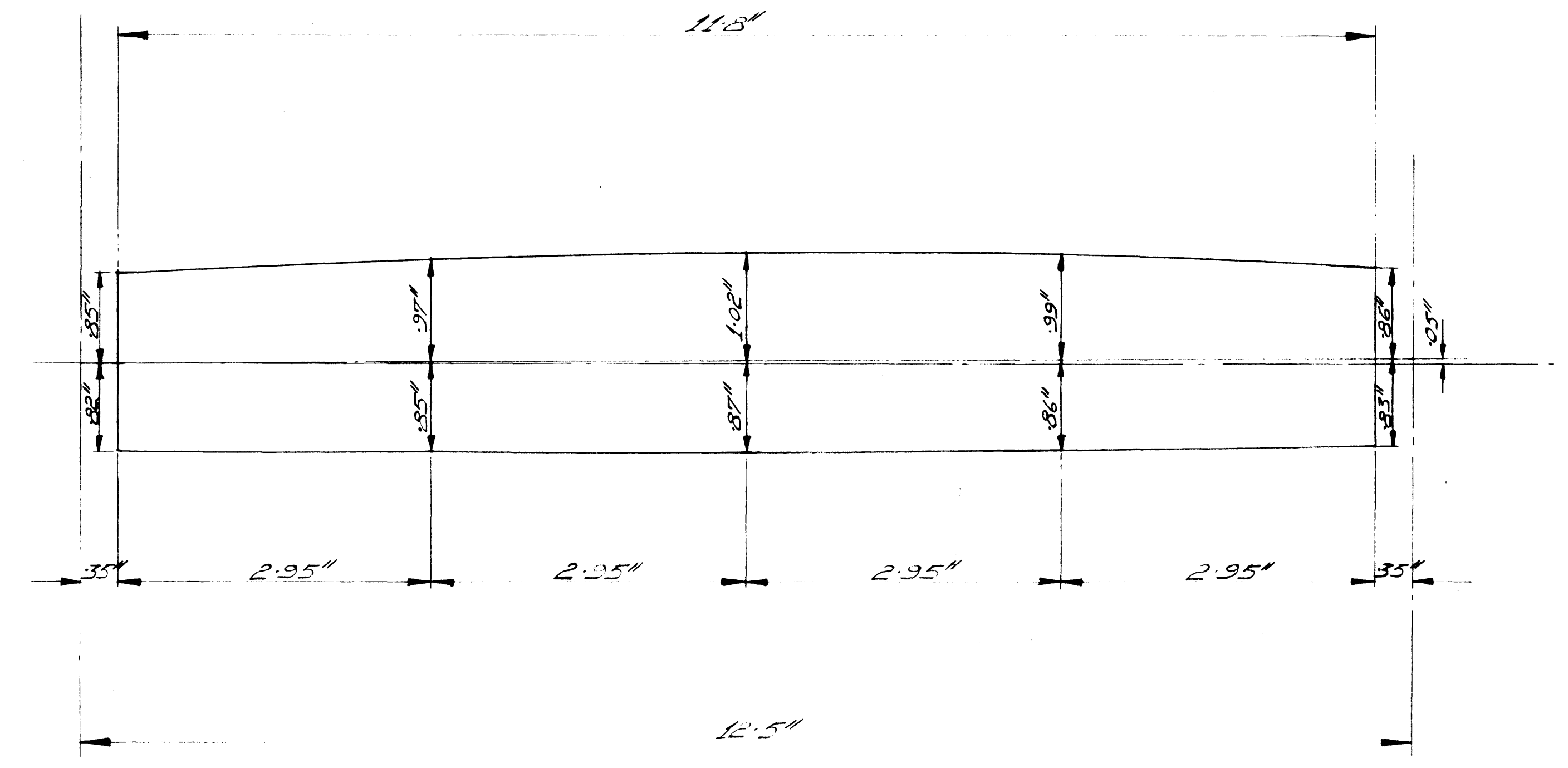
RIB 8



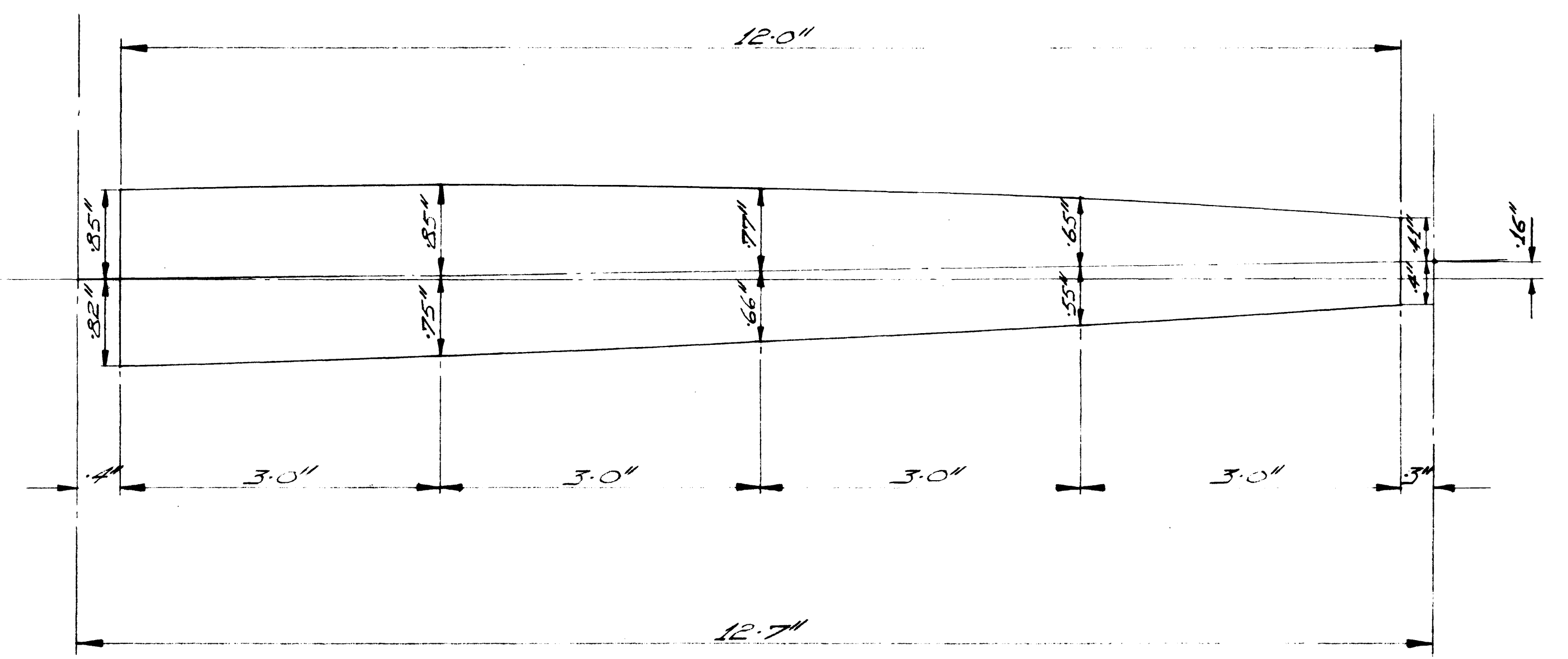
RIB 16



RIB 17

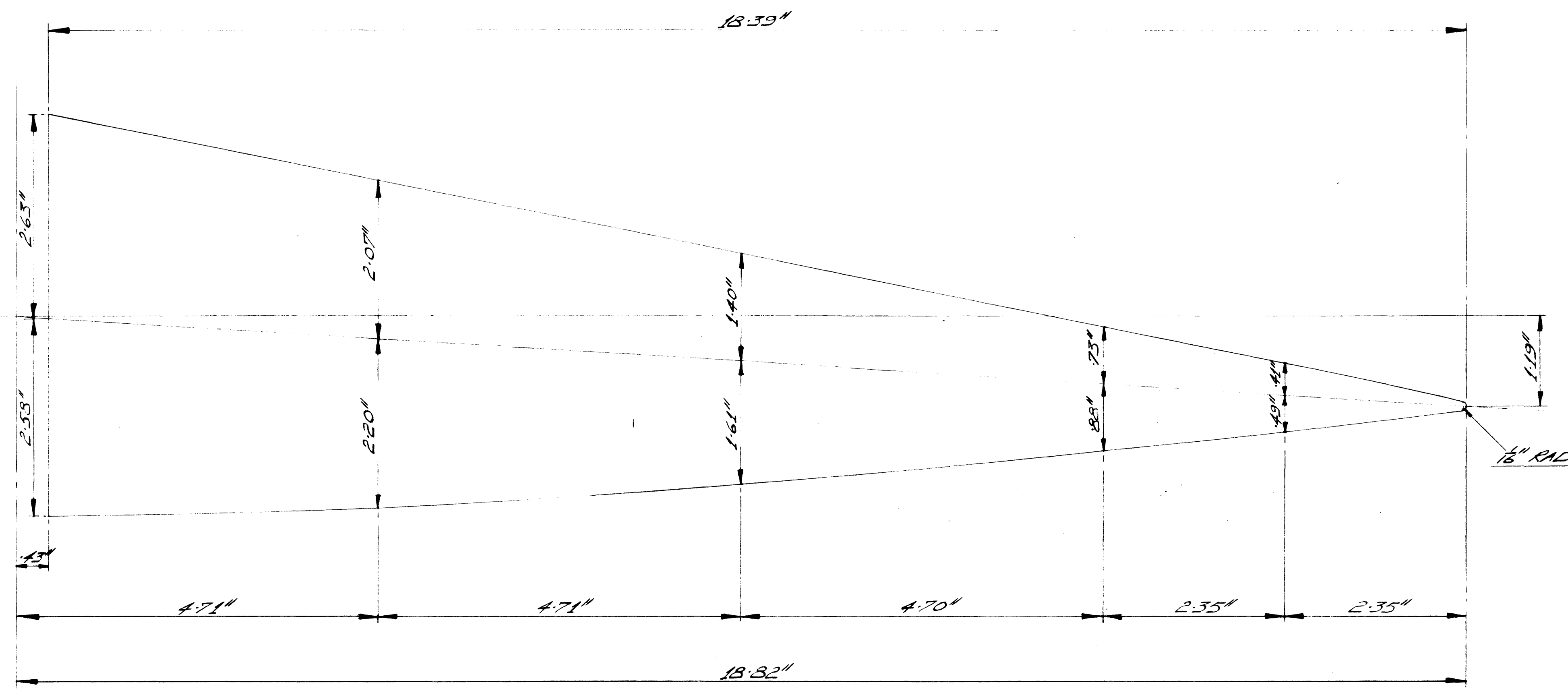


DIAGONAL RIB 9

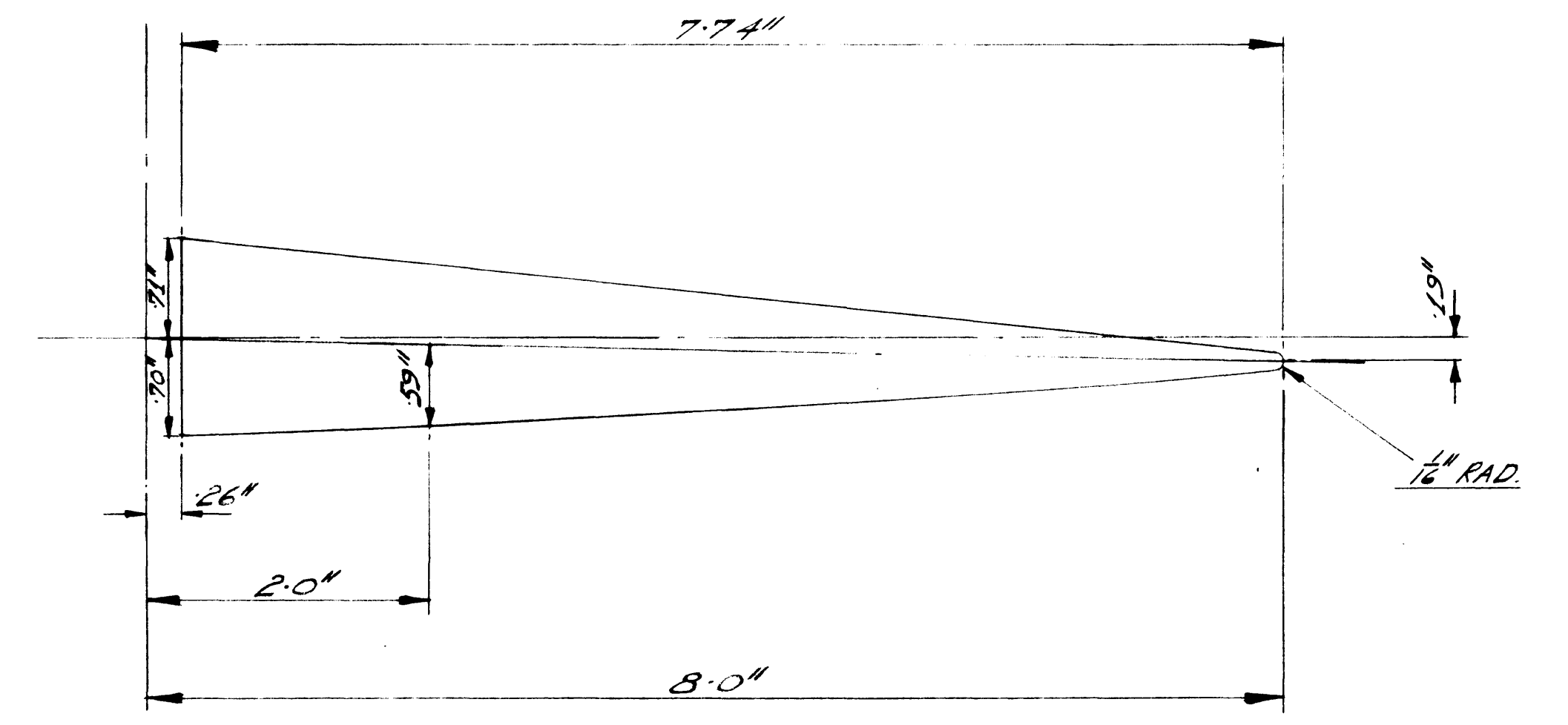


DIAGONAL RIB 10

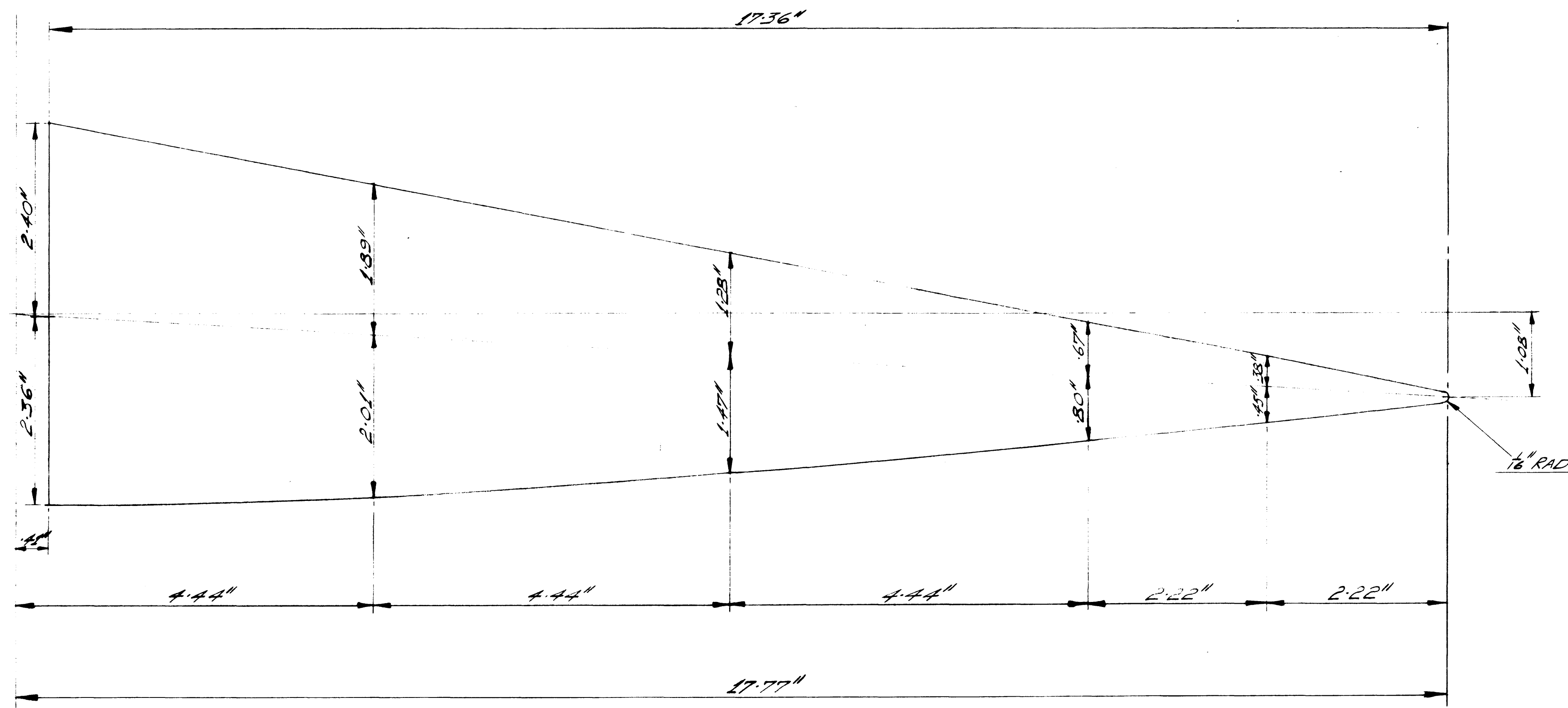
D. IR.	2508	CHILTON AIRCRAFT	
T		SPEC. LATEST ISSUE	
APP'D			
DATE ISSUED	SCALE	FINISH	PROJ. NO.
ASS'G'D	411		
LIMITS (UNLESS STATED)		NO. OFF. 2 OFF. EACH	
DEF. - PARTIAL PROFILE OF DRG. NO. WING RIBS 7B, 2, 10, 17 & 18.			
			W.03



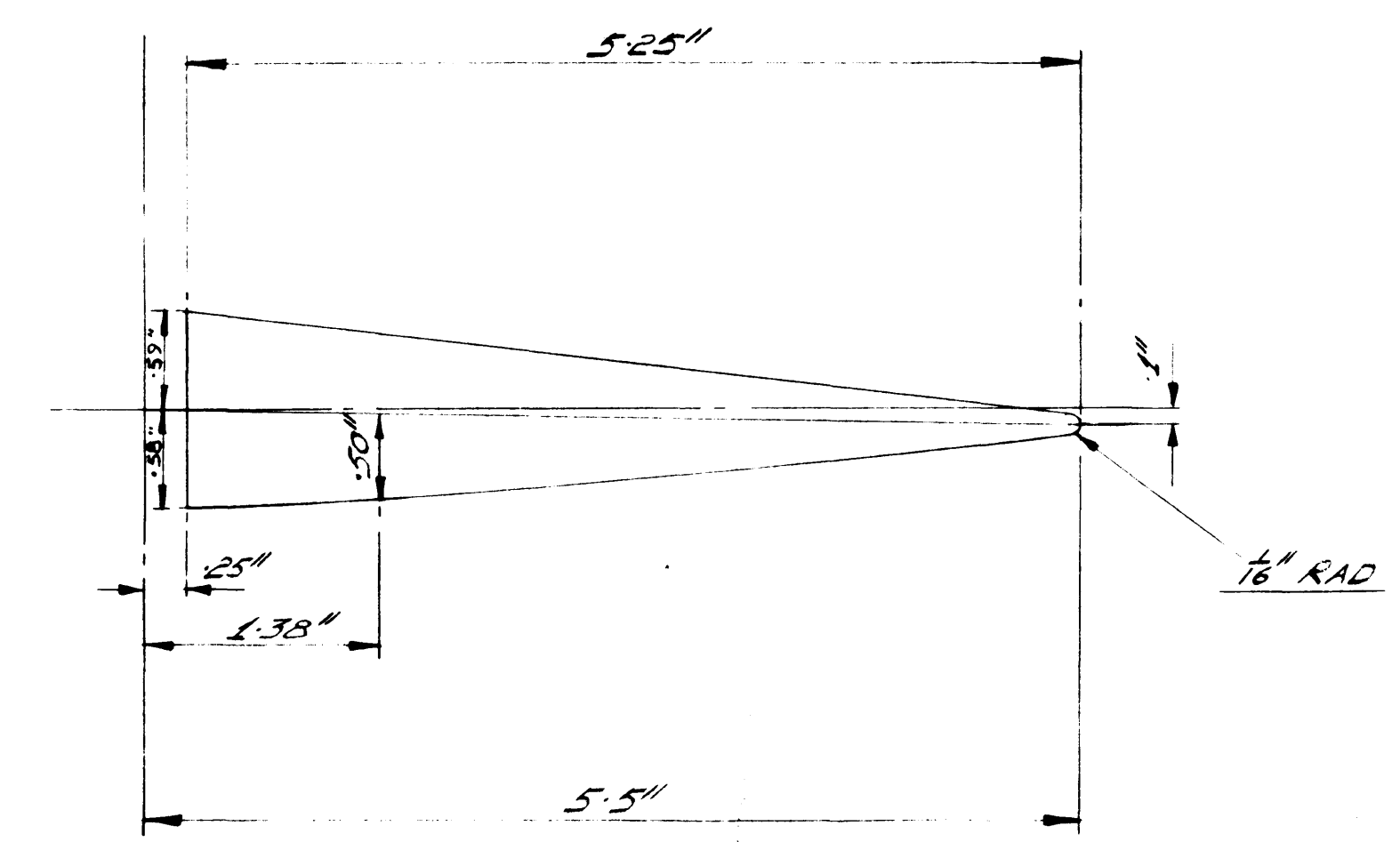
RIB 12



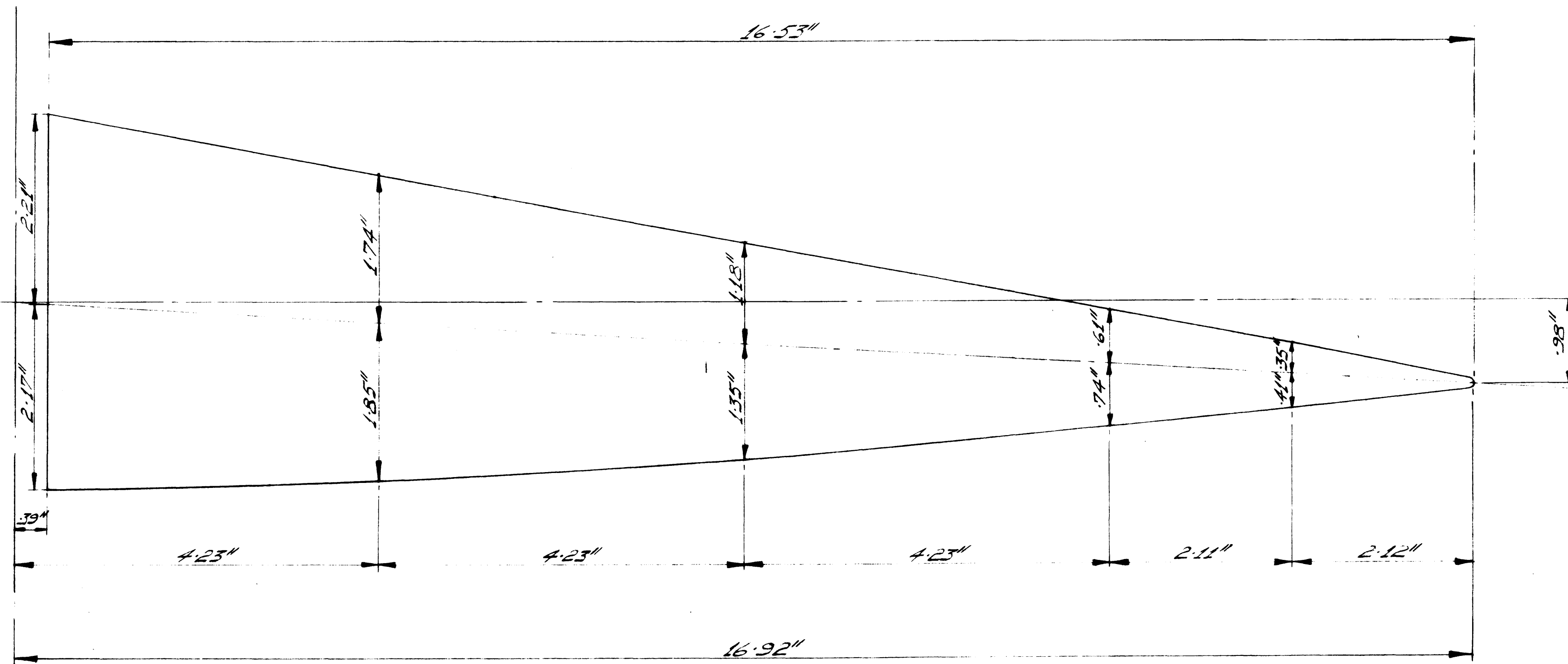
RIB 15



RIB 13

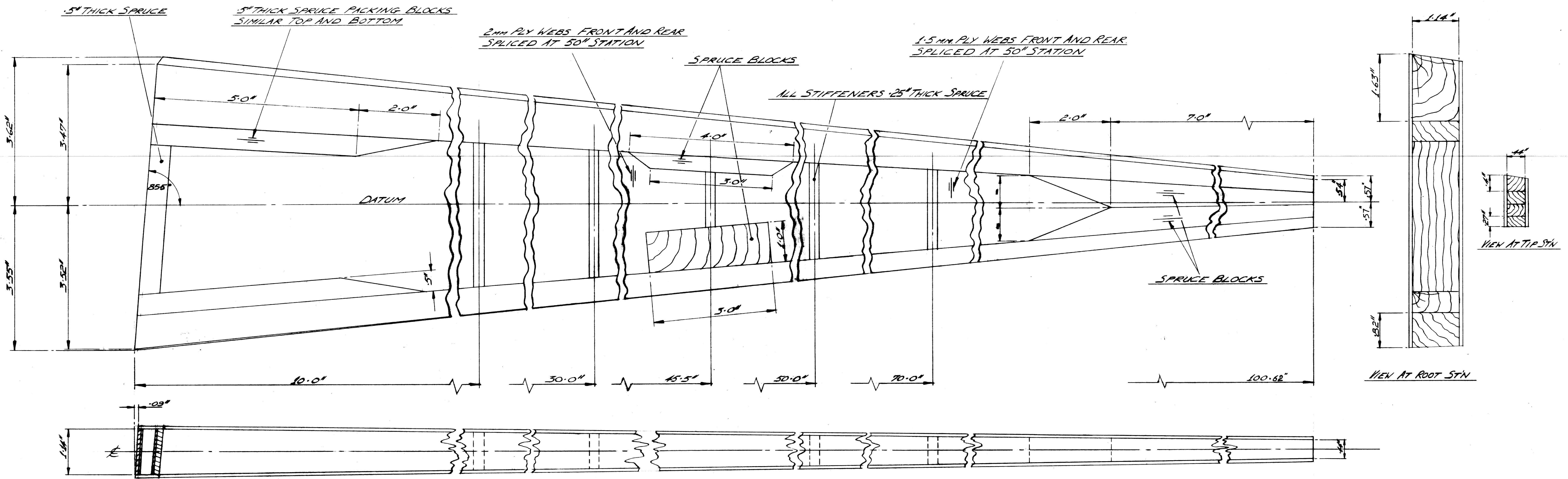


RIB 16

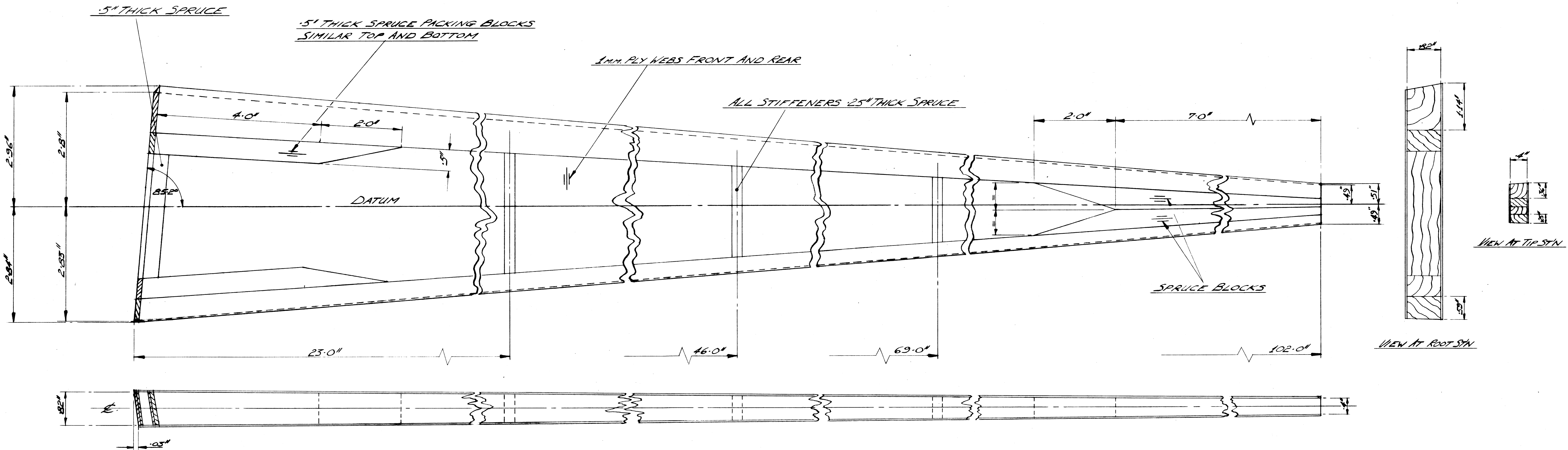


RIB 14

D	IT	2002	CHILTON AIRCRAFT	
T				
C			MAT	SPEC (LATEST ISSUE)
APRD				
DATE ISSUED	SCALE	FINISH	PROCESSES	
ASSN'D ON	LIMITS (INCL. STAGES)	AS OFF		
DESCRIPTION	WING RIBS 12-16		DWG No.	W.04

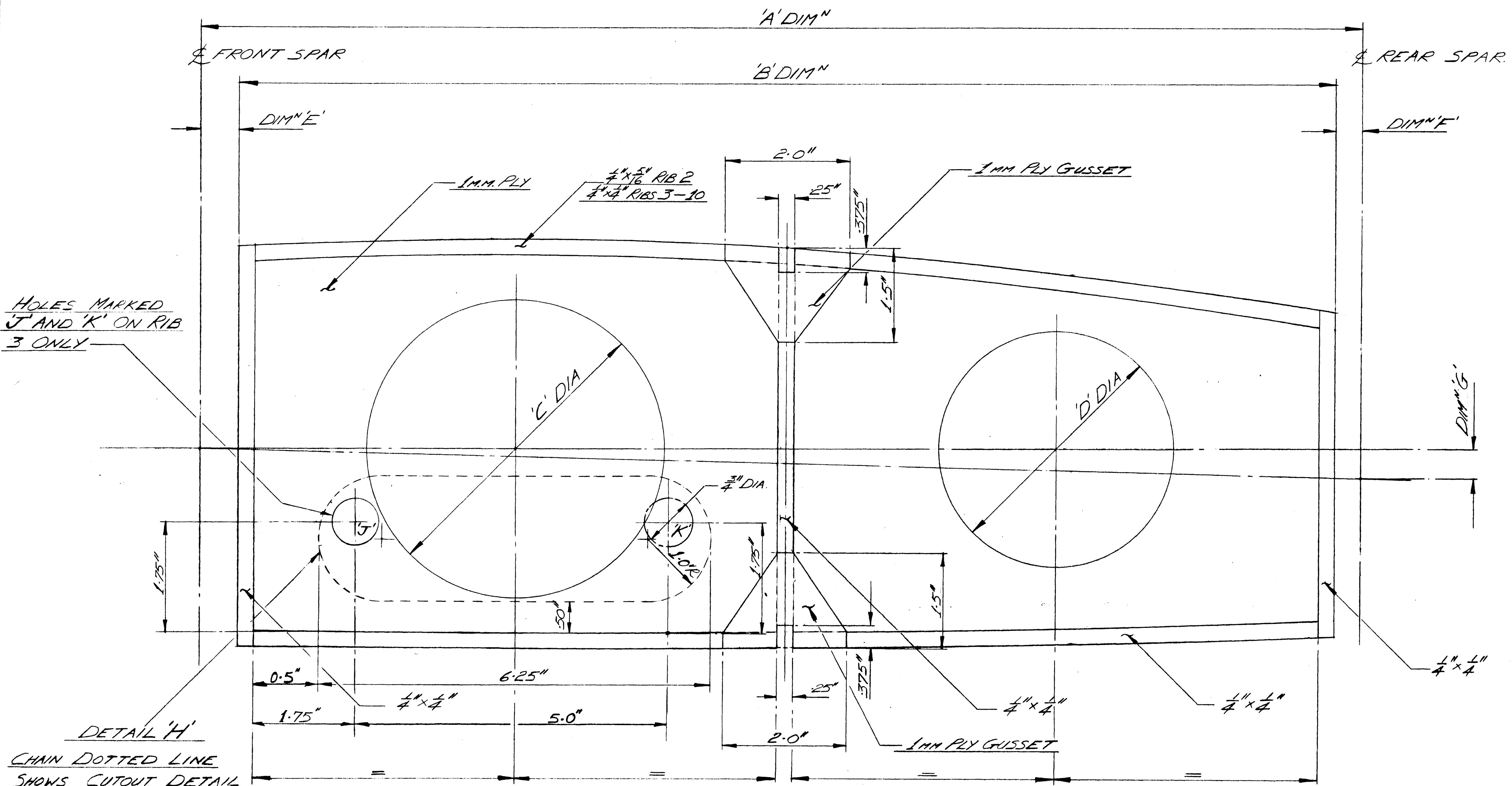


PORT FRONT WING SPAR (FRONT WEB OMITTED FOR CLARITY) (STBD) OPPOSITE HAND.



PORT REAR WING SPAR (FRONT WEB OMITTED FOR CLARITY) (STBD) OPPOSITE HAND.

D	IR	ISSUE	CHILTON AIRCRAFT	
7			1/4" SPRUCE	SPEC (LATEST ISSUE)
C			BURCH PLY	DTD 36A, V3.
APPD				
DATE ISSUED	SCALE	FINISH	PROCESSIES	
	1/1			
ASSMD ON	LIMITS (UNLESS STATED)	1/4 OFF	1 OFF EACH PER ME	
	+ .04" - 0"			
DESCRIPTION	WING SPARS		DRG NO.	W.05



HOLES MARKED
J AND K ON RIB
3 ONLY

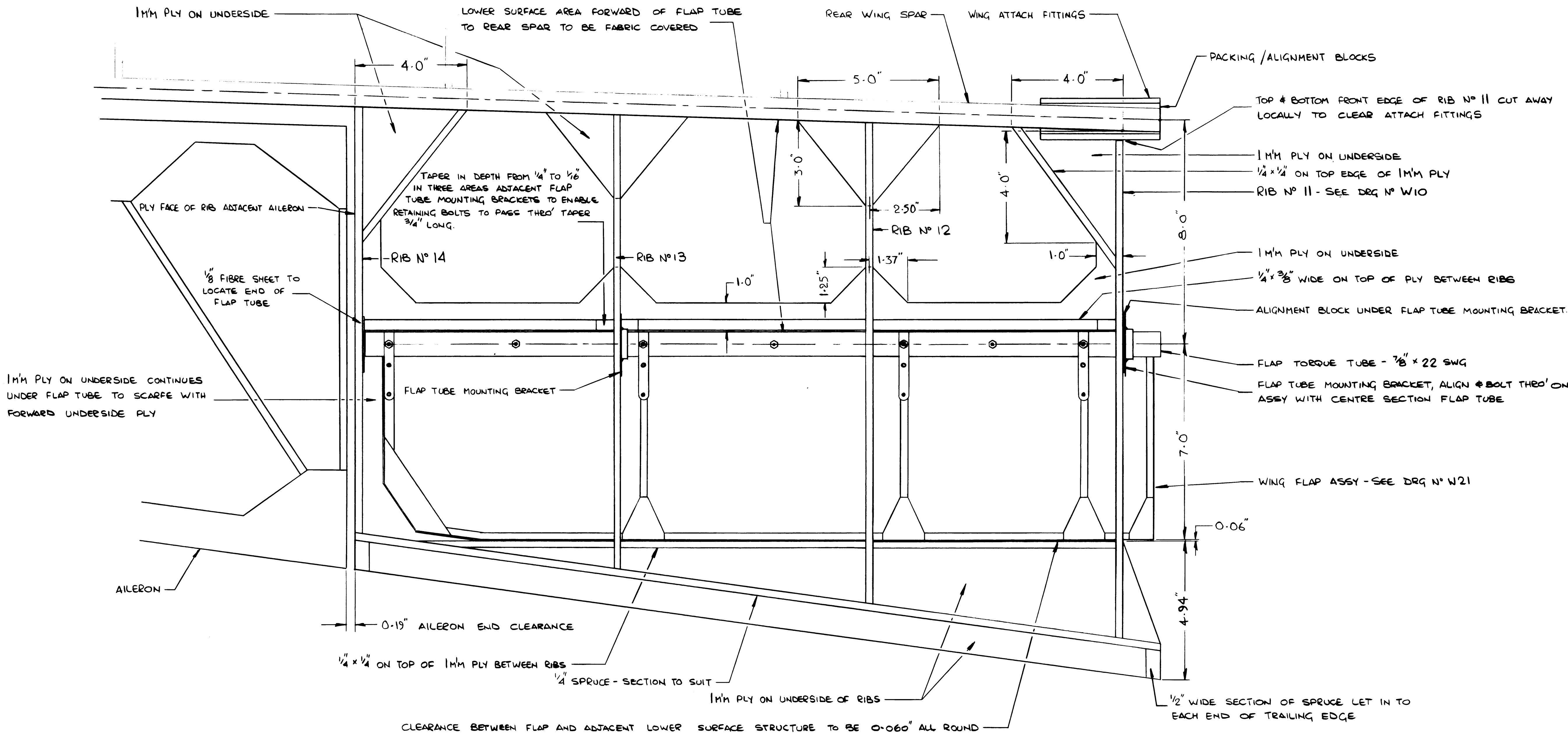
DETAIL 'H'
CHAIN DOTTED LINE
SHOWS CUTOUT DETAIL
ON RIB 4 ONLY

RIB No	DIM A	DIM B	DIA C	DIA D	DIM E	DIM F	DIM G
RIB 2	18.52"	17.5"	4.75" DIA	3.75" DIA	.61"	.41"	.46"
" 3	17.19"	16.21"	SEE J & K	3.75" "	.59"	.39"	.37"
" 4	15.85"	14.90"	SEE DETAIL H	3.00" "	.56"	.39"	.29"
" 5	14.52"	13.67"	2.75"	2.25" "	.50"	.35"	.20"
" 6	13.18"	12.40"	2.50"	2.00" "	.46"	.32"	.12"
" 7	11.84"	11.14"	1.87"	1.50" "	.41"	.29"	.04"
" 8	10.50"	9.85"	1.50"	1.25" "	.38"	.27"	.05"
" 9 DIAG	12.50"	11.80"	1.125"	1.125" "	.35"	.35"	SEE DRG NO W03
" 10 DIAG	12.70"	12.00"	1.00"	.50" "	.40"	.30"	"

FOR OUTER PROFILES OF WING RIBS NOS 1-10 SEE
DRG NOS. W.02, W.03, W.04 + W12

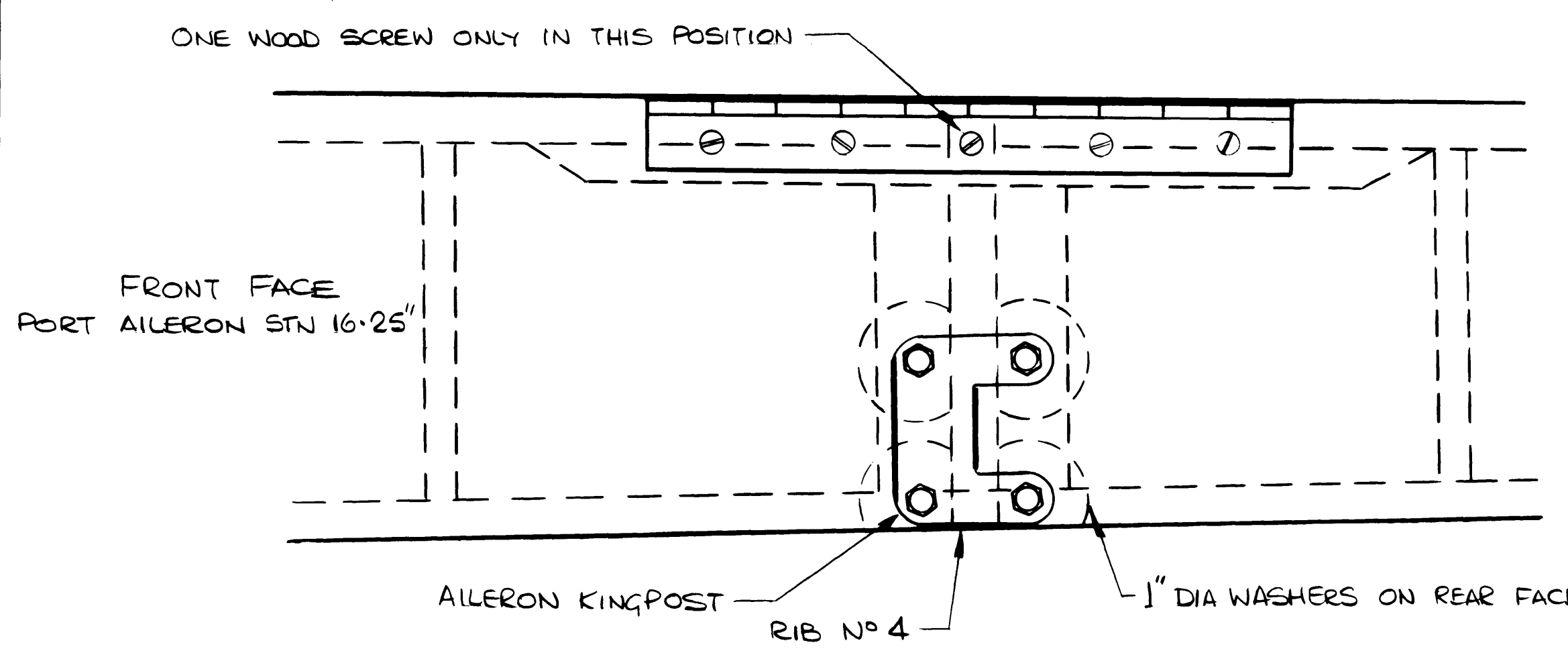
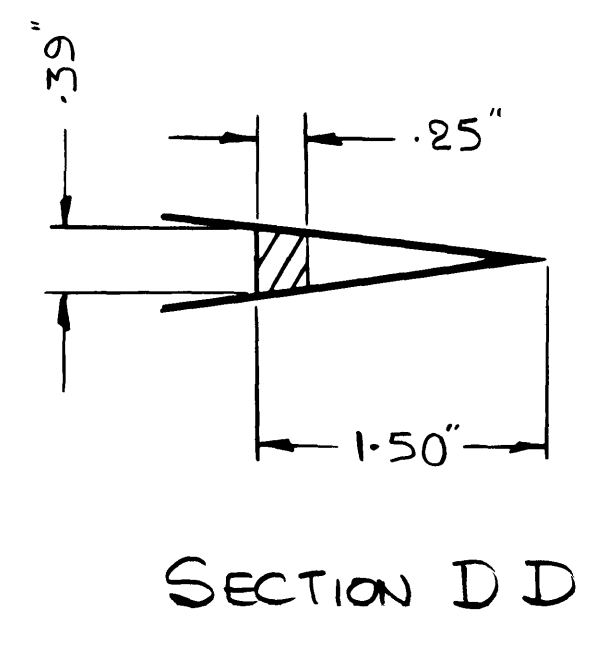
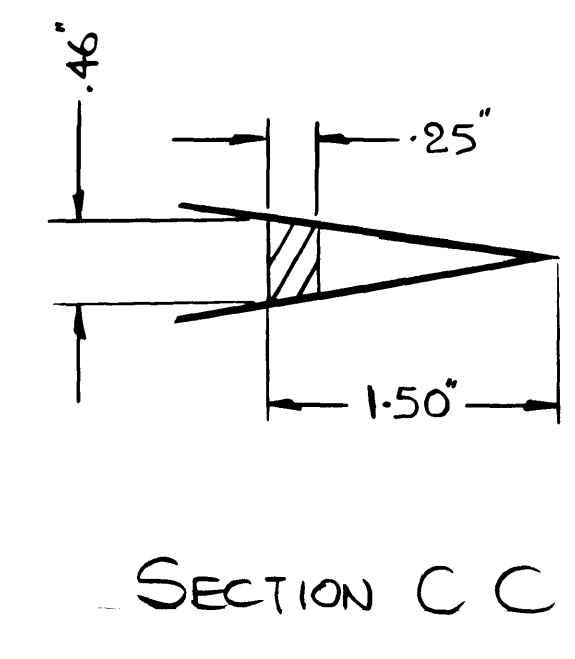
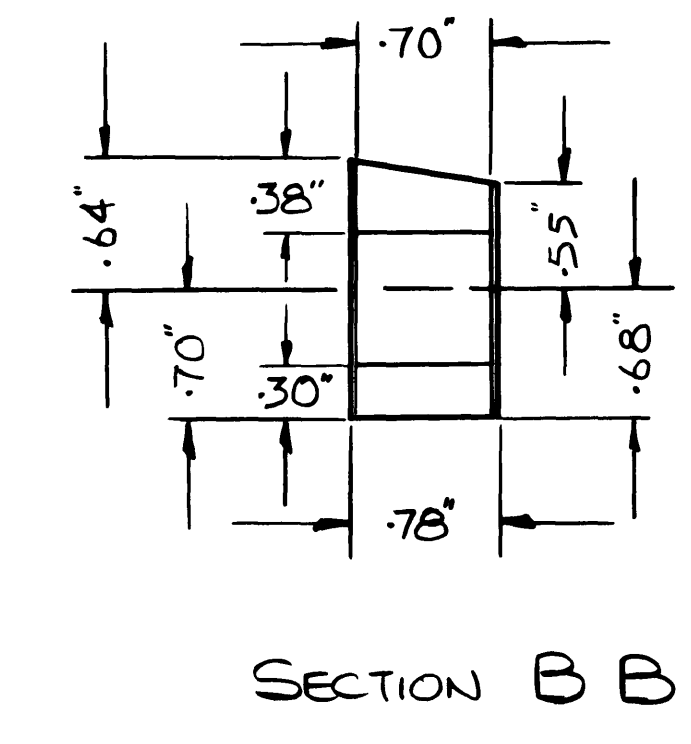
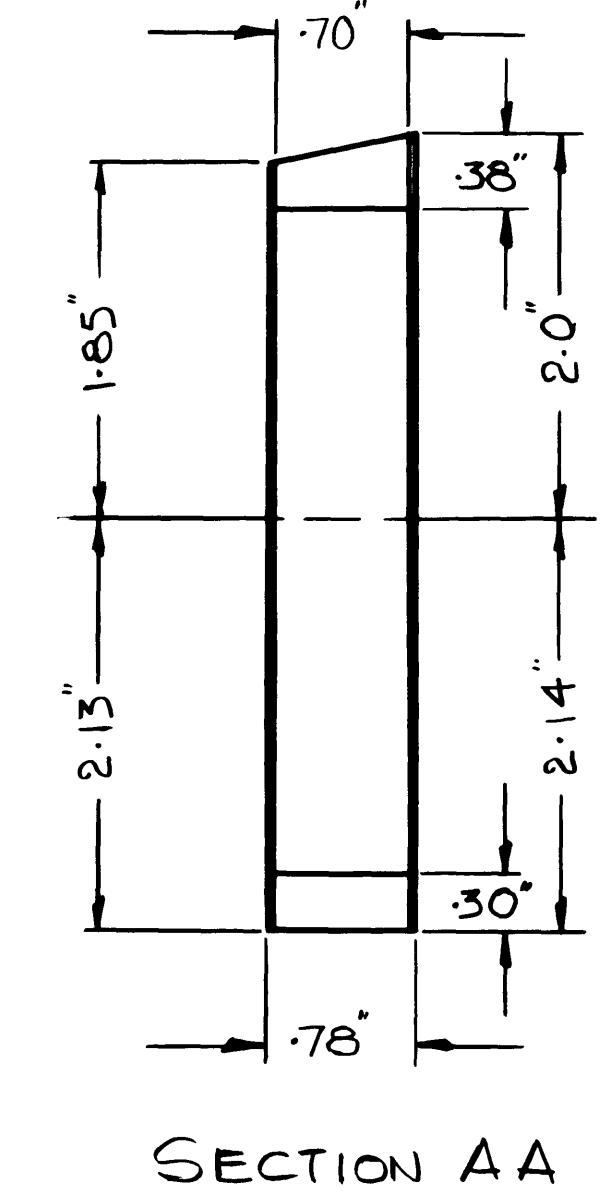
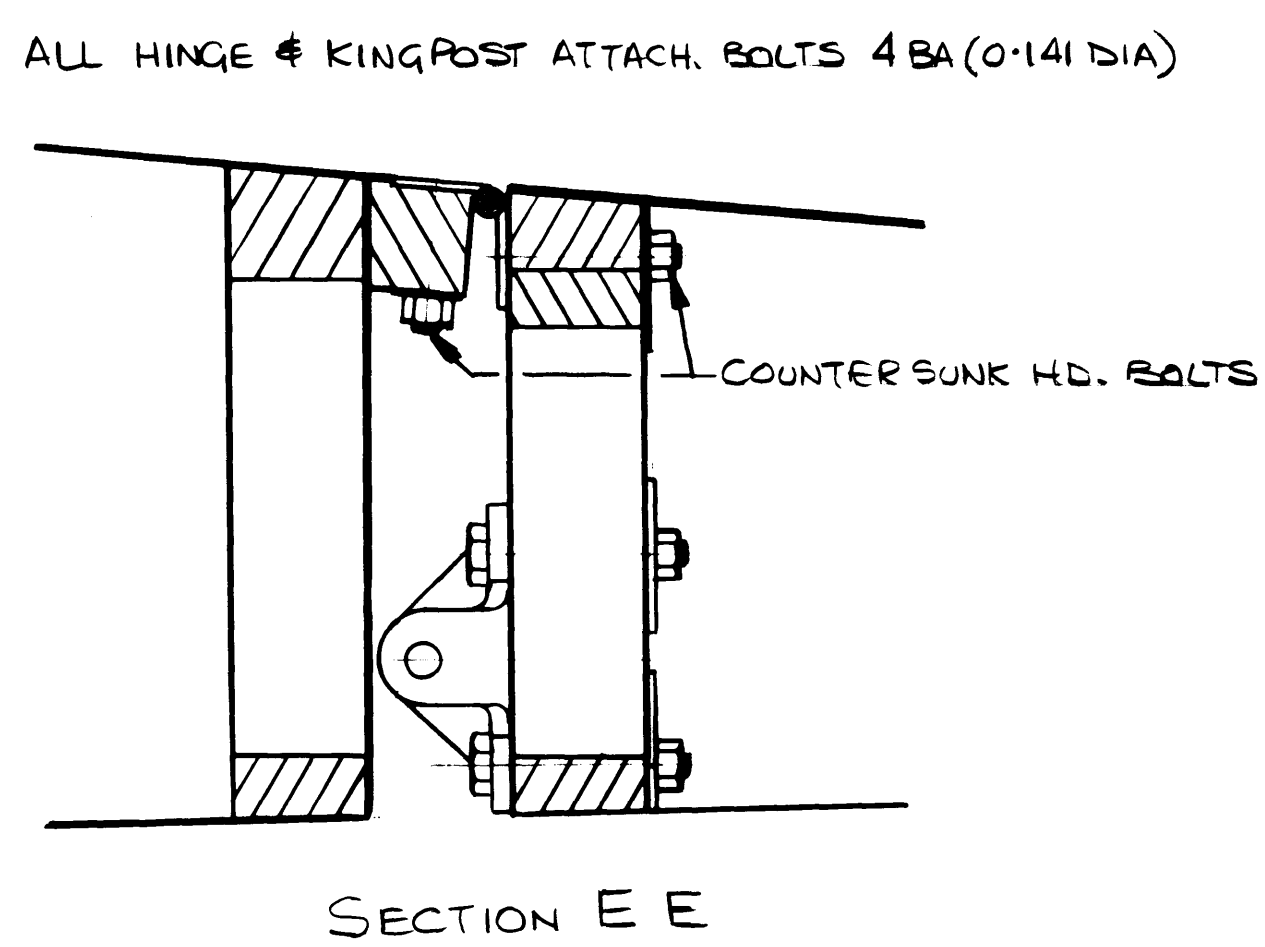
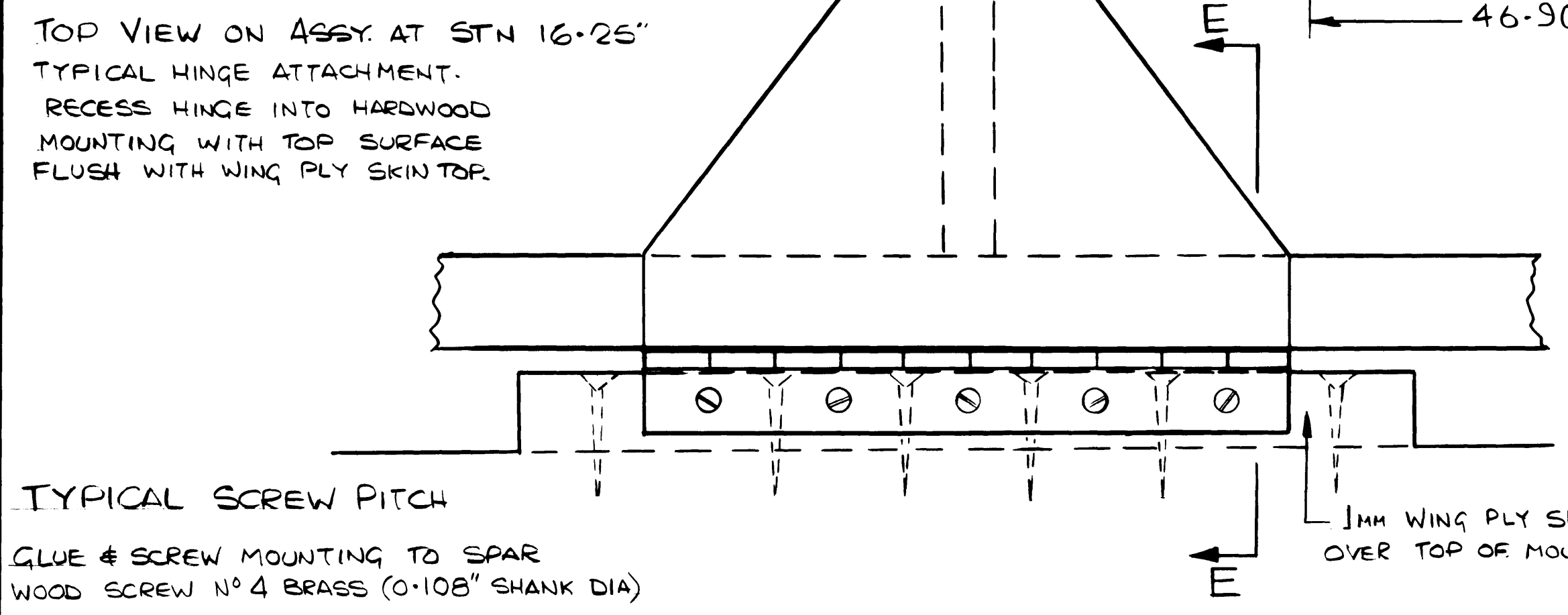
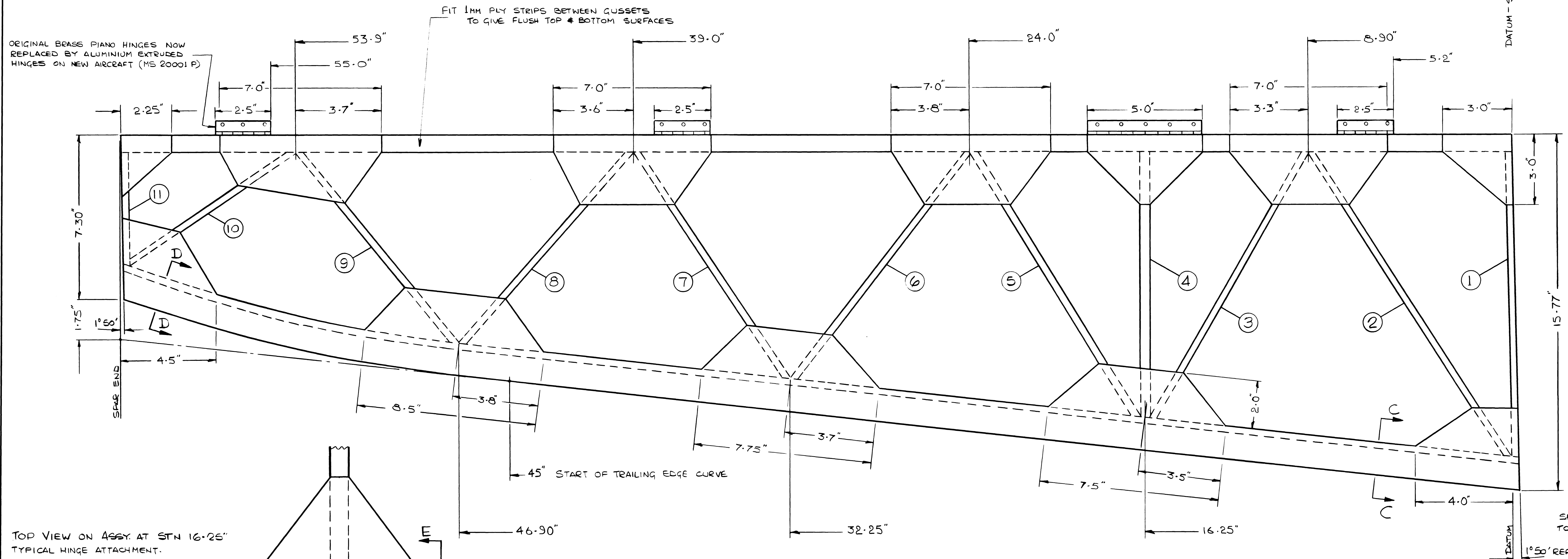
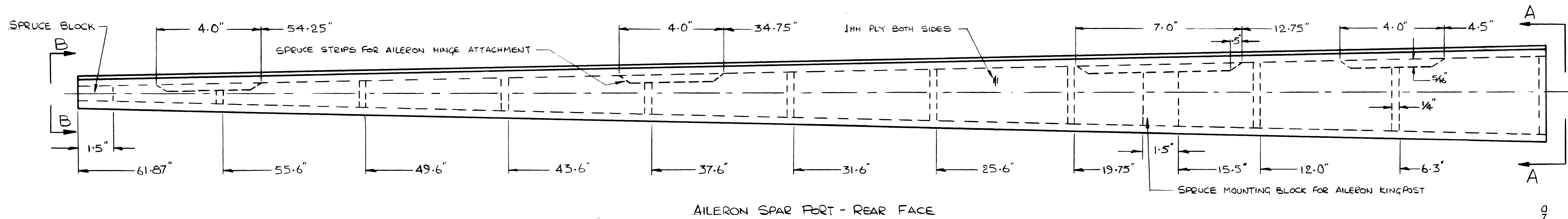
NOTE: 1/4 x 3/8" SLOTS (2 OFF) CUT SQUARE TO OUTER PROFILE

D	IR.	ISSUE	CHILTON AIRCRAFT	
T				
C			MAT	SPEC (LATEST ISSUE)
APPD				
DATE ISSUED	SCALE	FINISH	PROCESSES	
	N.T.S.			
ASSMD ON	LIMITS (UNLESS STATED)	PROCESSES		
	+0.00" -0.00"			
DESCRIPTION: RIBS 2-10			DRG No.	
WING INTER RIB SECTIONS			W.09	

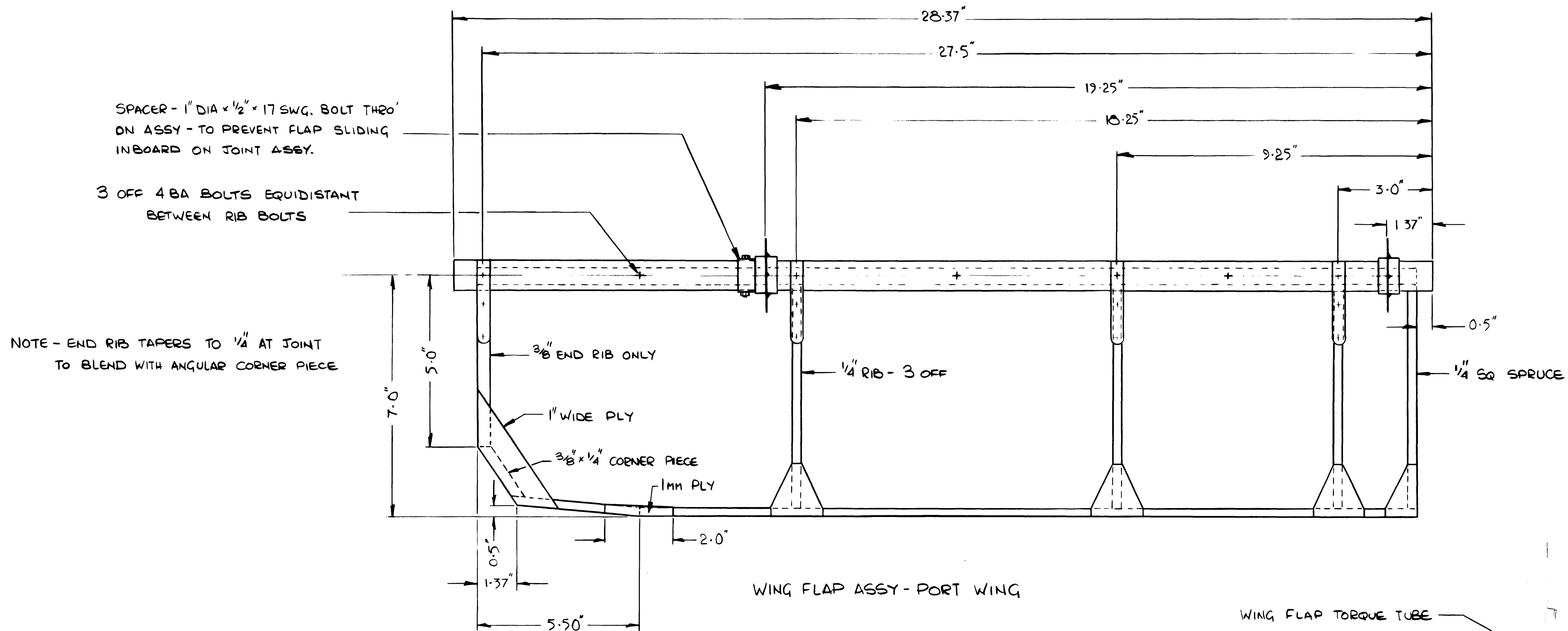


PORT WING - LOWER SURFACE INBOARD, WITH FLAP IN PLACE
 ALL PLY GUSSETS ON TOP SURFACE OMITTED FOR CLARITY

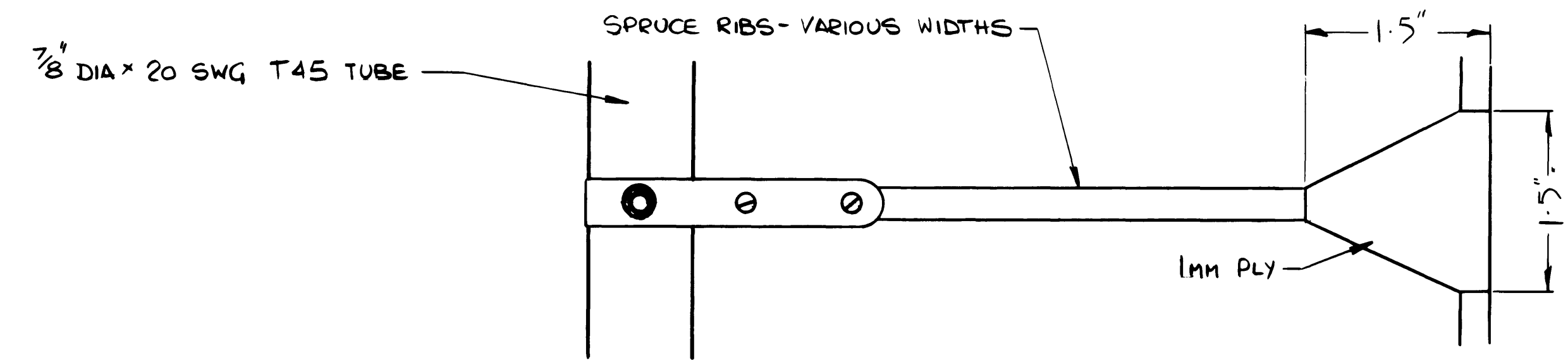
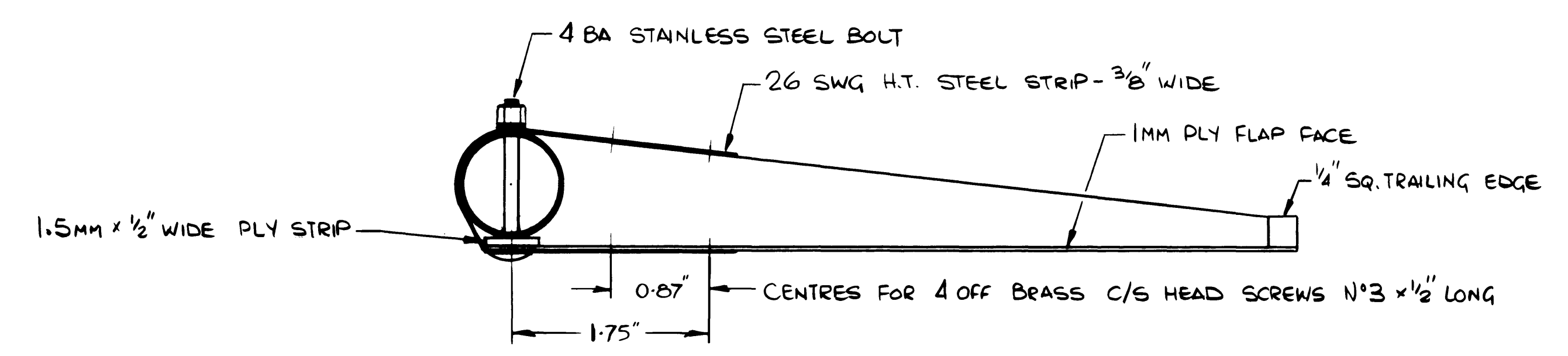
DRN	ISSUE	CHILTON AIRCRAFT	
T		MAT	SPEC. (LATEST ISSUE)
C			
APPD.			
DATE ISSUED	SCALE	FINISH	PROCESSES
ASSMD. ON	LIMITS (UNLESS STATED)	No. OFF	
DESCRIPTION LOWER WING SURFACE			DRG. No. W.10



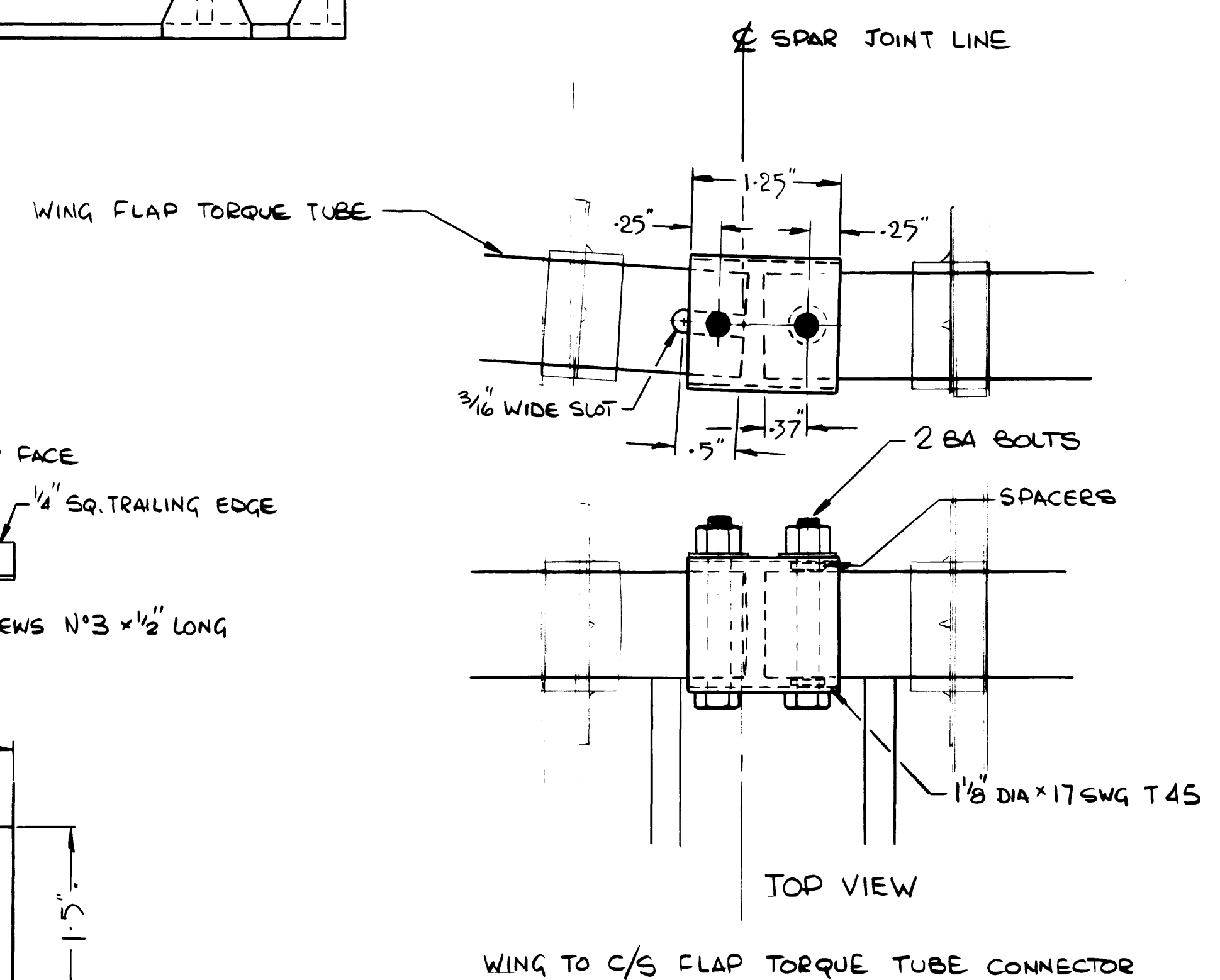
D	RN	ISSUE	2	CHILTON AIRCRAFT	
T				MAT	SPEC. (LATEST ISSUE)
C					
APPD.					
DATE ISSUED		SCALE		FINISH	PROCESSES
ASSMD ON		LIMITS (UNLESS STATED)		No	OFF
DESCRIPTION	AILERON G.A.			DRG. No.	W.11



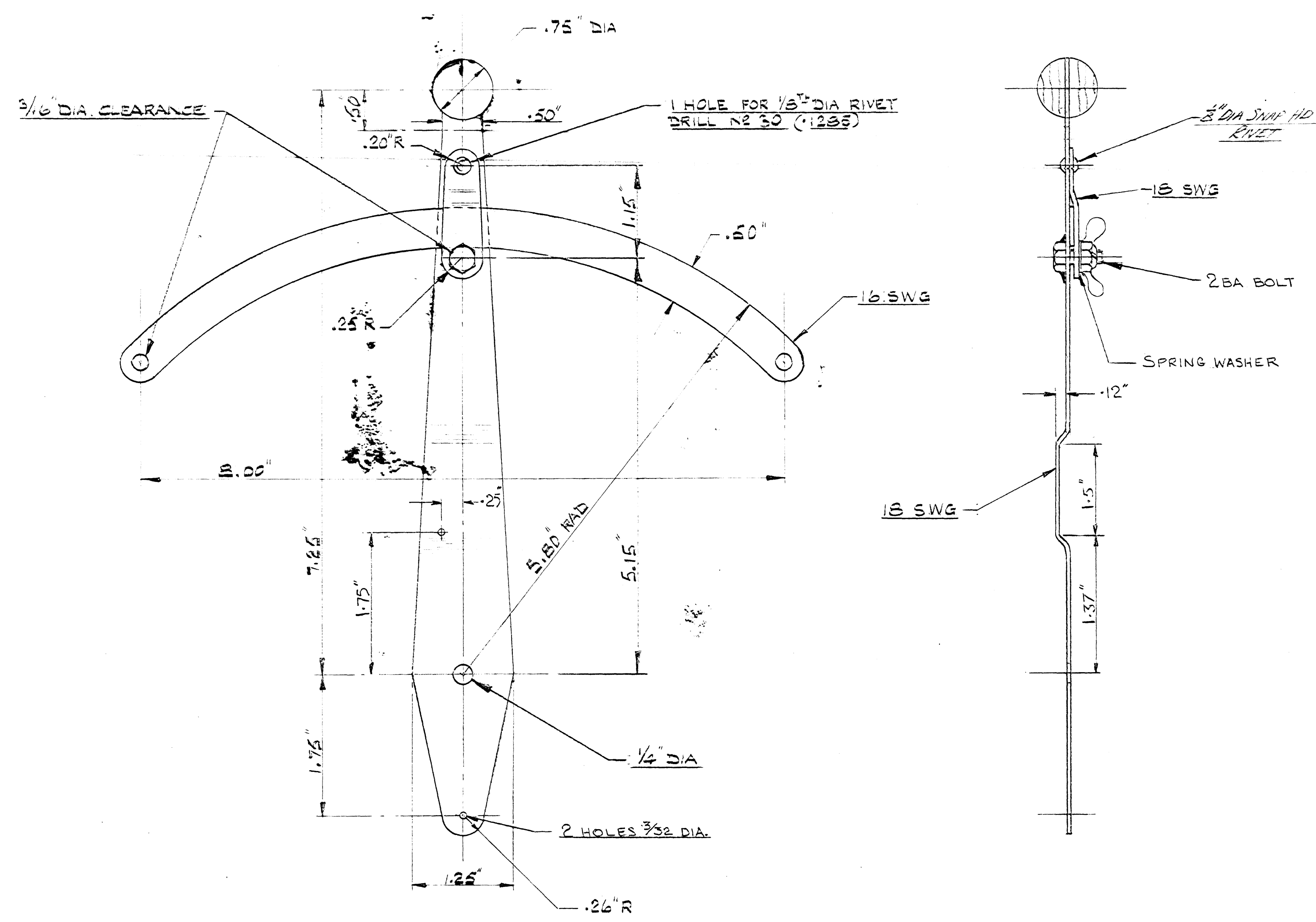
NOTE - CUT AWAY PLY LOCALLY UNDER BOTH FLAP BEARING FITTINGS & SPACER TO MAINTAIN A FLAT PLY UNDERSTRUCTURE.



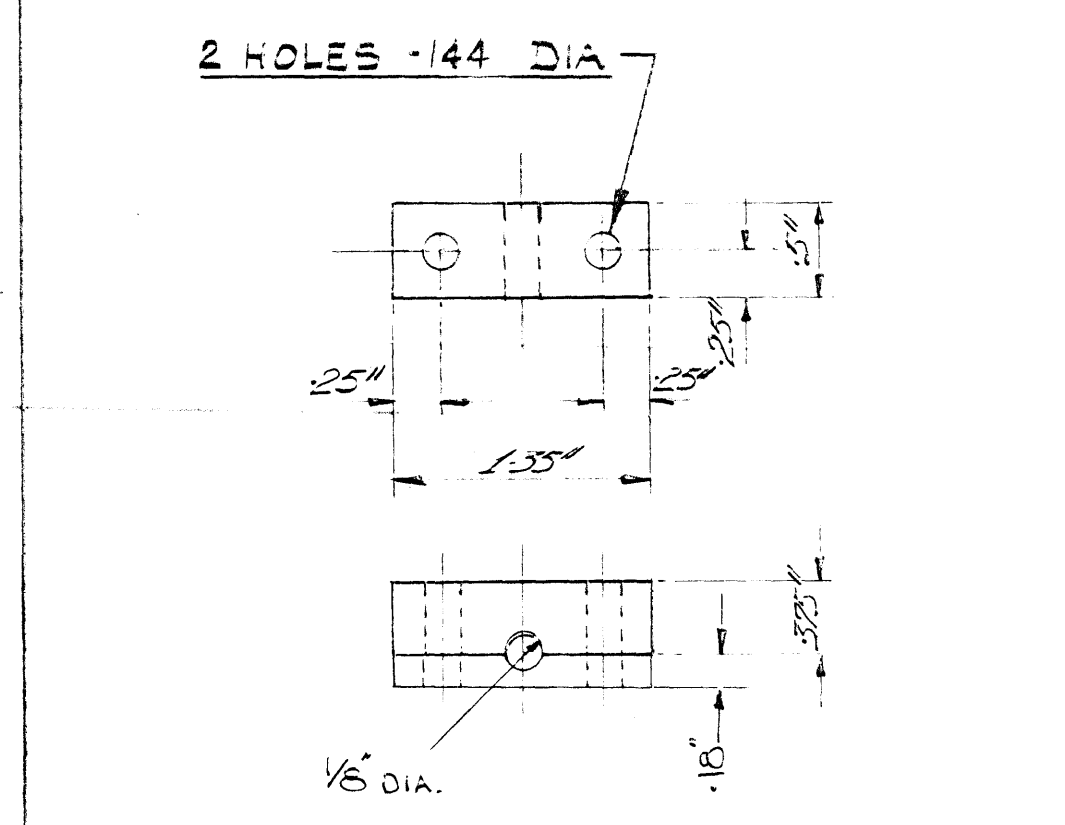
TYPICAL RIB CONSTRUCTION - WING & C/S FLAP



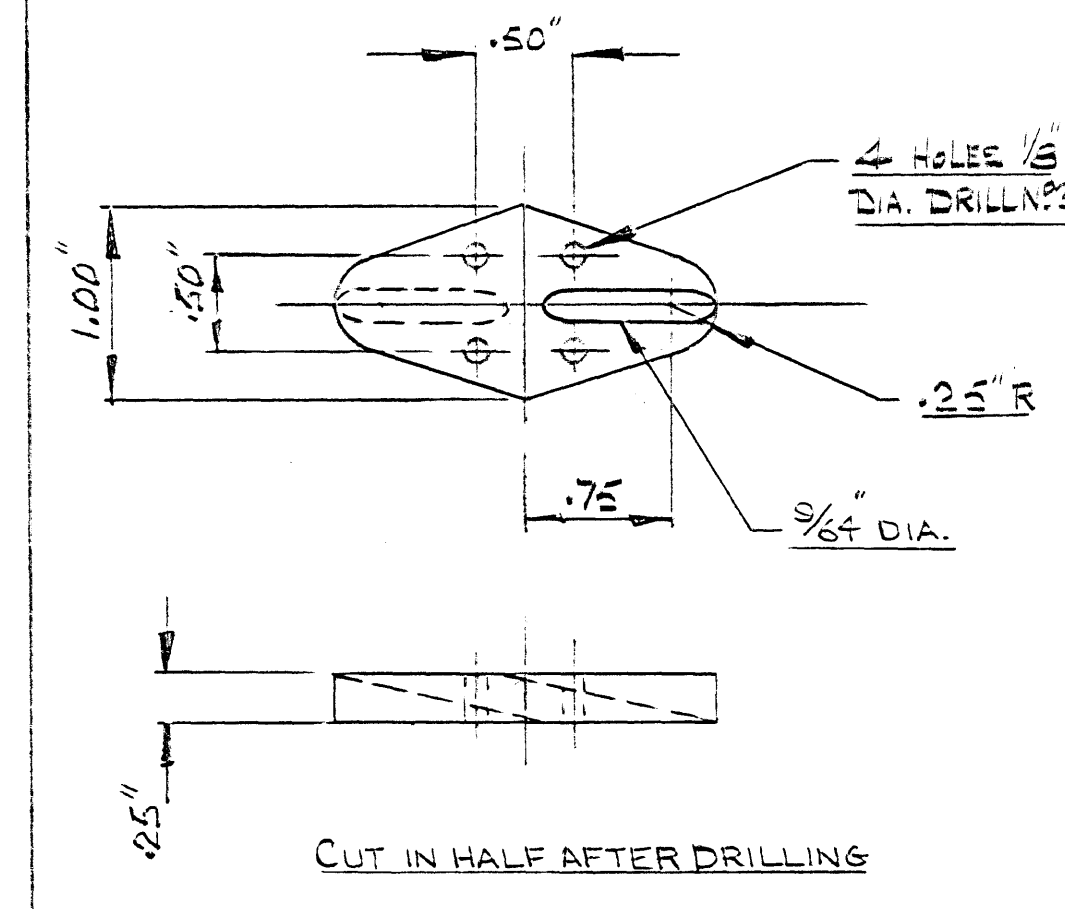
D R N	ISSUE	CHILTON AIRCRAFT	
T.		MAT	SPEC. (LATEST ISSUE)
C.			
APPD.			
DATE ISSUED	SCALE	FINISH	PROCESSES
ASSMD. ON	LIMITS (UNLESS STATED)	No. OFF	
DESCRIPTION	WING FLAPS		DRG. No. W.15



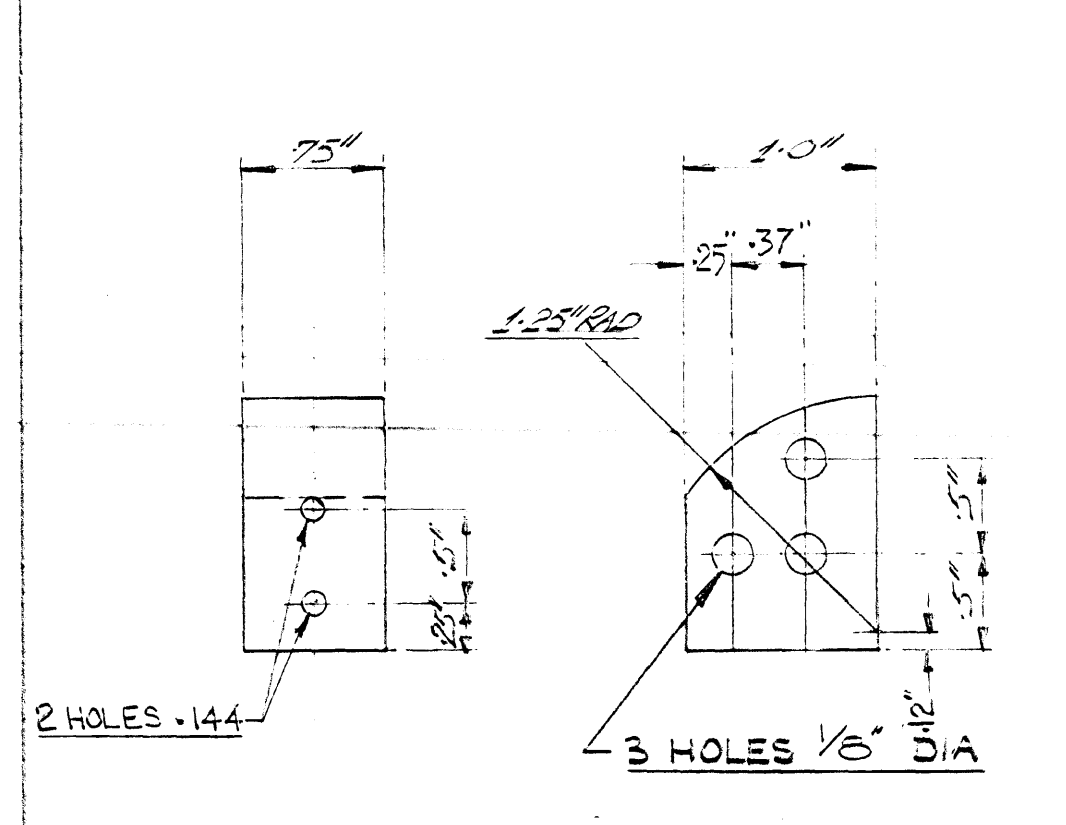
MAT'L	5510
ITEM #	370 1/16 OFF 1
TITLE	TAIL TRIM LEVER ARM ASSEMBLY



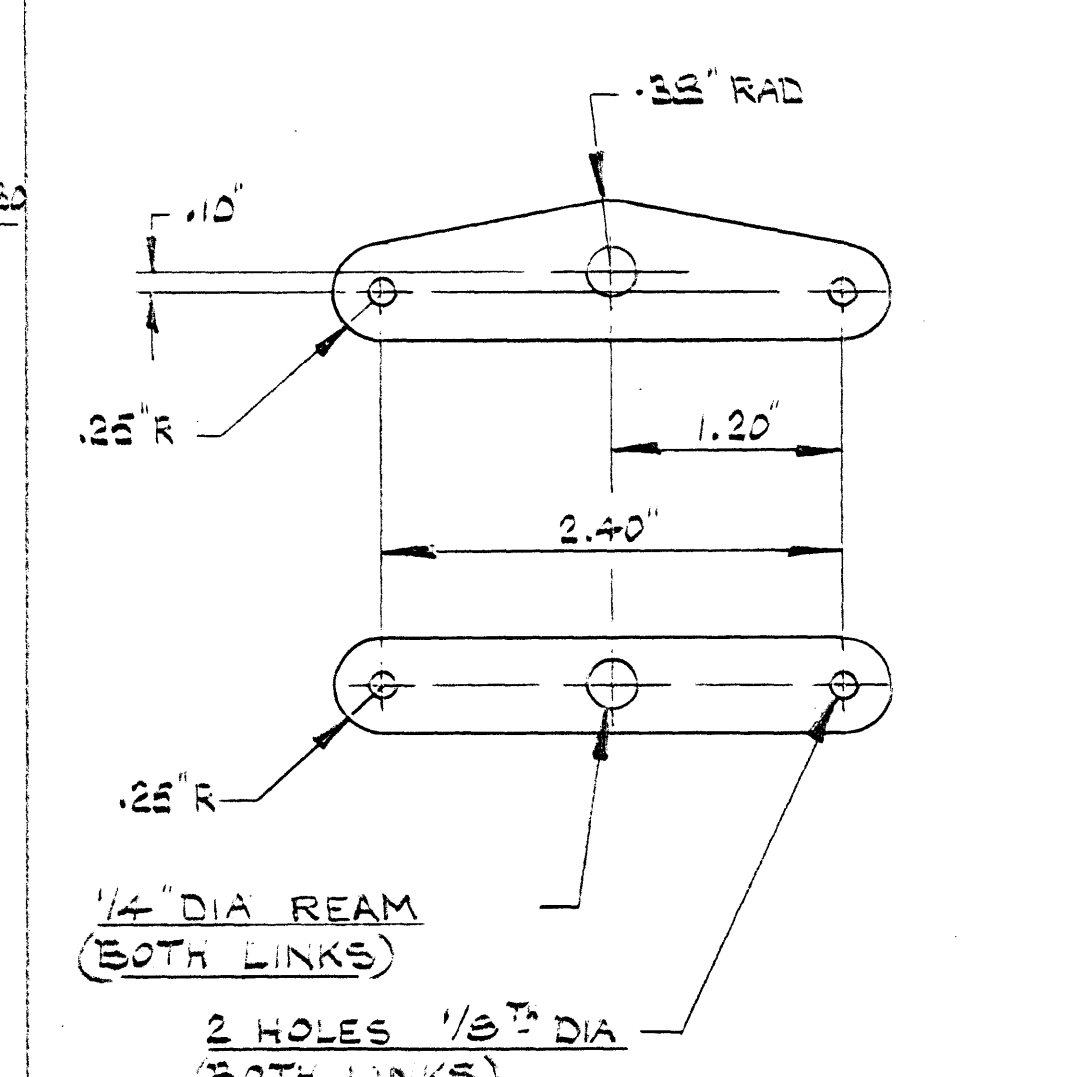
MAT'L	RED FIBRE
ITEM #	363 1/16 OFF 2 SETS
TITLE	RUDDER FAIRLEAD



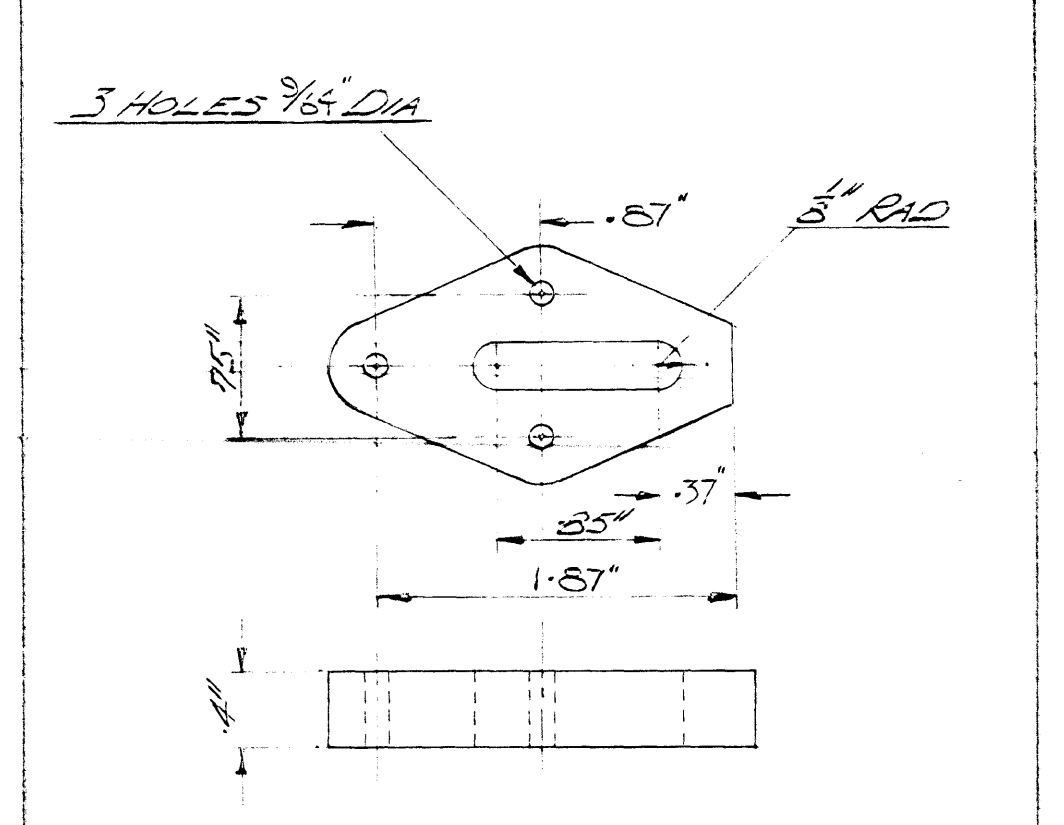
MAT'L	RED FIBRE
ITEM #	367 1/16 OFF 2
TITLE	RUDDER FAIRLEAD



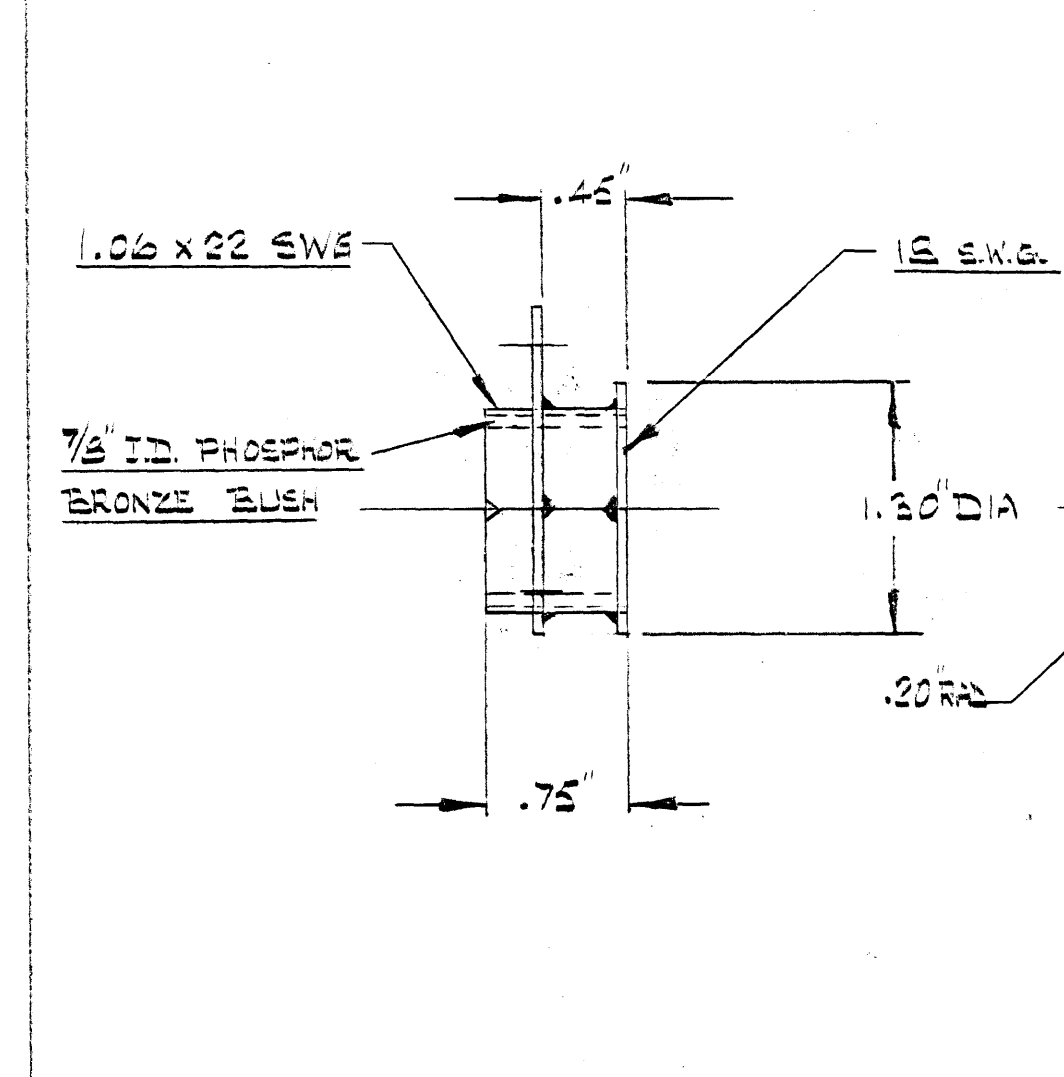
MAT'L	RED FIBRE
ITEM #	364 1/16 OFF 2 SETS
TITLE	COMBINED RUDDER & ELEVATOR FAIRLEAD



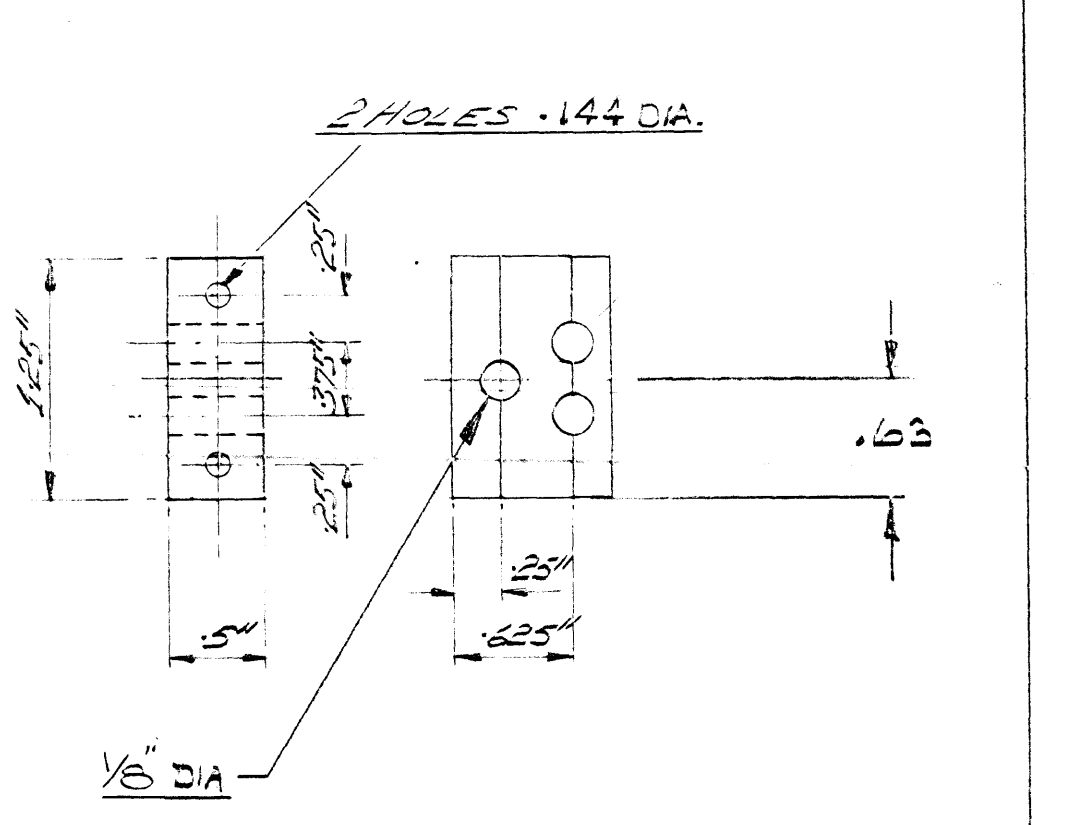
MAT'L	1/4\"/>
ITEM #	368 1/16 OFF 1
TITLE	LINK PLATES



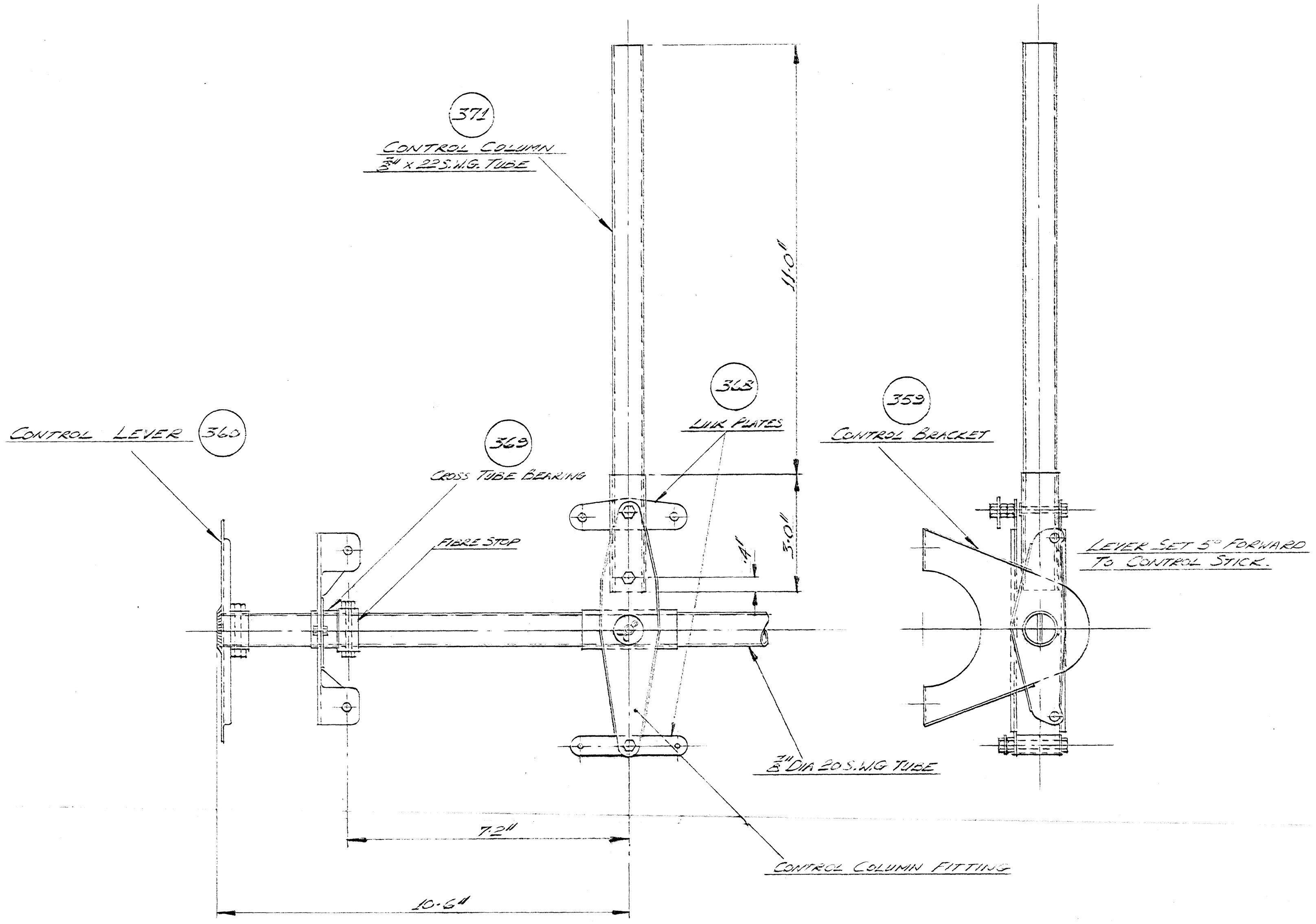
MAT'L	RED FIBRE
ITEM #	365 1/16 OFF 2
TITLE	ELEVATOR FAIRLEAD



MAT'L	5510
ITEM #	369 1/16 OFF 2
TITLE	CROSS TUBE BEARING

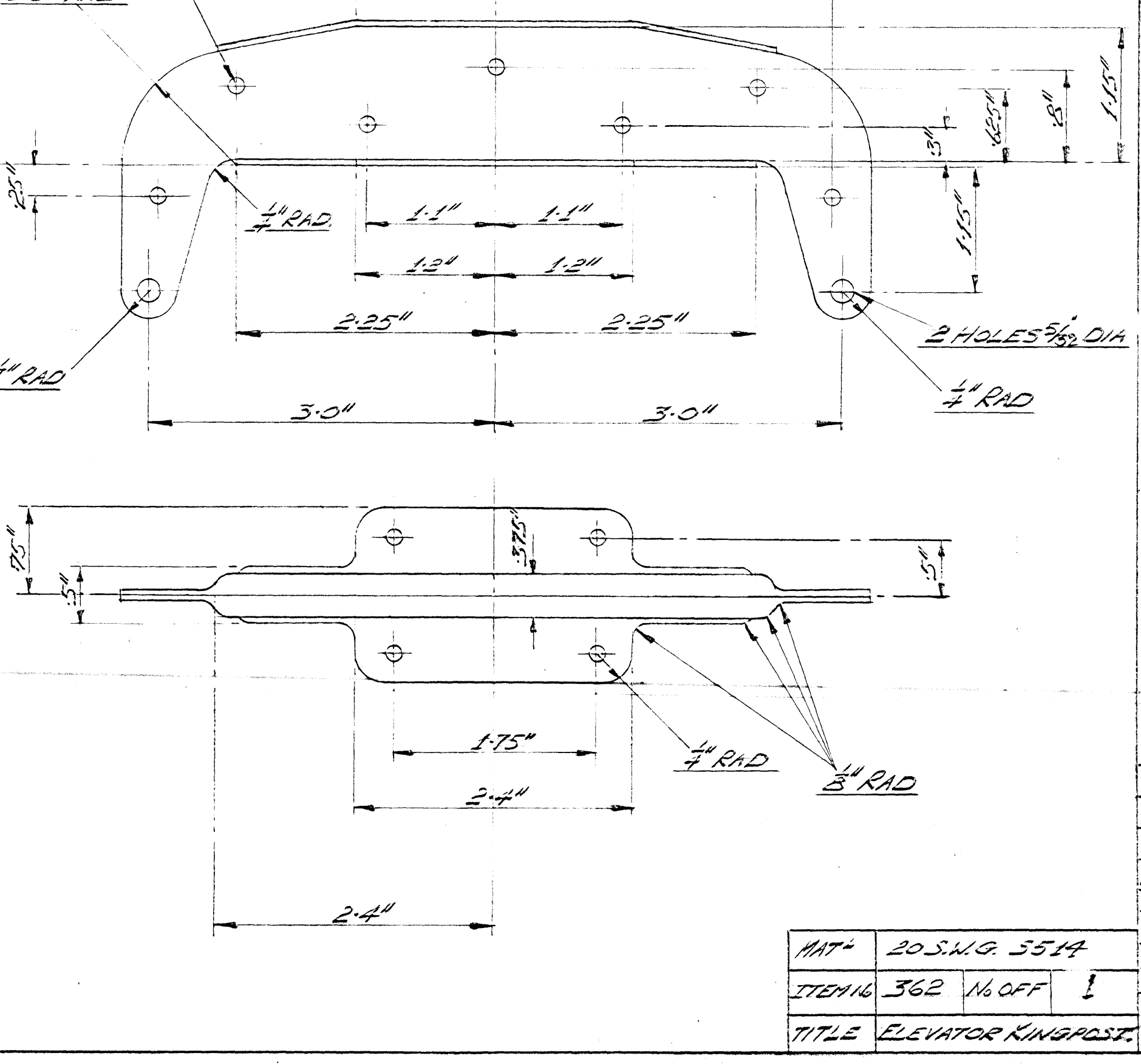
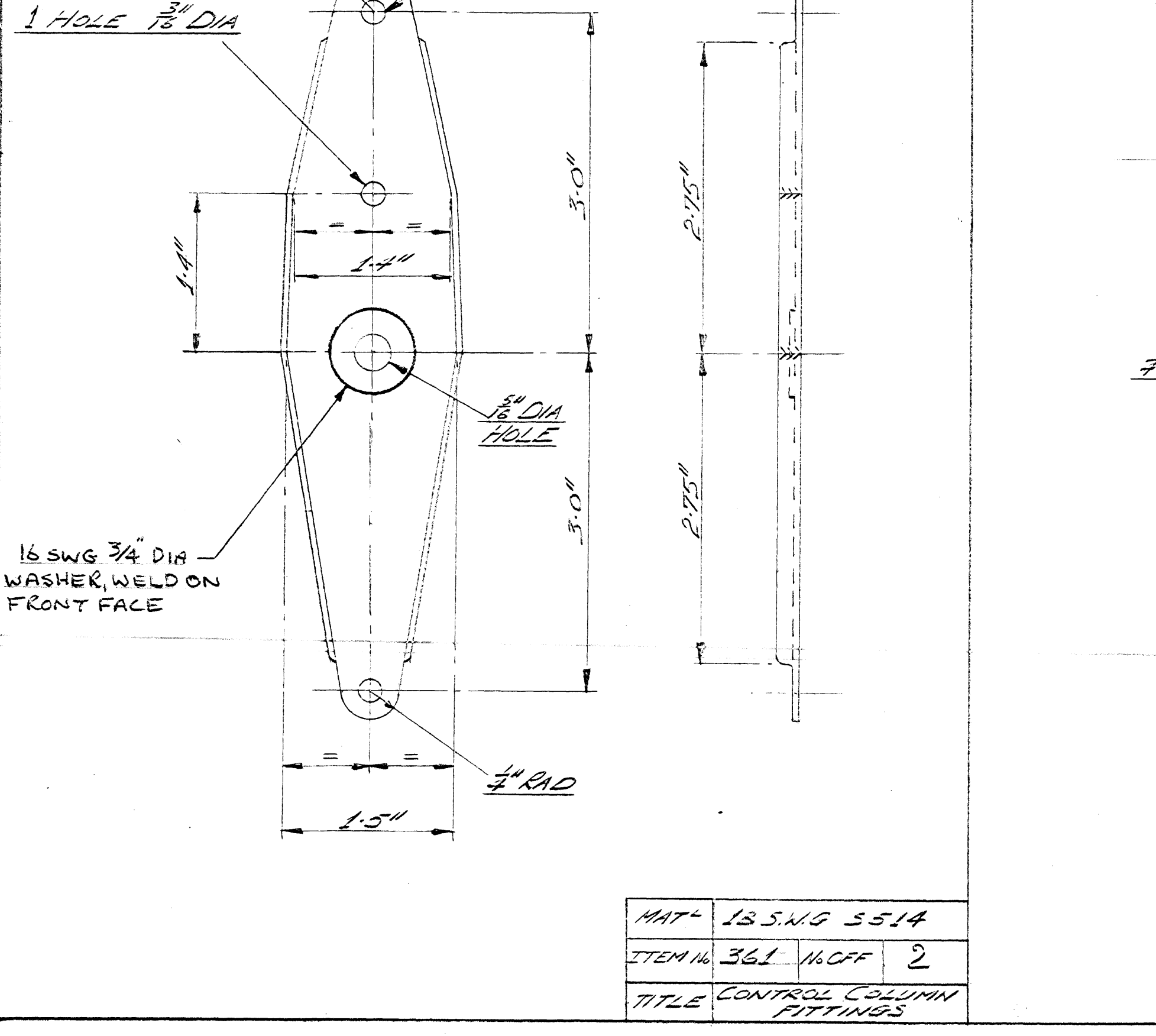
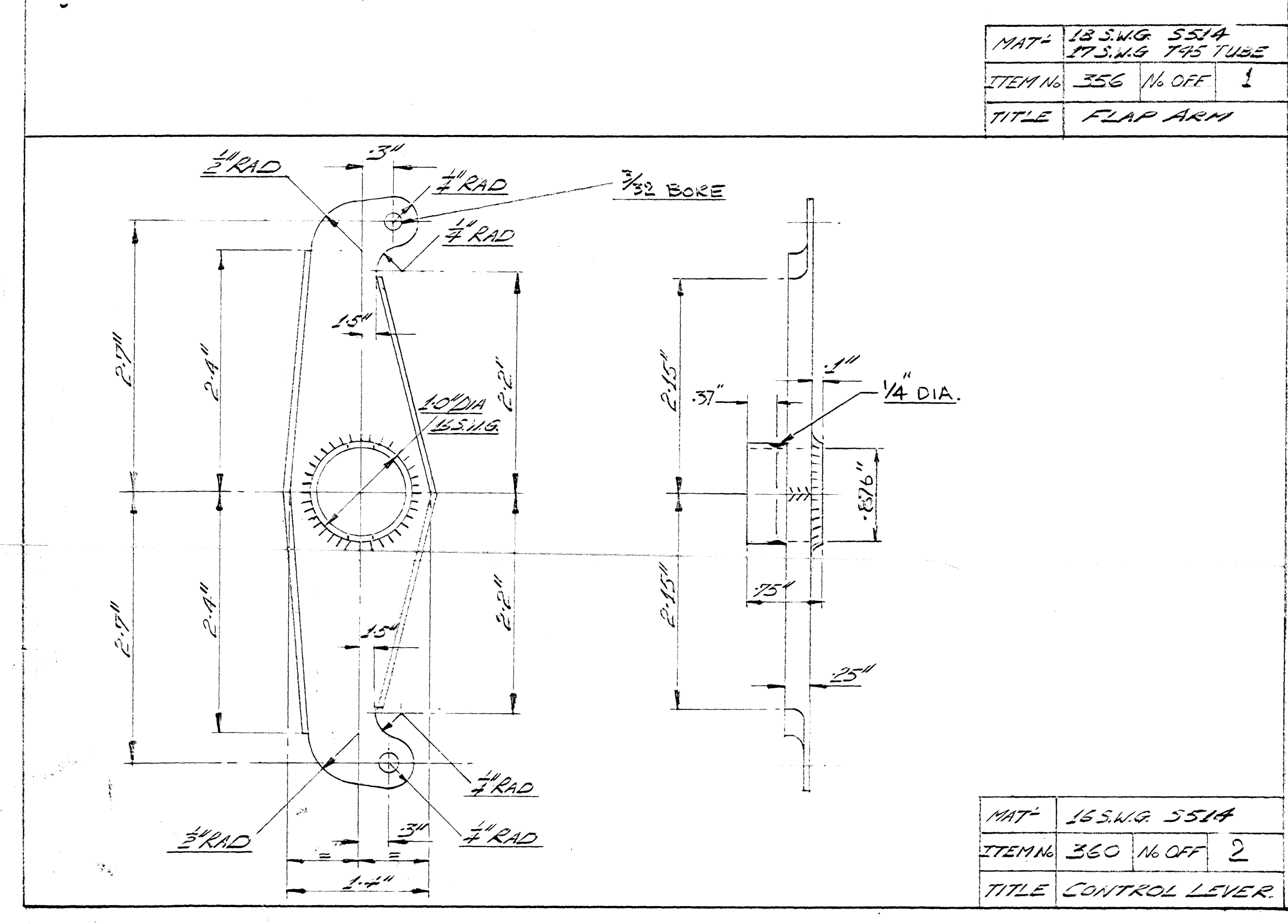
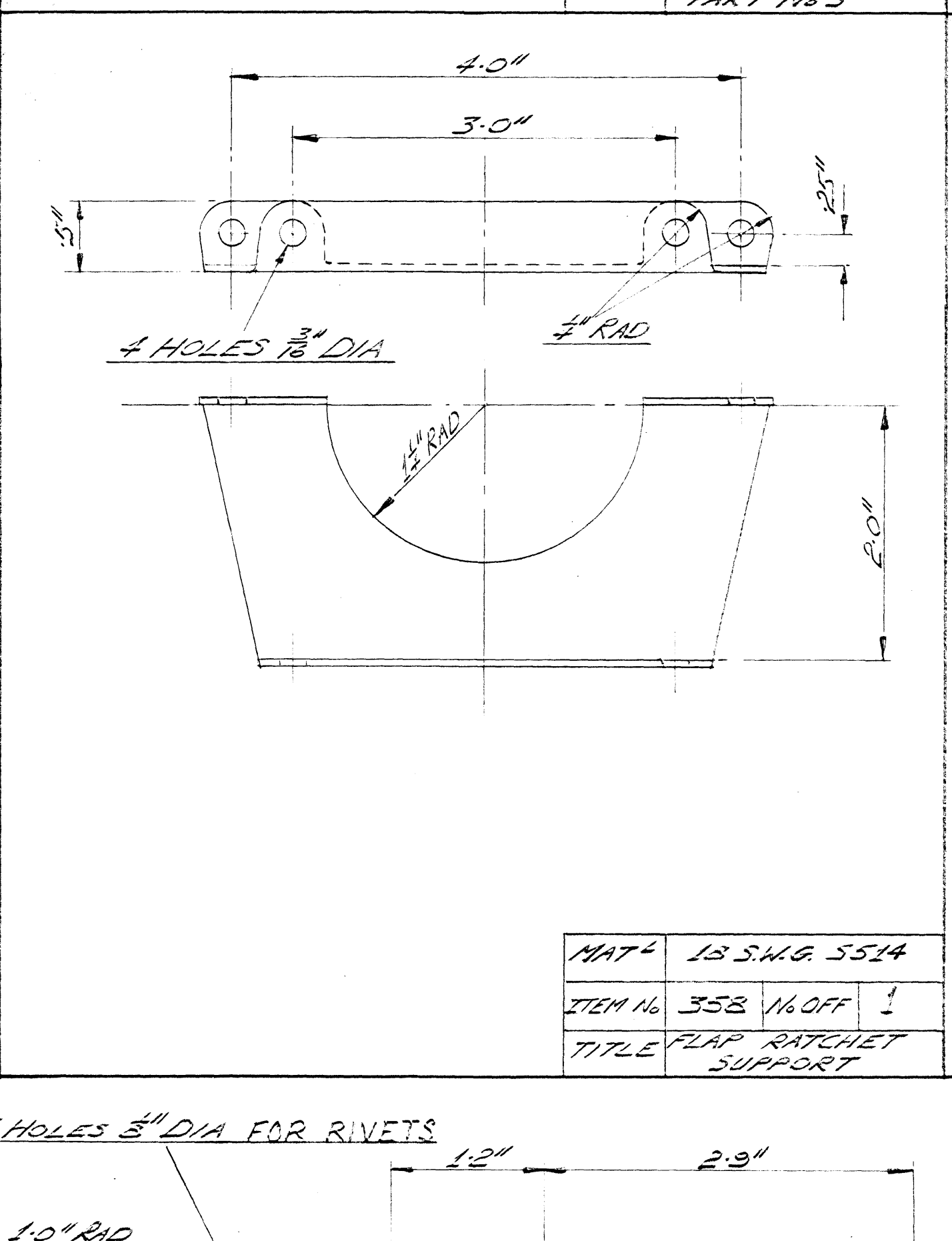
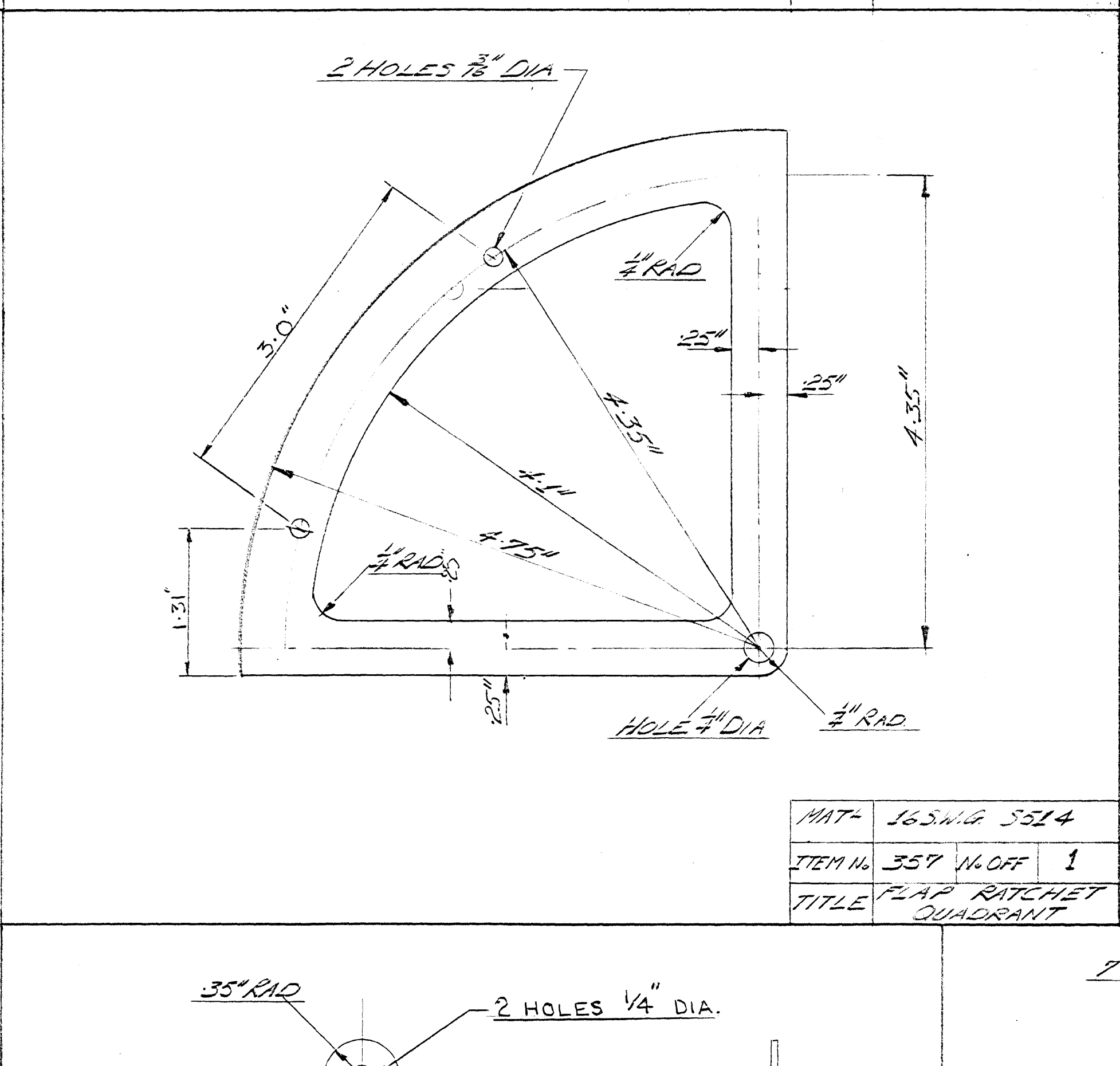
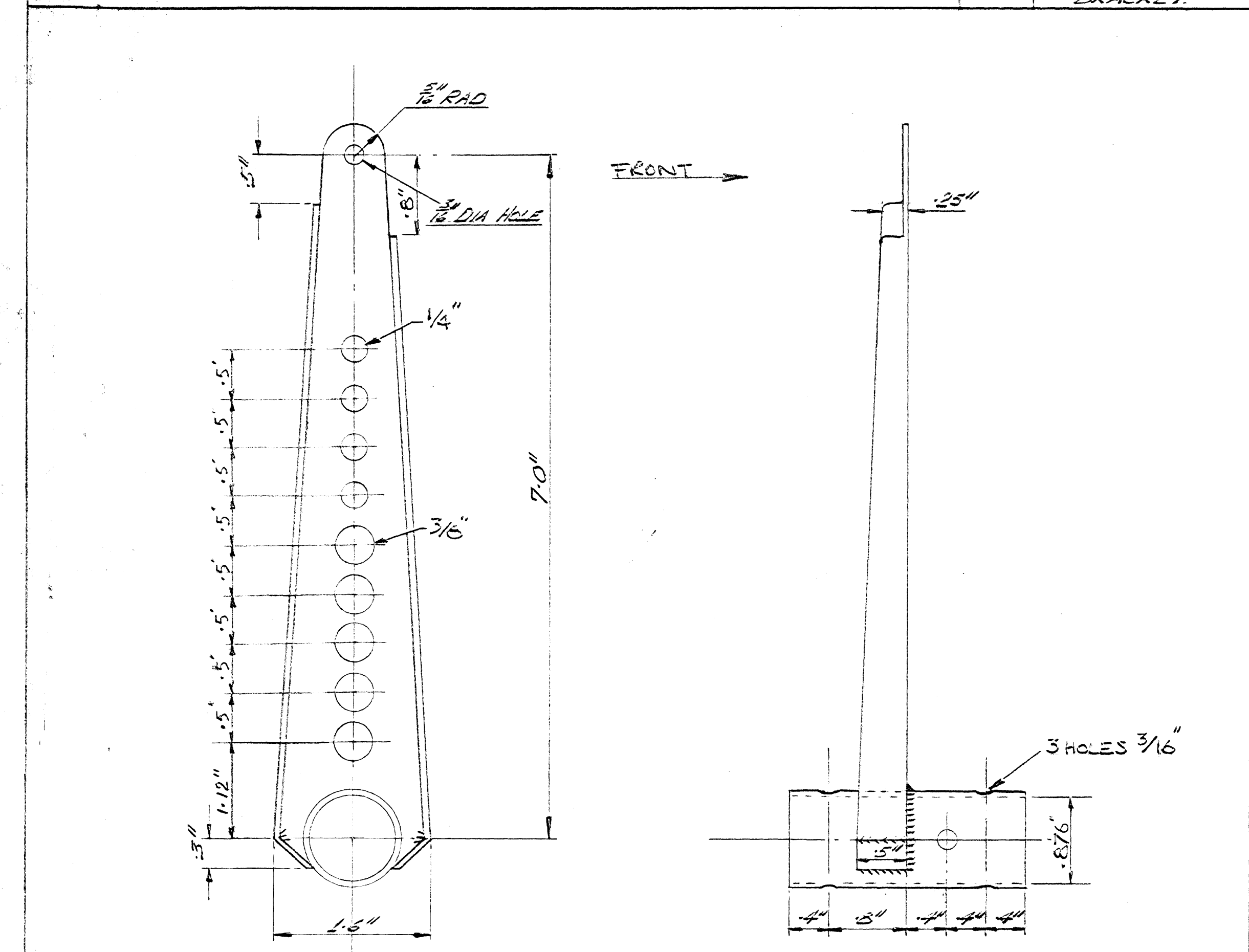
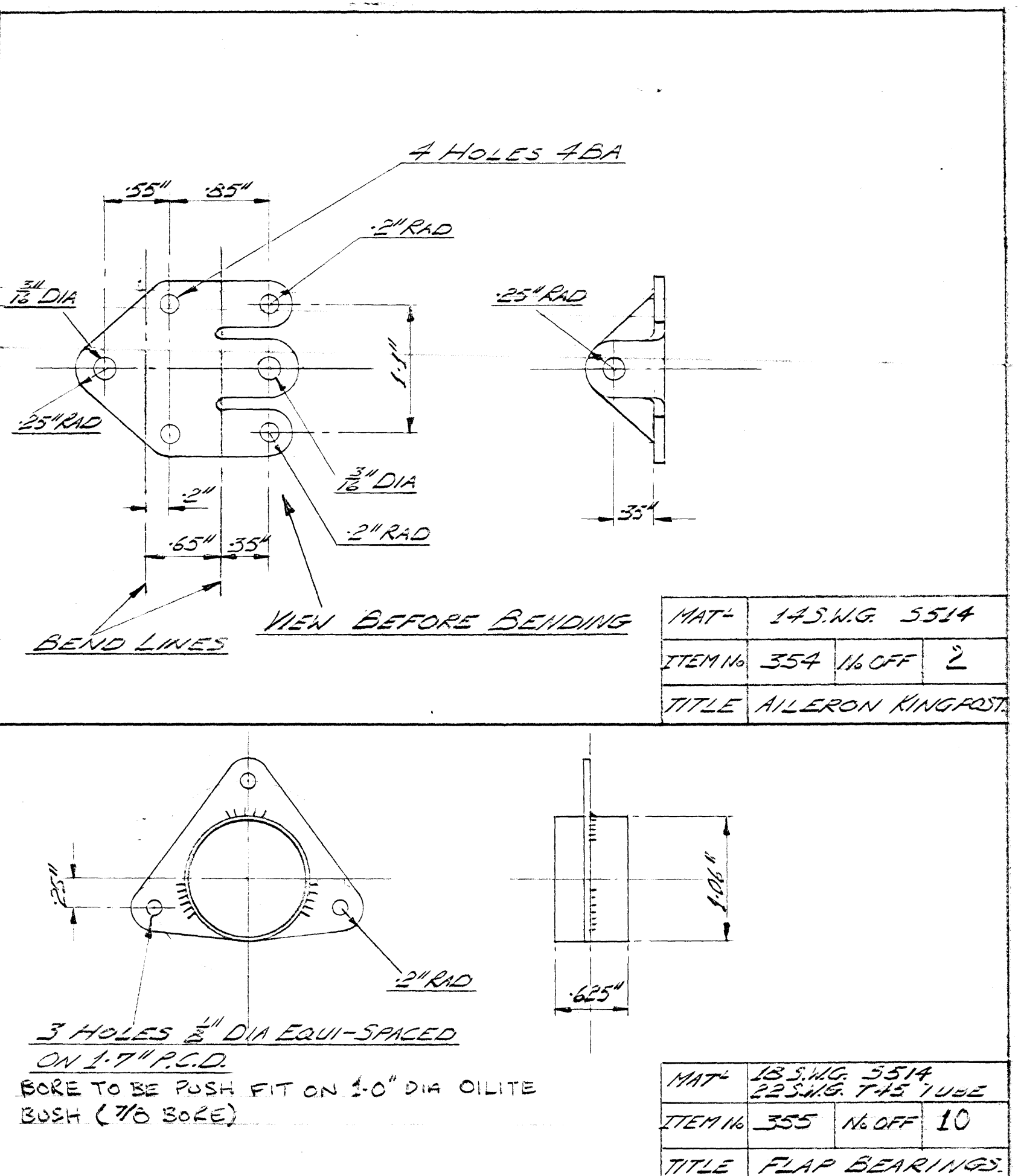
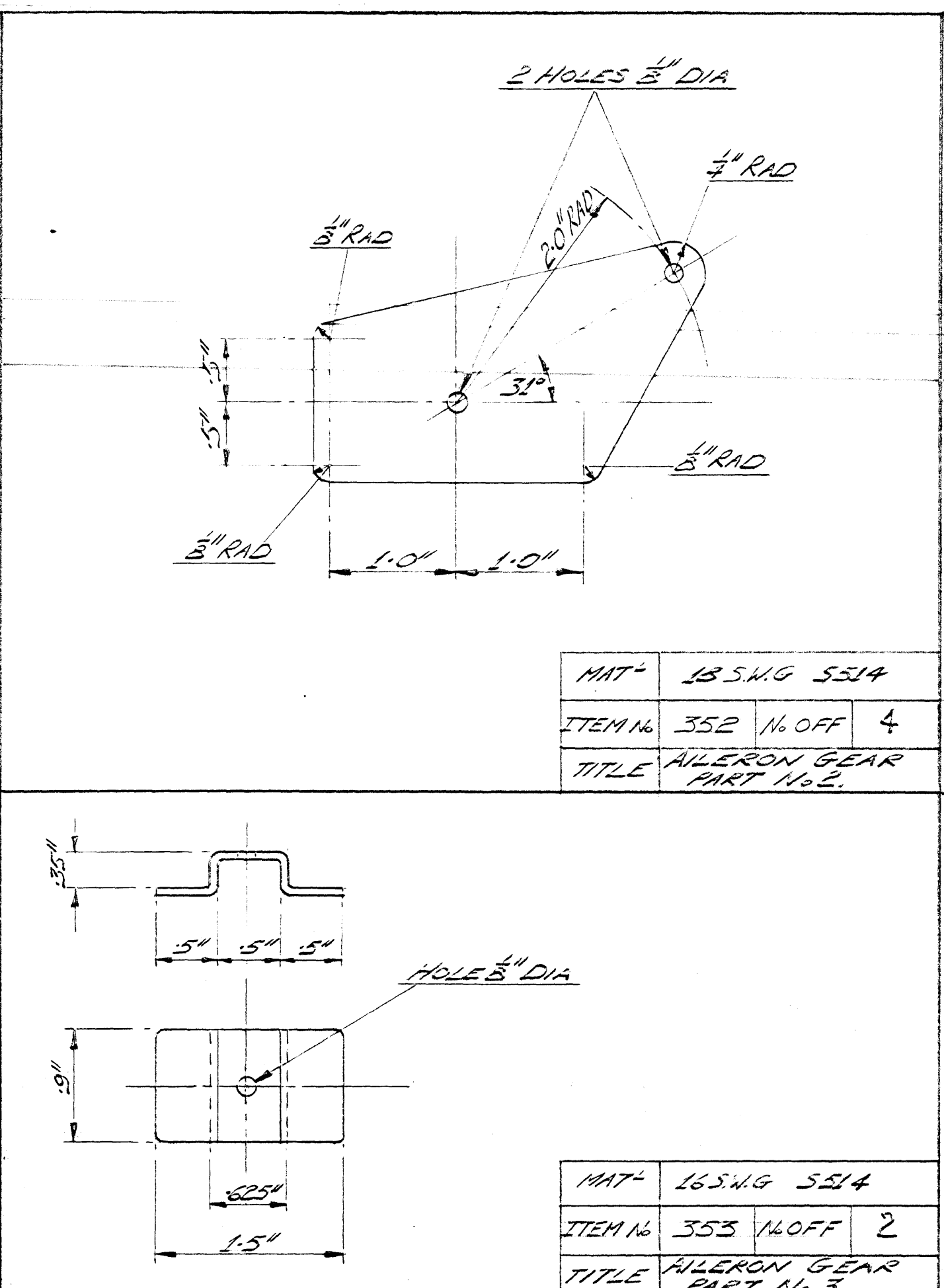
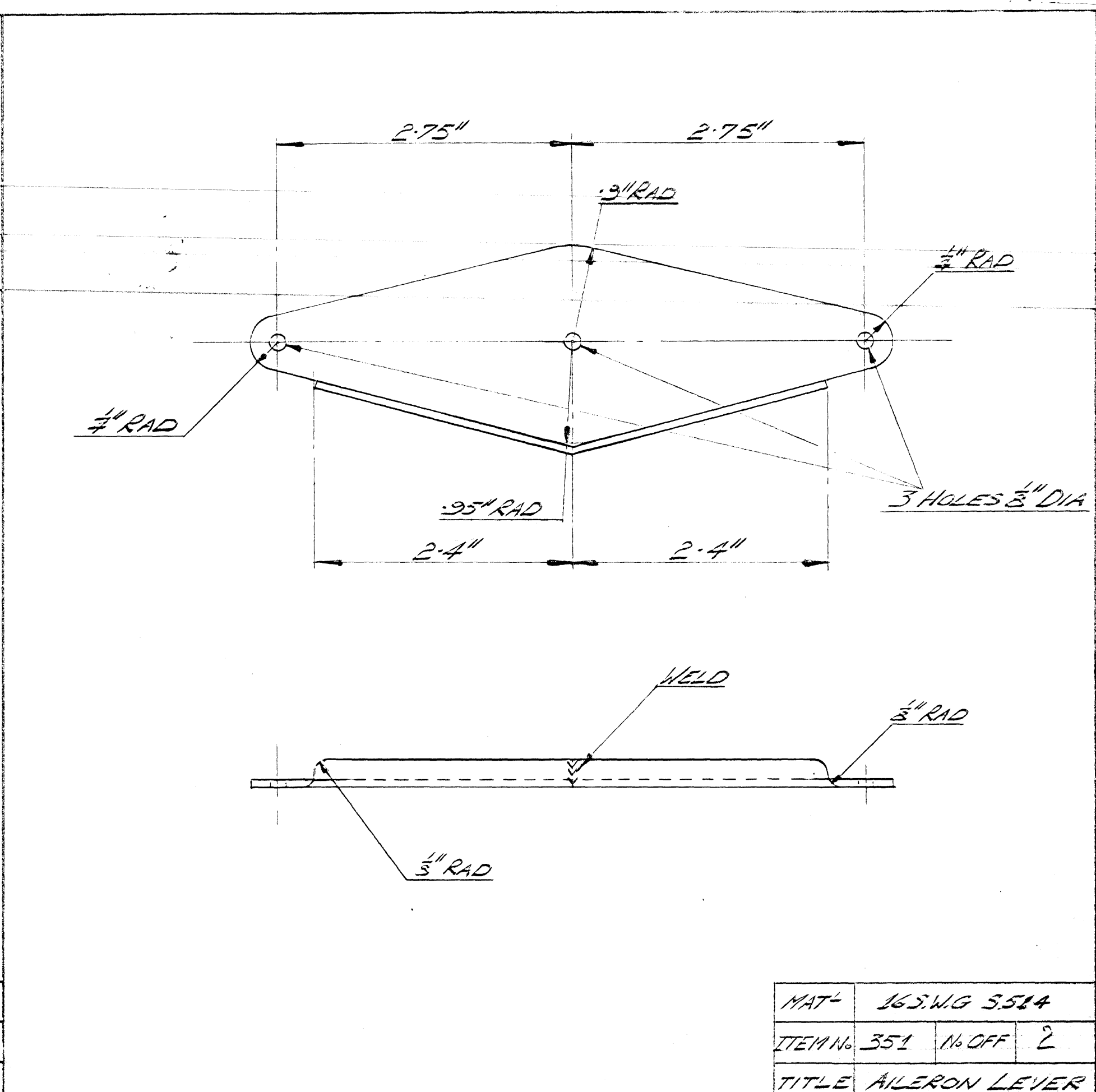
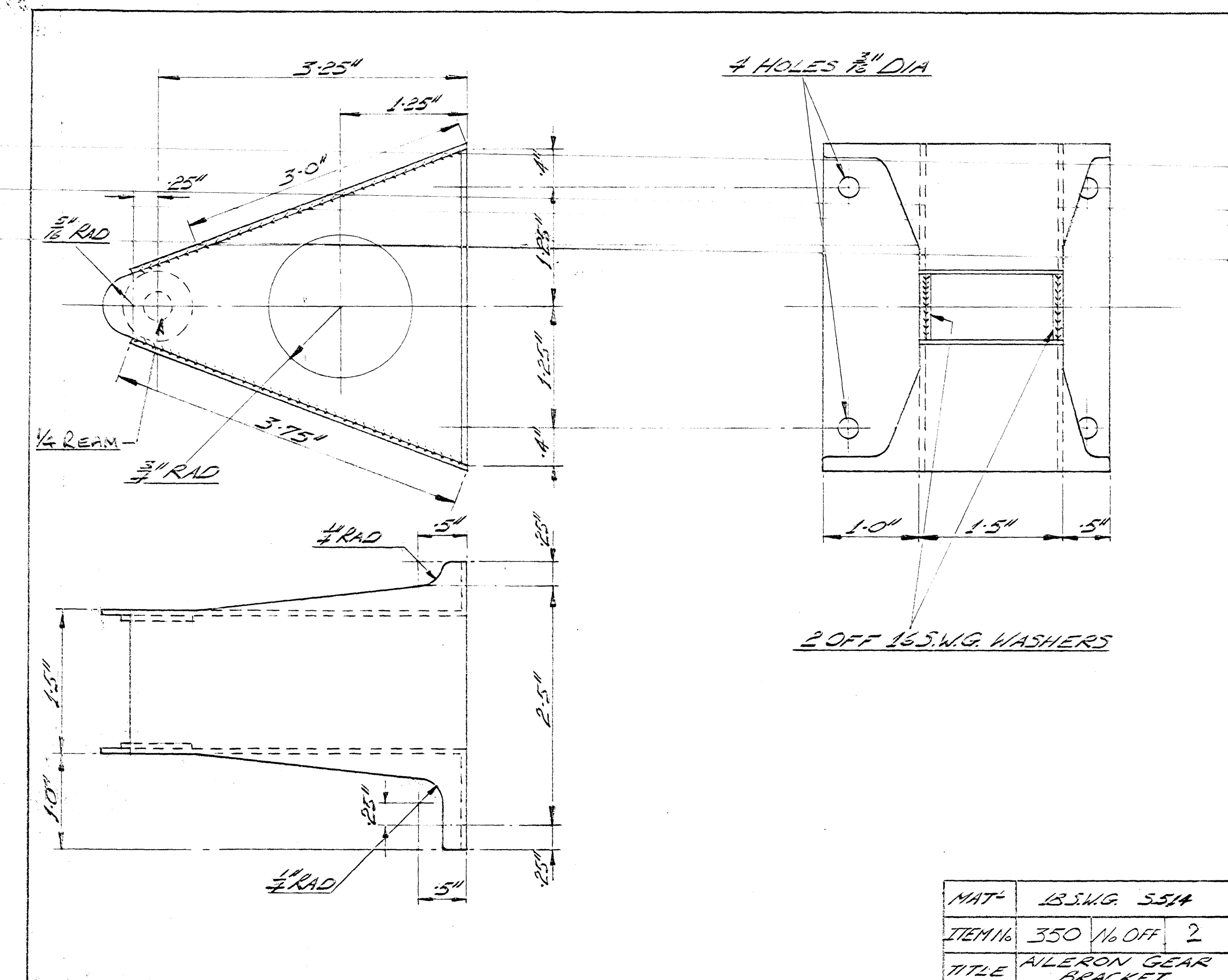


MAT'L	RED FIBRE
ITEM #	366 1/16 OFF 2 SETS
TITLE	RUDDER & ELEVATOR FAIRLEAD



CONTROL DETAILS

D	JR	ISSUE		CHILTON AIRCRAFT
T				
C				
APPD				
DATE ISSUED	SCALE	FINISH	PROCESSES	
ASSY'D ON	LIMITS (UNLESS STATED)	1/16 OFF		
DESCRIPTION	CONTROL DETAILS	DRG No.		M.01

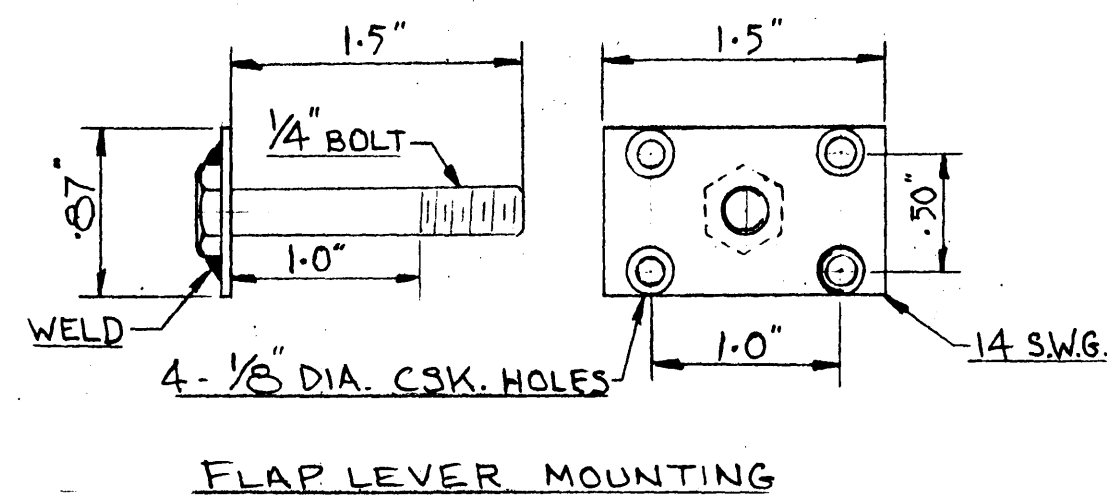
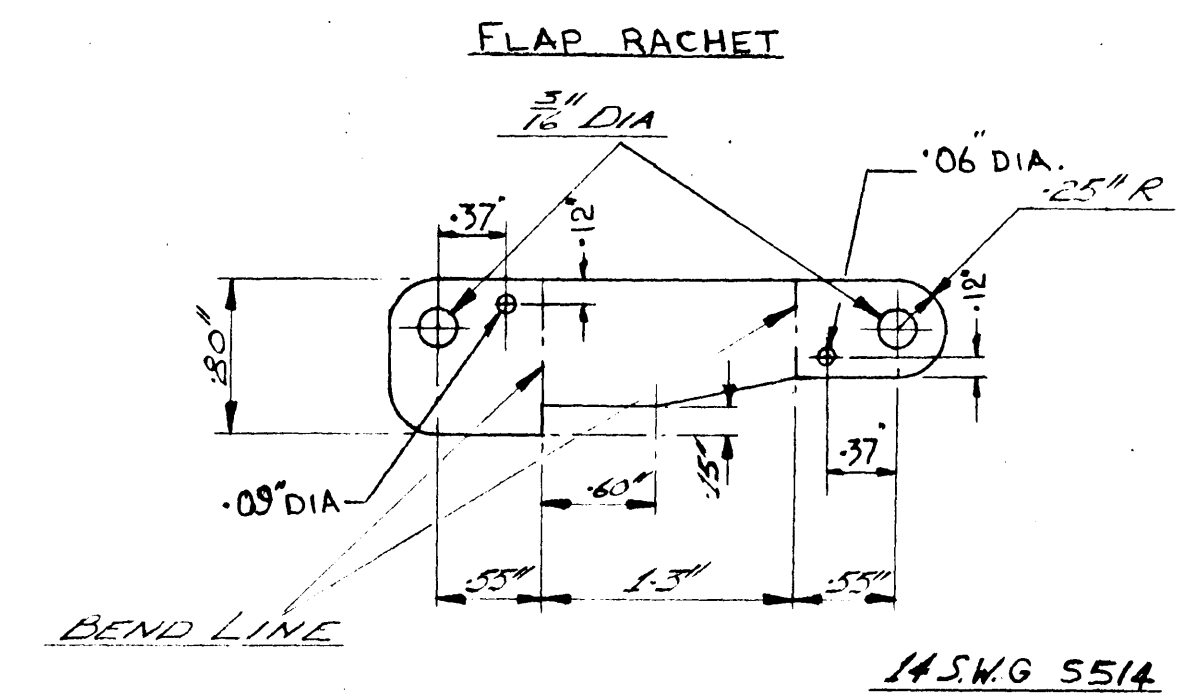
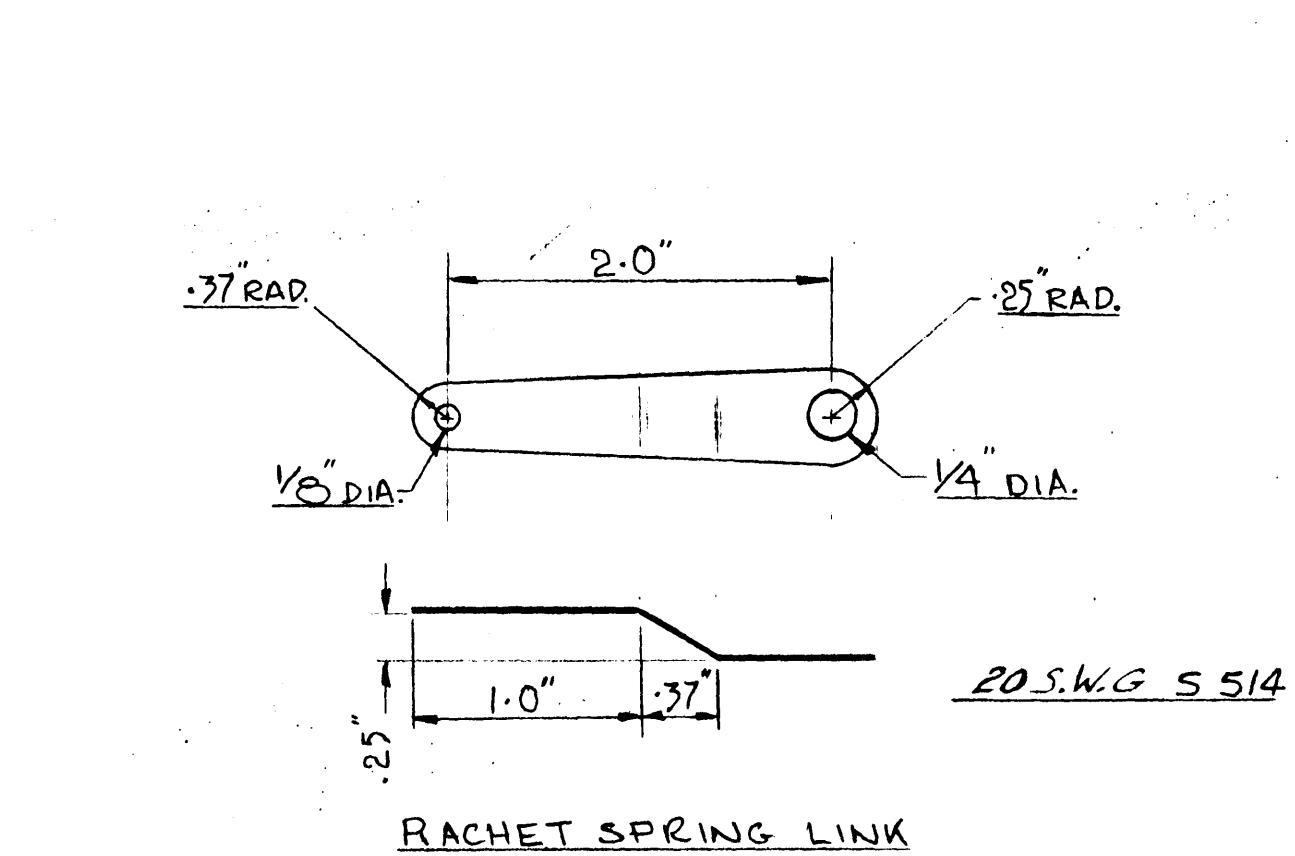
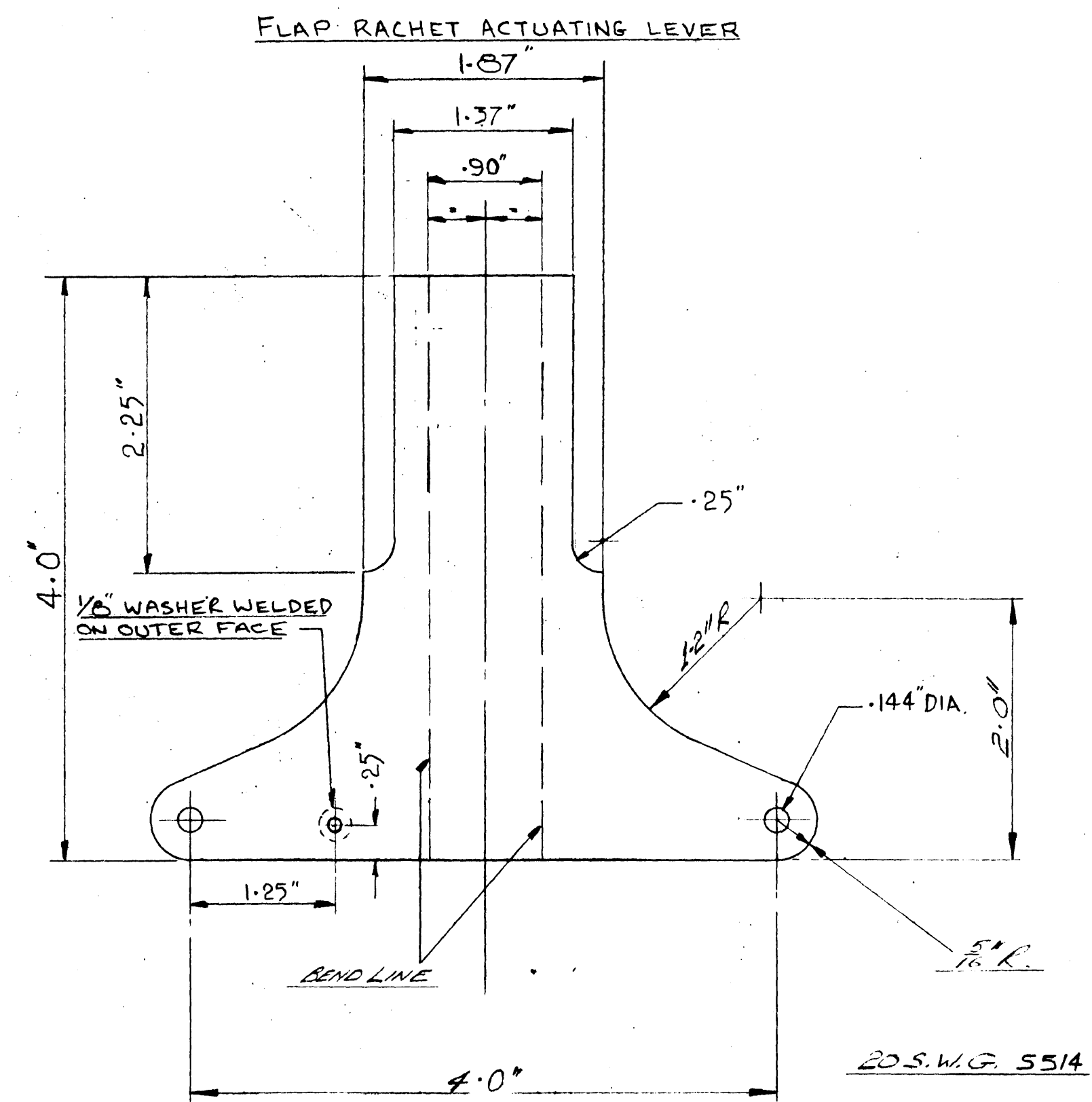
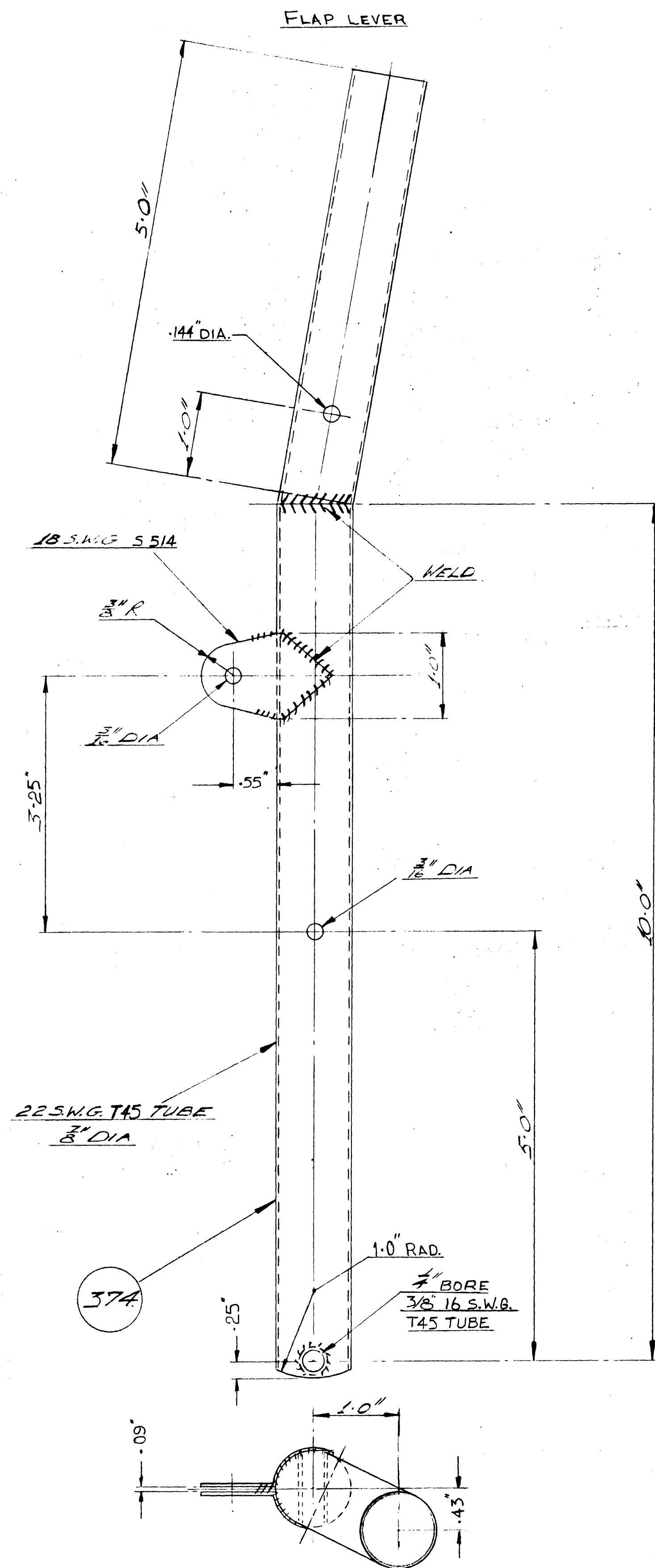


D	J.R.	ISSUE	
T			
C			
APP'D			
DATE ISSUED		SCALE	FINISH
APPRO'D ON		LIMITS/CHANGES	1/4 OFF
DESCRIPTION	CONTROL DETAILS		DRG NO. M.02

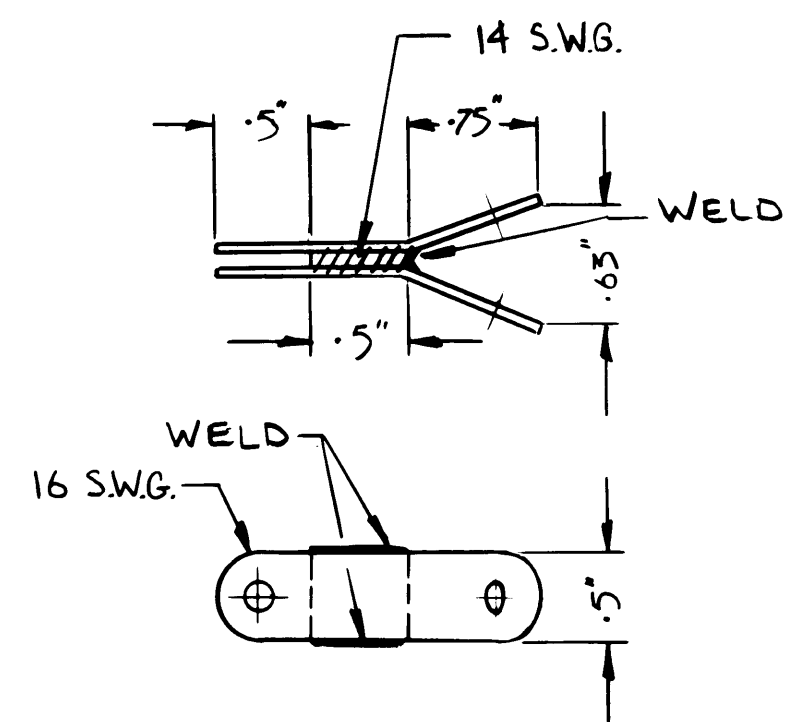
CHILTON AIRCRAFT

MAT SPEC LATEST ISSUE

PROCESSES



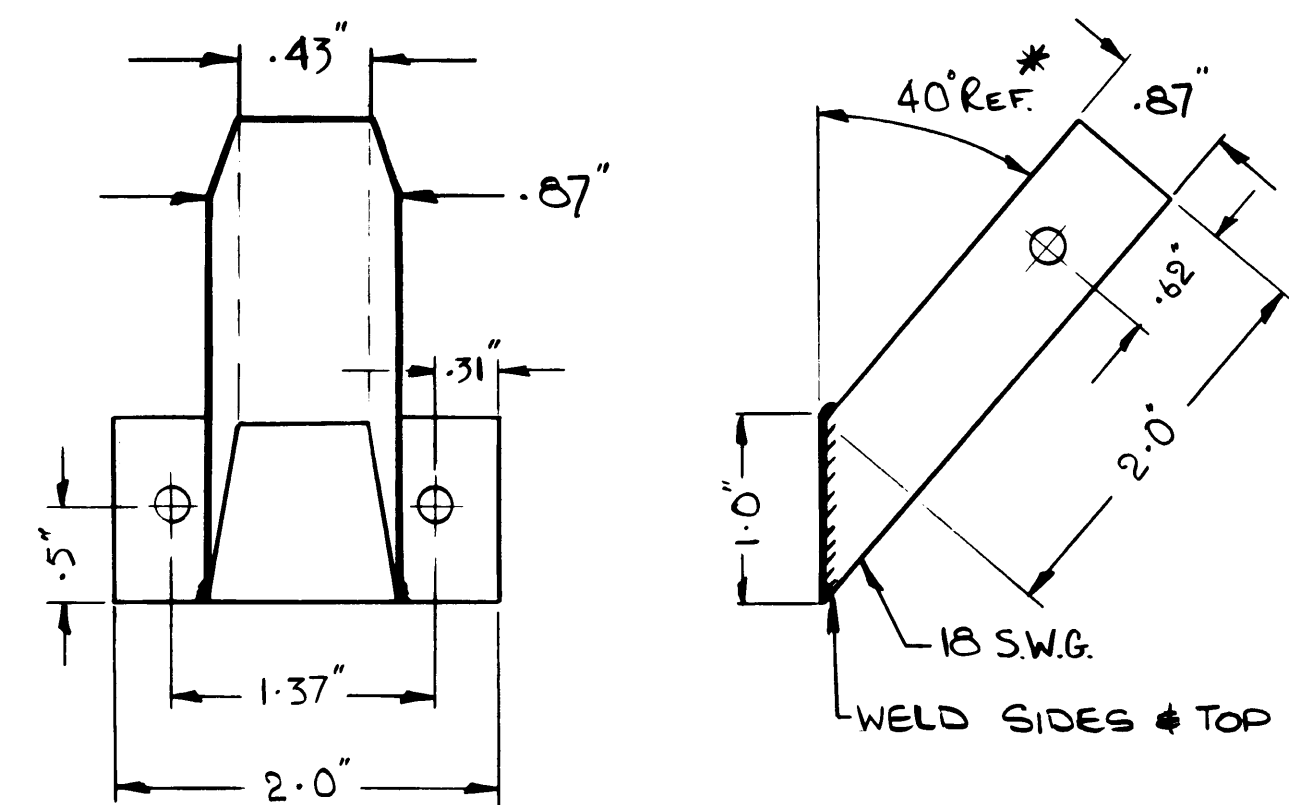
D.	ISSUE			CHILTON AIRCRAFT
T.				
C.				SPEC. (LATEST ISSUE)
APPD.				MAT
DATE ISSUED	SCALE	FINISH	PROCESSES	
ASSMD. ON	LIMITS (UNLESS STATED)	No. OFF		
DESCRIPTION	METAL FITTINGS		DRG. No.	M.03



REAM 3 HOLES $\cdot 1562$ " ($\frac{5}{32}$) DIA

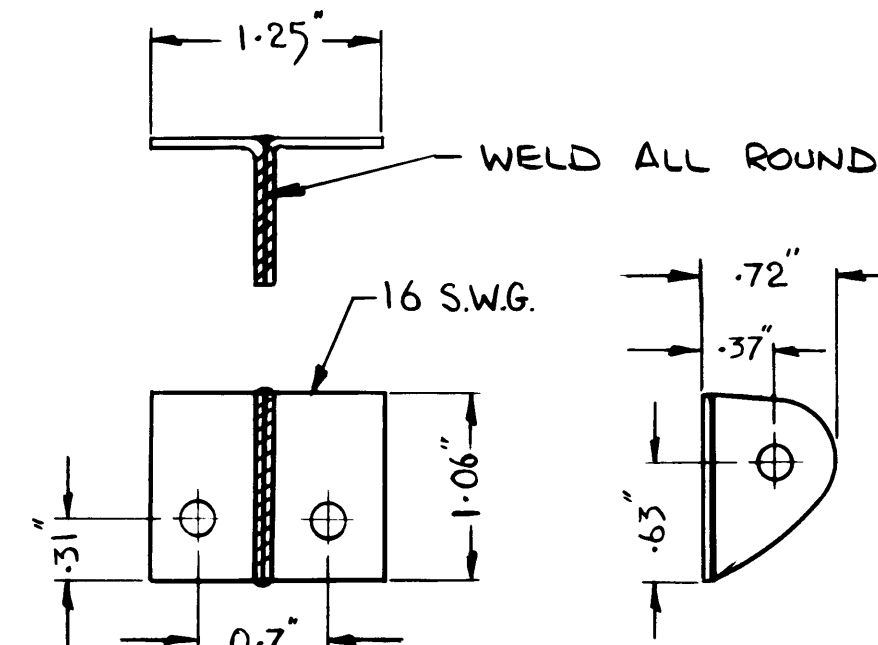
ELEVATOR KINGPOST TO CABLE CONNECTOR
2 OFF MATL: S514

* DETERMINE EXACT ANGLE ON ASSY



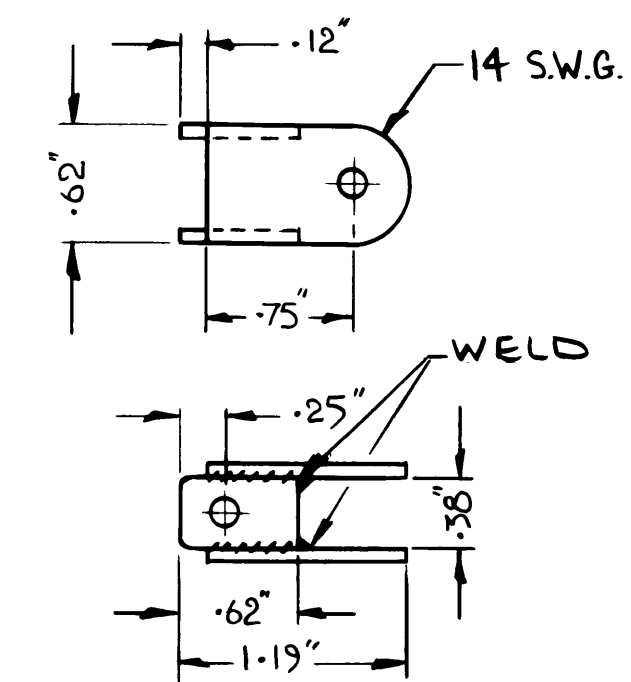
REAM 4 HOLES $\cdot 1875$ " ($\frac{3}{16}$) DIA

FIN TO REAR FORMER ATTACH BRACKET
1 OFF MATL: S514



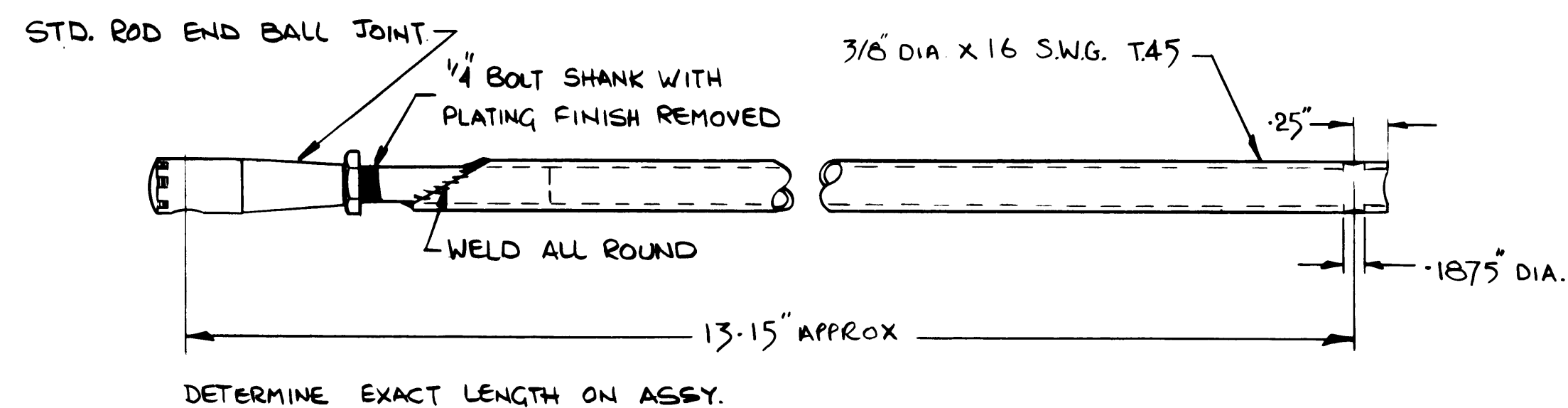
REAM 3 HOLES $\cdot 1875$ " DIA

HARNESS ATTACHMENT FITTINGS
4 OFF MATL: S514



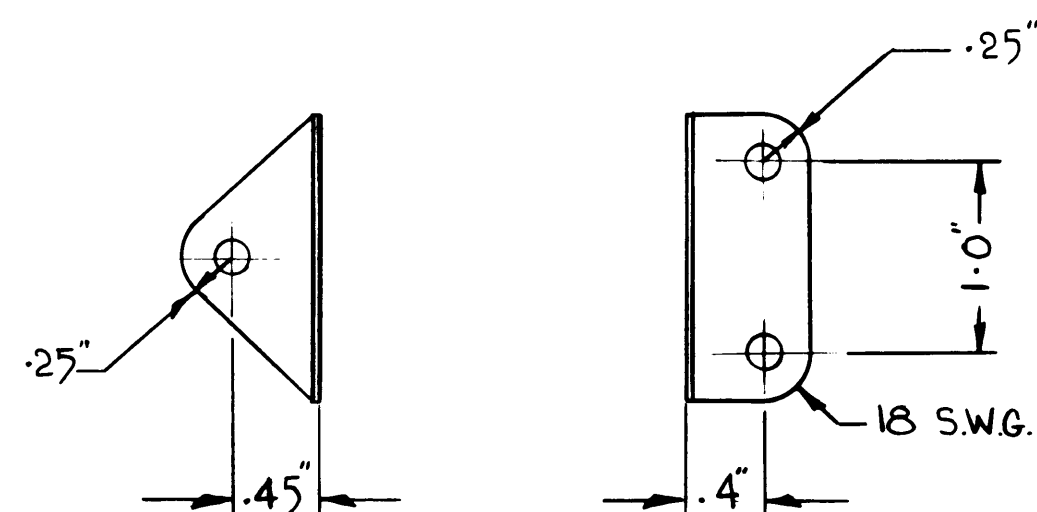
REAM 2 HOLES $\cdot 1875$ " DIA

AILERON PUSHROD TO AILERON CONNECTOR
2 OFF MATL: S514

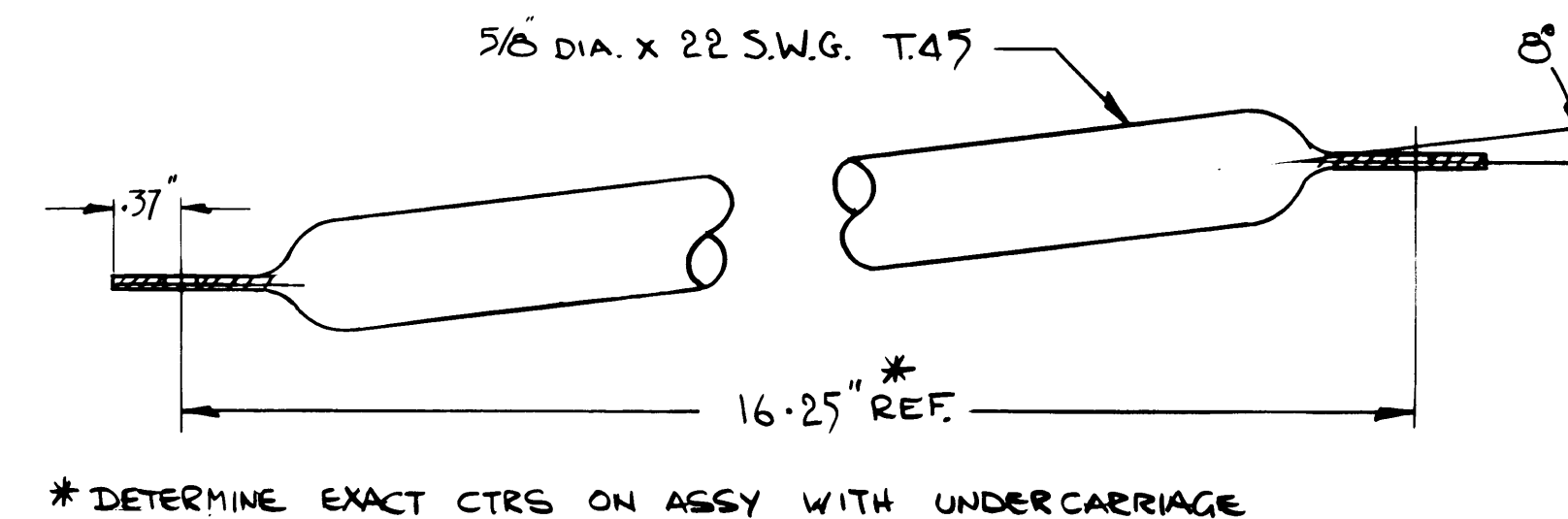


AILERON PUSHROD
2 OFF MATL: T45, HIGH TENSILE BOLT SHANK.

REAM 3 HOLES $\cdot 1875$ " DIA ON ASSY.

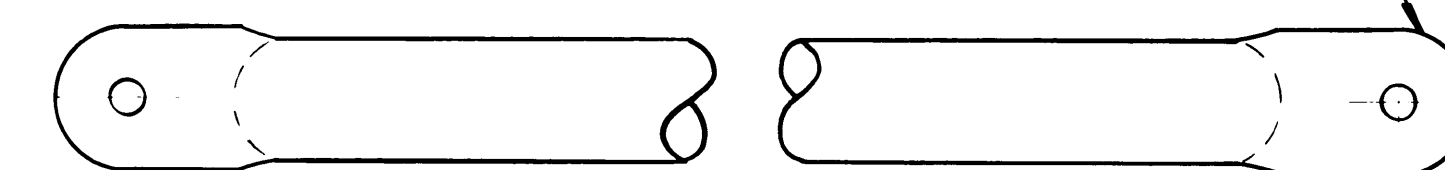


FUSELAGE TO CENTRE SECTION ATTACH. FITTINGS
12 OFF MATL: S514



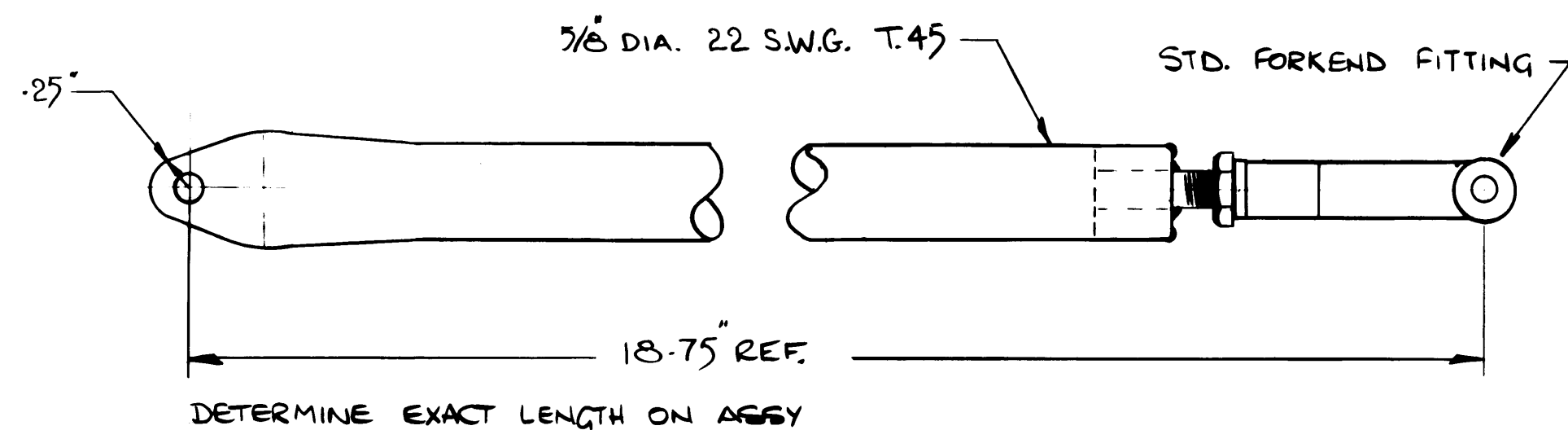
* DETERMINE EXACT CTRS ON ASSY WITH UNDERCARRIAGE

HEAT, FLATTEN & WELD ALL ROUND - BOTH ENDS



REAM 2 HOLES $\cdot 1875$ " DIA ON ASSY.

UNDERCARRIAGE STAY TUBES
4 OFF MATL: T45

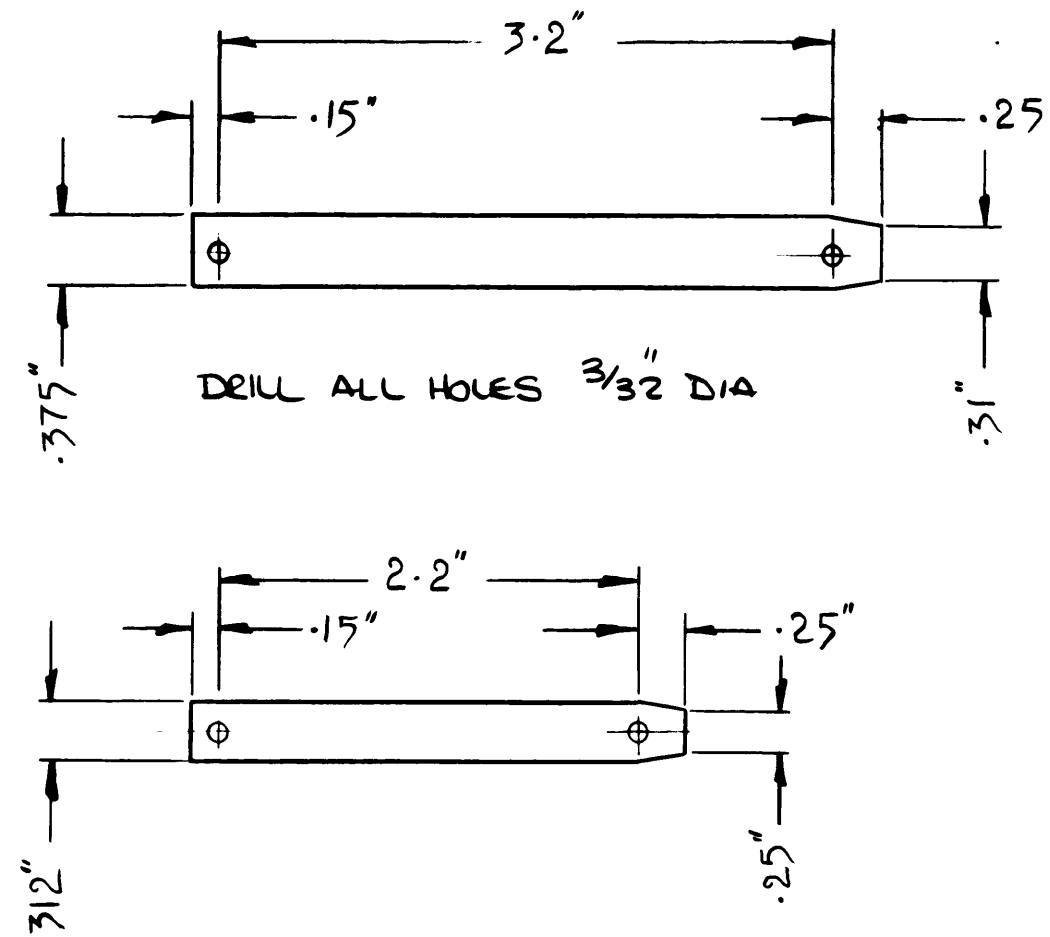


DETERMINE EXACT LENGTH ON ASSY

HEAT, FLATTEN & WELD ALL ROUND
TUBE END

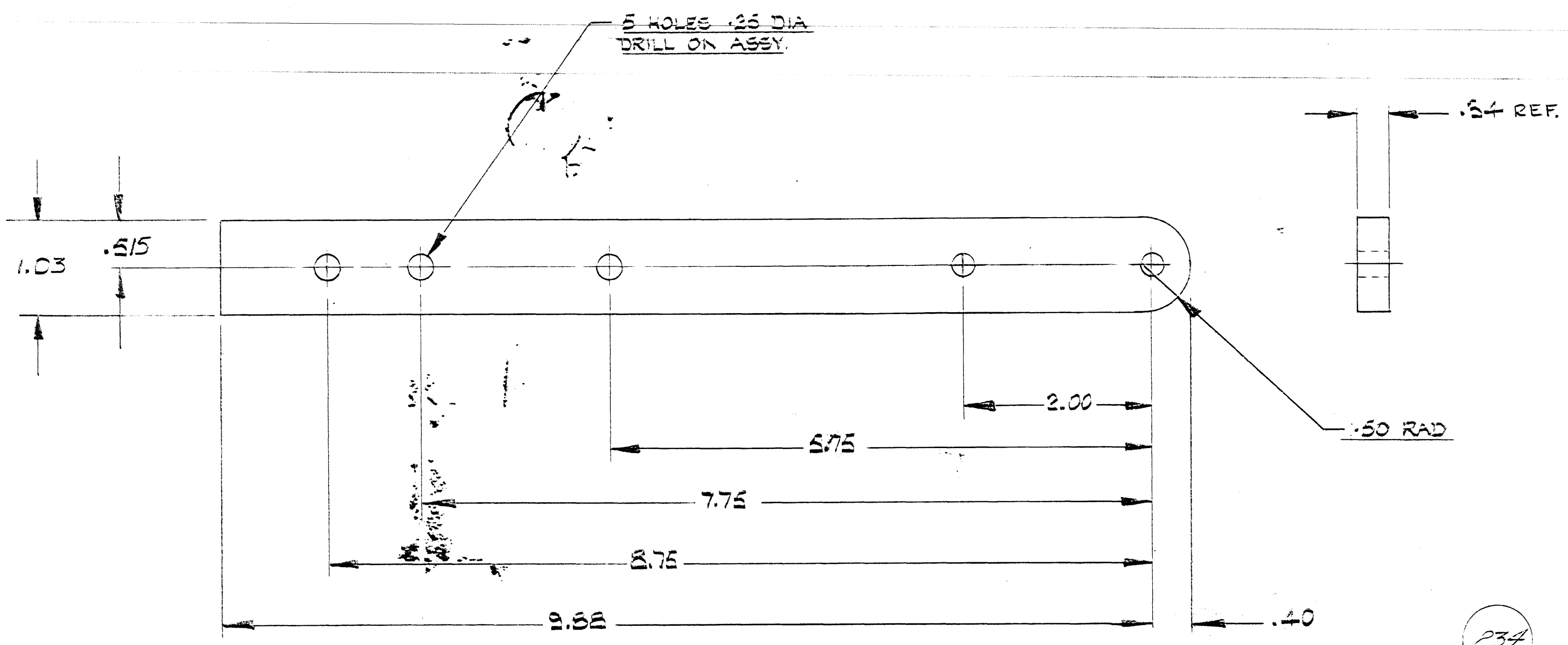
TUBE END & FORKEND HOLES TO BE $\cdot 1875$ " DIA

FLAP LEVER TO FLAP ACTUATING ARM CONNECTOR
1 OFF MATL: T45



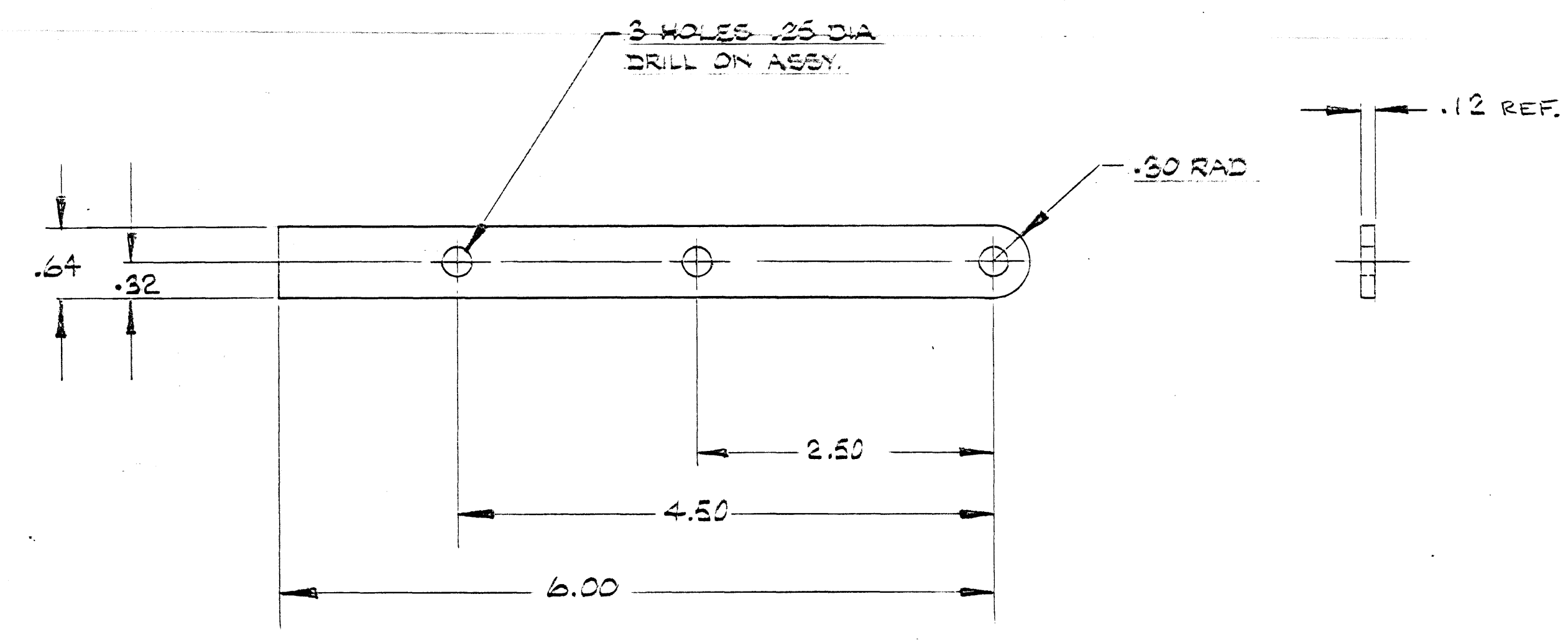
WING ATTACHMENT PINS
4 OFF EACH MATL: S80

D	RN	ISSUE	CHILTON AIRCRAFT	
T			MAT	SPEC. (LATEST ISSUE)
C				
APPD.				
DATE ISSUED	SCALE	FINISH	PROCESSES	
ASSMD ON	LIMITS (UNLESS STATED)	No. OFF		
DESCRIPTION	MATERIAL		DRG. No.	
METAL FITTINGS			M.04	



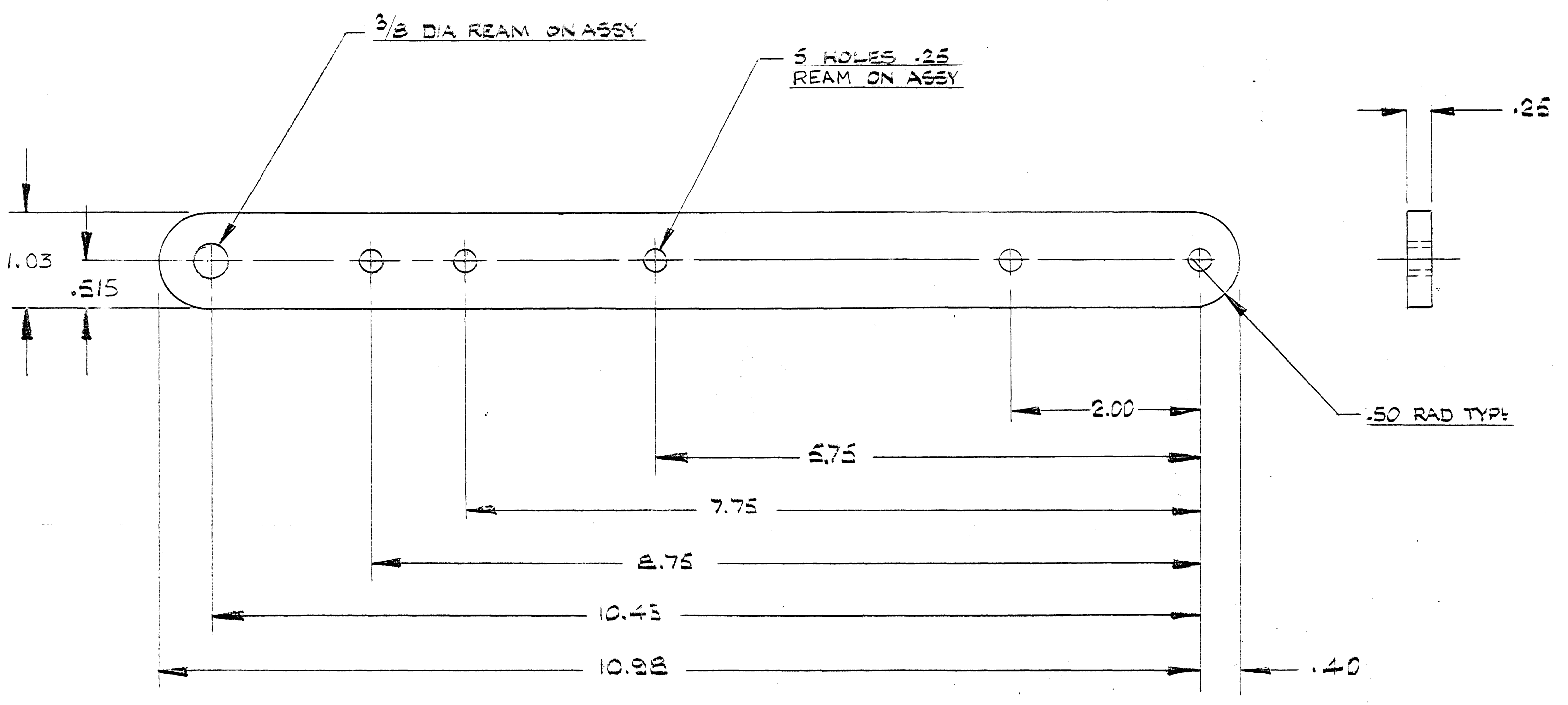
FRONT SPAR PACKING PLATE - CENTRE SECTION
4 OFF - RED FIBRE

234



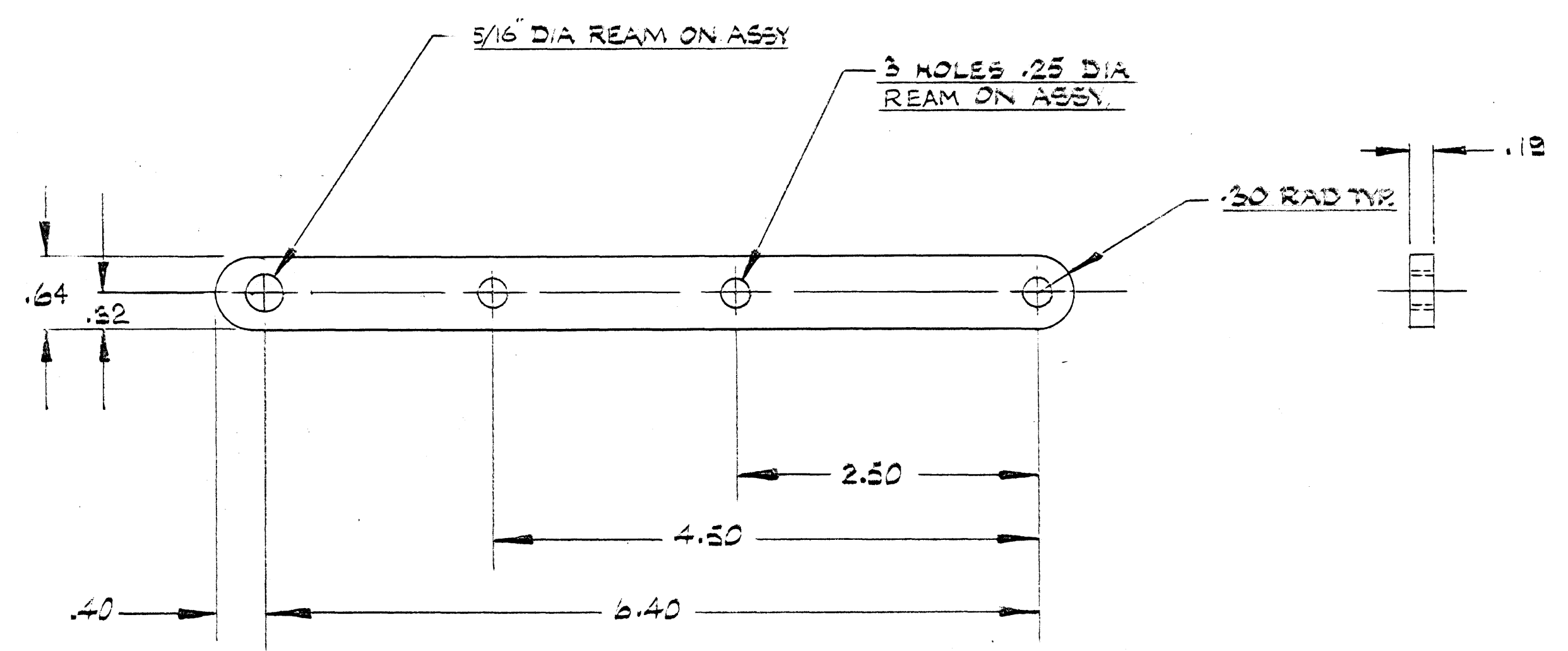
REAR SPAR PACKING PLATE - CENTRE SECTION
4 OFF - RED FIBRE

235



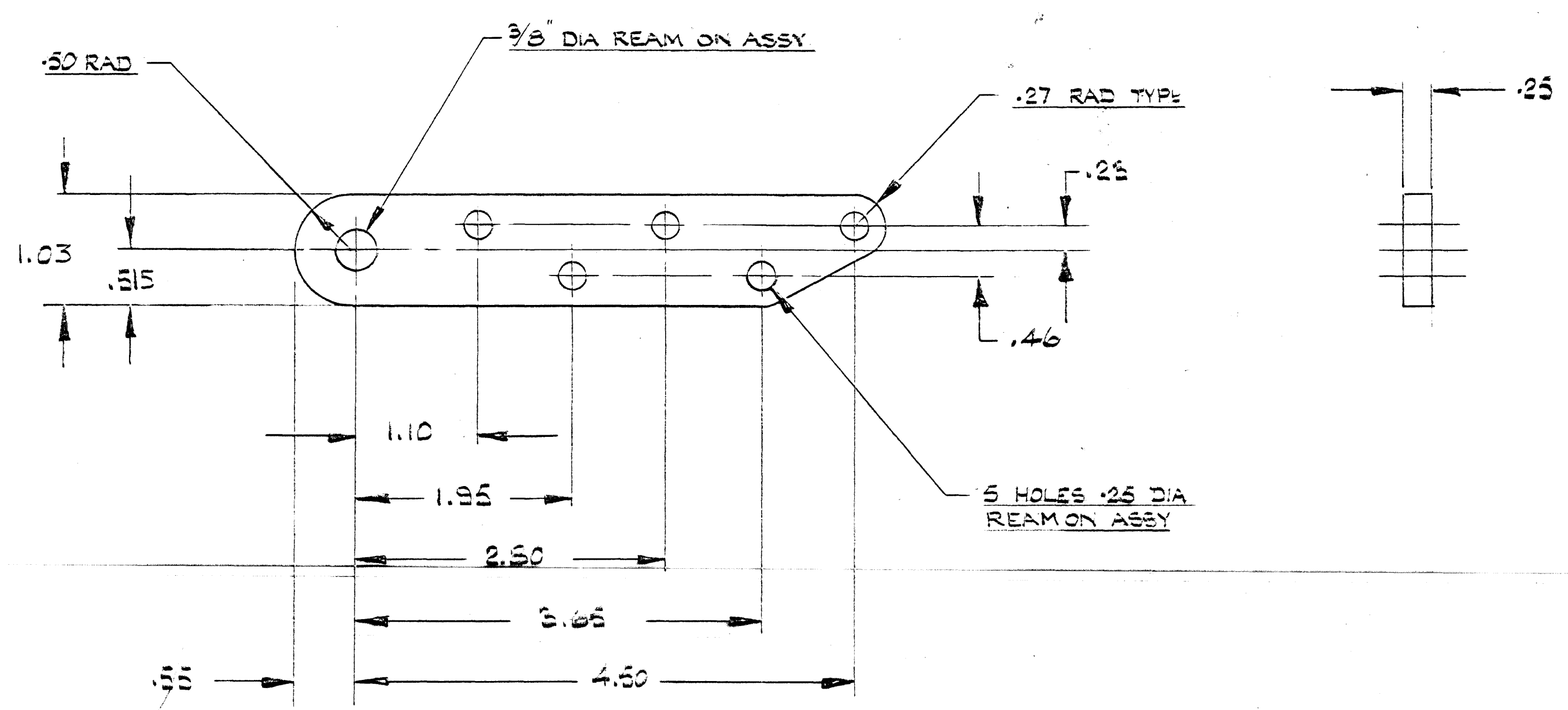
FRONT SPAR PLATE - CENTRE SECTION
3 OFF - L72

236



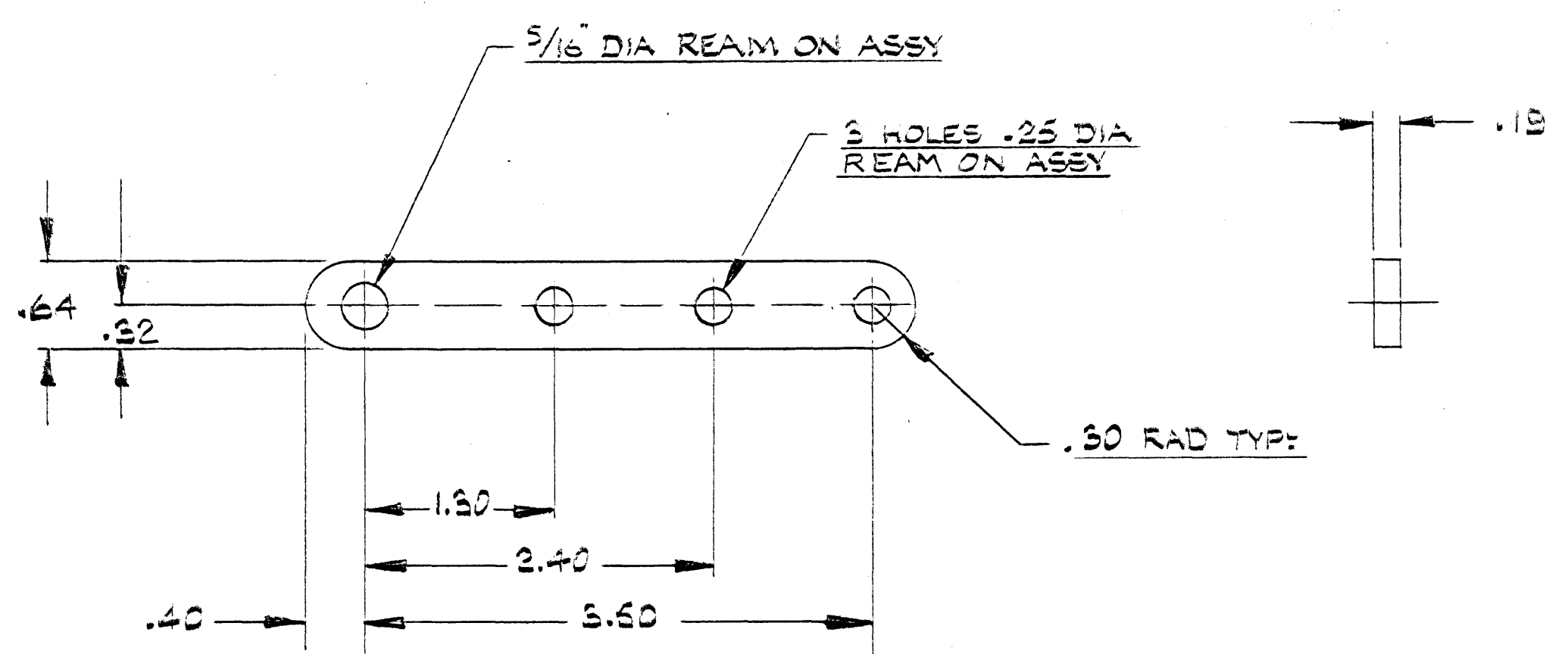
REAR SPAR PLATE - CENTRE SECTION
3 OFF - L72

237



FRONT SPAR PLATE - OUTER WING SECTION
3 OFF - L72

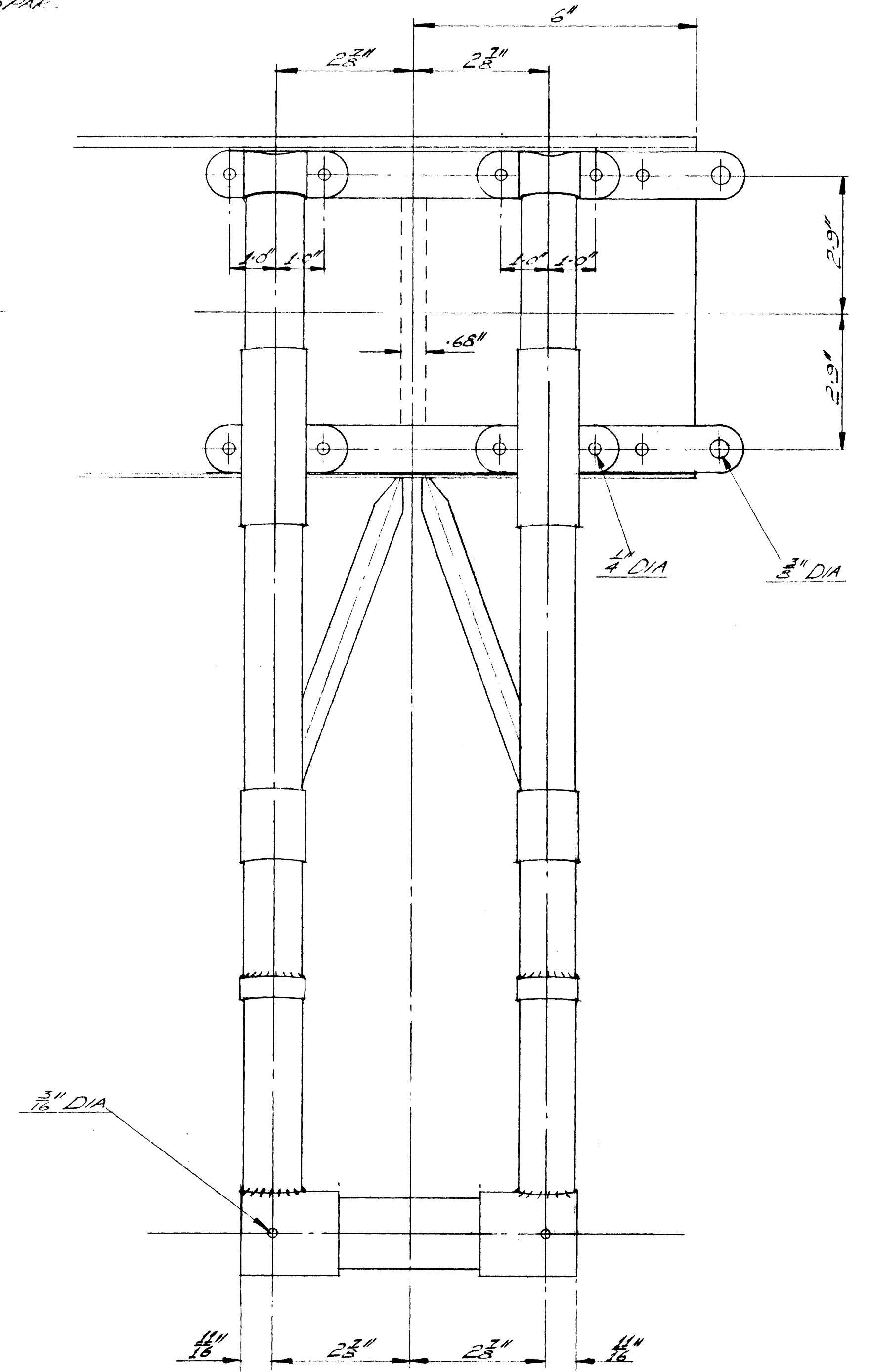
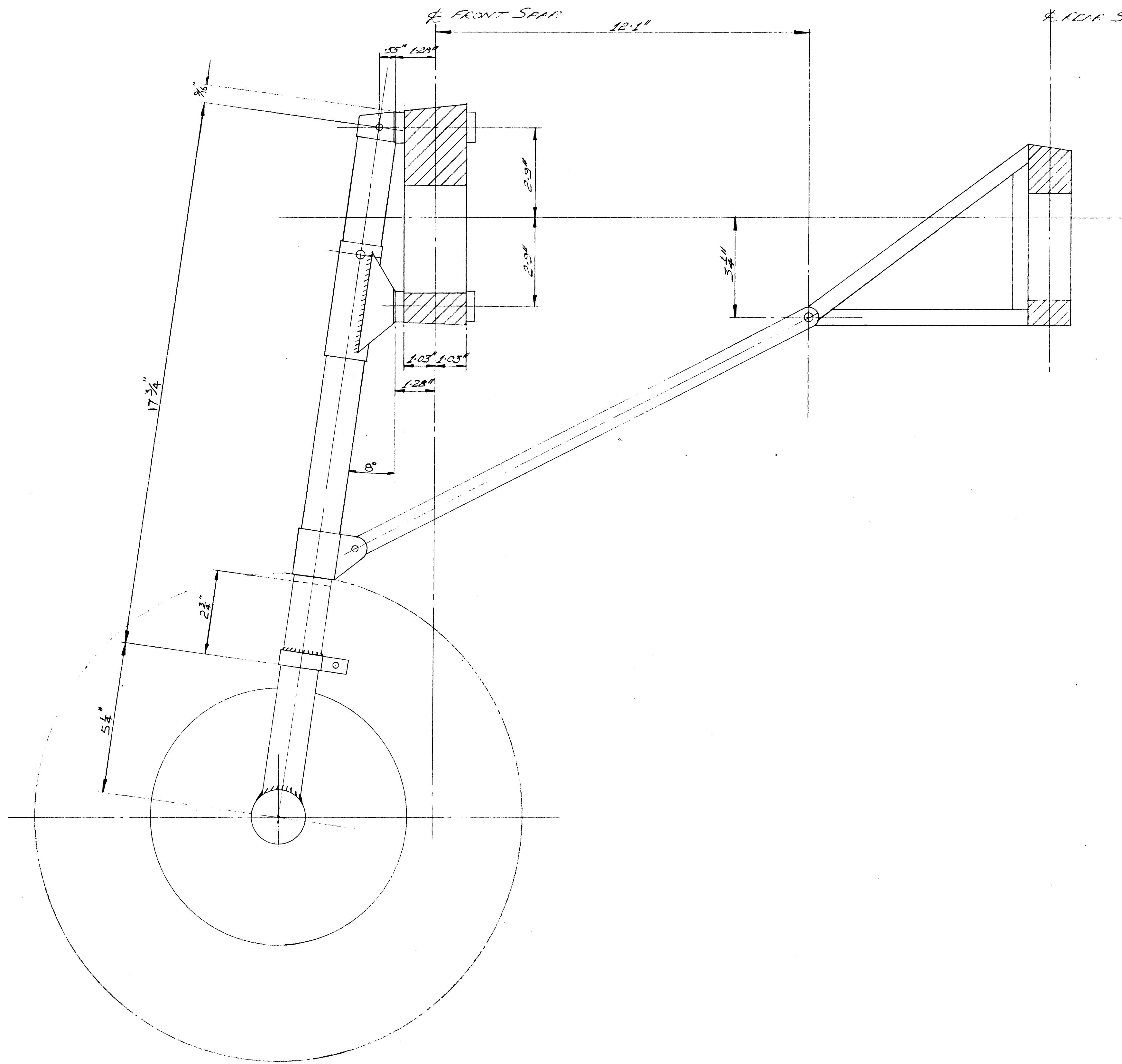
238



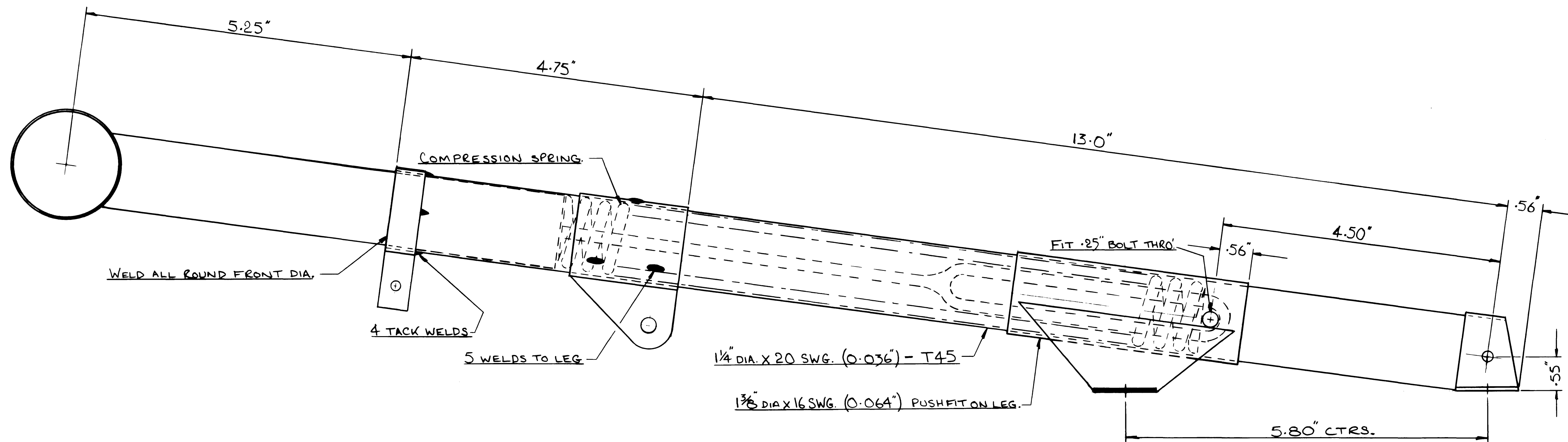
REAR SPAR PLATE - OUTER WING SECTION
3 OFF - L72

239

D	D.H.	ISSUE	CHILTON AIRCRAFT	
T				
C			MAT'L	SPEC (LATEST ISSUE)
APP				
DATE ISSUED	SCALE	FINISH	PROCESSES	
ASS'D ON	LIMITS (UNLESS STATED)	NO OFF		
DESCRIPTION	T .010"	AS SHOWN		
FRONT & REAR SPAR PLATES		DRG NO	M.05	



D	IR	ISSUE	CHILTON AIRCRAFT.	
T			MATH	
C			SPEC (LATEST ISSUE)	
AFPD			DATE ISSUED	SCALE
			4/2	FINISH
			LIMITS (UNLESS STATED)	PROCESSES
			No OFF	2
DESCRIPTION:				DRG No
UNDERCARRIAGE ASSEMBLY				MDK



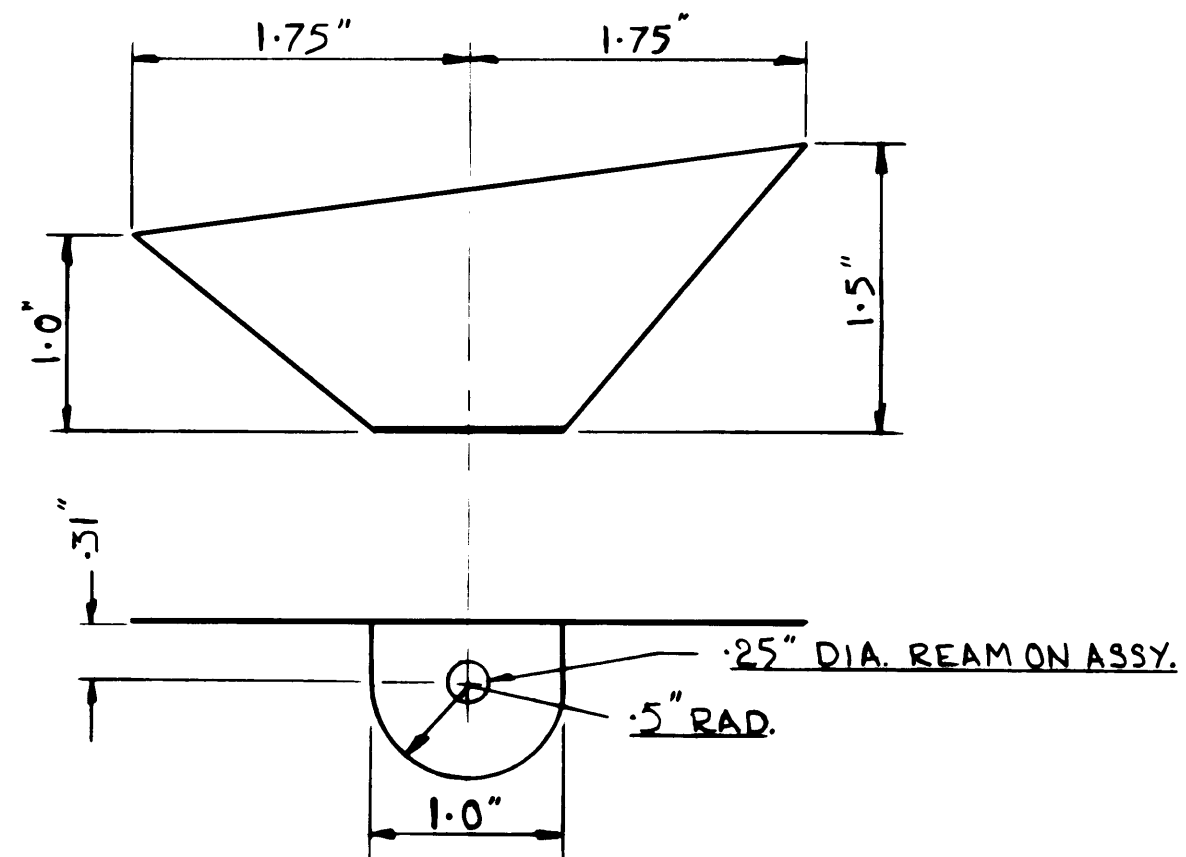
LEG SET AT 0°

COMPRESSION SPRING - 10.50" FREE LENGTH

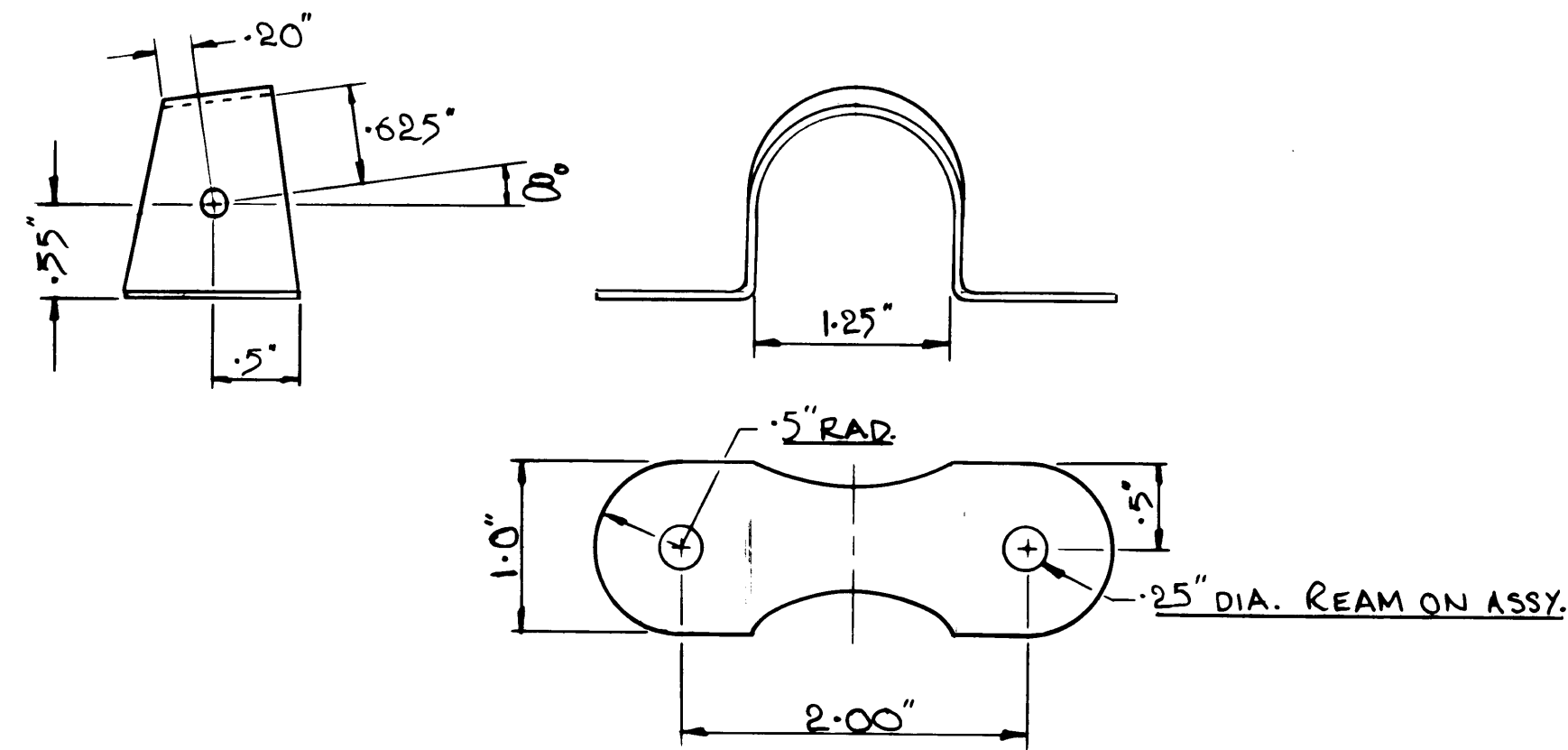
SPRING DIA. 1.150" WIRE DIA. 0.230" PITCH .33"

HONE U/C LEG AFTER WELDING FOR SLIDE FIT ON INNER LEG.

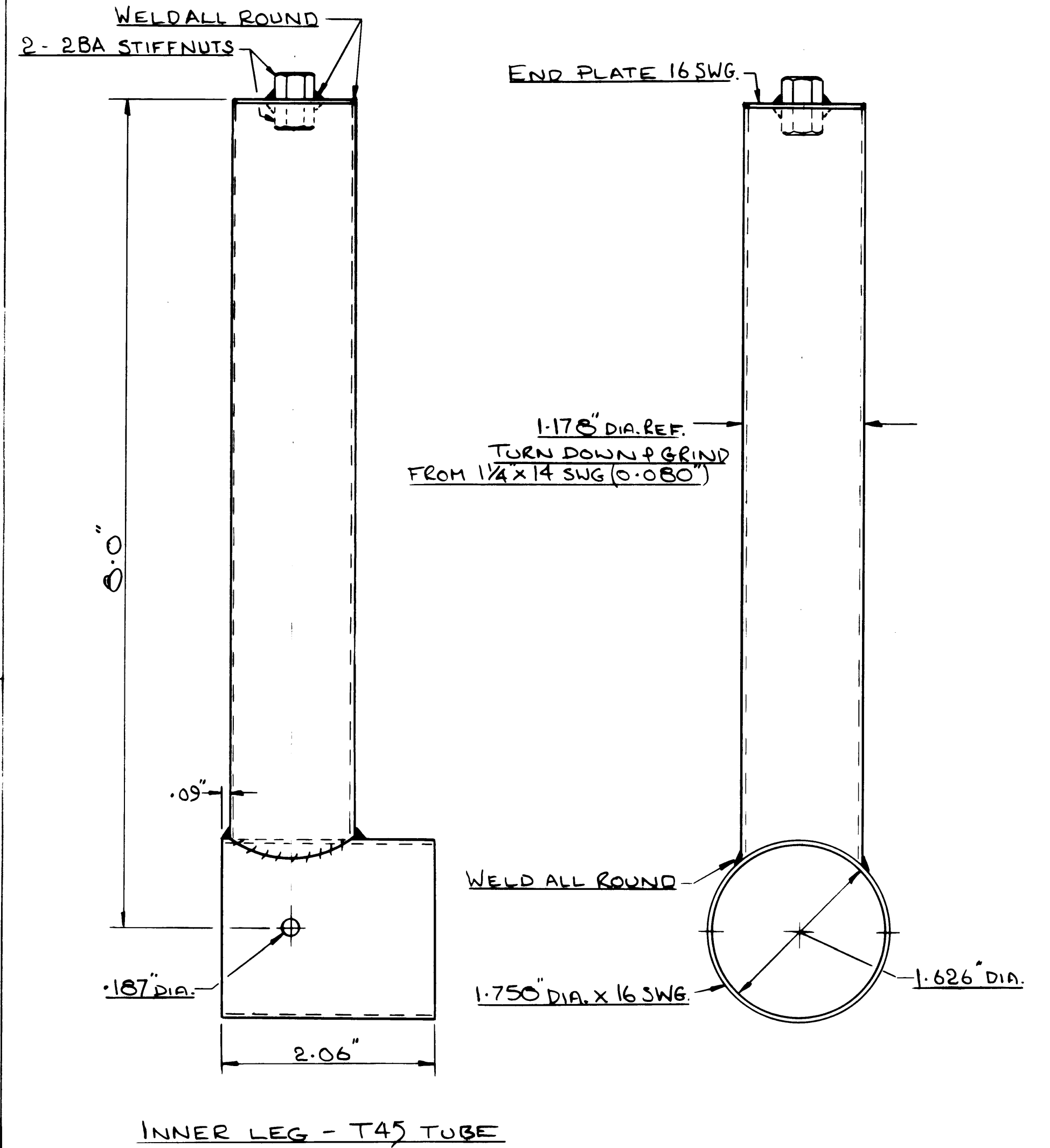
D	RN	ISSUE	CHILTON AIRCRAFT	
T.			MAT	SPEC. (LATEST ISSUE)
C.				
APPD.				
DATE ISSUED	SCALE	FINISH	PROCESSES	
ASSMD. ON	LIMITS (UNLESS STATED)	No. OFF	4	
DESCRIPTION	U/C LEG		DRG. No.	M.07



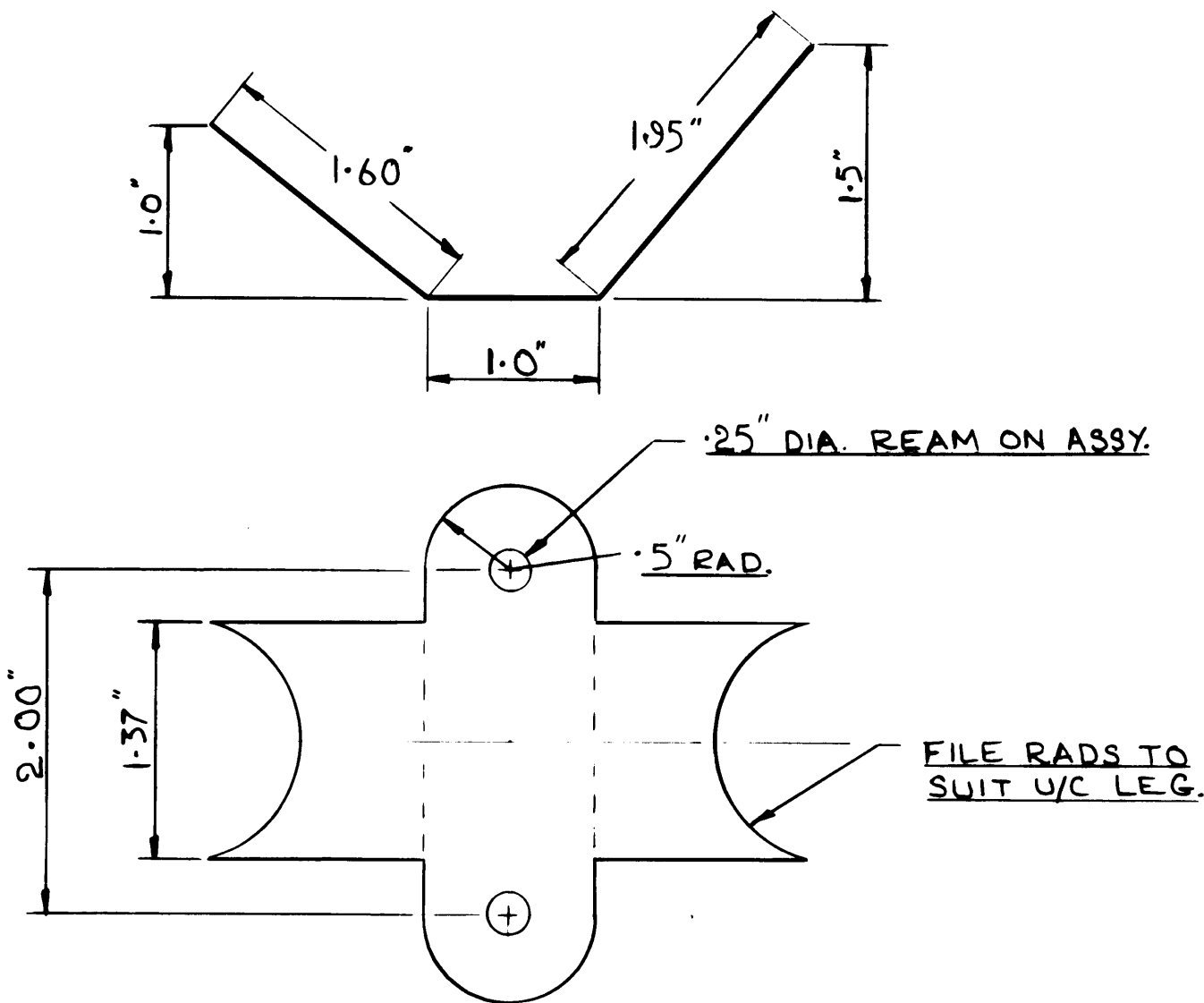
SIDE PLATE 18 SWG (0.048) 4 OFF R.H. & L.H.
MATL. S514



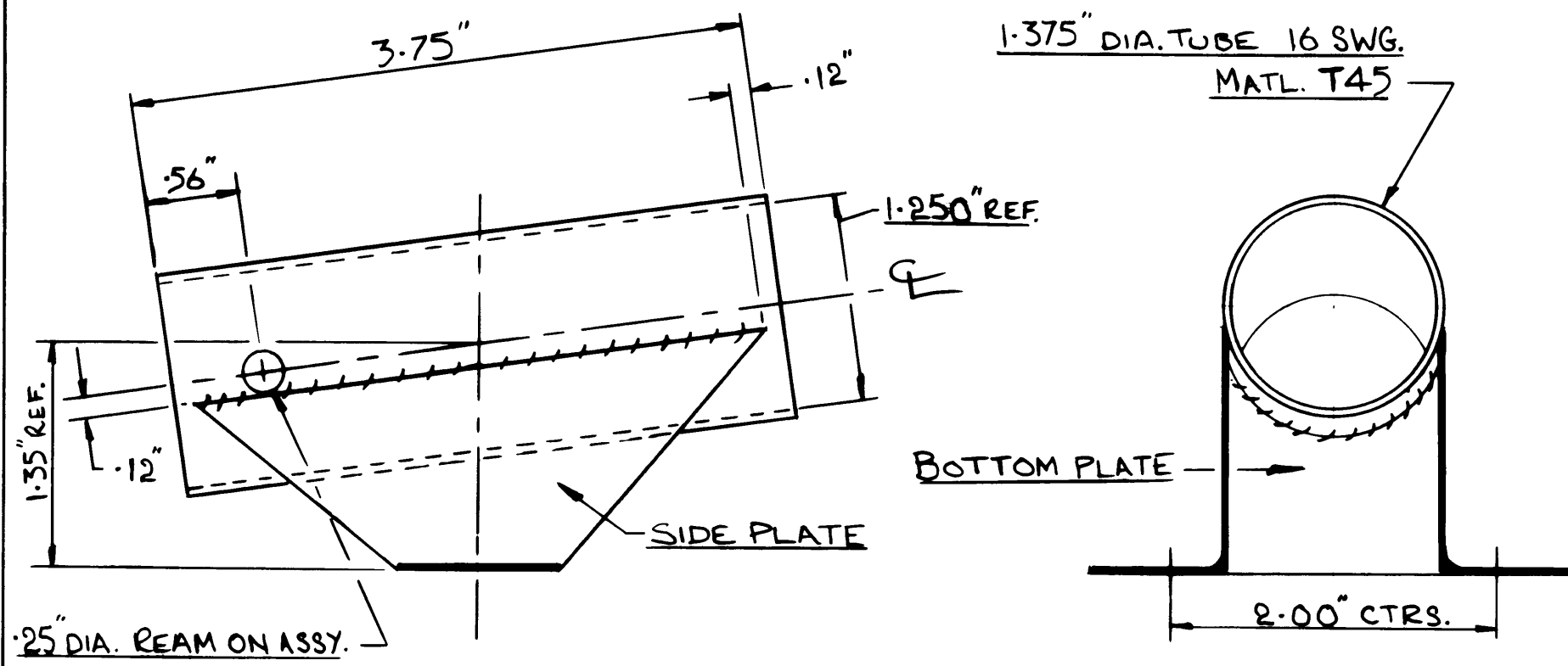
TOP U/C ATTACHMENT
MATL. S514 16 SWG. (0.064)



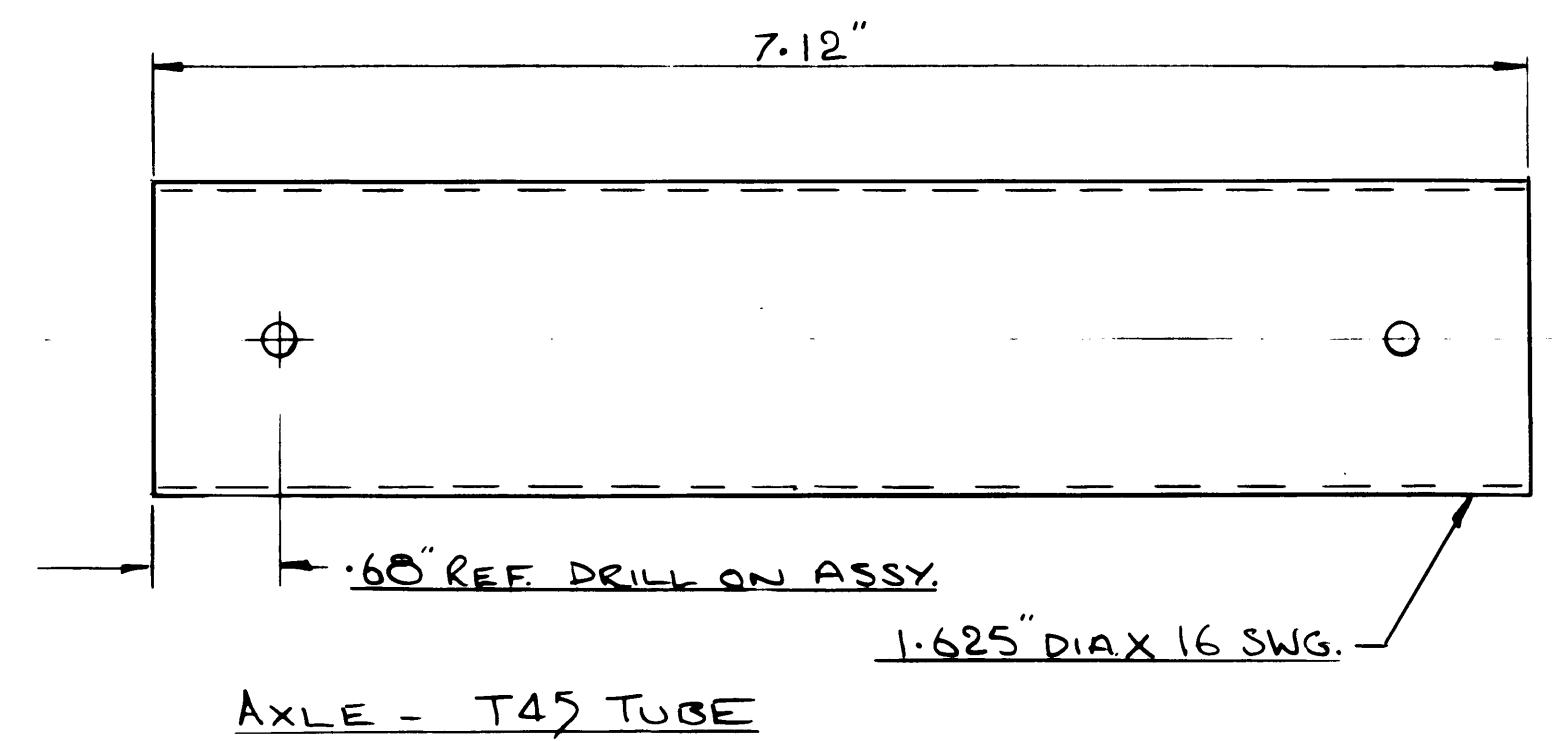
INNER LEG - T45 TUBE



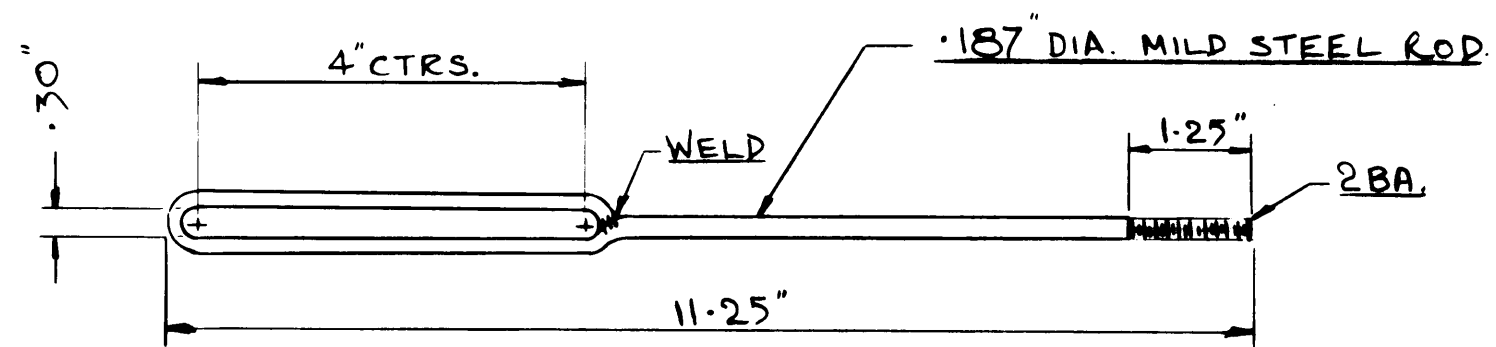
BOTTOM PLATE 18 SWG. (0.048) 4 OFF
MATL. S514



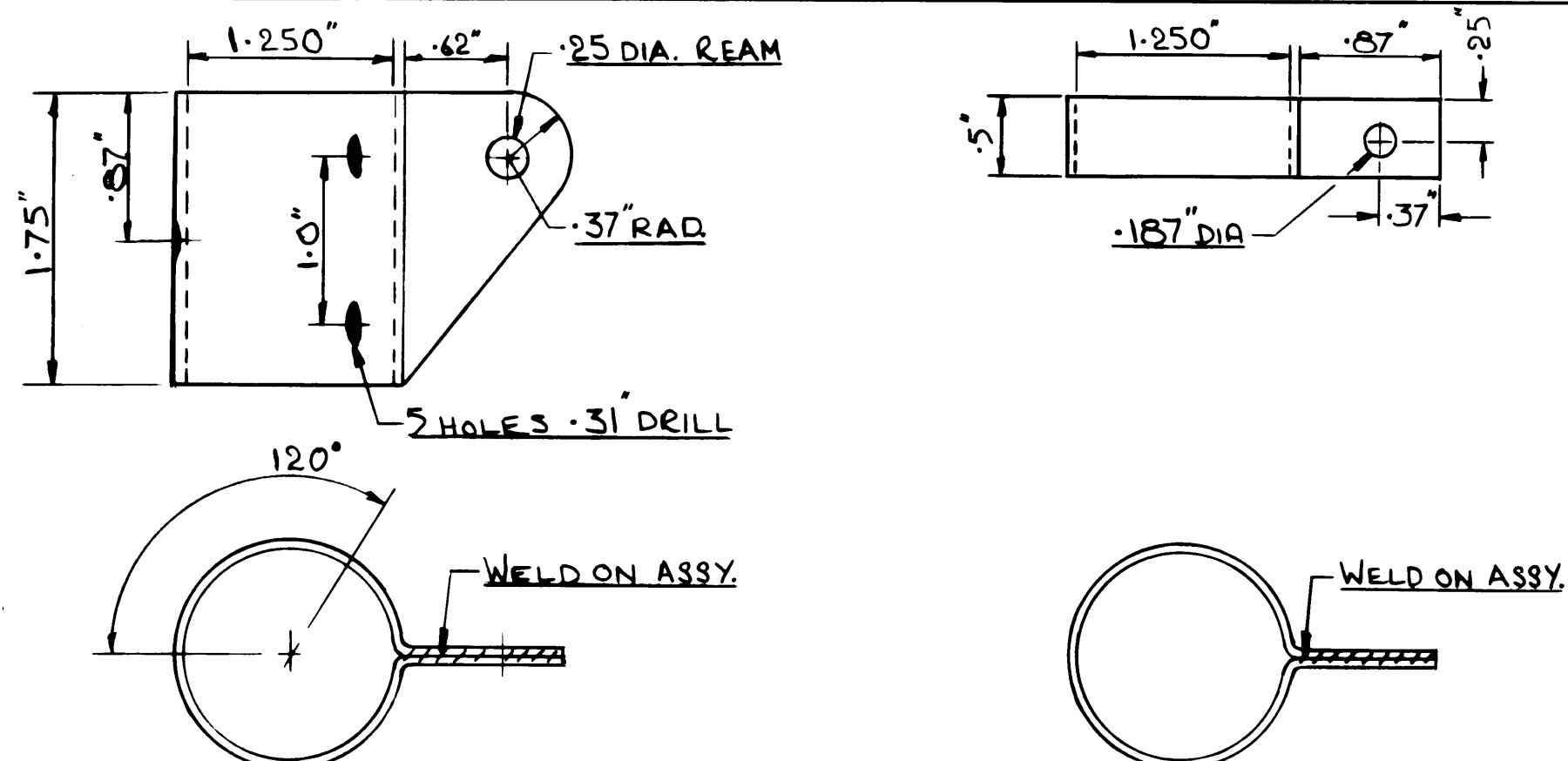
WELD ALL SEAMS ON ASSEMBLY WITH U/C LEG SET AT 8°
LOWER LEG ATTACHMENT - ASSEMBLY



AXLE - T45 TUBE



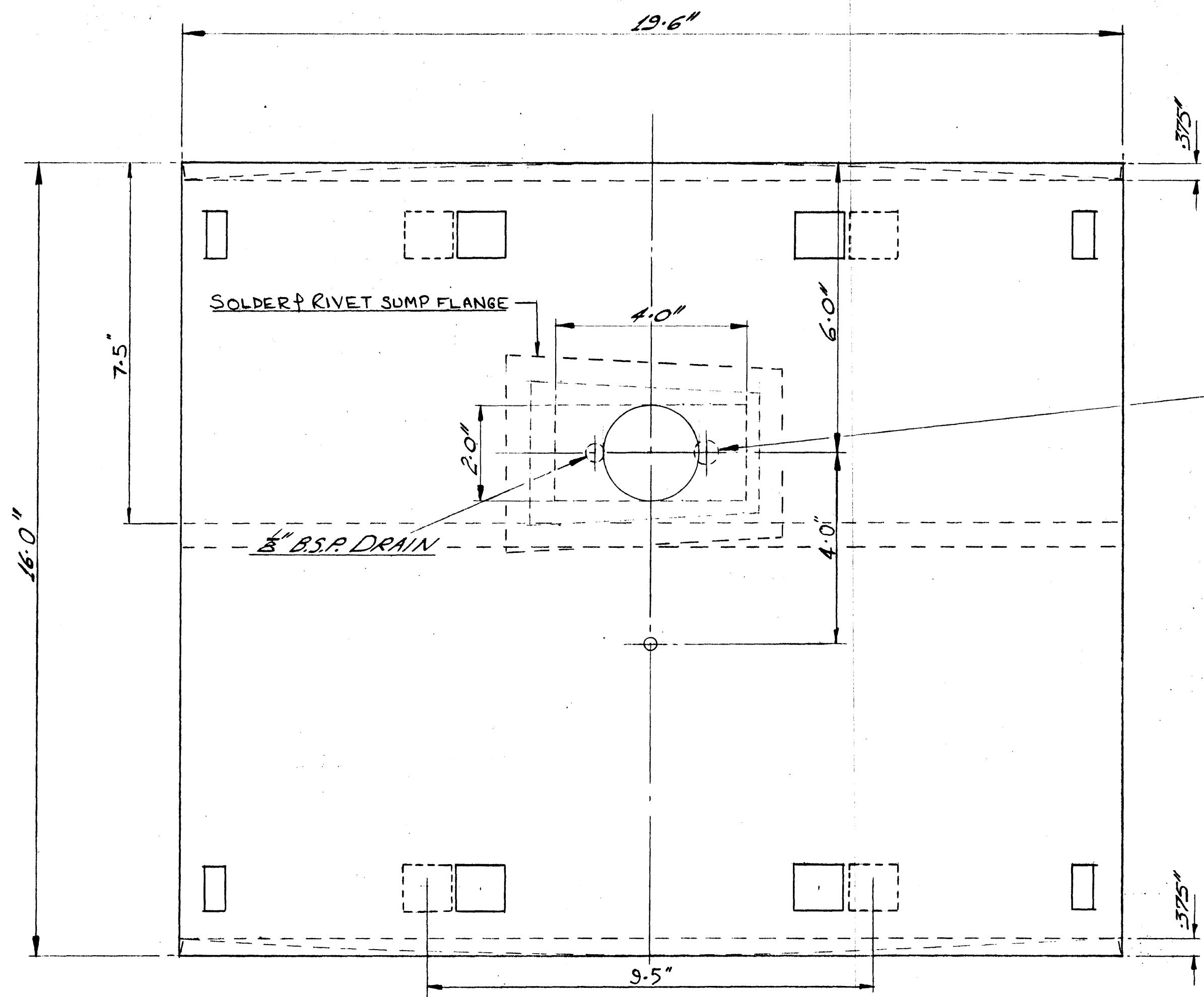
RETAINING ROD - INNER LEG



STAY TUBE FITTING 16 SWG.
MATL. S514

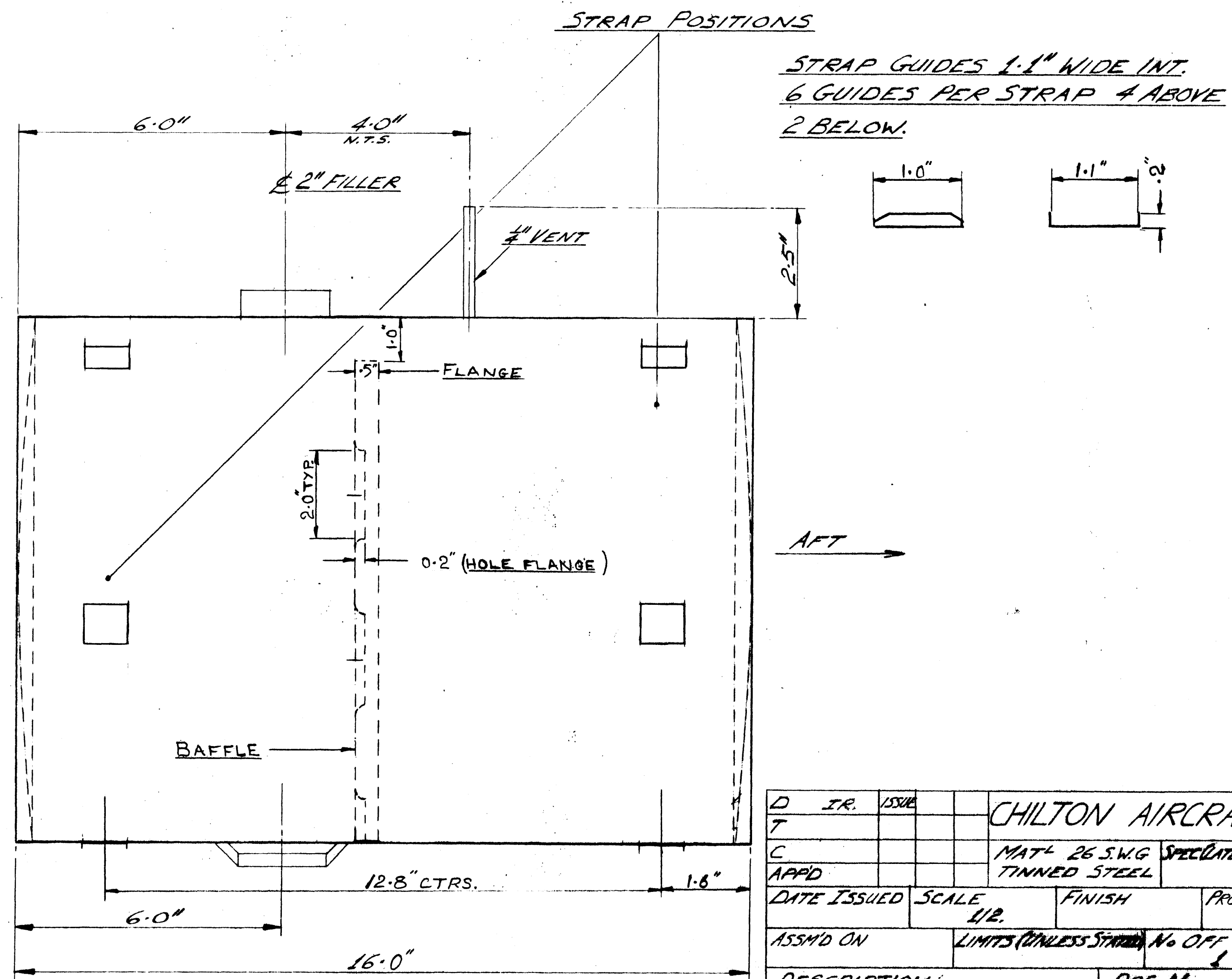
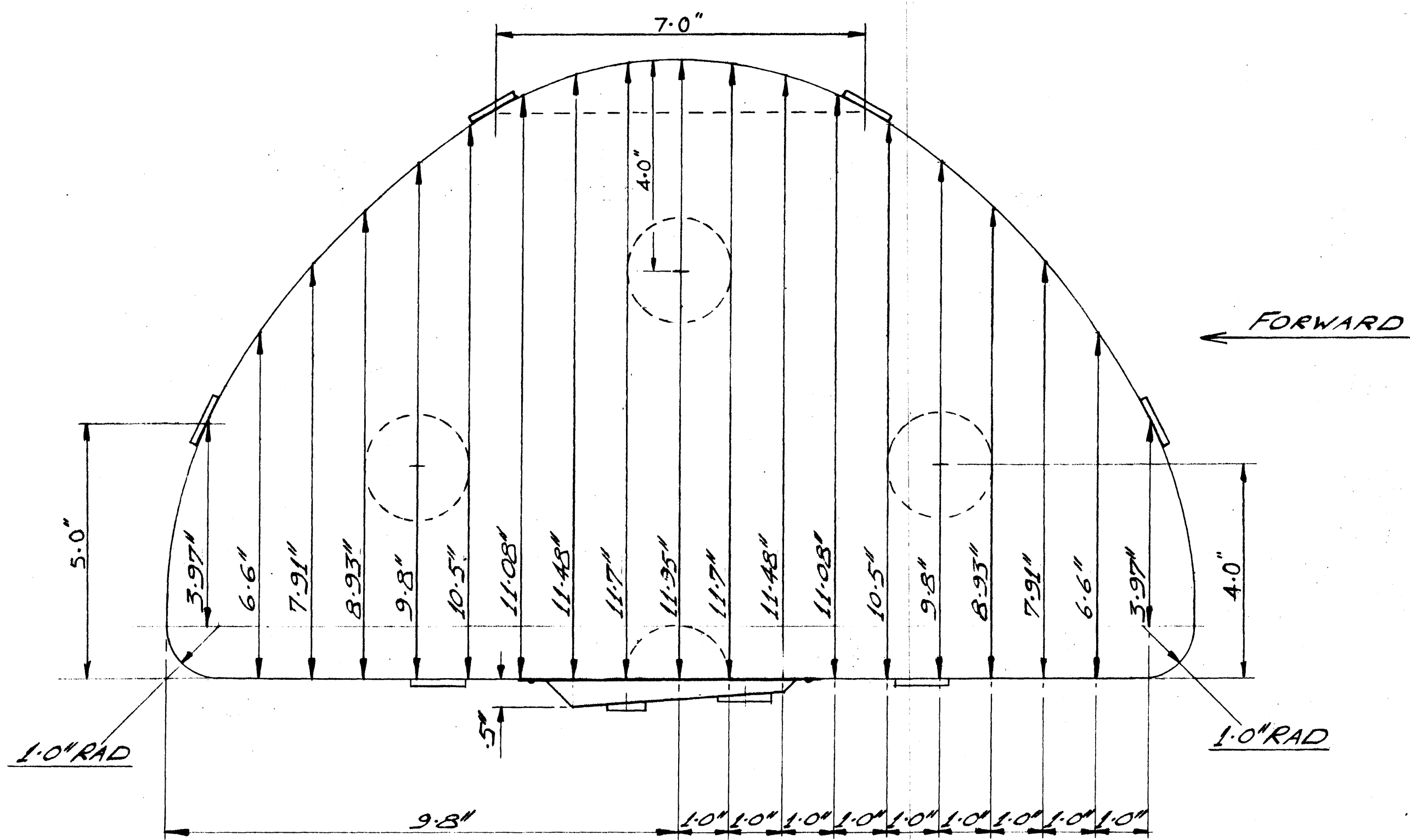
BOTTOM LEG FITTING 16 SWG.
MATL. S514

DRN	ISSUE	CHILTON AIRCRAFT	
T.		SPEC. (LATEST ISSUE)	
C.		MAT	
APPD.			
DATE ISSUED	SCALE	FINISH	PROCESSES
ASSMD. ON	LIMITS (UNLESS STATED)	No. OFF	
DESCRIPTION	DRG. No.		
U/C FITTINGS	M.08		

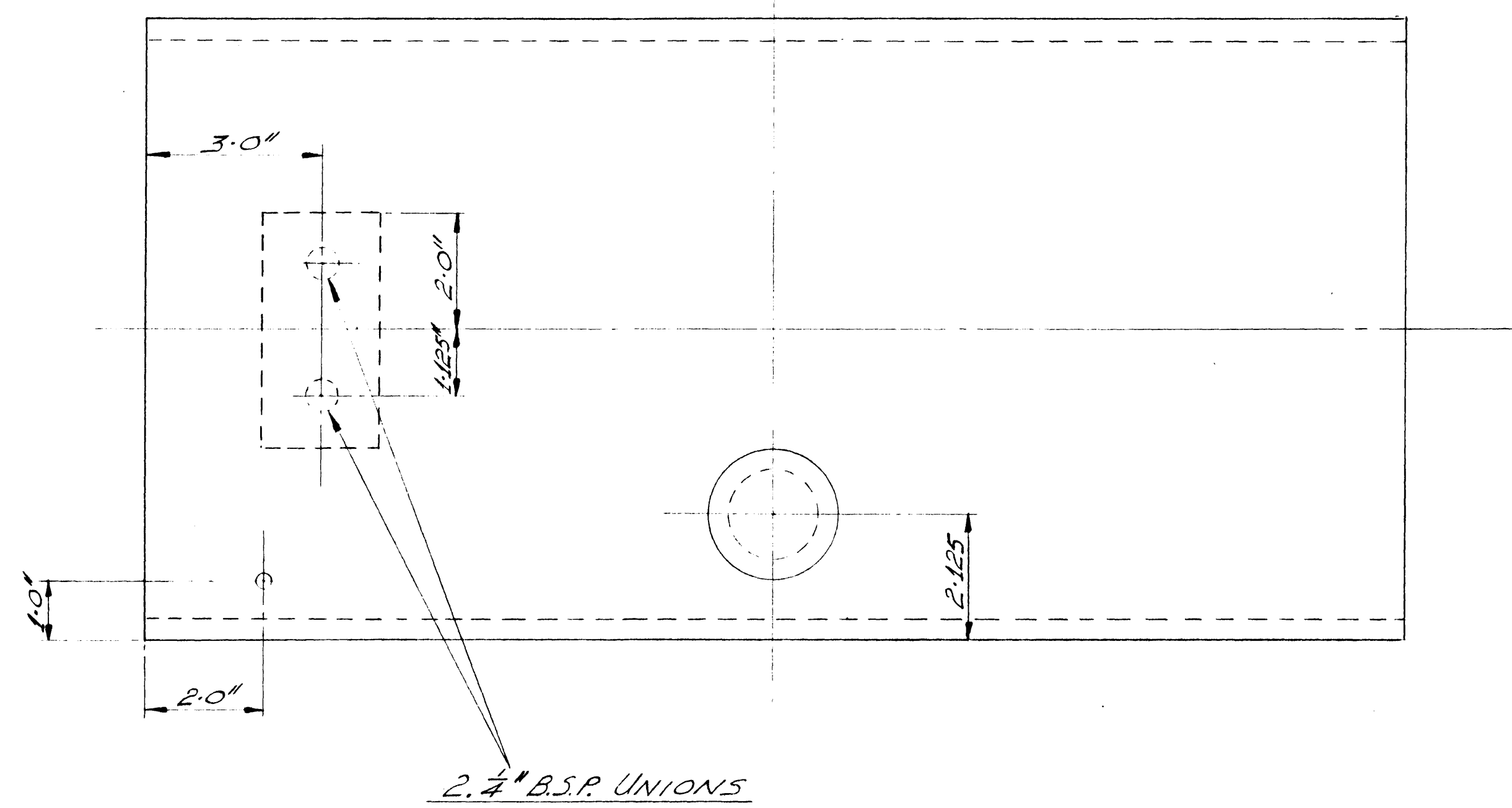


CAPACITY - 10 GALLONS

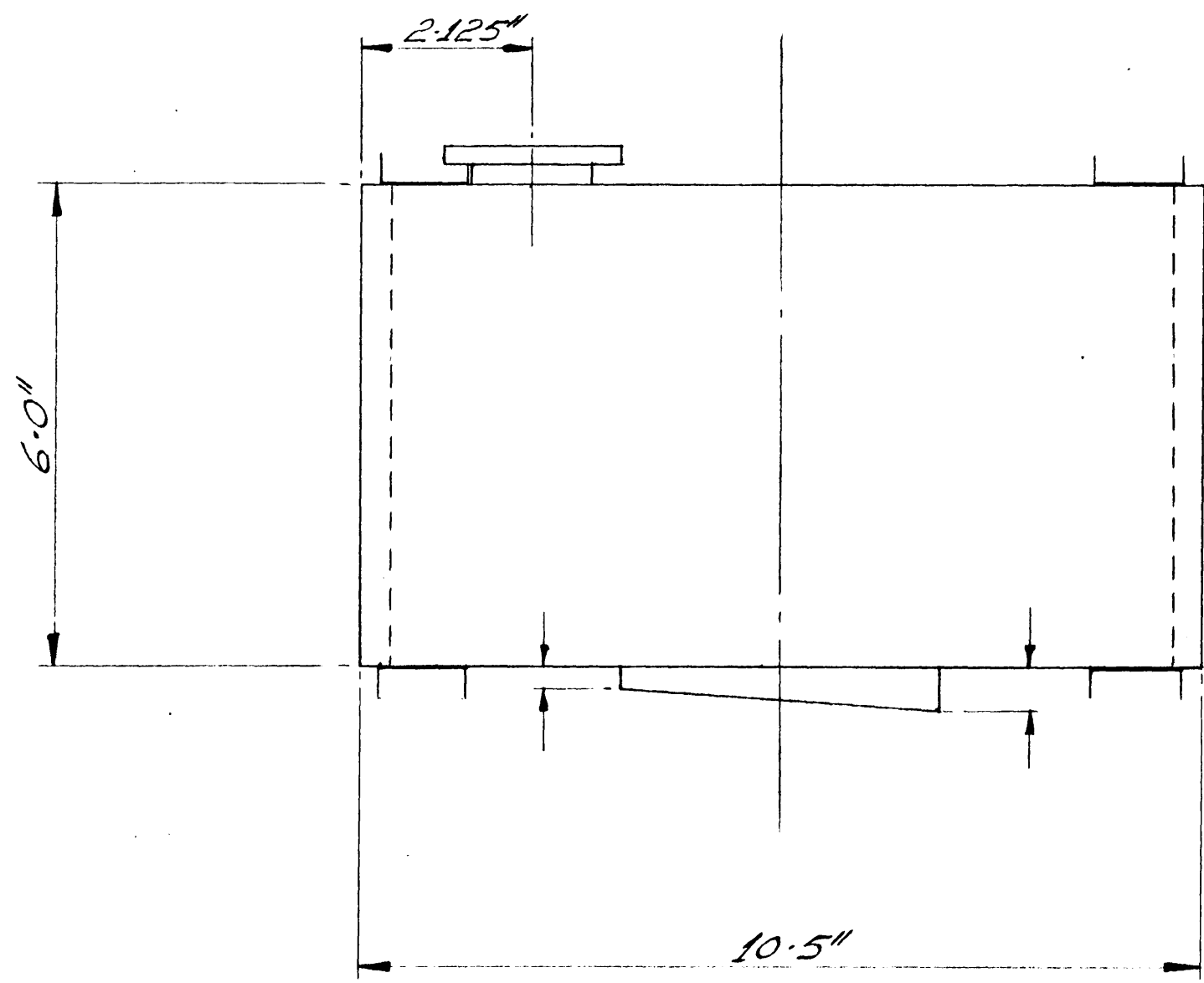
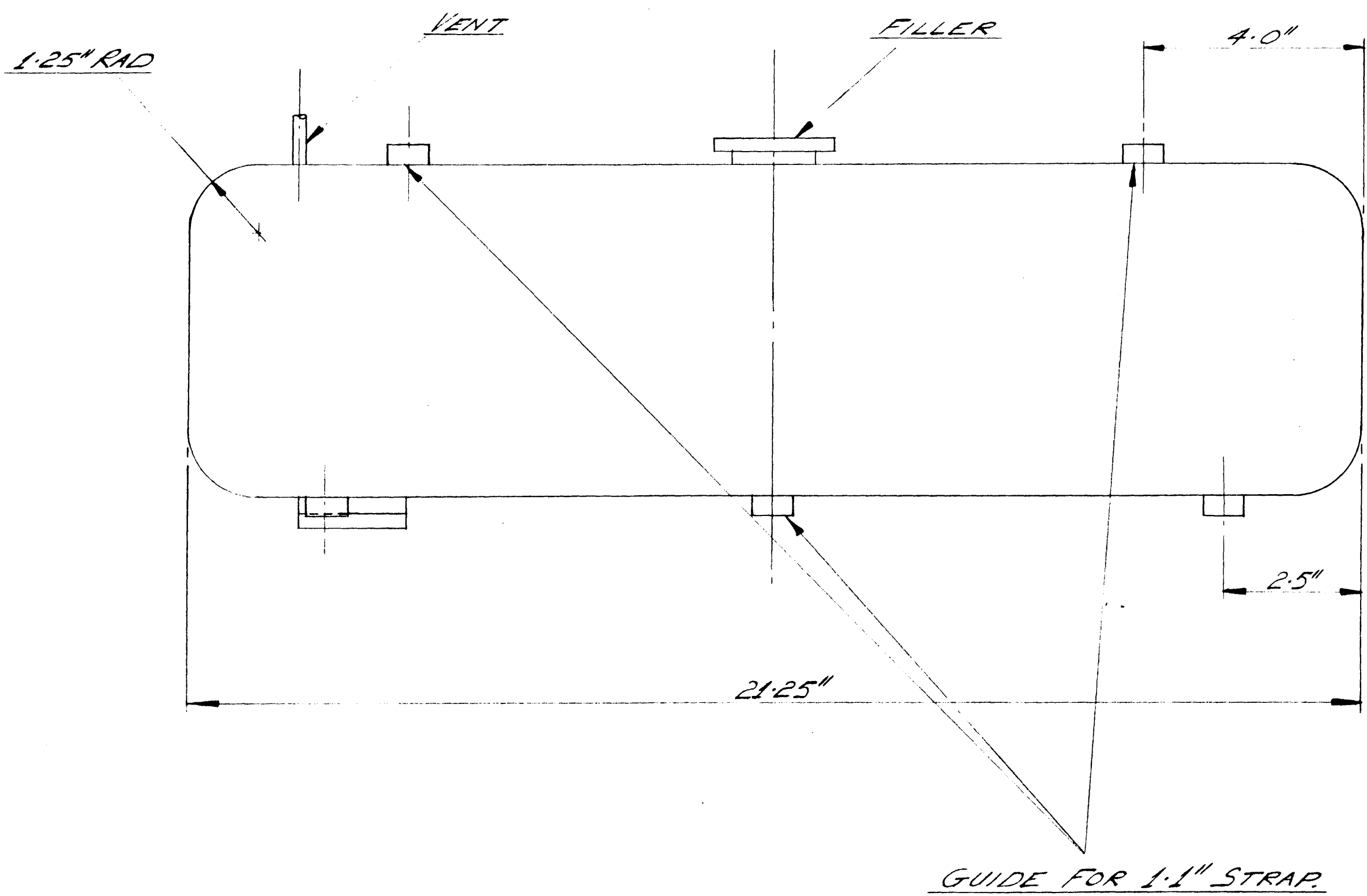
3/8" FLANGES ROUND ENDS
END PANELS DISHED OUTWARDS 3/8"



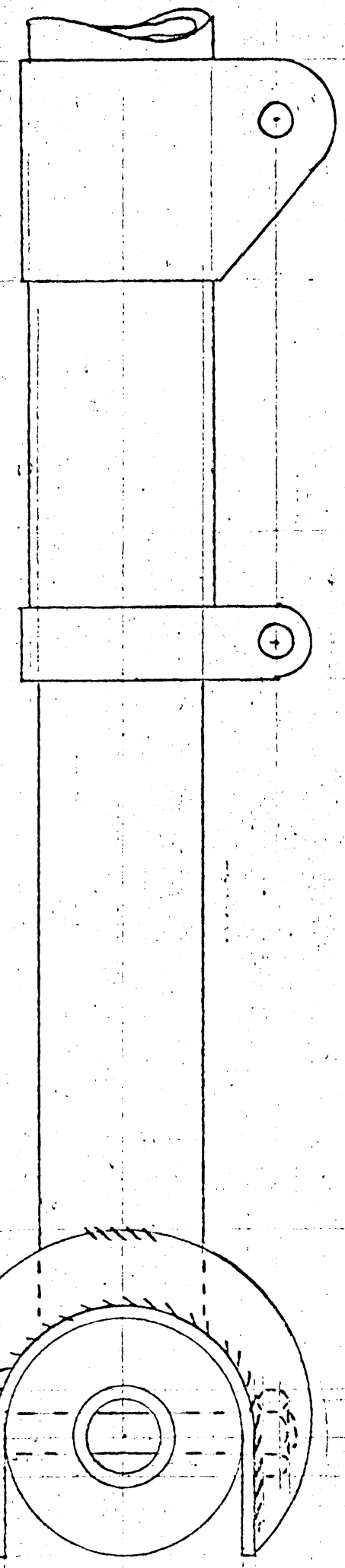
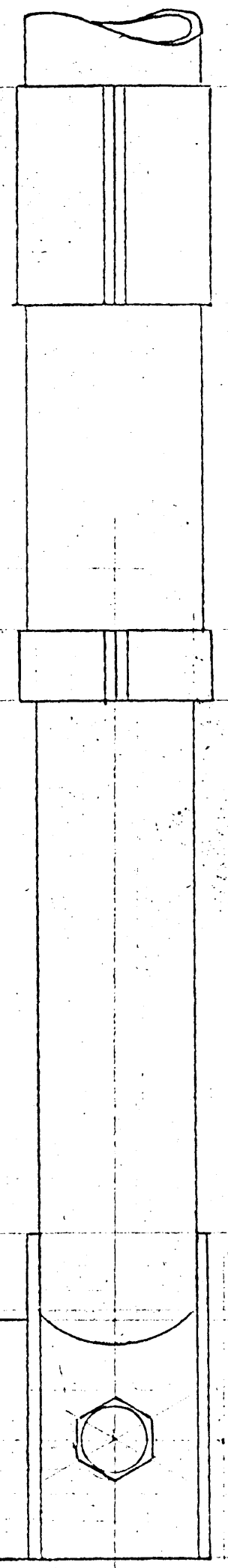
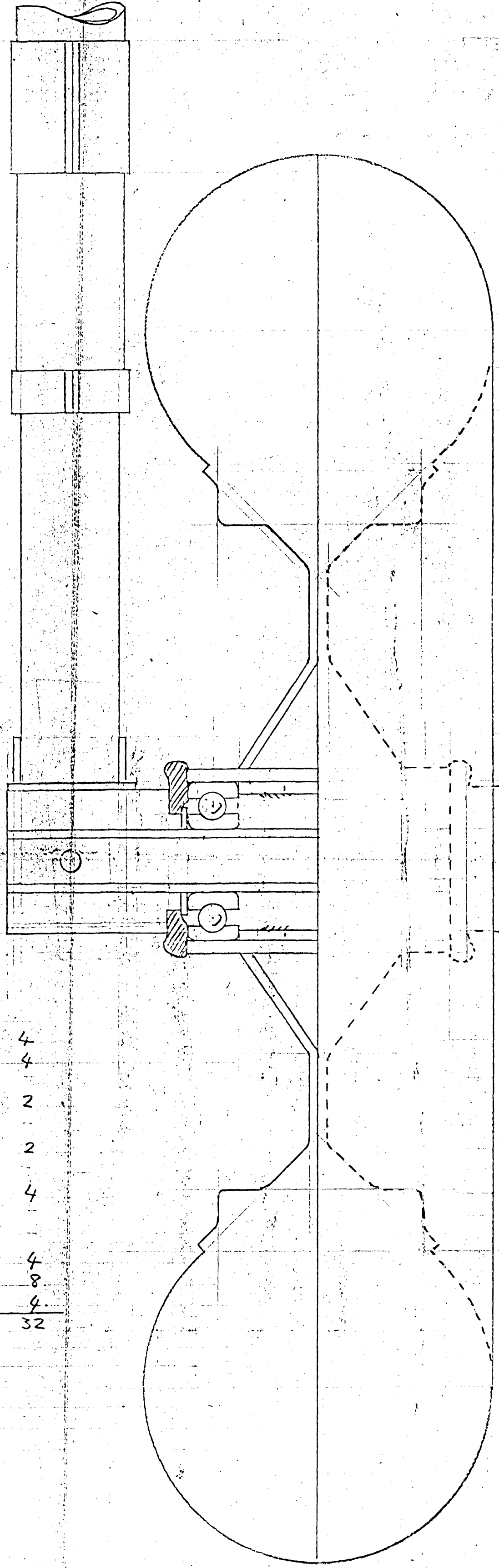
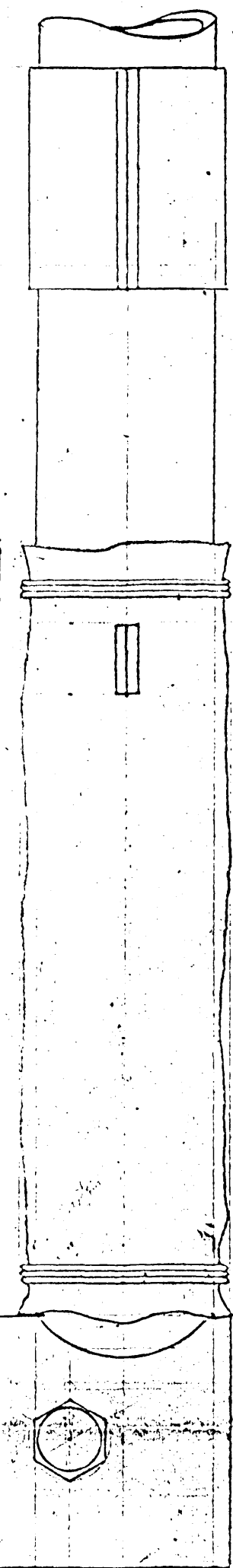
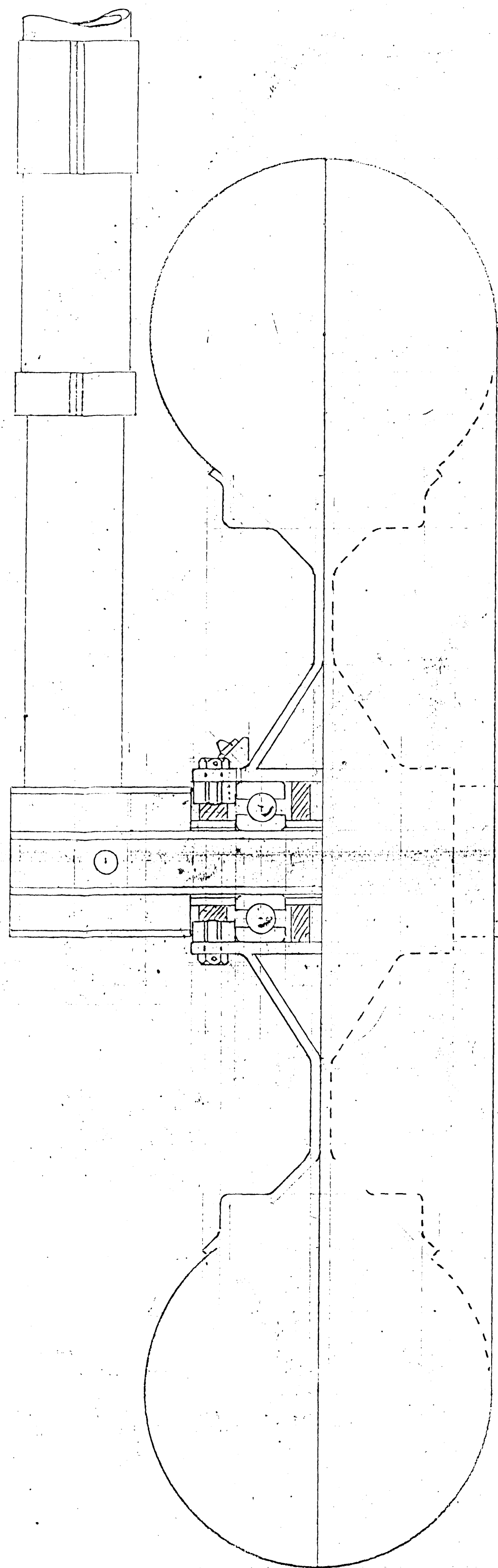
D	IR.	ISSUE	CHILTON AIRCRAFT	
T				
C			MATL 26 S.W.G	SPECIALIST
APPD			TINNED STEEL	
DATE ISSUED	SCALE	FINISH	PROCESS	
	1/8"			
ASSY'D ON	LIMITS (UNLESS STATED)		No OFF	
DESCRIPTION			DRG No	
10 GALLON FUEL TANK			M.09	



CAPACITY 4.6 GALLONS



D	J.L.	ISSUE		CHILTON AIRCRAFT.	
T				MAT ² 26 S.W.G.	SPEC (LATEST ISSUE)
C				TINNED STEEL	
APP'D					
DATE ISSUED	SCALE	FINISH	PROCESSES		
	1/2				
ASSMD ON	LIMITS (UNLESS STATED)	N6 OFF			1
DESCRIPTION	AUXILIARY	DRG No.			
FUEL TANK.		M.10			

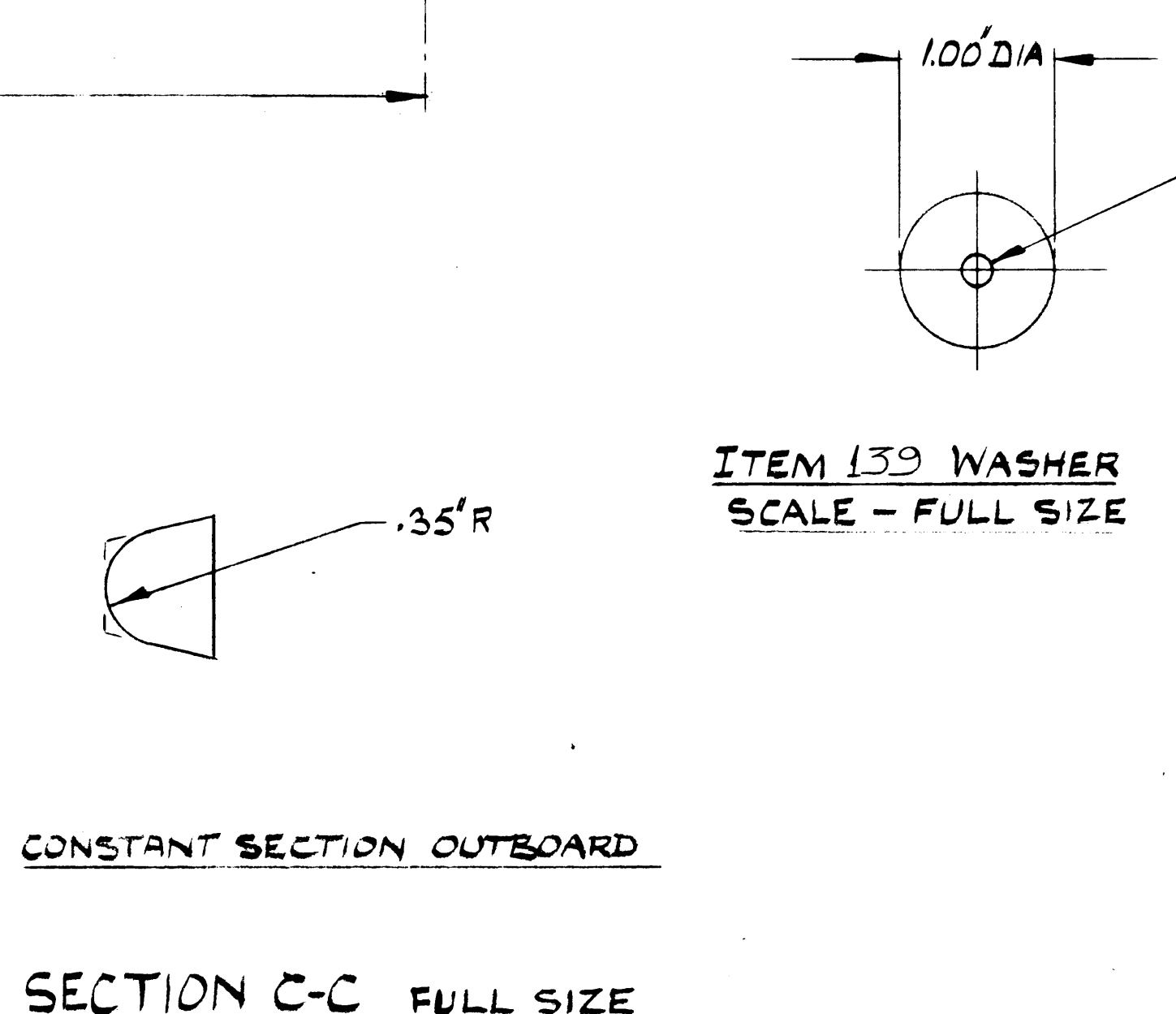
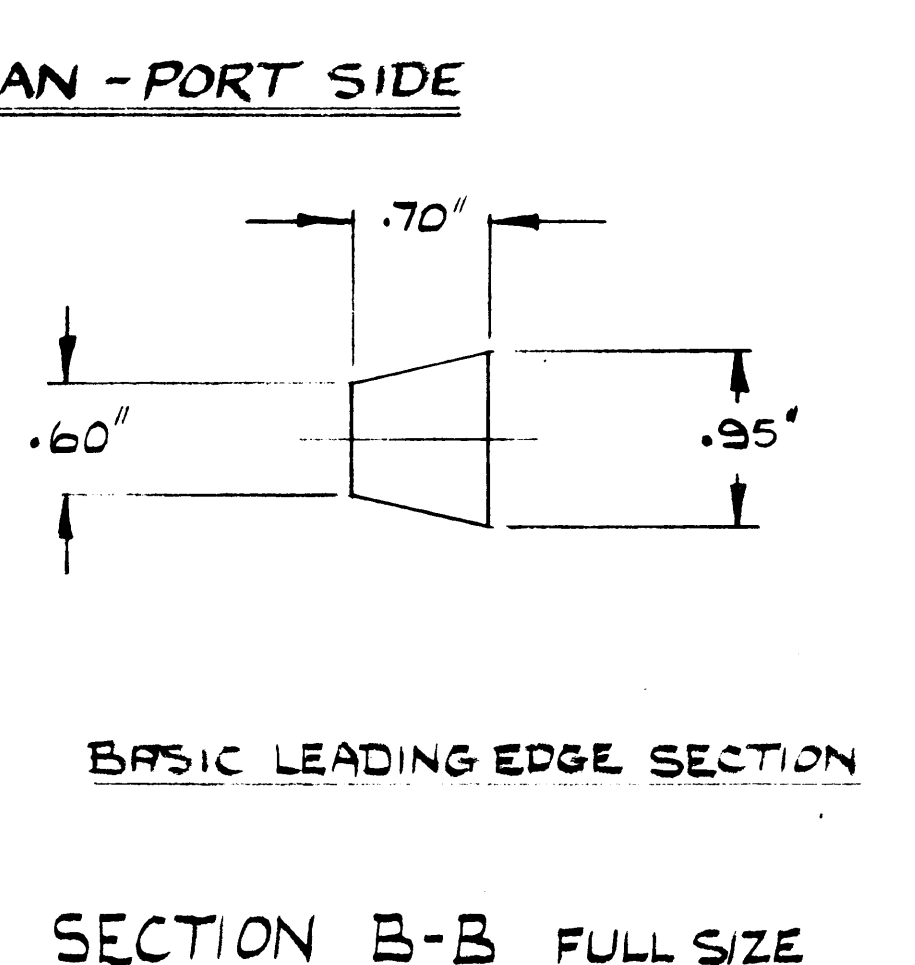
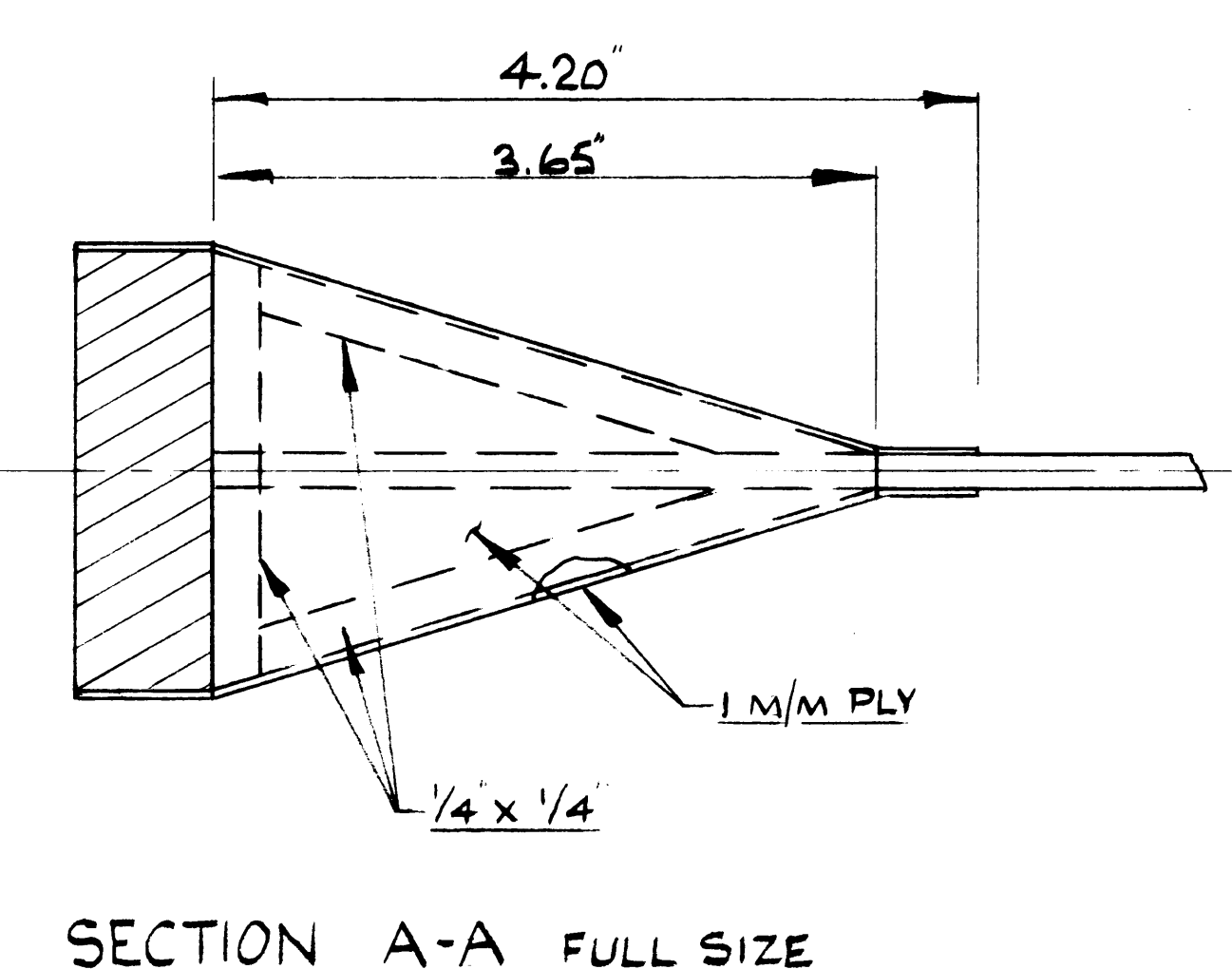
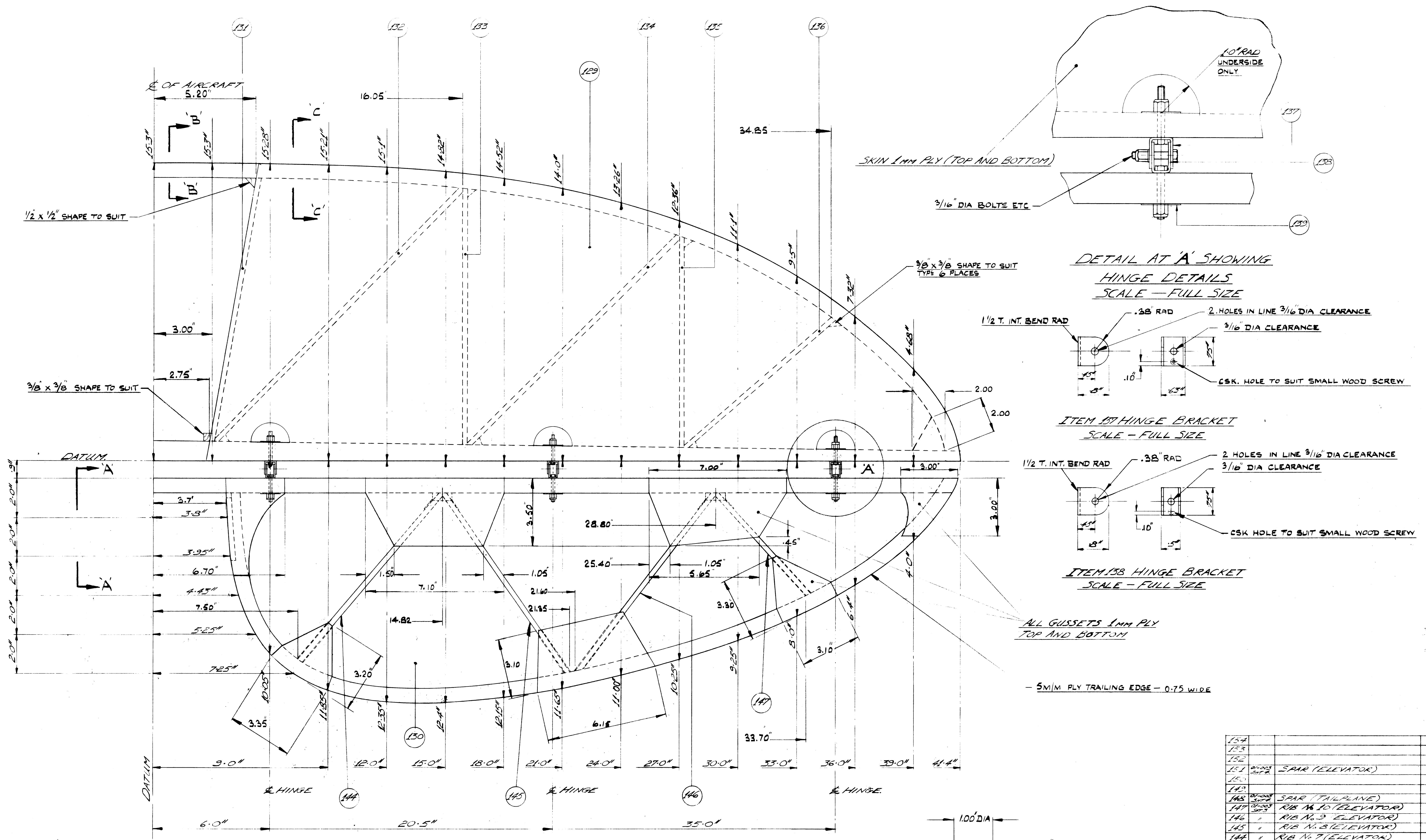


ADDITIONAL ITEMS:

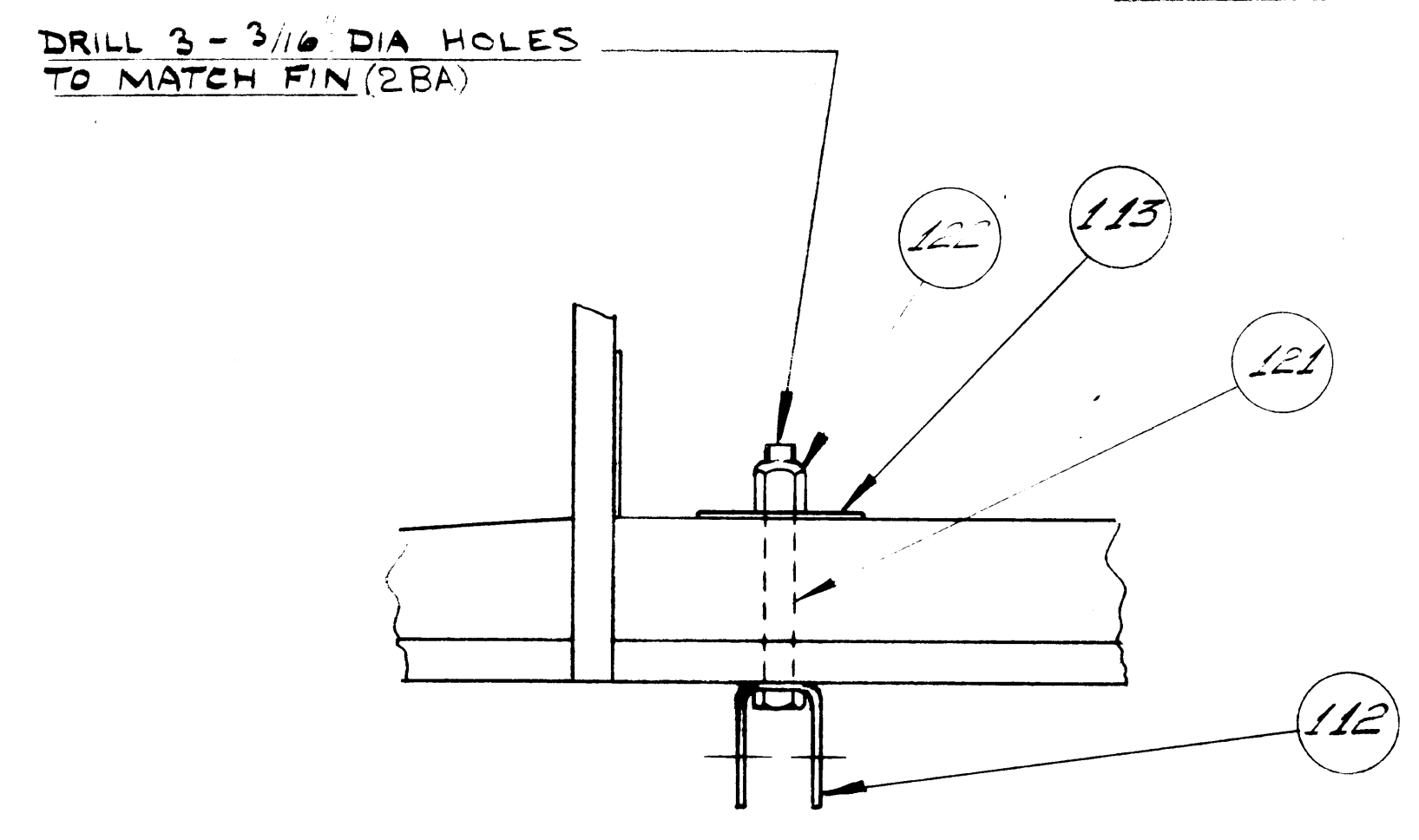
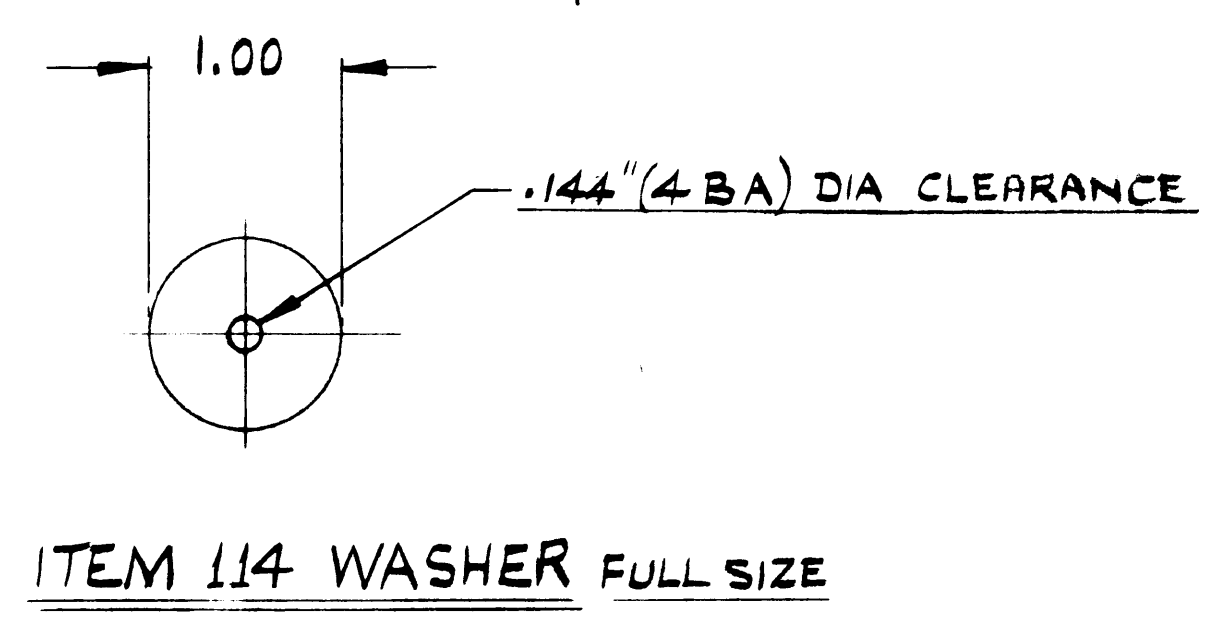
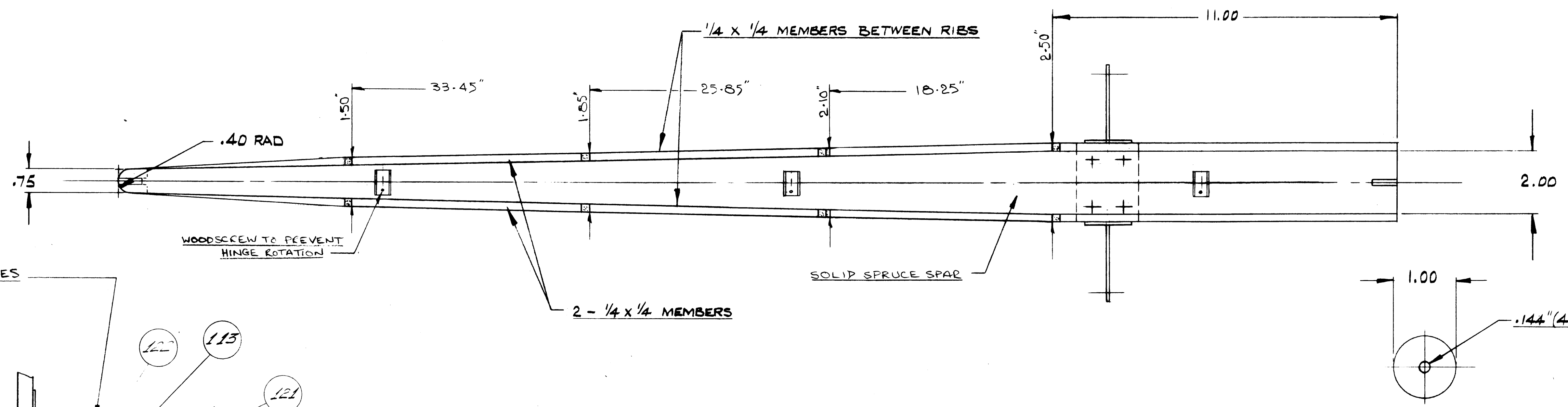
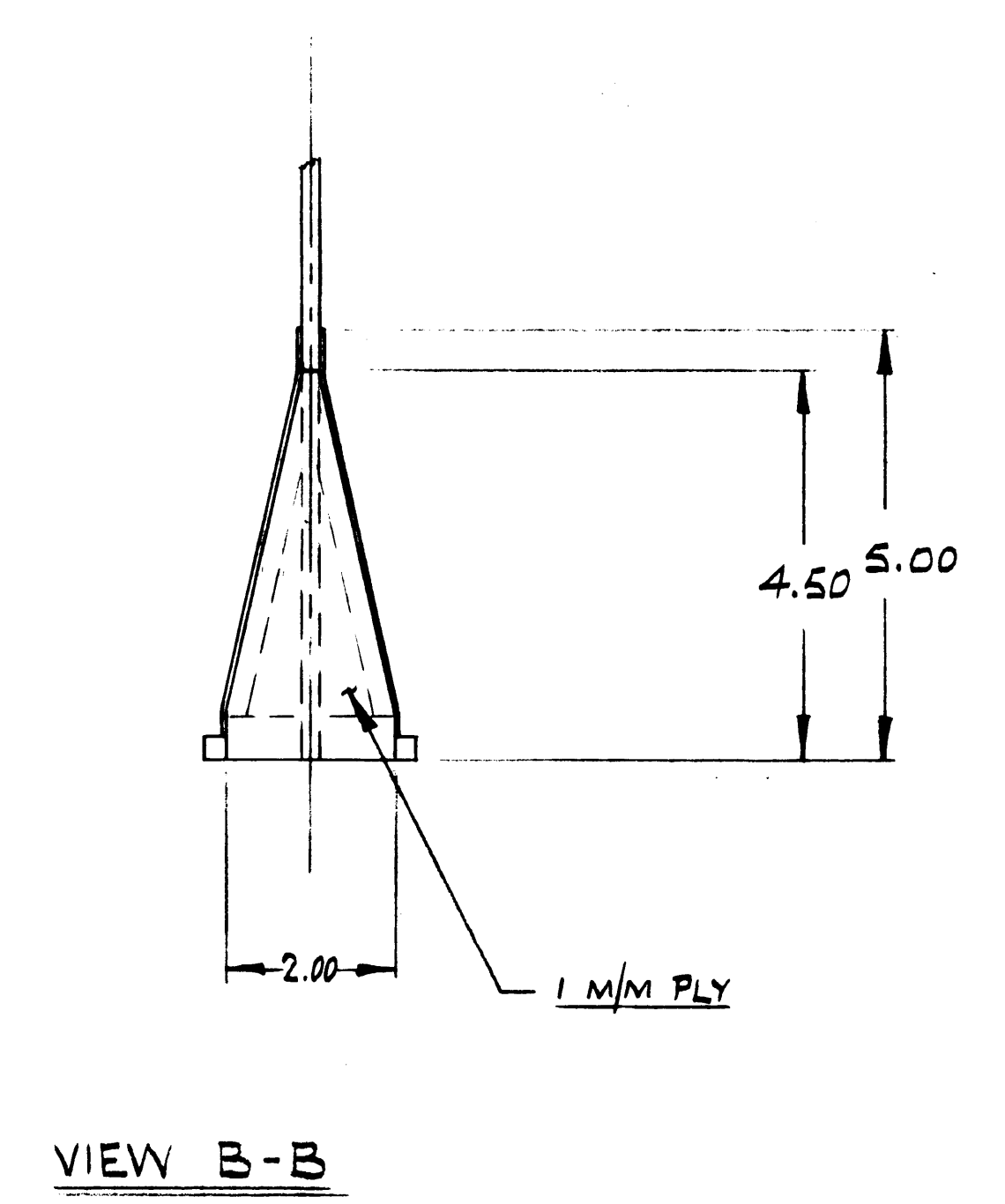
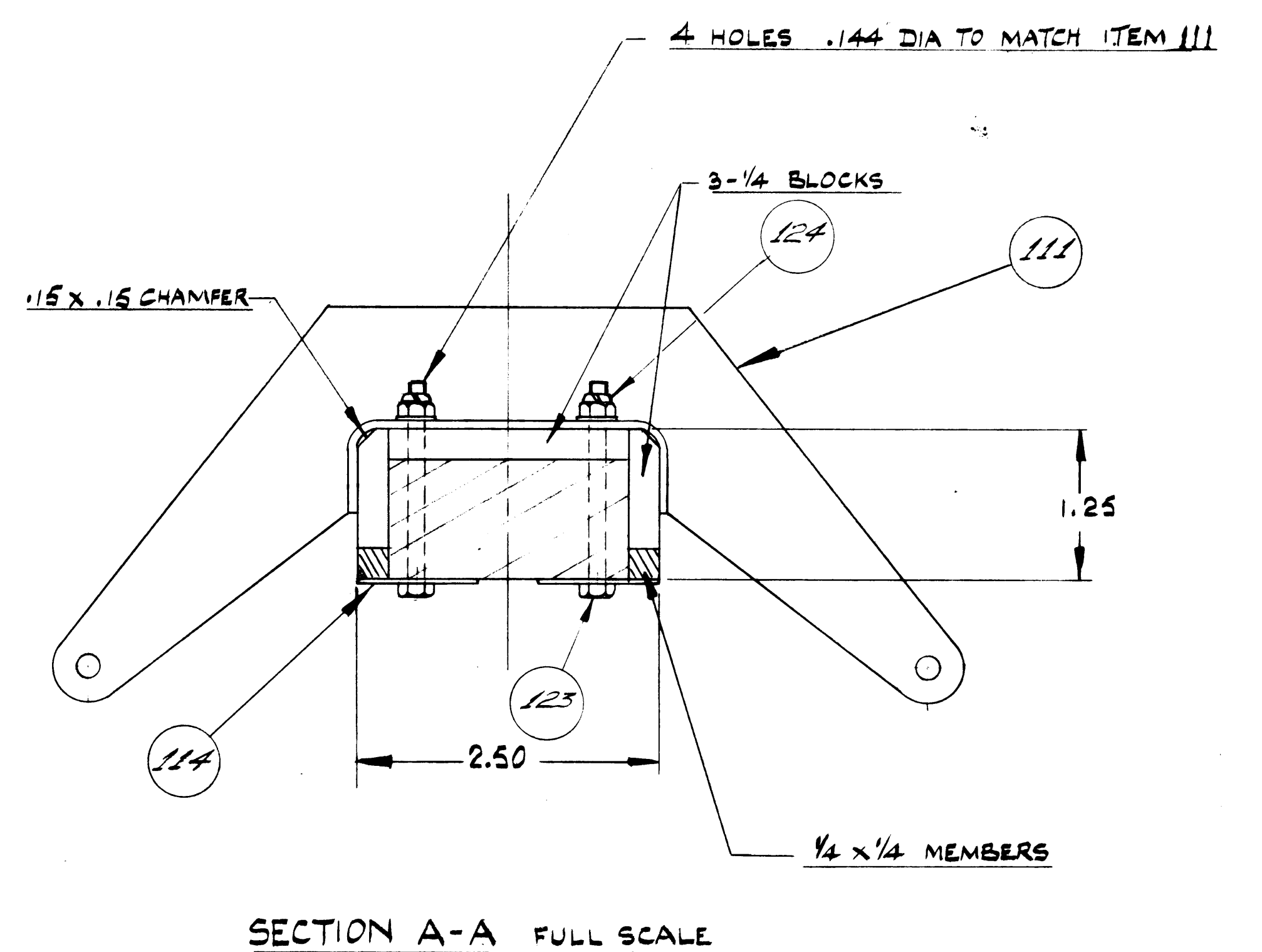
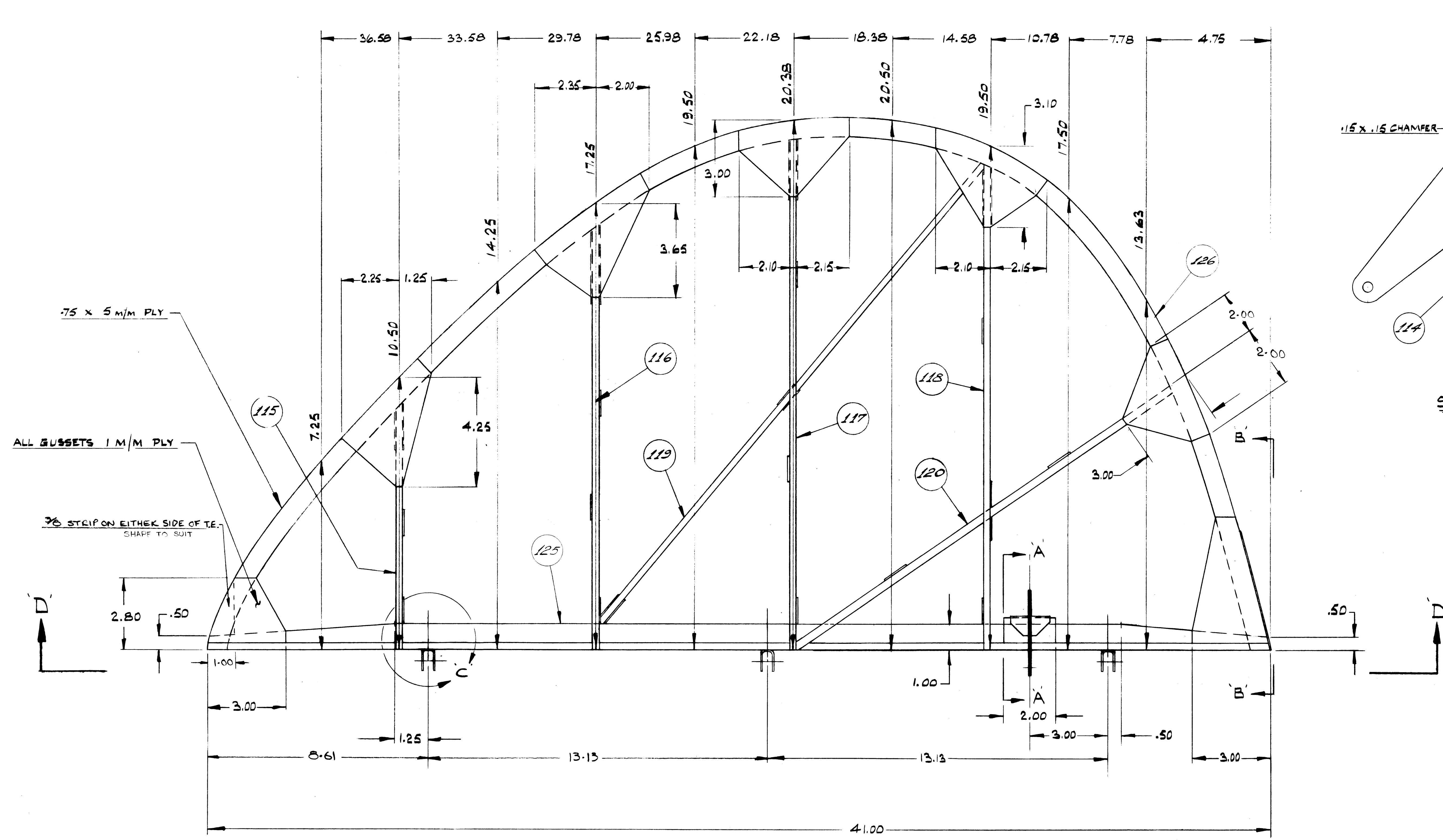
RLS.6 RACES	4
DURAL END BLOCK	4
OUTER SPACER	4
INNER SPACER	2
COLLAR	4
AXLE	2
INNER FELT WASHER	4
OUTER FELT WASHER	4
GREASE NIPPLES	2
2 BA BOLTS	16
5/16 BOLTS	4
TOTAL	50

PLATES 8
SHIMS 4
32

D.	ISSUE	CHILTON AIRCRAFT	
T.		MAT.	SPEC. (LATEST ISSUE)
C.			
APPD.			
DATE ISSUED	SCALE	FINISH	PROCESSES
ASSMD. ON	LIMITS (UNLESS STATED)	No. OFF	
DESCRIPTION	DRG. No.		



134			
133			
132			
131	SPAR (ELEVATOR)		
130			
129			
128	SPAR (TAILPLANE)		
127	RIB No. 10 (ELEVATOR)		
126	RIB No. 9 (ELEVATOR)		
125	RIB No. 8 (ELEVATOR)		
124	RIB No. 7 (ELEVATOR)		
123			
122			
121			
120			
119	WASHER	22.5x6.350 STEEL	
118	HINGE BRACKET	40.5x16.5x3.00 STEEL	
117	HINGE BRACKET		
116	RIB No. 6 (TAILPLANE)		
115	RIB No. 5 (TAILPLANE)		
114	RIB No. 4 (TAILPLANE)		
113	RIB No. 3 (TAILPLANE)		
112	RIB No. 2 (TAILPLANE)		
111	RIB No. 1 (TAILPLANE)		
110	ELEVATOR		
109	TAILPLANE		
ITEM DRG No.			
D	I.R.	DATE	
T			CHILTON AIRCRAFT
C			MAT. SPEC. LATEST ISSUED
APPD			
DWG ISSUED	SCALE	FINISH	PROCESSES
ASMD ON	UNITS (UNLESS STATED)	NO. OFF	
DESCRIPTION		DWG No.	T. 01
TAIL PLANE AND ELEVATOR			



126	RUDDER TIE ROD
125	RUDDER SPAR
124	LOCKNUT
123	BOLT
122	LOCKWASHER
121	EXOT 2BA
120	RIB NO 6
119	RIB NO 5
118	RIB NO 4
117	RIB NO 3
116	RIB NO 2
115	RIB NO 1
114	WASHER
113	WASHER
112	HINGE BRACKET
111	RUDDER KINGPOST

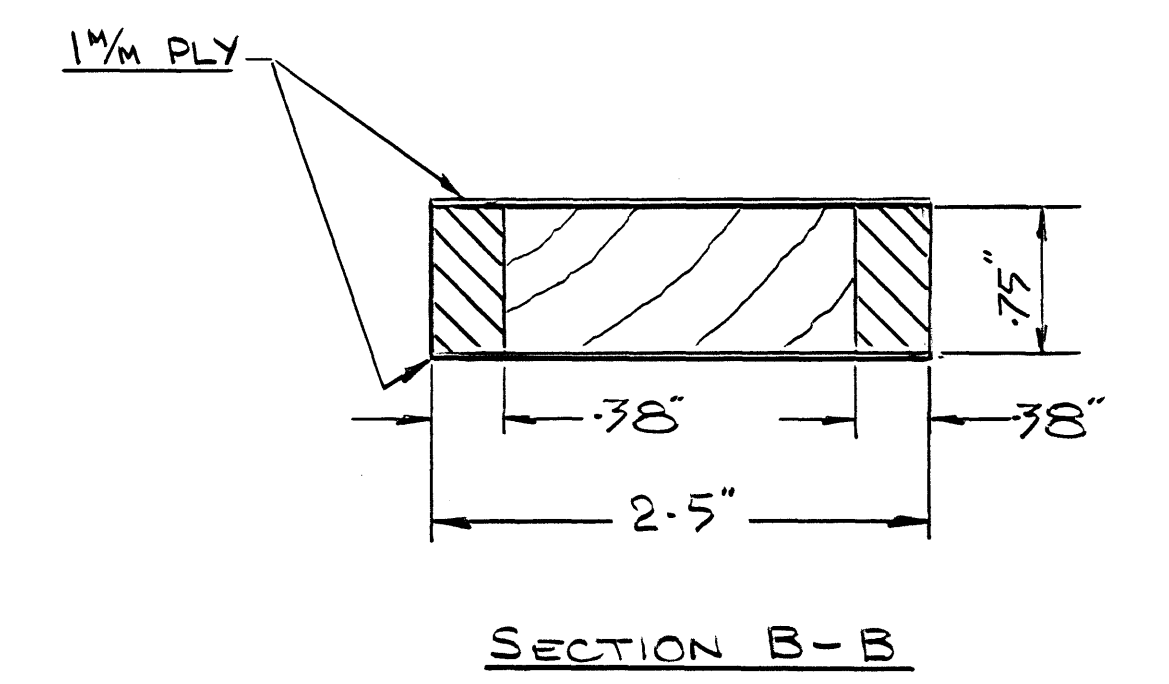
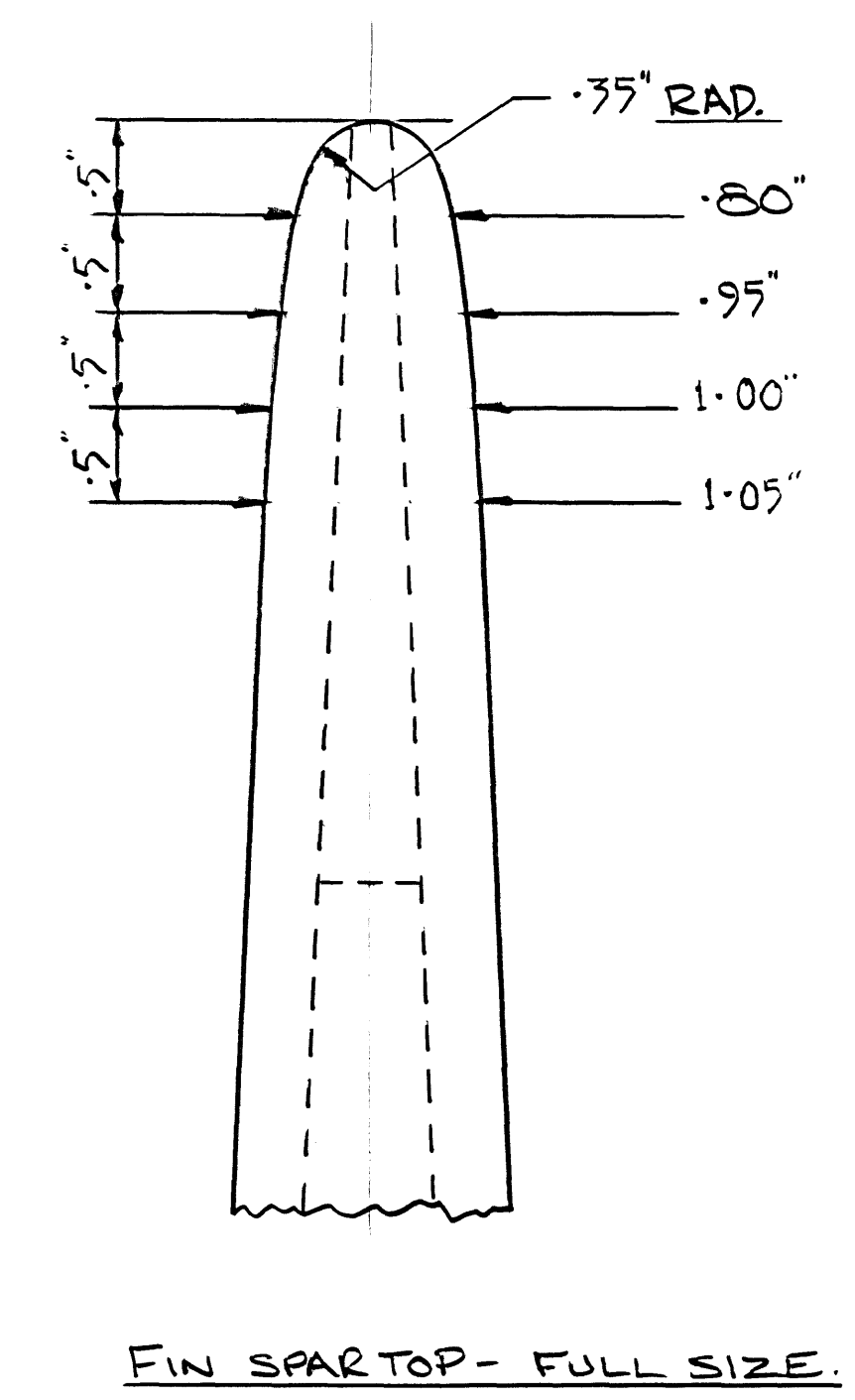
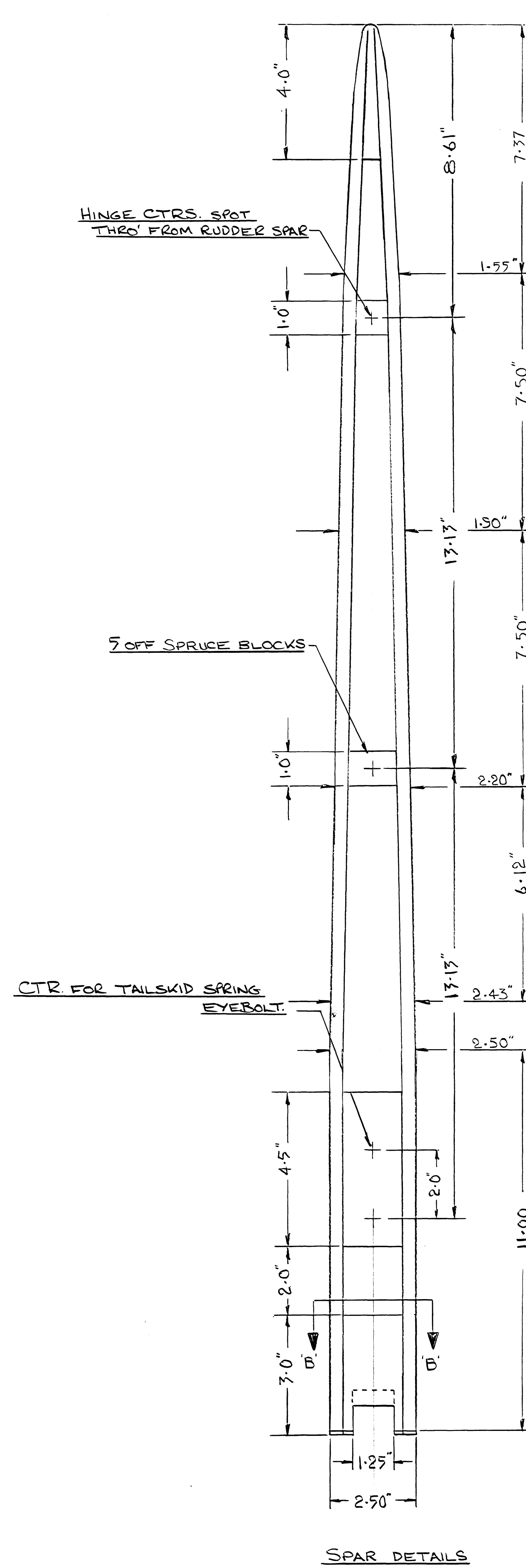
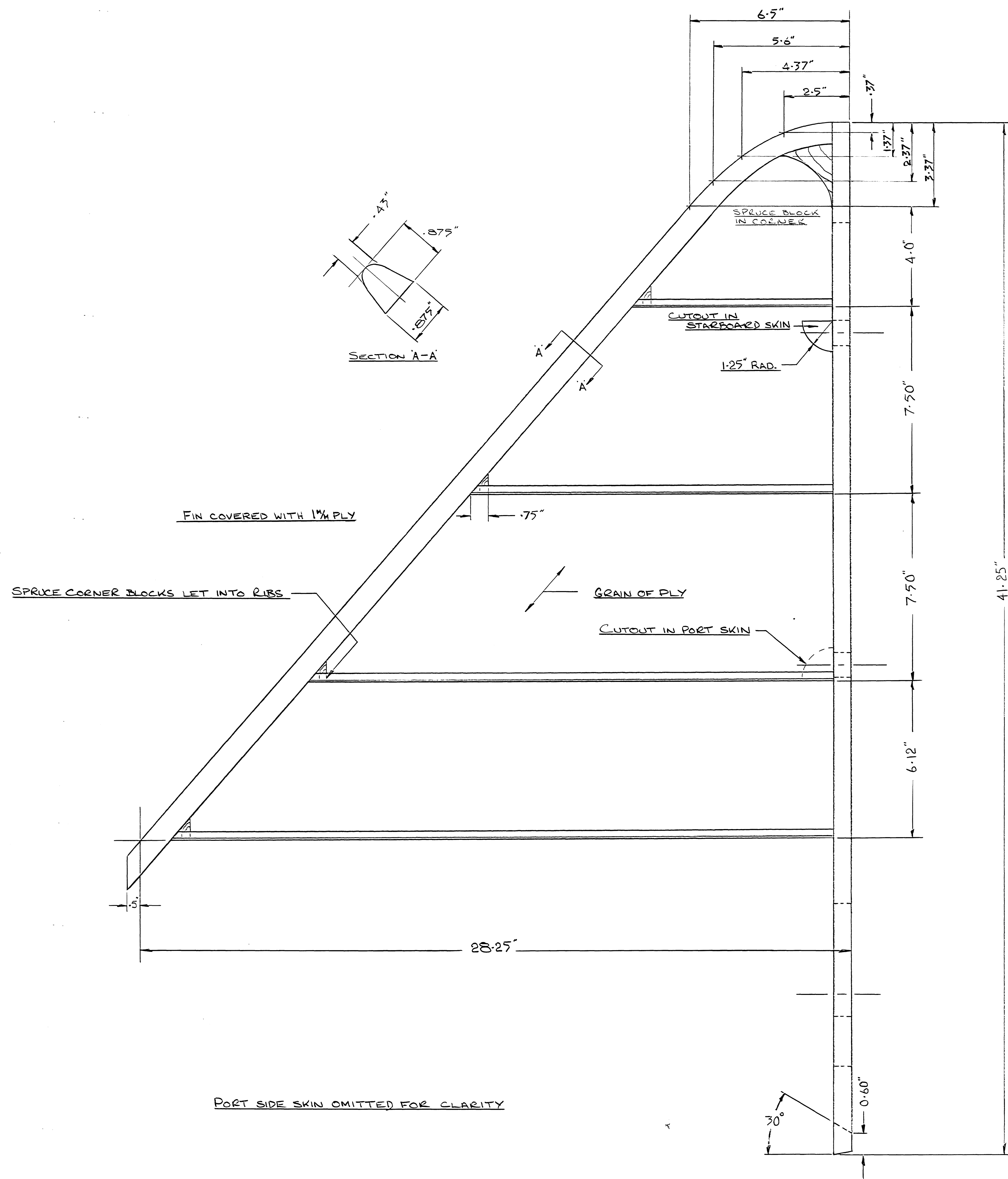
ITEM	DRG NO	DESCRIPTION
D	D.H.Z.	ISSUE
T		
C		
APPS		
DATE ISSUED	SCALE	FINISH
ASSYD ON	LIMITS (UNLESS STATED)	NO OFF
DESCRIPTION	DRG. NO	T.05

CHILTON AIRCRAFT

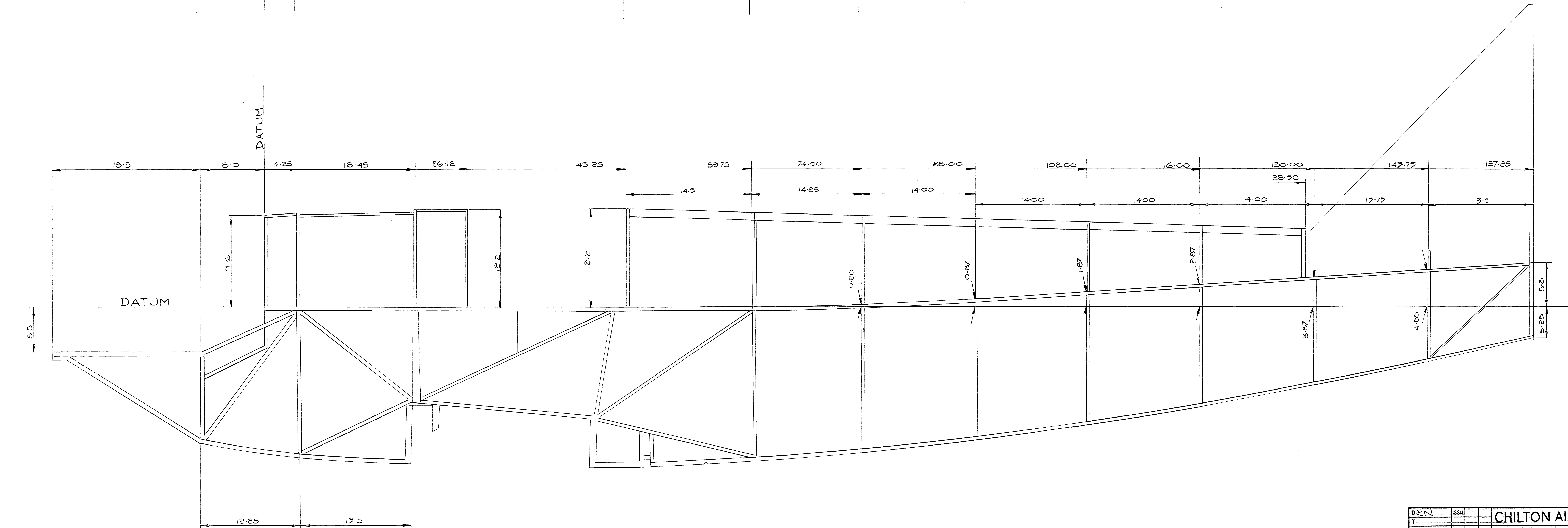
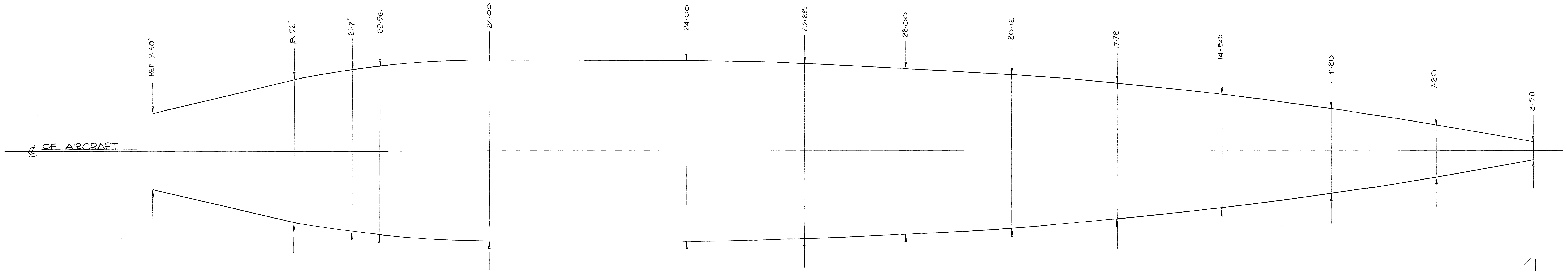
MATS SPEC (LATEST ISSUE)

1/2 & 1/4

+ .04 - .00

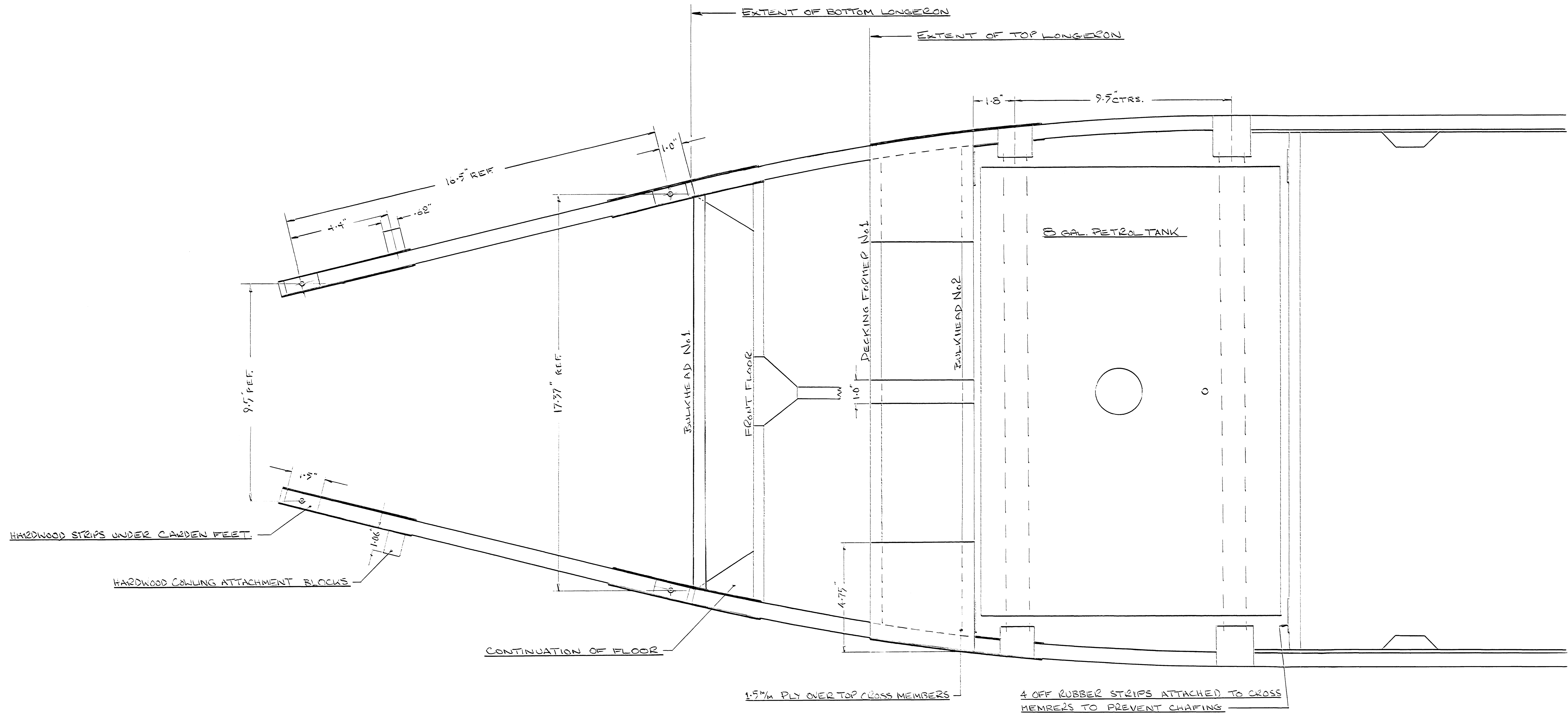


D.R.N.	ISSUE	CHILTON AIRCRAFT	
T.		SPEC. (LATEST ISSUE)	
C.		MAT	
APPD.			
DATE ISSUED	SCALE	FINISH	PROCESSES
ASSMD ON	LIMITS (UNLESS STATED)	No. OFF	
DESCRIPTION	FIN	DRG. No.	T.08

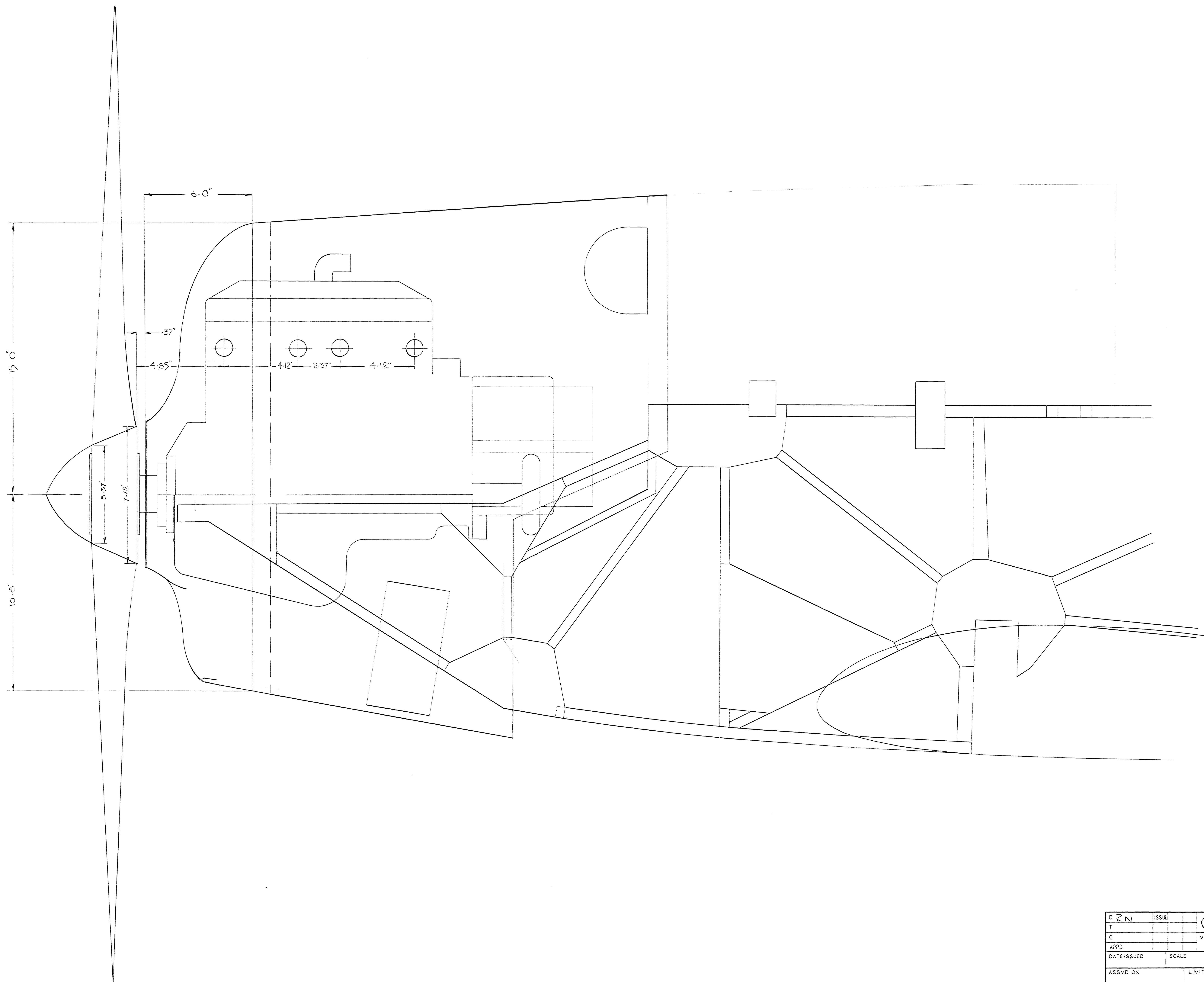


D.R.N.		ISSUE	CHILTON AIRCRAFT	
I.			MAT.	SPEC. (LATEST ISSUE)
C.				
APPR.				
DATE ISSUED	SCALE	FINISH	PROCESSES	
ASSMD. ON	LIMITS (UNLESS STATED)		No. OFF.	
DESCRIPTION	FUSELAGE GA		DRG. No.	
	DW 1 (CARDEN ENGINE)			

NOTE - ONLY TOP & BOTTOM LONGERONS ARE BENT ROUND, FRONT DIAGONAL MEMBERS AND MEMBERS RADIATING FROM THE FRONT MAIN JOINT ARE PARALLEL SECTIONS WITH THEIR OUTER EDGES SHAPED TO COINCIDE WITH THE CURVATURE OF THE SKIN.

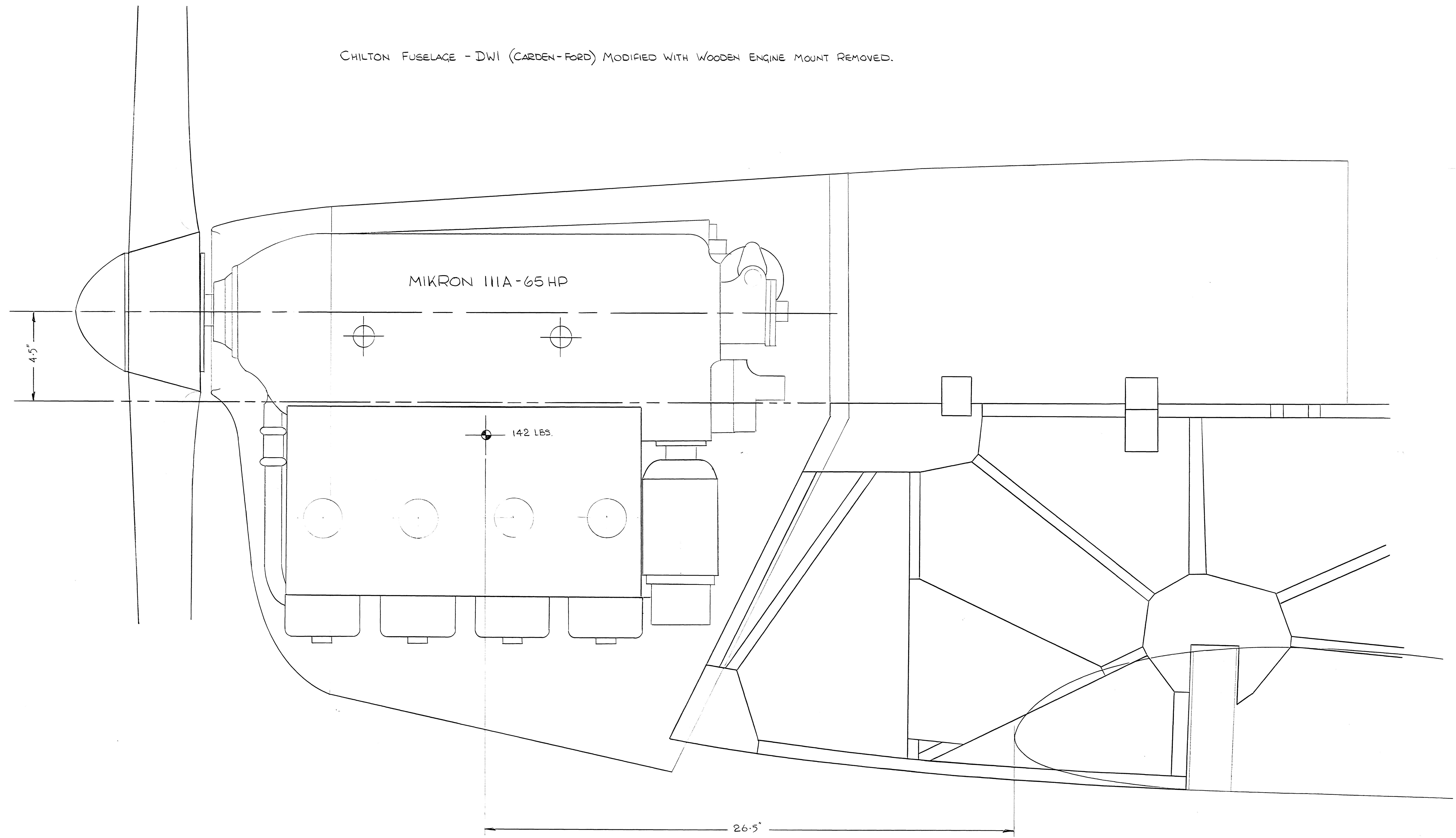


DRN	ISSUE	CHILTON AIRCRAFT	
T			
C		MAT	SPEC. (LATEST ISSUE)
APPD.			
DATE ISSUED	SCALE	FINISH	PROCESSES
ASSMD ON	LIMITS (UNLESS STATED)		NO. OFF
DESCRIPTION	FORWARD FUS. CARDEN		DRG. No.



02N	ISSUE	CHILTON AIRCRAFT	
C		MAT	SPEC. (LATEST ISSUE)
APPD			
DATE ISSUED	SCALE	FINISH	PROCESSES
ASSMD ON	LIMITS (UNLESS STATED)	NO OFF	
DESCRIPTION			DRG. NO.

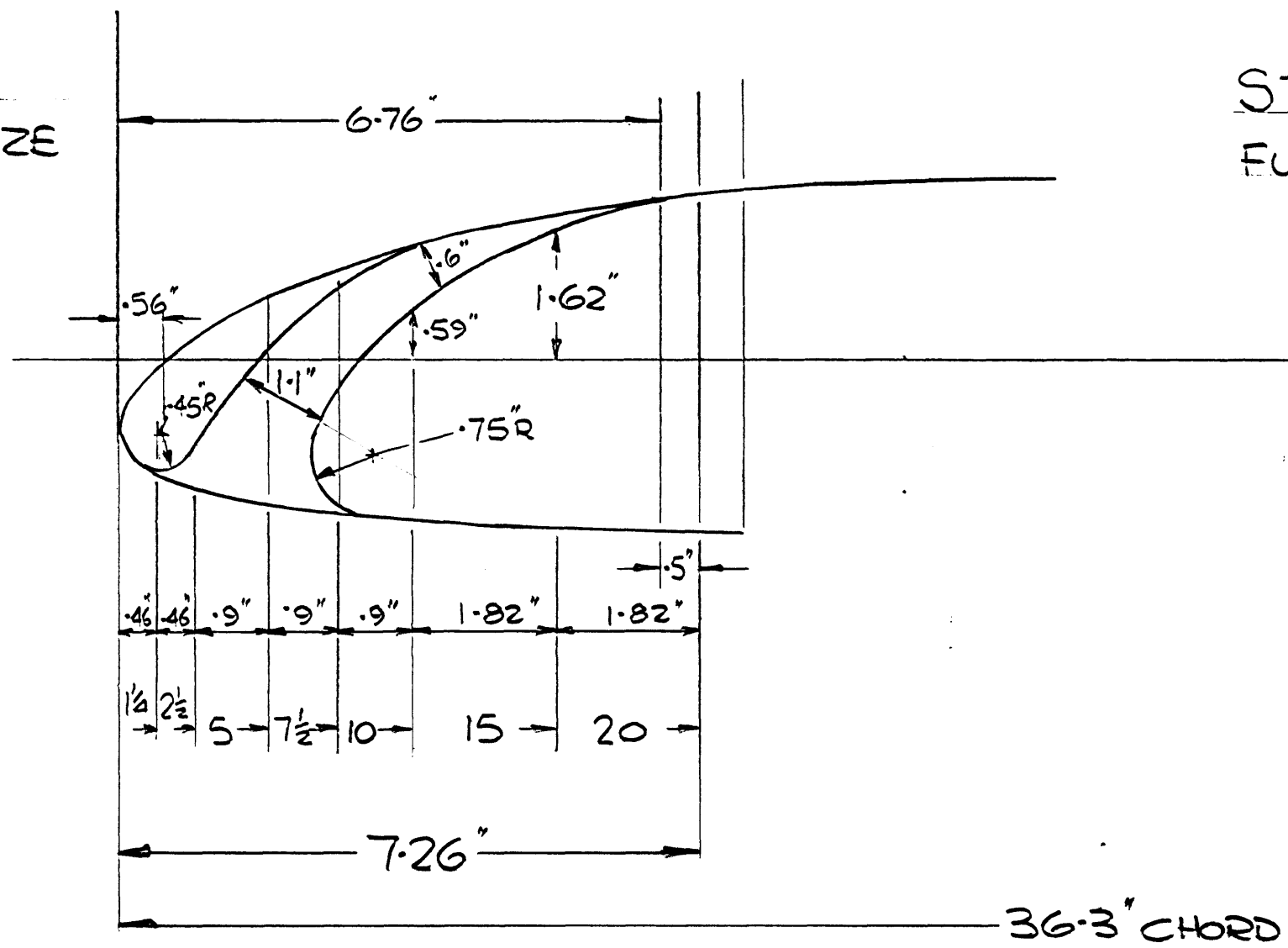
CHILTON FUSELAGE - DWI (CARDEN-FORD) MODIFIED WITH WOODEN ENGINE MOUNT REMOVED.



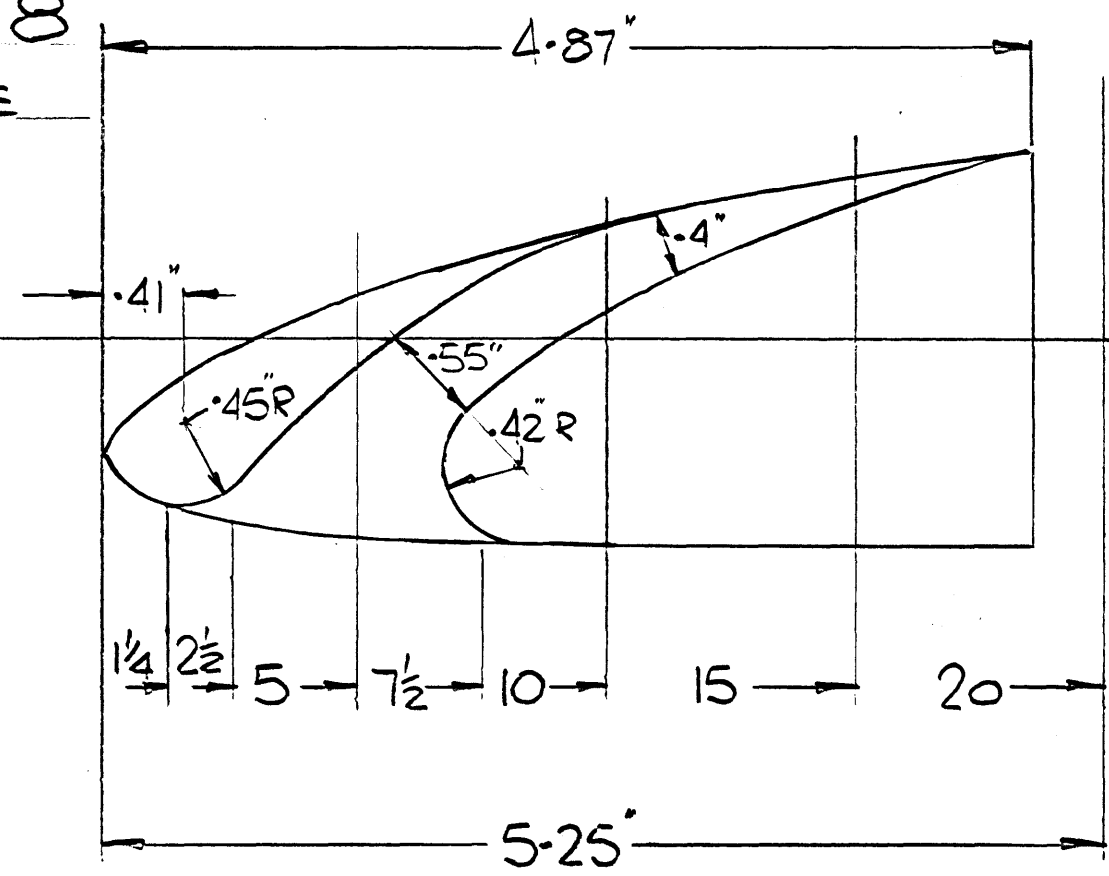
SUGGESTED BASIC LAYOUT OF MIKRON IN MODIFIED DWI FUSELAGE
ORIGINAL TRAIN THRUST LINE & COWLING LINE MAINTAINED.

D	RN	ISSUE		CHILTON AIRCRAFT	
T					
C			MAT	SPEC. (LATEST ISSUE)	
APPD.					
DATE ISSUED	SCALE	FINISH	PROCESSES		
ASSMD. ON	LIMITS (UNLESS STATED)	No. OFF			
DESCRIPTION	MIKRON-DWI			DRG. No.	

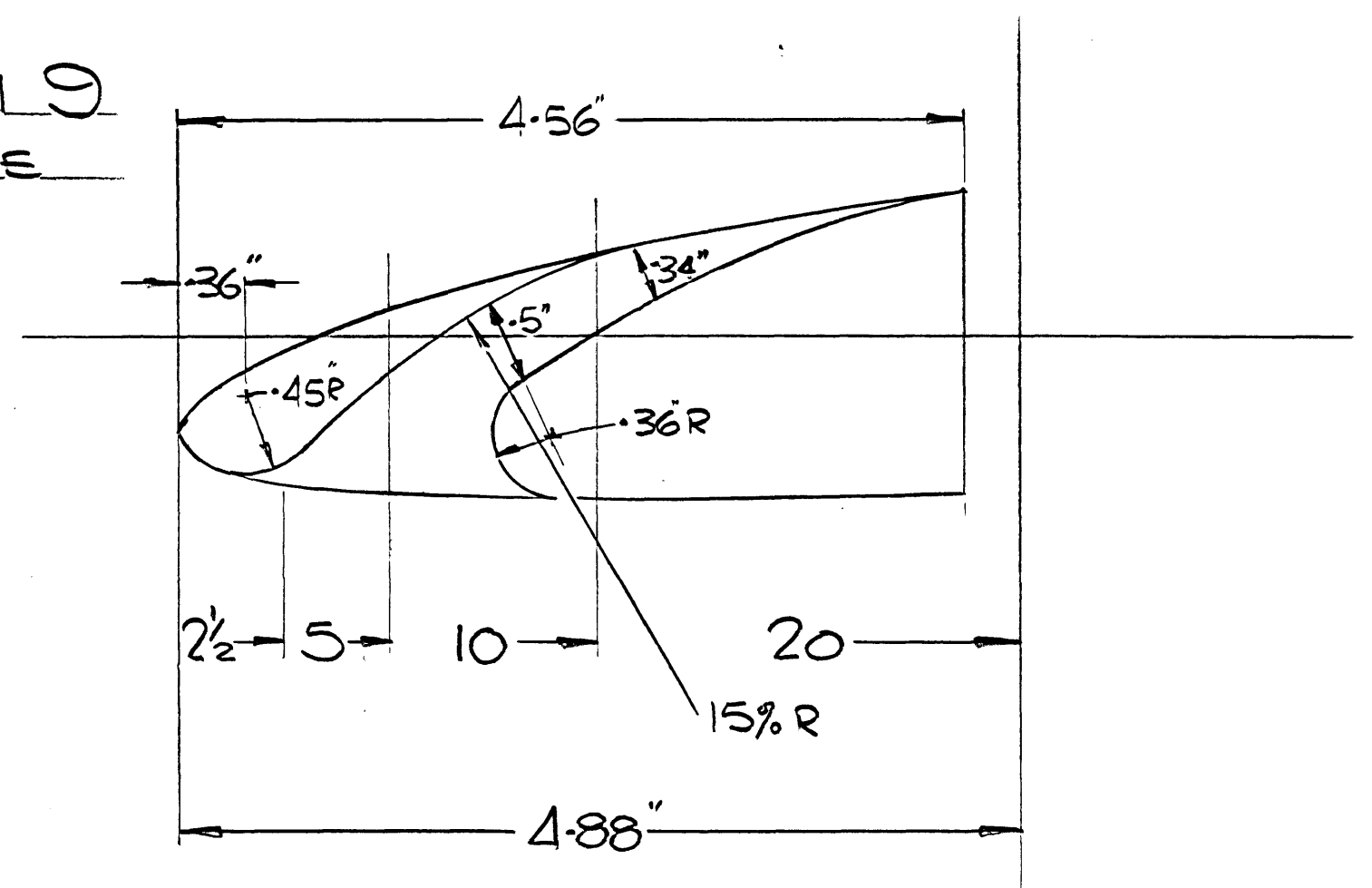
STATION 5
HALF FULL SIZE



STATION 8
FULL SIZE



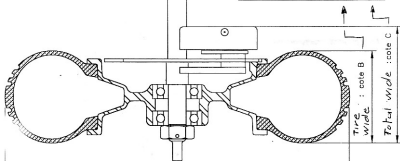
STATION 9
FULL SIZE



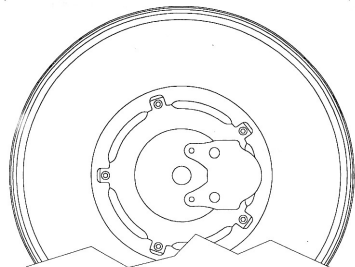
WING SLOTS
G-AFGH & G-AFGI ONLY

Shaft diameter 18 or 25 mm

TIRE	A	B	C
3.50 * 6"	330	94	115
4.00 * 6"	350	100	118
5.00 * 6"	330	112	124



External diameter (depending of tire, dimension A)



All dimension in millimeters (1 inch = 25,4 millimeter)

Dessine	0-8	Matière	25 cd 45 / 2017A / 7075A
date	12/04/20	Rque	
echelle	1/2	TITRE	
REF :	VEN 8301-8	Dessin d'encadrement	
			Indice
			1



WHEEL 4.00 * 6

WITH AN INTEGRATED DISK

MDO aircraft
Mr BASTIEN
38 rue Barchalot
64200 BIARRITZ
Phone/Fax : 33 (0) 5 59 43 75 71
Mail: MDOaircraft@aol.com



WHEEL:

- RIM :** Monobloc, machined in 2017 A (AU4G) alloy, natural color anodised.
- can be tubeless assembled -
- AXLE :** Made of 25 CD 4S pre-treated steel , corrosion treated by ZnBc
Two versions are available : 17 mm shaft diameter
25 mm diameter, drilled 19 mm diameter
Contact us for any other arrangement.
- ASSEMBLY :** With two rigid ball bearings, wich are closed and lubricated for ever.
- LOAD :** temporary max : (at landing) 1490 lb
(pour 1 wheel) continuous max : (static and taxinge) 795 lb

BRAKE :

- DISK :** Made of 100 kg steel , thickness 3 mm - ZnBc treated
- CALIPER :** Sliding axles and hydraulic control (bore diameter 38 mm)
- LINING:** Interchangeable, made of asbestos-free material, bonded and riveted.

WEIGHT :

- Complet wheel with disk, 25 mm axle, 3.50*6 - 4 ply tire,
caliper, screws, connector, draining screw, ect...) 7.28 lb
with 4 ply- 4.00*6 tire : 7.95 lb

Chilton Material Listing

Approximate Quantities & Main Applications

<u>Birch Ply Sheets</u>	No. off	
5mm	1	Trailing edge, elevators & rudder
3mm	1	Centre section spar web, instrument panel, footrests
2.5mm	1	Front floor, main joint gussets
2mm	2	Spar webs, former No.3, walkway on centre section
1.5mm	2	Spar webs, formers 1 & 11
1mm	-	All ply covering, most rib diaphragms
1mm	7	Fuselage
1mm	6	Wings
1mm	4	Centre section
1mm	3	Tailplane assembly

Main Spruce Sections

1/4" x 1/4"	Wing & tailplane ribs
1/4" x 3/8"	Centre section ribs various
1/4" x 1/2"	Centre section ribs, fuselage frames
3/8" x 3/8"	Centre section ribs
1/2" x 3/4"	Fuselage structure
5/8" x 5/8"	Longerons
3/8" Sheet	Decking former profiles
1/4" sheet	Leading edge rib profiles & flap ribs

Hardwood

Ash	Tank support blocks, tailskid mounting block
Ash	Spar attachment facings, tailskid spring mounting block
Ash	Main joints, spar to fuselage packing
Ash	Rudder pedal mounting blocks
Ash	Wing attachment fittings - alignment blocks
Ash	Wing to aileron hinge attachment blocks
Ash	Rear upper torso restraint harness attachment blocks

T45 Steel Tubing

1 3/4" x 16 S.W.G.	Axle attachment tubes
1 5/8" x 16 S.W.G.	Axle
1 3/8" x 16 S.W.G.	Undercarriage attachment fittings
1 1/4" x 21 S.W.G.*	Main Undercarriage legs (use 20 S.W.G.)
1 3/16" x 20 S.W.G.*	Inner Undercarriage legs (use 1 1/4" x 14 S.W.G. turned down)
1 1/8" x 16 S.W.G.	Rudder pedal bearing tube
1 1/16" x 22 S.W.G.*	Flap bearing housing (use 1 1/8" x 16 S.W.G. turned down)
1" x 16 S.W.G.	Various to sleeve 7/8" tube
7/8" x 16 S.W.G.	Tailskid
7/8" x 20 S.W.G.	Control cross tube
7/8" x 22 S.W.G.	Control column, rudder pedal fulcrum tube, wing flap torque tubes, flap lever
5/8" x 22 S.W.G.	Undercarriage stay tubes, ruder pedals, flap actuating tube
3/8" x 16 S.W.G.	Aileron push rods & various
5/16" x 16 S.W.G.	Various, welding in as cross tubes for bolts

* Sizes no longer available

Various Items

3/16" Steel rod (no spec. available)	Undercarriage inner leg retaining rods
S514 Steel sheet	In 14, 16, 18 & 20 S.W.G. various fittings
Stainless steel	26 S.W.G. flap to torque tube retaining straps
Stainless steel	24 S.W.G. firewall
Tinned steel	26 S.W.G. petrol tank
L72 Dural plate	1/4" & 3/16" wing attachment plates (spec. now L163)
Aluminium sheet	24 S.W.G. undercarriage trousers
S80 or S154 bar	Wing attachment pins

Chilton Material Listing - cont.
Approximate Quantities & Main Applications

Various Items - cont.

"Oilite" bearings	7/8" bore for flap torque tube bearings
Compressed red fibre sheet	1/8", 1/4" & 3/8" cable fairleads & wing attachment plate packing pieces
Tufnol fibre bar	1 1/4" x 7/8" bore control column cross tube & rudder pedal fulcrum tube spacers
Fabric	Spec. 7F8 for unsupported surfaces
Fabric	Madapolam for covering plywood
Fabric strap	1" Wide for petrol tank supports
Springs	4 off compression for undercarriage
Spring	1 off tension - tailskid suspension
1/4" soft aluminium tube	Pitot & static lines
Rubber grommets 1/4" bore	For above tubing

Units referred to in the Chilton drawings:-

S.W.G.= Standard Wire Gauge (British Spec.)		Wood Screws (British Spec.)		Bolt Size	Dia.
S.W.G.	Thickness	Gauge No.	Shank Dia.	3/8"	0.375"
14	0.080"	2	0.080"	5/16"	0.312"
16	0.064"	3	0.095"	1/4"	0.250"
18	0.048"	4	0.108"	2BA	0.185"
20	0.036"	6	0.135"	4BA	0.141"
21	0.032"	8	0.164"	6BA	0.110"
22	0.028"				
24	0.022"				
26	0.018"				

Control system - British A.G.S. parts spec. (as fitted in G-AFSV)

Turnbuckles

AGS 490 - 5/32" pin	
Fork end/cable eye	4 off - elevator control levers to elevator cables
Cable eye/cable eye	2 off - fuel tank support strap adjustment
Fork end/cable eye	1 off - end of rudder pedal balance cable
AGS 491 - 3/16" pin	
Fork end/cable eye	4 off - control column fittings to aileron cables
Fork end/cable eye	2 off - rudder pedals to rudder cables

Shackles

SP1-690A - 5/32" pin	
4 off - upper & lower rear elevator cables to 'Y' shaped connector to elevator control lever	
2 off - rear rudder cables to rudder control arm	
1 off - end of rudder pedal balance cable	
SP1-690B - 3/16" pin	
4 off - connects each length of safety harness to stranded cable to attachment fitting	
4 off - 2 off each wing connecting aileron cable to aileron differential mechanism	

Control Cable Specs.

10 Cwt. (0.110" dia x 1,120 lbs. breaking strain)		
2 off - rudder cables (now replaced with 3/32" as below)	approx. length	14 feet each
4 off - harness attachment cable to spar fitting	" "	8 inches each
5 Cwt. (0.080" dia. x 560 lbs. breaking strain)		
4 off - elevator cables	" "	12 feet each
4 off - aileron cables	" "	8 feet each
1 off - rudder pedal balance cable	" "	4 feet
1 off - tailskid limiting cable	" "	1 foot

All cables will be replaced on G-AFSV when required with U.S. spec. 3/32" (0.094" dia.) 7x19 strand galvanised, 1,000 lbs. breaking strain. The only proprietary items in the control circuit are the rod end bearings that connect the aileron push rods to the aileron differential mechanism.

CHILTON MONOPLANE

General Observations

The following is an attempt to give some help and guidance to prospective constructors from observations of my own machine and advice from other builders, it does not purport to be authoritative as there are many different constructional techniques that can be employed to build the structure, so the following notes should be read in that context.

The Mikron III engine

The re-emergence of interest in the Chilton Monoplane has coincided with the availability of the 65 H.P. Mikron III engine. This is a particularly suitable engine from all respects, not least that of maintaining the original nose profile. The original engine fitted to G-AFSV was the French built Train 4T of 40 H.P., this engine weighs 114 lbs. Due to the demise of the engine manufactures during the war and in the quest for higher speed for racing, when 'FSV passed into private hands in 1956, the Train engine was removed and a Mikron II fitted. The original thrust line with the Train engine was 4.5 inches above the top longeron, however, the Mikron II was installed with a lower thrust line. This is because the magnetos on the Mikron II are fitted on top of the crankcase, thus installation of the engine on the original thrust line would have resulted in the requirement for two unacceptably large and unsightly protrusions on top of the cowling. Even with the engine in the lower thrust line position, cowling modifications are required to accommodate the top portion of the magnetos.

With the extra weight of the Mikron of about 25 lbs, over the original Train engine, one is aware of the importance of mounting the engine as rearward as possible. The Mikron III has its magnetos mounted vertically on the lower rear accessory casing, as did the Train engine. This firstly, enables the original thrust line to be maintained, secondly, because of the rearward slope of the firewall the higher engine position enables a further rearward movement of the engine.

A further option is possible, as used on both G-AFGI and G-AFGH, these two aircraft were originally fitted with Carden Ford engines. These were mounted on wooden engine bearers that formed the front of the fuselage. This configuration resulted in the top longeron terminating 5.25 inches aft of that on 'FSV. As a result of modifications to these aircraft to enable the fitting of other engines in a more conventional manner, the wooden engine bearers have been removed and a new front bulkhead fitted, the new bulkhead terminating at the top longeron. This results in the front bulkhead being inclined rearward at a greater angle than that on 'FSV, this would enable a further useful rearward movement of the Mikron engine. 'FGI is currently in this configuration and is fitted with the Mikron II engine from 'FSV but because of the magneto position, the extra space created by this modification cannot be fully utilised. After a number of years with this modification, having been powered by a 55 HP Lycoming engine, 'FGH has now been restored to its original configuration with wooden engine bearers, so as to permit the return of the Carden Ford engine.

A drawing layout with the Mikron III in its most advantageous position, gives a profile almost identical to that of the Train engined DW1A, the only external difference would be a slightly longer cowling. The higher fuel consumption associated with a more powerful engine may require extra fuel capacity. In the suggested configuration the size of the main fuel tank can be maintained, as the reduction in the available space behind the front bulkhead stops short of the tank position. In addition to the 10 gallons of fuel carried in the main tank the inclusion of the optional long range tank that is situated behind the pilot, (as fitted in 'FGI), would give another 4.6 gallons of fuel. The Mikron II like the Train, does not have a scavenge pump, so the oil tank must be mounted below the engine, however the Mikron III has a scavenge pump so this gives more flexibility to the position of the oil tank.

Controls

The rudder pedals are steel tube fabrications, suspended from a fulcrum tube mounted in the forward upper area of the fuselage. Connected to each pedal is a balance cable with a turnbuckle for adjustment. This cable runs in a vee shape down via a pulley mounted on the front fuselage floor, thus any excess pressure applied to the pedals is not transferred to the rudder cables. As there is no natural tension in the rudder cable circuit, tension is applied by the simple expedient of a tension spring attached from each pedal up to a link plate secured to one of the upper engine mount attachment bolts, on each of their respective sides. The rudder pedals attach to the rudder cables via 10 c.w.t. turnbuckles, the two rudder cables are 10 c.w.t. and first pass through a fairlead directly in front of the front spar, then through an aperture cut in the front spar webs to a fairlead mounted on the rear spar joint. From this fairlead to one mounted adjacent frame No.1, then along the fuselage to a rubbing strip on frame No.7, through a fairlead screwed to the fuselage side, this fairlead is in two halves to enable the cable to pass through at an angle to the outside where it terminates at the rudder kingpost via shackles.

The dual circuit elevator cables are operated by levers fitted to each end of the elevator torque tube. The four cables are 5 c.w.t. and connect to the levers via 5 c.w.t. turnbuckles, these turnbuckles allow the tension of the control cables to be adjusted. The two sets of cables pass down their respective sides to the fairleads mounted on the rear spar joint, then to the fairleads adjacent frame No.1, along the fuselage to frame No.5. The top elevator cables pass over the top of this frame via rubbing strips, the bottom elevator cables pass underneath, then up through an aperture in the ply. Both sets of cables go through the slotted fairleads attached to the front face of decking former No.11. The top elevator cables pass upwards towards the top end of the elevator control arm, the cables attach via shackles to a "Y" shaped fitting, this

enables both cables to terminate at the control arm via a single linkage. The bottom elevator cables pass through the aperture in frame No.7 and terminate in the same type of fitting at the lower end of the elevator control arm. The elevator control circuit is the only one to have a trimmer, this takes the form of a lever on the starboard side of the fuselage. The lever has two tension springs attached at the top and bottom, these springs attach to the top and bottom of the adjacent elevator control lever. Thus radial movement of the trimming lever about its central fulcrum point pre-loads the control column as required, position locking is affected with a simple friction device tensioned by a wing nut.

The four aileron cables attach to the control column fittings via 10 c.w.t. turnbuckles, the aileron cables are 5 c.w.t. The cables exit their respective sides of the fuselage via apertures cut in the centre section ribs. The second rib inboard from each root end carries two fibre aileron cable guides. The cables move from the vertical plane to the horizontal plane as they pass through the wing ribs to rib No.3 where two more cable guides are mounted on the rib, from these guides the cables terminate at the aileron control lever via shackles.

Note, there are no control surface limiting stops in any of the three control circuits, thus any undue pressure applied to the control surfaces at full deflection will strain the respective control surfaces against their hinges.

Undercarriage, wheels and tailskid

The undercarriage is made up from four identical telescopic units. These units are set at an angle of 8 degrees to the centre section spar face, thus set at 10 degrees to the fuselage horizontal datum line. Each unit is retained by upper and lower fittings to the front centre section spar face. These fittings are secured by the same bolts that retain the upper and lower wing attachment plates. Further radial loads are carried by stay tubes to a triangular structure projecting from the front face of the rear centre section spar. The undercarriage has 4" maximum travel against the compression springs, the lower legs are retained in position under no load conditions i.e. whilst in flight, by slotted retaining rods screwed into the top of the lower legs.

When setting up each undercarriage assembly on to the front spar, it is very important that each unit is parallel when viewed from the front and in line when viewed from the side, as any errors in alignment will result in straining on the attachment fittings due to the vertical movement of the inner legs not coinciding with each other.

The original wheels used were Dunlop wheelbarrow wheels, running on plain phosphor bronze bearings, the wheels were fitted with 16" O.D. x 4" wide with low pressure tyres. An original Chilton drawing now numbered M.11, shows alternative wheel bearing and axle attachment fittings. The type of wheel used are still available and are used in many light industrial applications. The ball bearing version shown should be better than the plain bearings as fitted to Chilton G-AFSV, the lower rolling resistance of the ball bearing compared with that of the plain, should in theory give a more rapid acceleration and shorter take off distance.

In later years G-AFGI was fitted with a pair of front wheels from a Lambretta scooter, model LD that ceased production in 1958. These units are light with drum brakes and but take a narrower size tyre than the originals. As the Lambretta wheel had an integral threaded axle, the lower leg of the undercarriage was modified to give a fork end to locate the axle. A peg was required on each unit to take the torque reaction from the braking loads.

The tailskid loads are taken via a tension spring, the limit of the radial movement of the tailskid is controlled by a stranded cable. This cable should not limit the tailskid under normal conditions unless the spring becomes weak or a heavy landing is made, its main function is to stop damage to the underside of the fuselage and base of rudder spar should the tailskid spring break. The fulcrum bolt for the tailskid is mounted in two rubber bushes, these bushes are pressed into either side of the tailskid mounting block. There are washers either side, on the outside of the fuselage on the fulcrum bolt. These washers have to be tapered in section to coincide with the angle of the fuselage skin to the centre line of the bolt shank. This was achieved on the originals by building up across one side of a plain washer with weld then filing the angle to suit.

Fuselage

The fuselage is a box section with semi circular formers on top of the longerons for the rear decking. The entire fuselage is skinned with 1mm birch ply, with the exception of the front floor being 2.5mm. The top longerons are 5/8" square, locally reinforced in the cockpit area, aft of the cockpit the longerons taper to 1/2" square at the fin spar.

Originally the fuselage was constructed without the aid of jigs. Commencing with the skin, ply sheets sufficient to cover the fuselage length were scarfed together, then the fuselage structure was drawn on to the ply and trimmed to size. The first side was used as a pattern for the second side, and then the second side marked out in an identical manner. At this stage the longerons were glued to the fuselage skins with the exception of the front floor longerons, because of the inward and upward curvature required, they were glued to the front floor. The front floor is set up with the correct upward curvature set in using packing blocks at the front with the rear face clamped to a flat surface. The longerons are then glued into position along with the other front floor structure, thus the floor can be fitted to the fuselage as a complete assembly. The fuselage side has two main joints that locate on the centre section spars, these have members radiating from them with curved outer edges to coincide with curvature of the fuselage, this is mainly from the front joint. However because this is a very strong structure, it cannot be built flat on the skin with the intention of pulling it round to

the correct curvature on assembly. The side skin should be laid flat in the parallel cockpit area and the appropriate packing inserted under the skin in the areas adjacent to these radiating member so that when these members are glued into position with the joint assemblies, they will take up the correct position. With the above items glued to the skins, the two fuselage sides were positioned vertically, bulkhead 1, frame 1 and the fin assembly complete fitted, naturally at this stage no errors can be present in the alignment or squareness of the fuselage sides.

It should be noted that any offset of the fin to counteract torque (as built into the originals) should be obtained by setting the complete fin assembly in its required offset, thus the face of the fin spar will be slightly out of square with the centre line of the fuselage, thus when the fuselage side skins have been trimmed flush with the rear face of the fin spar, this will result in one side of the fuselage being fractionally longer than the other, so this should be born in mind when checking the subsequent alignment of the fuselage assembly. After the various formers have been glued into position and the geometry of the fuselage checked, the front floor can be fitted. Should this method of construction be employed, it cannot be stressed too highly that constant monitoring of the fuselage geometry and alignment is essential to avoid any errors being built in.

Bulkhead No.1 is a plywood and spruce structure with various apertures cut in the ply to pass such controls and pipework as may be required. Each corner of the bulkhead is cut away to clear the engine mount attachment fittings, the top & bottom cross members have corner brackets bolted through that attach to the engine mount fitting bolts to strengthen the corner. On completion, this bulkhead is covered with a stainless steel firewall flanged forward at the edges to prevent oil seepage behind.

Bulkhead No.2 is designed to clear the lower surface of the fuel tank, it is not intended to carry the weight of the fuel, this function is carried out by the straps attached to the fuel tank support blocks. However should stretching of these suspension straps go unnoticed, a strip of rubber should be attached to the top face of this bulkhead in case it contacts the lower face of the tank. The lower suspension straps are tensioned by a turnbuckle assembly, thus making any adjustment a simple operation.

Bulkhead No.3 is formed by a structure built on the vertical tapered member radiating from the main front joint. The upper rear part of this structure carries the angled fittings that retain the top of the instrument panel.

To be continued

Centre section

The centre section is built as a complete unit, the ply skinning adjacent to the fuselage sides being left till after assembly with the fuselage, to facilitate spotting through from the c/s attachment fittings. The centre section is retained by 12 fittings, the front spar is retained by fittings on its front and rear face, through the top spar flange. The rear spar is retained by fittings on the rear face only also through the top spar flange. Where the attachment bolts go through the spar flanges, there is local hardwood reinforcement pieces, these also act as packing pieces to securely locate the spars in the attachment areas. Hardwood pieces are also located on top of each spar, each side, underneath the fuselage main joints. These blocks are shaped to coincide with the angle on top of the spar.

The control assembly is bolted to the rear face of the front spar. On the lower rear face of the front spar is a rubbing block, so at full rearward deflection of the control column the lower control column fittings will not contact or damage the spar face.

The front floor has 3 blocks at the rear, through which 4 wood screws pass to secure the rear floor to the lower front face of the front spar. Packing pieces will normally be required to fill the gap between the rear face of the blocks and front face of the spar.

The hammock type seat is made from heavy duty canvas, with stitched webbing reinforcement, finally covered with leather or fire proof rexene, this same material is used for the padded head rest, back rest and the padded cushion for face protection attached to the top centre front face of the cockpit former. The seat is retained by screws through local ply reinforcement to the front face of the front spar and to the rear face of the rear spar. The seat back rest is hinged from the top of the rear spar, thus hinges forward to give access to the lower luggage stowage area. A fire extinguisher is fitted on the rear of the seat back. It should be noted that any items stored in the lower luggage area must be secured in such a way so as not to foul the movement of the flap actuating lever or control cables.

The safety harness attachment fittings are attached to the rear spar, no upper torso restraint is provided. Two spruce blocks are screwed on to the top face each side of the rear spar inside the cockpit area, these are steps to aid ones entry into the cockpit and are normally covered with serrated aluminium sheet to provide grip to ones feet. On the starboard side of the centre section just outside the cockpit area is a reinforced portion of ply skin for standing on the centre section prior to entry into the cockpit.

On G-AFSV a type V.1075/1 compass manufactured by H. Hughes of London, is mounted on a plywood base supported from a mounting block on front spar as per original fit. This located between the pilot's knees, because of this the control column was made from dural due to its close proximity to the compass.

Centre section wing attachment plates, as the width of the wing attachment plates, does not coincide with the width of the centre section spar, packing pieces are required to pack out the attachment fittings on the centre section spar, to give the correct dimensions to accept the wing fittings, originally these packing pieces were made from red fibre material, the same material used for the fairleads.

Accurate alignment of the centre section is necessary from both the aerodynamic & structural point of view. The exact position is achieved by aligning the lower surface of the centre section spar faces with the underside of the fuselage, the hardwood packing pieces between the top of the spar face and their joint aperture are sized to suit. It should be noted that the lower surface centre section trailing edge rib does not coincide exactly with the lower fuselage curvature, as the trailing edge it is higher than the adjacent fuselage underside. A slot should be cut in the lower longeron to pass the flap trailing edge member, this slot should not exceed 1/4" in depth due to weakening of the longeron, if the flap trailing edge does not lie flush with this depth of slot, material should be removed from the flap trailing edge member to suit.

Wings

The wings have two box spars and are covered with 1mm birch ply with the exception of the trailing edge ribs inboard of the aileron. These rear ribs are fabric covered, as is the aileron. The aileron differential mechanism is mounted on the rear face of the front spar and operates the aileron via a push rod through an aperture in the rear spar. The pushrod connects to the aileron kingpost via a small link fitting, this fitting allows the relative angular movement of the pushrod to take place. The pushrod length is adjustable by means of the threaded portion that terminates in a balljoint. The balljoint passes the radial movement of the differential arm to the reciprocating action of the pushrod. The aileron is attached to the wing by four lengths of brass piano hinge. These hinges are retained by countersunk head screws to the front upper face of the aileron spar. The other side of the hinge is retained by the same type of screws to the hardwood mounting blocks glued and screwed to the rear face of the wing spar. The mounting blocks are recessed to the thickness of the hinge material, so the top surface of the hinge is flush with the wing surface. The aileron differential mechanism mounting bracket is retained by 4 bolts through the front spar, 1" diameter washers should be used under the nuts on these retaining bolts on the front spar face.

The split flaps are mounted on the rear inboard ribs, the torque tube to which the flap ribs are attached rotates in two small bearing fittings bolted to the rib sides.

The wing attachment pins pass through the top & bottom spar flanges, the holes for these pins should be 1/16" diameter greater than the pin diameter to provide clearance. The pins should not be lubricated in case of contamination from grease etc. to the spar flanges. The pins are held in place by split pins at each end.

The aileron differential mechanism is operated by two cables that go from the mechanism via two fibre cable guides in rib No.3, the cables move from the horizontal plane through ninety degrees as they pass through the two forward apertures in the root end rib, then into the centre section through two more cable guides, these guides are set vertically one above the other in the second rib in from the centre section root rib. Thus the cables are correctly aligned for attachment via turnbuckles to the control column fittings. *To be continued*

Fin

The entire fin assembly is off set to the fuselage centre line to counteract the torque of the engine, the lower leading edge of the fin is secured to the rear fuselage decking former by a metal fitting. The offset of the fin centre line to that of the fuselage was 3/8" on G-AFSV measured at the leading edge of the fin adjacent the bottom fin rib.

Rudder

The rudder has a solid spruce spar, the top and bottom edges of the spar are slotted on the centre line to locate the trailing edge. The ribs are built up from square section spruce with ply cross pieces they locate along the outer edge of the spar. It is suggested that the ribs be left long at manufacture to facilitate trimming to length on assembly. The three hinge retaining bolt centres should be spotted through from the fin spar to ensure accurate alignment. The rudder operating lever is retained to the spar by four 4BA bolts, the penny washers under the bolt heads should be cut away to coincide with the spar edge. A spruce block is fitted at the spar top to strengthen the trailing edge, the block is covered by the ply gussets on each side.

Tailplane

The tailplane has a built up box spar, the ribs are built up with ply diaphragms and square section spruce members. The leading edge is laminated and shaped to section apart from the central portion that should be left in the in the basic angular section to facilitate attachment to the rear decking former. In the attachment area the leading edge is glued to the tailplane mounting platform attached to the rearmost decking former, the leading edge of the tailplane is also secured by three bolts.

Elevator

The elevator has a built up box spar, the ribs are built up with ply diaphragms and square section spruce members, the trailing edge is cut from 5mm ply. The elevator control arm is bolted to the rear face of the spar with 4BA bolts. The hinge centres must correspond with those from the tailplane spar so should be spotted through. The elevator control arm

is made from two pieces of steel riveted together. The lower surface of the tailplane has six semi-circular cut-outs adjacent to each hinge retaining bolt, these inspection apertures are covered by small fabric patches.

To be continued

Plywood face grain direction

The direction of the face grain on plywood has an important effect on a components strength and rigidity, ply should be applied as per the following guide. This information was obtained from observations of the ply on G-AFSV & components from the fifth uncompleted Chilton.

Fin spar - the face grain runs at 90 degrees to the spar centre line

Fin ribs - the grain on the ply diaphragms is at 90 degrees to the centre line of the ribs

Fin skin - the grain runs parallel to leading edge

Rudder spar - this is a solid piece of spruce, with the grain running vertically along its length

Rudder ribs - the grain on the gussets is at 90 degrees to the centre line of the ribs

Rudder trailing edge gussets - the grain is at 90 degrees to that particular part of the trailing edge to which it is affixed

Tailplane spar - the grain is at 90 degrees to the centre line of the spar

Tailplane skin top - grain runs at 90 degrees to angled root rib

Tailplane skin bottom - the grain runs parallel with spar

Tailplane ribs - the grain is at 90 degrees to the centre line of the ribs

Elevator spar - the grain is at 90 degrees to the centre line of the spar

Elevator ribs - the grain on the gussets is at 90 degrees to the centre line of the ribs

Elevator trailing edge gussets - the grain is parallel to that particular part of the trailing edge to which it is affixed

Elevator spar to rib gussets - at 90 degrees to the spar

Wing spars - all grain is at 90 degrees to spar centre line

Wing inter spar ribs - grain goes chordwise

Wing leading edge ribs - grain goes chordwise

Wing inter spar skin - grain goes chordwise

Wing leading edge skin - grain goes spanwise

Centre section spars - all grain is at 90 degrees to spar centre line

Centre section leading edge ribs - grain goes chordwise

Centre section inter spar ribs - grain goes chordwise

Centre section leading edge skin - grain goes spanwise

Centre section skin aft of front spar - grain goes chordwise

Fuselage sides - grain parallel with top longeron

Important - All spruce spar flanges should have the grain, when viewed from the spar ends, running at 90 degrees to the vertical spar faces i.e. the grain should be approximately parallel to the fuselage horizontal datum line.

The application and finishing of thin plywood

Apart from two areas, the front floor & centre section walkway, the entire skin on the Chilton is of 1mm birch ply. Due to the lightness of the construction, the outline of the fuselage structure and wing ribs will to some extent be visible through the ply. It is very easy for such thin ply to distort, so the following are some suggestions that should help alleviate some of the problems that can be encountered.

The best results are obtained with new ply, that is fresh manufacture, as unless the ply has been stored in ideal conditions distortions set in. Having acquired the ply sheets, they should be stored in an environment that is stable as possible in both temperature and humidity. The sheets should be stored flat on a flat floor, if floor space is at a premium, as it usually is, the ply can be stored vertically but on no account simply leaned against the wall. Ideally attach some wooden battens to the wall, stand the ply against it and secure the ply to the battens by some means. Care should be taken to position the storage rack out of direct sunlight to prevent drying out in hot weather. Naturally it follows that the remainder of the spruce etc. to be used for construction should be stored in the same conditions so as to let the moisture content in all the materials stabilise at a common level. Thus when the various parts are glued together, relative movements due to moisture content will be minimised. When applying the ply to the structure, Aerodux glue should be used where possible, as Aerolite glue with its liquid hardener tends to wet the ply too much, this induces distortion and the adhesive appears to shrink slightly during the hardening process. Aerodux does not have this wetting effect and is a gap filling glue so does not shrink, its easier to apply and see but in any case is a superior adhesive. Naturally where it is

possible to gain access to a freshly applied panel, any excess glue squeezed out from the joint should be removed. When preparing a piece of ply for application to the structure, it is normal to place the ply in the position required, pencil around the structure on to the ply, thus when the ply is removed, one has the outline of the structure marked on the ply ready for the application of the glue. However rather than glue the ply on, before applying the dope or varnish, it is advisable to apply any internal protective finish using the pencil marks as a guide, also a couple of coats of dope on the outer surface of the ply, letting the panel dry completely for at least twenty four hours before applying to the structure. This will allow any slight movement of the ply due to the application of the finish to take place, thus giving the best possible chance of a smooth distortion free panel when finally applied.

Then applying a surface finish to ply, either inside or out using dope, on no account should tautening dope be used. It is not possible to tauten ply, all tautening dope will do if applied is distort it. Thus for external finish, including the application of fabric to ply, only non-tautening dope should be used. For the required silver coat (to give u.v. protection) on ply it is suggested that aluminium surfacer or aluminium powder mixed with non-tautening dope be used. Silver dope should be avoided as this is usually of the tautening type. For internal protection of the structure Rhodius sailplane varnish seems to come highly recommended. For tautening of fabric, low tautening dope should be used to give maximum filling of the weave for minimum tautening. Care should be taken not to over tauten the fabric as the trailing edges will pull in between the ribs or distort.

Quantities of dope used in 'FSV's restoration was as follows:-

Nitrate non tautening	<i>6 x 5 litres</i>
Nitrate low tautening	<i>3 x 5 litres</i>
Nitrate alum surfacer	<i>2 x 5 litres</i>
Butyrate finish colour	<i>3 U.S. gals.</i>

Our Ref. FL/MN**CHILTON AIRCRAFT**

Your Ref.

A. R. Ward,
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M.A. A.P.S.A.F.S.LIGHT AEROPLANE MANUFACTURERS,
AERONAUTICAL ENGINEERS,"CHILTON"
LIGHT
AEROPLANES"GARDEN"
AERO
ENGINES.HUNGERFORD,
BERKS.

25th April, 1946.

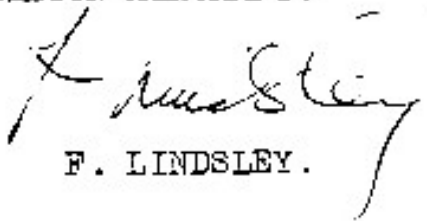
J. M. S. Stacy, Esq.,
21, Salisbury Terrace,
Collinswood,
Adelaide, S. Australia.

Dear Sir,

We thank you for your letter of 15th April and have pleasure in including some further information on our DW.1 single-seater and the Olympia sailplane, which we now have in production.

Due to pressure of orders on the Olympia, we have not yet been able to recommence production on the DW.1, but are giving this matter the closest attention. It is hoped that we shall recommence manufacture of this type fitted with the Continental A.40 or A.50 engine. Although we have drawings available at the moment we are uncertain to what extent these will have to be altered by the new engine installation, but think, provisionally speaking, that a complete set of drawings and licence to build one machine would amount to something in the region of £30, plus cost of postage and insurance. Drawings, however, are not likely to be obtainable for at least another six months.

We do not recommend the Garden-Ford engine, as although it is extremely reliable it has a tendency to boil while the machine is climbing and this would be accentuated in a warm climate. Also, the question of obtaining spares in Australia for this engine would, we think, be very difficult.

Yours faithfully,
p.p. CHILTON AIRCRAFT.

F. LINDSLEY.

P.S. All prices are pre-war

ENC.

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PLEASE REPLY TO

Hungerford

ARW/PFM

4th June 1963.

G. A. Cull, Esq.,
71 Valley Way,
Leaves Spring,
Stevenage,
HERTFORDSHIRE.

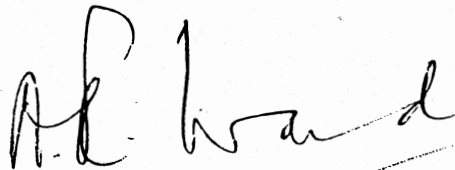
Dear Sir,

At the end of the war this Company, seeing no future in light aircraft construction at that time, made available the drawings of the Chilton Monoplane to various people interested in the ultra light aircraft movement, so that these could be produced in kit form.

In many cases these were the only drawings available and over the years with individuals leaving and firms changing hands all trace of these drawings has now been lost.

We continue to receive enquiries from abroad and should, therefore, be glad to collect such material as is available, and your name has been given to us as somebody who might have some information on the subject, for which we should be very grateful.

Yours faithfully,



A. R. Ward
Chairman.