



Cozy Mark IV 'M' Drawing Supplements

Fuselage Shaping and Conduit Templates
Canard, Wing and Winglet Templates,
and Fittings Drawings

Revision 1.2
December 26, 2015

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Introduction

These supplementary notes and drawings were developed as an addition to the 'M' drawings. They serve to deal with some of the paper distortion issues associated with the original paper templates as well as to better document the design of some of the mechanical components. In some cases there have been significant revisions to the original designs. These are clearly noted.

One of the more prominent revisions is to the wing alignment jigs. These were found fit very poorly so new jigs were developed from a master loft created for the entire wing. The fit of the revised jigs was much more acceptable. See the revision 1.2 notes for more details. An additional jig was also created to simplify the joining of the inboard foam core component.

Alternate designs for some of the welded components are also presented. These were developed to minimize the amount of welding, and consequently welding jigs and fixtures, required. They do, however, involve making machined components.

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Revision Notes

Revision 1.0

August 16, 2014

- Original release

Revision 1.1

August 22, 2014

- Sheet 24 - Moved B.L. 37.0 and B.L. 52.0 bottom spar cap templates so that B.L. 52.0 did not interfere with B.L. 62.5 bottom spar cap template dimensions.
- Sheet 37 - Added bottom leading edge hidden line. Added reference label to LE hidden line.

Revision 1.2

December 12, 2015

- Produced master wing loft and relofted wing assembly jigs to correct for poor fit of original Jigs #1 to #5. Added additional wing jig to improve fitting of inboard wing core to middle wing core. Revised wing core jigs are on sheets 46 - 52.
- Original wing core jigs labeled as obsolete
- Table of contents extended to additional page and revision notes section added
- Revised template usage notes to include 'Suggestions for Mounting the Wing Jig Template Patterns'
- Sheet numbers resequenced.
- Revised fuel tank rib R57 based on revised wing loft. Minor revisions to upper surface line on the rear third of this rib. Original rib now labeled as obsolete. New rib is on sheet 53.
- **Note that other ribs have not been redone because the differences between the current drawing and the revised shapes from the relofted wing are insignificant.**
- Added sheets 54 - 58 with detailed elevator component drawings and template sets.
- Added sheets 60 - 62 with detailed elevator component drawings for alternate torque tube and control arm assembly that does not require welding or assembly jigs.
- Added sheet 64 with NG-30 template corrected as per newsletter #86.
- Added additional blank pages for table of contents and notes expansion.

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Template Usage Notes

Printing Suggestions

- 1) The template sheets are designed to be printed full size on 11" x 17" paper. When printing with Adobe Acrobat® set page scaling to none. There is a reference border on each sheet and it measures exactly 15.20" x 10.50". Allowable printing tolerances are 15.20" ±0.05" and 10.50" ±0.04". Paper size changes due humidity changes and age will add to this. It is suggested that the maximum allowable size change be kept to less than 15.20" ±0.07" and 10.50" ±0.05".
- 2) Print the templates on 24lb paper. Standard 20lb paper is acceptable but is a more difficult to keep straight when gluing down long and narrow template patterns.

Suggestions for Assembling Multiple Sheet Templates

- 1) Carefully cut off the left side border from the second (and third) sheets. Align the left border of the second sheet to the right border of the first sheet. Use a straight edge against the lower reference border to help keep the sheets aligned vertically. Use clear tape to hold the sheets together. If required repeat for the third sheet.
- 2) The horizontal allowable tolerances are non-cumulative. This means that the left reference border of the second sheet is 15.20" ±0.05" from the left reference border of the first sheet and, if required, the left reference border of the third sheet is 30.40" ±0.05" from the left reference border of the first sheet.

Suggestions for Gluing Down Template Patterns

- 1) DO NOT use water based adhesives. They WILL cause unacceptable distortions in the template patterns.
- 2) Spray adhesives are suggested. Follow the manufacturers directions.

Suggestions for Mounting the Wing Jig Template Patterns

- 1) The wing jig patterns are large and difficult to mount accurately on the wing jig blanks. A good solution is to place the template pattern in the correct position on the wing jig blank and hold it in place with tape around the perimeter of the template. Use a small staple gun to place a staple about every 1.5" around the perimeter of the airfoil cutout area and next to the jig split lines.

Suggestions for Final Cutting and Shaping of the Templates

- 1) Follow the recommendations in the builders manual. An additional rough cut reference line has been added to the airfoil template patterns. This is to provide a more accurate initial cutting reference before sanding to the final shape.
- 2) Where required both 'left' and 'right' templates have been provided. This removes the need to duplicate the 'talking numbers' and reference lines on the opposite side of the template. It does, however, increase the number of templates that the builder must make. The additional templates are provided as a convenience for those who might prefer this approach.

Additional Notes

- 1) Where multiples of the same pattern are required there is a separate pattern for each item. This avoids the need to trace duplicates.
- 2) Where conduit or control clearance holes exist on a sloping bulkhead, forward and rear surface templates are provided. This was done to help with the correct shaping of the oval and sloping holes that are required.

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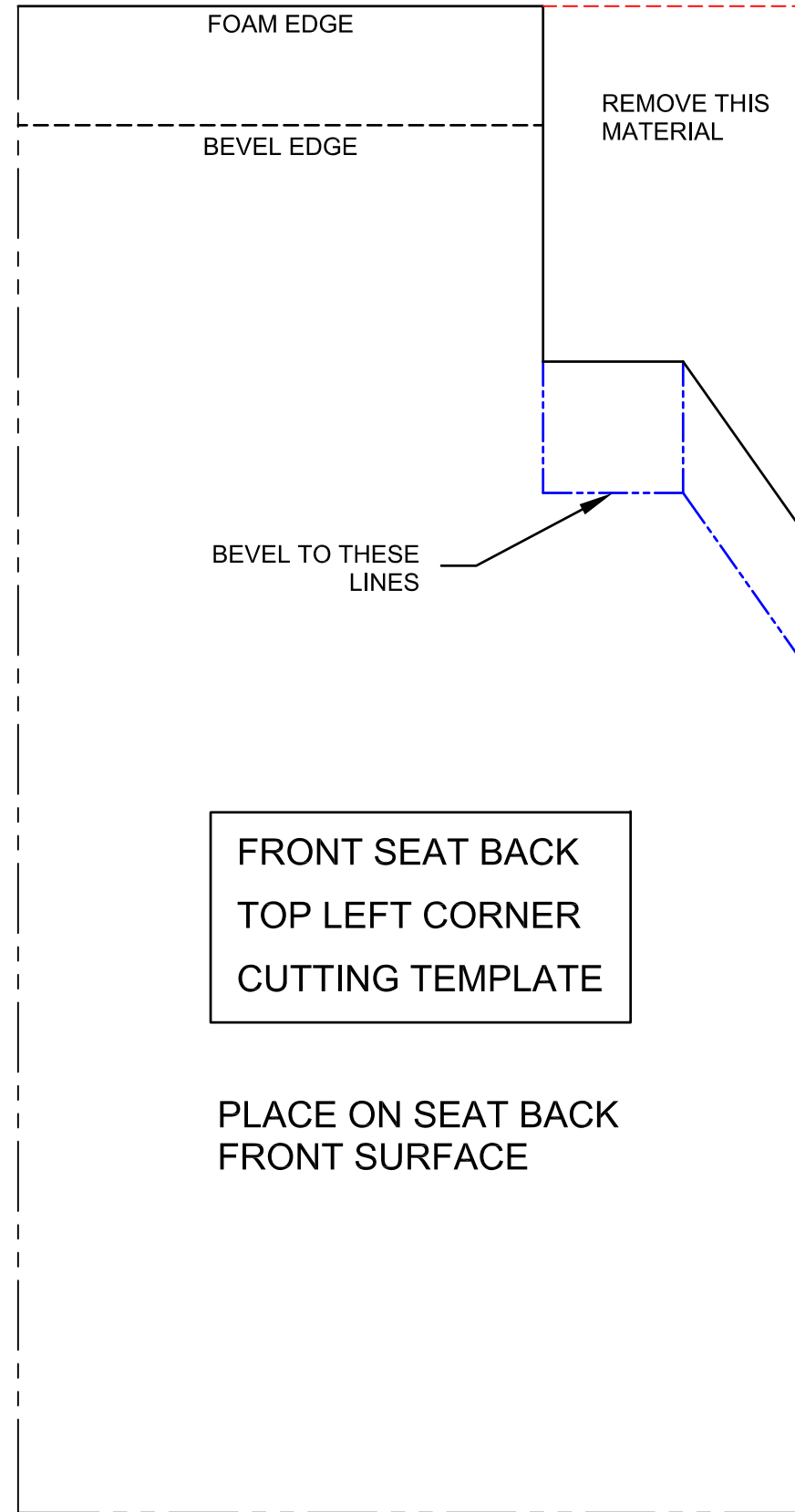
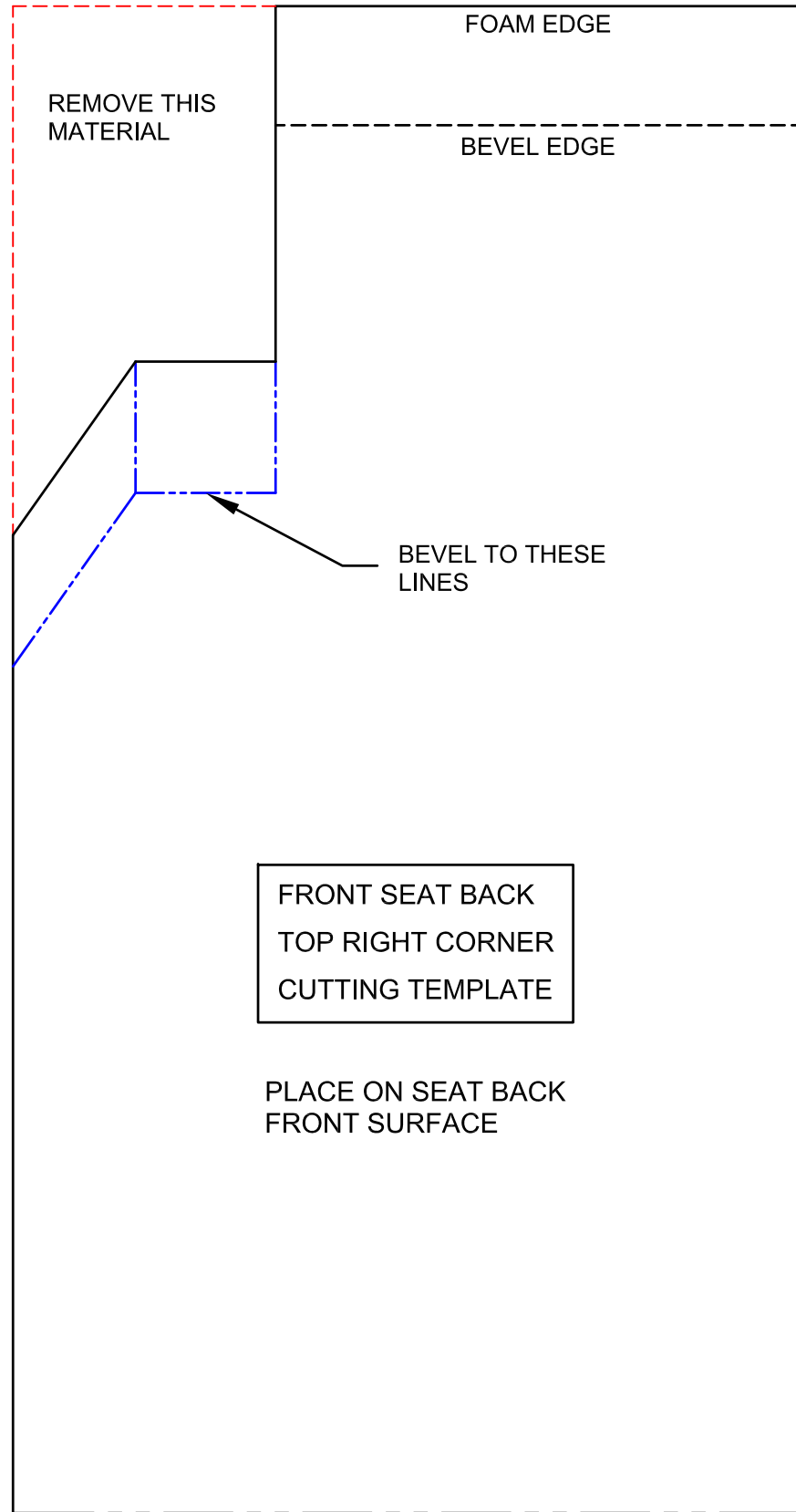
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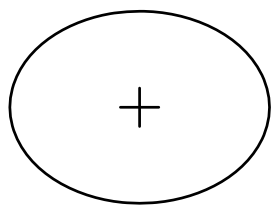
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This line is 15.20" long



FRONT SEAT BACK
BOTTOM RIGHT CORNER
CUTTING TEMPLATE

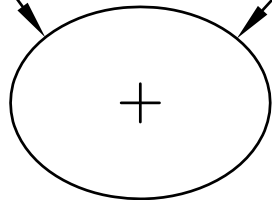
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REAR SURFACE

BEVEL TO THESE
LINES

REMOVE THIS
MATERIAL

1" DIA HOLE
47.7° TO SEAT SURFACE

CONTROL TORQUE TUBE



ELECTRICAL CONDUIT

FRONT SEAT BACK
BOTTOM RIGHT CORNER
CUTTING TEMPLATE

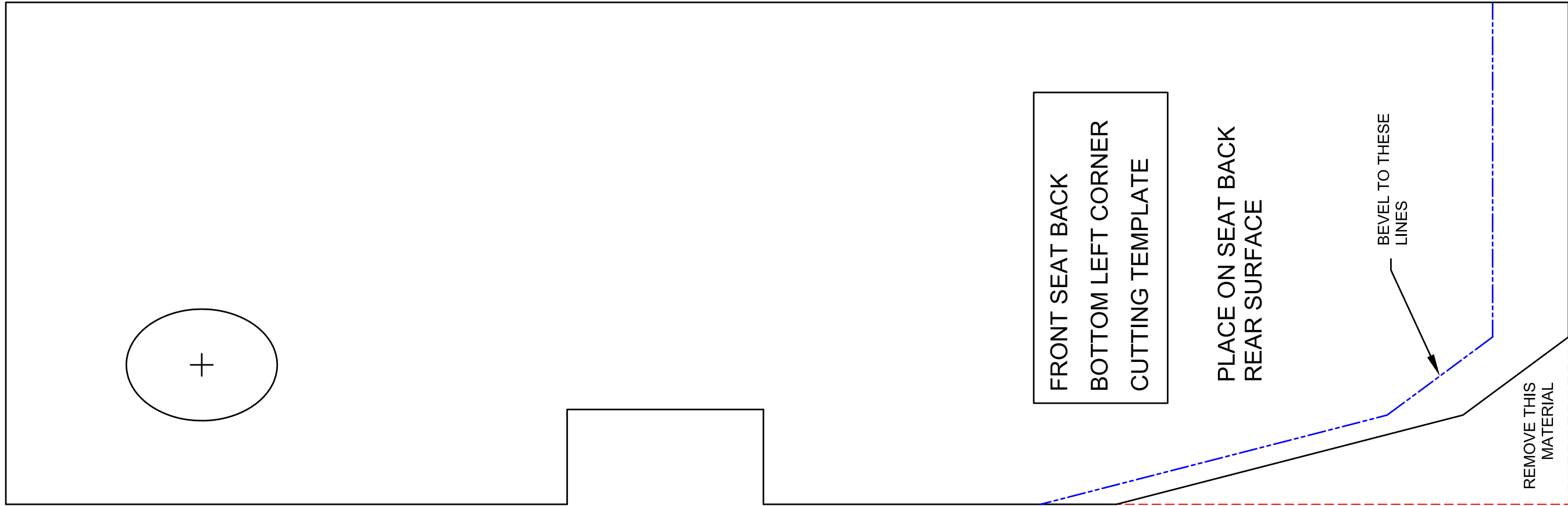
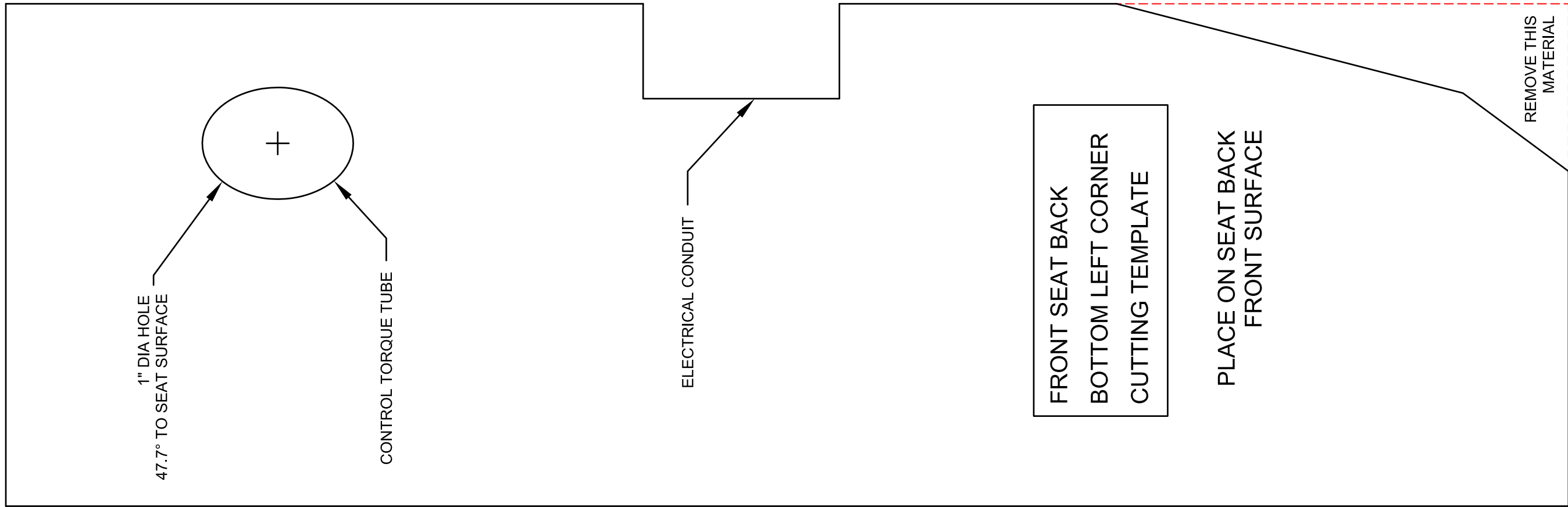
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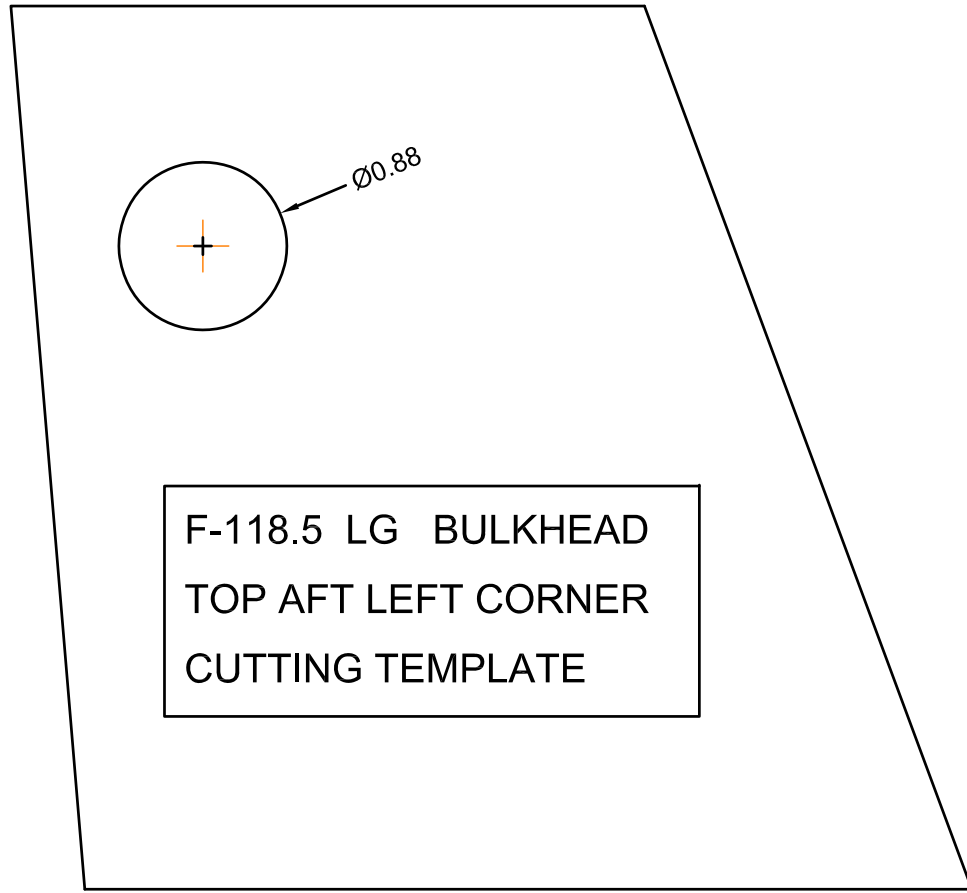
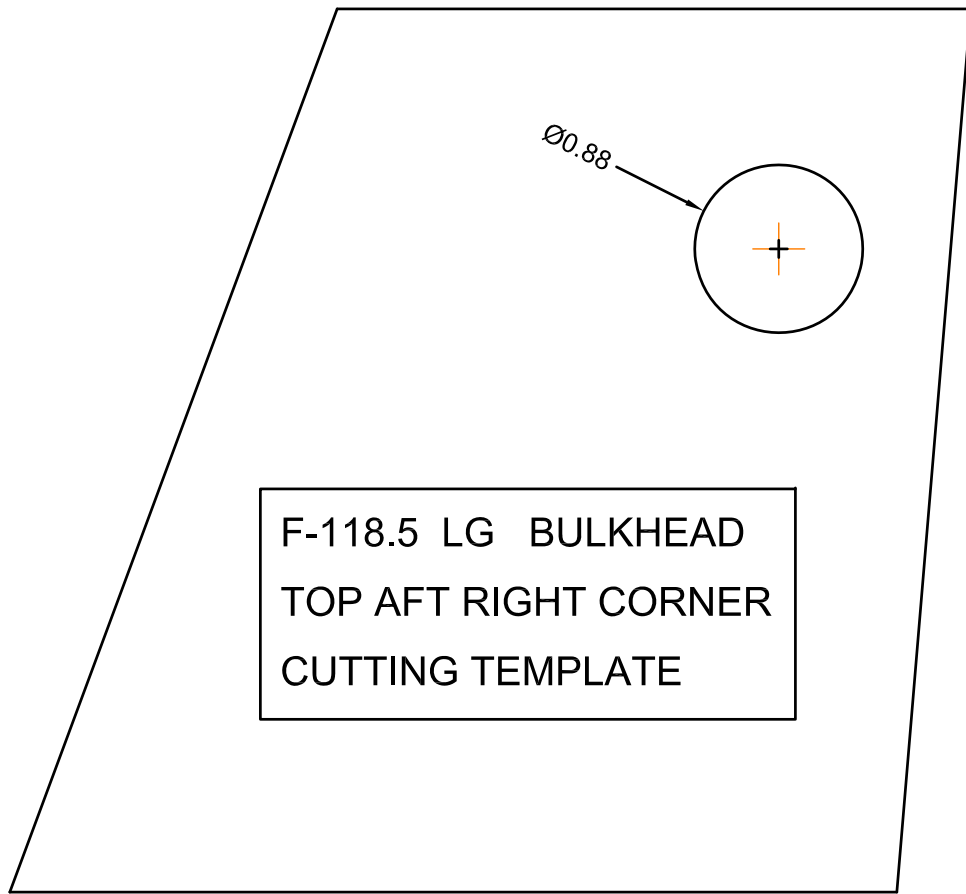
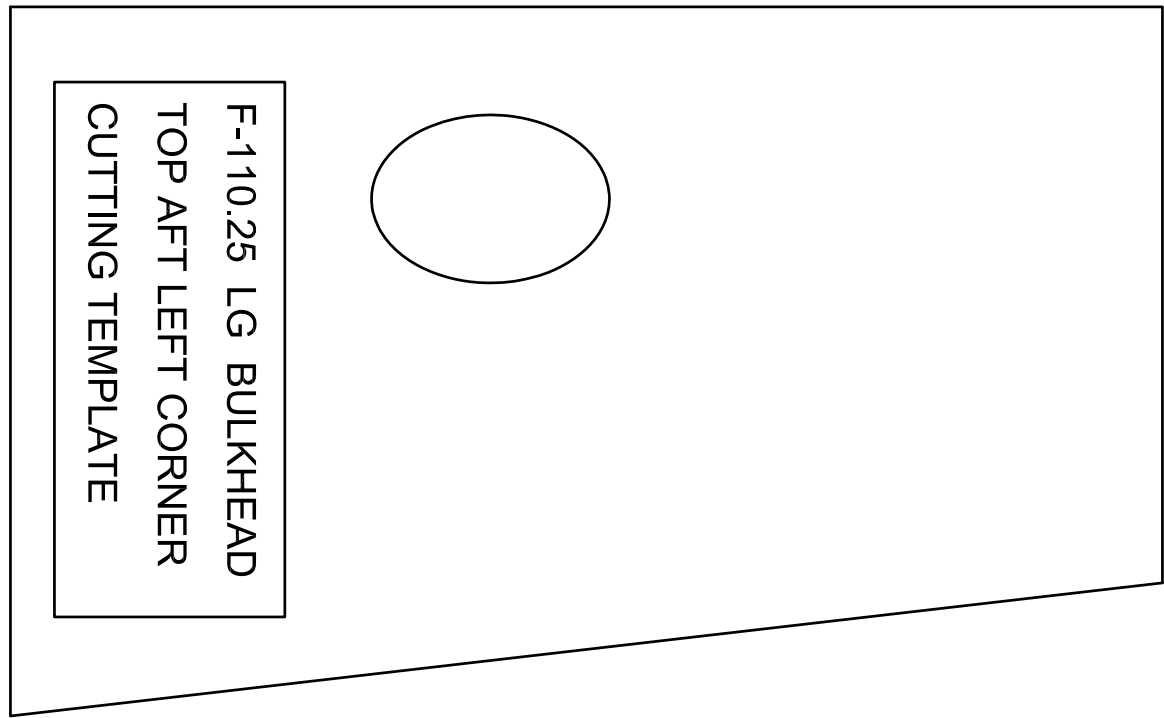
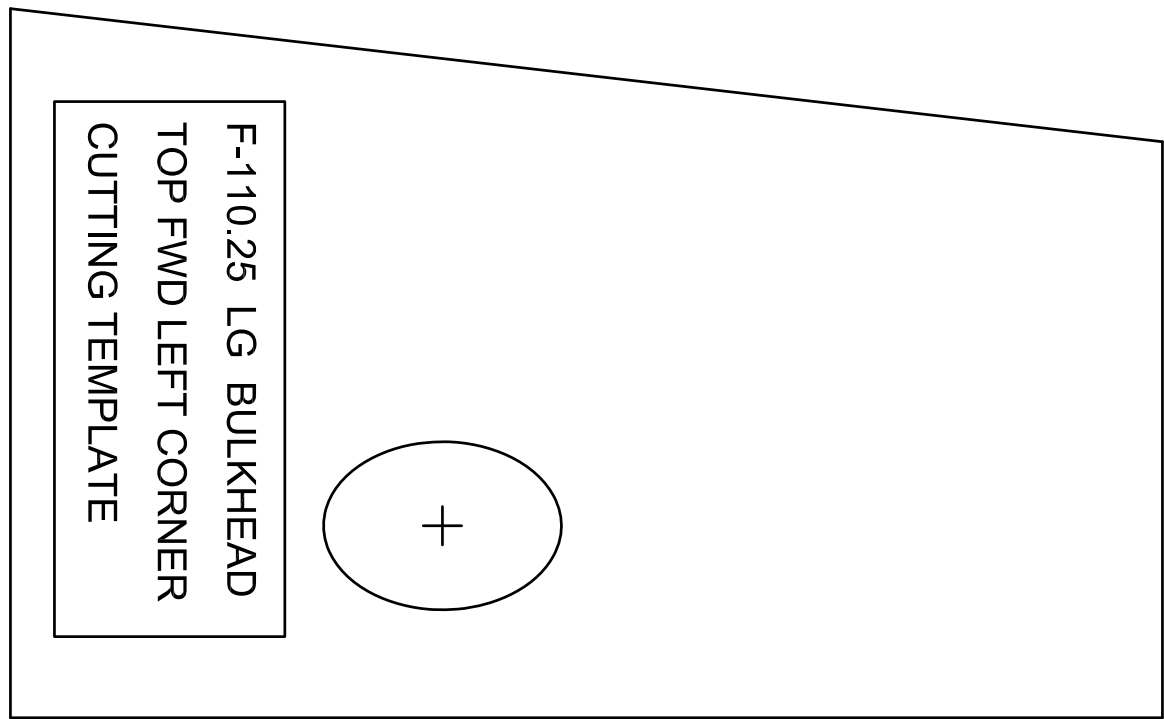
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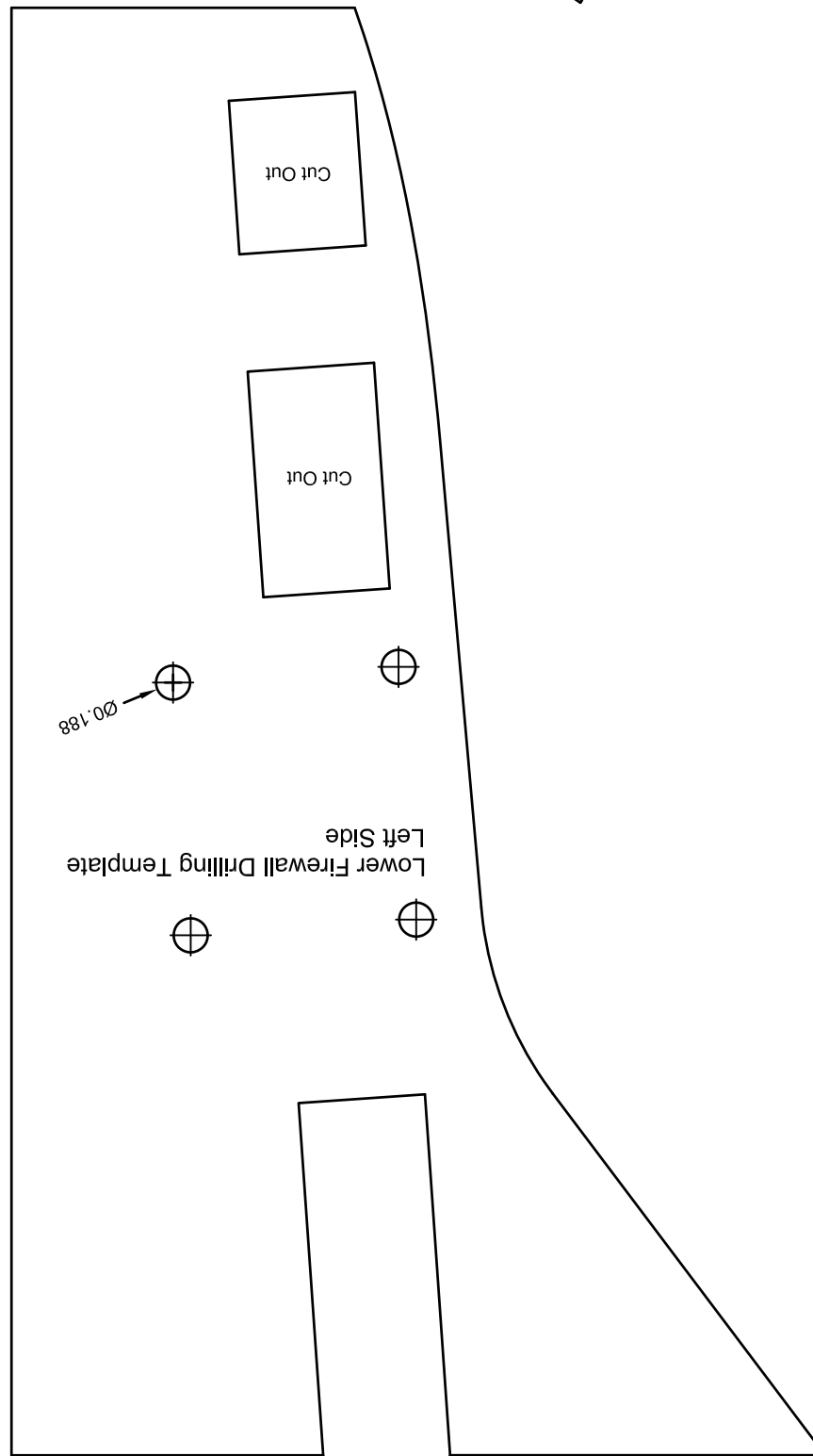
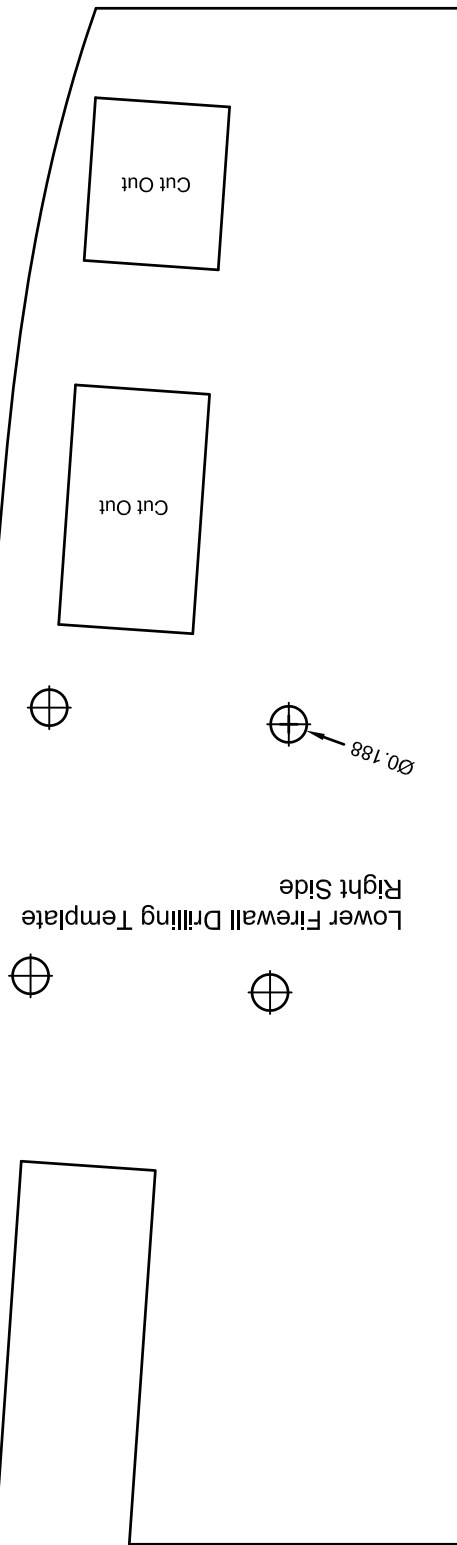
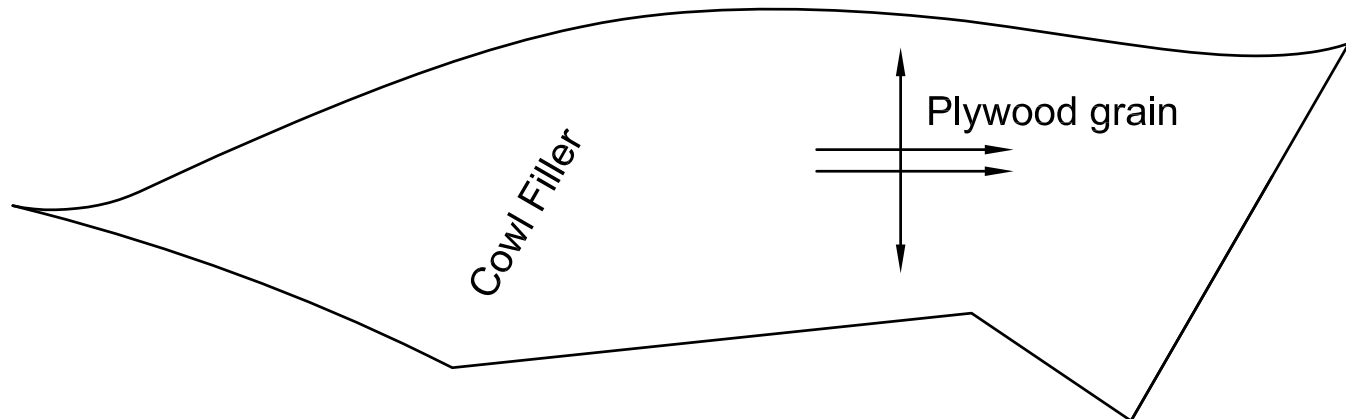
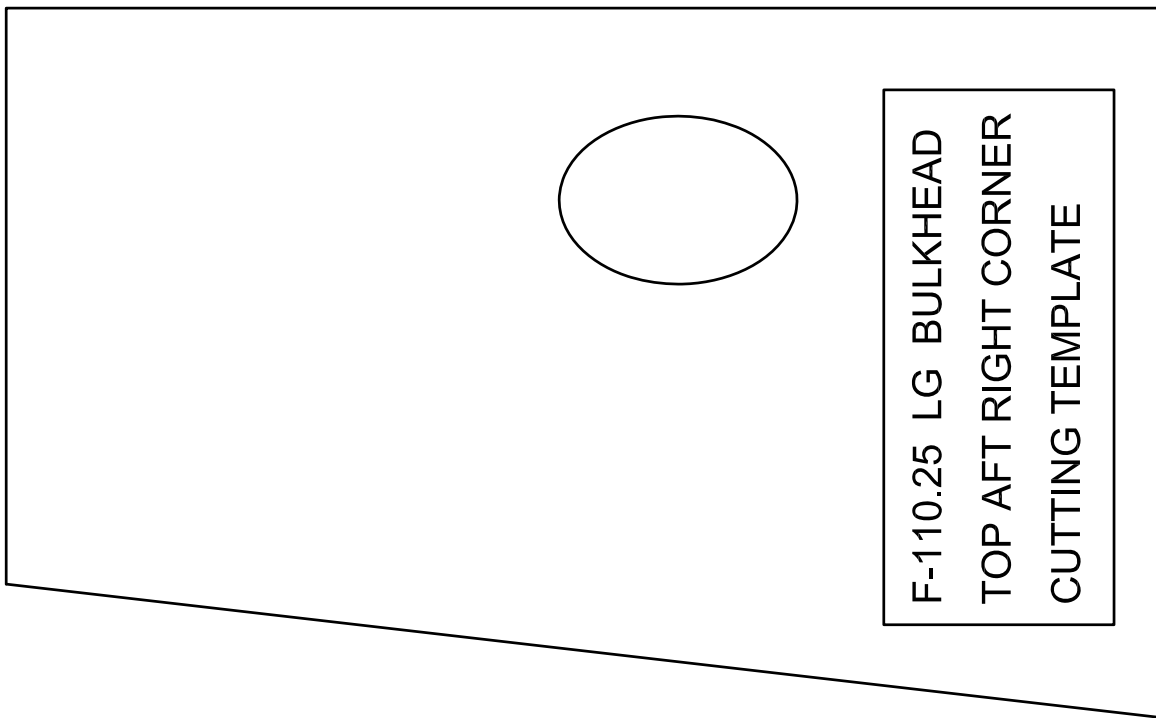
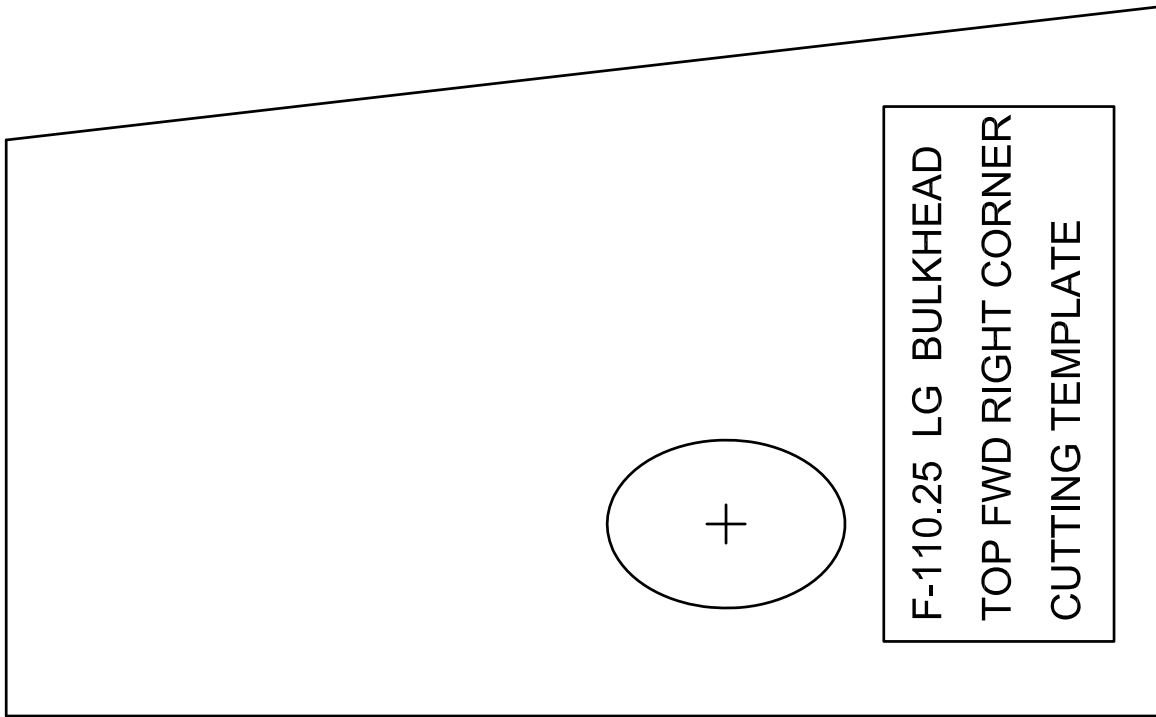
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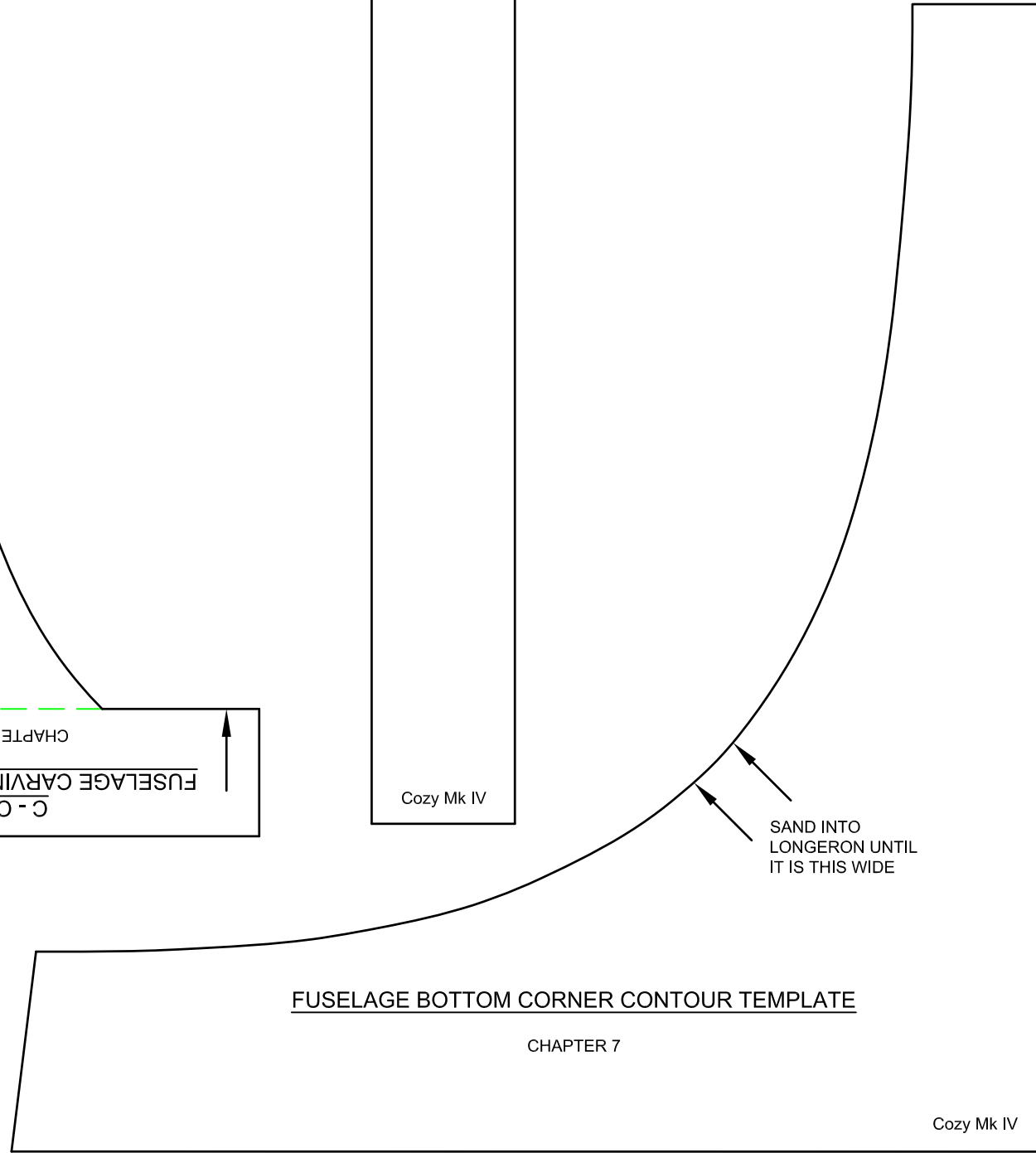
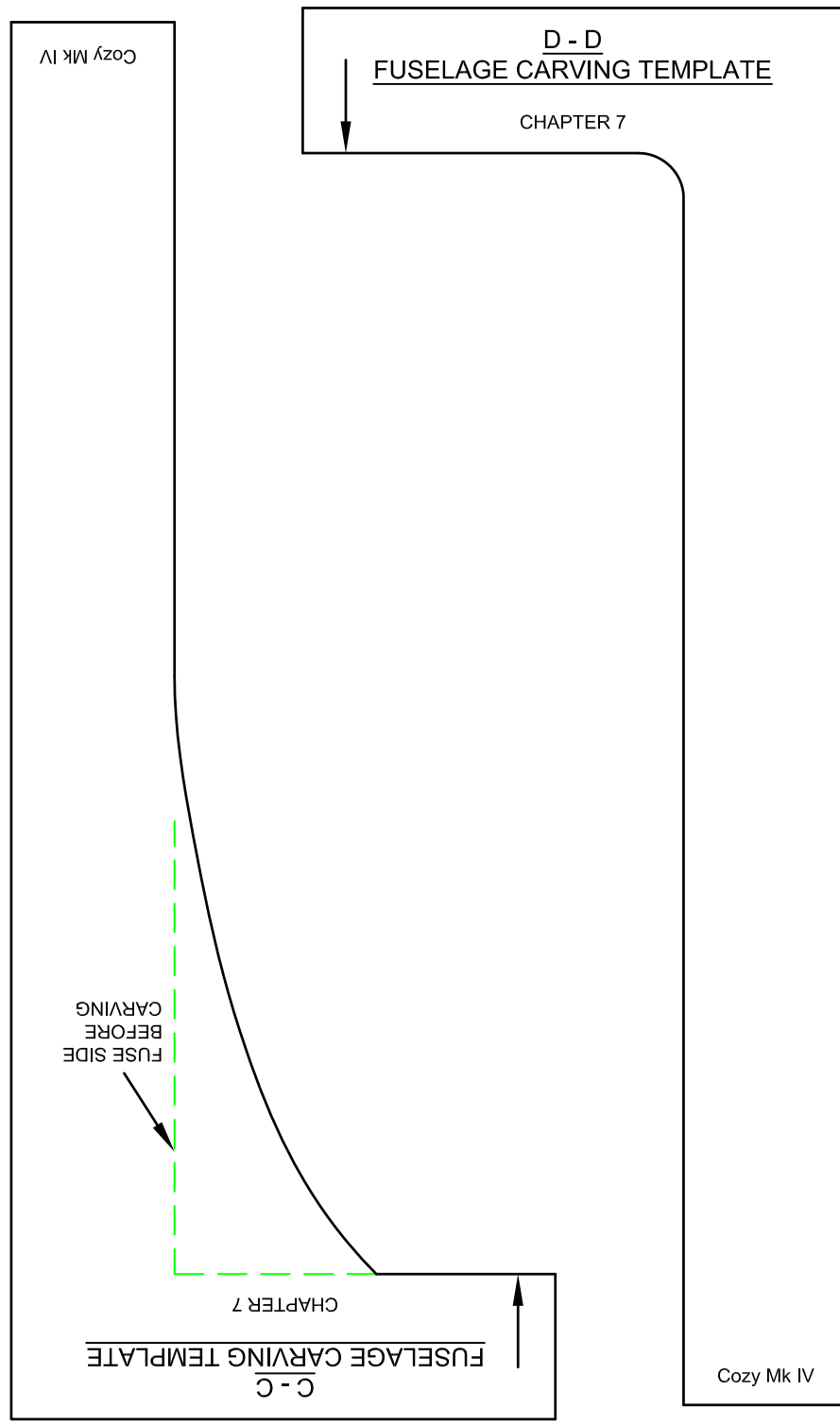
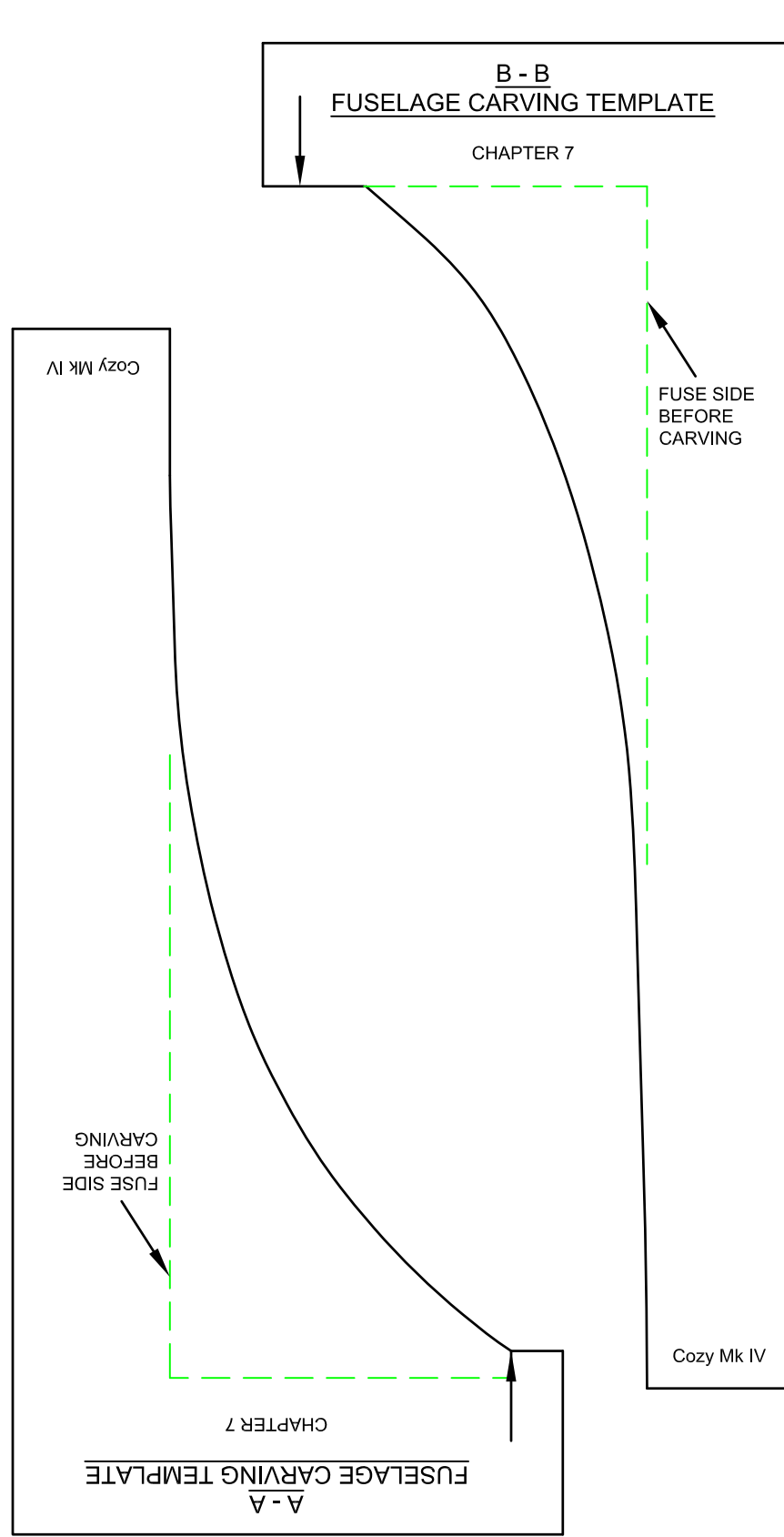


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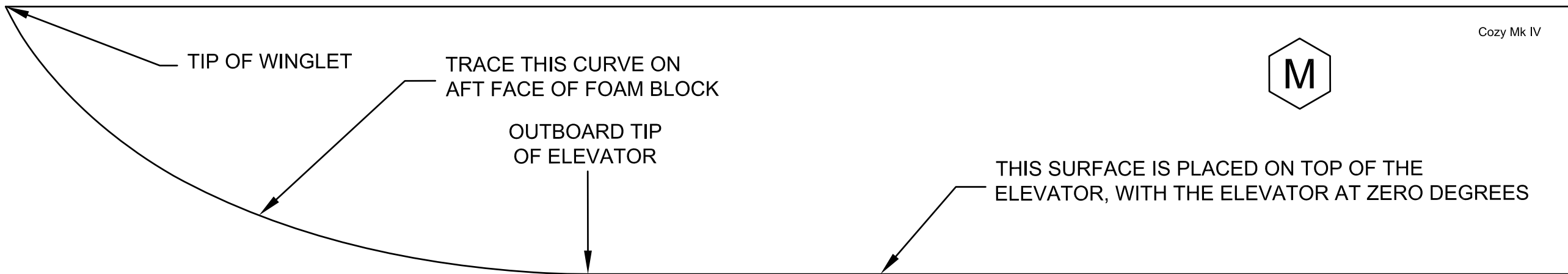
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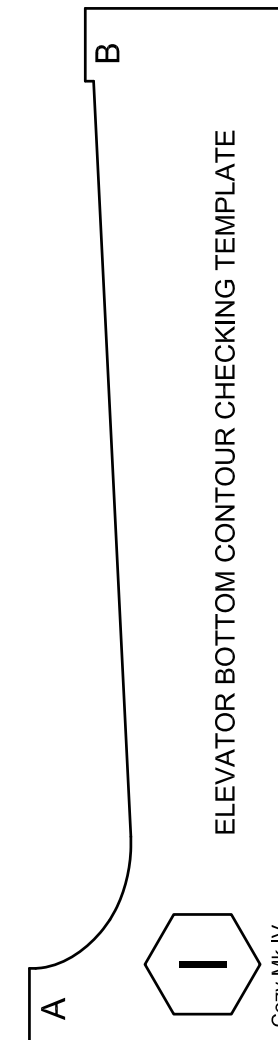
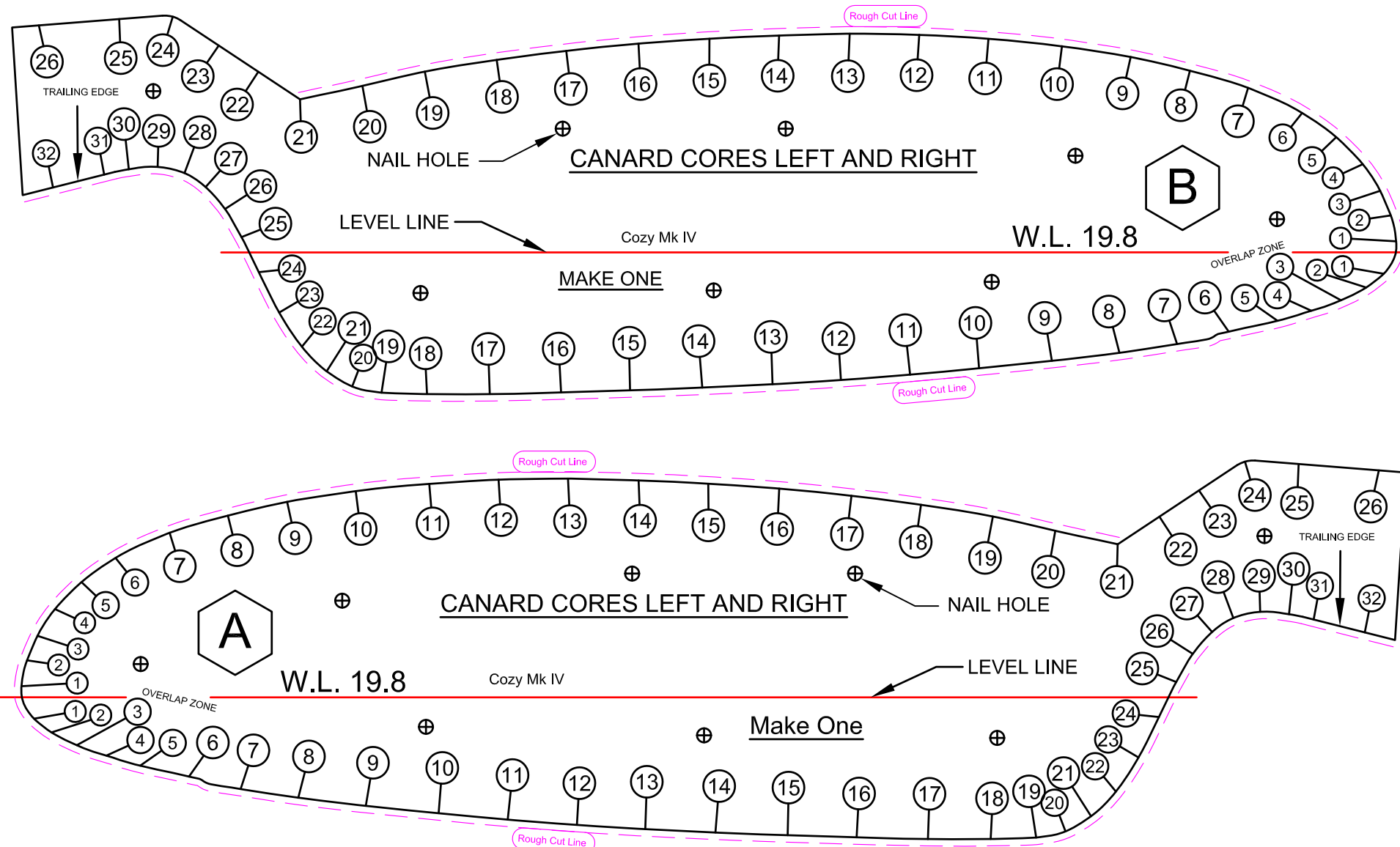
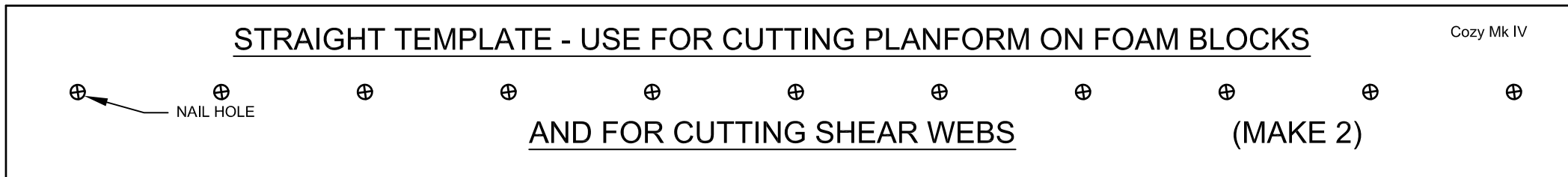
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Cozy Mk IV



STRAIGHT TEMPLATE - USE FOR CUTTING PLANFORM ON FOAM BLOCKS

Cozy Mk IV

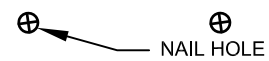


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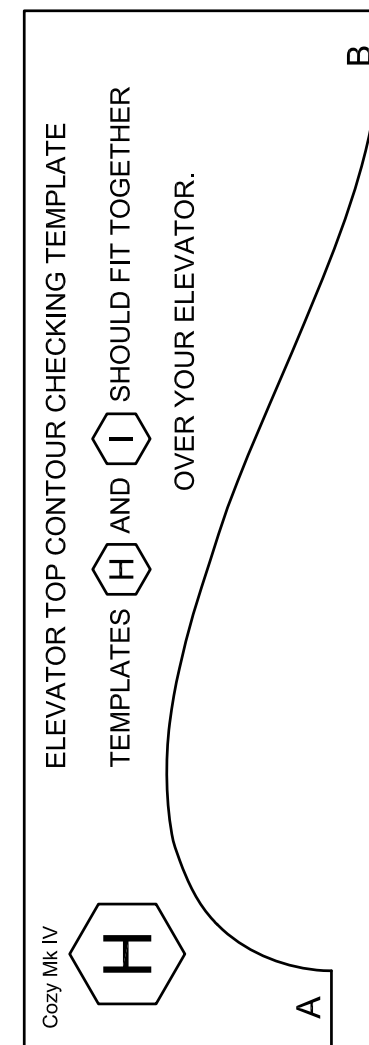
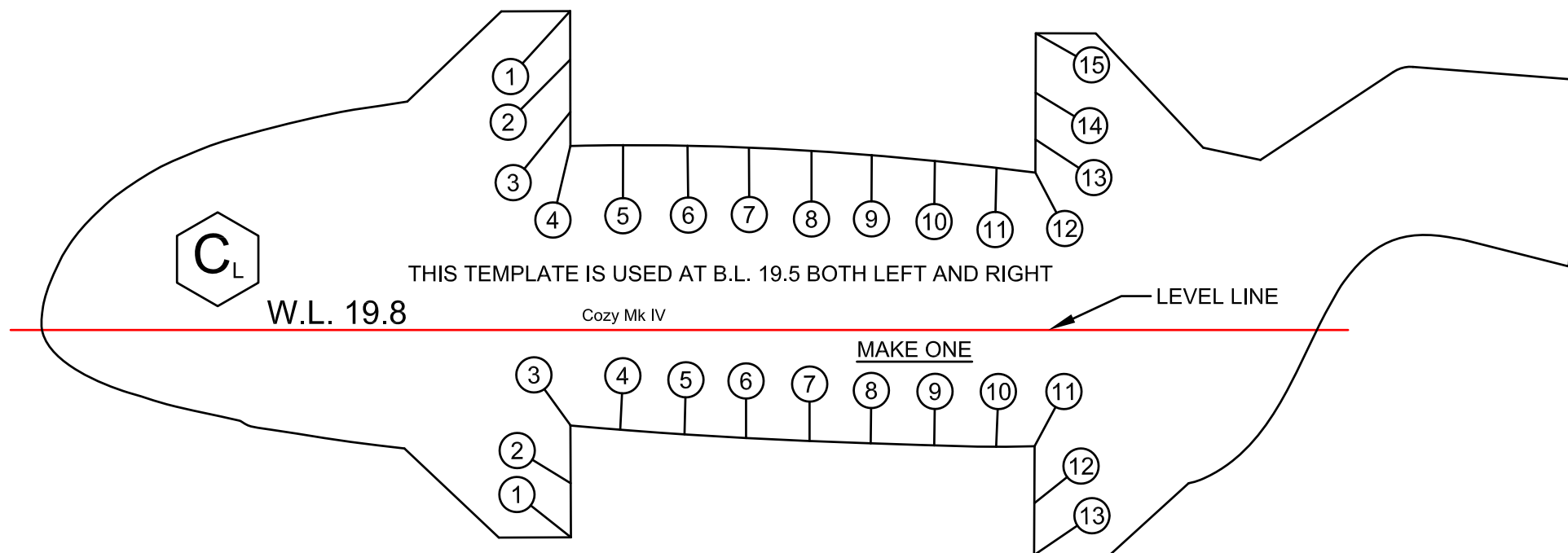
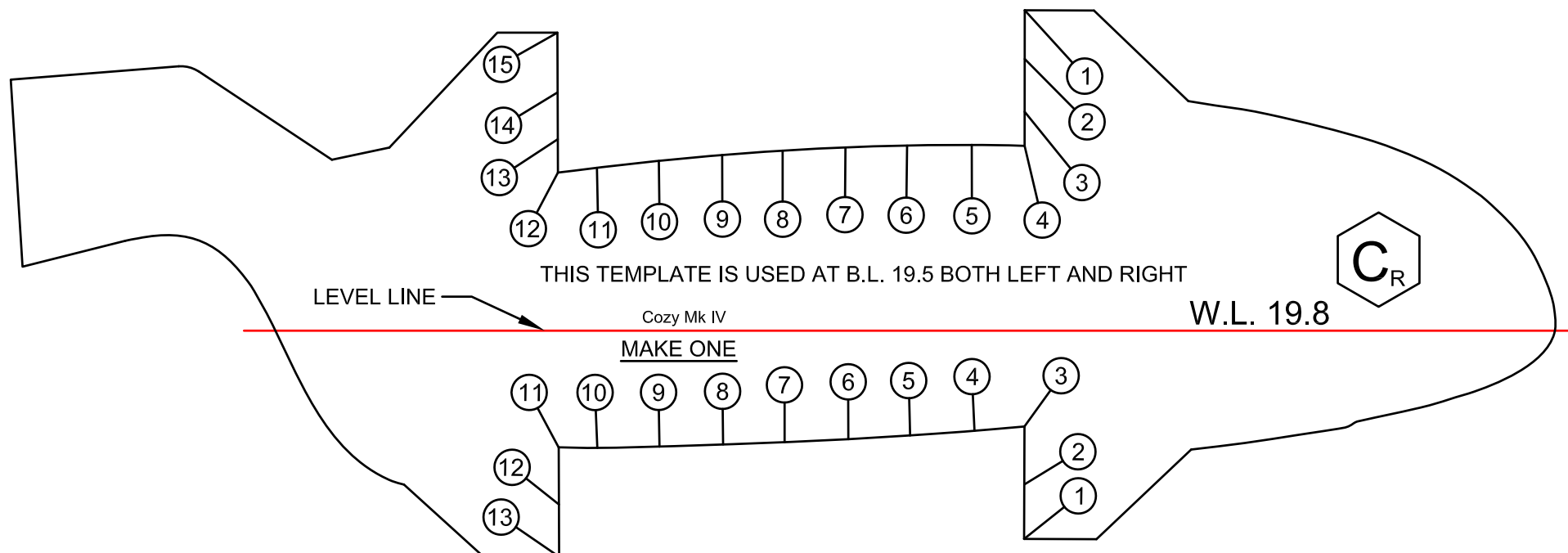
STRAIGHT TEMPLATE - USE FOR CUTTING PLANFORM ON FOAM BLOCKS

Cozy Mk IV



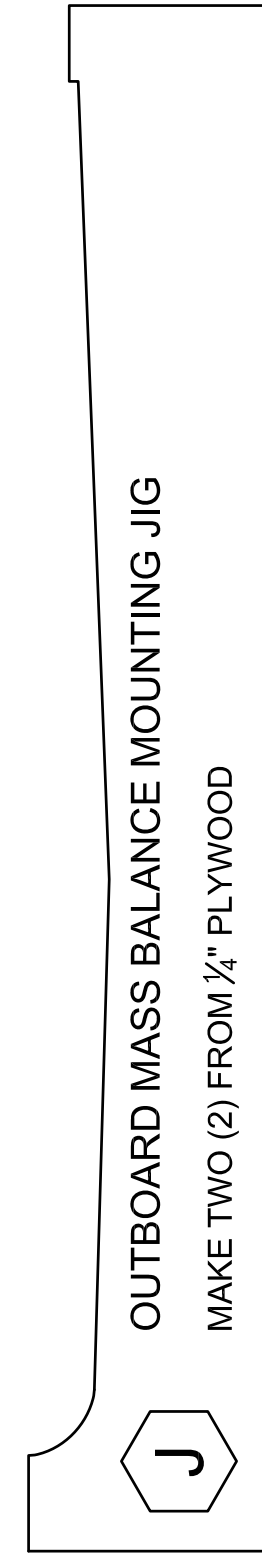
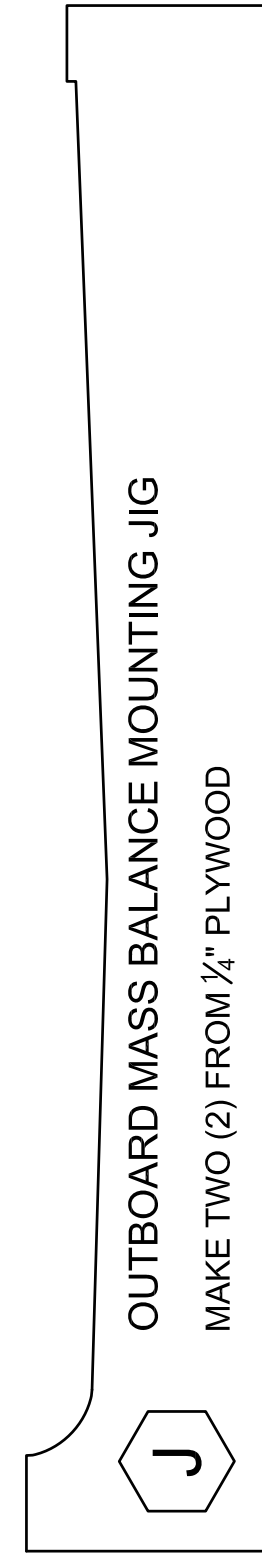
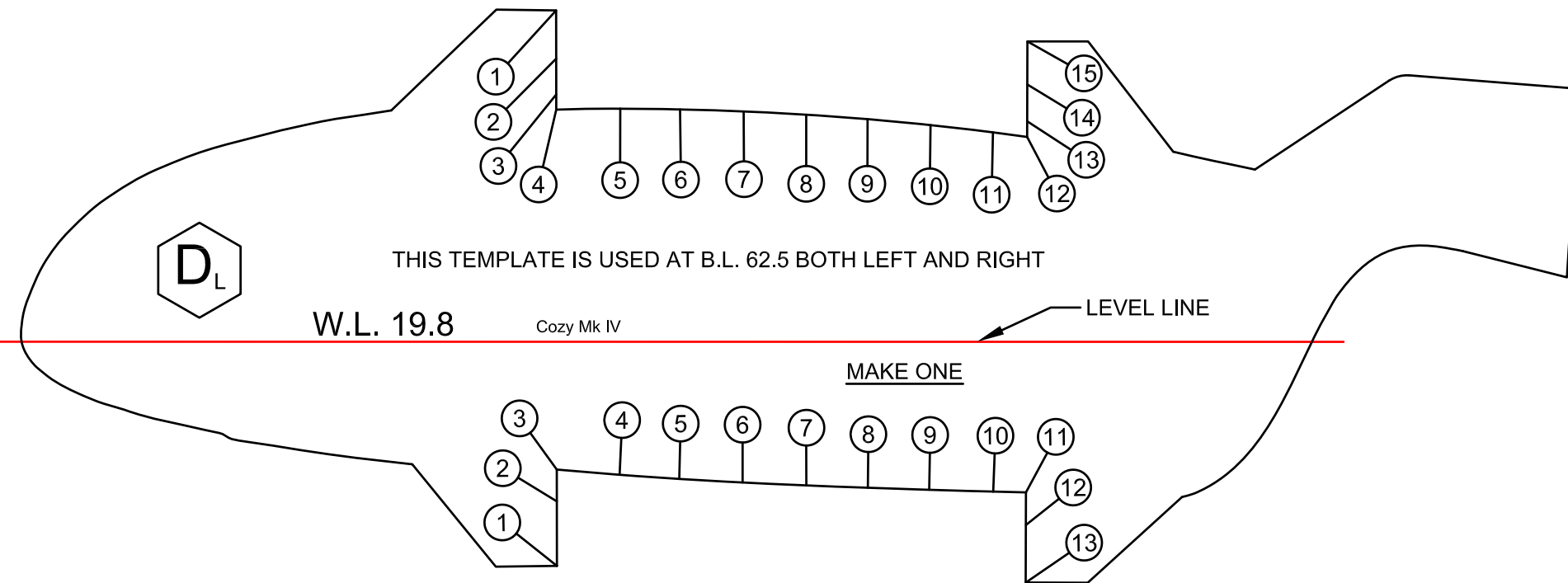
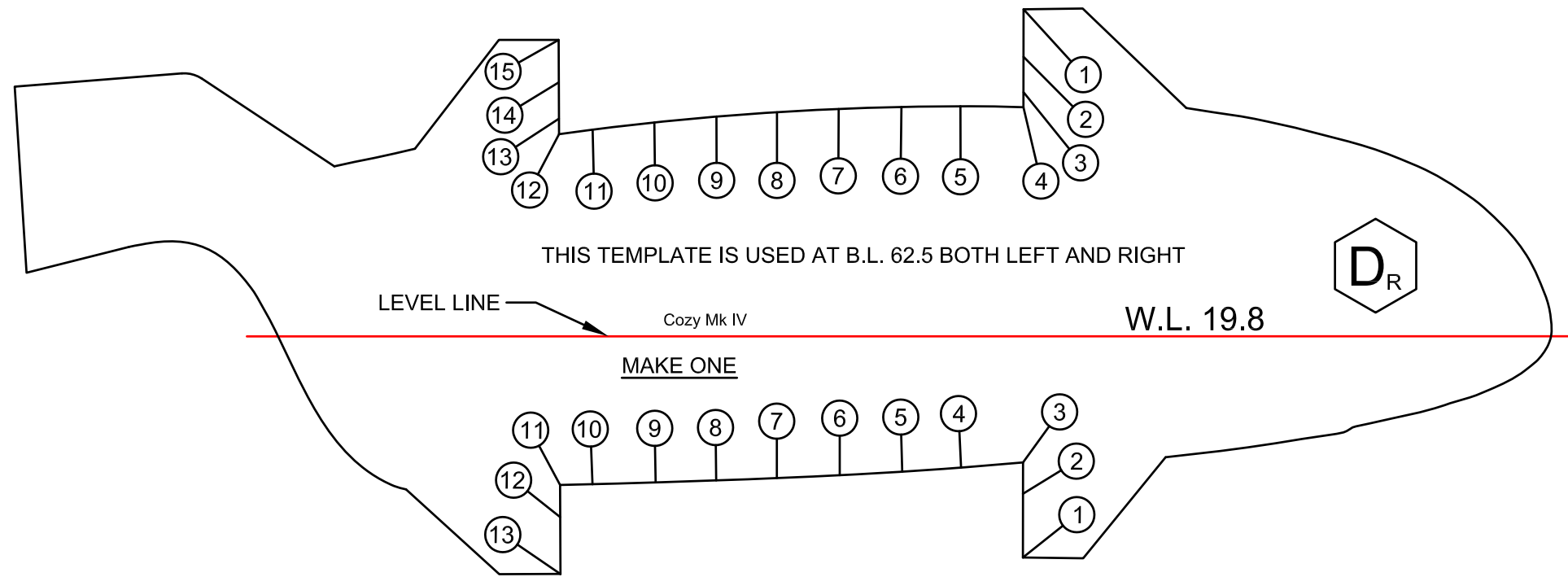
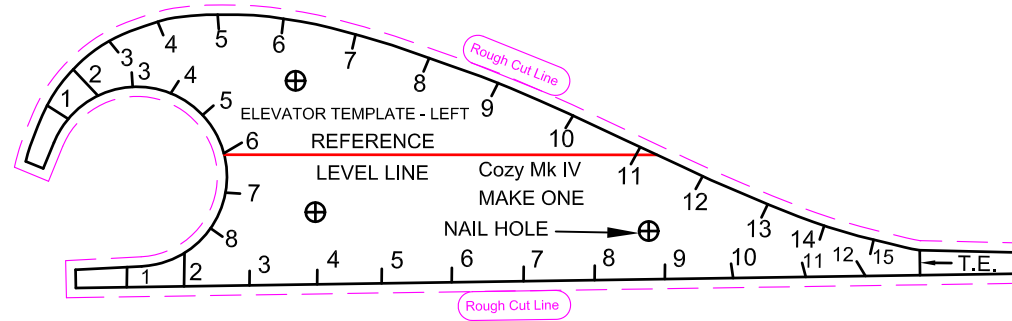
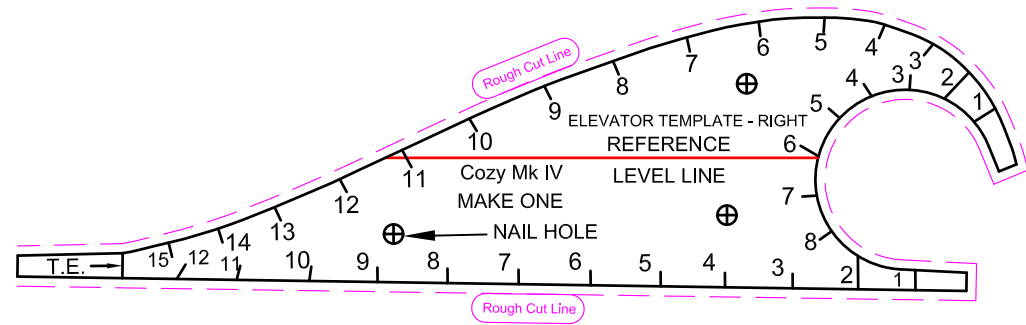
AND FOR CUTTING SHEAR WEBS

(MAKE 2)



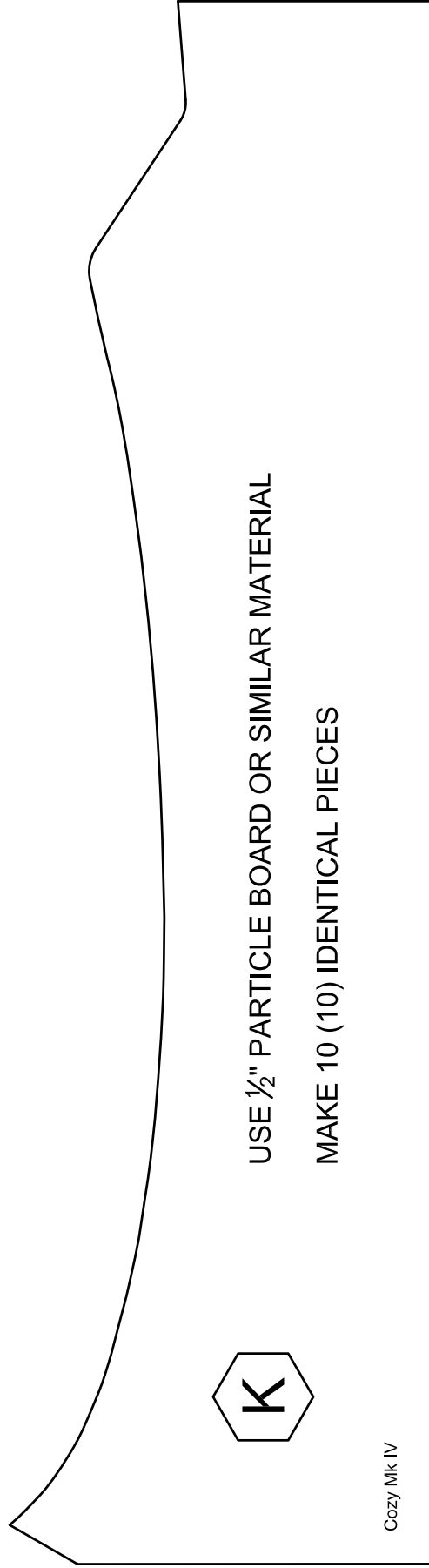
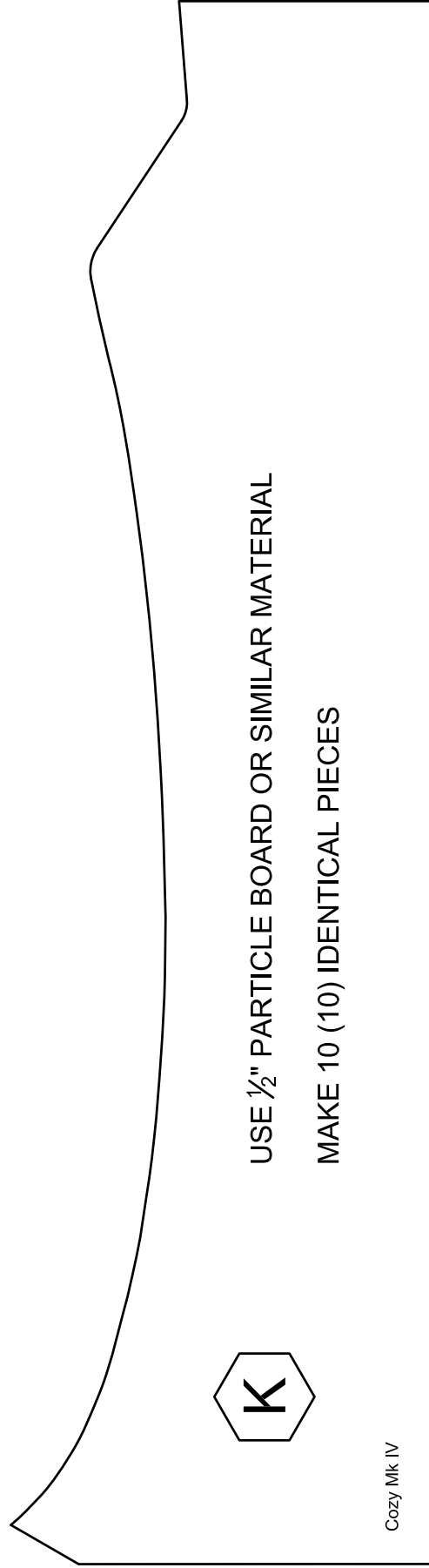
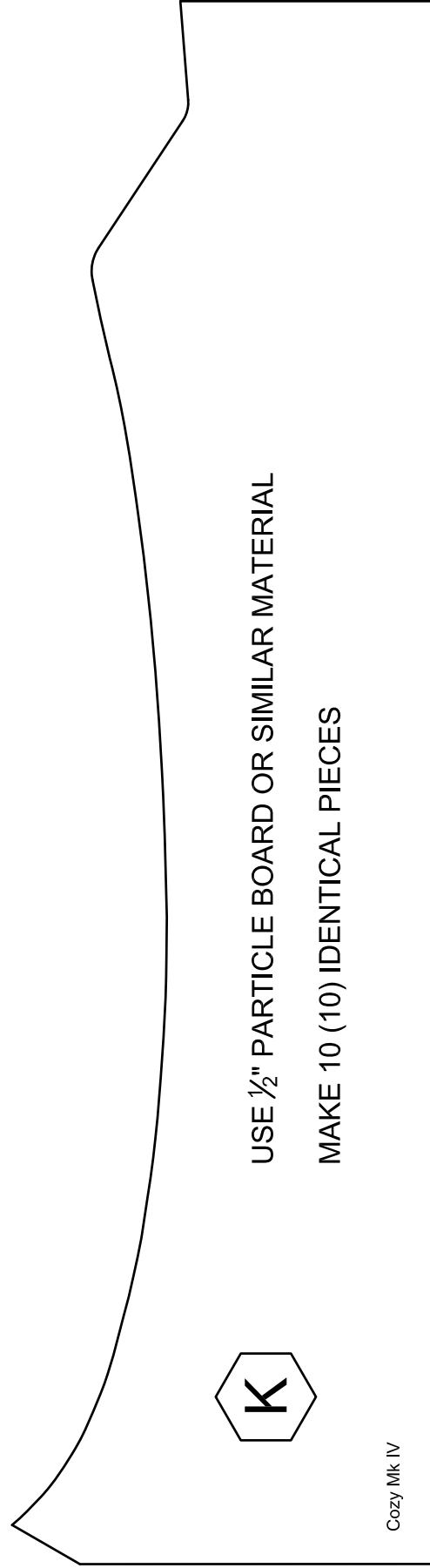
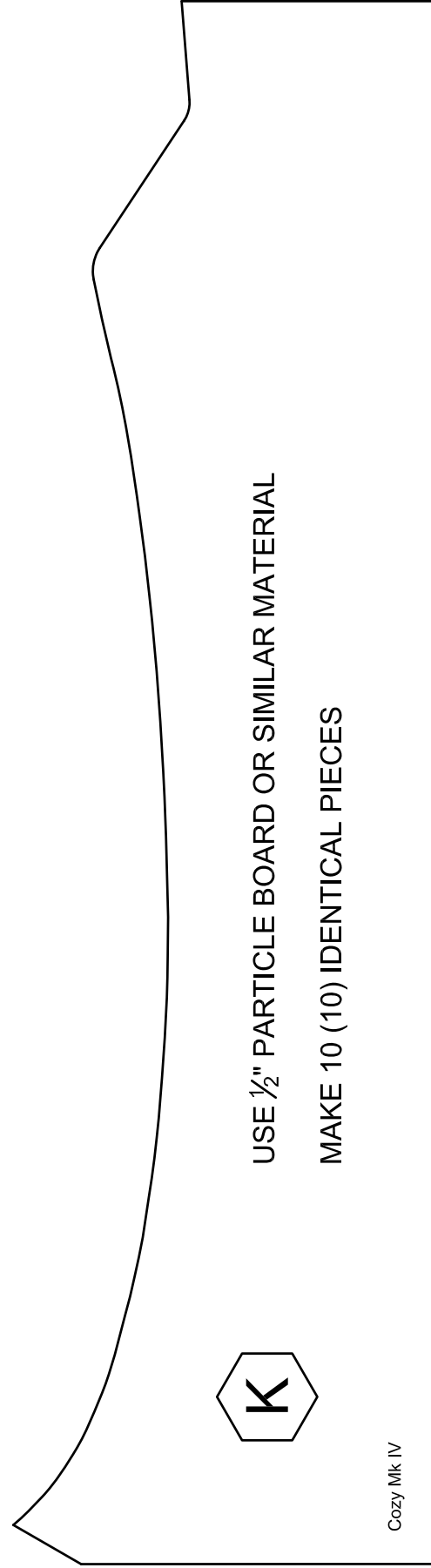
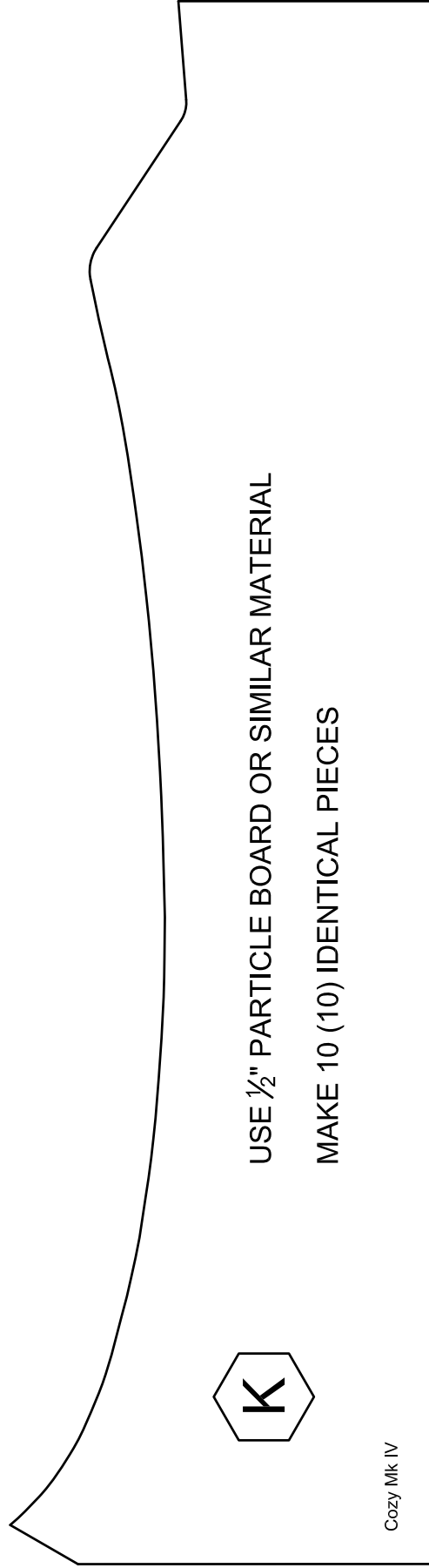
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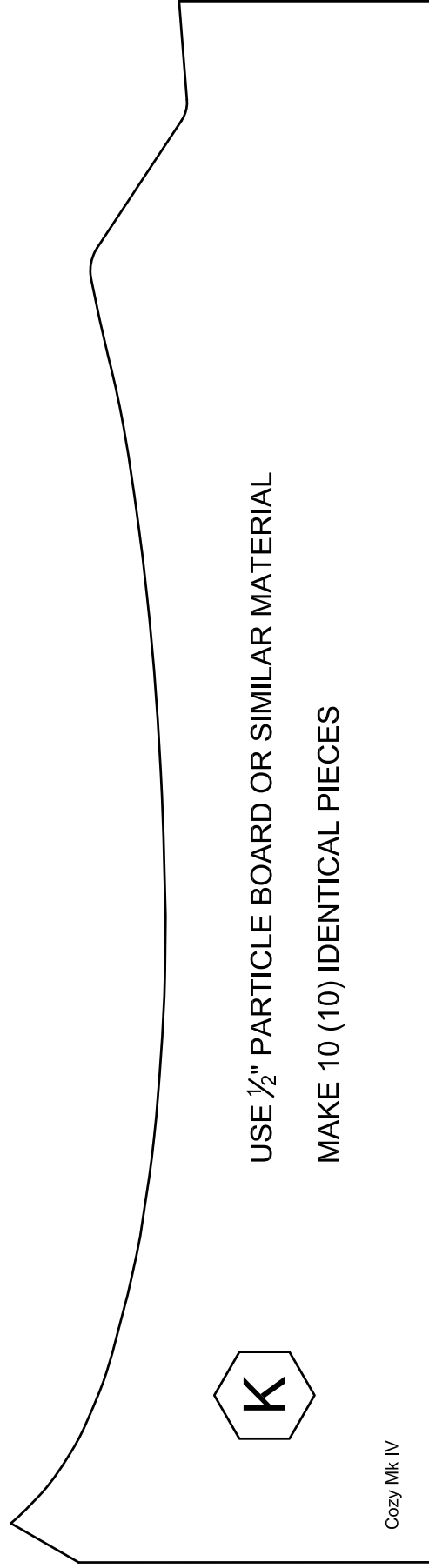
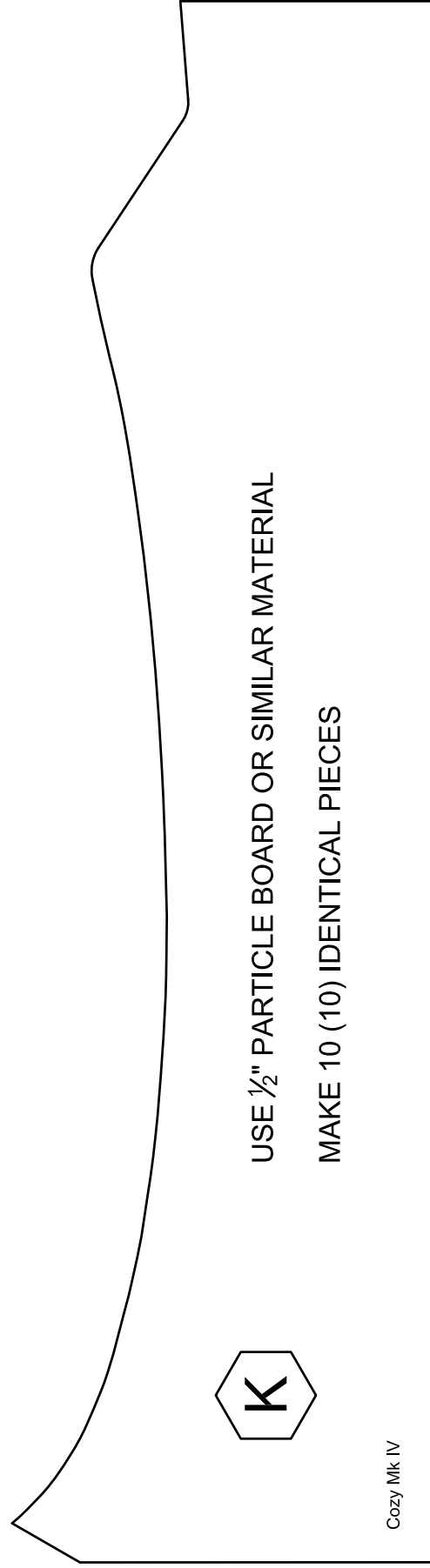
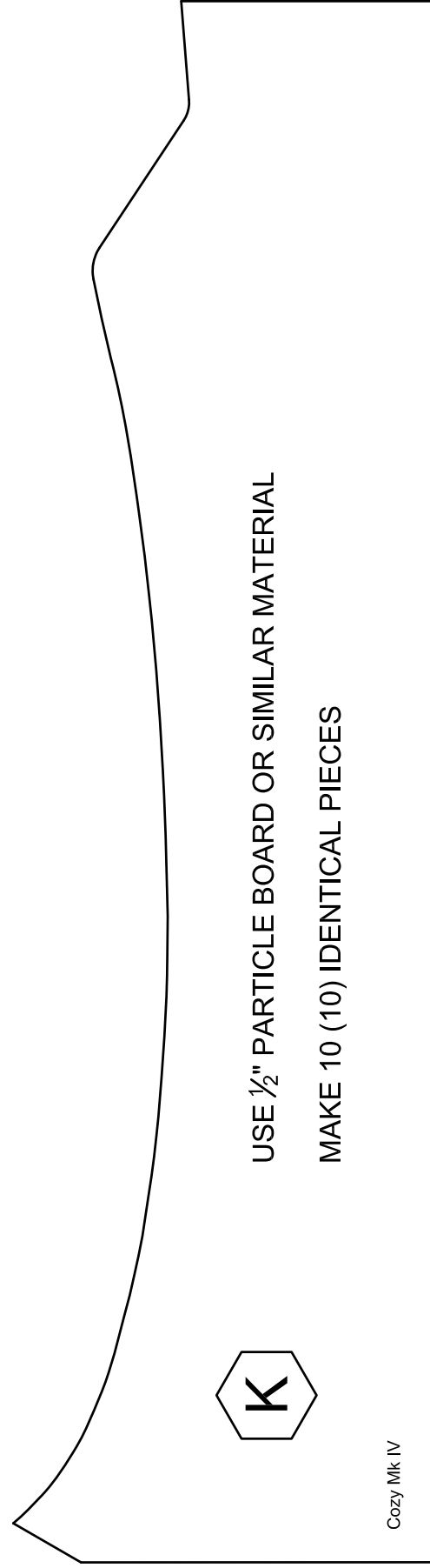
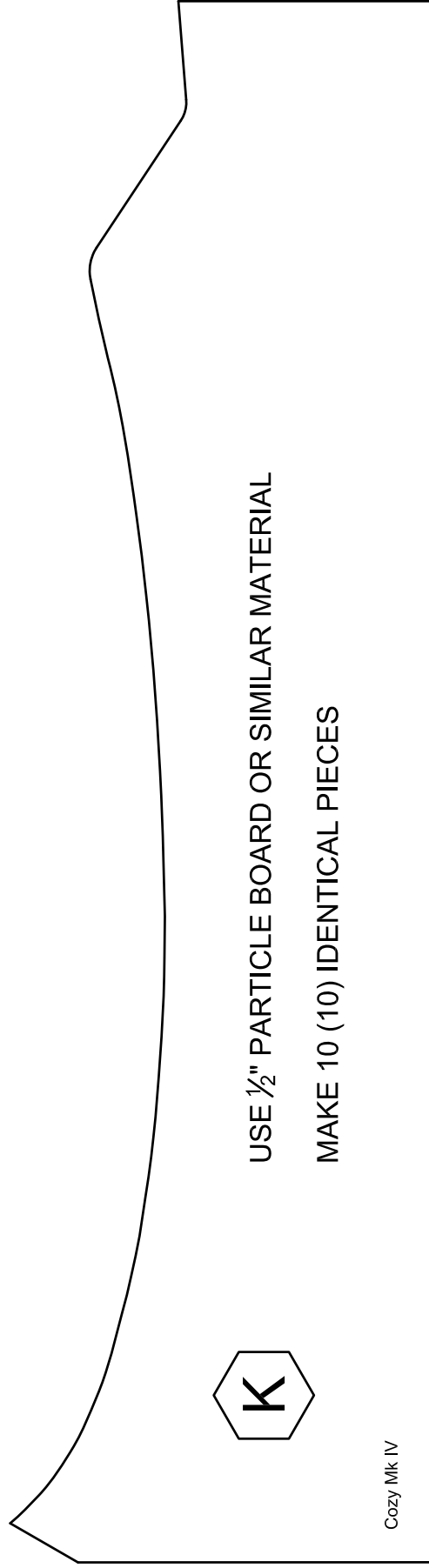


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This line is 10.50" long



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This line is 15.20" long

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Cozy Mk IV

ELEVATOR JIG BLOCK TEMPLATE

USE 1/4" PLYWOOD OR MASONITE
MAKE FOUR (4) IDENTICAL PIECES



Cozy Mk IV

ELEVATOR JIG BLOCK TEMPLATE

USE 1/4" PLYWOOD OR MASONITE
MAKE FOUR (4) IDENTICAL PIECES



Cozy Mk IV

ELEVATOR JIG BLOCK TEMPLATE

USE 1/4" PLYWOOD OR MASONITE
MAKE FOUR (4) IDENTICAL PIECES



Cozy Mk IV

ELEVATOR JIG BLOCK TEMPLATE

USE 1/4" PLYWOOD OR MASONITE
MAKE FOUR (4) IDENTICAL PIECES

This line is 10.50" long

This line is 15.20" long

Cozy Mk IV

This line must be level when the top longerons are level

Revised 12/01/02

CANARD TOP PROFILE CHECKING TEMPLATE

MAKE ONE



TRAILING EDGE

B

TRAILING EDGE

B

A

A

MAKE ONE

CANARD BOTTOM CONTOUR CHECKING TEMPLATE



Cozy Mk IV

Cozy Mk IV

THIS LINE MUST BE LEVEL WHEN THE TOP OF THE LONGERONS ARE LEVEL

Revised 12/01/02



ELEVATOR TRAVEL CHECKING TEMPLATE

MAKE ONE

FULL FORWARD STICK

-15

-10

-5

0

+5

+10

-15

+20

+25

+30

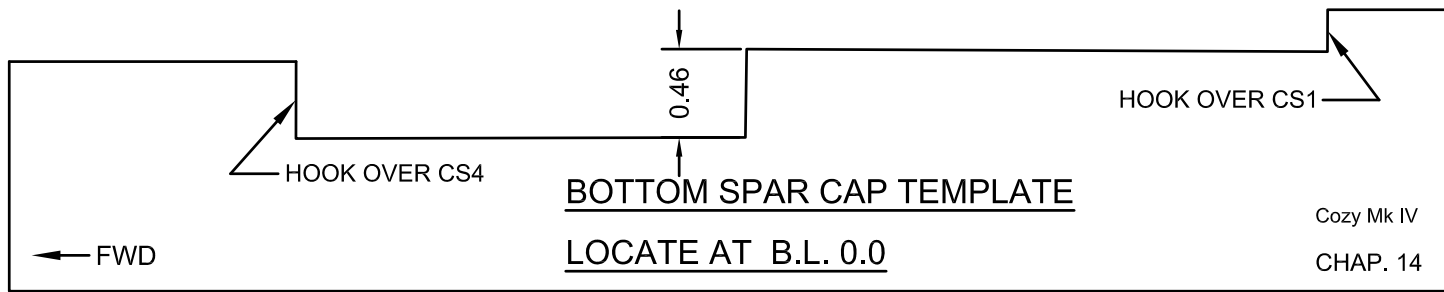
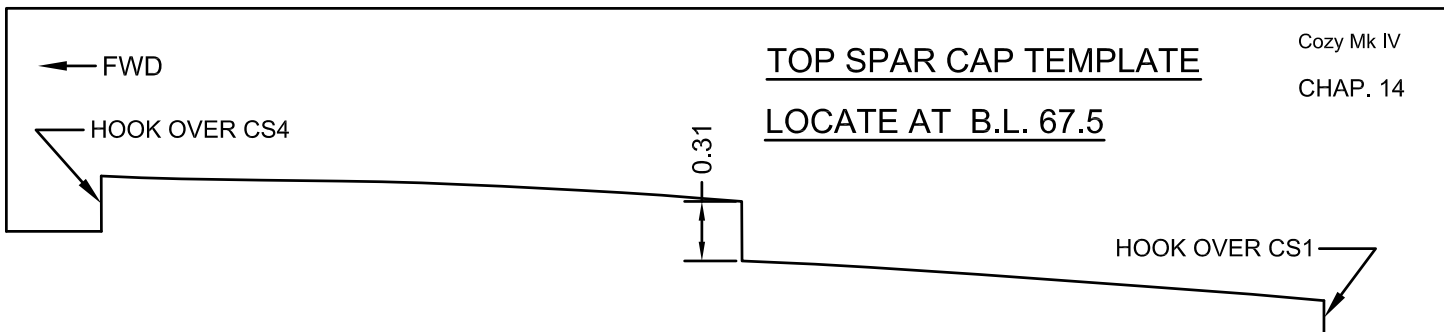
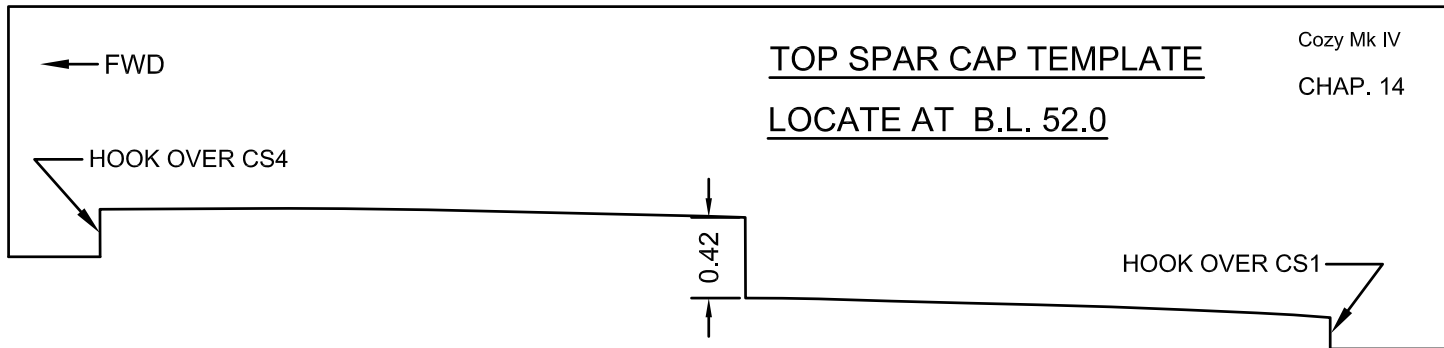
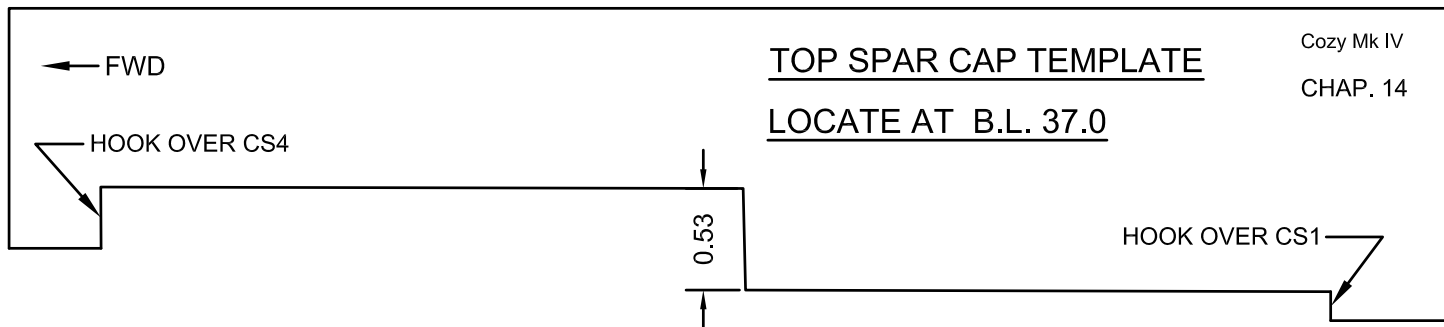
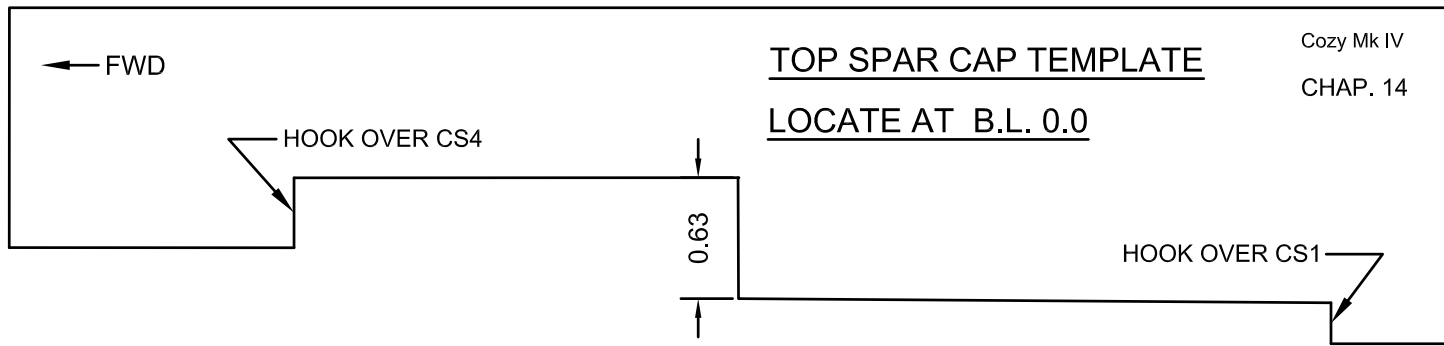
FULL AFT STICK

Pattern Cut Line

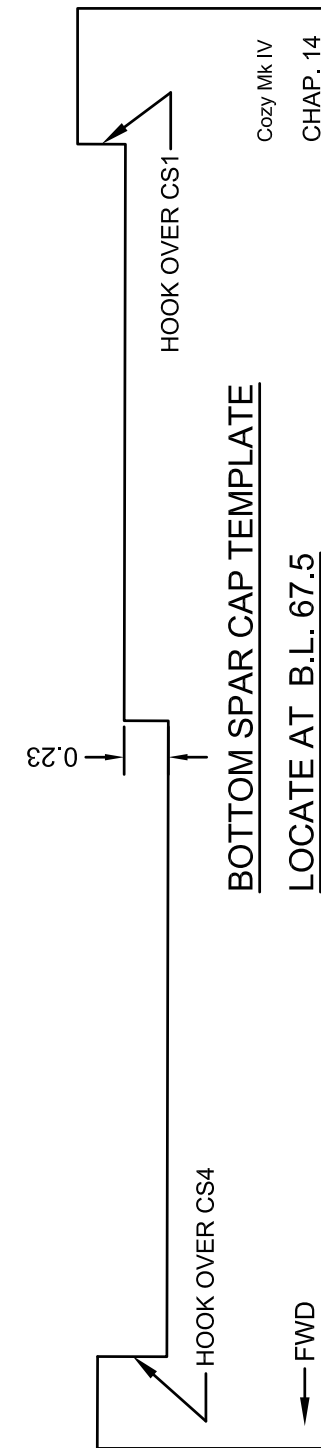
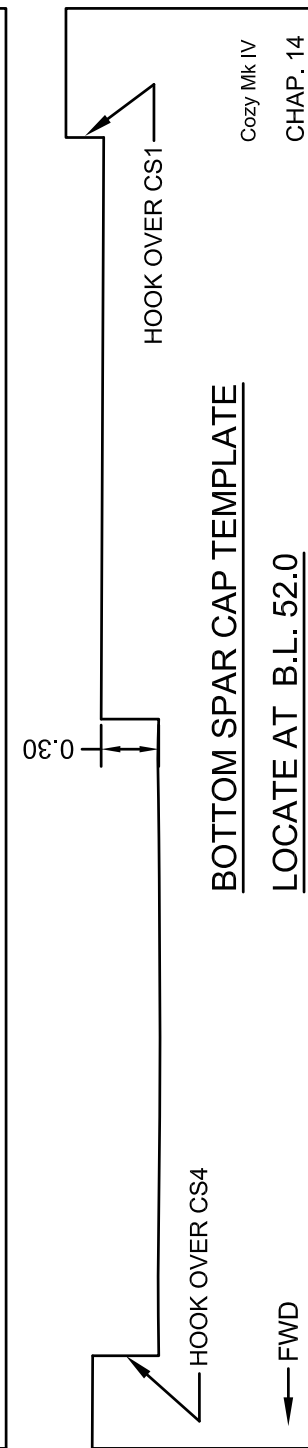
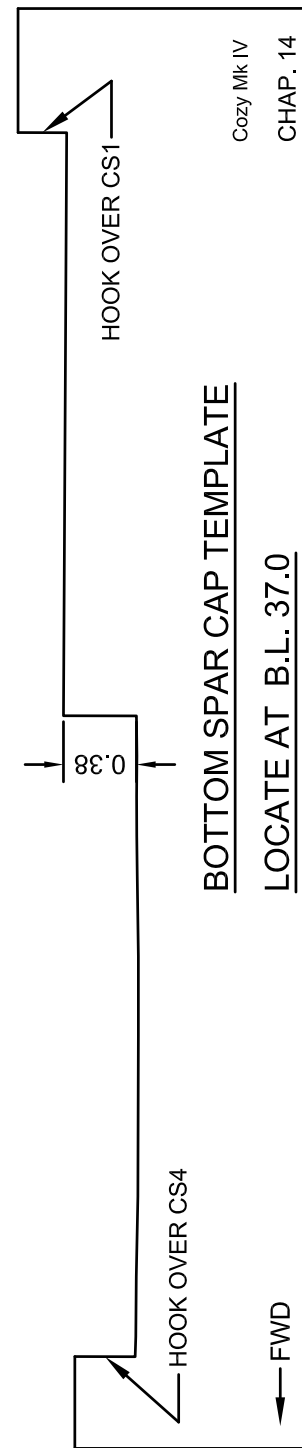
+

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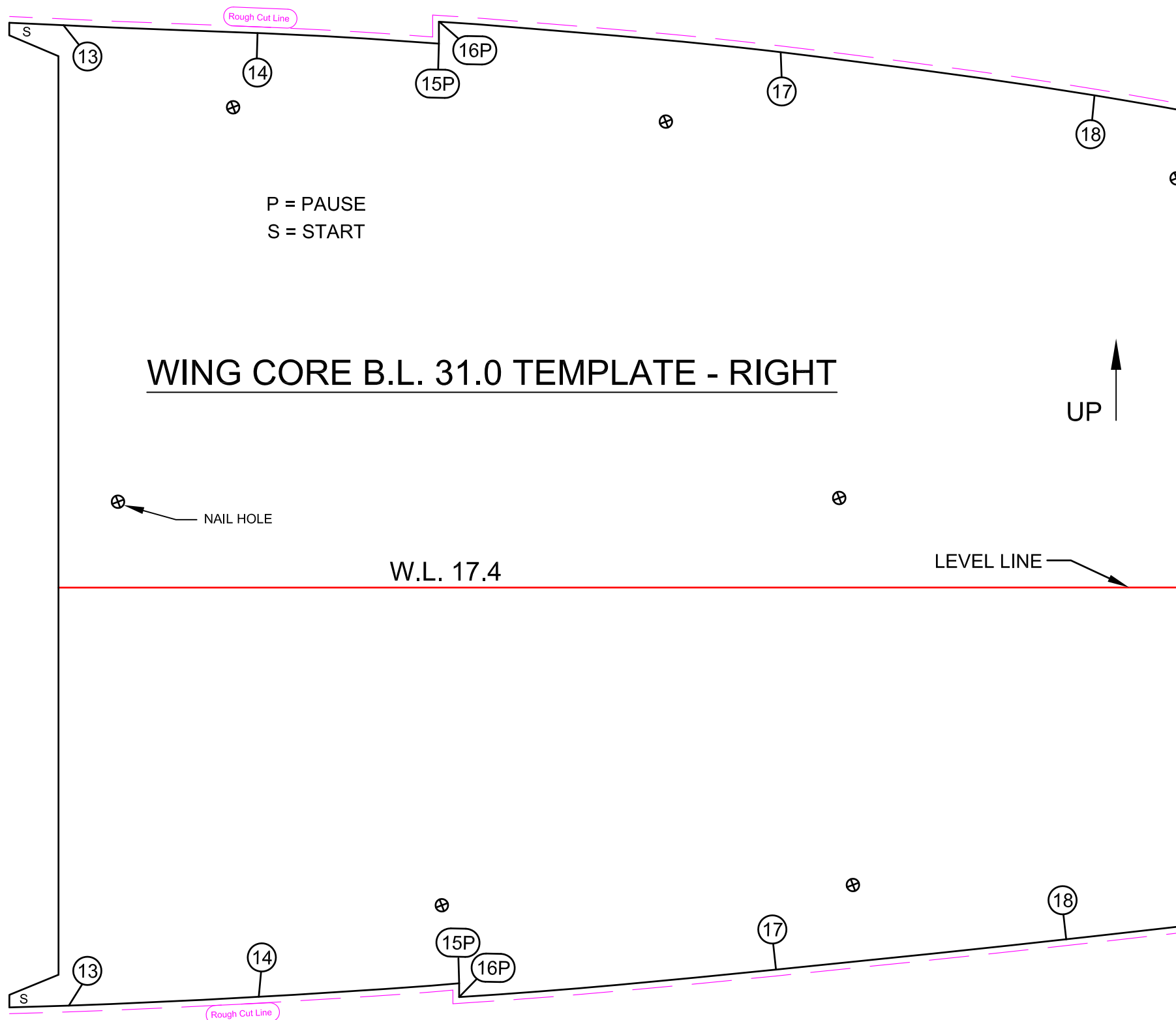
This line is 10.50" long



Revision Notes:
Aug. 22, 2014 Ver. 1.1 Moved B.L. 37.0 and 52.0 bottom spar cap templates so that B.L. 52.0 did not interfere with B.L.62.5 bottom spar cap template dimension.



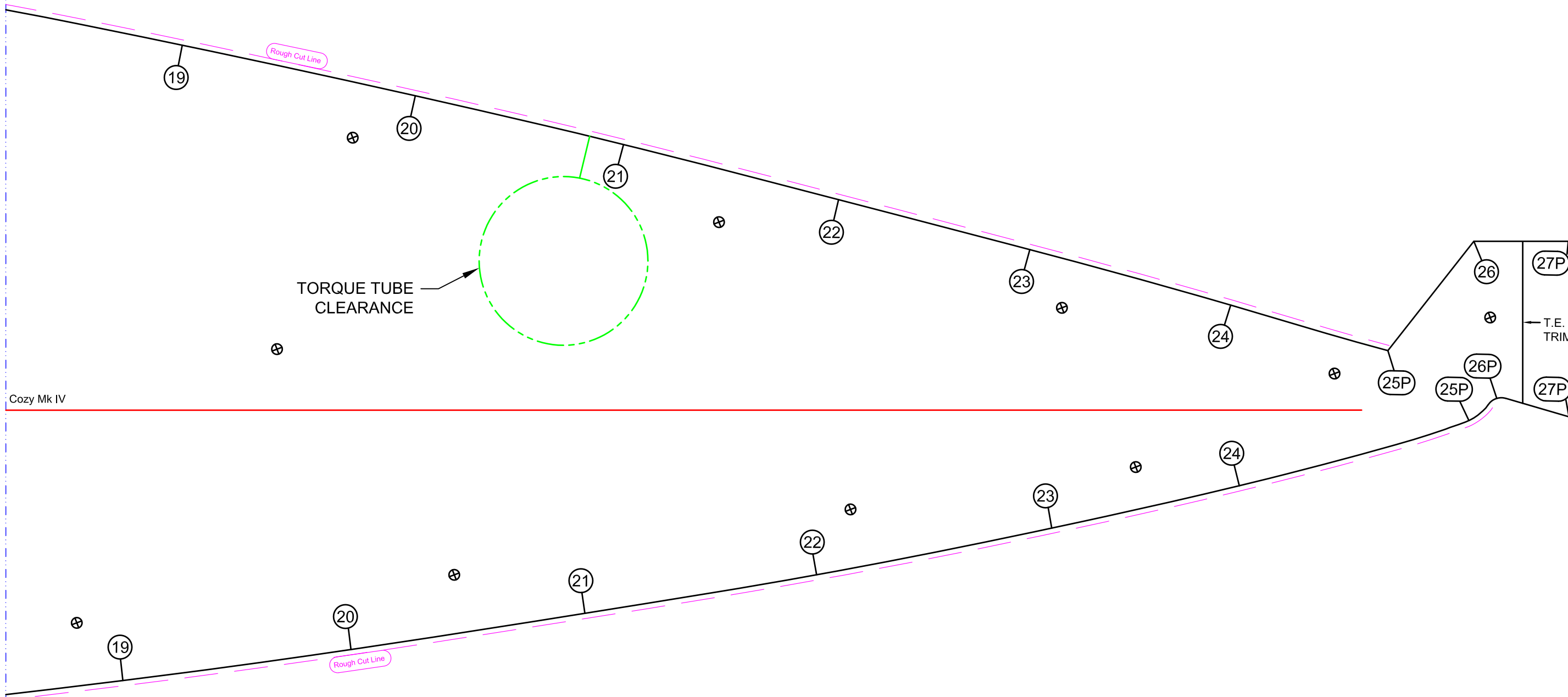
This line is 15.20" long



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This line is 10.50" long

This line is 15.20" long

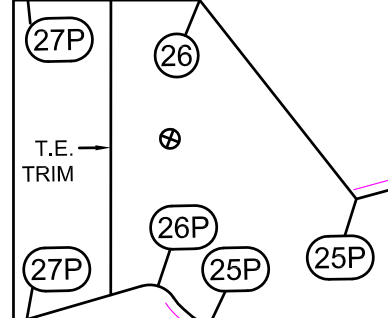
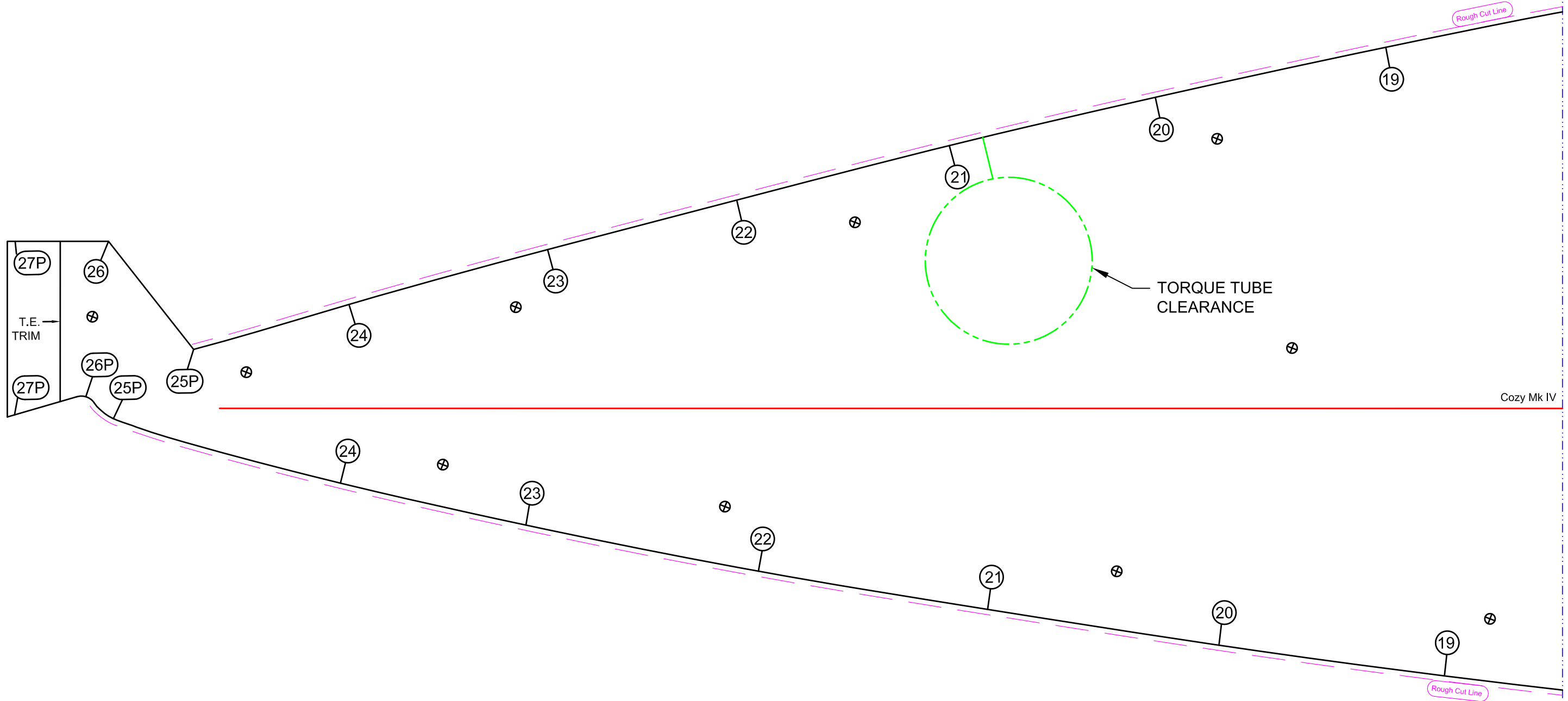


Cozy Mk IV

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This line is 10.50" long

This line is 15.20" long

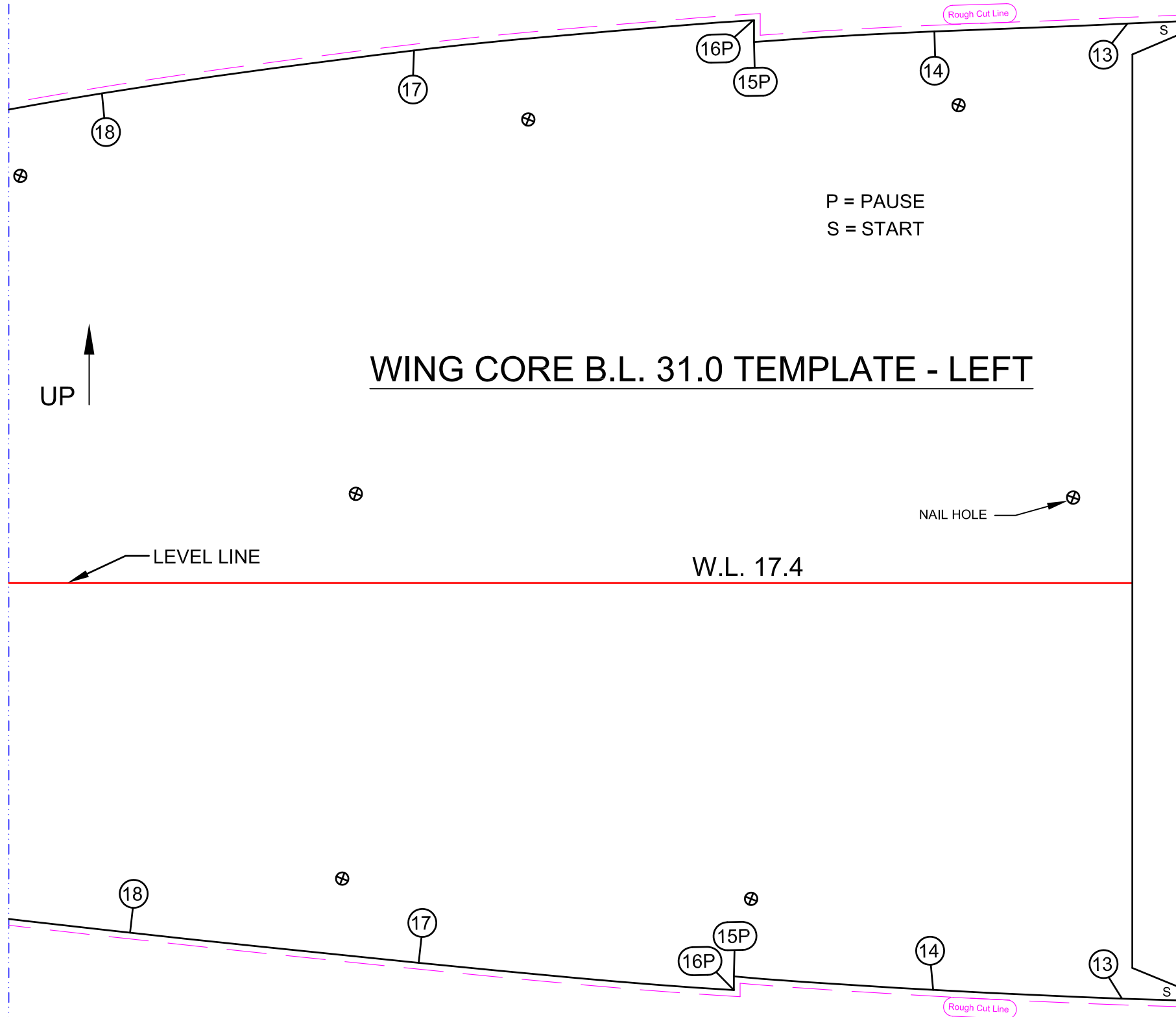


Cozy Mk IV

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This line is 10.50" long

This line is 15.20" long



WING CORE B.L. 31.0 TEMPLATE - LEFT

P = PAUSE
S = START

UP

LEVEL LINE

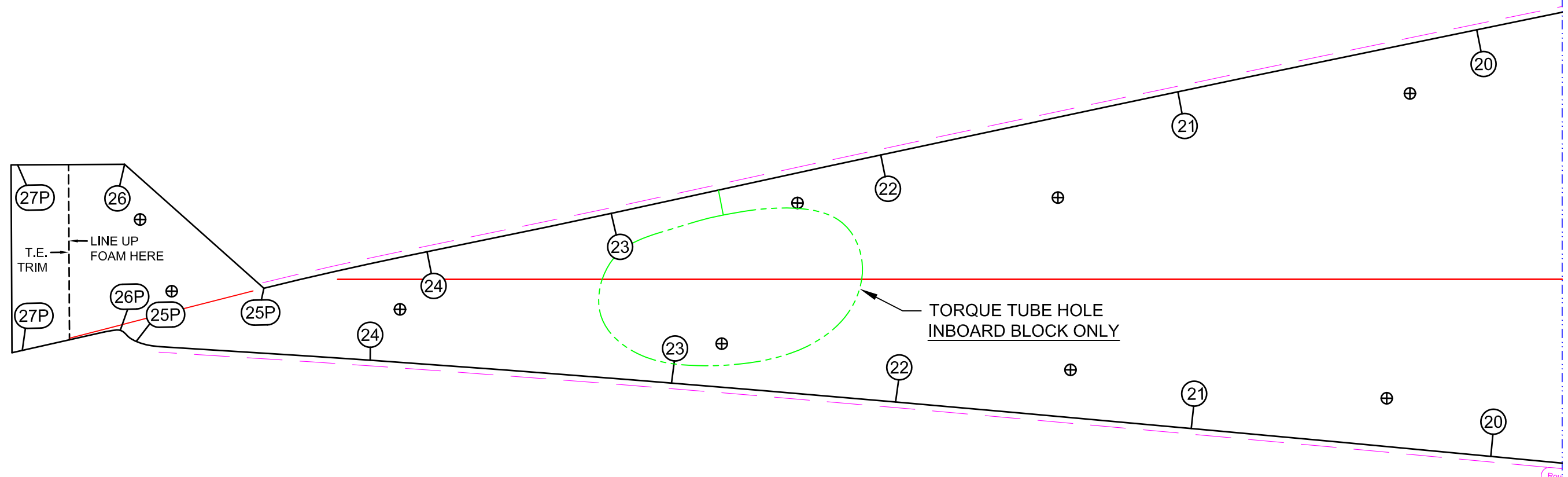
W.L. 17.4

NAIL HOLE

This line is 10.50" long

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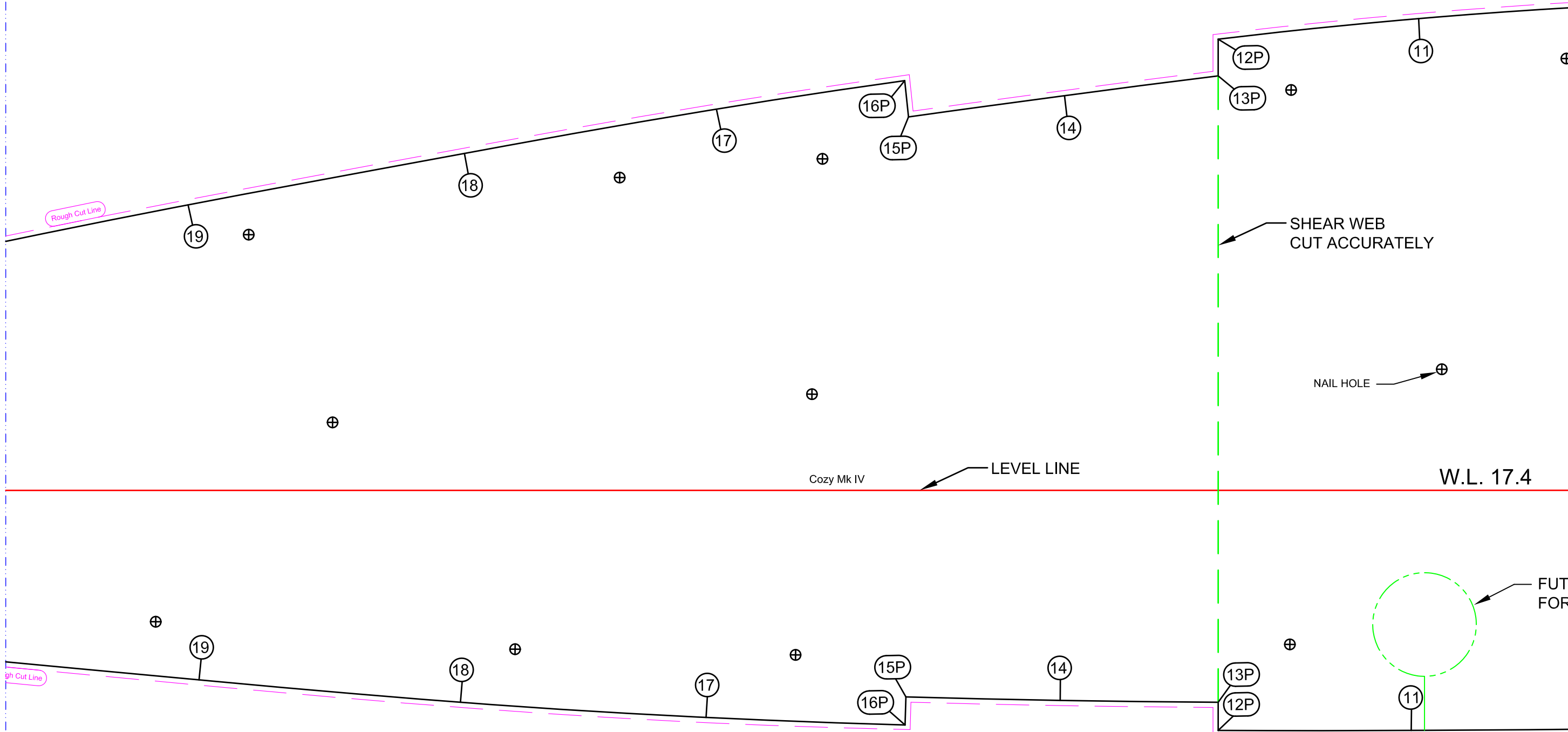
This line is 15.20" long



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This line is 10.50" long

This line is 15.20" long

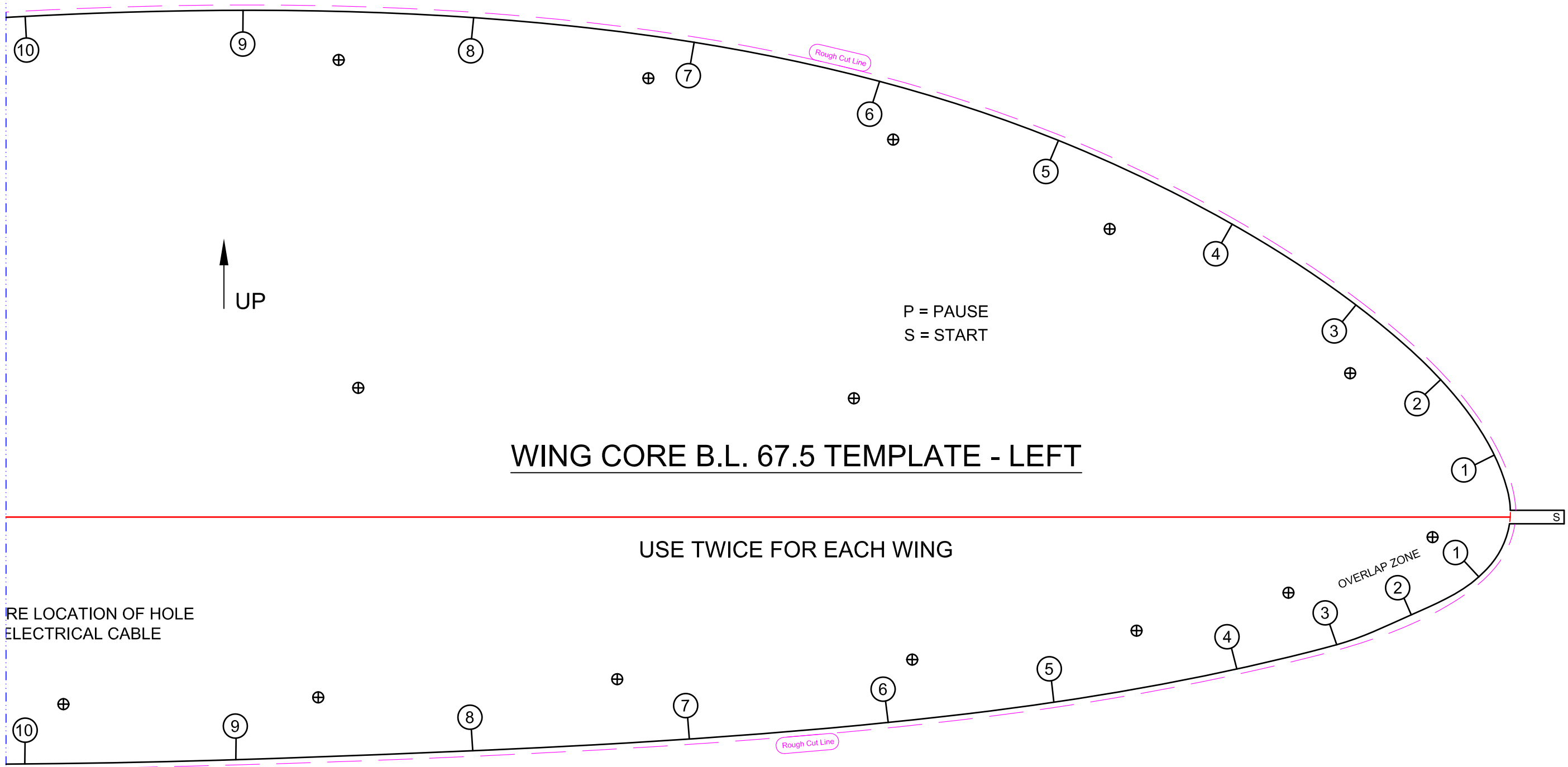


W.L. 17.4

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This line is 10.50" long

This line is 15.20" long



WING CORE B.L. 67.5 TEMPLATE - LEFT

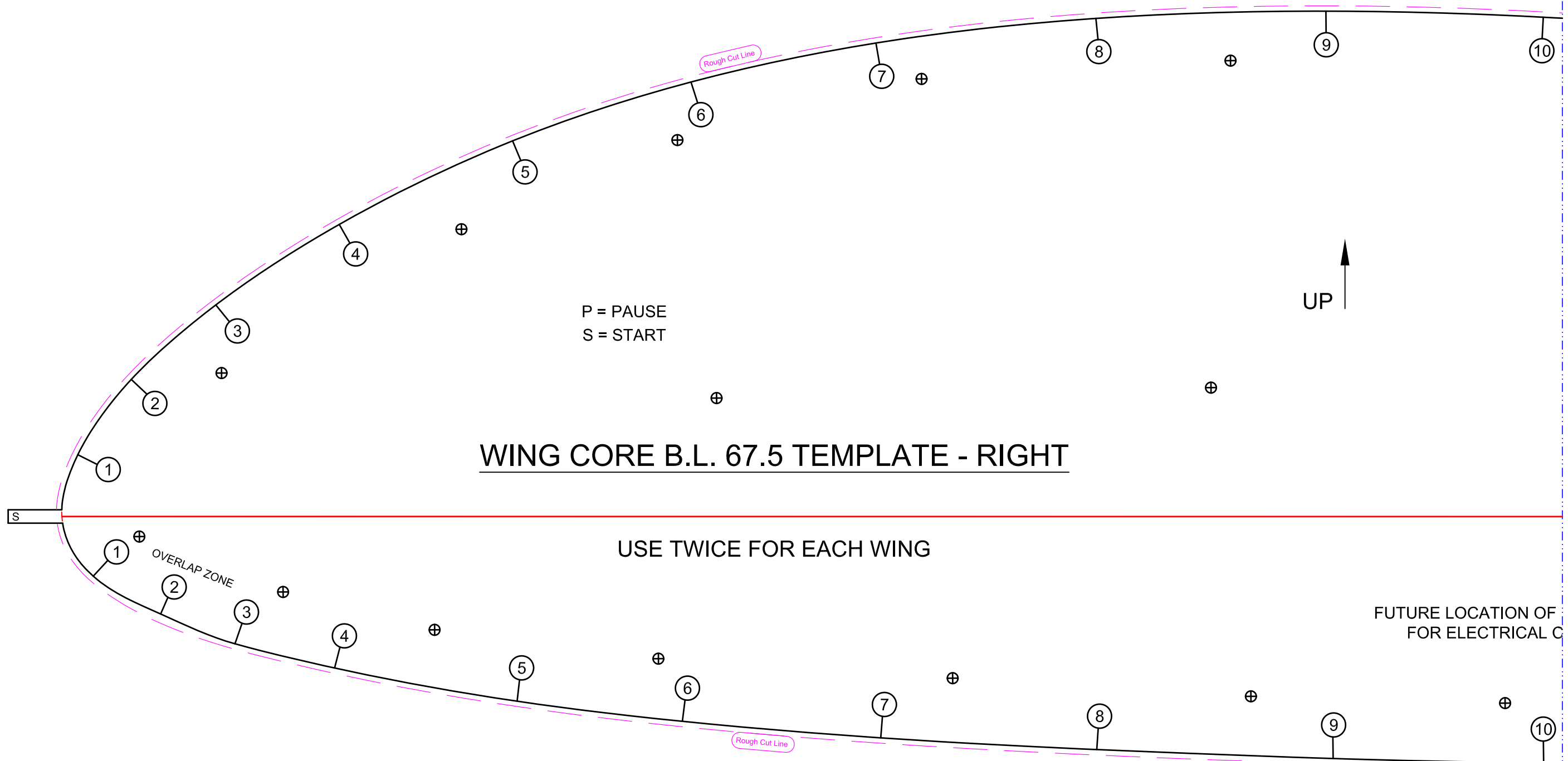
USE TWICE FOR EACH WING

RE LOCATION OF HOLE
ELECTRICAL CABLE

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This line is 10.50" long

This line is 15.20" long



WING CORE B.L. 67.5 TEMPLATE - RIGHT

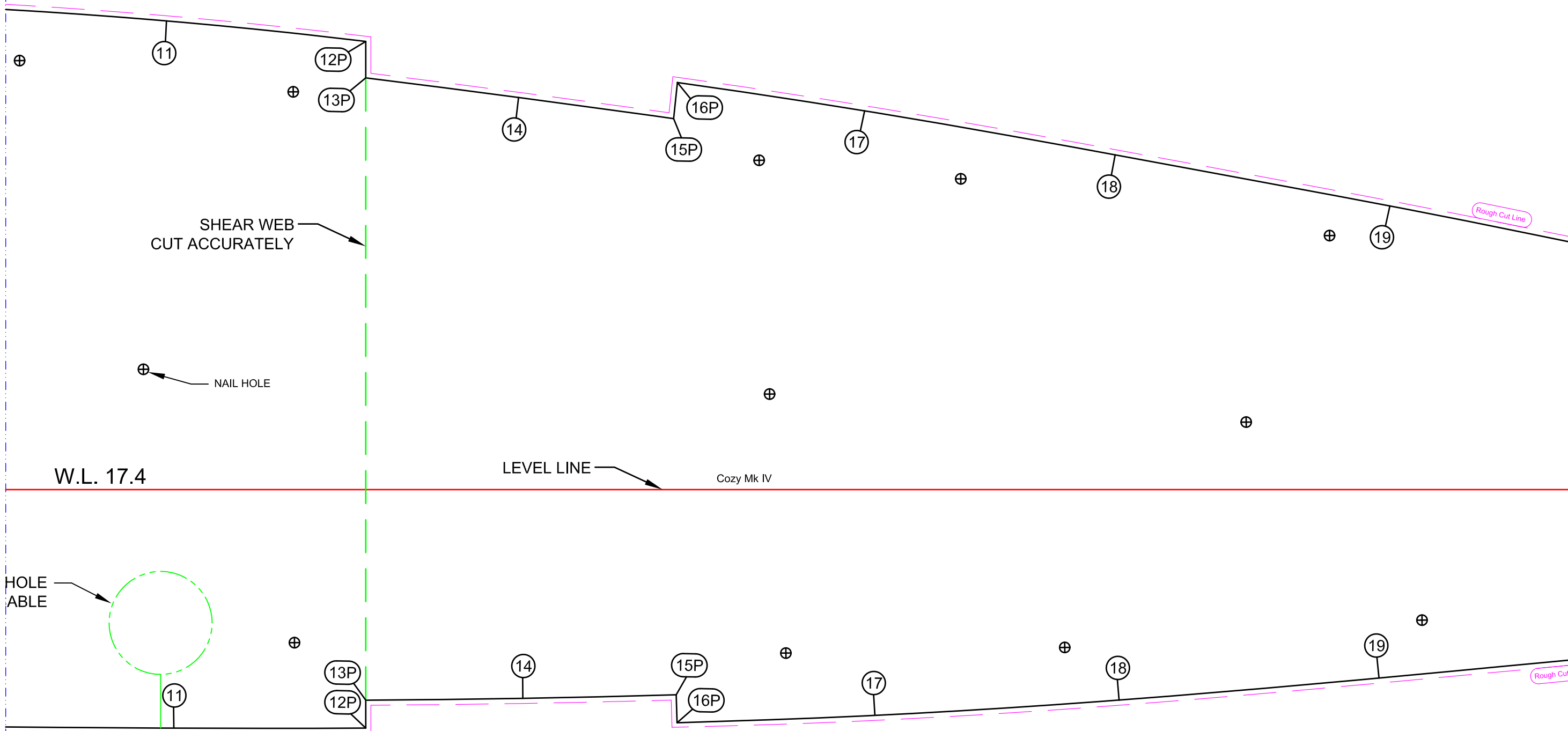
USE TWICE FOR EACH WING

FUTURE LOCATION OF
FOR ELECTRICAL C

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This line is 10.50" long

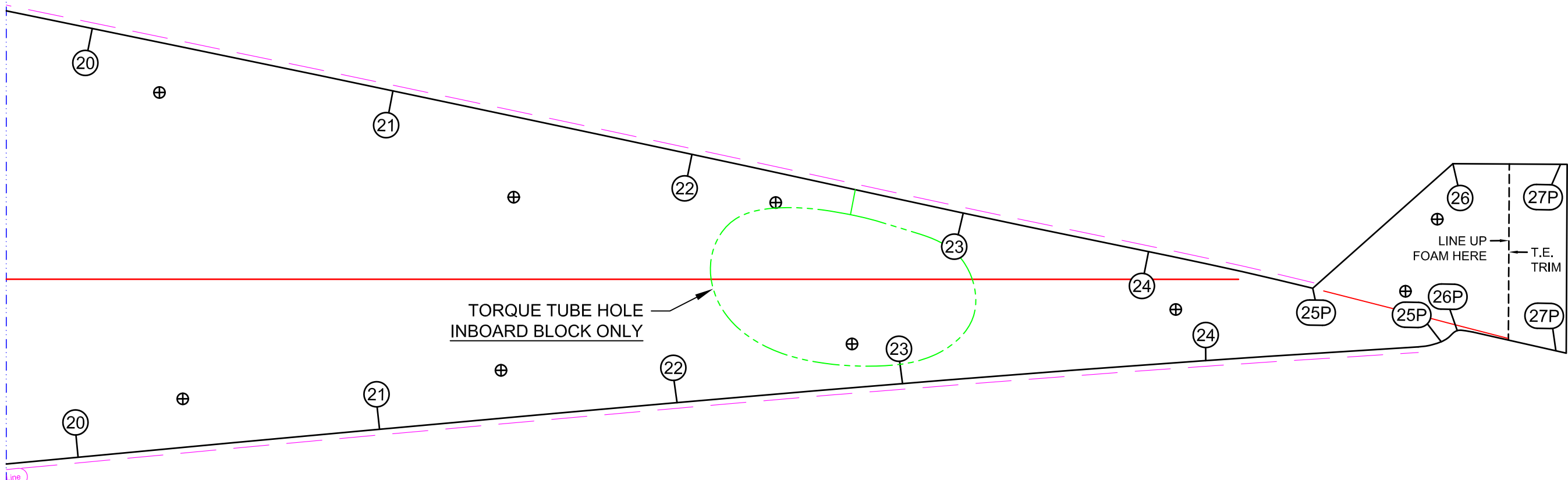
This line is 15.20" long



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This line is 10.50" long

This line is 15.20" long



TORQUE TUBE HOLE
INBOARD BLOCK ONLY

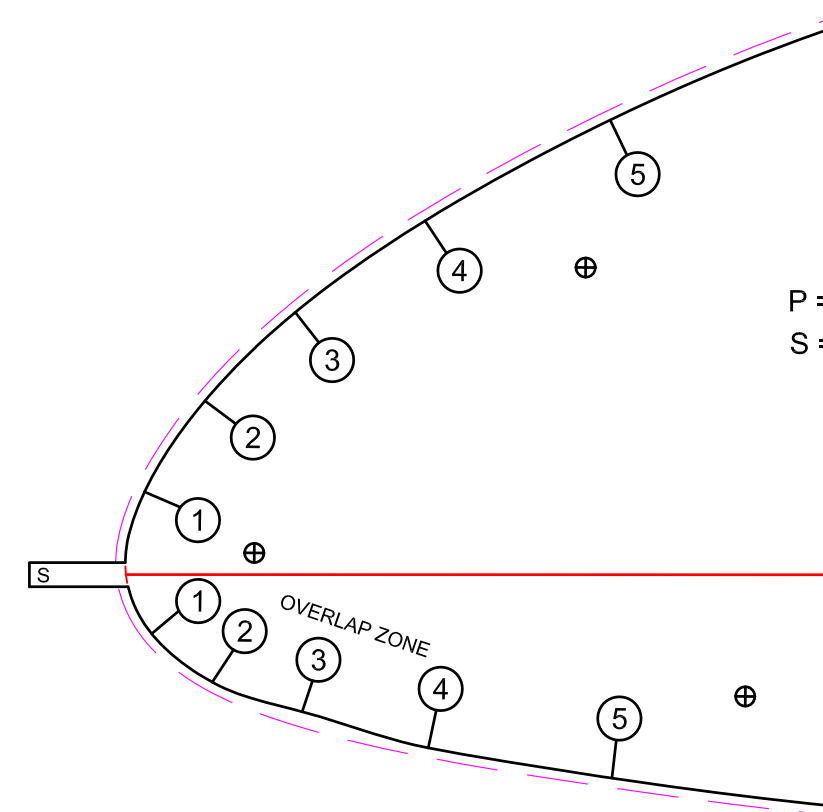
LINE UP
FOAM HERE

T.E.
TRIM

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This line is 10.50" long

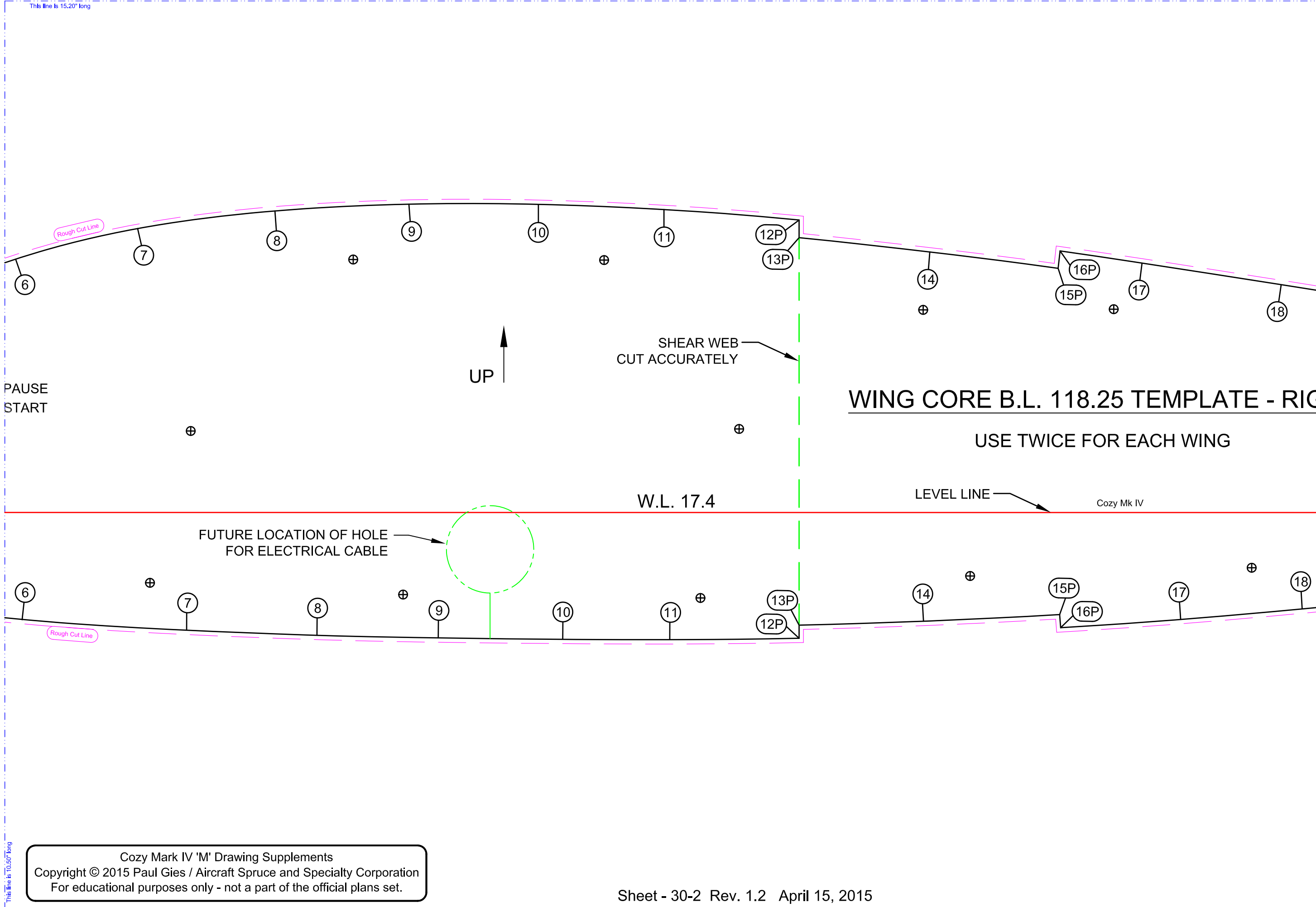
This line is 15.20" long



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This line is 10.50" long

This line is 15.20" long



PAUSE
START

UP ↑

SHEAR WEB
CUT ACCURATELY

WING CORE B.L. 118.25 TEMPLATE - RIG

USE TWICE FOR EACH WING

W.L. 17.4

LEVEL LINE

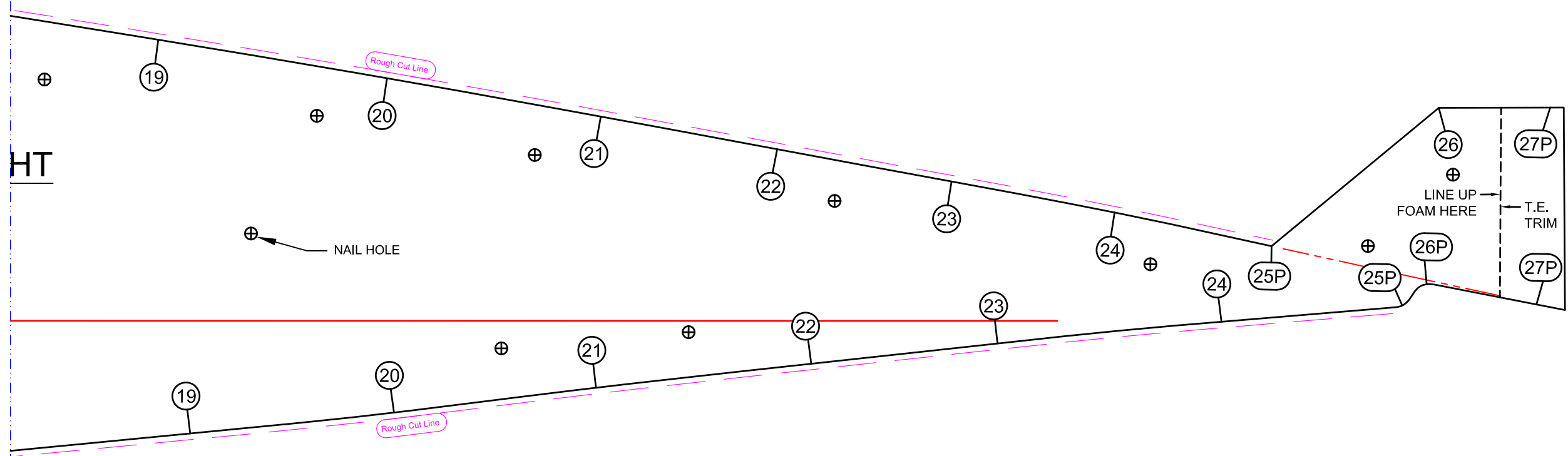
Cozy Mk IV

FUTURE LOCATION OF HOLE
FOR ELECTRICAL CABLE

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This line is 10.50" long

This line is 15.20" long



HT

NAIL HOLE

Rough Cut Line

Rough Cut Line

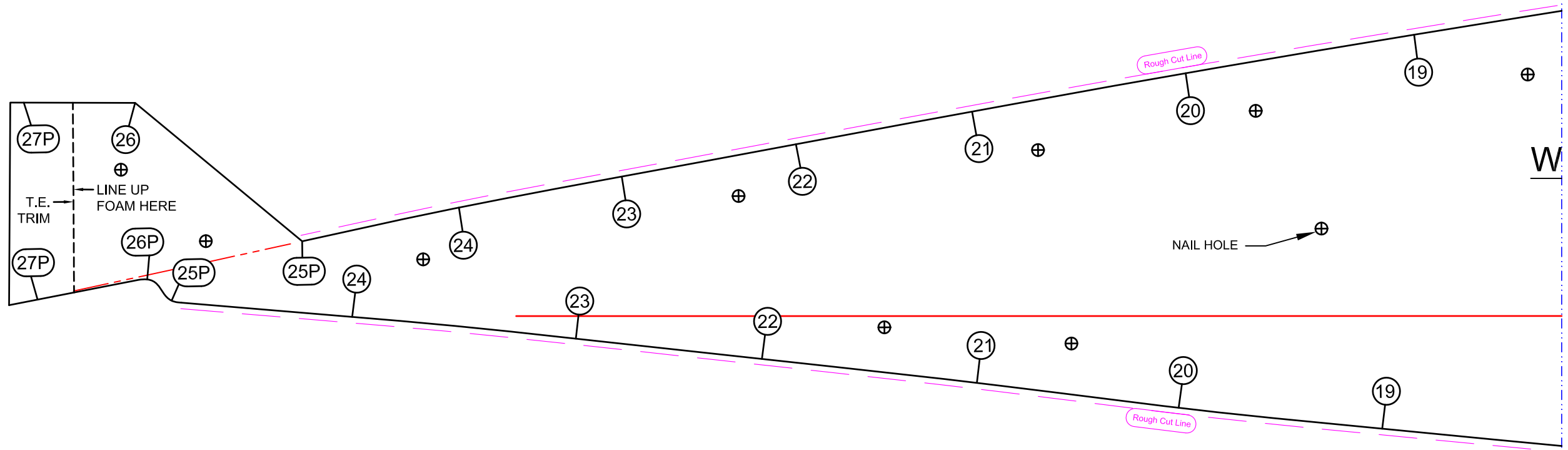
LINE UP
FOAM HERE

T.E.
TRIM

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This line is 10.50" long

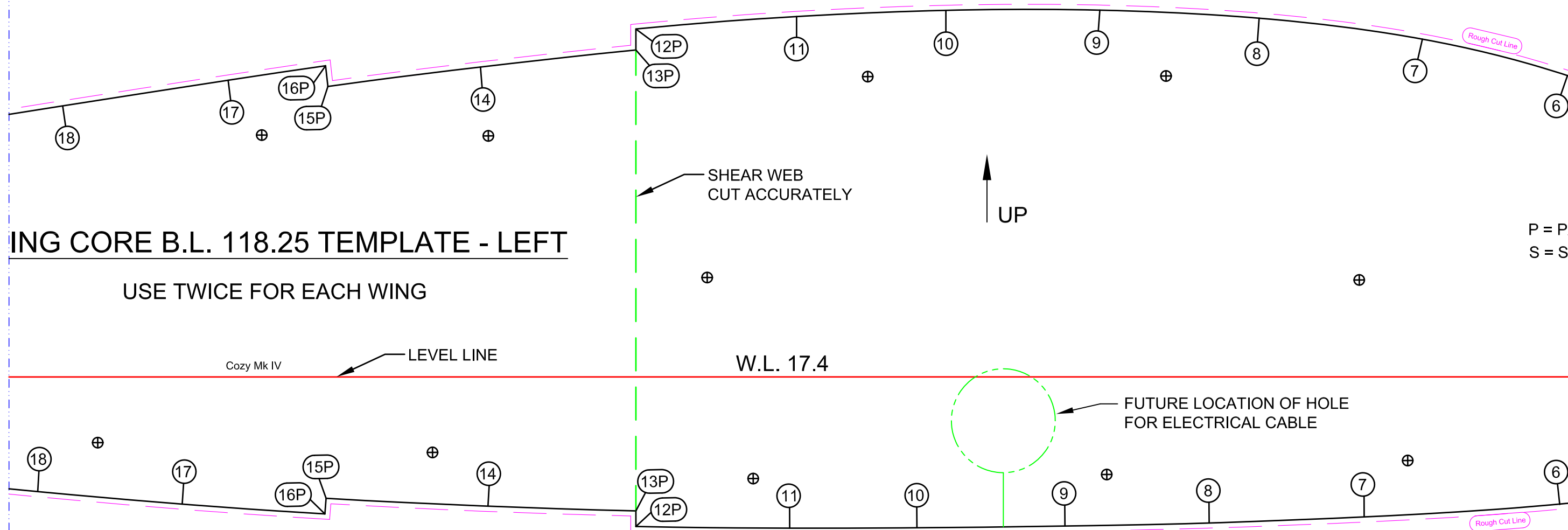
This line is 15.20" long



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This line is 10.50" long

This line is 15.20" long



WING CORE B.L. 118.25 TEMPLATE - LEFT

USE TWICE FOR EACH WING

Cozy Mk IV LEVEL LINE

W.L. 17.4

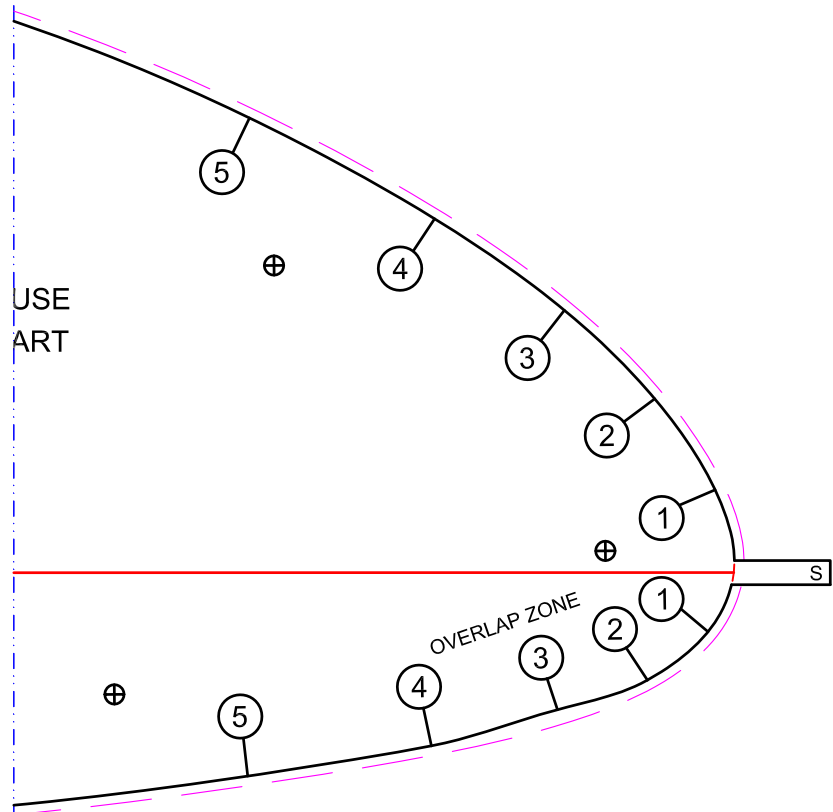
FUTURE LOCATION OF HOLE FOR ELECTRICAL CABLE

P = PA
S = ST

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This line is 10.50" long

This line is 15.20" long



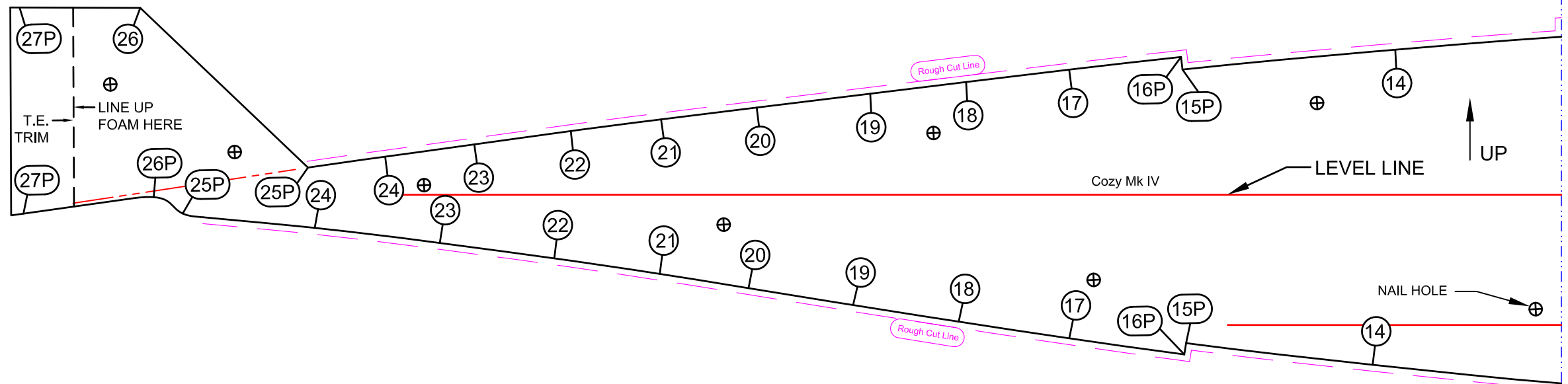
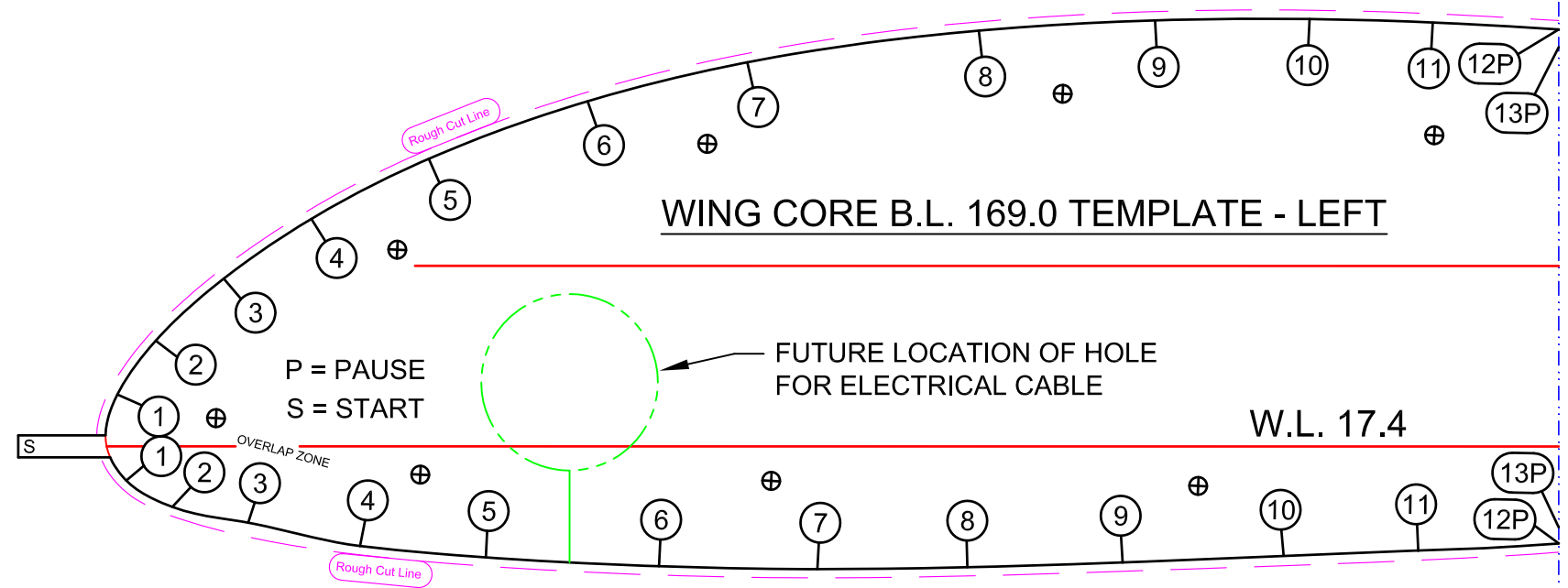
USE
ART

OVERLAP ZONE

S

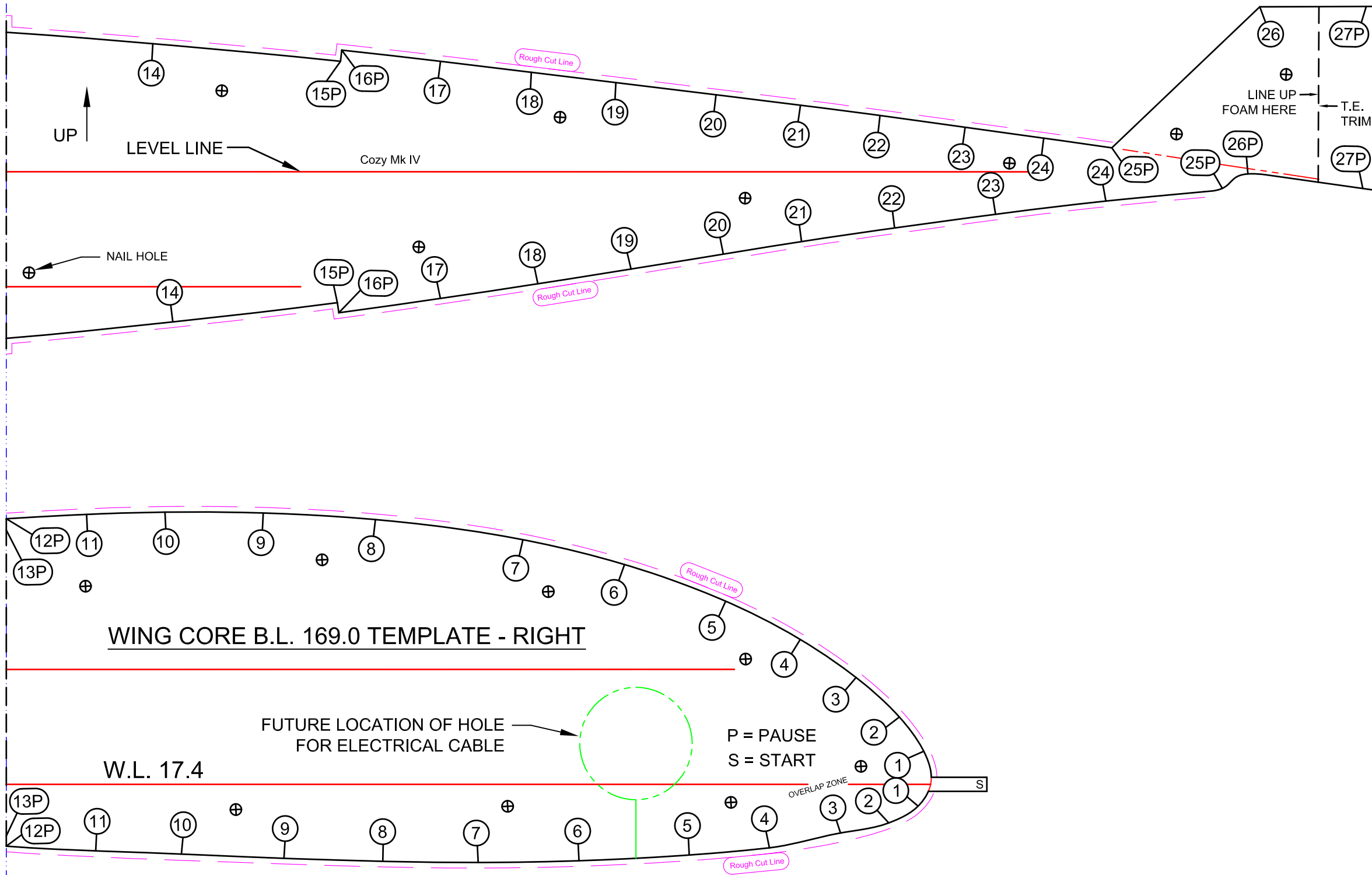
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This line is 10.50" long



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This line is 15.20" long



WING CORE B.L. 169.0 TEMPLATE - RIGHT

W.L. 17.4

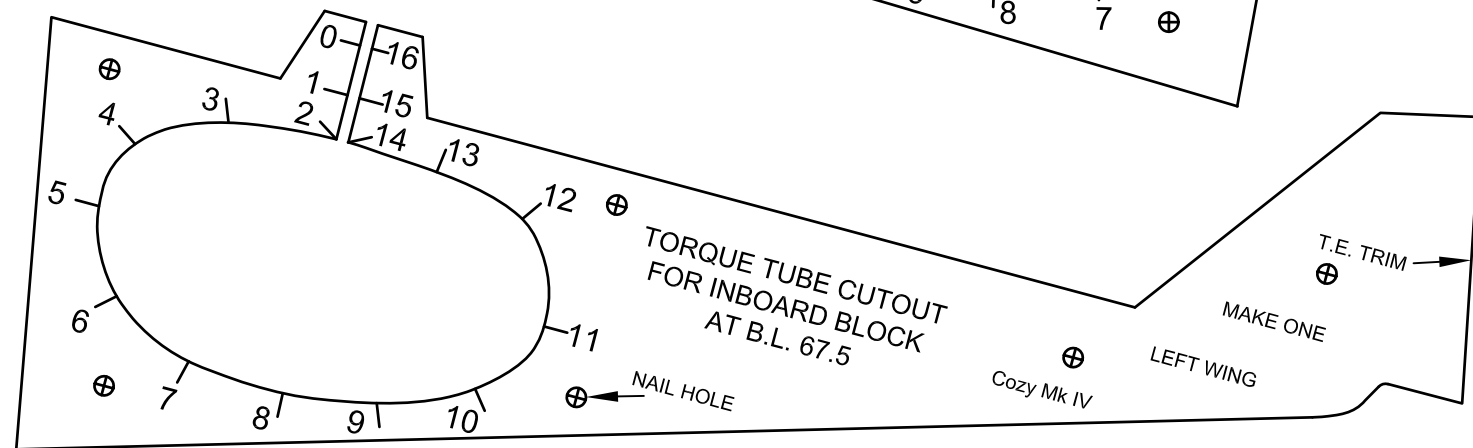
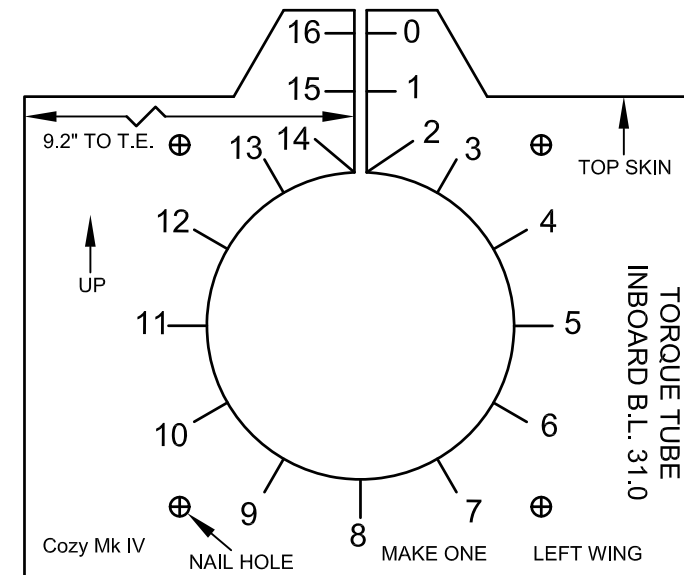
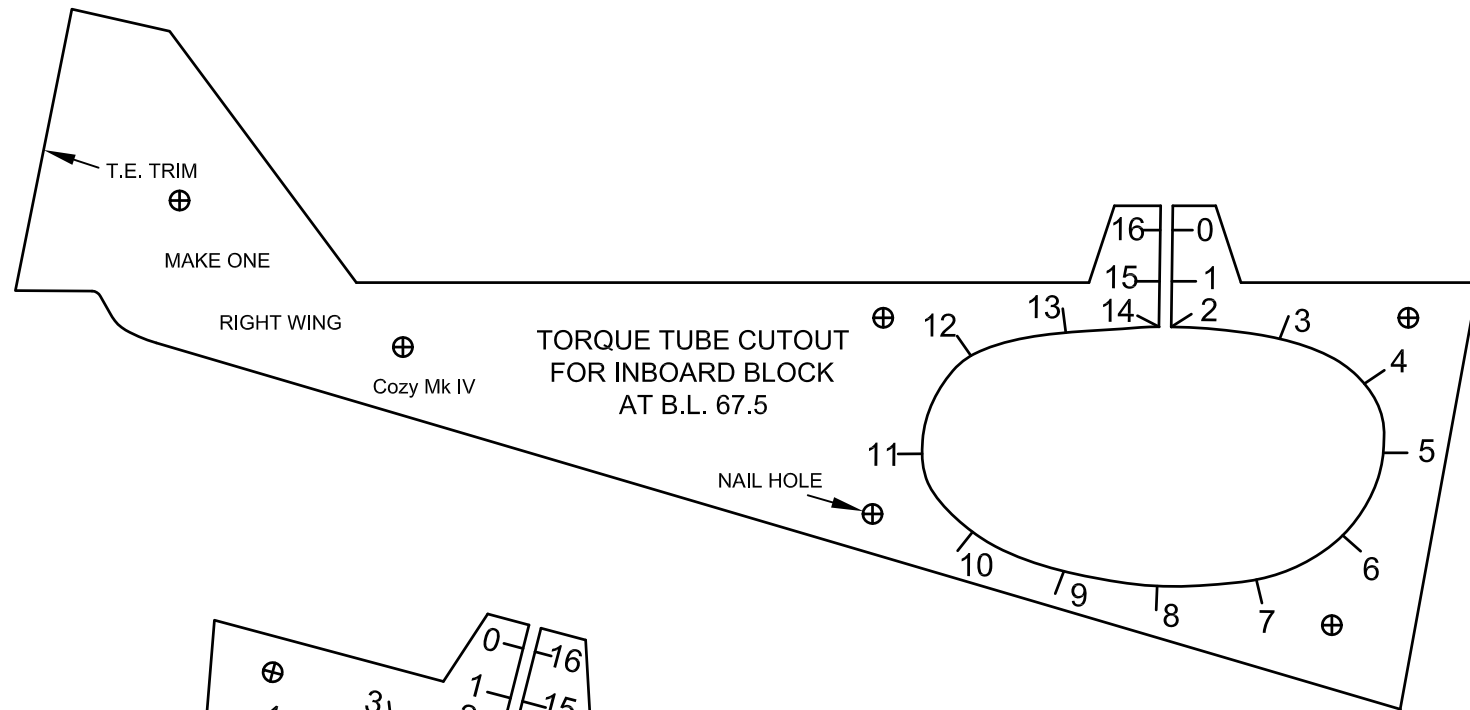
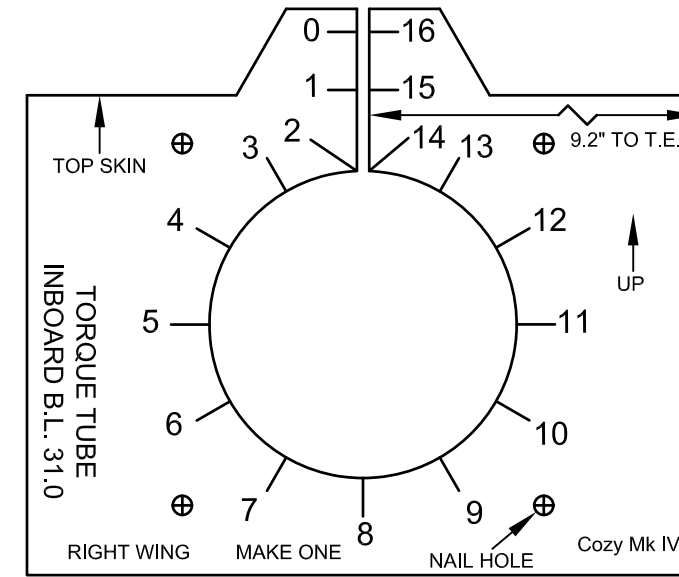
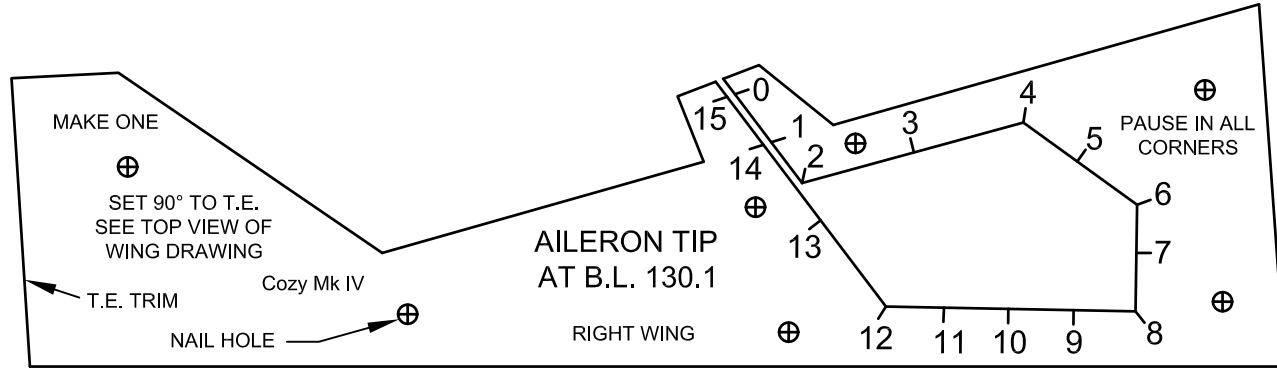
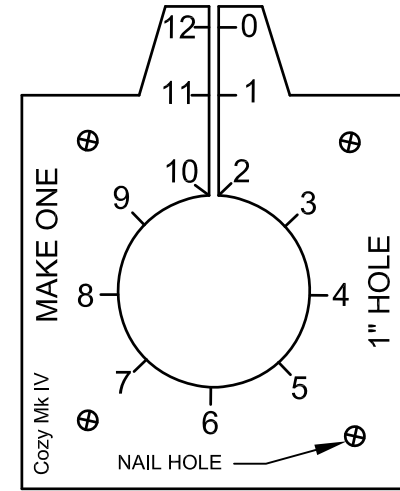
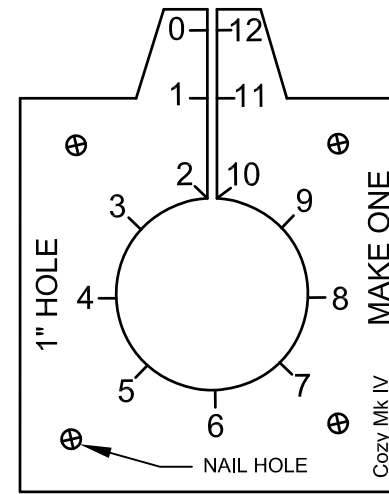
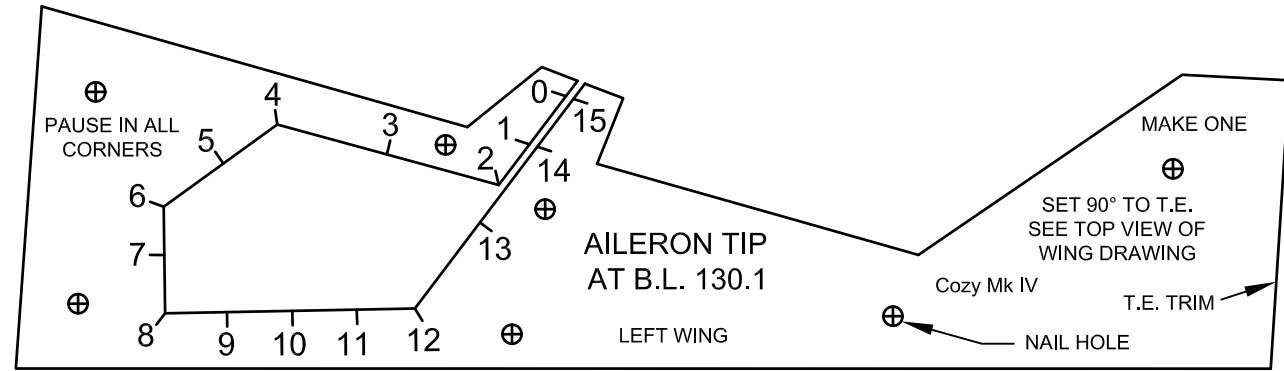
FUTURE LOCATION OF HOLE FOR ELECTRICAL CABLE

P = PAUSE
S = START

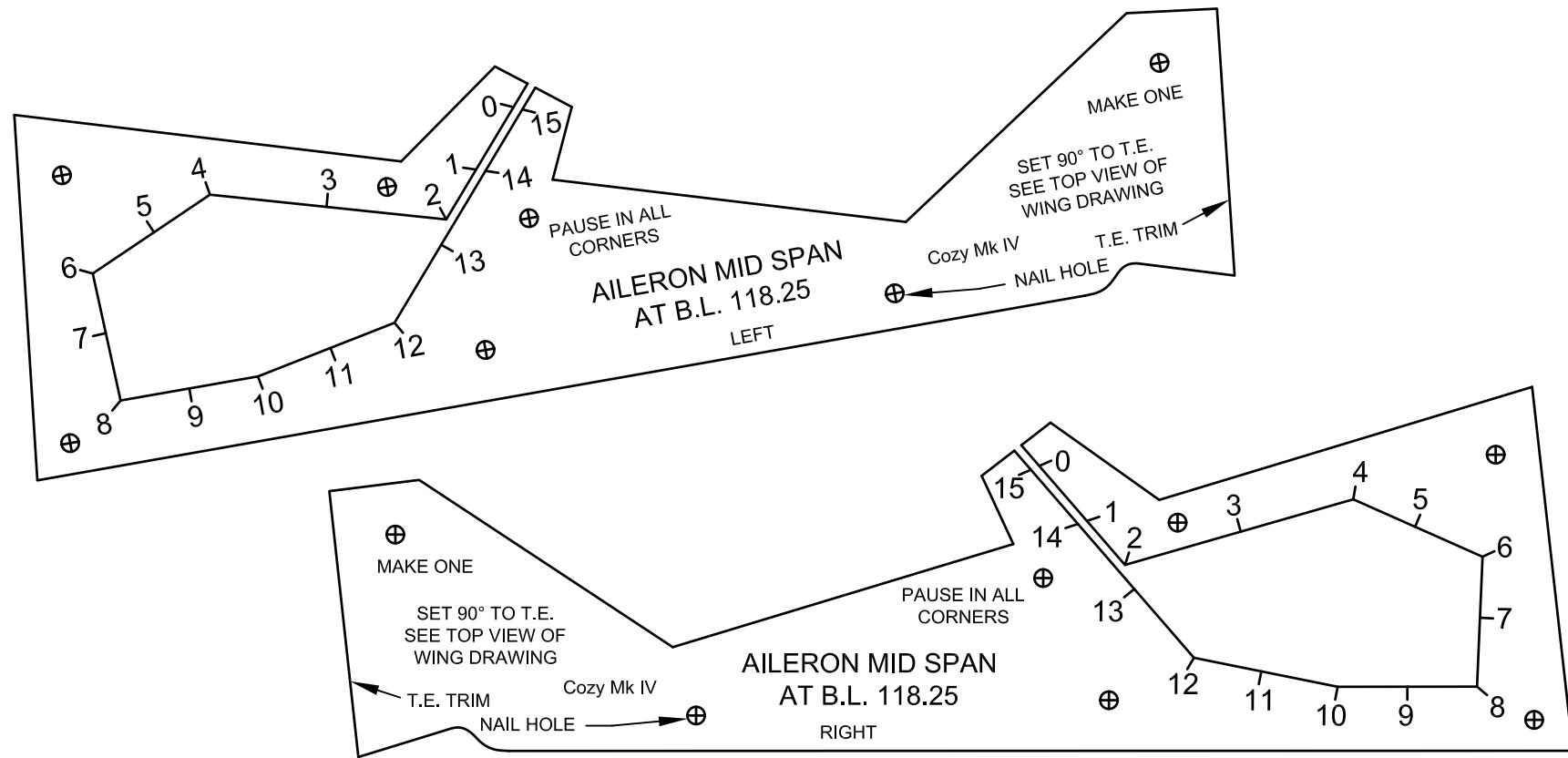
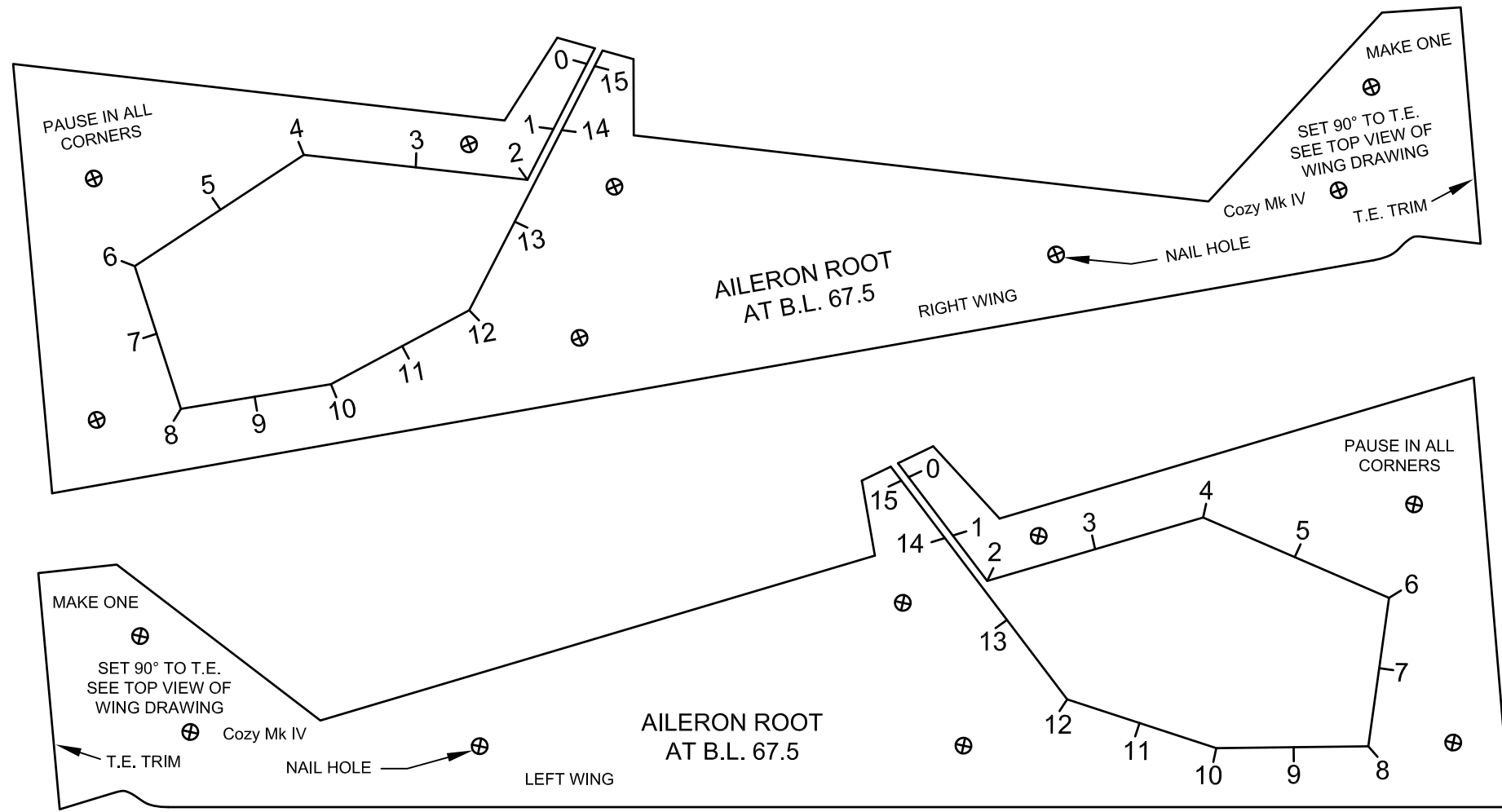
OVERLAP ZONE

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This line is 10.50" long



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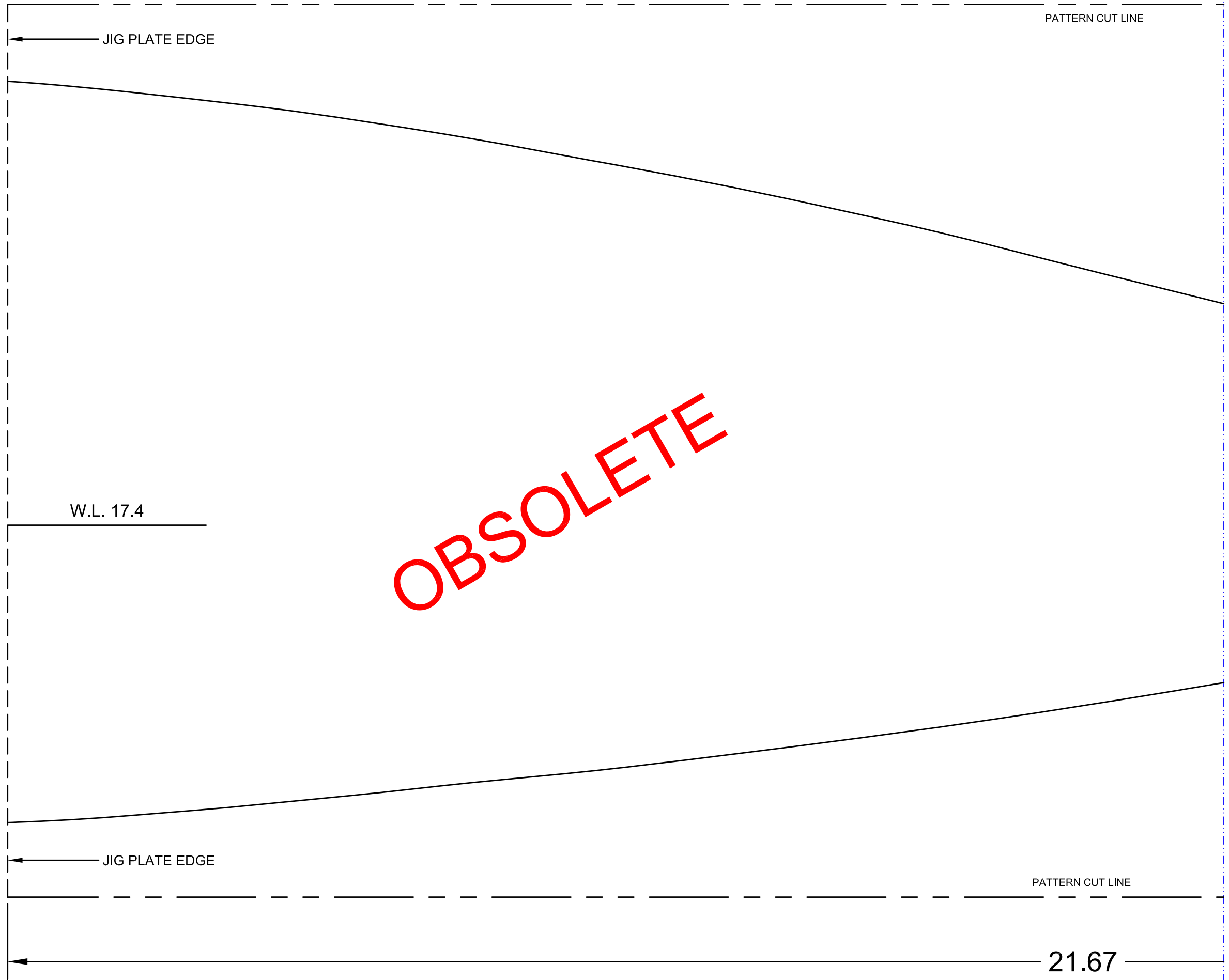
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Sheet - 35-1 Rev. 1.2 April 15, 2015

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This line is 10.50" long



This line is 15.20" long

WING JIG #5 UPPER

Chapter 19 Step 1

Cozy Mk IV

TE REFERENCE

PATTERN CUT LINE

OBSOLETE

W.L. 17.4

9.00

WING JIG #5 LOWER

Chapter 19 Step 1

TE REFERENCE

PATTERN CUT LINE

3.75

Cozy Mk IV

2.00

This line is 10.54" long

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This line is 15.20" long

**WING JIG #4
FWD UPPER**
Chapter 19 Step 1

PATTERN CUT LINE

Cozy Mk IV

W.L. 17.4

REFERENCE

Cozy Mk IV

PATTERN CUT LINE

**WING JIG #4
FWD LOWER**
Chapter 19 Step 1

OBSOLETE

21.75

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This line is 10.50" long

This line is 15.20" long

PATTERN CUT LINE

JIG PLATE EDGE

OBSOLETE

W.L. 17.4

W.L. 17.4

JIG PLATE EDGE

PATTERN CUT LINE

44.00

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This line is 10.50" long

This line is 15.20" long

OBSOLETE

**WING JIG #4
AFT UPPER**
Chapter 19 Step 1

Cozy Mk IV

TE REFERENCE

PATTERN CUT LINE

8.00

W.L. 17.4

3.00

**WING JIG #4
AFT LOWER**
Chapter 19 Step 1

Cozy Mk IV

TE REFERENCE

PATTERN CUT LINE

2.00

22.25

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WING JIG #3 FWD UPPER

Chapter 19 Step 1

PATTERN CUT LINE

Cozy Mk IV

W.L. 17.4

Cozy Mk IV

REFERENCE

PATTERN CUT LINE

WING JIG #3 FWD LOWER

Chapter 19 Step 1

OBSOLETE

This line is 15.20" long

PATTERN CUT LINE

JIG PLATE EDGE

OBSOLETE

W.L. 17.4

W.L. 17.4

JIG PLATE EDGE

PATTERN CUT LINE

36.50

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Sheet - 37-2 Rev. 1.2 April 15, 2015

This line is 10.50" long

This line is 15.20" long

WING JIG #3
AFT UPPER
Chapter 19 Step 1

OBSOLETE

TE REFERENCE

Cozy Mk IV

PATTERN CUT LINE

8.00

W.L. 17.4

3.00

WING JIG #3
AFT LOWER
Chapter 19 Step 1

TE REFERENCE

Cozy Mk IV

PATTERN CUT LINE

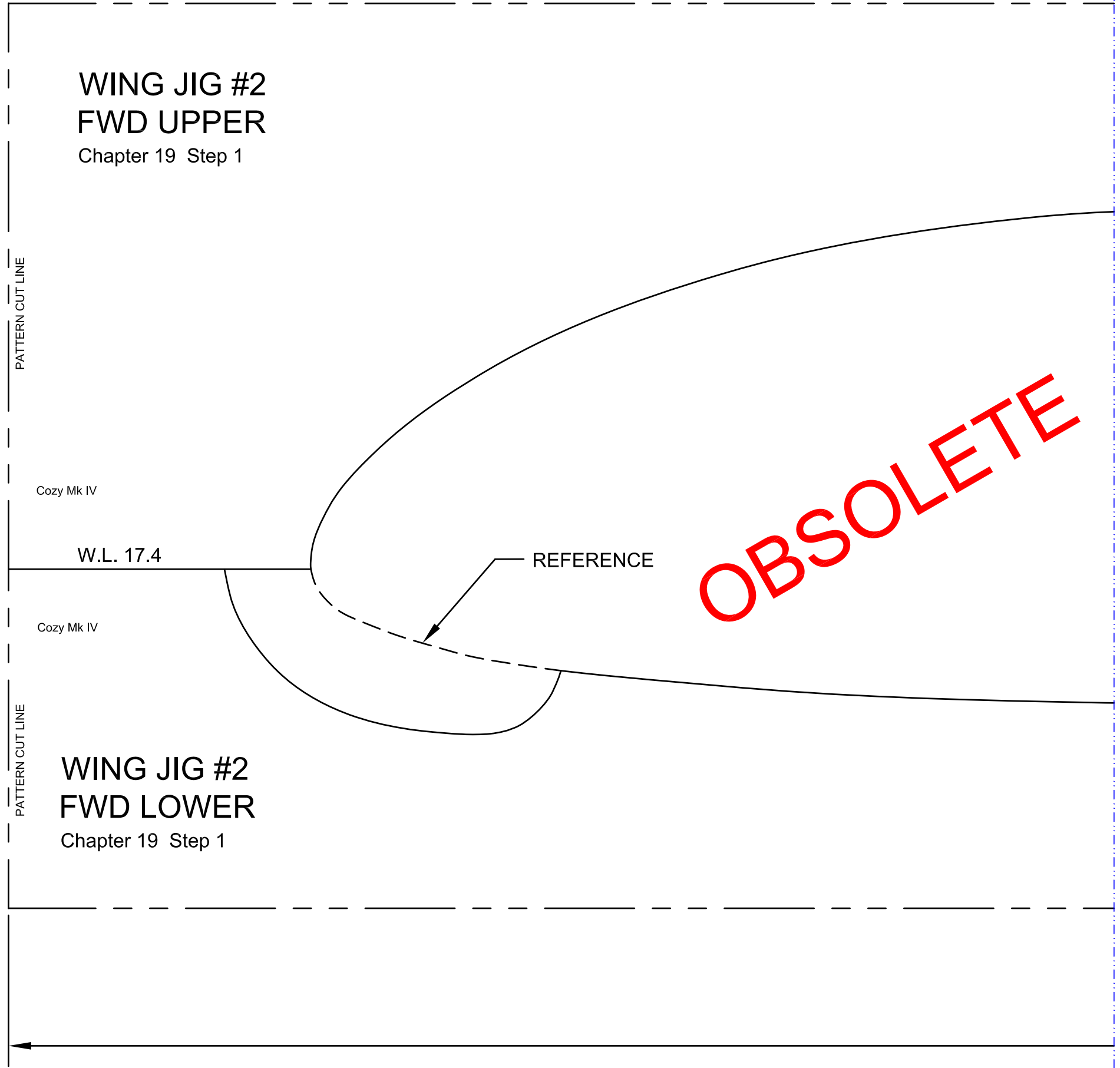
2.00

17.60

This line is 10.50" long

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This line is 15.20" long

PATTERN CUT LINE

JIG PLATE EDGE

OBSOLETE

W.L. 17.4

W.L. 17.4

JIG PLATE EDGE

PATTERN CUT LINE

32.50

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This line is 10.50" long

This line is 15.20" long

WING JIG #2 AFT UPPER Chapter 19 Step 1

OBSOLETE

Cozy Mk IV

TE REFERENCE

PATTERN CUT LINE

8.00

W.L. 17.4

3.00

TE REFERENCE

PATTERN CUT LINE

Cozy Mk IV

2.00

14.25

Revision Notes:
Aug. 22, 2014 - Ver. 1.1 Added bottom leading edge hidden line
Added reference label to above.

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This line is 10.50" long

This line is 15.20" long

WING JIG #1
FWD UPPER
Chapter 19 Step 1

PATTERN CUT LINE

Cozy Mk IV

W.L. 17.4

REFERENCE

OBSOLETE

W.L. 17.4

Cozy Mk IV

PATTERN CUT LINE

WING JIG #1
FWD LOWER
Chapter 19 Step 1

26.00

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This line is 10.50" long

This line is 15.20" long

OBSOLETE

WING JIG #1 AFT UPPER Chapter 19 Step 1

Cozy Mk IV

JIG PLATE EDGE

TE REFERENCE

PATTERN CUT LINE

W.L. 17.4

W.L. 17.4

8.00

TE REFERENCE

PATTERN CUT LINE

3.00

WING JIG #1 AFT LOWER Chapter 19 Step 1

Cozy Mk IV

JIG PLATE EDGE

2.00

11.00

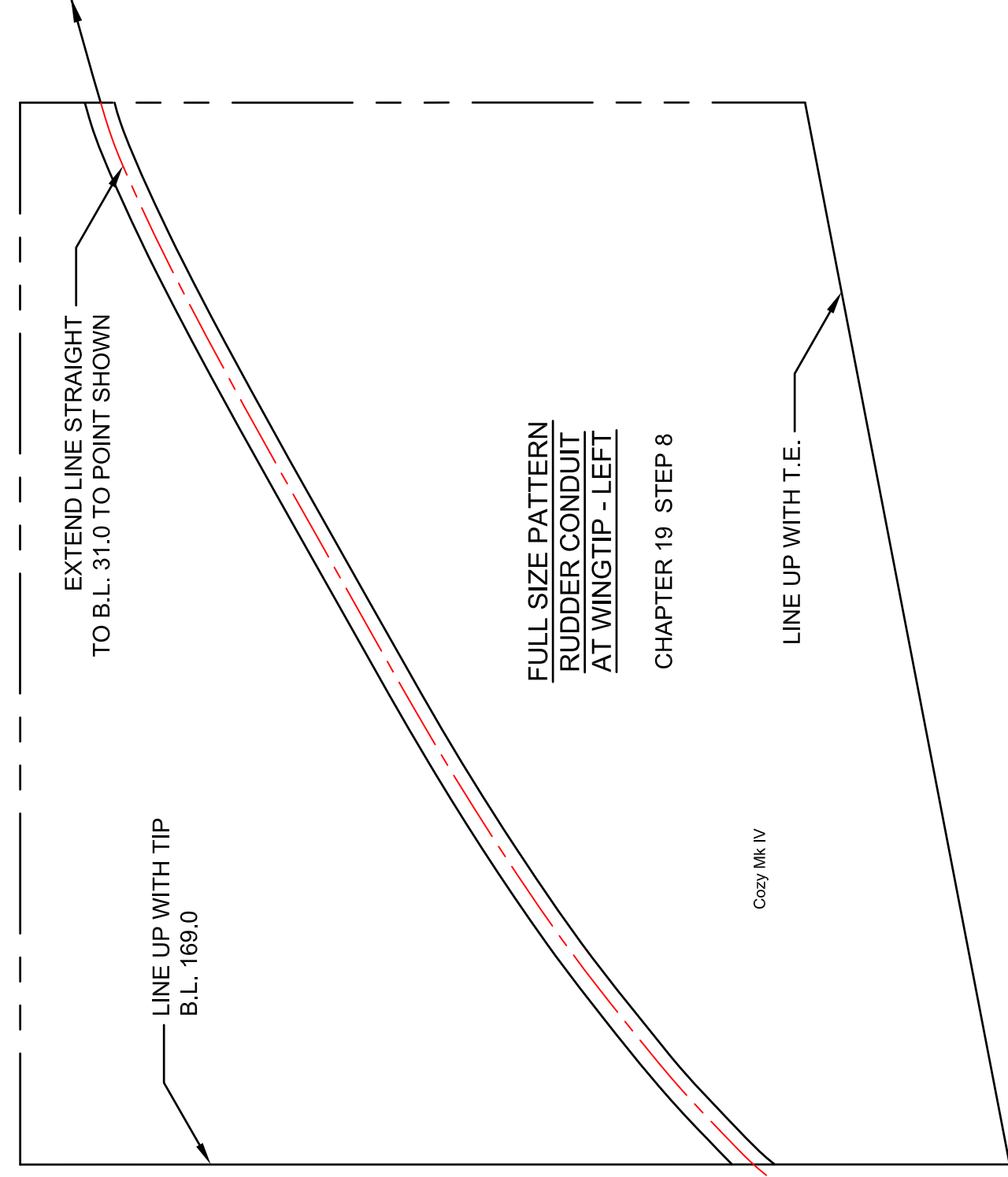
Cozy Mark IV 'M' Drawing Supplements

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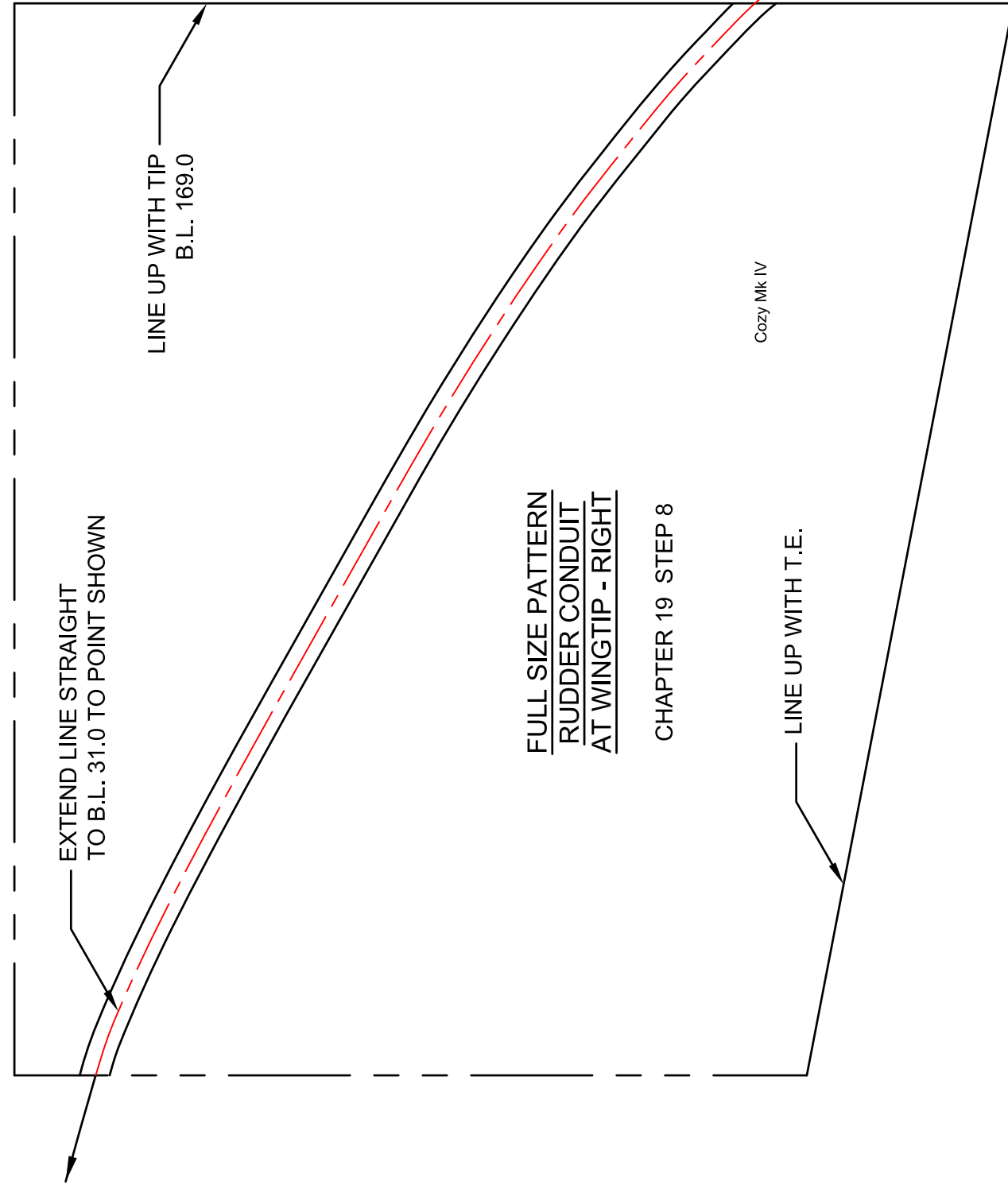
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This line is 10.50" long

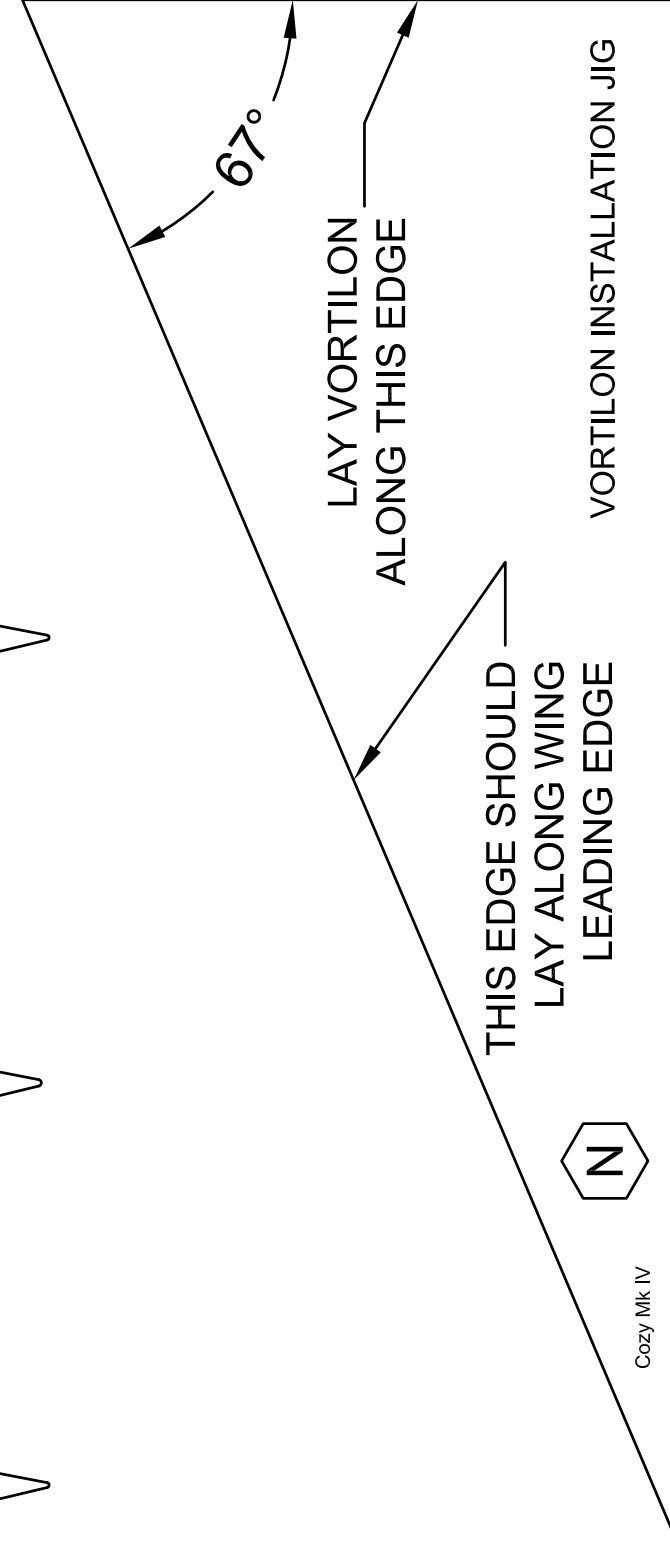
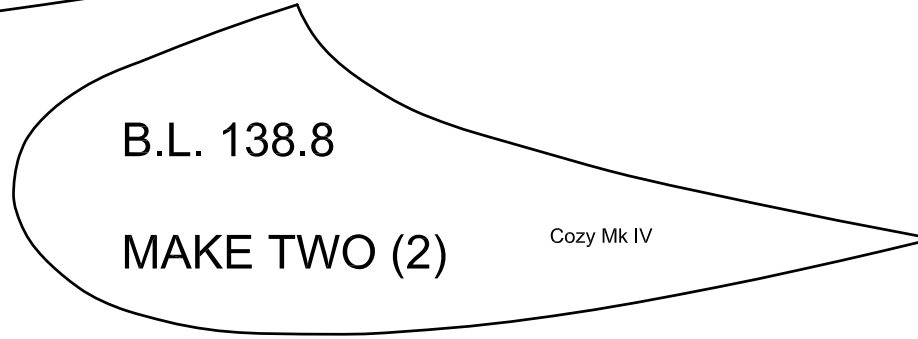
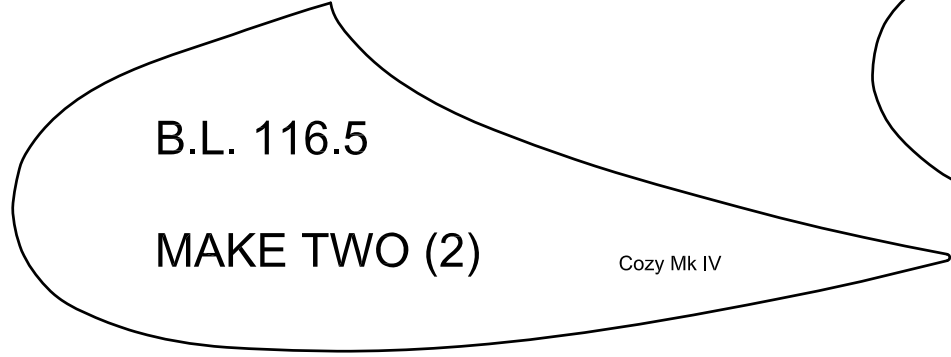
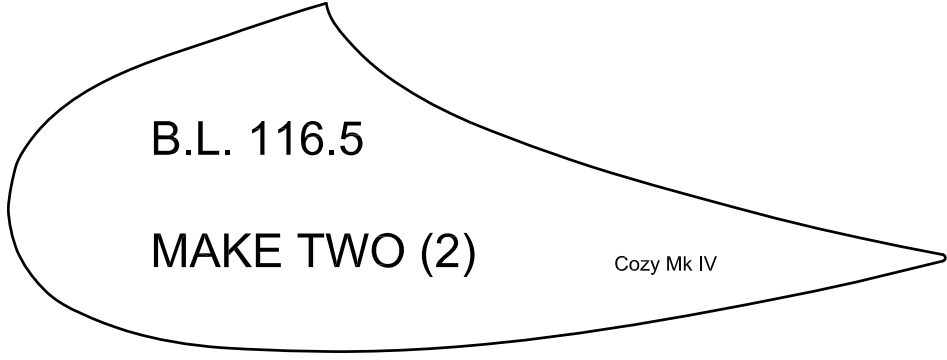
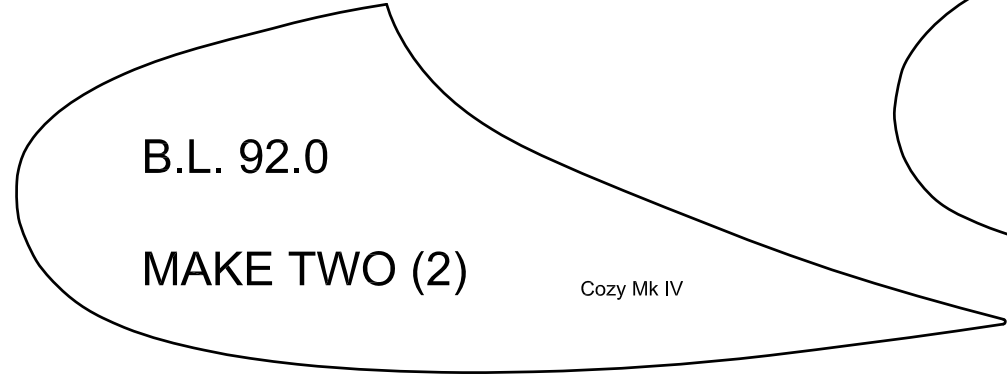
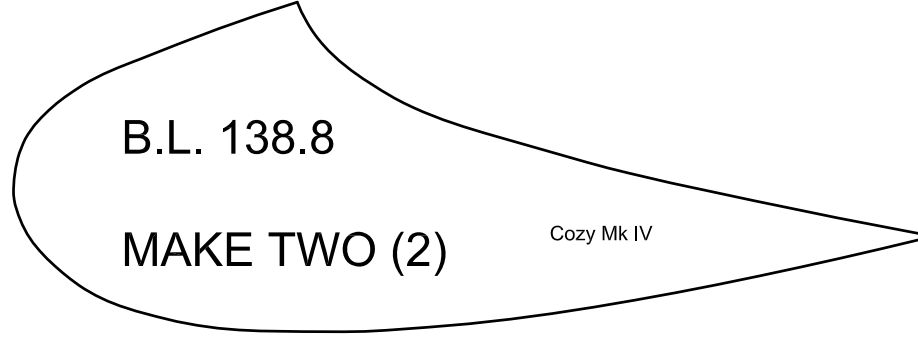
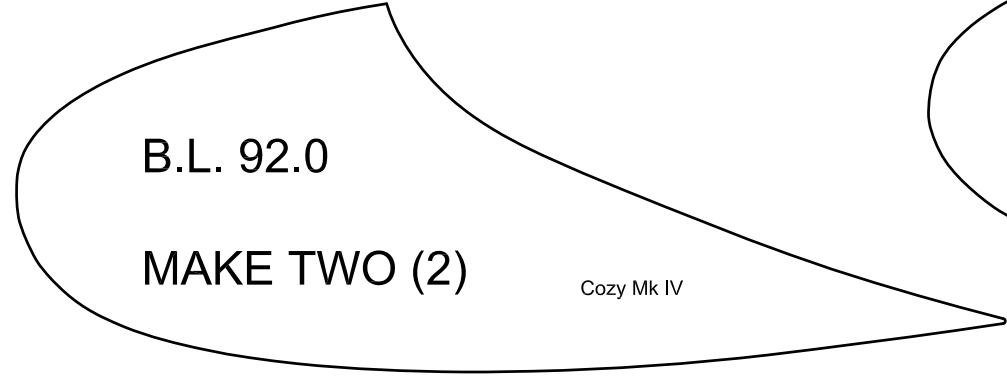
This line is 10.50" long



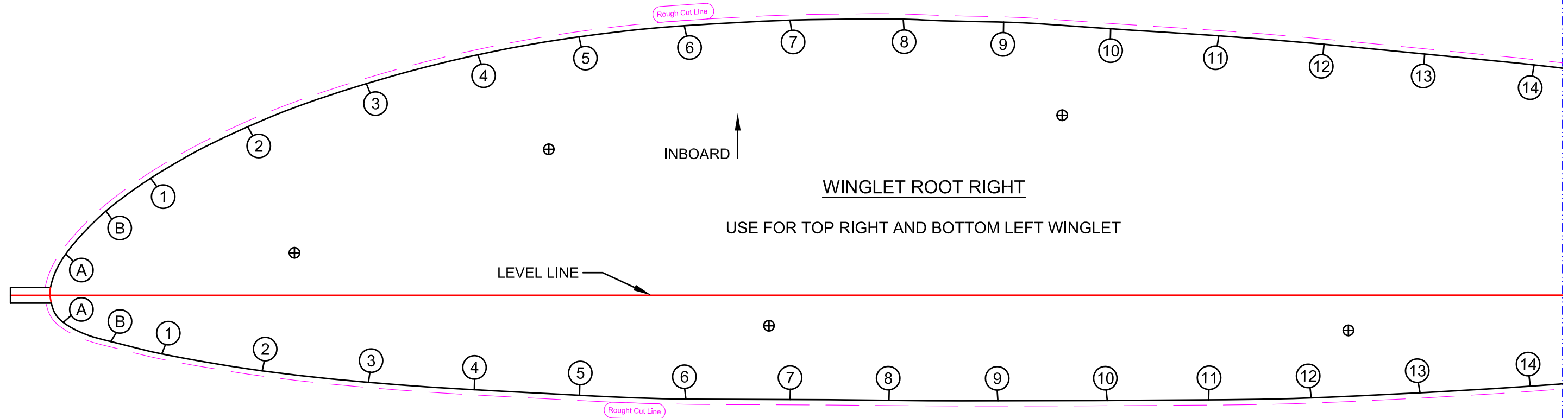
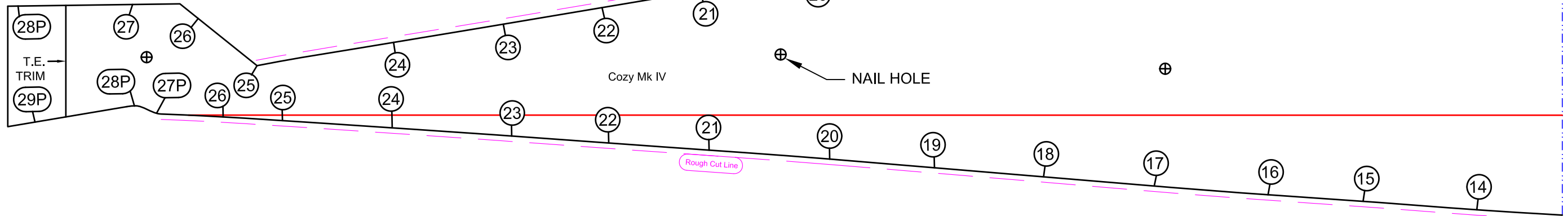
This line is 15.20" long



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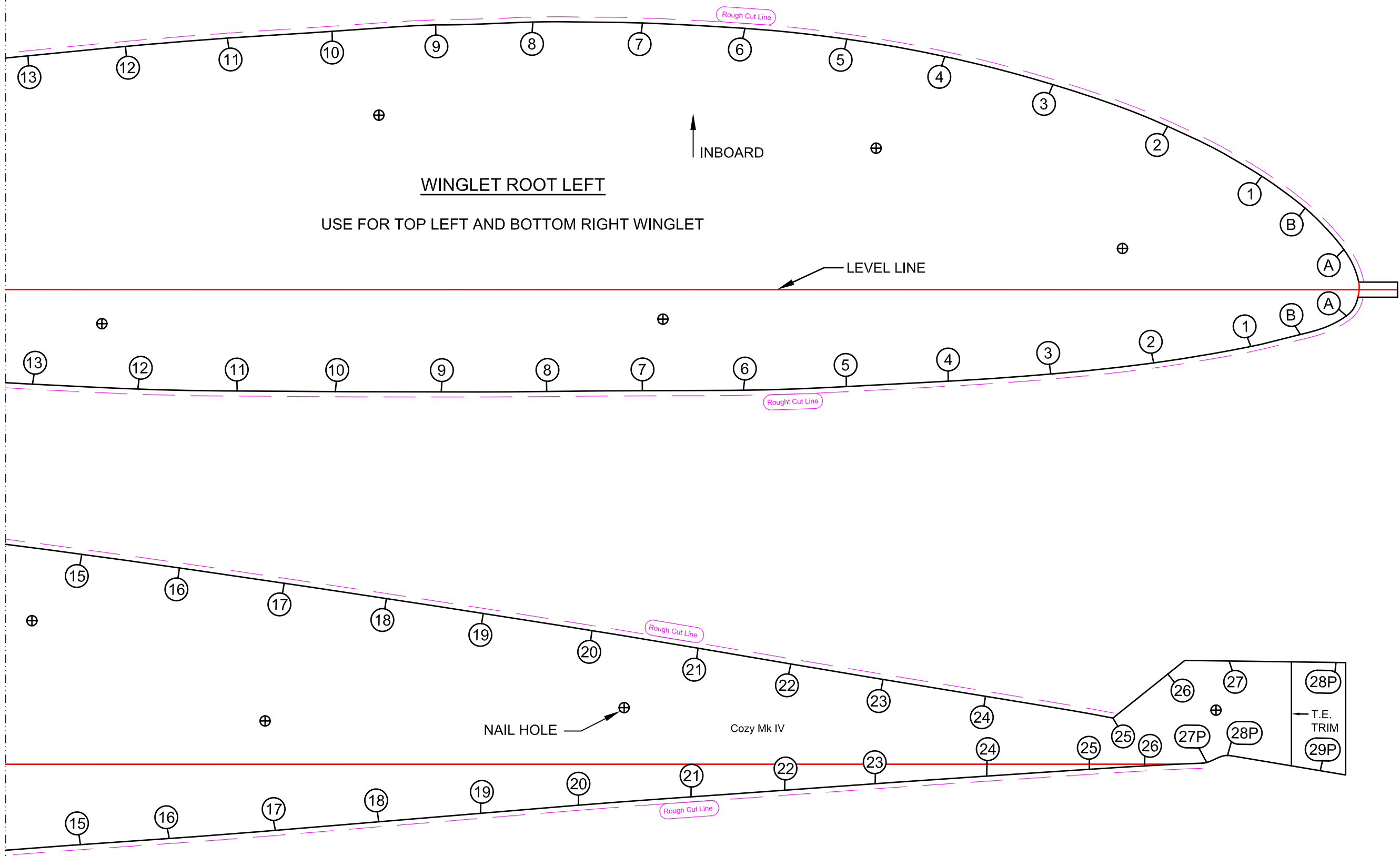


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This line is 15.20" long



WINGLET ROOT LEFT

USE FOR TOP LEFT AND BOTTOM RIGHT WINGLET

↑ INBOARD

← LEVEL LINE

Rough Cut Line

Rough Cut Line

→ NAIL HOLE

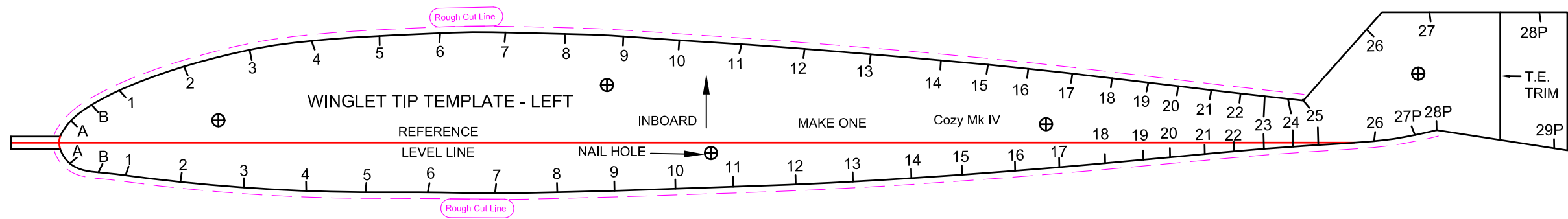
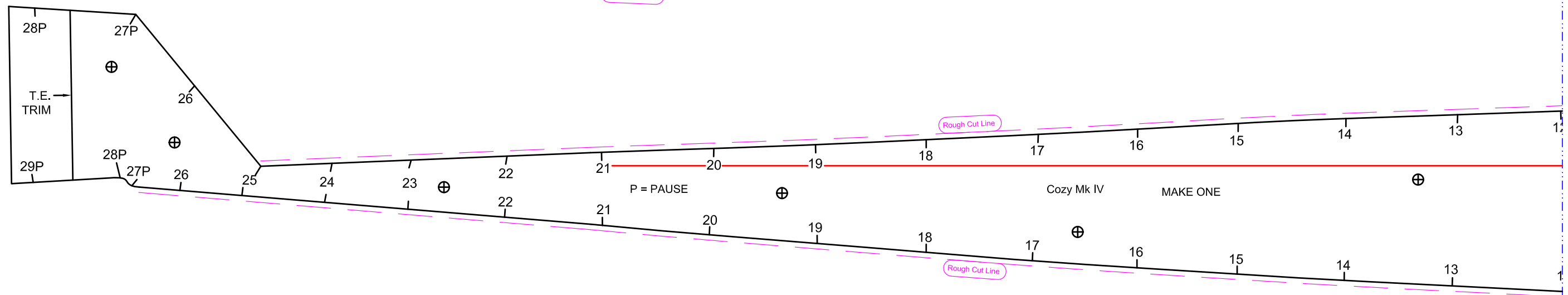
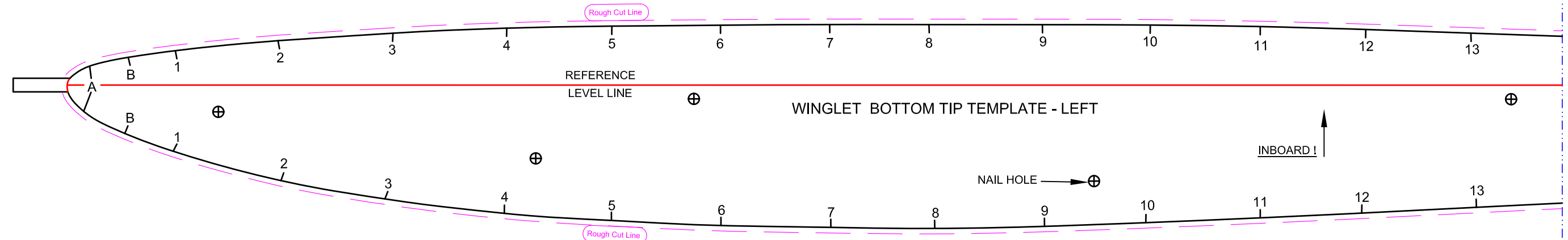
Cozy Mk IV

← T.E. TRIM

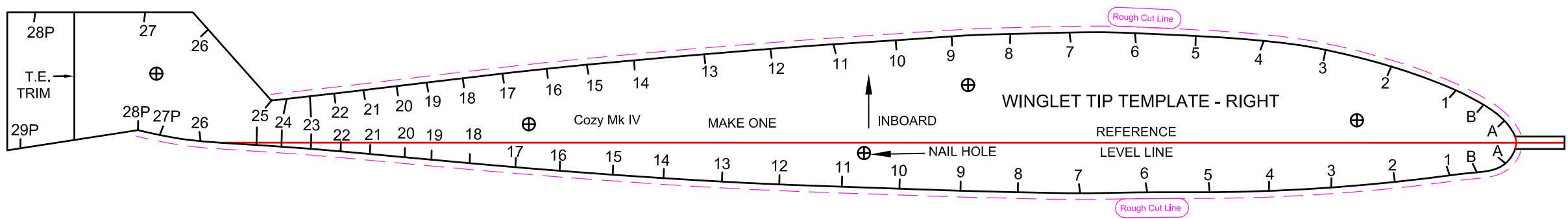
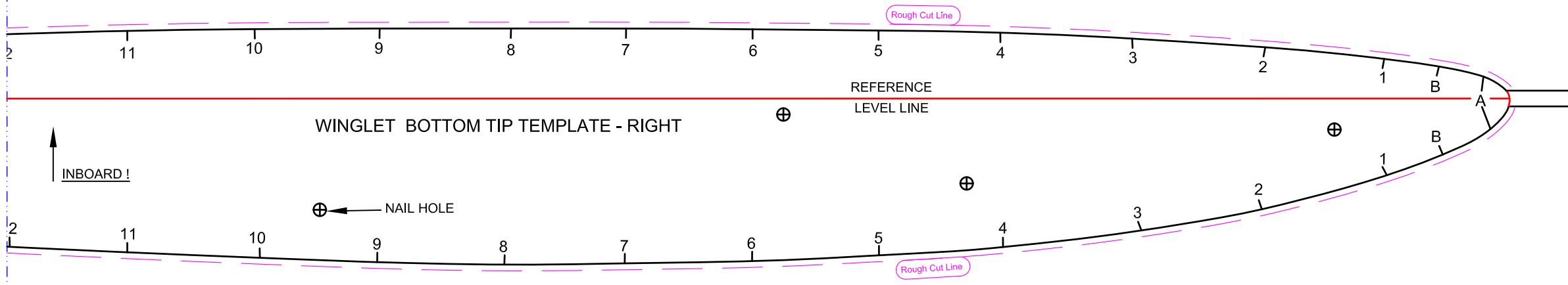
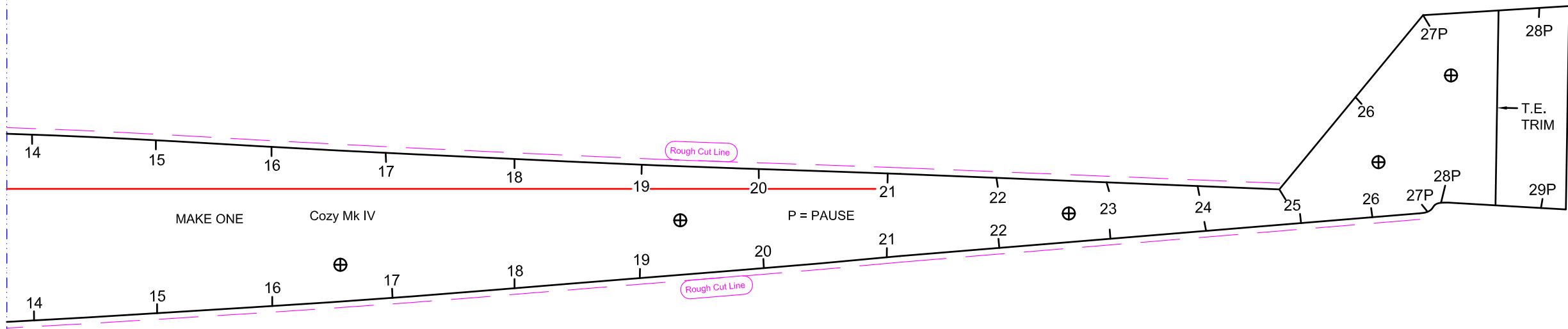
Rough Cut Line

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This line is 10.50" long



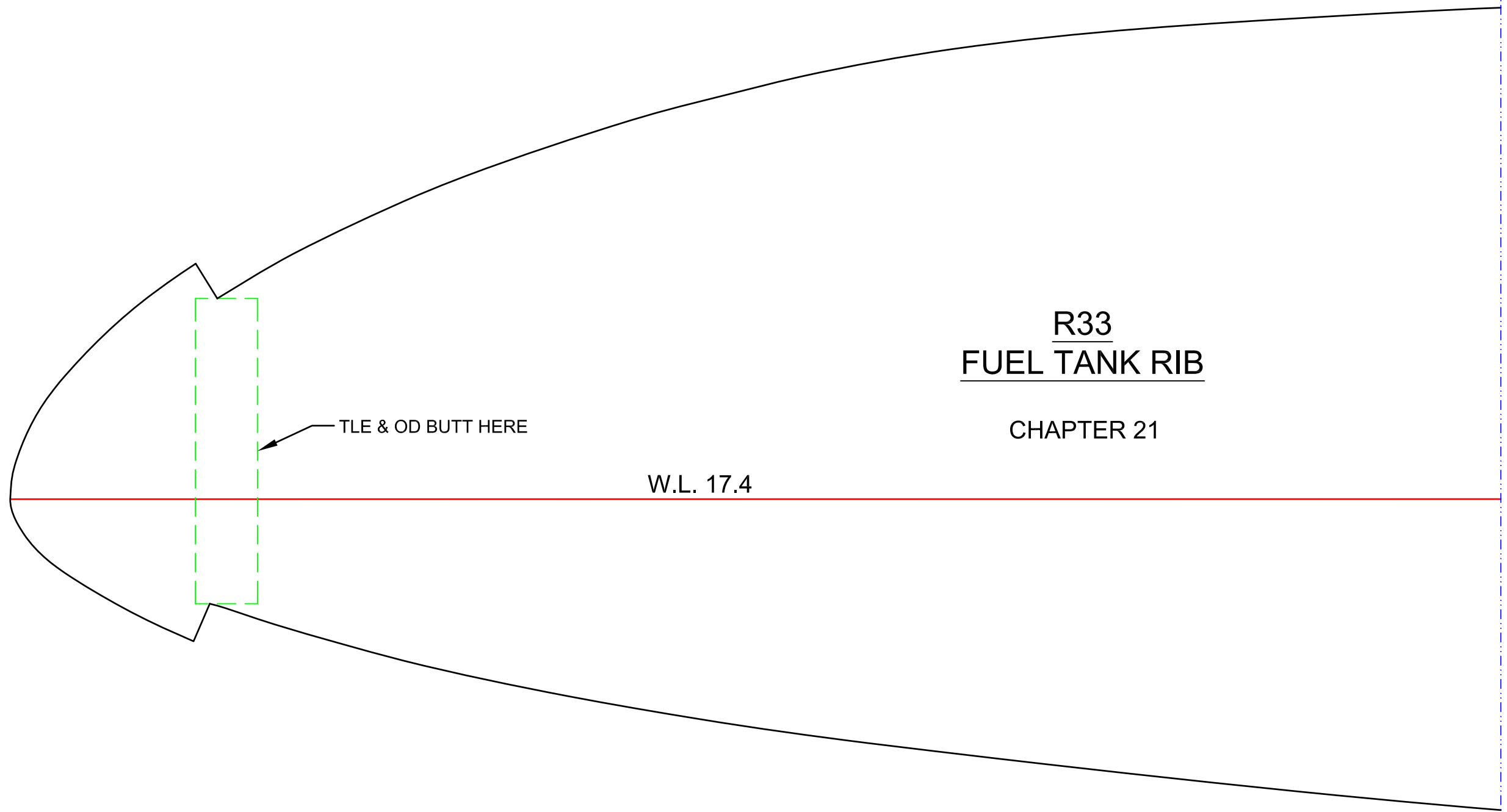
This line is 15.20" long



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This line is 10.50" long

This line is 15.20" long



R33
FUEL TANK RIB

CHAPTER 21

W.L. 17.4

TLE & OD BUTT HERE

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This line is 10.50" long

This line is 15.20" long

THIS RIB IS SIZED FOR
A TANK SKIN FOAM CORE
THICKNESS OF 0.350".
IF YOUR SKIN THICKNESS
VARY MODIFY RIB
ACCORDINGLY

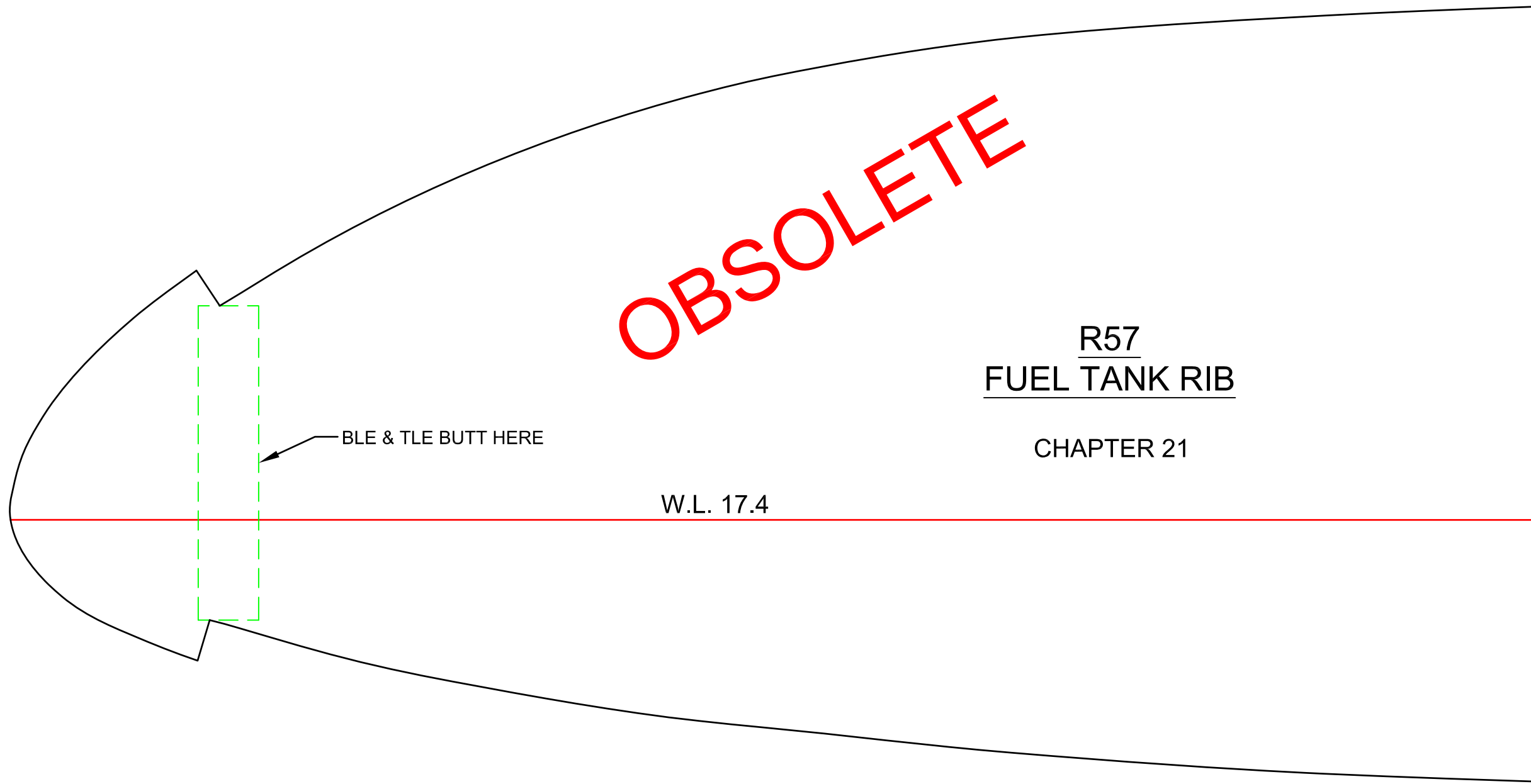
W.L. 17.4

Cozy Mk IV

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This line is 10.50" long

This line is 15.20" long



OBSOLETE

R57
FUEL TANK RIB

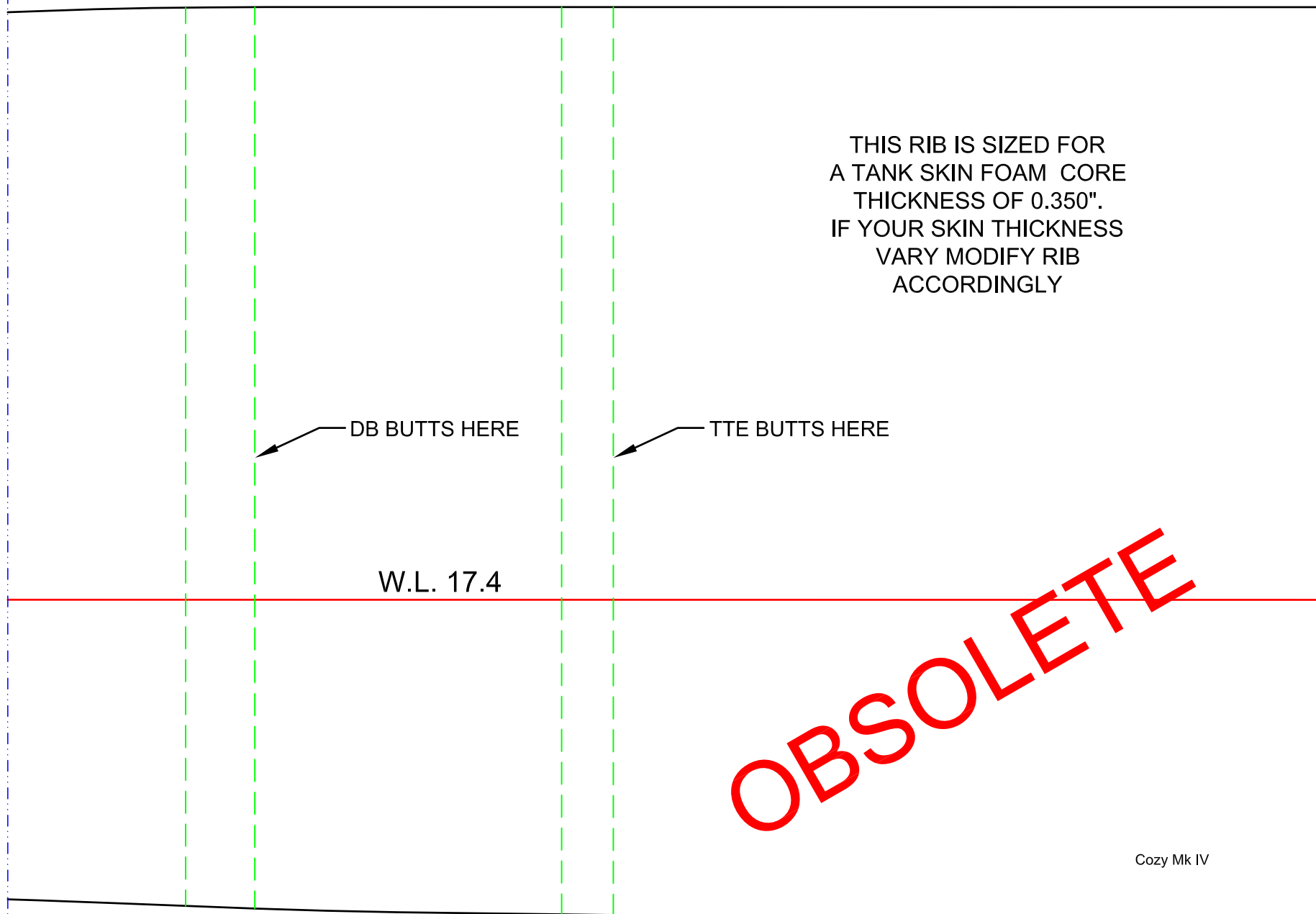
CHAPTER 21

BLE & TLE BUTT HERE

W.L. 17.4

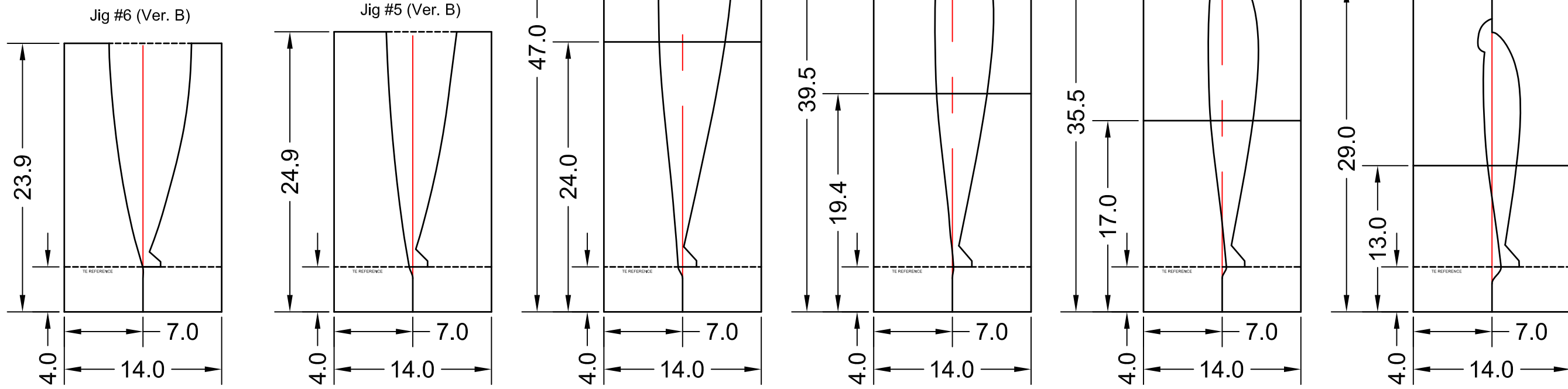
This line is 10.50" long

This line is 15.20" long



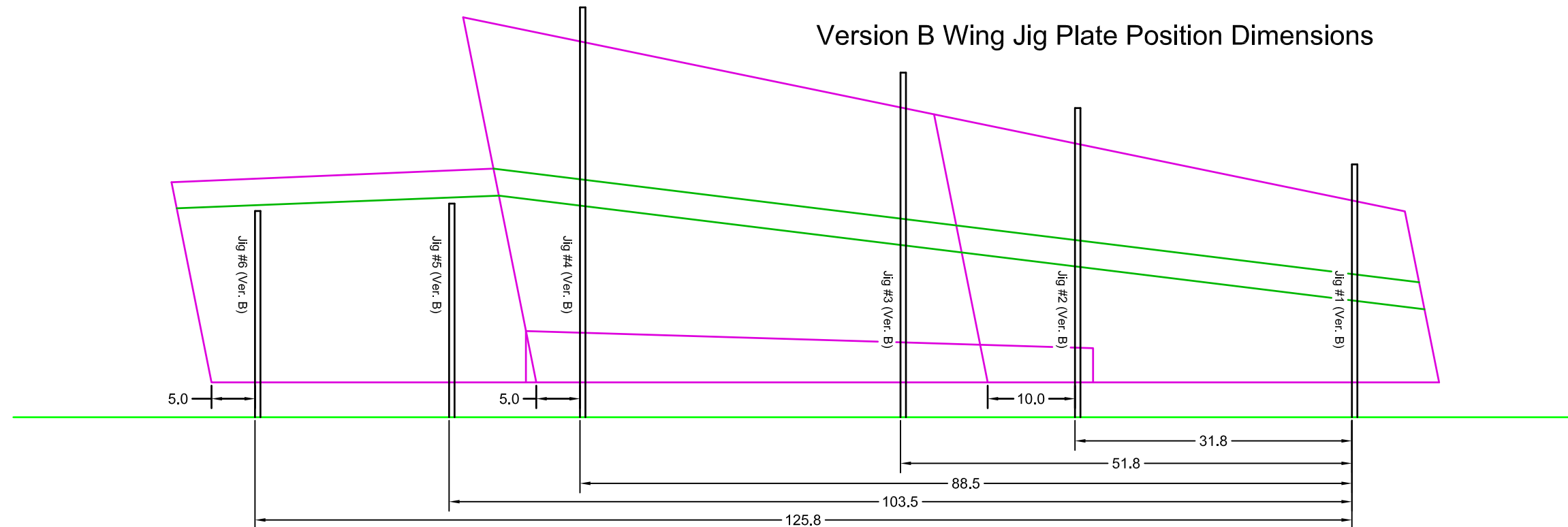
This line is 10.50" long

Version B Wing Jig Plate Layout Dimensions



Revision Notes:
April 15, 2015 - Ver. 1.2 - Relofterd from wing master loft to correct pattern shape mismatch to the actual airfoil shape

Version B Wing Jig Plate Position Dimensions



This line is 15.20" long

WING JIG 1 (Ver. B) FWD UPPER

PATTERN CUT LINE

TRIM TO THIS LINE
FOR BOTTOM LAYUP CLEARANCE

Cozy Mk IV

W.L. 17.4

W.L. 17.4

Cozy Mk IV

PATTERN CUT LINE

WING JIG 1 (Ver. B) FWD LOWER

26.00

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This line is 10.50" long

This line is 15.20" long

WING JIG 1 (Ver. B) AFT UPPER

Cozy Mk IV

JIG PLATE EDGE

TE REFERENCE

PATTERN CUT LINE

8.00

W.L. 17.4

W.L. 17.4

3.00

WING JIG 1 (Ver. B) AFT LOWER

Cozy Mk IV

JIG PLATE EDGE

TE REFERENCE

PATTERN CUT LINE

2.00

11.00

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Revision Notes:
July 11, 2015 - Ver. 1.2 - Relofted from wing master loft to correct pattern shape mismatch to the actual airfoil shape

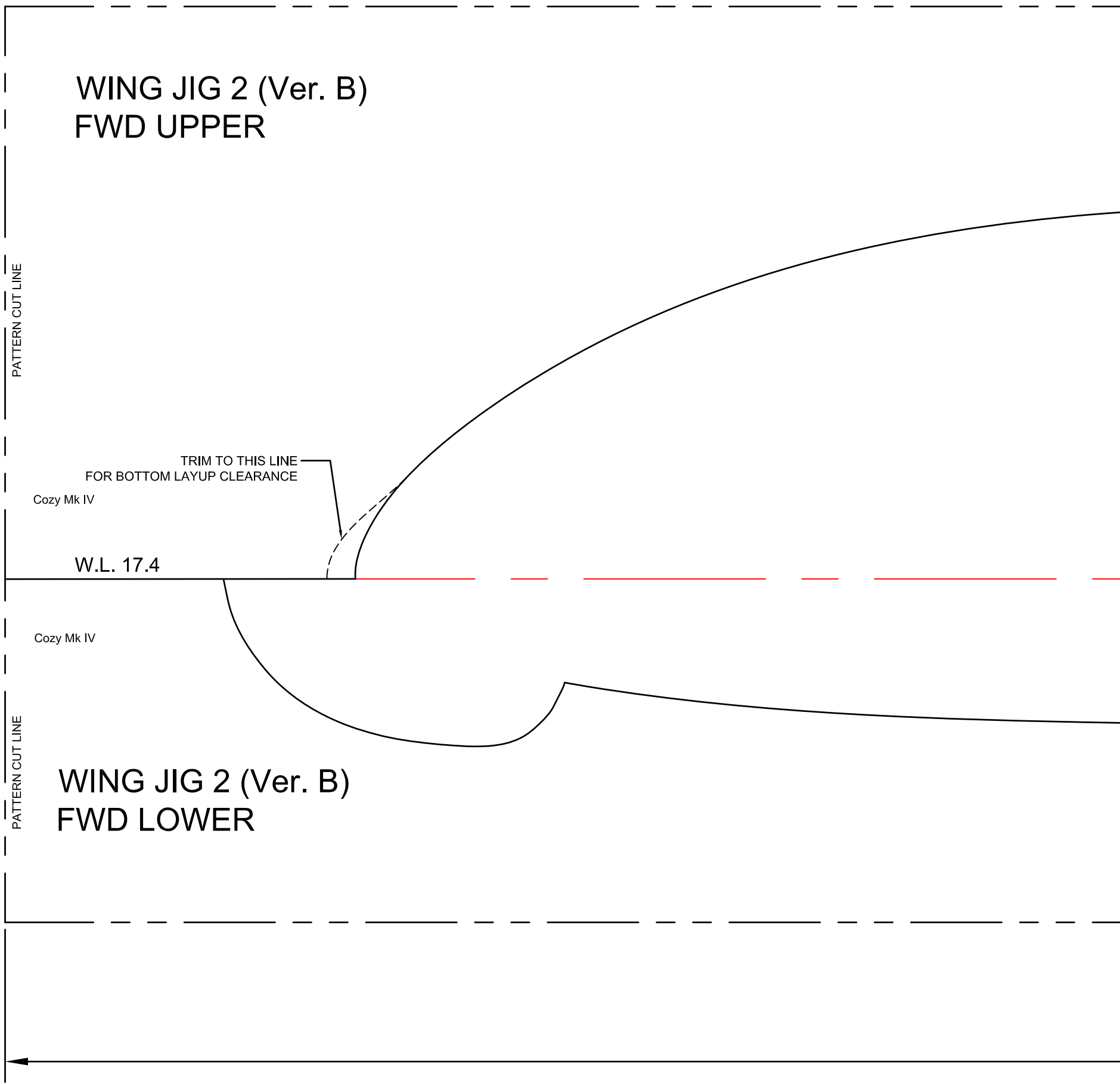
This line is 10.50" long

This line is 15.20" long

Sheet - 48-1 Rev. 1.2 July 11, 2015

Cozy Mark IV 'M' Drawing Supplements
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This line is 10.50" long



This line is 15.20" long

PATTERN CUT LINE

JIG PLATE EDGE

W.L. 17.4

W.L. 17.4

PATTERN CUT LINE

JIG PLATE EDGE

15

32.50

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Sheet - 48-2 Rev. 1.2 July 11, 2015

This line is 10.50" long

This line is 15.20" long

WING JIG 2 (Ver. B) AFT UPPER

Cozy Mk IV

TE REFERENCE

PATTERN CUT LINE

8.00

W.L. 17.4

3.00

WING JIG 2 (Ver. B) AFT LOWER

Cozy Mk IV

TE REFERENCE

PATTERN CUT LINE

2.00

00

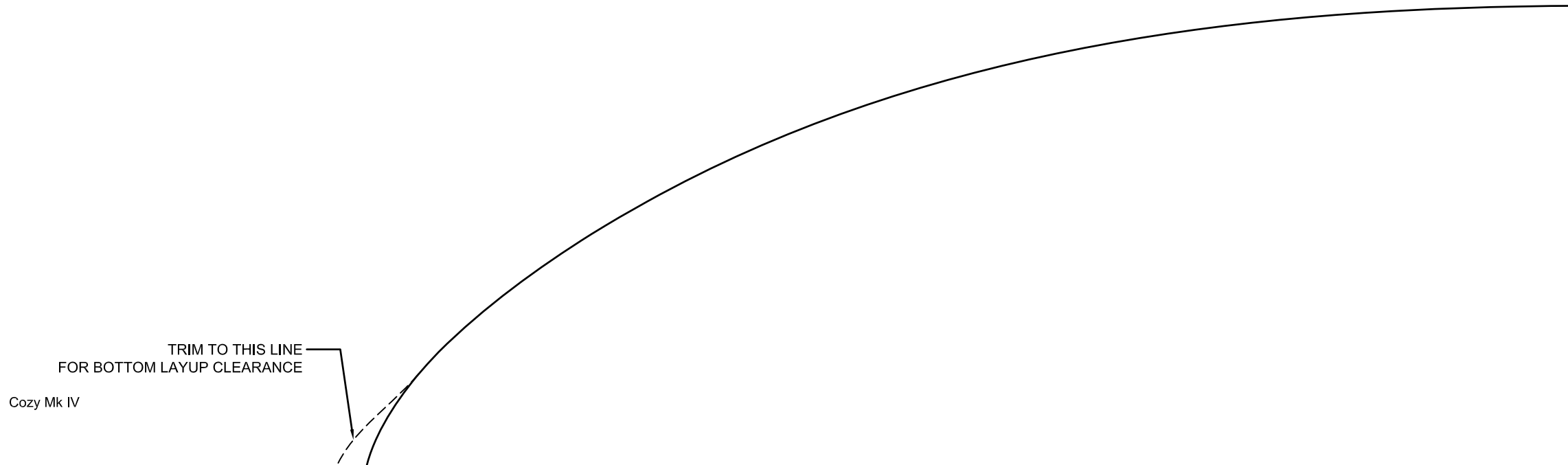
Revision Notes:
July 11, 2015 - Ver. 1.2 - Relofted from wing master loft to correct pattern shape mismatch to the actual airfoil shape

This line is 10.50" long

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WING JIG 3 (Ver. B) FWD UPPER

PATTERN CUT LINE



Cozy Mk IV

W.L. 17.4

PATTERN CUT LINE

WING JIG 3 (Ver. B) FWD LOWER



Cozy Mk IV



This line is 15.20" long

PATTERN CUT LINE

JIG PLATE EDGE

W.L. 17.4

W.L. 17.4

JIG PLATE EDGE

PATTERN CUT LINE

36.50

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Sheet - 49-2 Rev. 1.2 July 11, 2015

This line is 10.50" long

This line is 15.20" long

WING JIG 3 (Ver. B) AFT UPPER

Cozy Mk IV

TE REFERENCE

PATTERN CUT LINE

8.00

W.L. 17.4

3.00

WING JIG 3 (Ver. B) AFT LOWER

Cozy Mk IV

TE REFERENCE

PATTERN CUT LINE

2.00

17.40

Revision Notes:
July 11, 2015 - Ver. 1.2 - Relofted from wing master loft to correct pattern shape mismatch to the actual airfoil shape

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This line is 10.50" long

This line is 15.20" long

WING JIG 4 (Ver. B) FWD UPPER

PATTERN CUT LINE

TRIM TO THIS LINE
FOR BOTTOM LAYUP CLEARANCE

Cozy Mk IV

W.L. 17.4

Cozy Mk IV

PATTERN CUT LINE

WING JIG 4 (Ver. B) FWD LOWER

22.00

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This line is 10.50" long

This line is 15.20" long

PATTERN CUT LINE

JIG PLATE EDGE

W.L. 17.4

W.L. 17.4

JIG PLATE EDGE

PATTERN CUT LINE

44.00

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Revision Notes:
July 11, 2015 - Ver. 1.2 - Relofted from wing master loft to correct pattern shape mismatch to the actual airfoil shape

Sheet - 50-2 Rev. 1.2 July 11, 2015

This line is 10.50" long

This line is 15.20" long

WING JIG 4 (Ver.B)
AFT UPPER

Cozy Mk IV

TE REFERENCE

PATTERN CUT LINE

8.00

W.L. 17.4

3.00

WING JIG 4 (Ver. B)
AFT LOWER

Cozy Mk IV

TE REFERENCE

PATTERN CUT LINE

2.00

22.00

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This line is 10.50" long

This line is 15.20" long

Sheet - 51-1 Rev. 1.2 Aug 5, 2015

PATTERN CUT LINE

JIG PLATE EDGE

W.L. 17.4

JIG PLATE EDGE

PATTERN CUT LINE

22.90

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This line is 10.50" long

This line is 15.20" long

WING JIG 5 (Ver. B)
UPPER

WING JIG 5 (Ver. B)
LOWER

TE REFERENCE

TE REFERENCE

Cozy Mk IV

PATTERN CUT LINE

W.L. 17.4

PATTERN CUT LINE

Cozy Mk IV

9.00

3.75

2.00

Revision Notes:
Aug 5, 2015 - Ver. 1.2 - Relotted from wing master loft to correct pattern shape mismatch to the actual airfoil shape

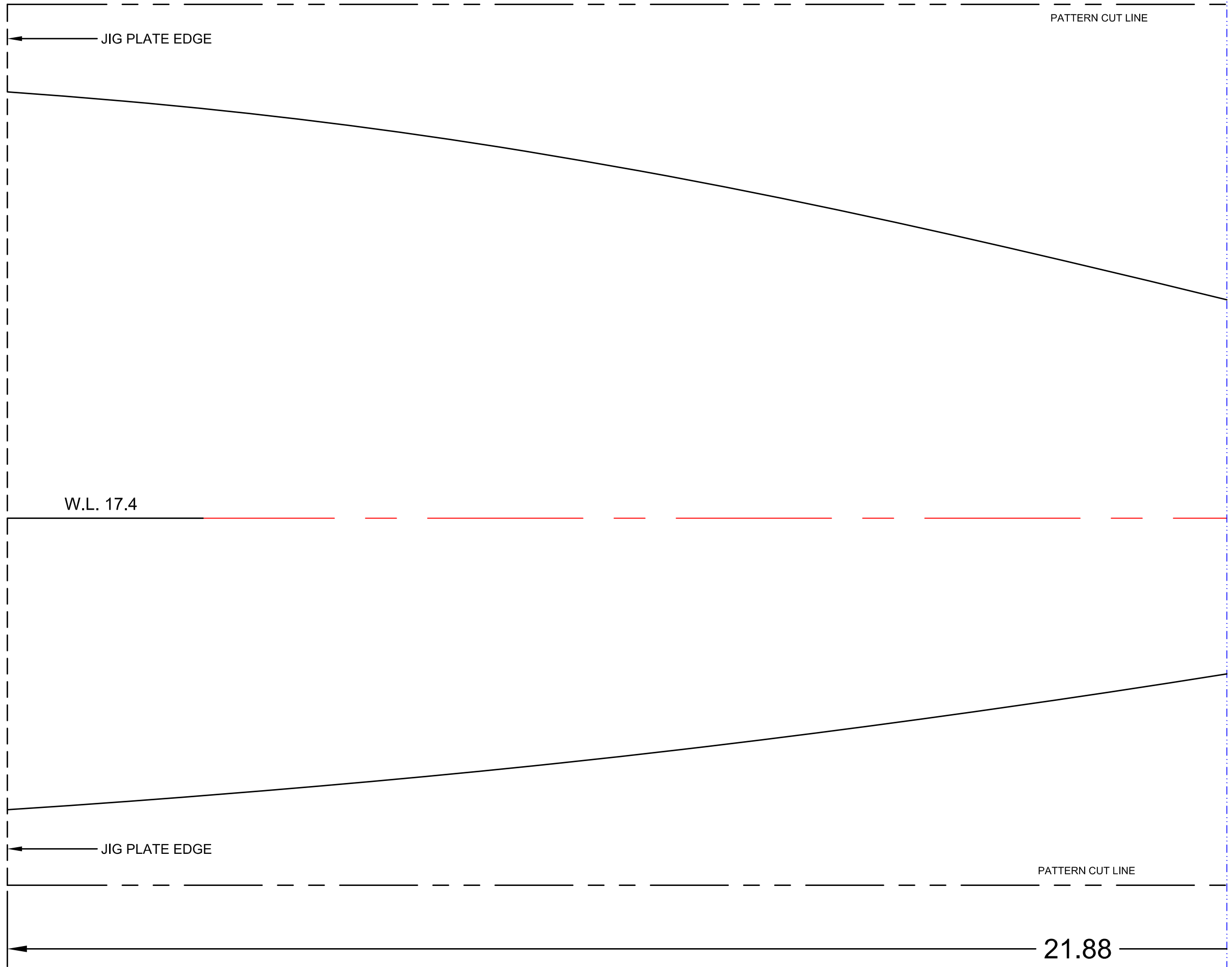
Cozy Mark IV 'M' Drawing Supplements
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This line is 10.54" long

This line is 15.20" long

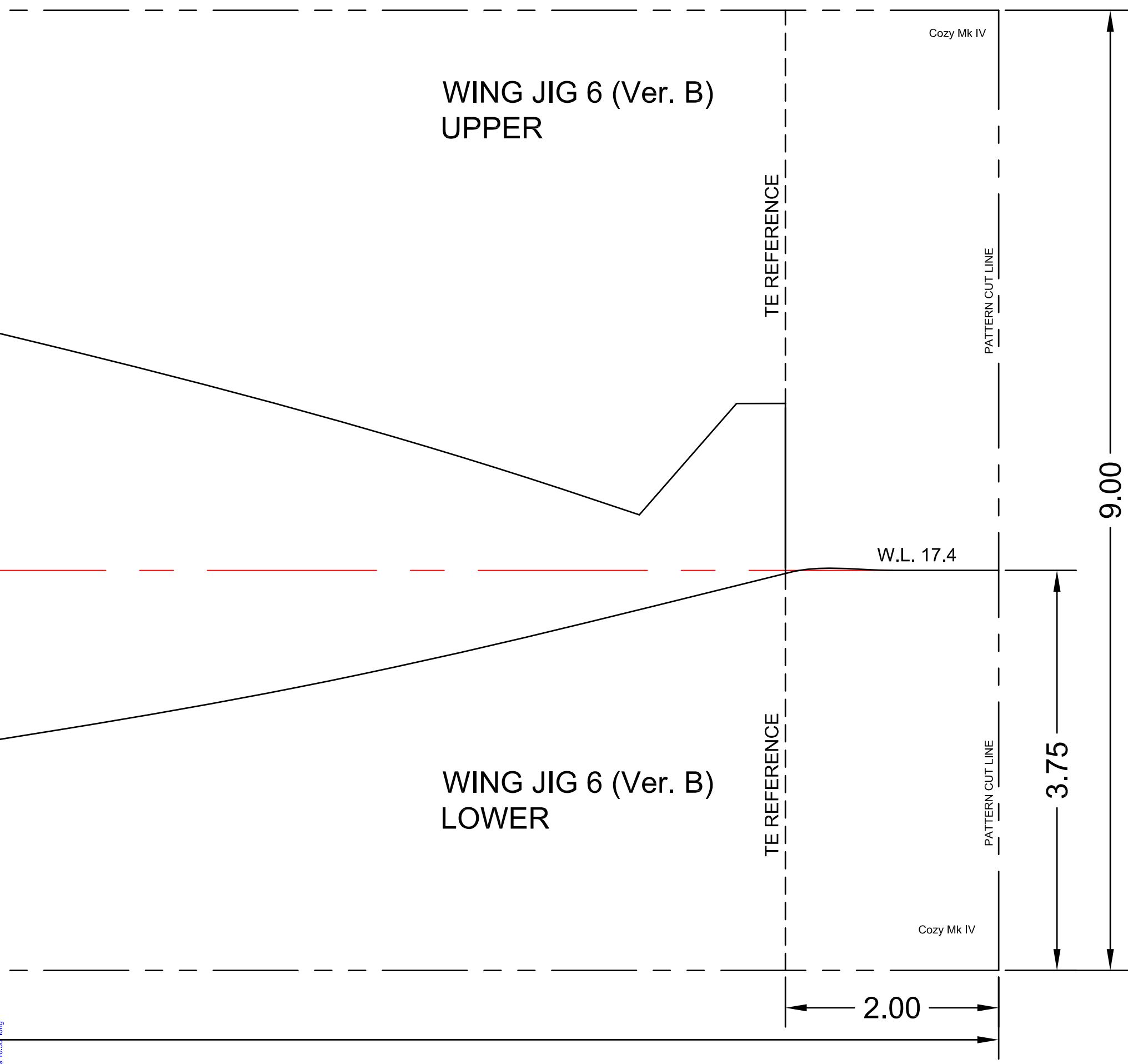
Sheet - 52-1 Rev. 1.2 Aug 4, 2015

Cozy Mark IV 'M' Drawing Supplements
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This line is 10.50" long

This line is 15.20" long

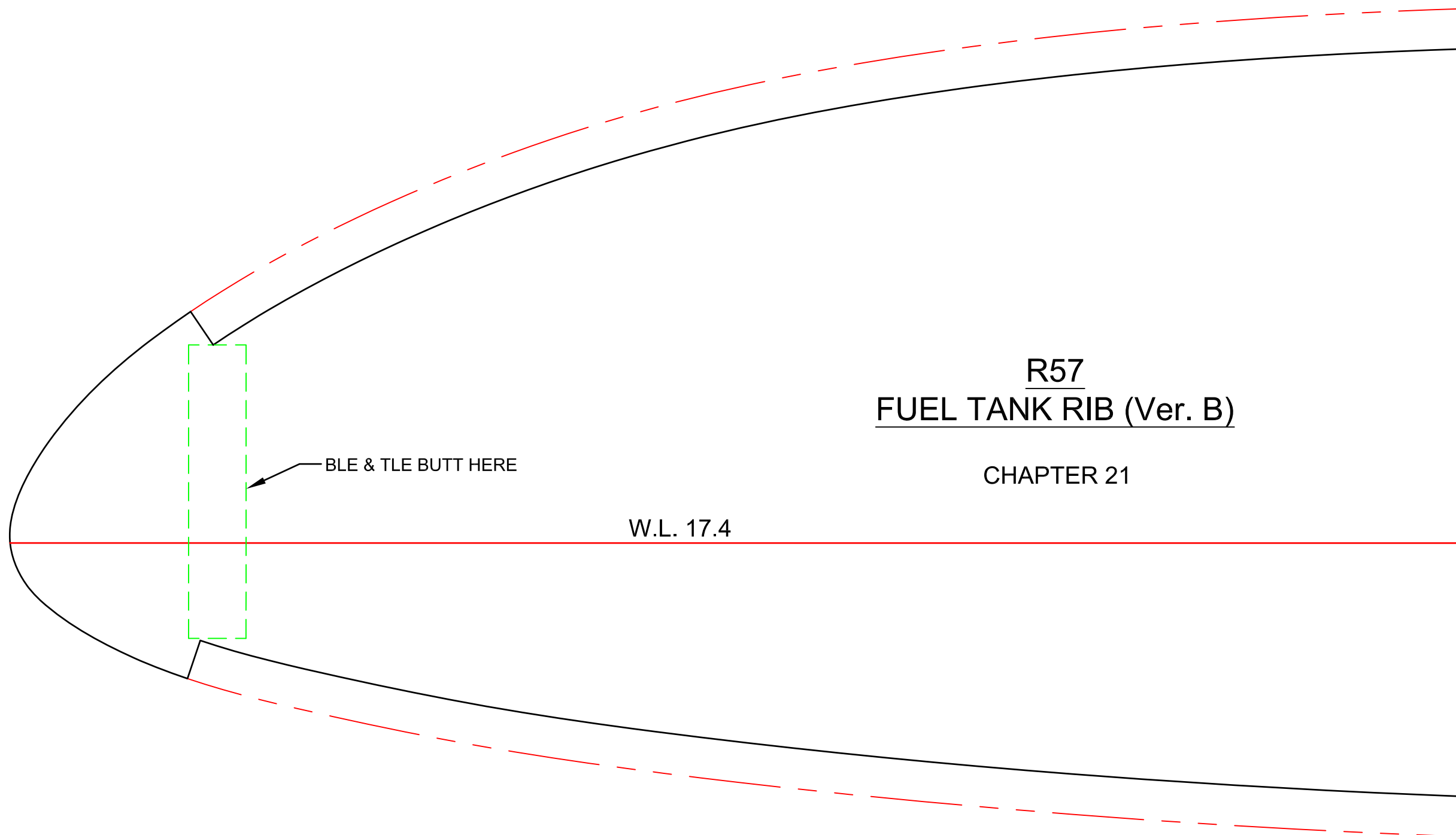


This line is 10.54" long

Revision Notes:
Aug 4, 2015 - Ver. 1.2 - Relotted from wing master loft to correct pattern shape mismatch to the actual airfoil shape

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This line is 15.20" long



R57
FUEL TANK RIB (Ver. B)

CHAPTER 21

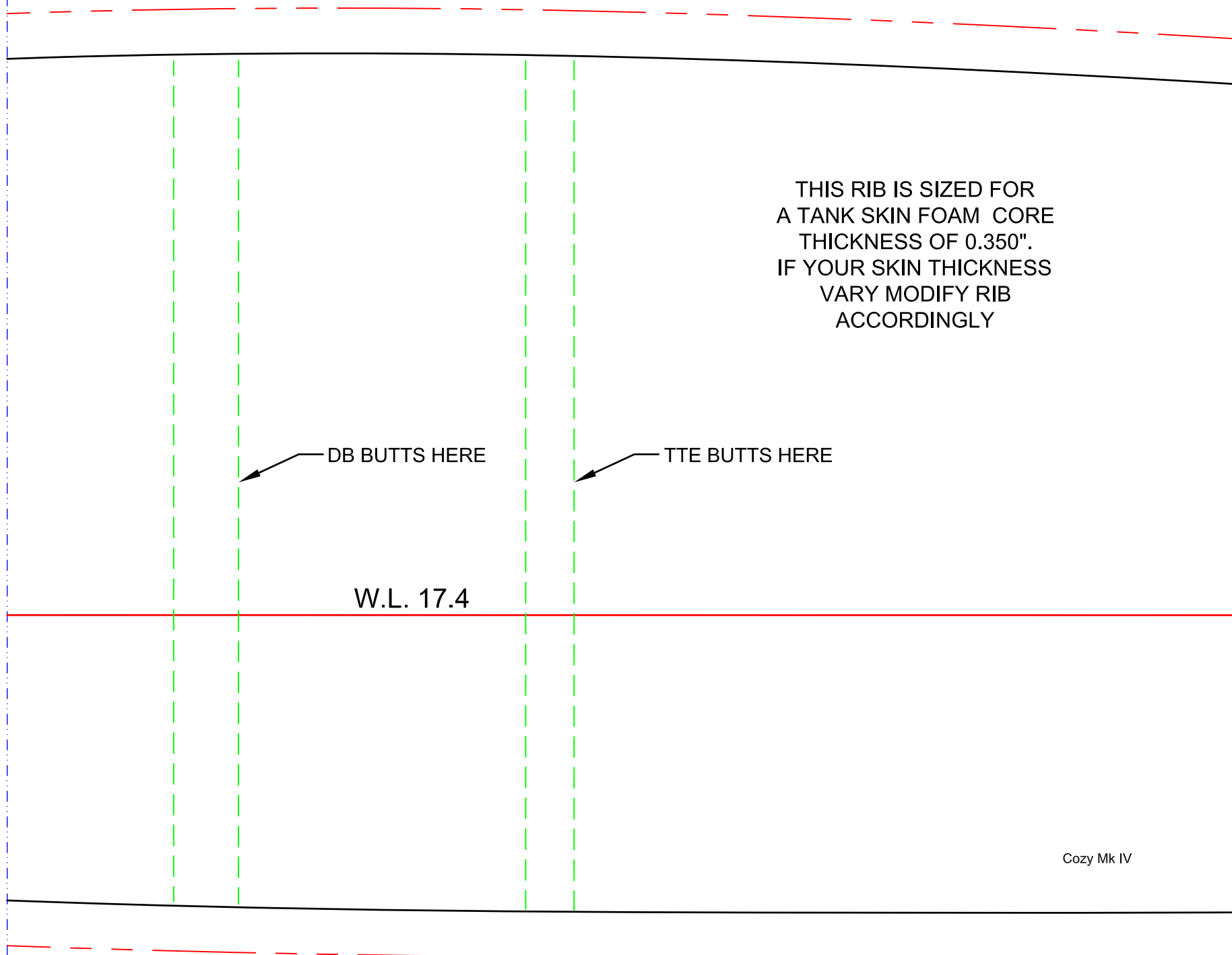
W.L. 17.4

BLE & TLE BUTT HERE

This line is 10.50" long

This line is 15.20" long

Revision Notes:
July 26, 2015 - Ver. 1.2 - Relofterd from wing master loft to correct pattern shape mismatch to the actual airfoi shape



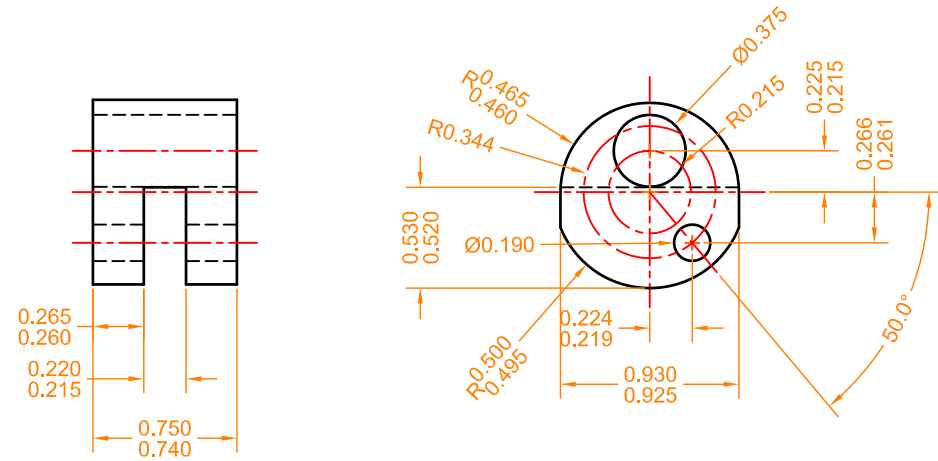
Cozy Mk IV

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This line is 10.50" long

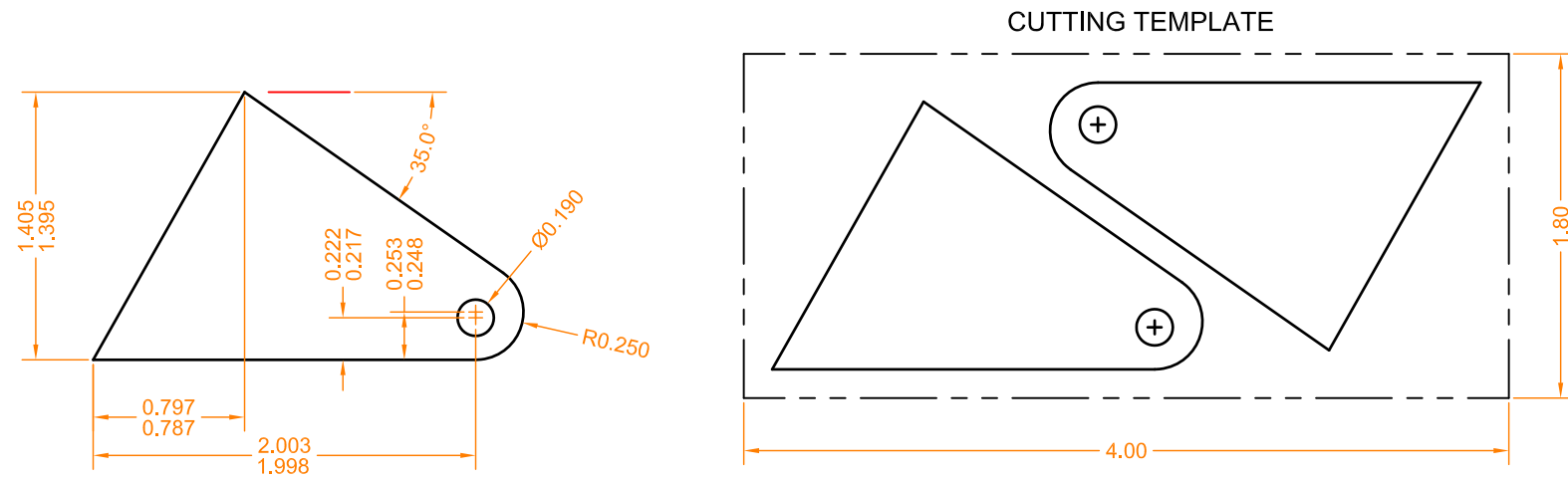
NC-2 HINGE BLOCK

MATRL: 2024 T3 ALUMINIUM
(4 REQ'D)



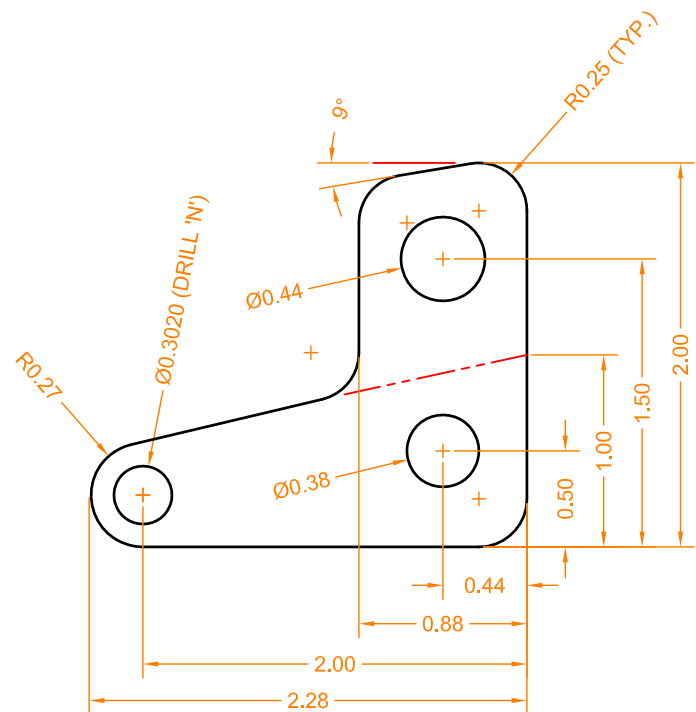
NC-7 ALIGNMENT JIG

FULL SCALE
MATRL: 0.125" 2024 T3 ALUMINIUM
(2 REQ'D)

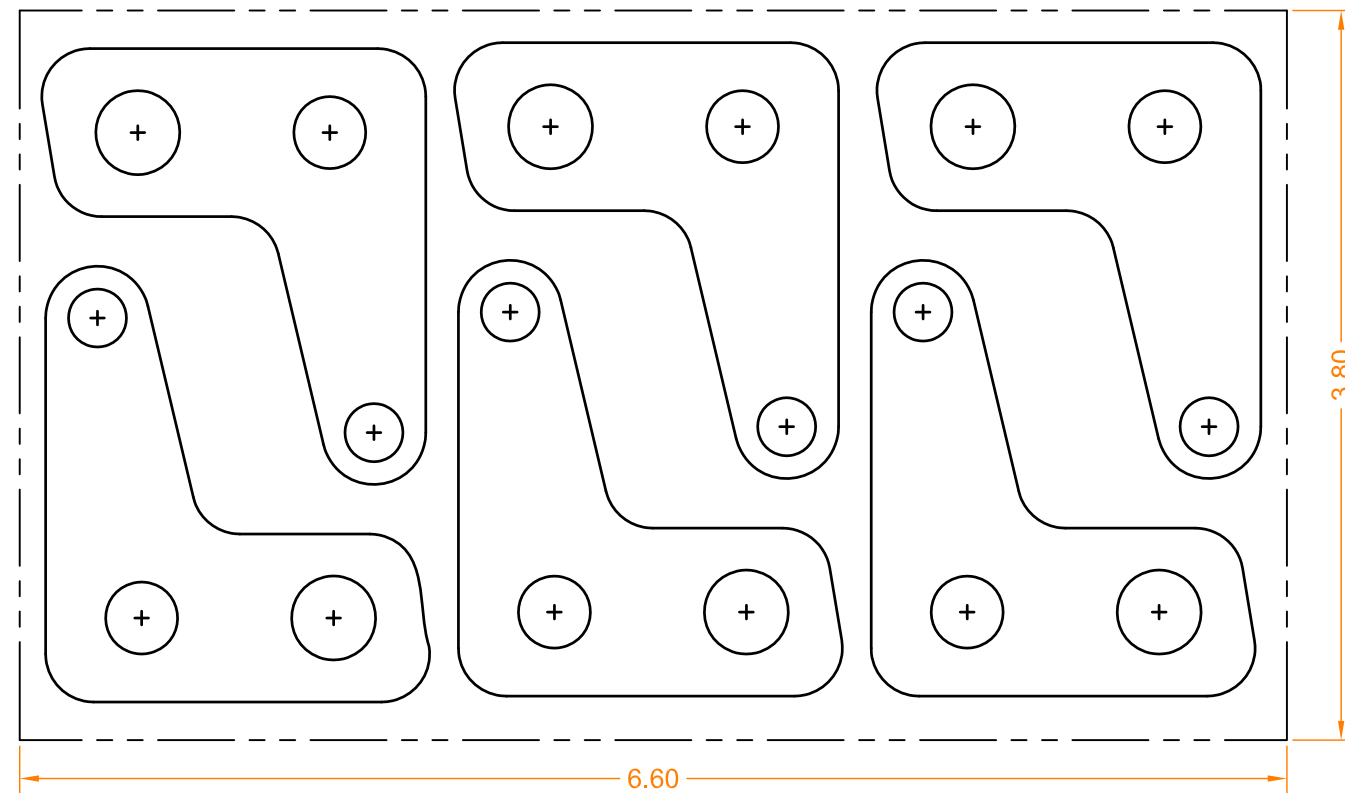


NC-3 HINGE

FULL SCALE
MATRL: 0.125" 2024 T3 ALUMINIUM
(6 REQ'D)



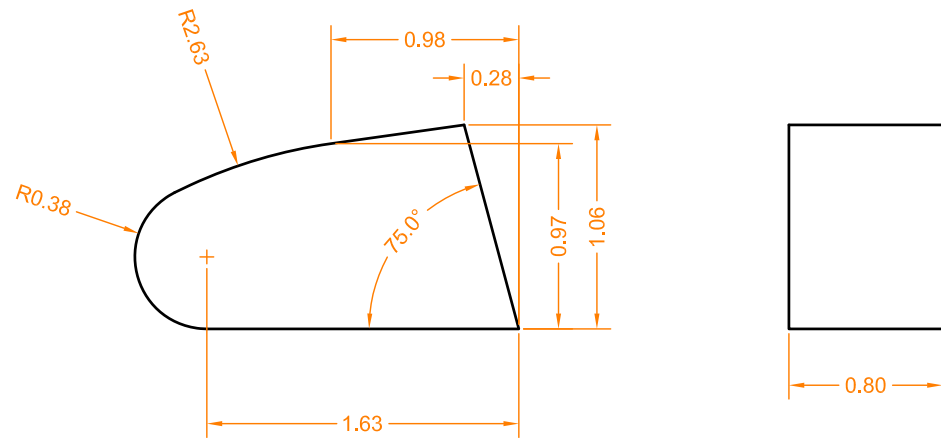
CUTTING TEMPLATE



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CS-10 ELEVATOR BALANCE WEIGHT

MATRL: LEAD
(2 REQ'D)

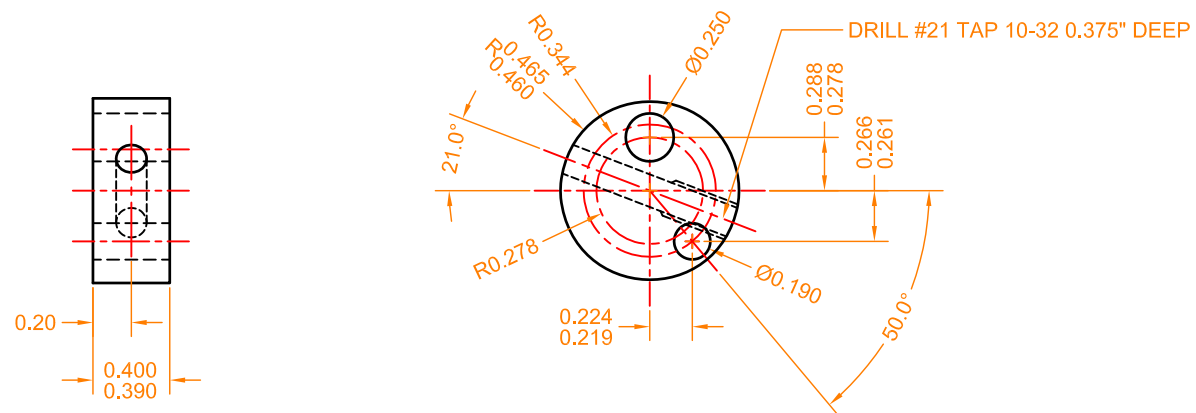


WEIGHT: 7.8 oz

+

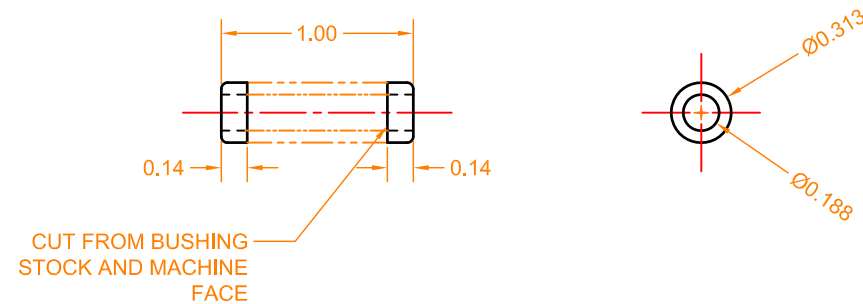
NC-6 END PLUG

MATRL: 2024 T3 ALUMINIUM
(2 REQ'D)



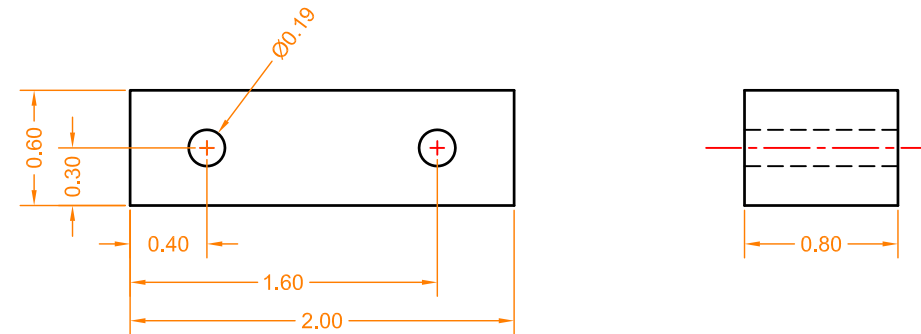
NC-3 HINGE BEARING INSERT

FULL SCALE
MATRL: AA309-5 OILITE BUSHING
(6 REQ'D)



CS-11 ELEVATOR BALANCE WEIGHT

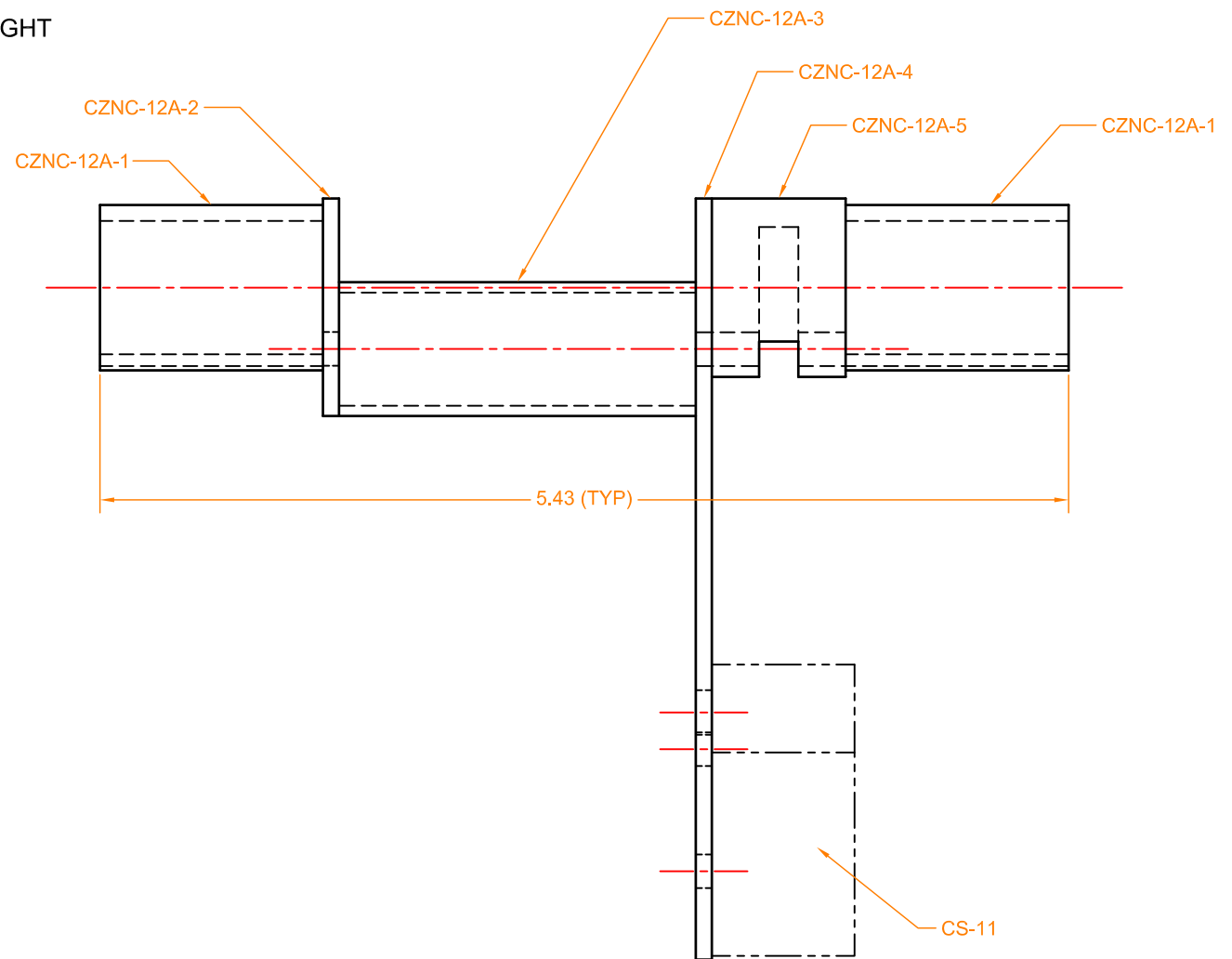
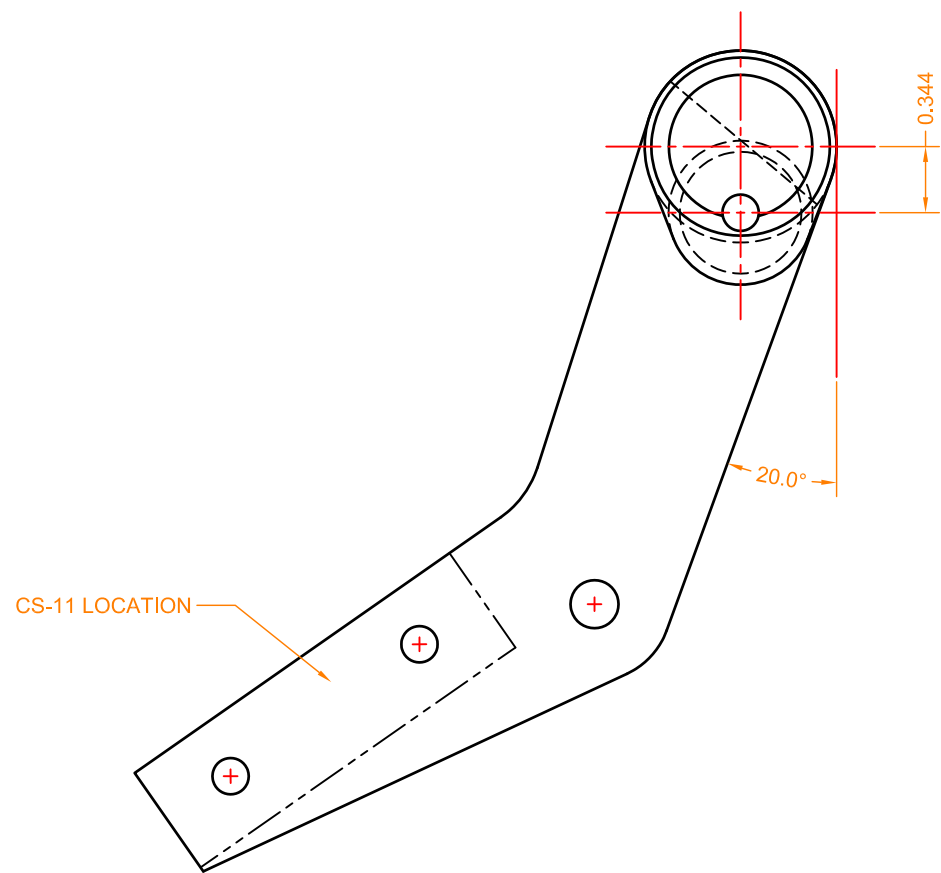
MATRL: LEAD
(2 REQ'D)



WEIGHT: 6.0 oz

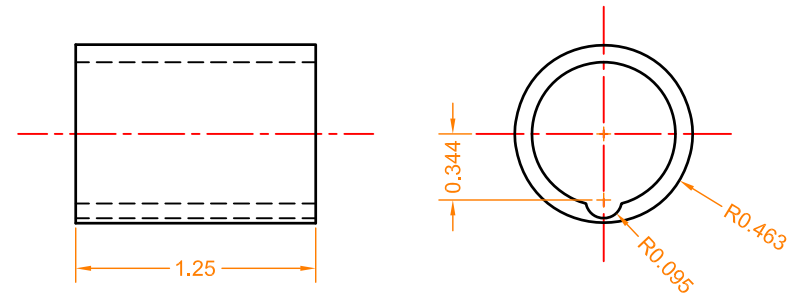
CZNC-12A ELEVATOR TORQUE TUBE CONTROL ARM AND HINGE WELDED ASSEMBLY

MAKE 1 LEFT (SHOWN) AND 1 RIGHT



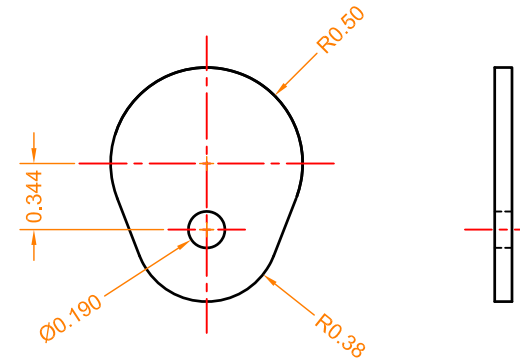
CZNC-12A-1 ELEVATOR TORQUE TUBE COUPLER

MATRL: $\frac{15}{16}$ OD x 0.095 WALL 4130N TUBING
(4 REQ'D)



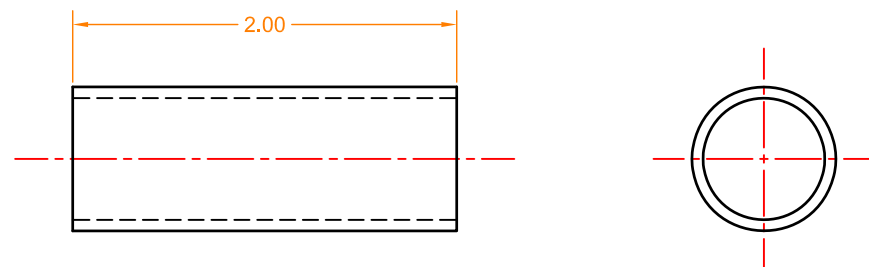
CZNC-12A-2 ELEVATOR TORQUE TUBE OFFSET JOINER

MATRL: 0.090" 4130N
(2 REQ'D)



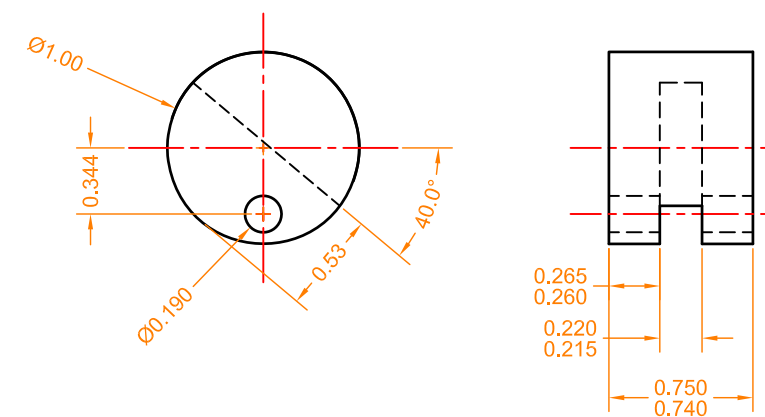
CZNC-12A-3 ELEVATOR TORQUE TUBE OFFSET COUPLER

MATRL: 3/4 OD x 0.058 WALL 4130N TUBING
(2 REQ'D)



CZNC-12A-5 ELEVATOR HINGE

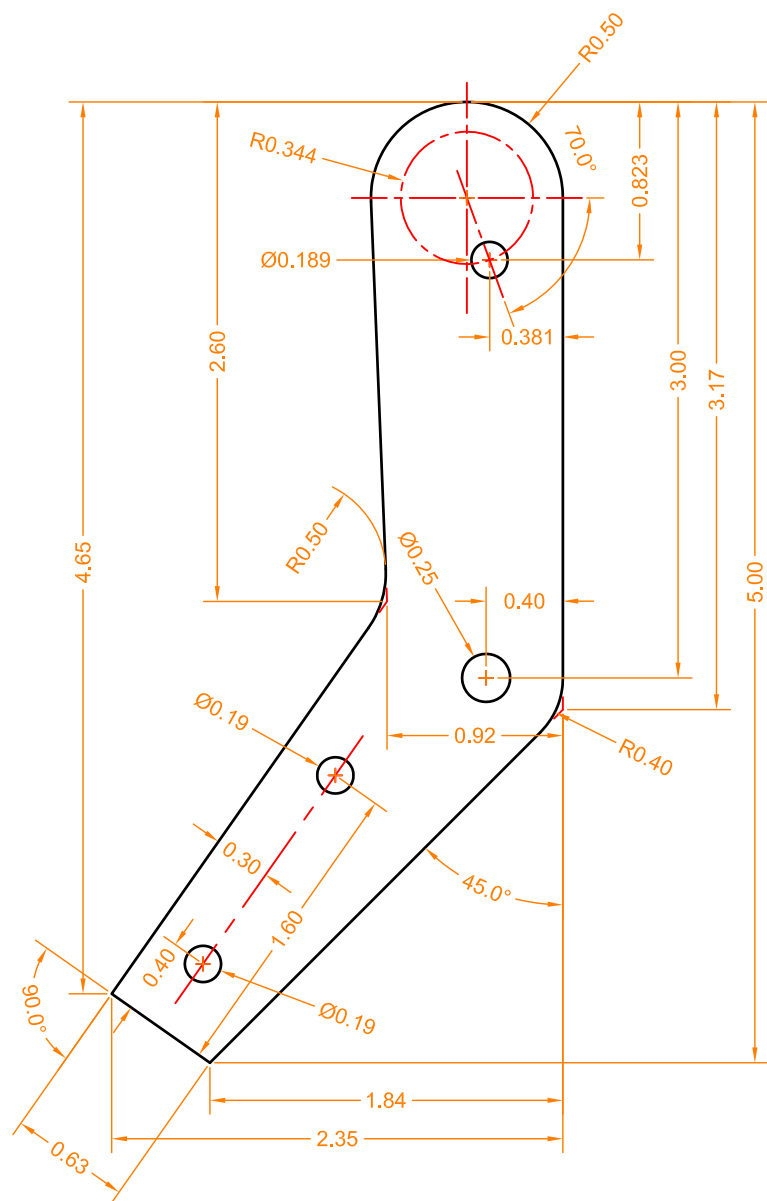
MATRL: 1.00" 4130N BAR
(2 REQ'D)



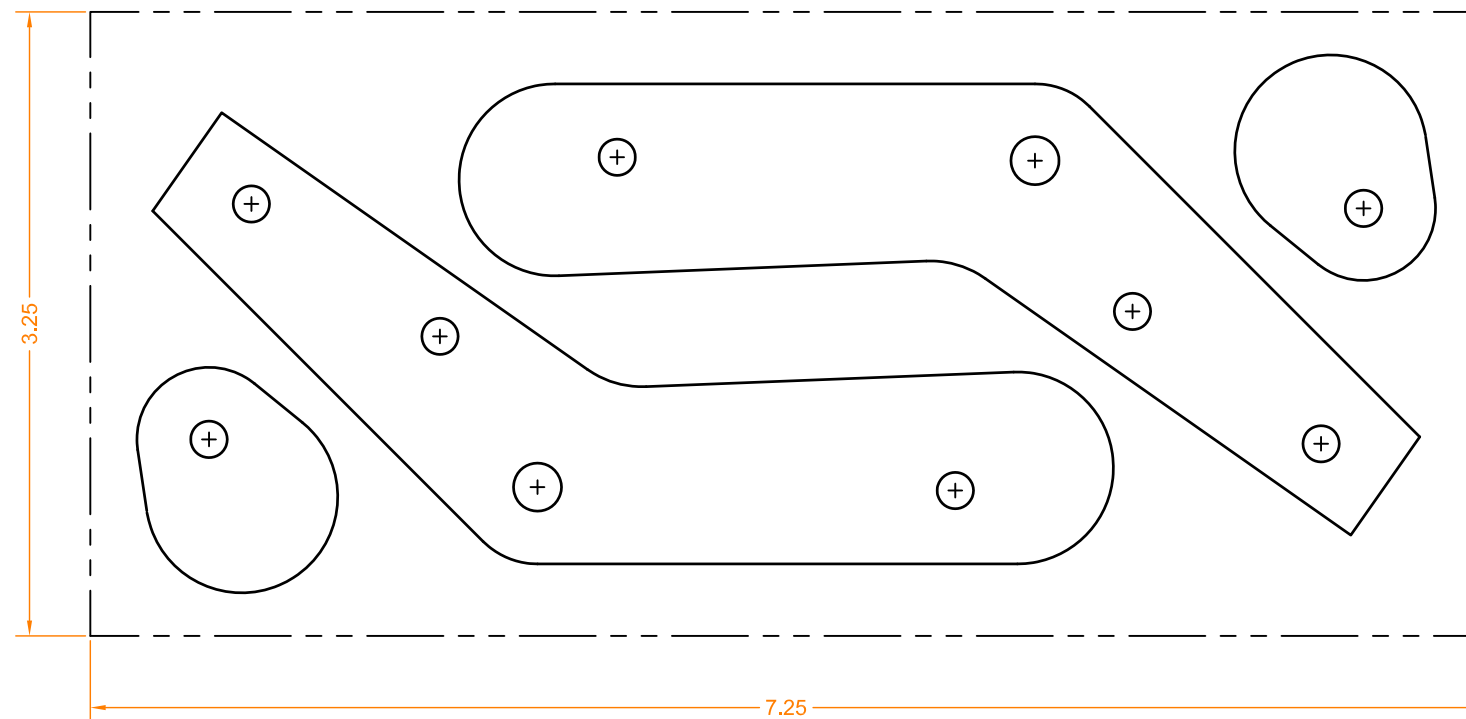
Cozy Mark IV 'M' Drawing Supplements
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CZNC-12A-4 ELEVATOR CONTROL ARM

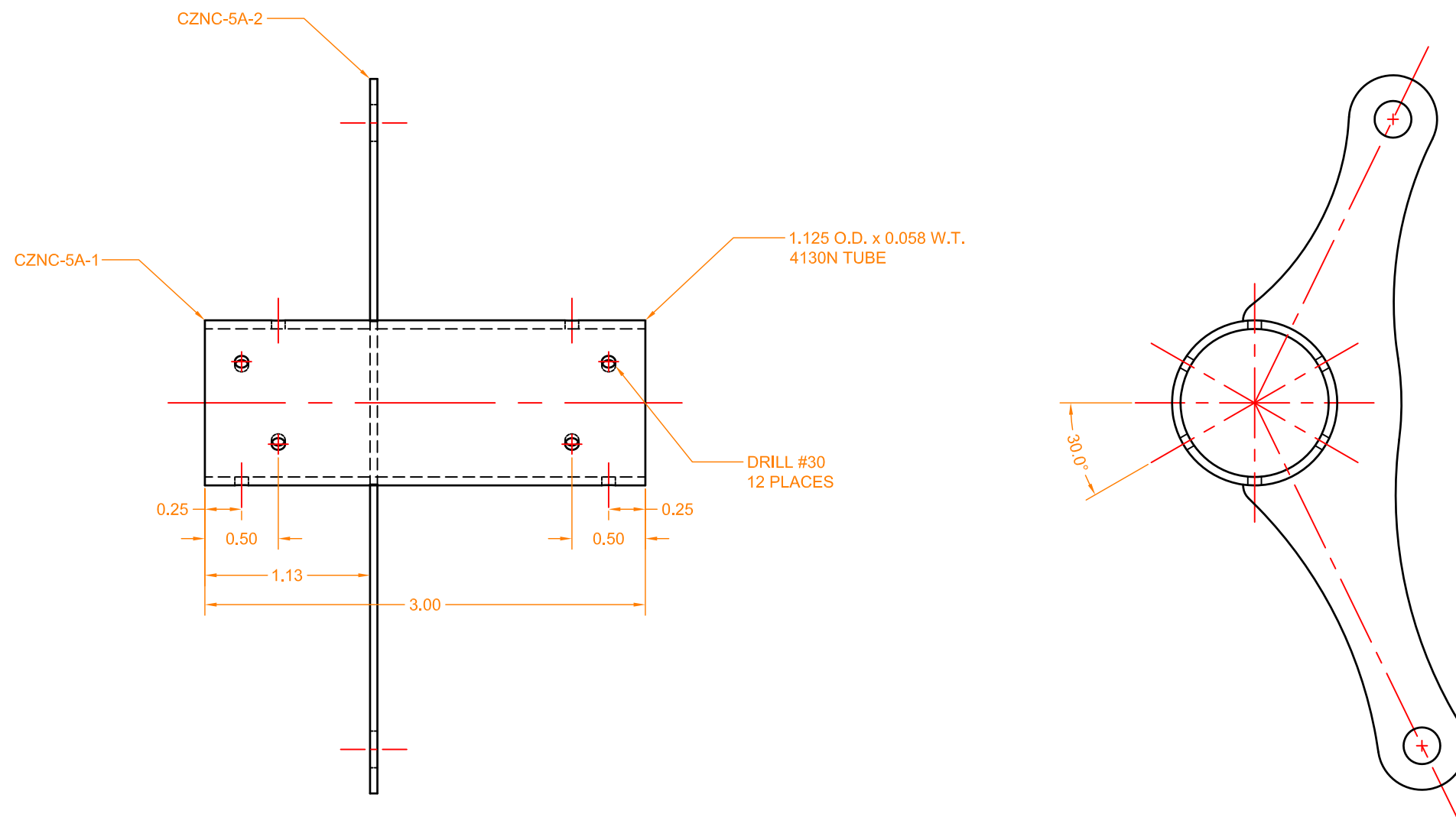
MATRL: 0.090" 4130N STEEL
(2 REQ'D)



CUTTING TEMPLATE



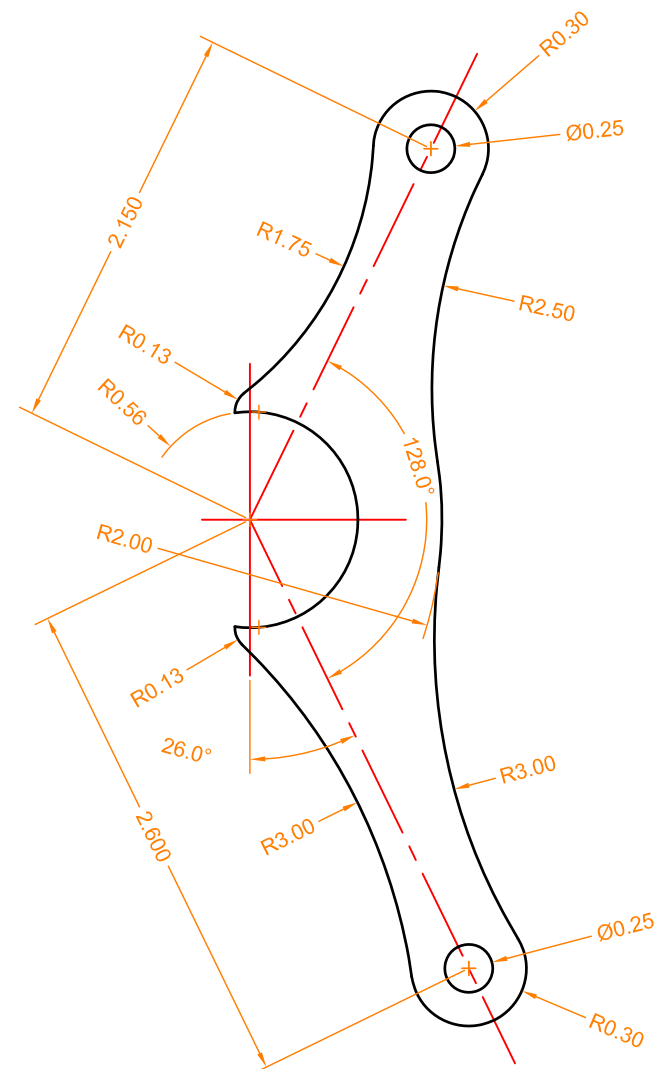
CZNC-5A ELEVATOR TRIM CONTROL ARM WELDED ASSEMBLY



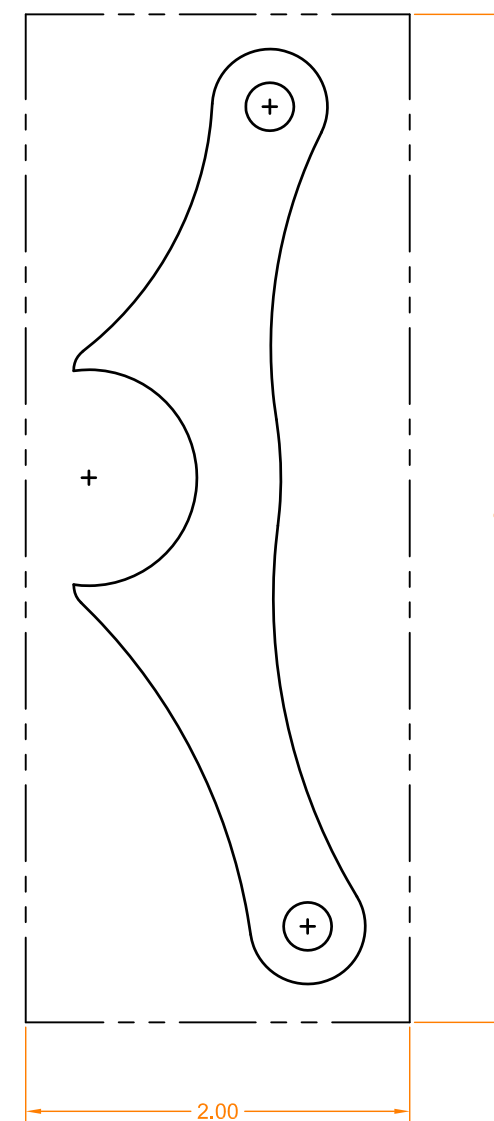
This line is 15.20" long

CZNC-5A-2 TRIM ARM

MATRL: 0.050" 4130N
(1 REQ'D)



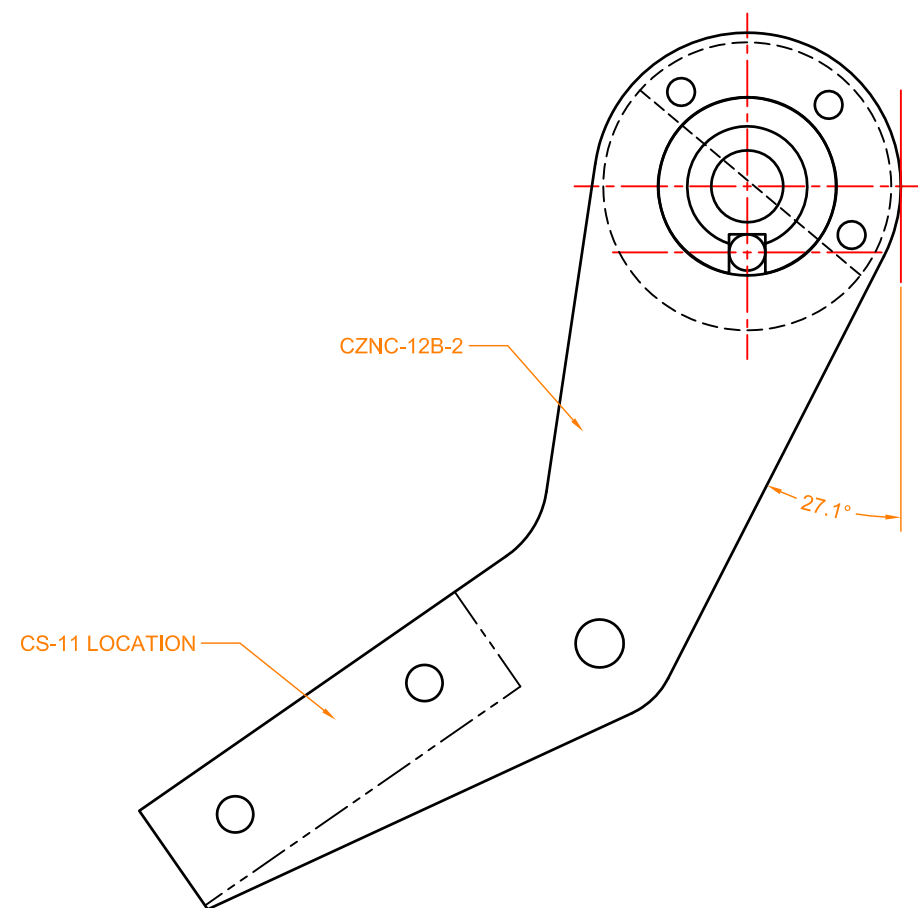
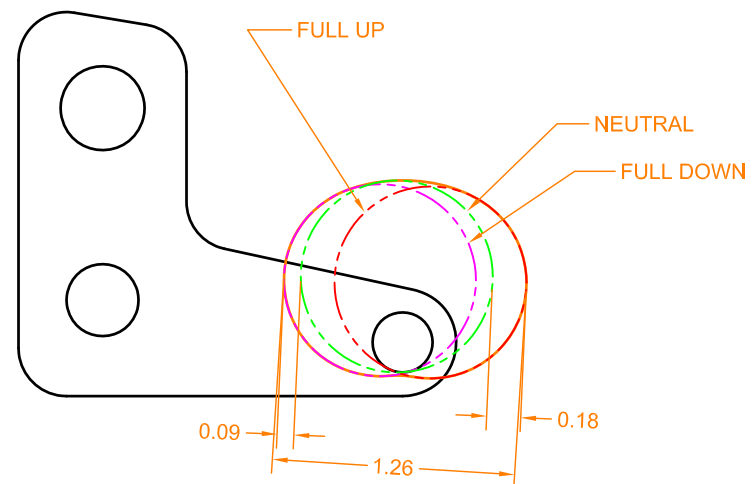
CUTTING TEMPLATE



This line is 10.50" long

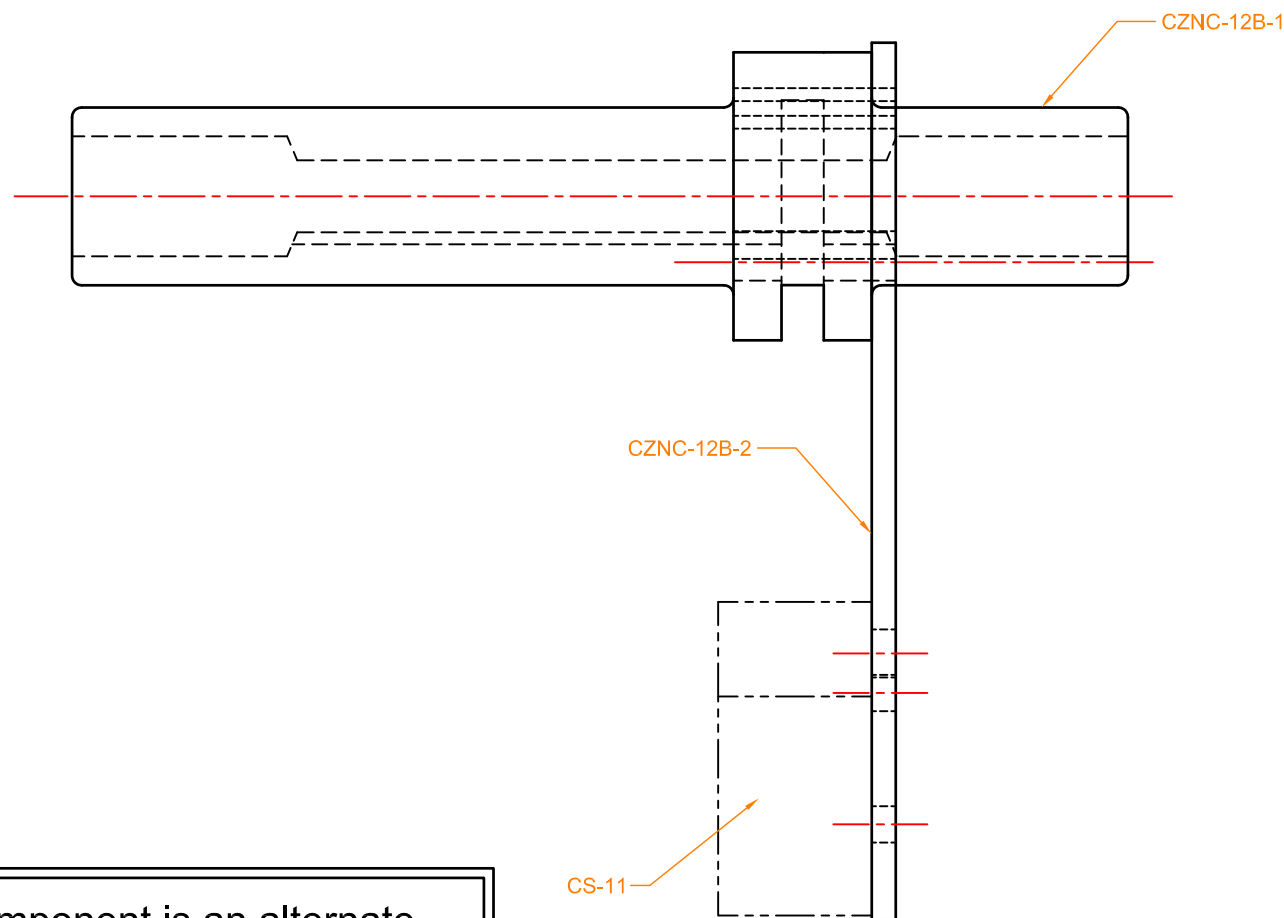
ELEVATOR TORQUE TUBE CLEARANCE HOLE ANALYSIS

(0.03" ADDITIONAL CLEARANCE TO CZNC-12B-1 HAS BEEN ADDED)



CZNC-12B ELEVATOR TORQUE TUBE CONTROL ARM AND HINGE ASSEMBLY

MAKE 1 LEFT (SHOWN) AND 1 RIGHT



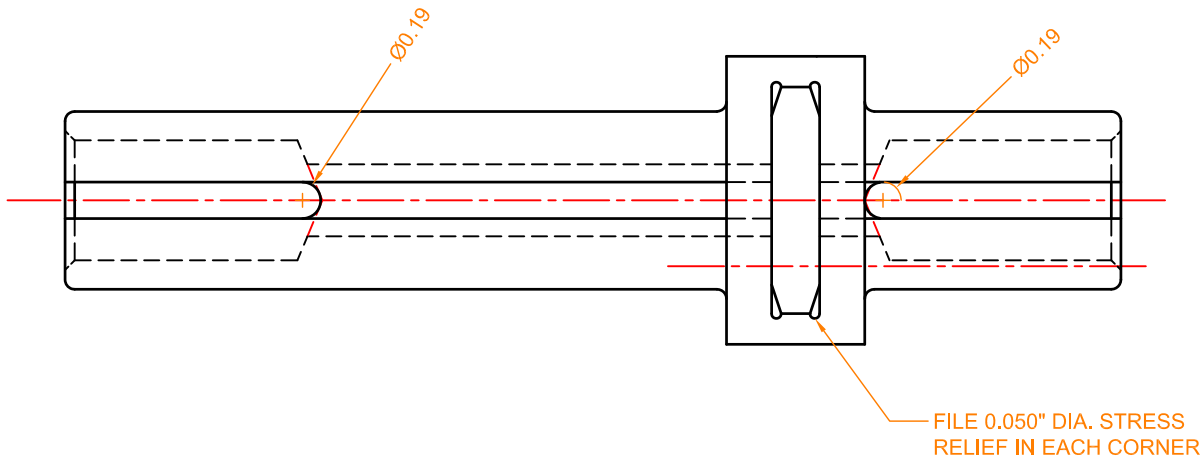
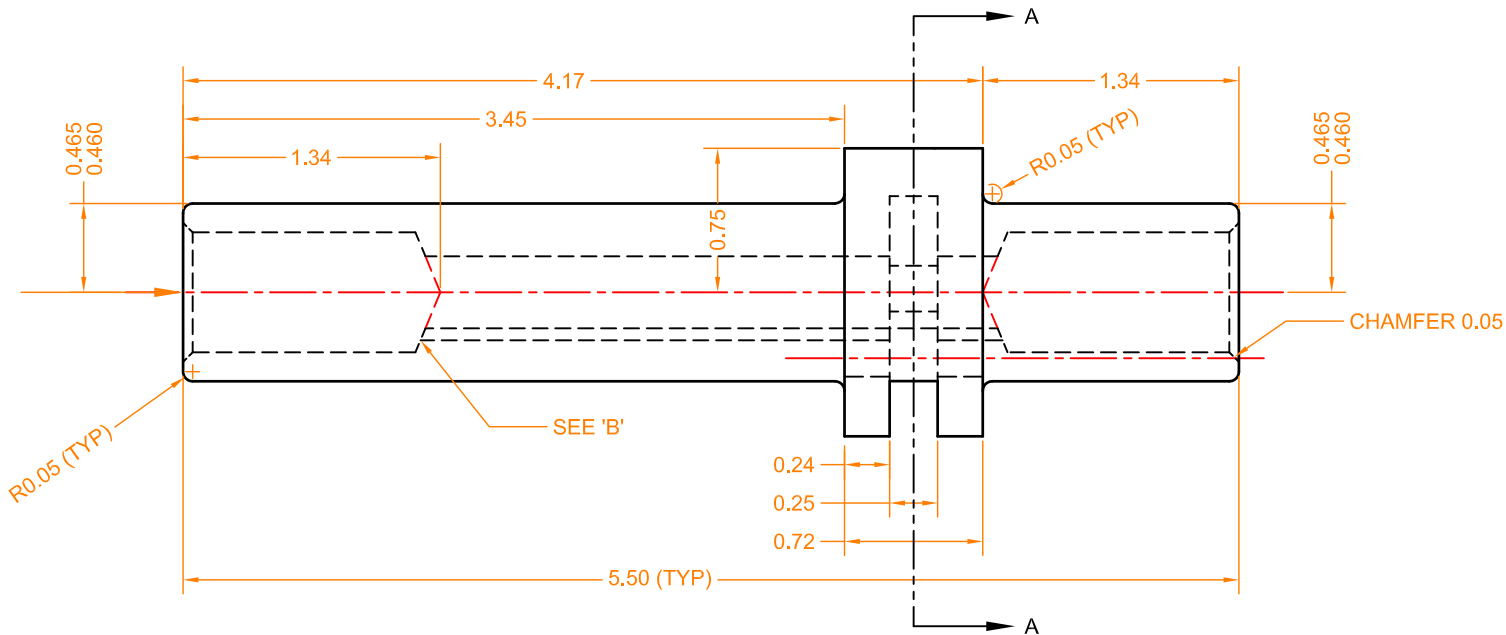
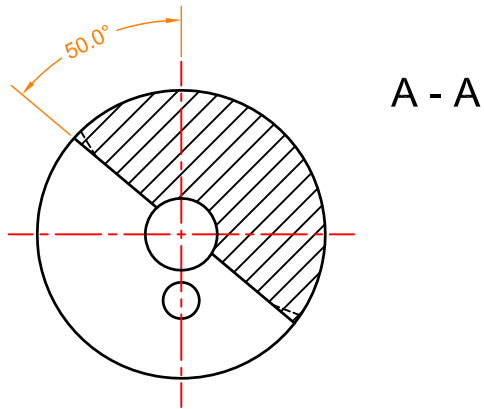
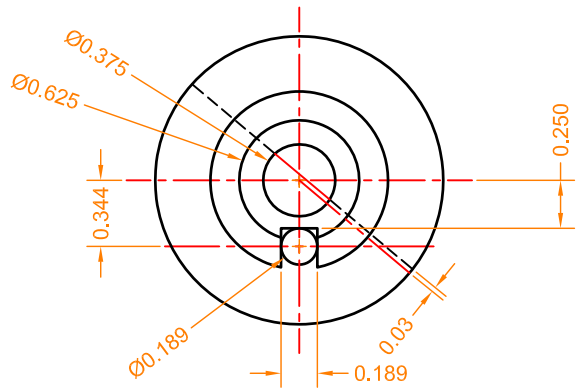
This component is an alternate design for the CZNC-12A.
Installation procedures are not covered in the official plans set.

This component is part of an alternate design for the CZNC-12A. Installation procedures are not covered in the official plans set.

CZNC-12B-1 ELEVATOR TORQUE TUBE COUPLER

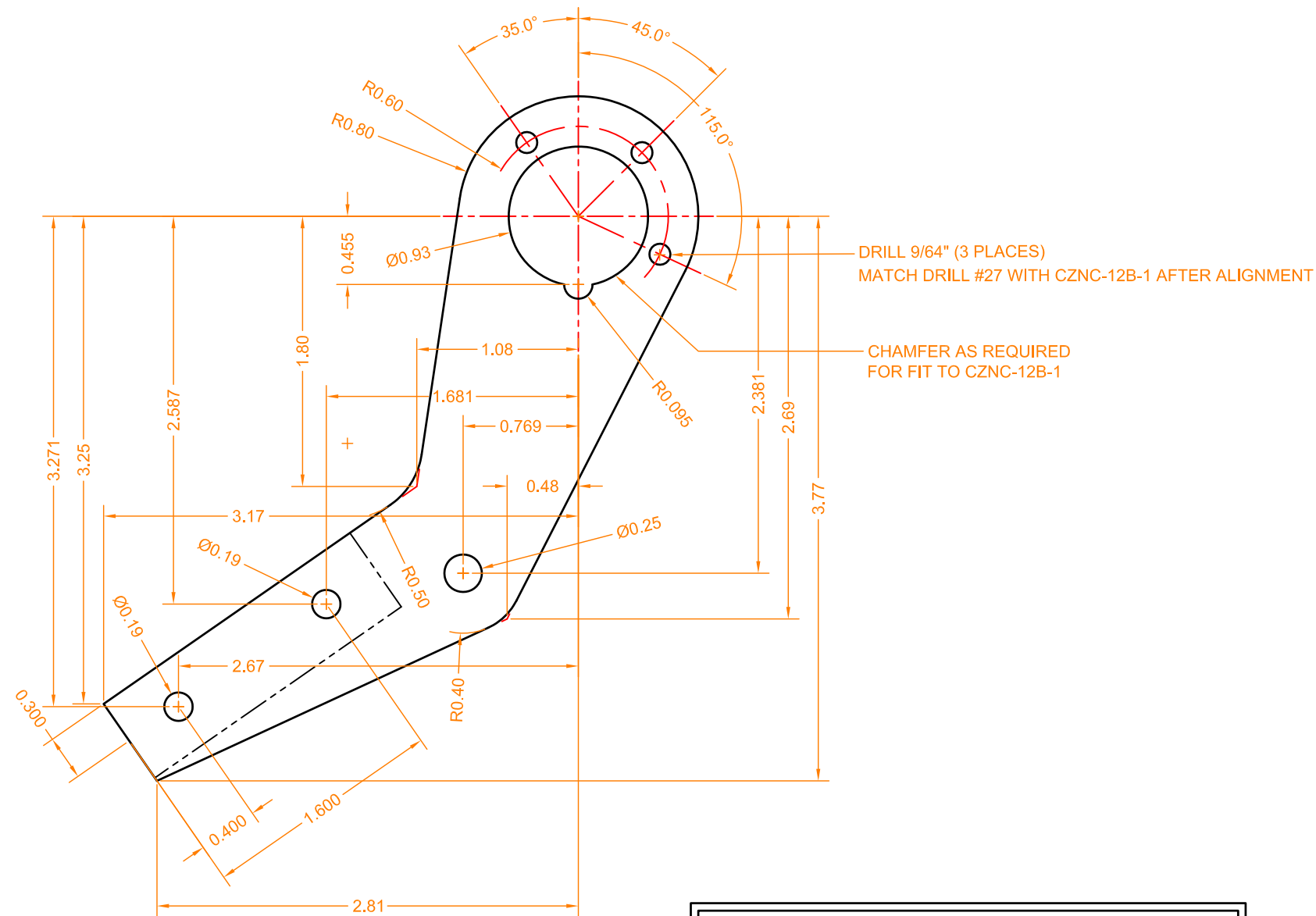
MAKE 1 LEFT (SHOWN) AND 1 RIGHT

MATRL: 1.5" DIA. 2024-T3



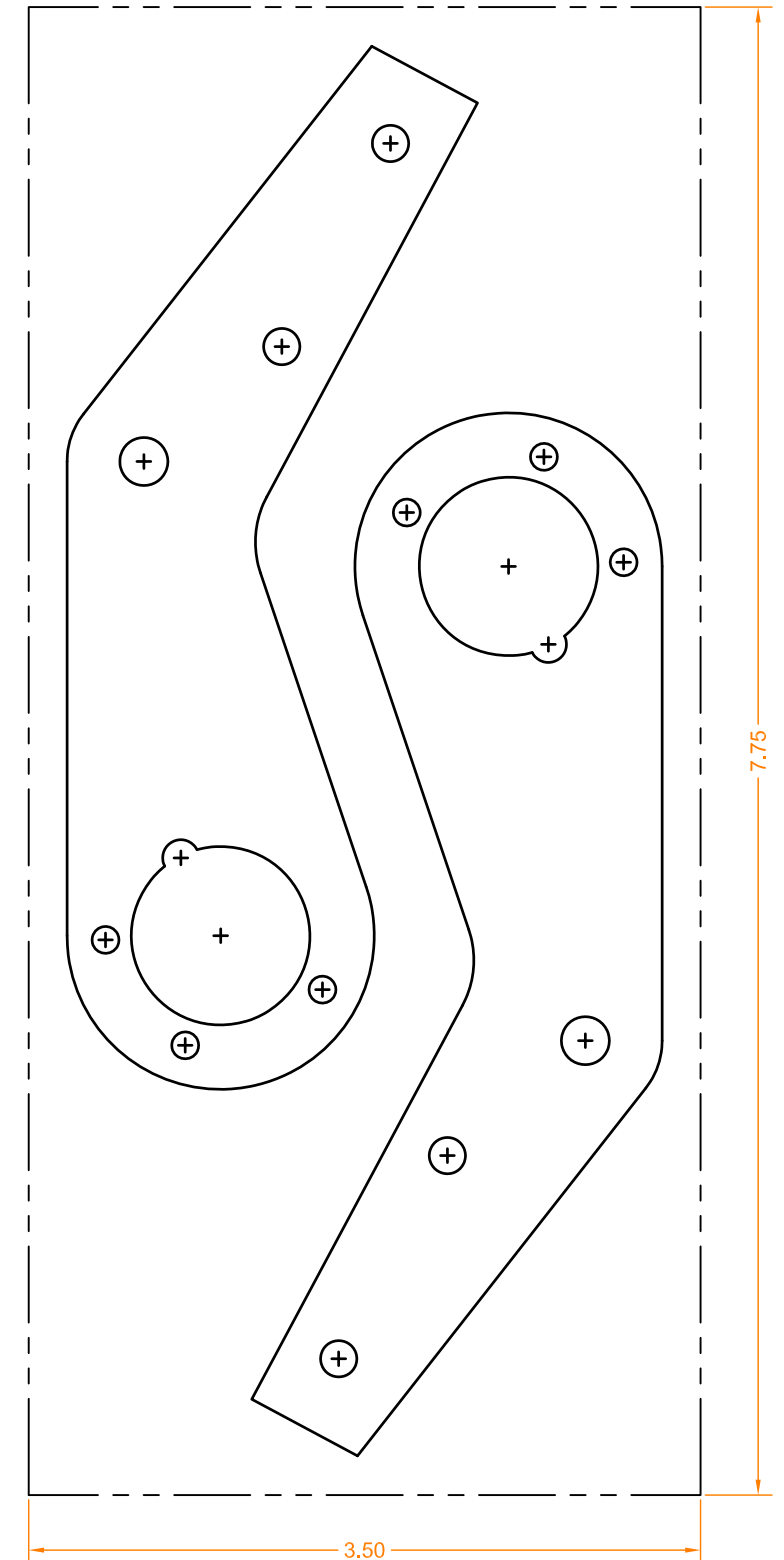
CZNC-12B-2 CONTROL ARM

MATRL: 0.125" 2024-T3
(2 REQ'D)

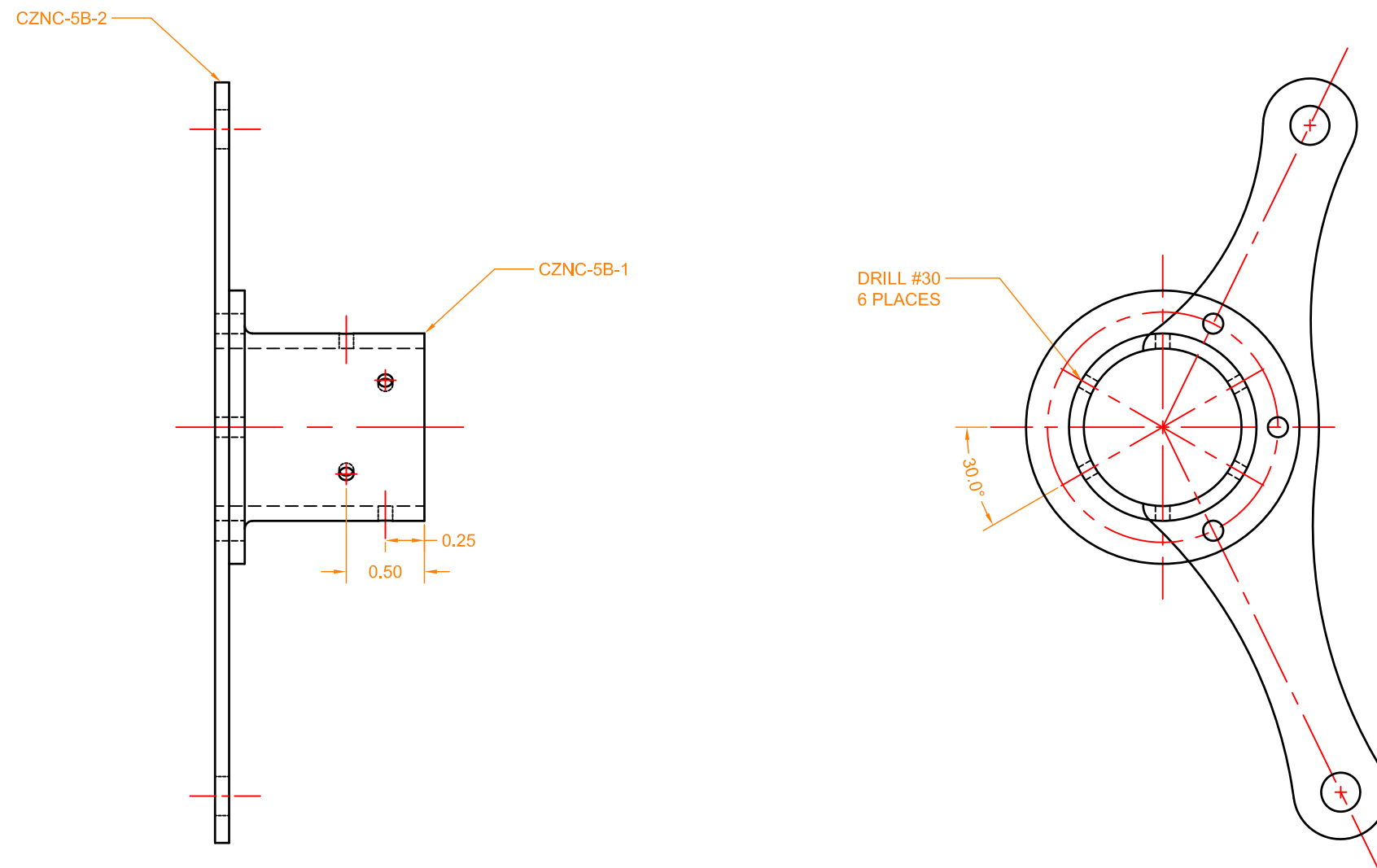


This component is part of an alternate design for the CZNC-12A. Installation procedures are not covered in the official plans set.

CUTTING TEMPLATE



CZNC-5B ELEVATOR TRIM CONTROL ARM ASSEMBLY

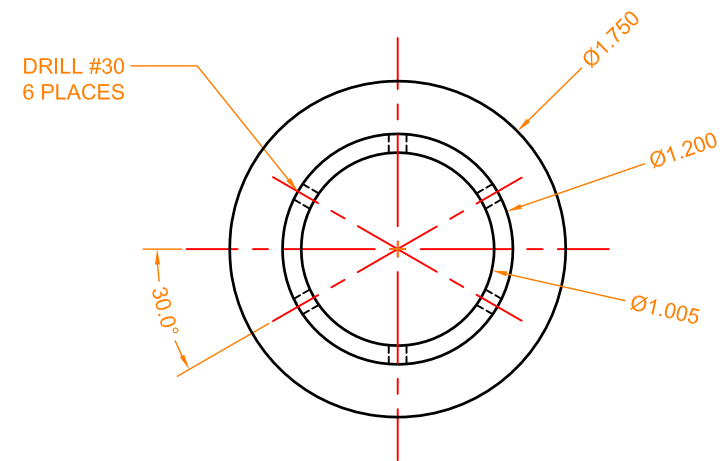
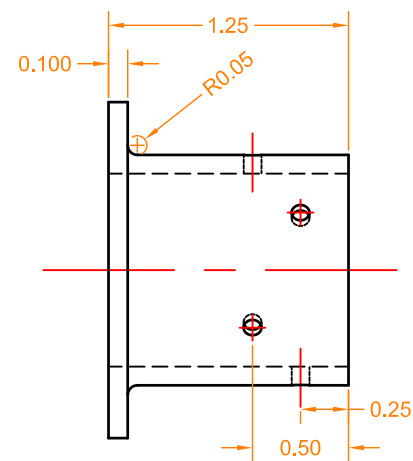


This component is an alternate design for the CZNC-5A.
Installation procedures are not covered in the official plans set.

CZNC-5B-1 ELEVATOR TRIM CONTROL ARM FLANGE

MAKE 1

MATRL: 1.75" DIA. 2024-T3



DRILL TEMPLATE - WRAP AROUND FLANGE

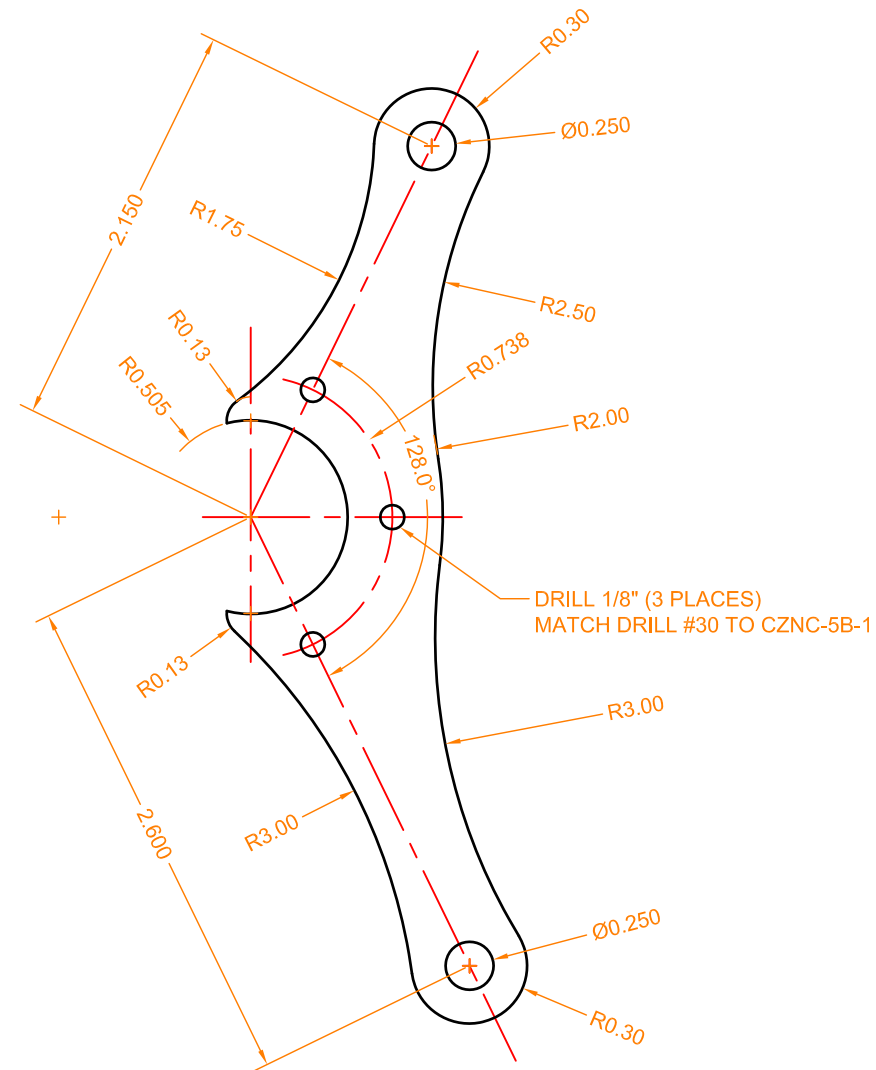


This component is part of an alternate design for the CZNC-5A. Installation procedures are not covered in the official plans set.

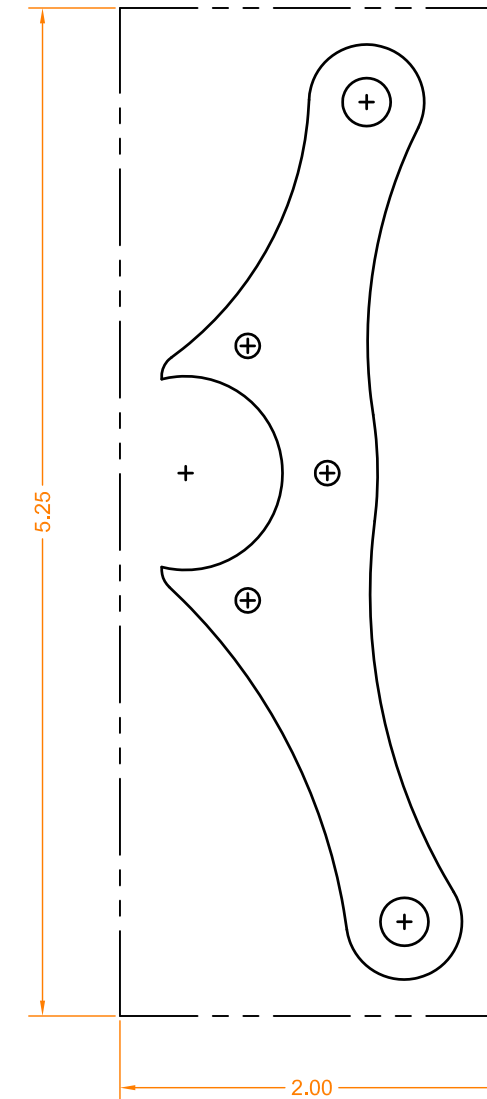
CZNC-5B-2 ELEVATOR TRIM CONTROL ARM

MAKE 1

MATRL: 0.125" 2024-T3



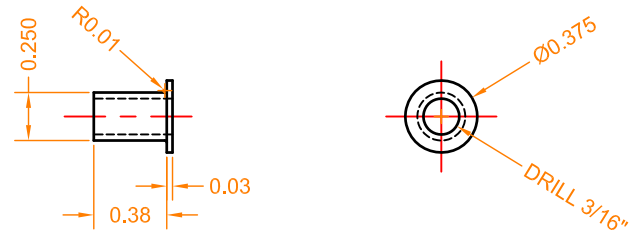
CUTTING TEMPLATE



This component is part of an
alternate design for the CZNC-5A.
Installation procedures are not
covered in the official plans set.

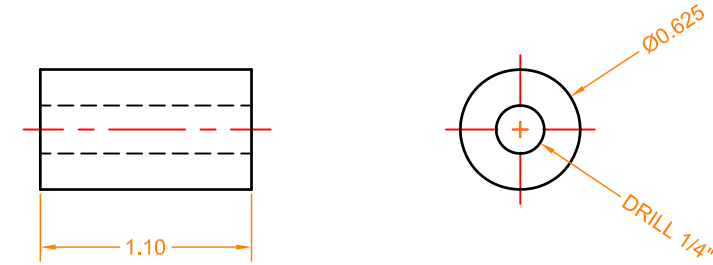
CN-2 BUSHING

MATRL: 0.375" 4130N or 1020 STEEL ROD
(2 REQ'D)



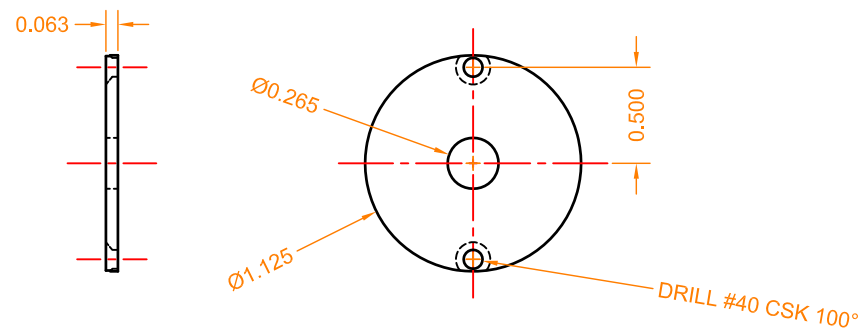
CNL BUSHING

MATRL: 0.625" DIA. 2024-T3 or 6061-T6
(2 REQ'D)



LIFT TAB NUT PLATE MOUNT

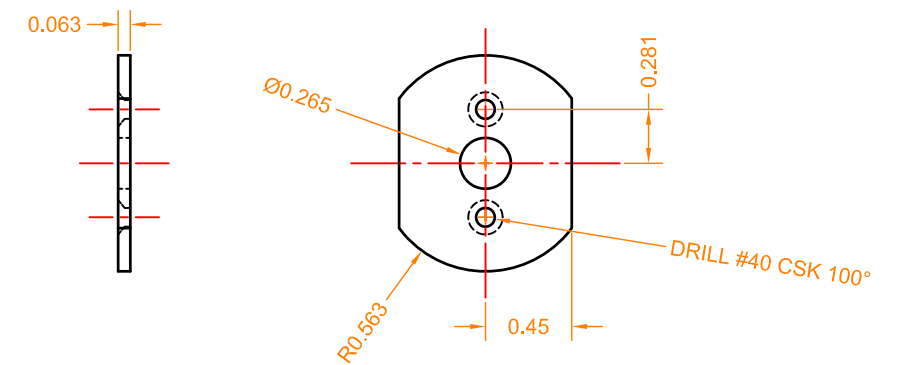
MATRL: AN970-4 WASHER
(FOR K1000-4 ANCHOR NUT)
(2 REQ'D)



LIFT TAB NUT PLATE MOUNT

ALTERNATE DESIGN

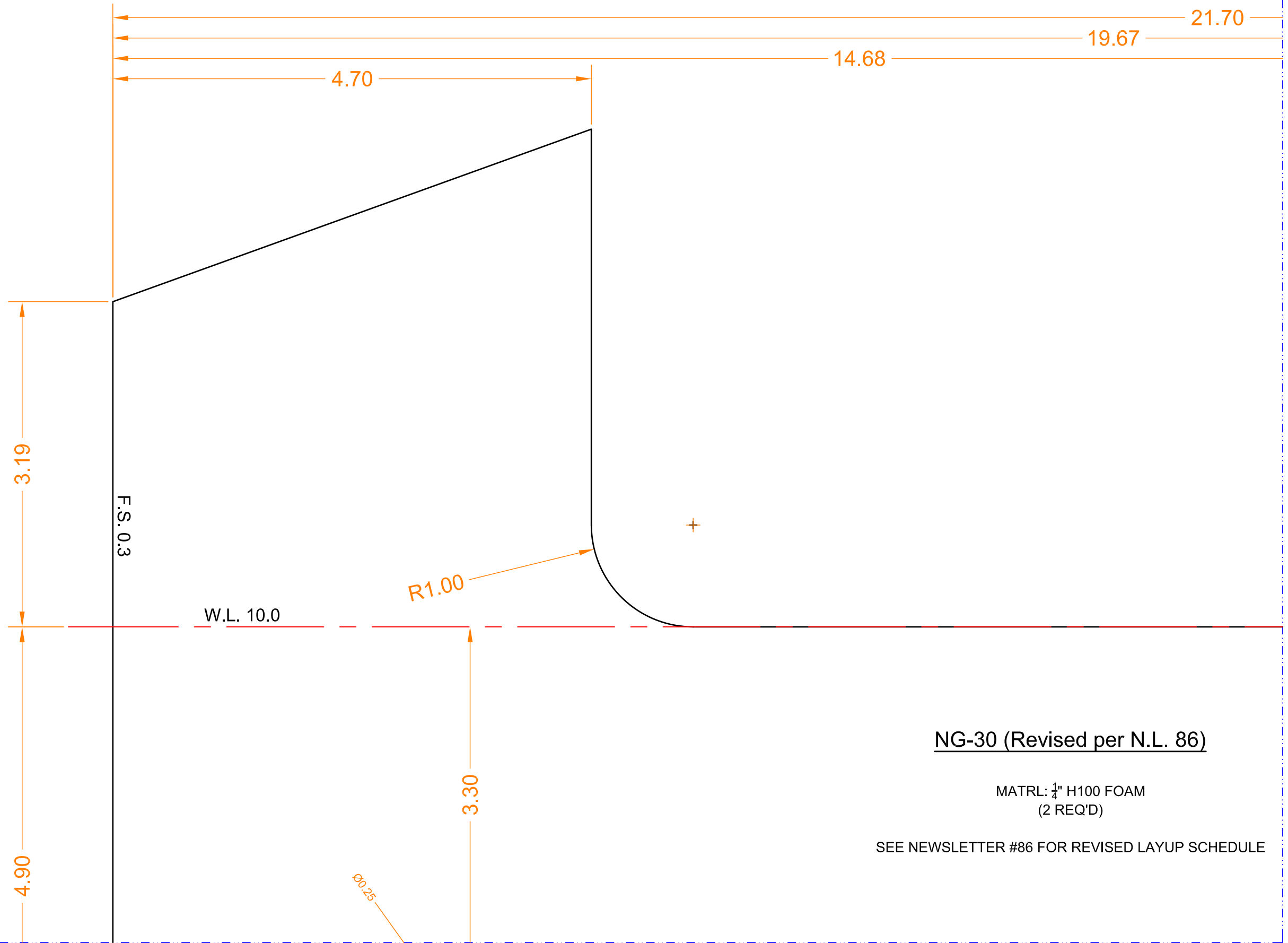
MATRL: AN970-4 WASHER
(FOR MK1000-4 ANCHOR NUT)
(2 REQ'D)



This line is 15.20" long

Sheet - 68-1 Rev. 1.2 October 12, 2015

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NG-30 (Revised per N.L. 86)

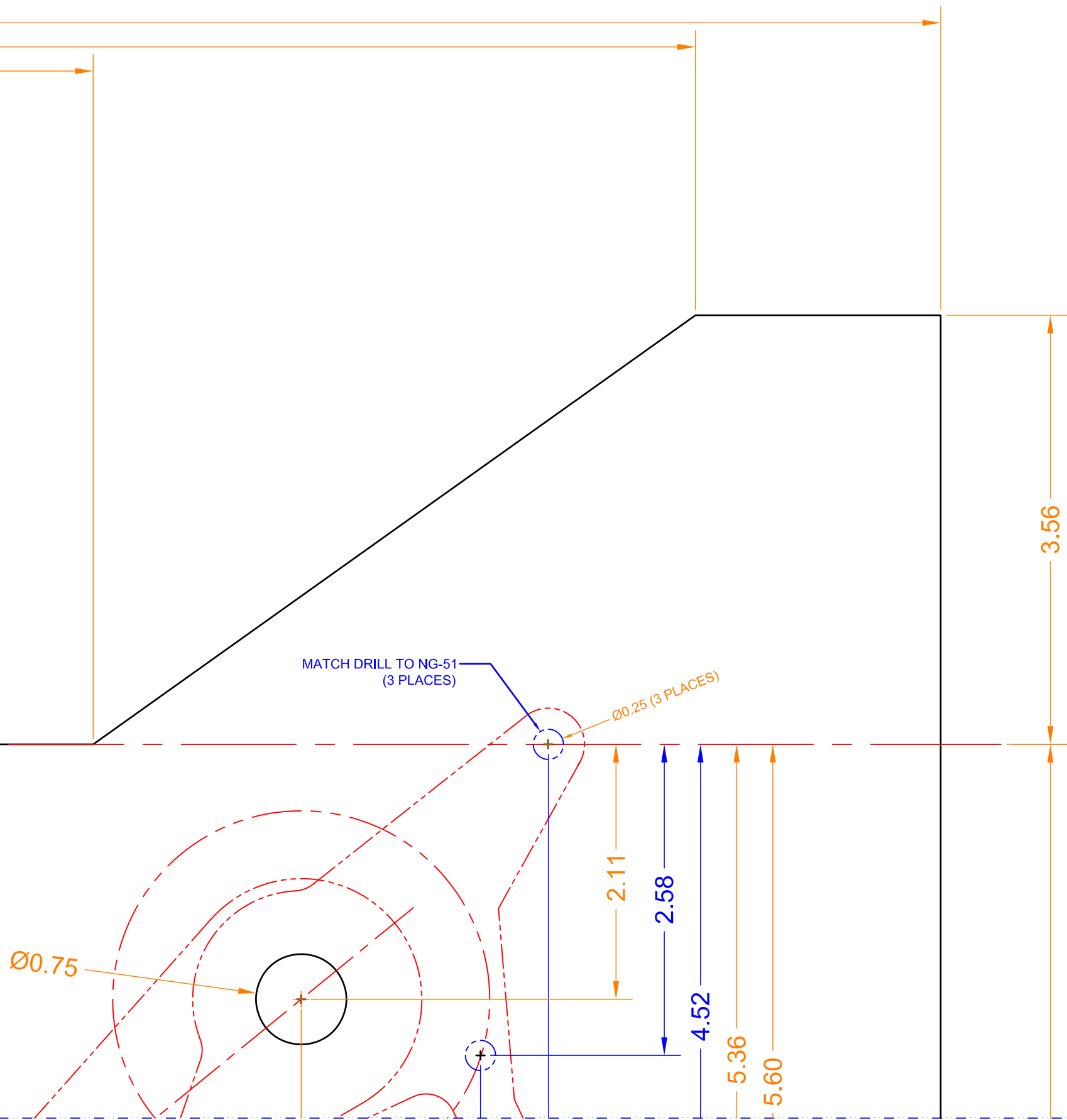
MATRL: 1/4" H100 FOAM
(2 REQ'D)

SEE NEWSLETTER #86 FOR REVISED LAYUP SCHEDULE

This line is 10.50" long

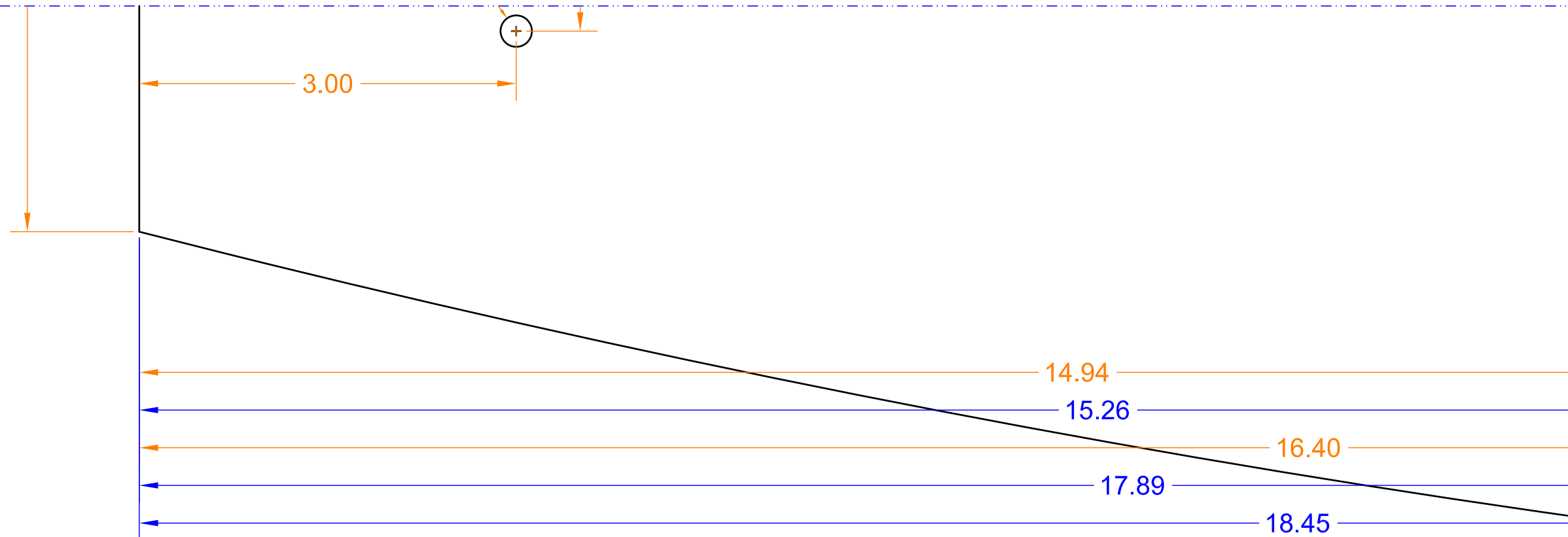
This line is 15.20" long

This line is 10.50" long



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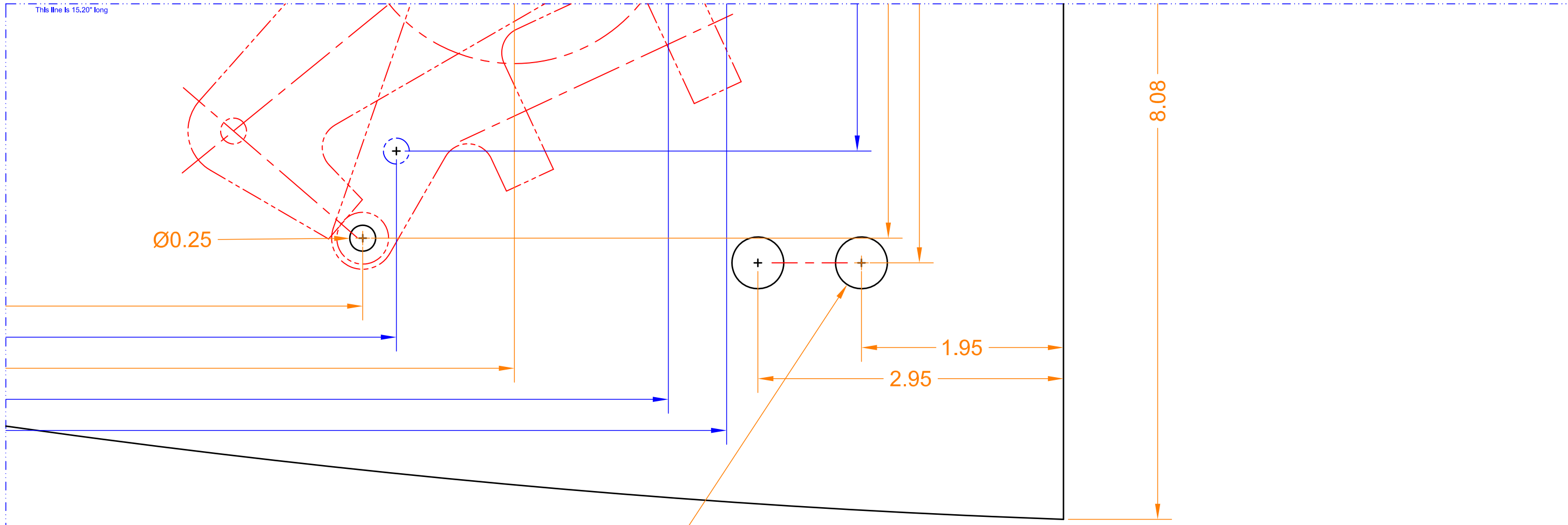
This line is 15.20" long



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This line is 10.50" long

This line is 15.20" long



$\text{Ø}0.25$

8.08

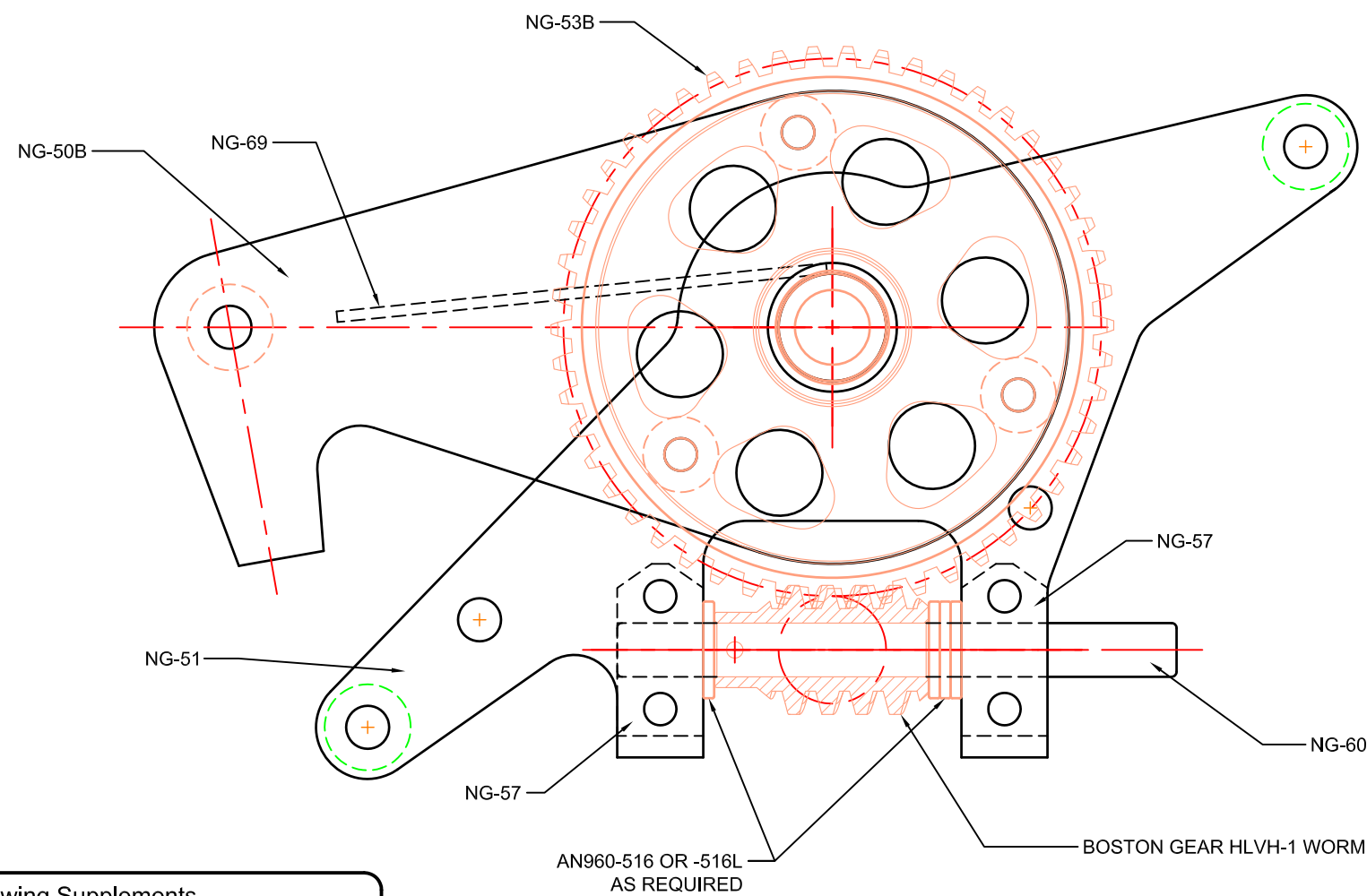
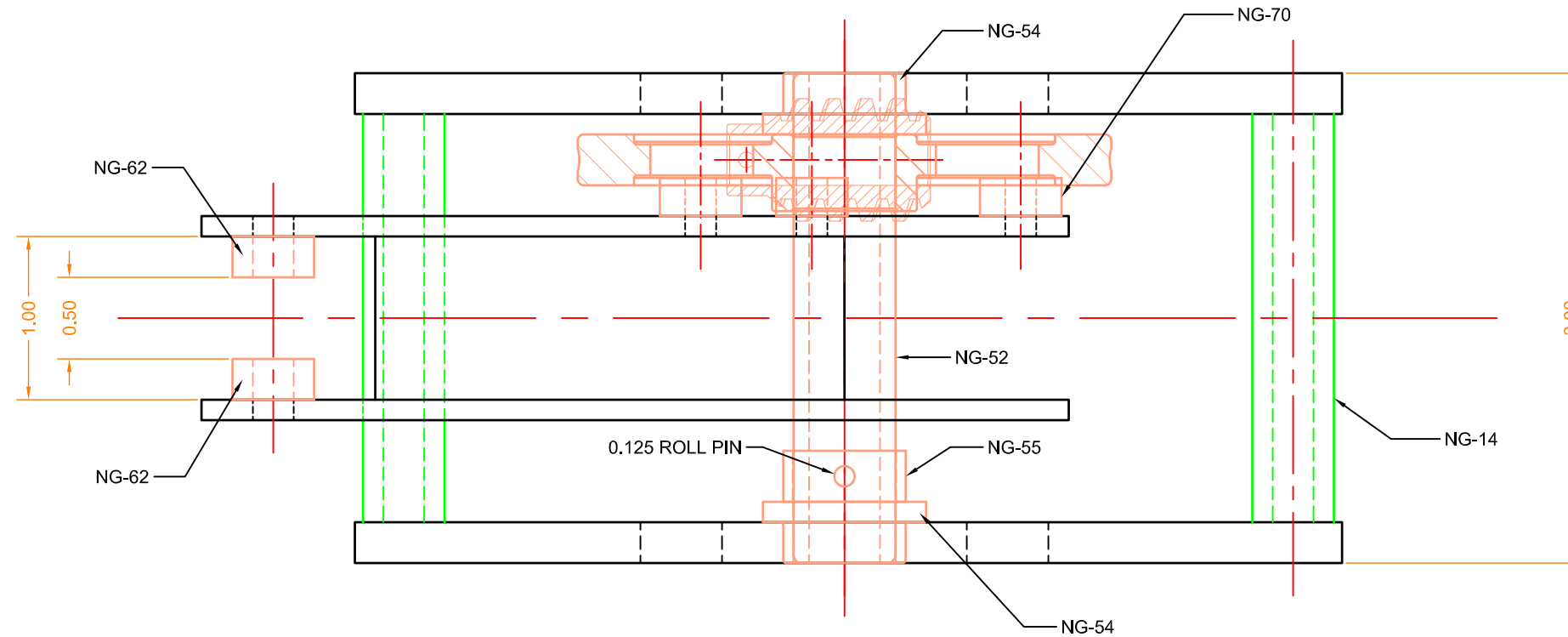
1.95

2.95

$\text{Ø}0.50$ (2 PLACES)

This line is 10.50" long

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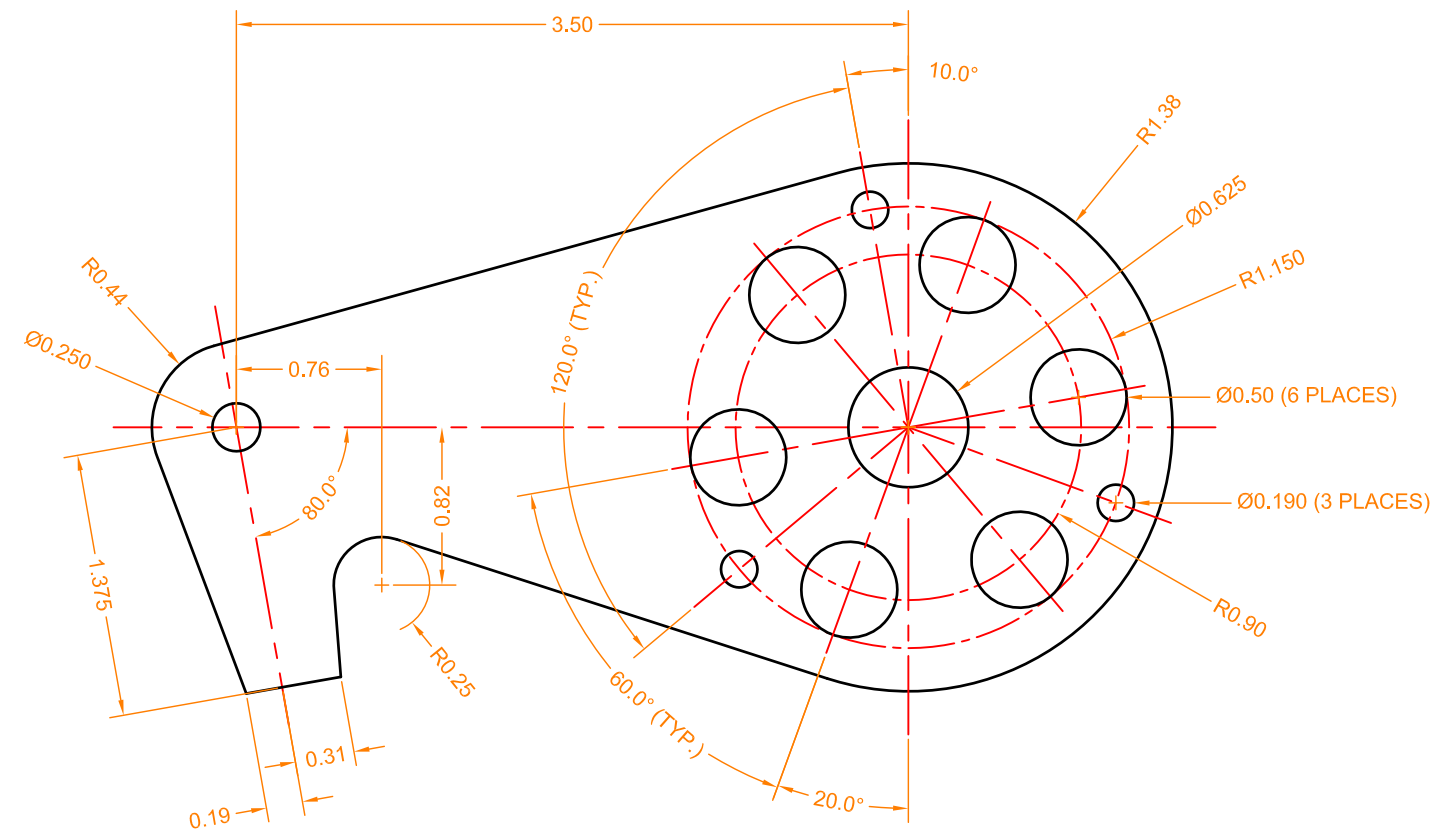


Cozy Mark IV 'M' Drawing Supplements
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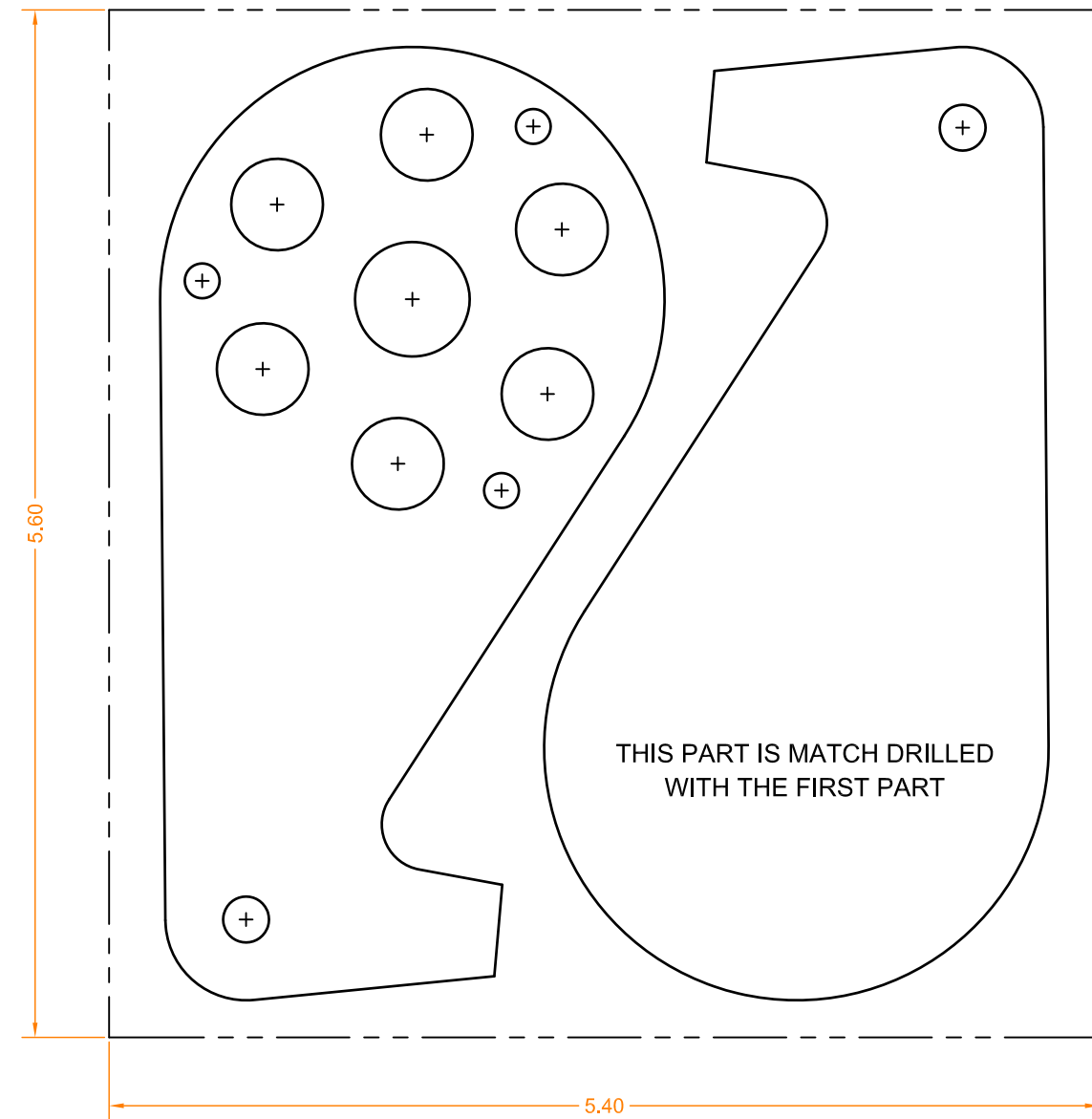
This line is 15.20" long

NG-50B ACTUATOR ARM

MATRL: 0.125" 4130N or 1020 STEEL
(2 REQ'D)



CUTTING TEMPLATE

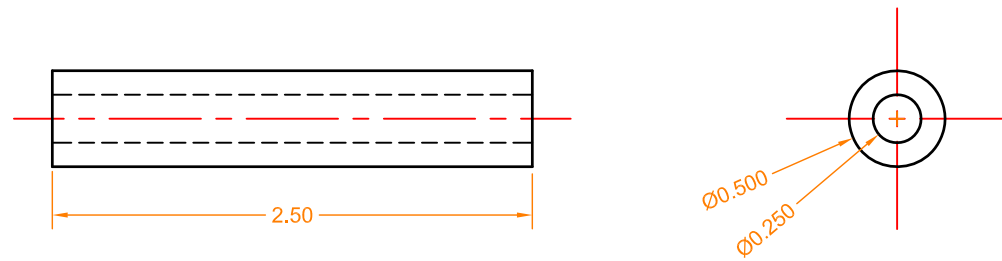


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This line is 10.50" long

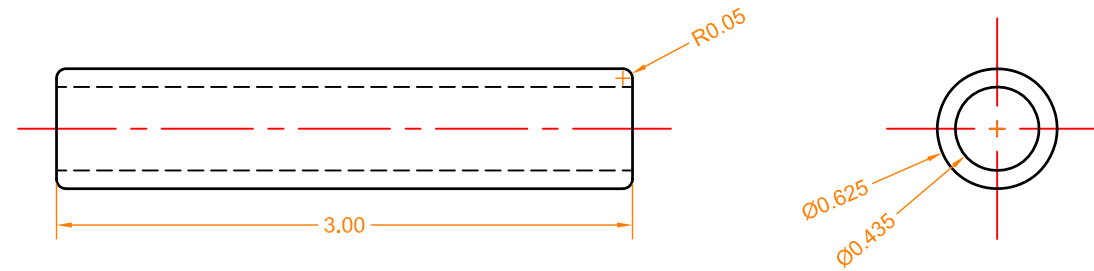
NG-14 SPACER

MATRL: 1/2" 2024-T3 OR 6061-T6 ALUM. ROD
(2 REQ'D)



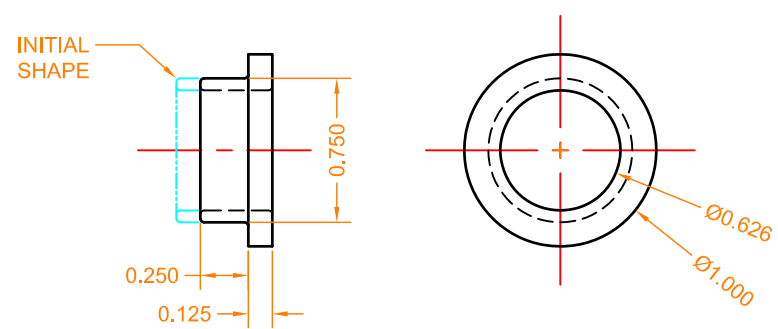
NG-52 SHAFT

MATRL: 5/8" O.D. x 0.095" W.T. 4130N TUBING
(1 REQ'D)



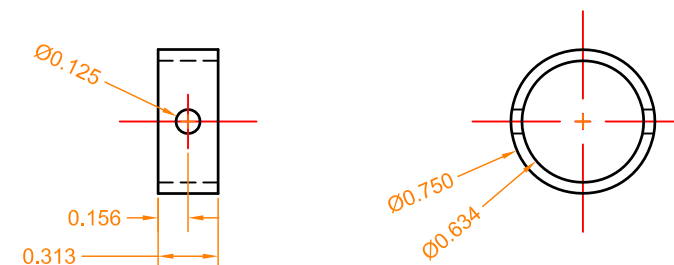
NG-54 Bearing

MATRL: FB1012-4 OILITE BUSHING
(2 REQ'D)



NG-55 COLLAR

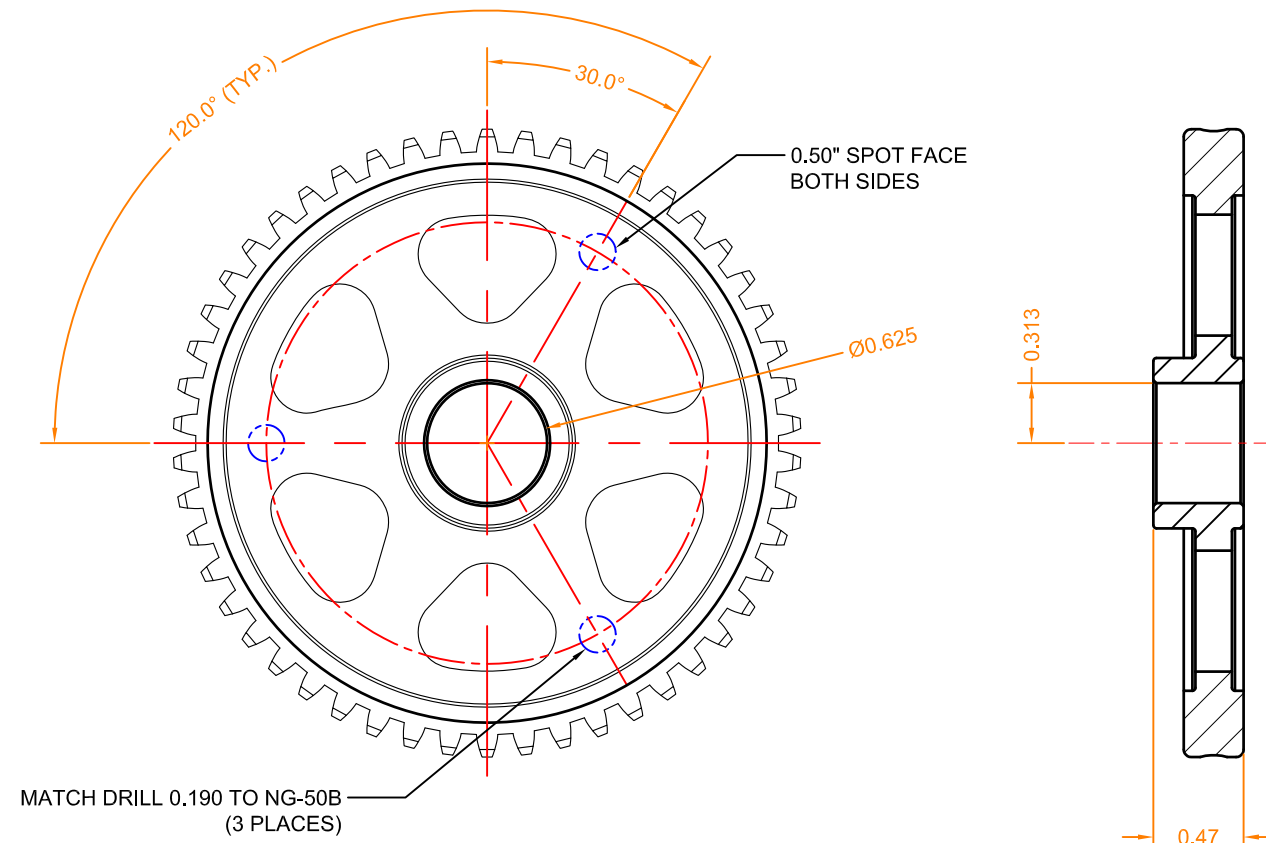
MATRL: 3/4" O.D. x 0.058" W.T. 4130N STEEL
(1 REQ'D)



NG-53B WORM GEAR

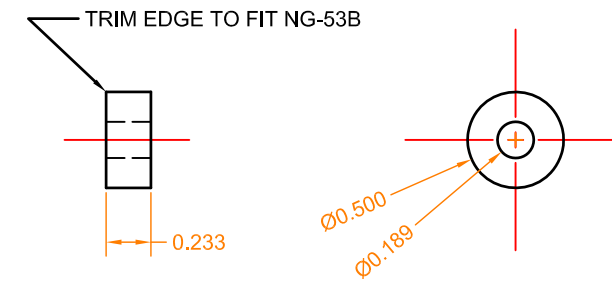
MATRL: BOSTON GEAR D1145 BRONZE WORM GEAR

MACHINE HUB AS SHOWN
WEB HOLES ARE MATCH DRILLED TO NG-50B
(1 REQ'D)



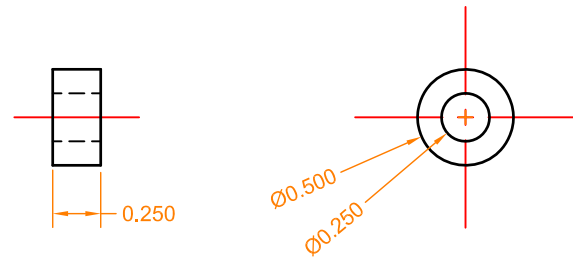
NG-70 SPACER

MATRL: 1/2" 2024-T3 ALUM. ROD
(3 REQ'D)



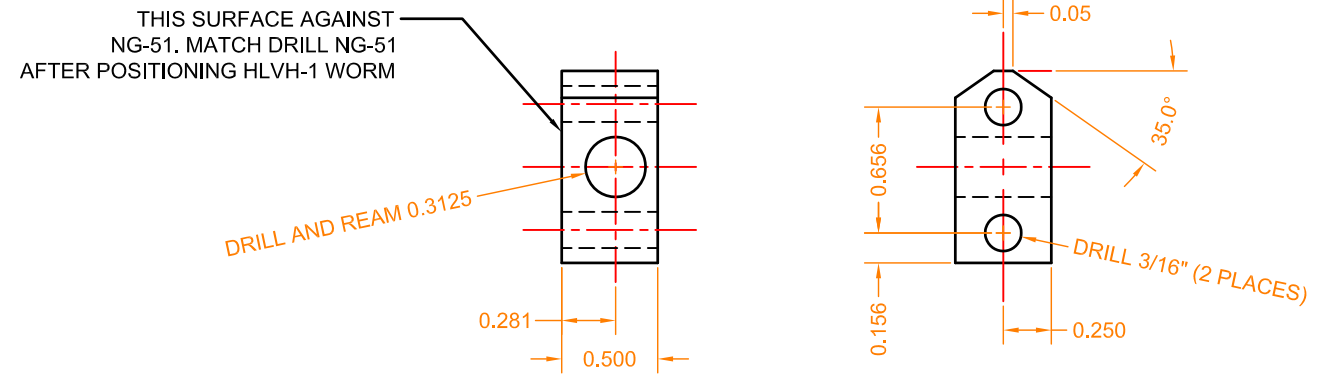
NG-62 SPACER

MATRL: 1/2" 2024-T3 ALUM. ROD
(2 REQ'D)



NG-57 BEARING BLOCK

MATRL: 1/2" sq. 2024-T3 ALUM. BAR
(2 REQ'D)



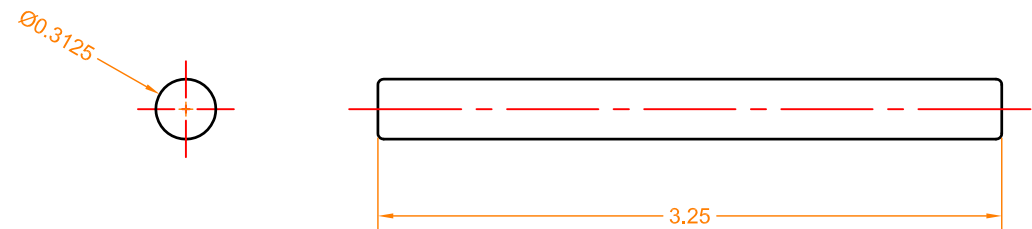
NG-69 SHEAR PLATE

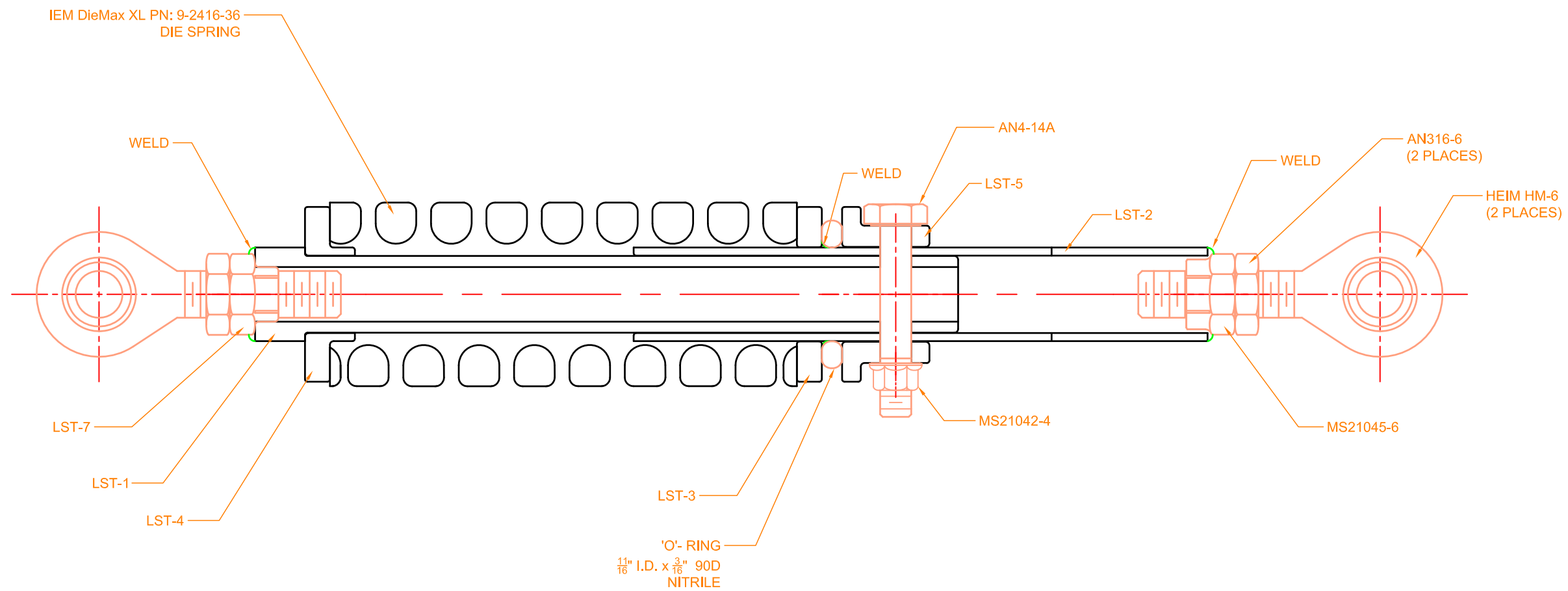
MATRL: 0.063" 4130N or 1020 STEEL
(1 REQ'D)



NG-60 SHAFT

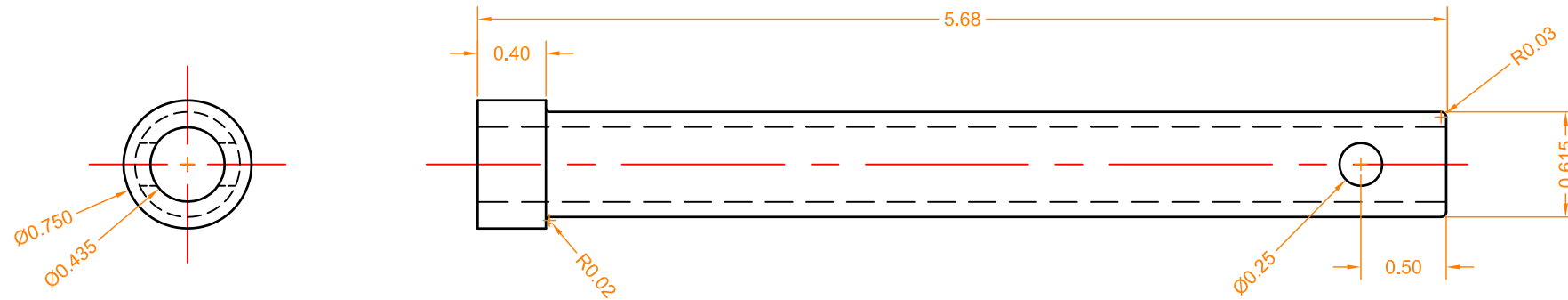
MATRL: 0.3125" DIA. DRILL ROD
(1 REQ'D)





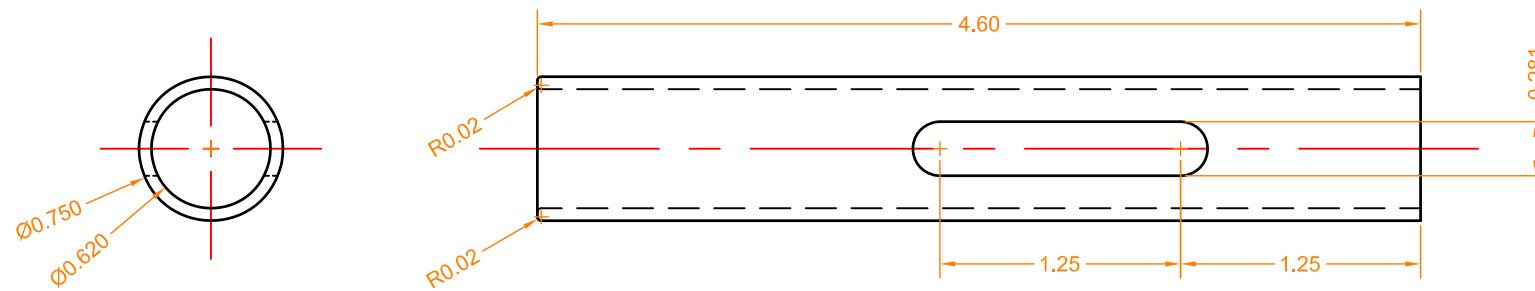
LST-1 INNER SHOCK STRUT

MATRL: $\frac{3}{4}$ " O.D. x 0.156" W.T. 4130N TUBING
(1 REQ'D)



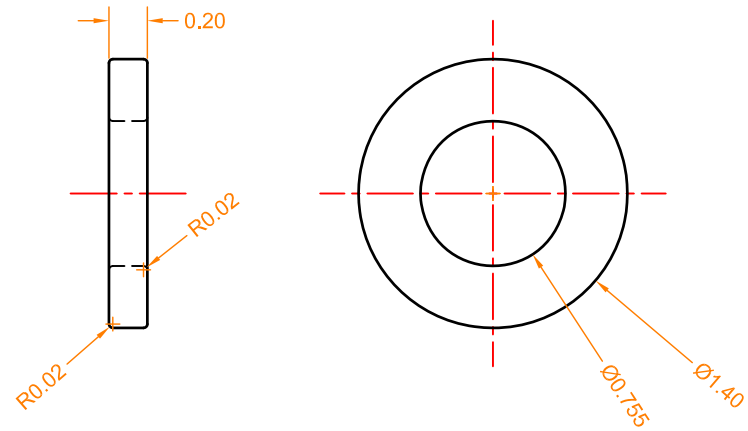
LST-2 OUTER SHOCK STRUT

MATRL: $\frac{3}{4}$ " O.D. x 0.065" W.T. 4130N TUBING
(1 REQ'D)



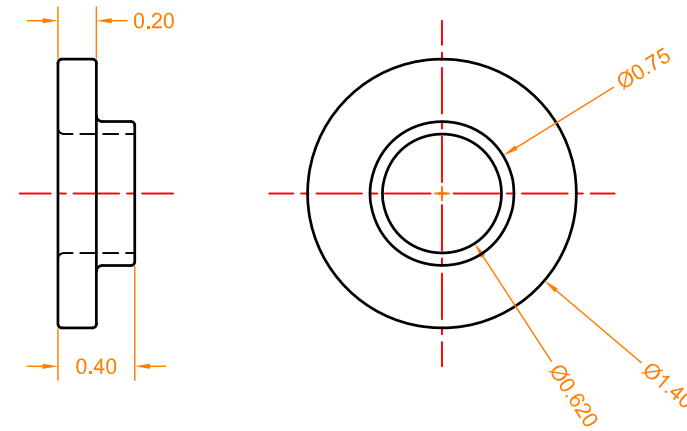
LST-3 WASHER

MATRL: STEEL
(1 REQ'D)



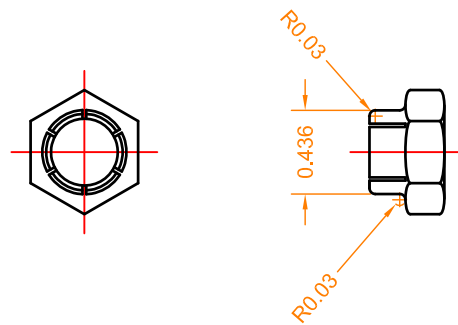
LST-4 FLANGE

MATRL: 1.50" DIA 2024-T3 ALUMINUM
(1 REQ'D)



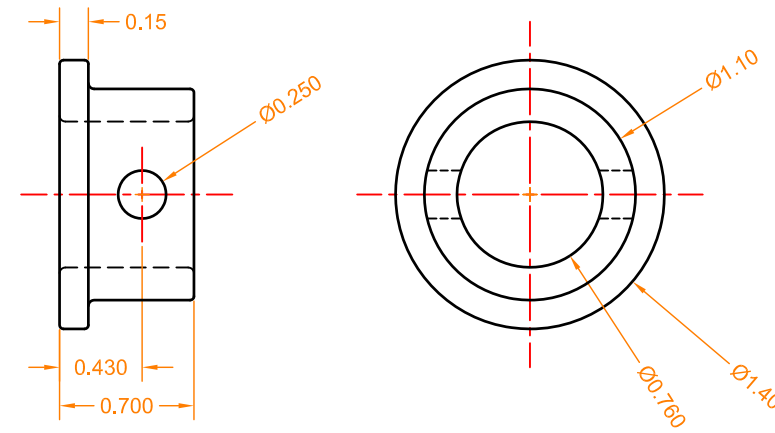
LST-7 END NUT

MATRL: MS21045-6 STOP NUT
(1 REQ'D)



LST-5 FLANGE

MATRL: 1.50" DIA 2024-T3 ALUMINUM
(1 REQ'D)



This line is 15.20" long

W.L. 17.4

LE REFERENCE

WING MOUNTING JIG - TIP
LOCATE AT 130.75 ALONG TE FROM B.L. 31.0
ALIGN PERPENDICULAR TO TE

Cozy Mk IV

W.L. 10.0

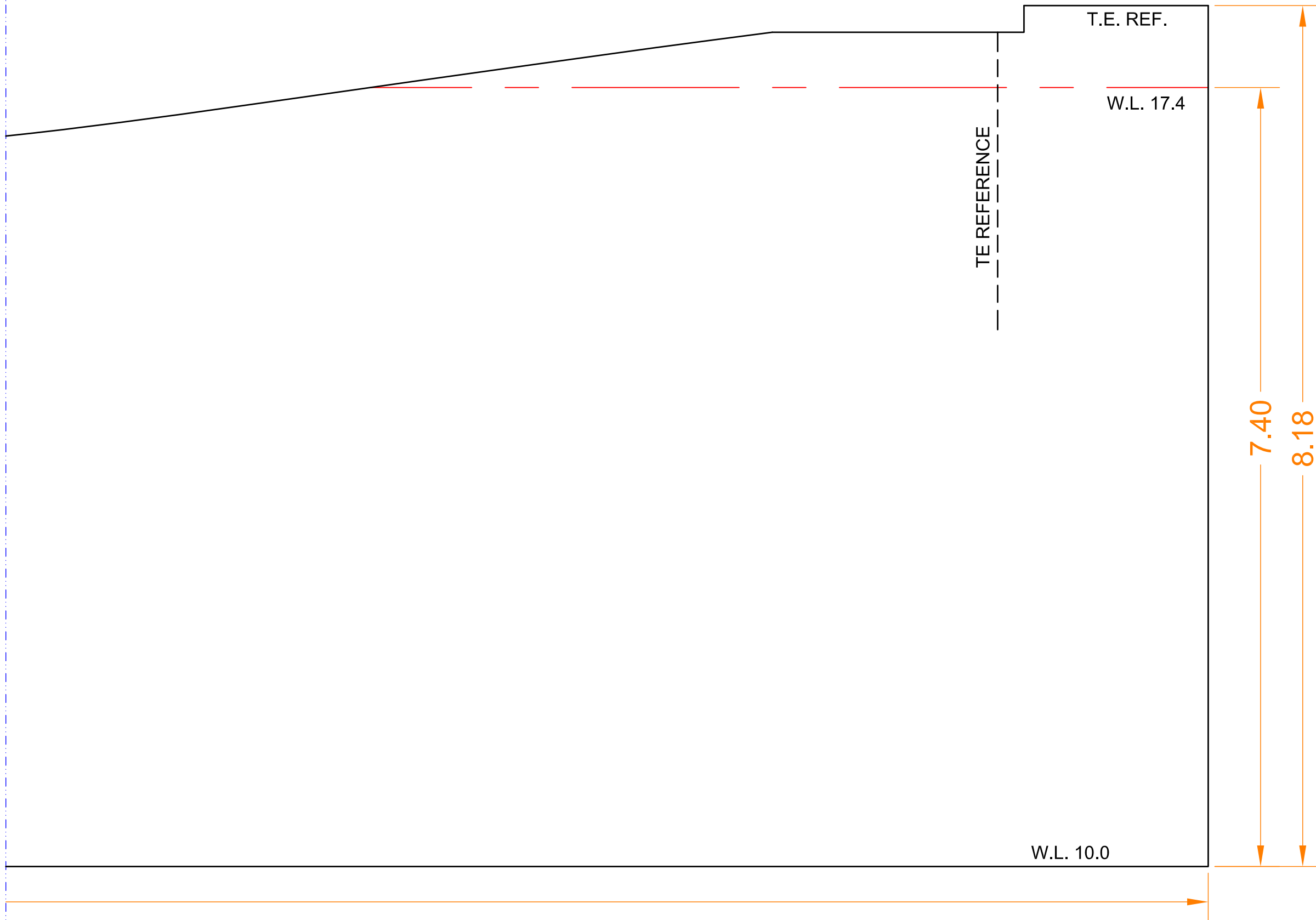
26.00

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Sheet - 83-1 Rev. 1.2 October 24, 2015

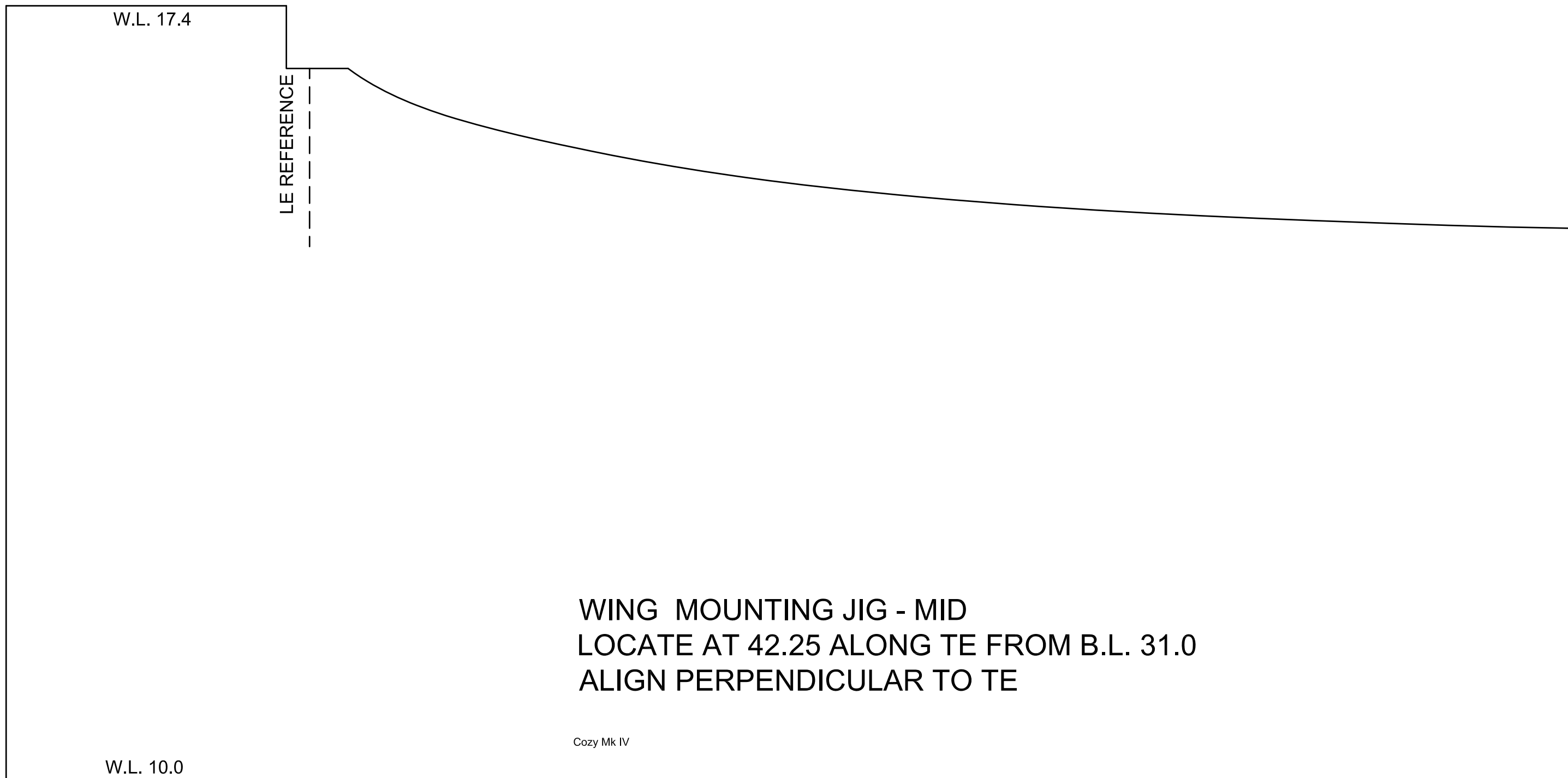
This line is 10.50" long

This line is 15.20" long



This line is 10.50" long

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WING MOUNTING JIG - MID
LOCATE AT 42.25 ALONG TE FROM B.L. 31.0
ALIGN PERPENDICULAR TO TE

Cozy Mk IV

W.L. 10.0

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This line is 15.20" long

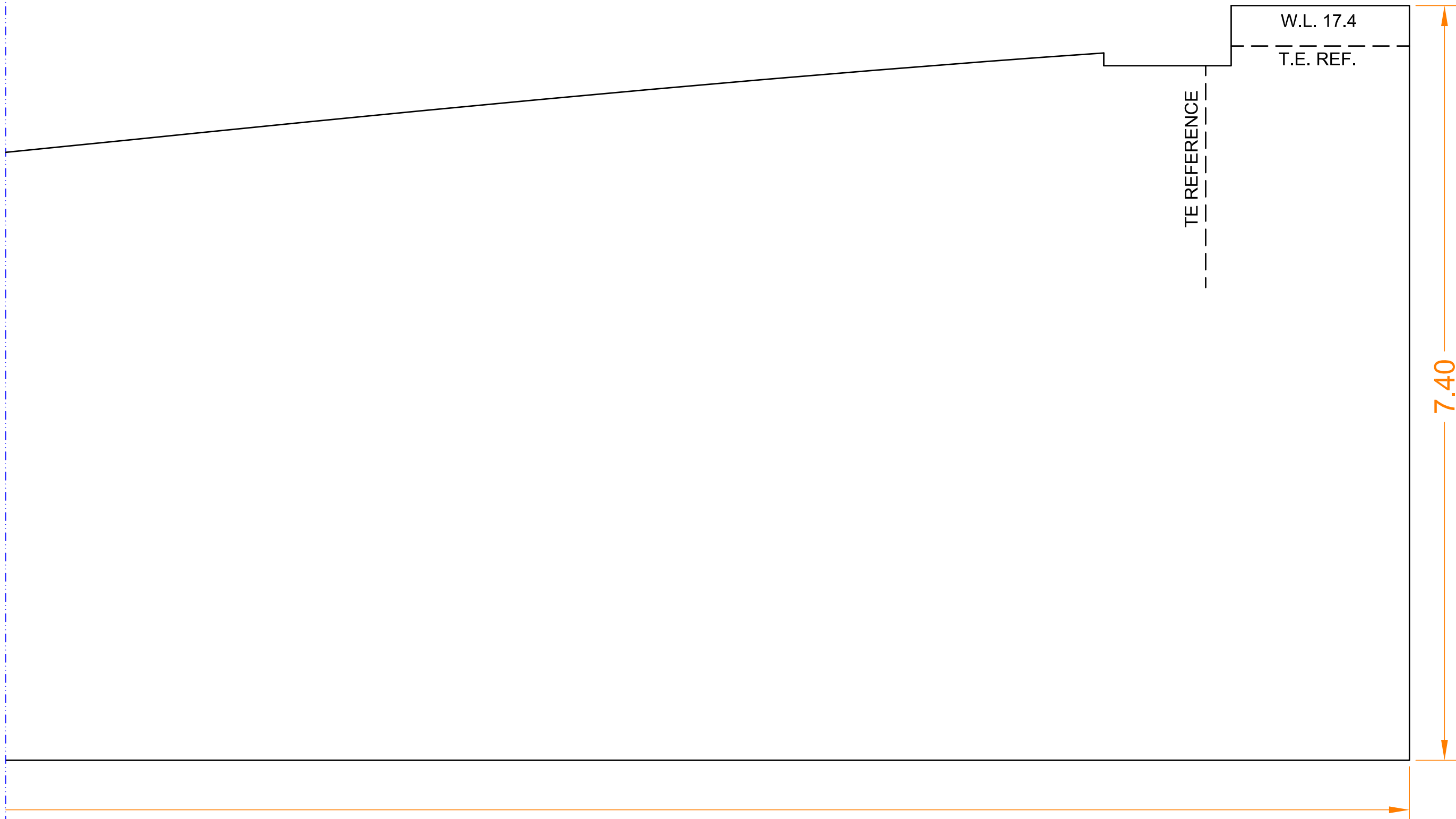
44.00

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Sheet - 84-2 Rev. 1.2 October 24, 2015

This line is 10.50" long

This line is 15.20" long

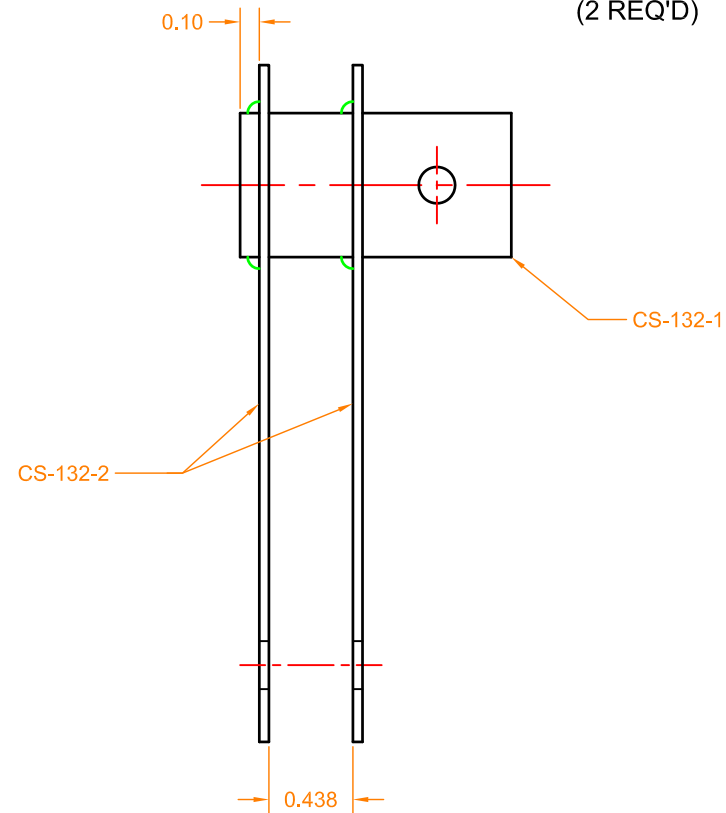


This line is 10.50" long

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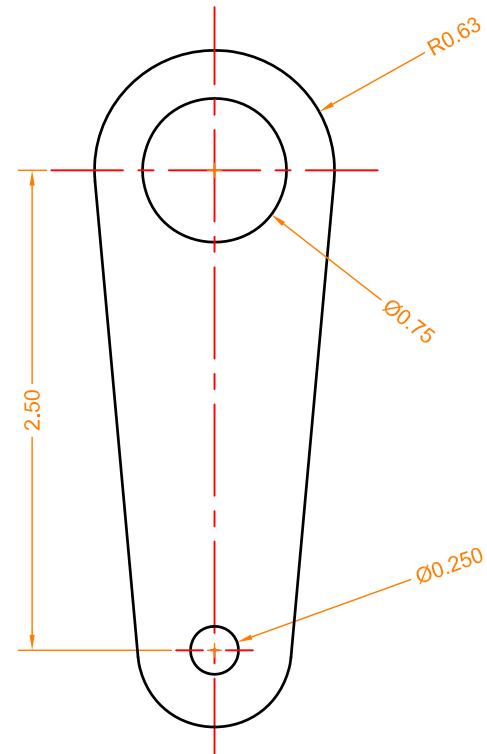
CS-132 CONTROL ARM

REVISED FOR HM-4 ROD END
(2 REQ'D)



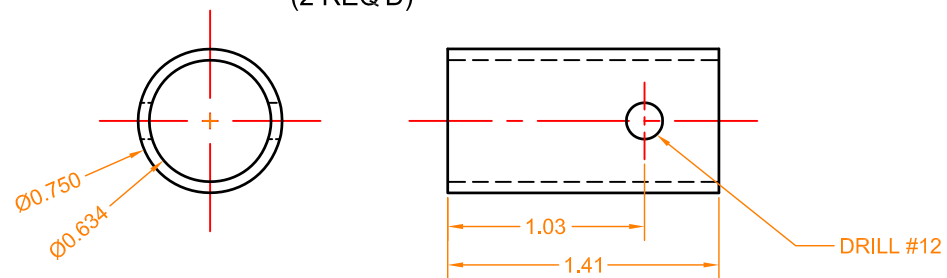
CS-132-2 ARM

MATRL: 0.050" 4130N
(4 REQ'D)

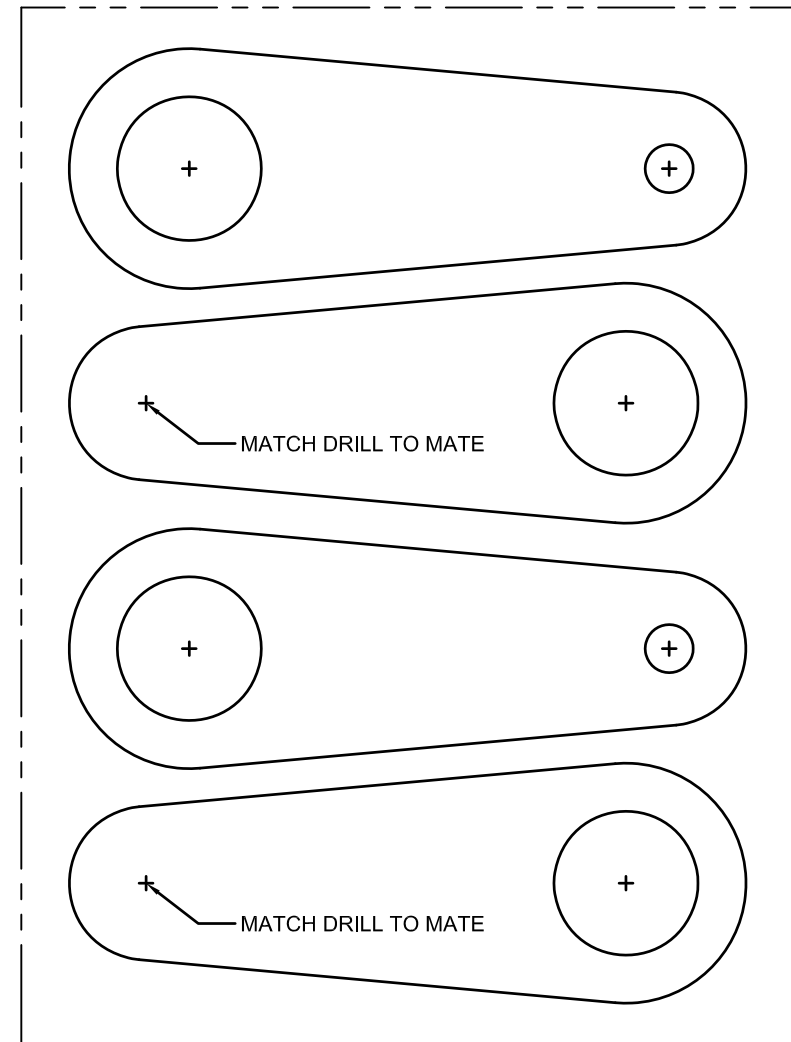


CS-132-1 SLEEVE

MATRL: 3/4" O.D. x 0.058" W.T. 4130N TUBING
(2 REQ'D)

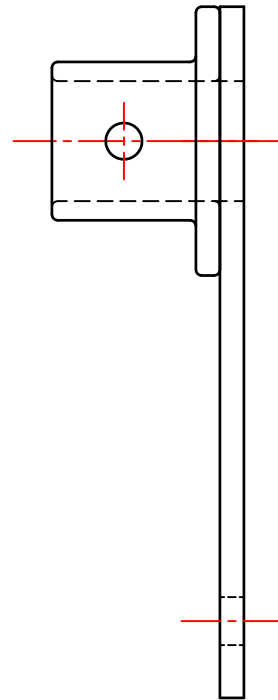


CUTTING TEMPLATE



CS-132B CONTROL ARM

REVISED FOR HM-4 ROD END
(2 REQ'D)



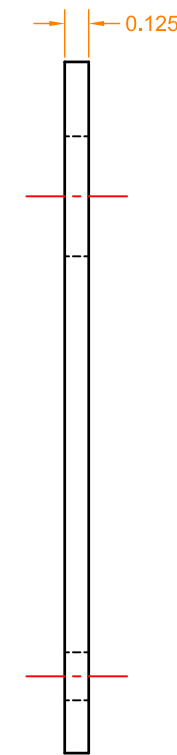
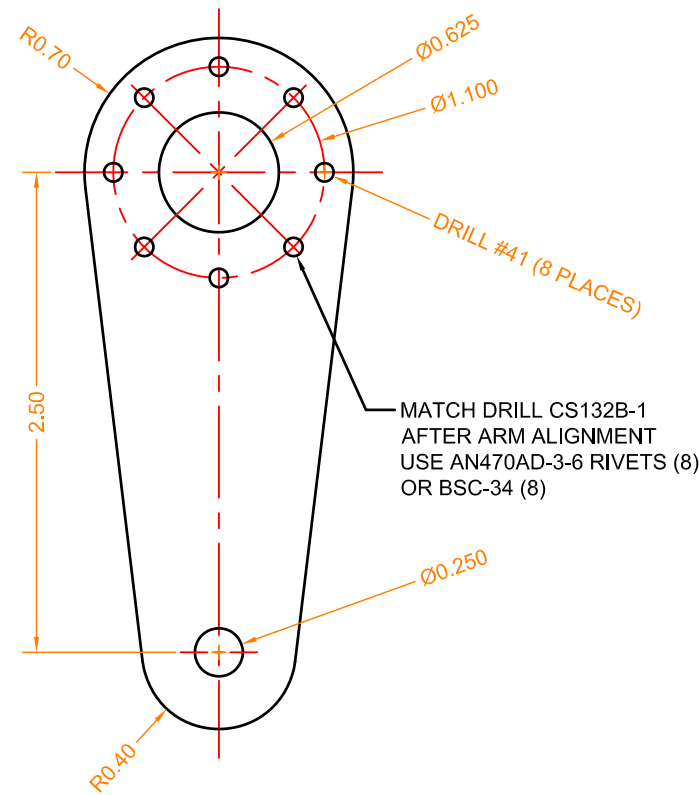
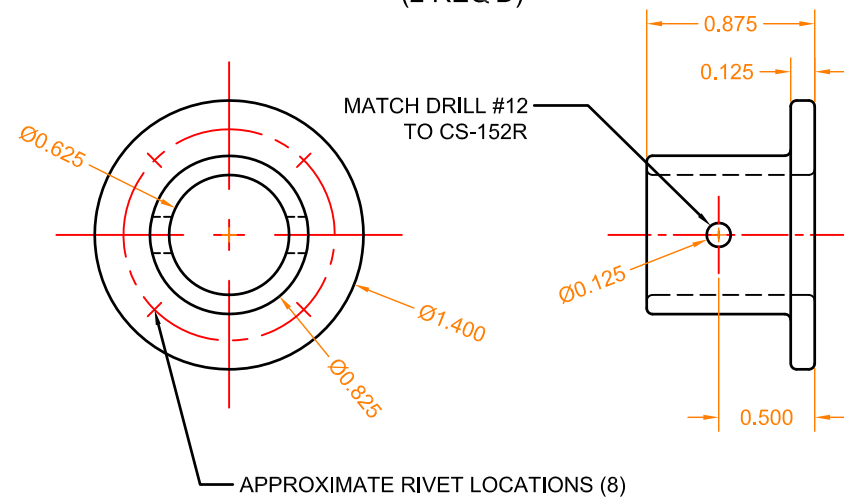
This component is part of an alternate design for the CS-132. Installation procedures are not covered in the official plans set.

CS-132B-2 CONTROL ARM

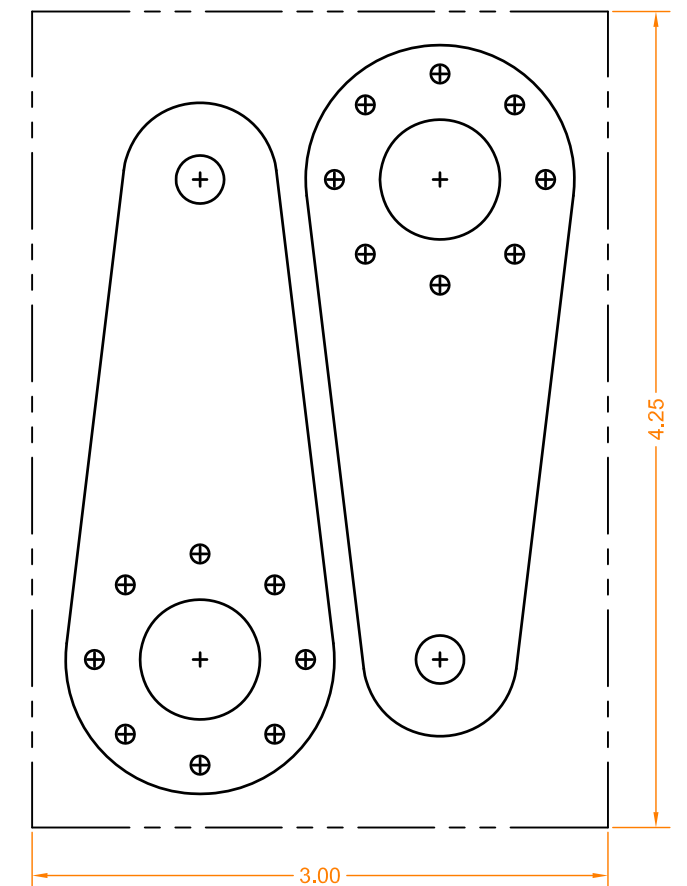
MATRL: 0.125" 2024-T3 ALUMINUM
(2 REQ'D)

CS-132B-1 FLANGE

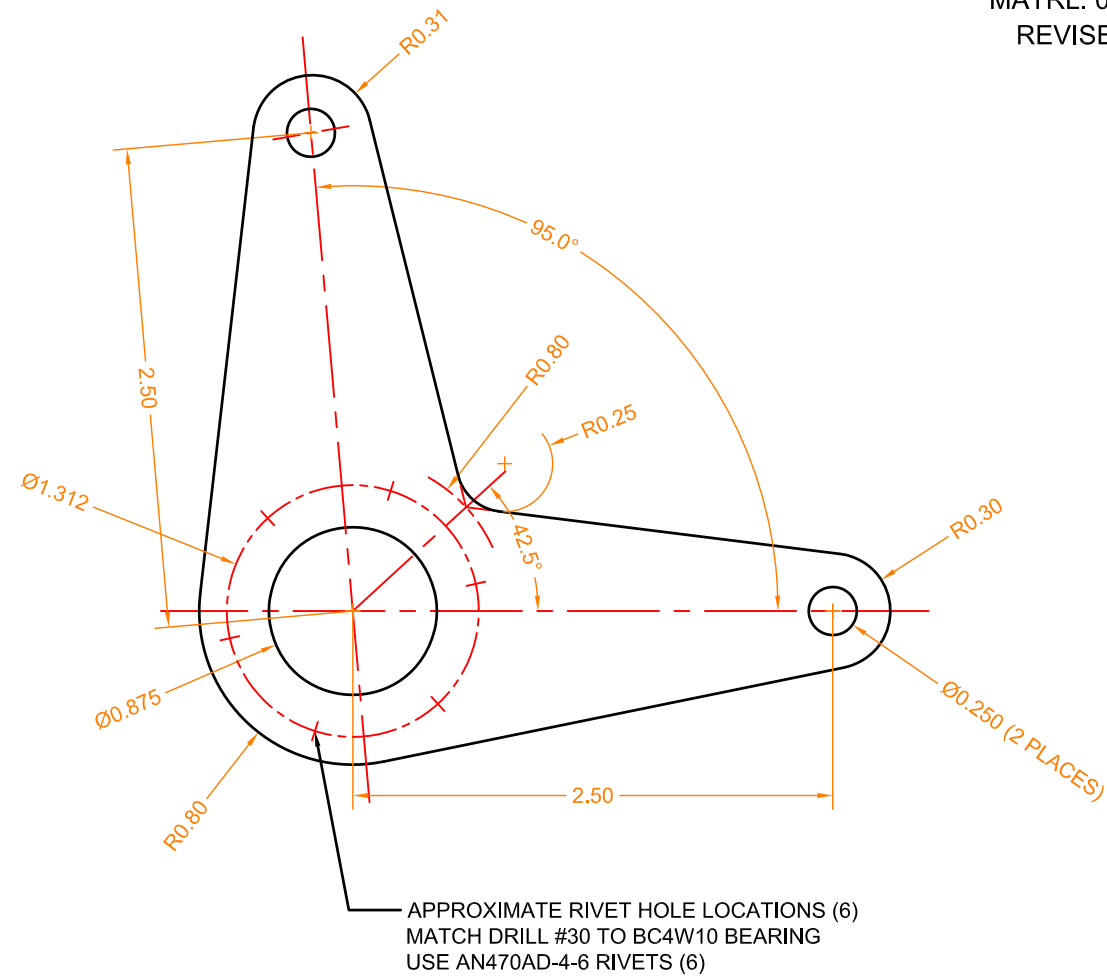
MATRL: 1.50" DIA 2024-T3 OR
6061-T6 ALUMINUM
(2 REQ'D)



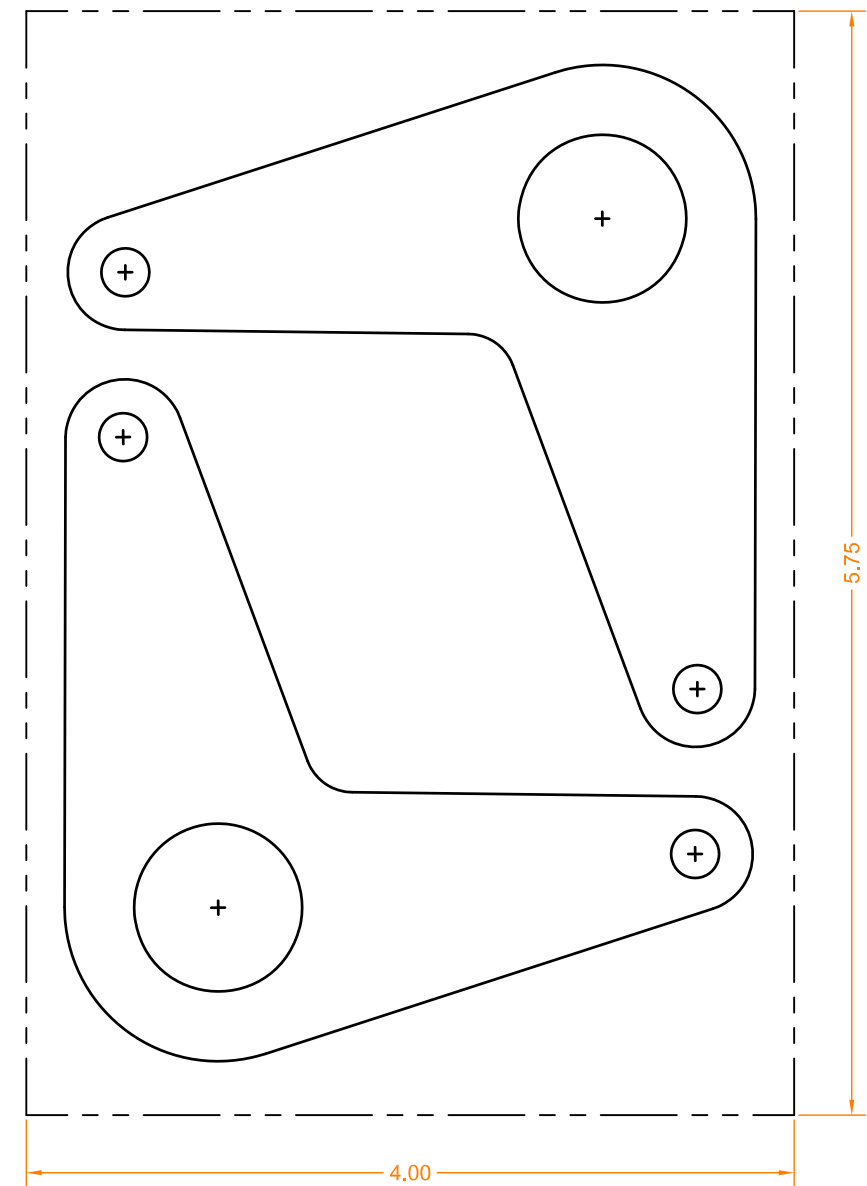
CUTTING TEMPLATE



CS-128 BELLCRANK
 MATRL: 0.125" 2024-T3 ALUMINUM
 REVISED FOR HM-4 ROD END
 (2 REQ'D)



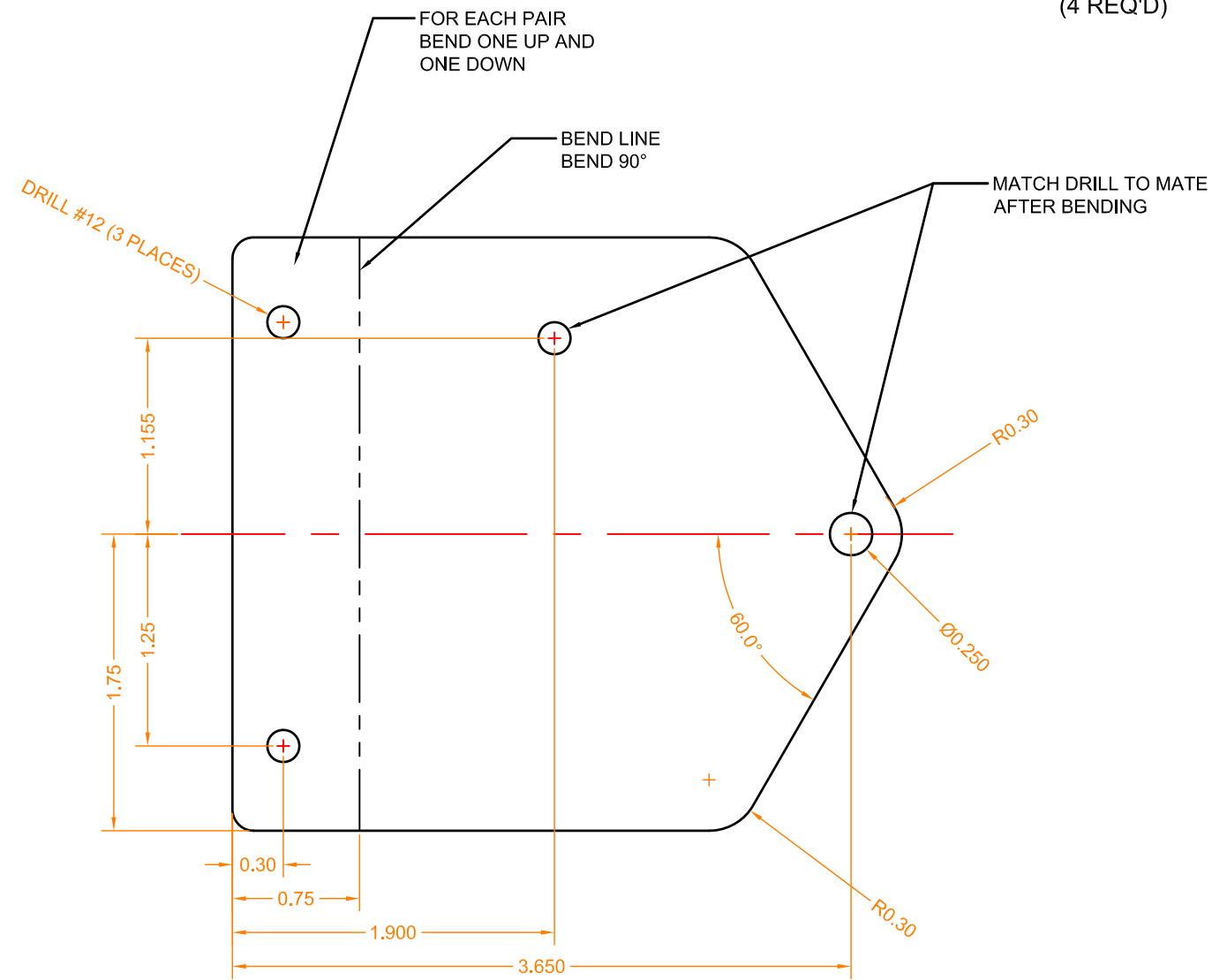
CUTTING TEMPLATE



This line is 15.20" long

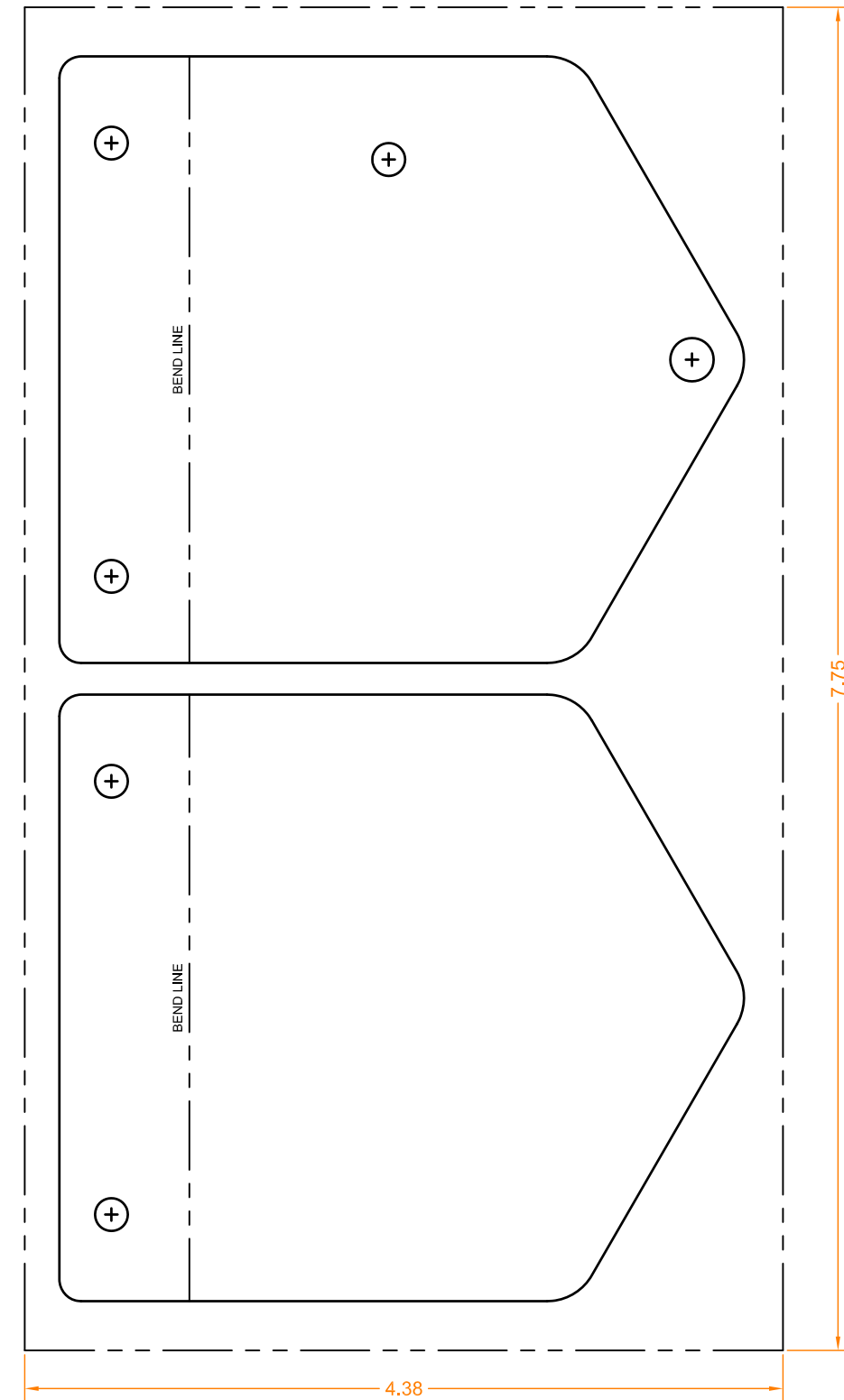
CS-127 BRACKET

MATRL: 0.032" 2024-T3 ALUMINUM
(4 REQ'D)



ADDITIONAL CUTTING TEMPLATE
ON SHEET 92

CUTTING TEMPLATE

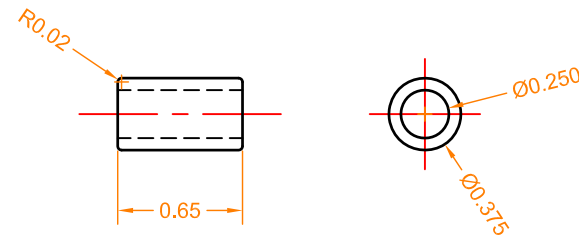


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This line is 10.50" long

CS-131 SPACER

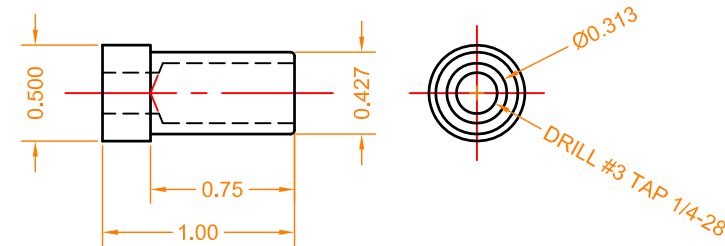
MATRL: $\frac{3}{8}$ " O.D. x 0.065" W.T. 4130N TUBING
(2 REQ'D)



CS-1A THREADED INSERT

(USED FOR MB-4 ROD ENDS)

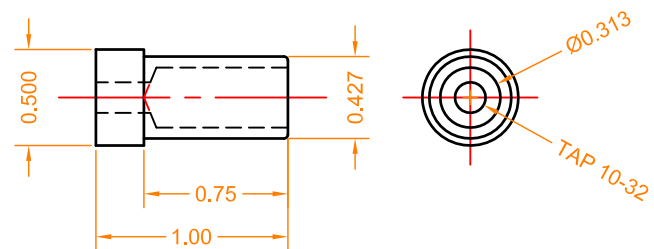
MATRL: $\frac{1}{2}$ " DIA. 4130N ROD
(14 REQ'D)



CS-50 THREADED INSERT

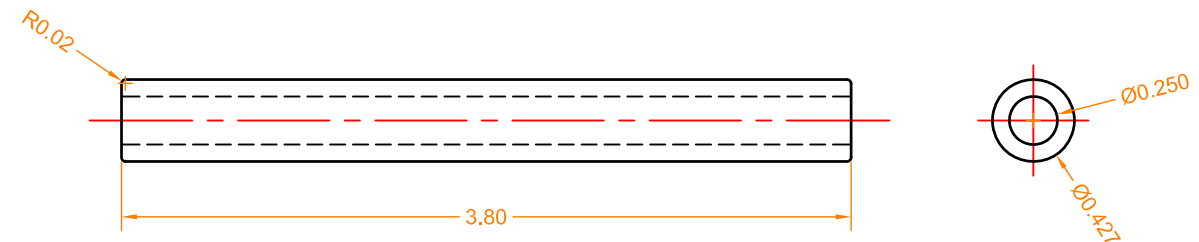
(NOT USED FOR MB-4 ROD ENDS)

MATRL: $\frac{1}{2}$ " DIA. 4130N ROD
(10 REQ'D)



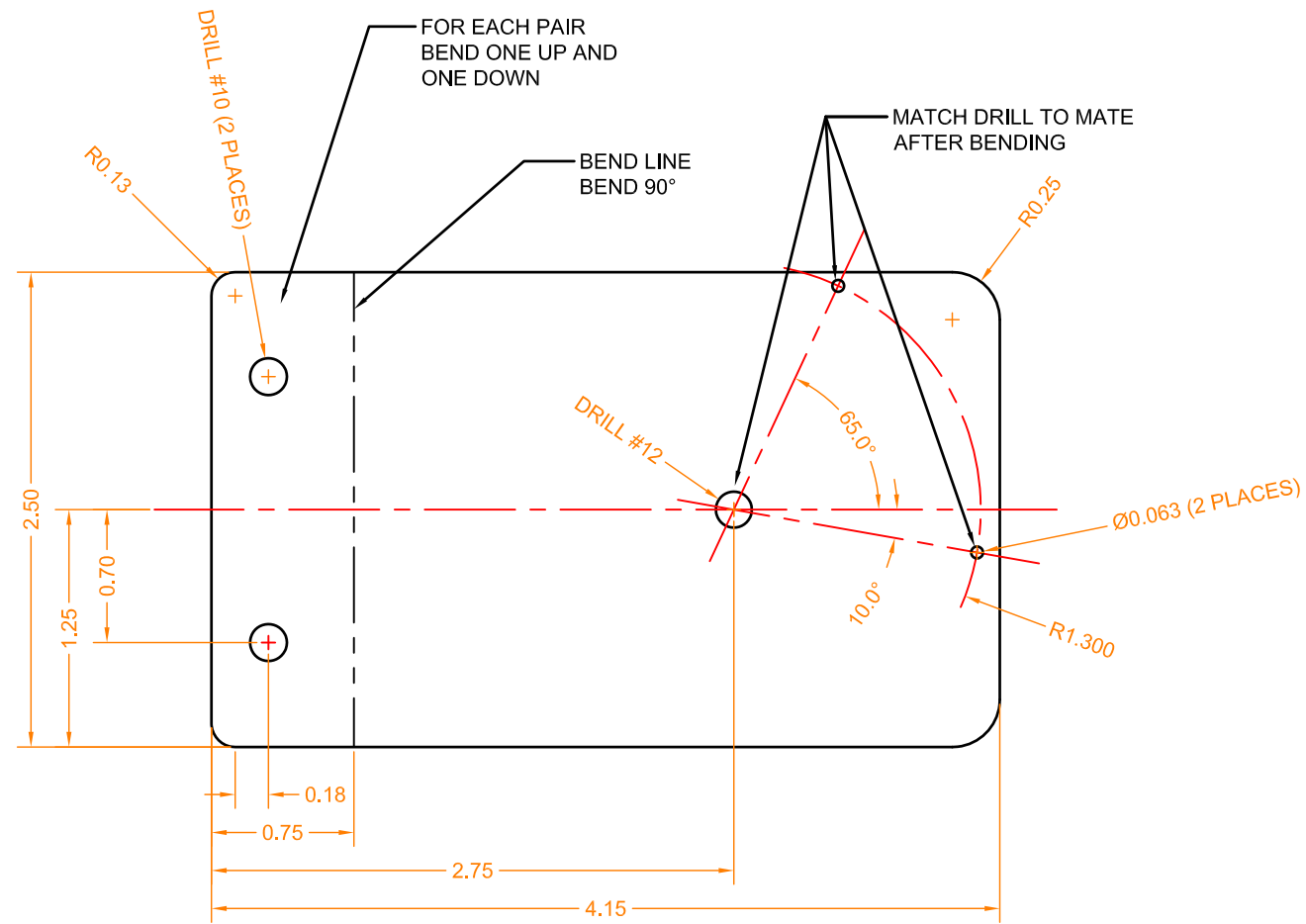
CS-181 QUICK DISCONNECT

MATRL: 0.500" O.D. 2024-T3 ROD
(4 REQ'D)



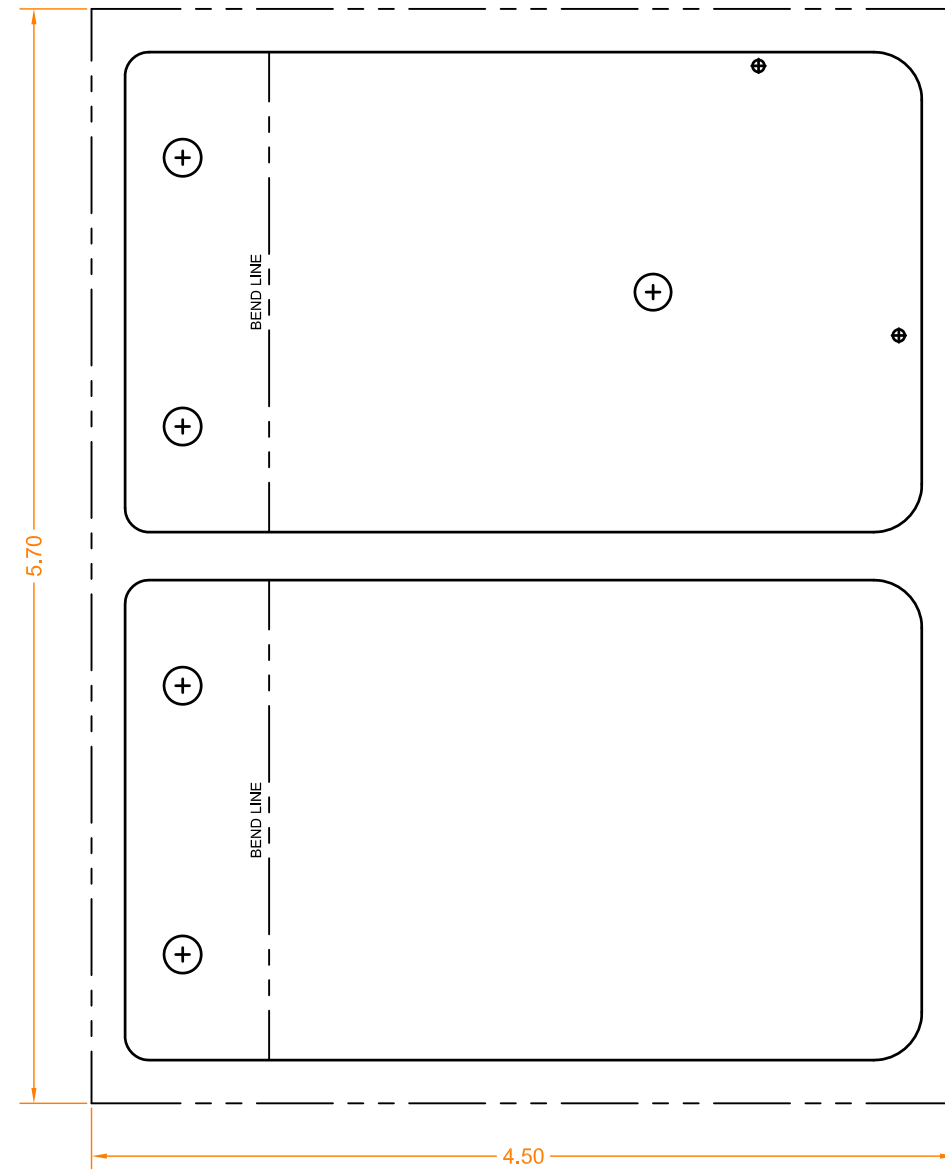
This line is 15.20" long

MKCS-71 BRACKET
 MATRL: 0.063" 2024-T3 ALUMINUM
 (2 REQ'D)



ADDITIONAL CUTTING TEMPLATE
ON SHEET 92

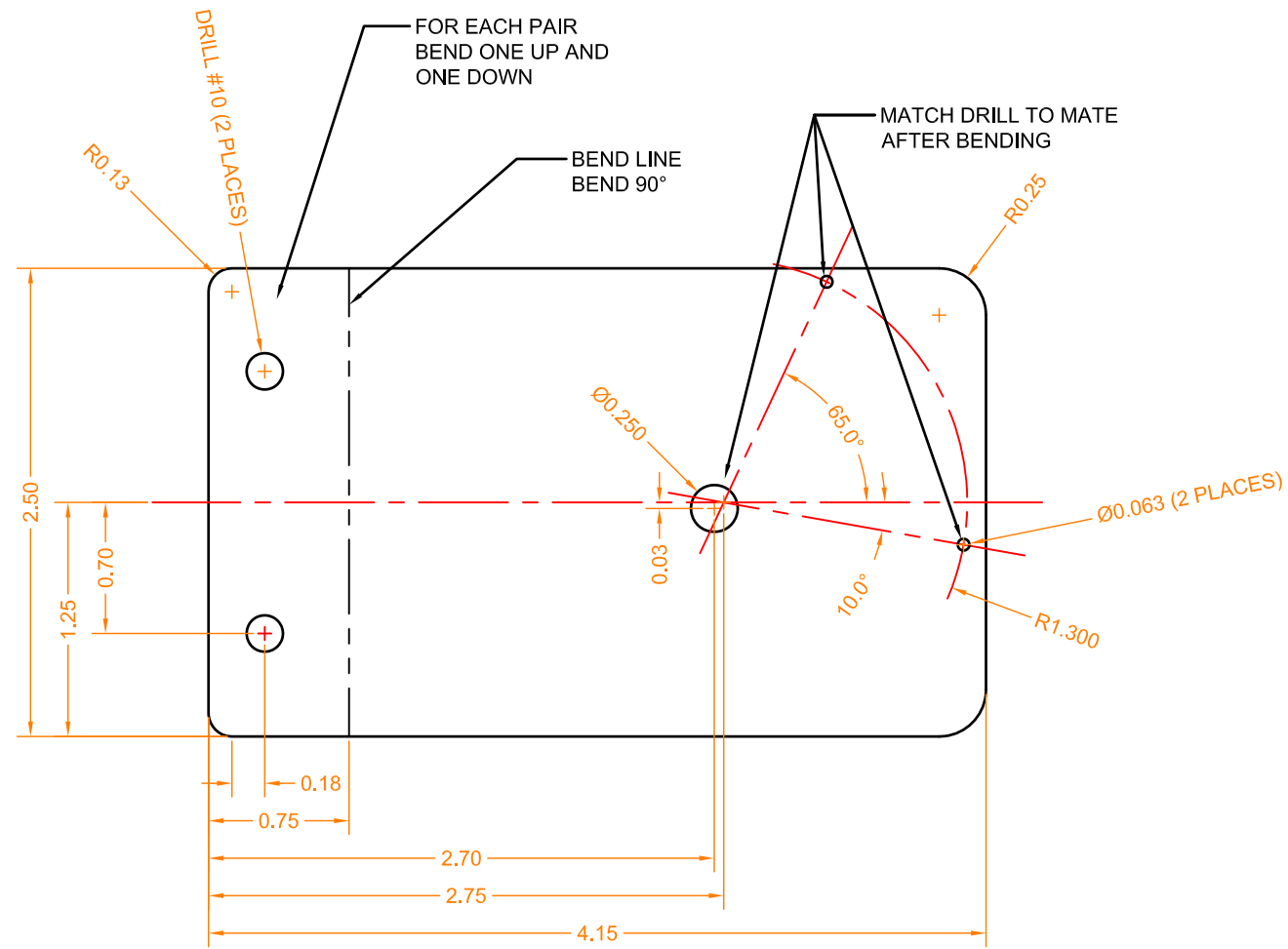
CUTTING TEMPLATE



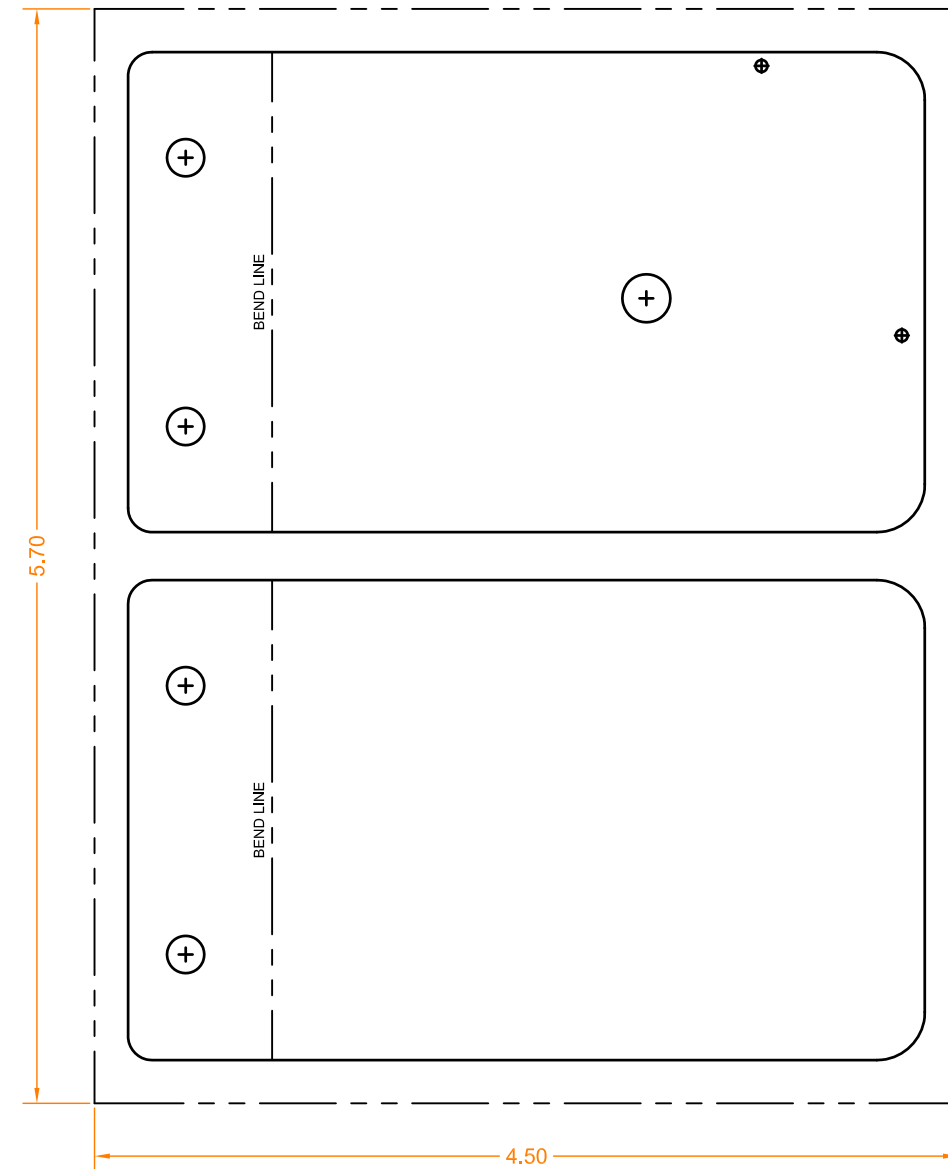
Cozy Mark IV 'M' Drawing Supplements
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This line is 10.50" long

MKCS-71B BRACKET
 MATRL: 0.063" 2024-T3 ALUMINUM
 (2 REQ'D)
 MODIFIED FOR MS20219-4 PULLEY



CUTTING TEMPLATE

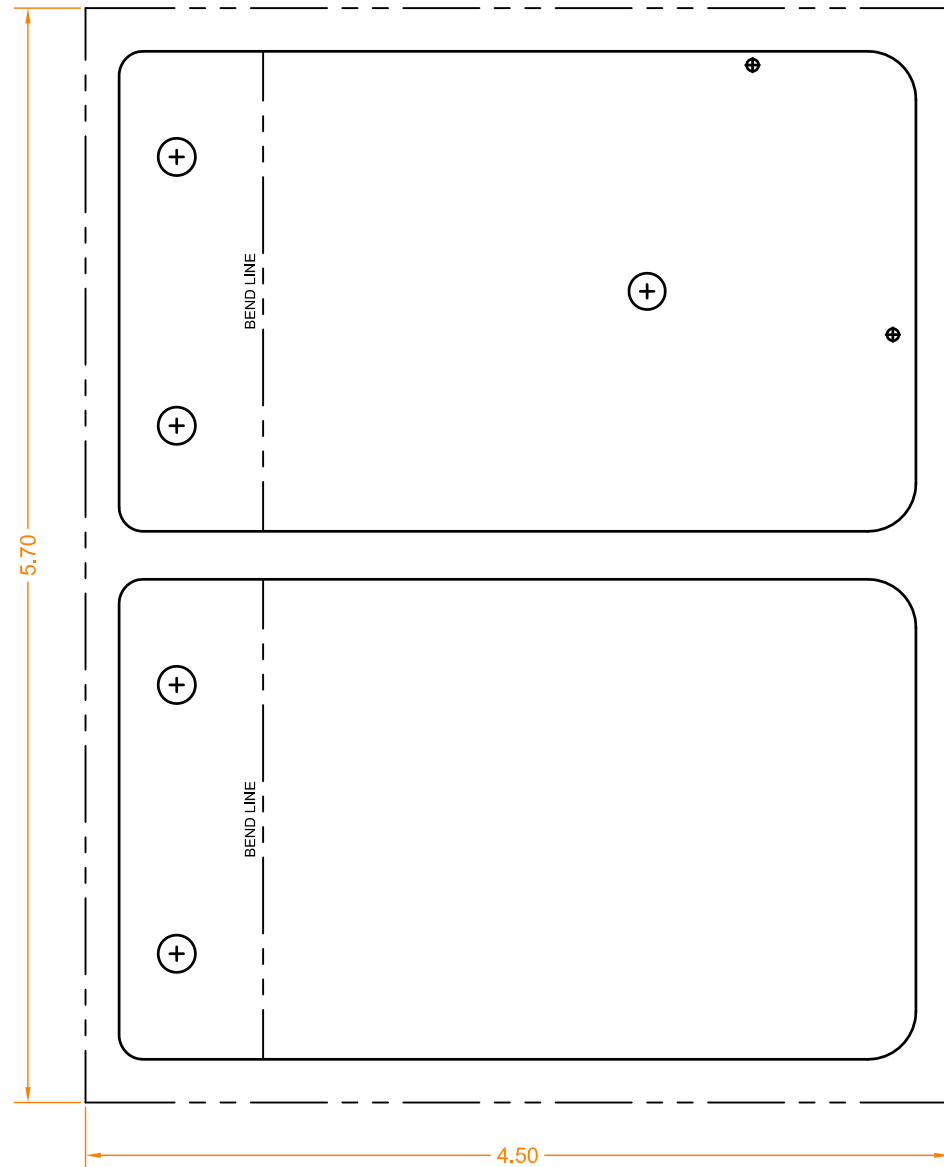


ADDITIONAL CUTTING TEMPLATE
ON SHEET 93

This component is an alternate design for the MKCS-71.
Installation procedures are not covered in the official plans set.

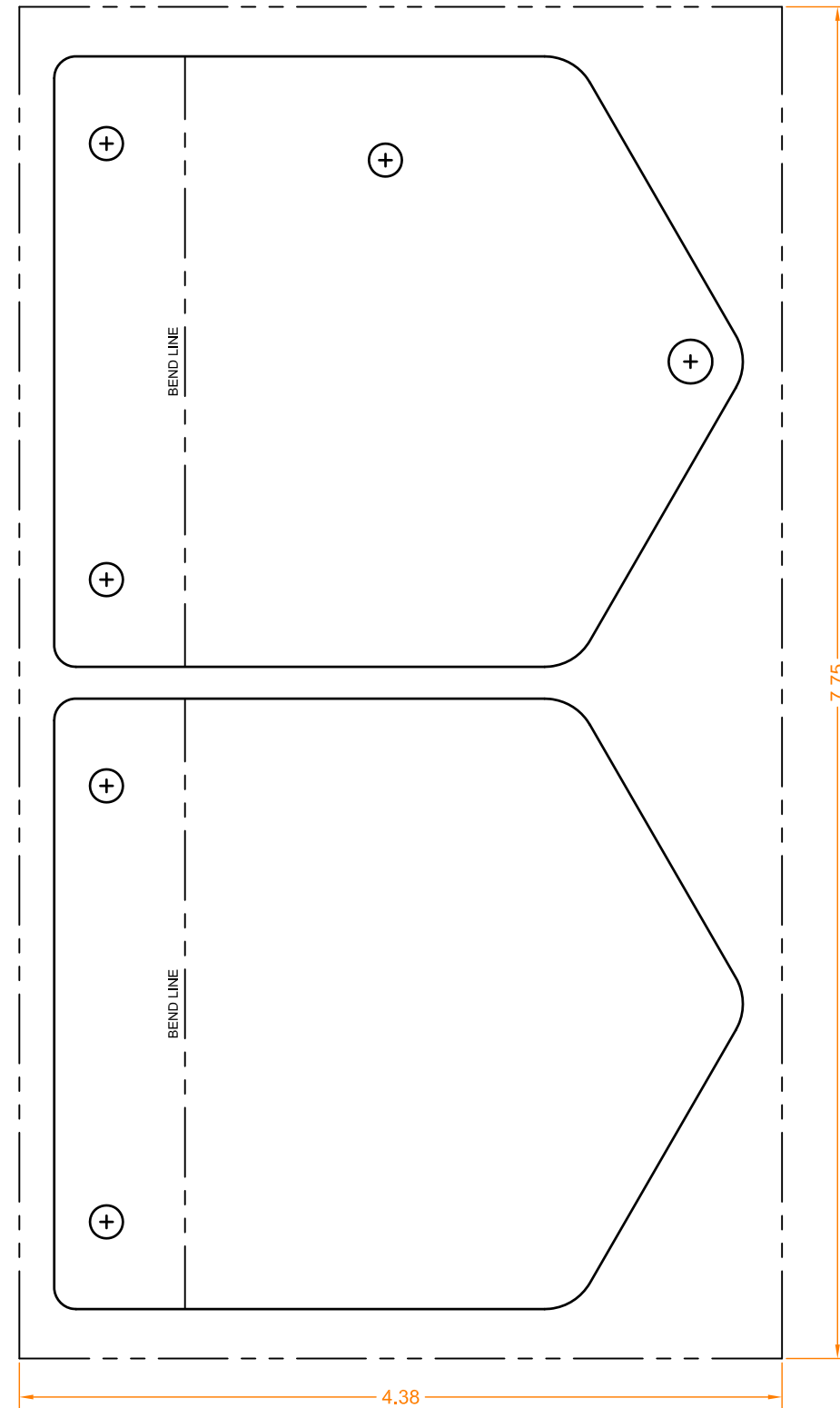
MKCS-71 BRACKET
MATRL: 0.063" 2024-T3 ALUMINUM
ADDITIONAL TEMPLATE

CUTTING TEMPLATE



CS-127 BRACKET
MATRL: 0.032" 2024-T3 ALUMINUM
ADDITIONAL TEMPLATE

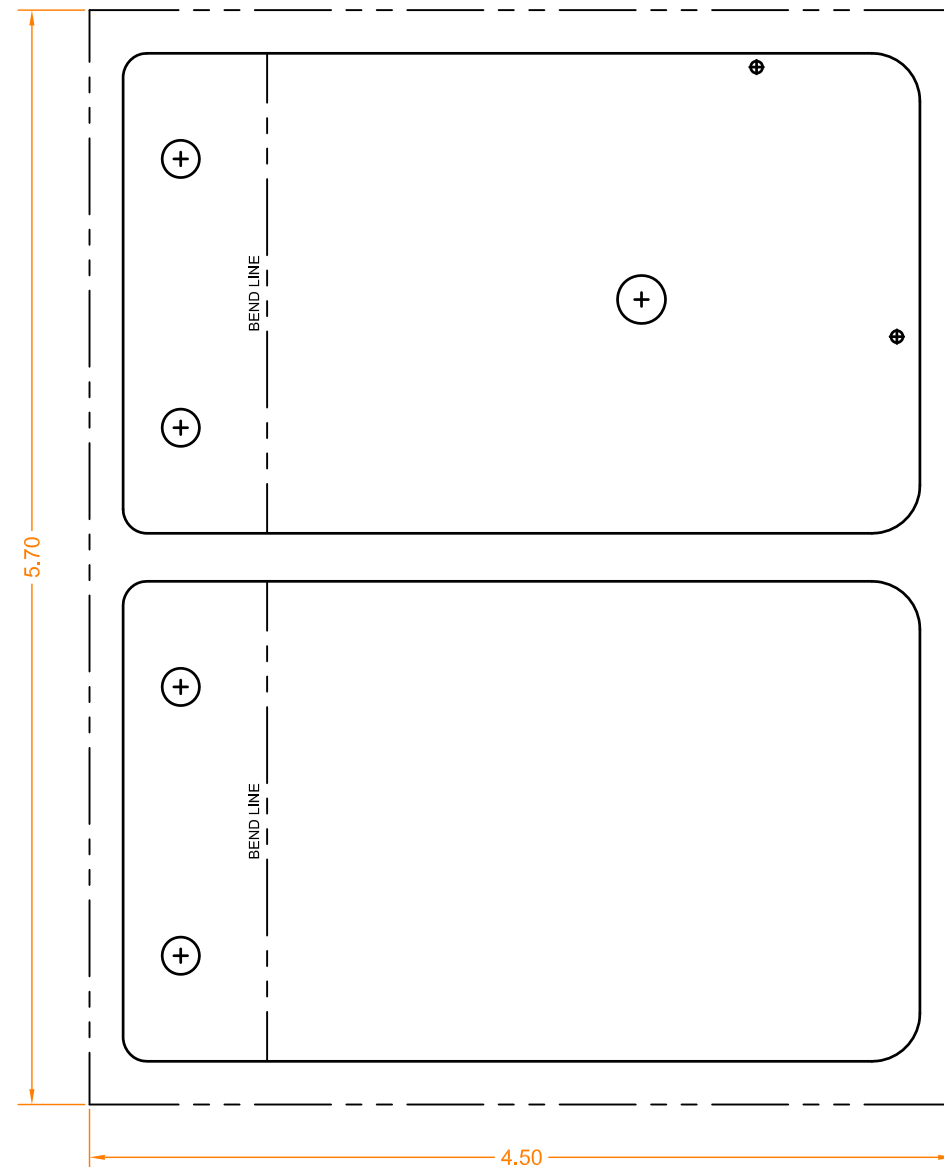
CUTTING TEMPLATE



This line is 15.20" long

MKCS-71B BRACKET
MATRL: 0.063" 2024-T3 ALUMINUM
ADDITIONAL TEMPLATE

CUTTING TEMPLATE

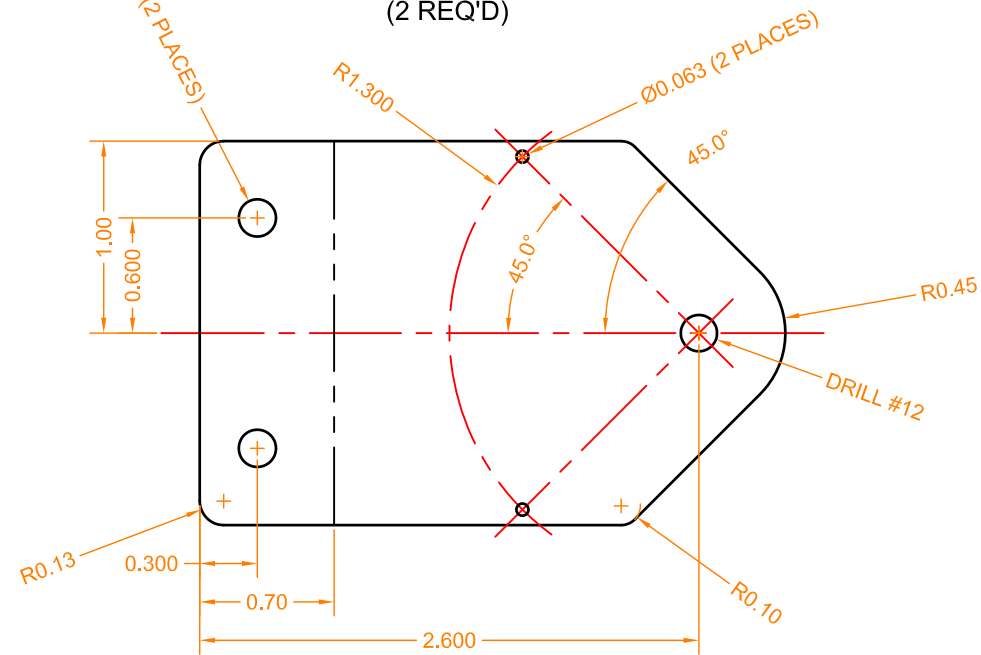


This line is 10.50" long

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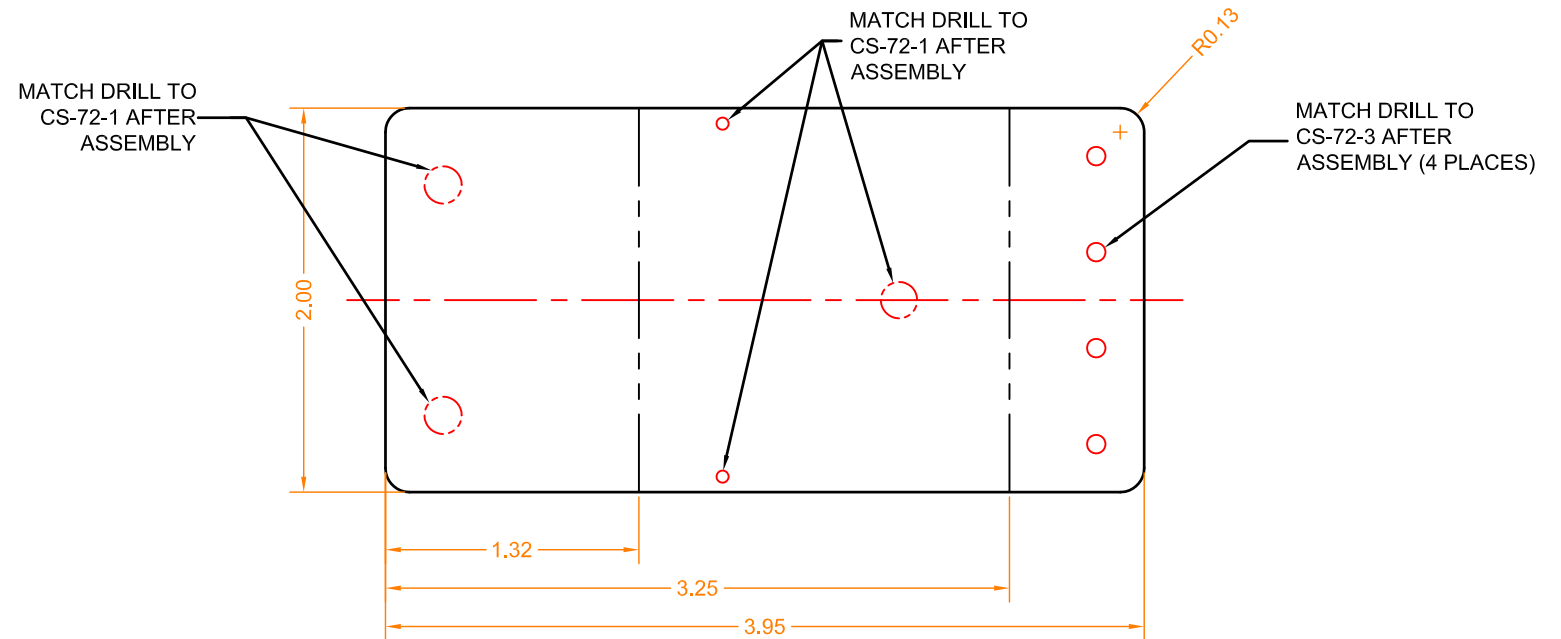
CS-72-1 BRACKET

MATRL: 0.032" 2024-T3 ALUMINUM
(2 REQ'D)



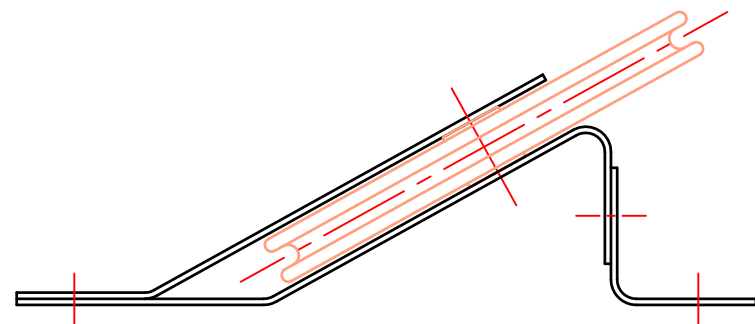
CS-72-2 BRACKET

MATRL: 0.032" 2024-T3 ALUMINUM
(2 REQ'D)



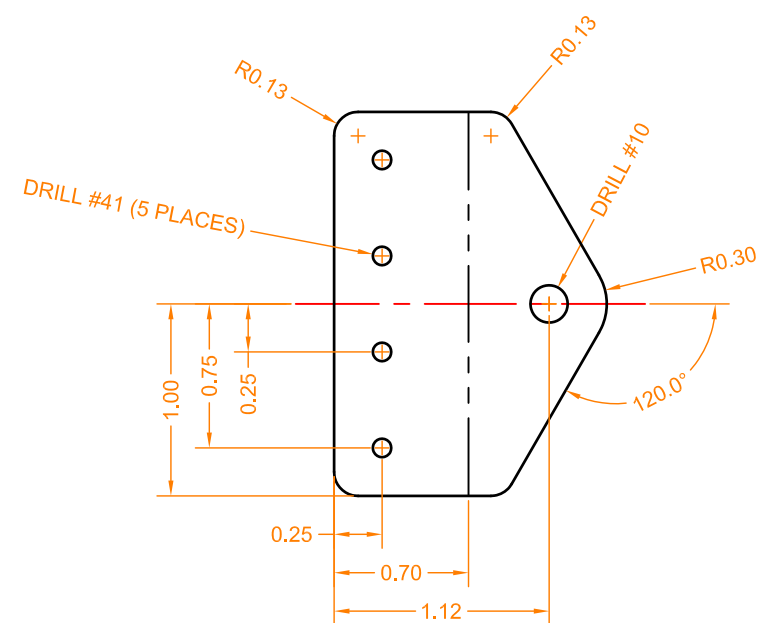
CS-72 BRACKET ASSEMBLY

FOR MS24566-2B (AN210-2A) PULLEY
(2 REQ'D)



CS-72-3 BRACKET

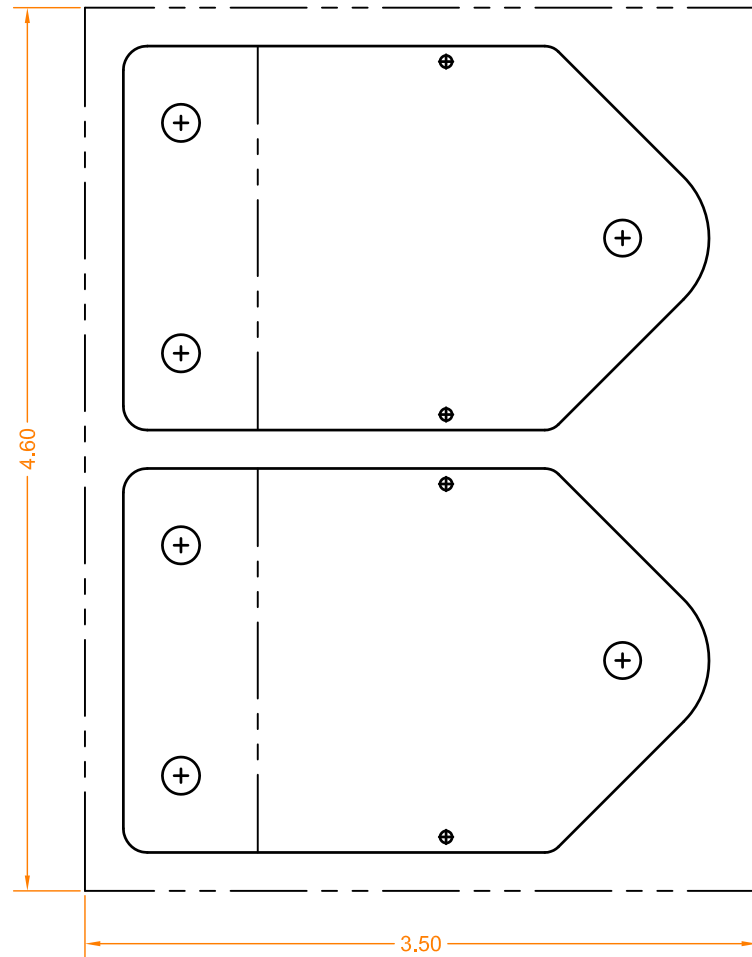
MATRL: 0.032" 2024-T3 ALUMINUM
(2 REQ'D)



CS-72-1 BRACKET

MATRL: 0.032" 2024-T3 ALUMINUM

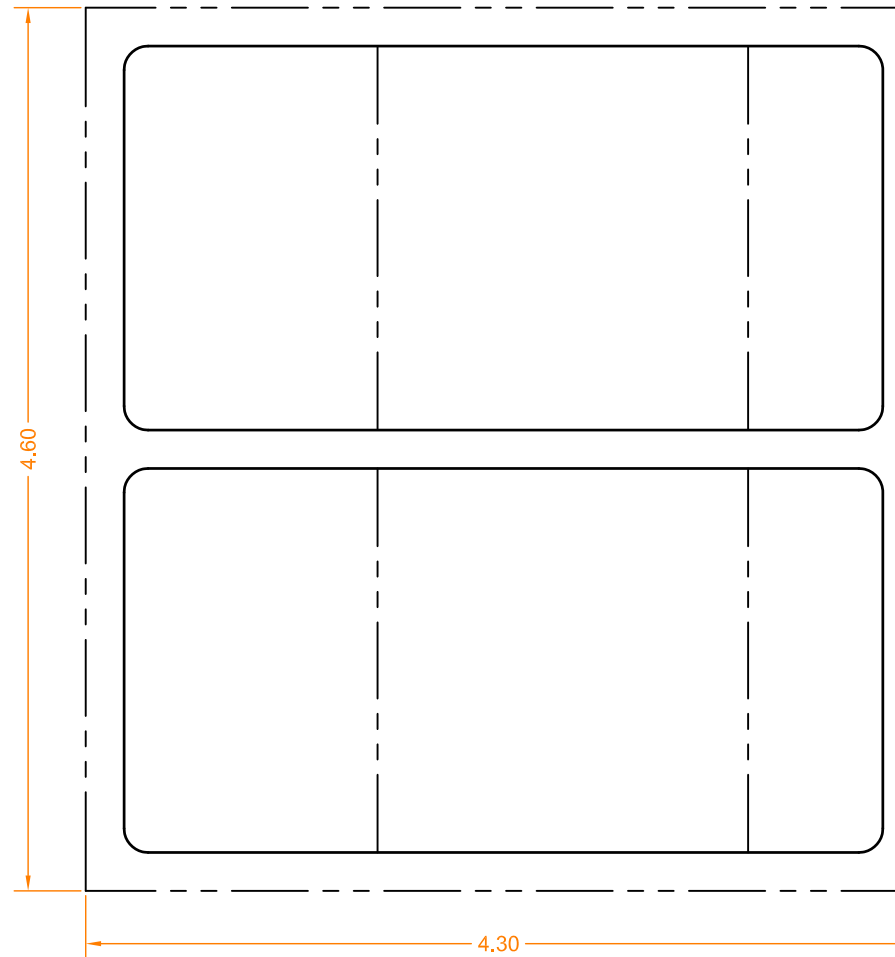
CUTTING TEMPLATE



CS-72-2 BRACKET

MATRL: 0.032" 2024-T3 ALUMINUM

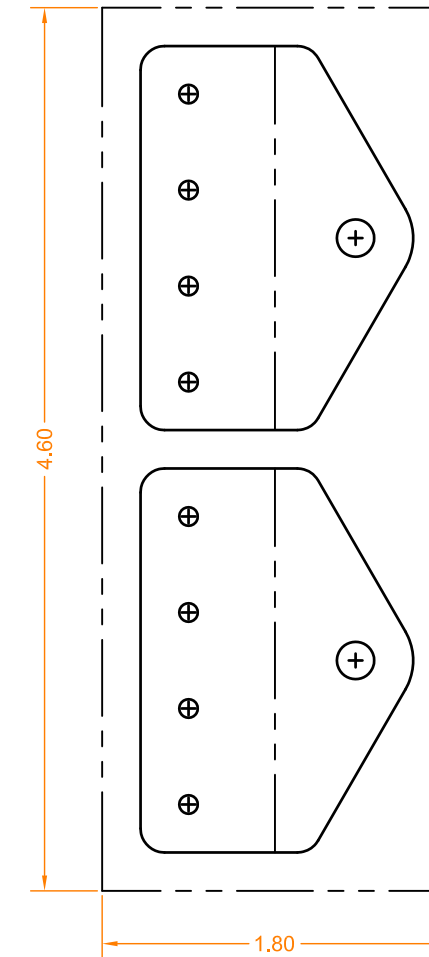
CUTTING TEMPLATE



CS-72-3 BRACKET

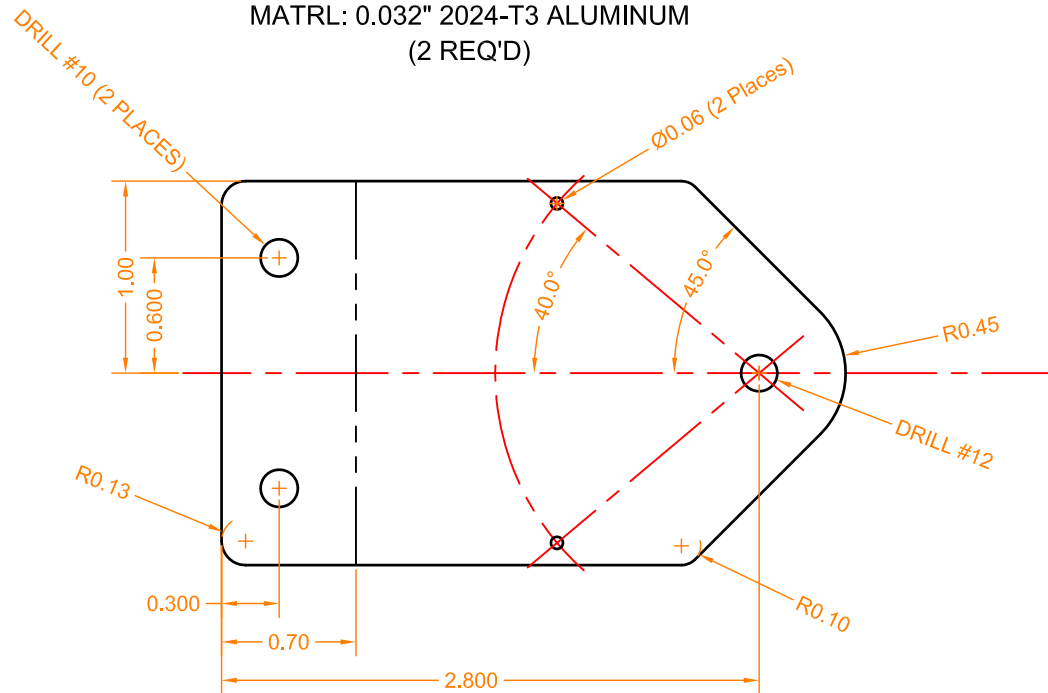
MATRL: 0.032" 2024-T3 ALUMINUM

CUTTING TEMPLATE



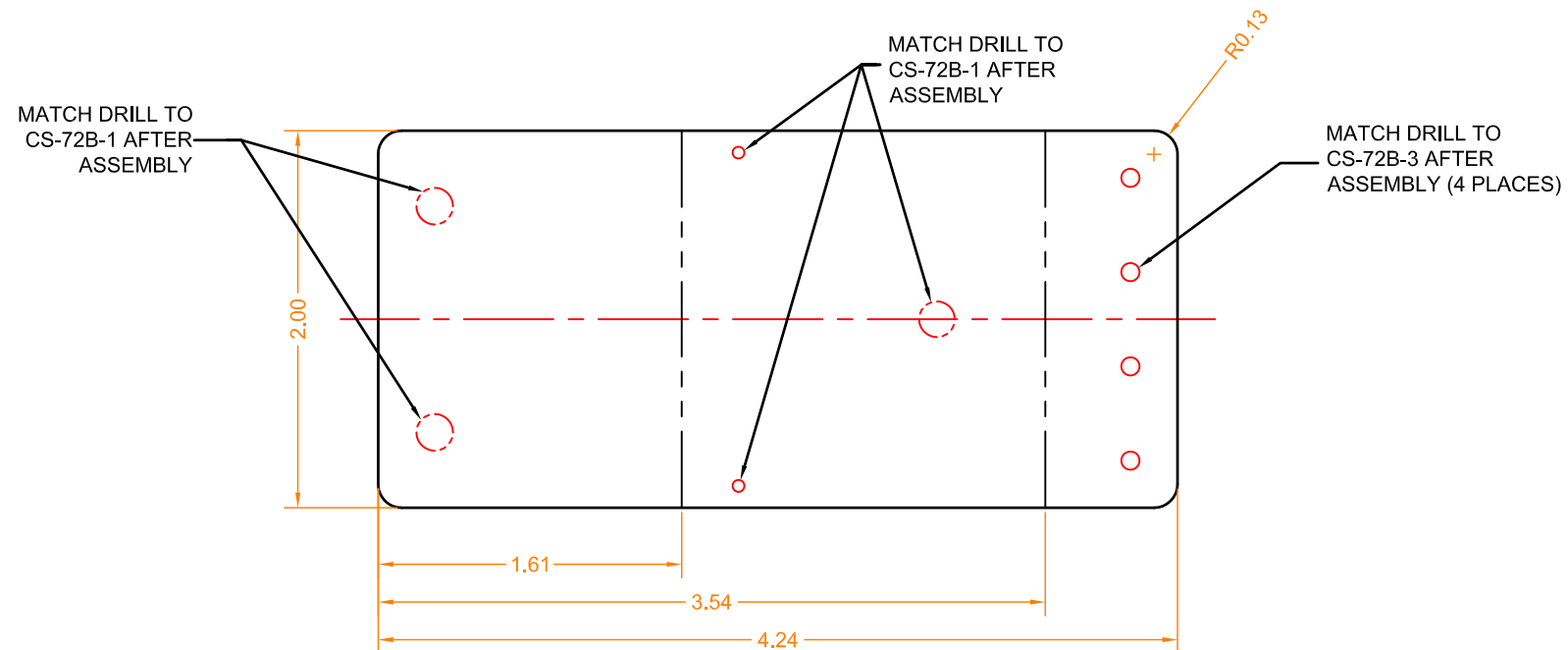
CS-72B-1 BRACKET

MATRL: 0.032" 2024-T3 ALUMINUM
(2 REQ'D)



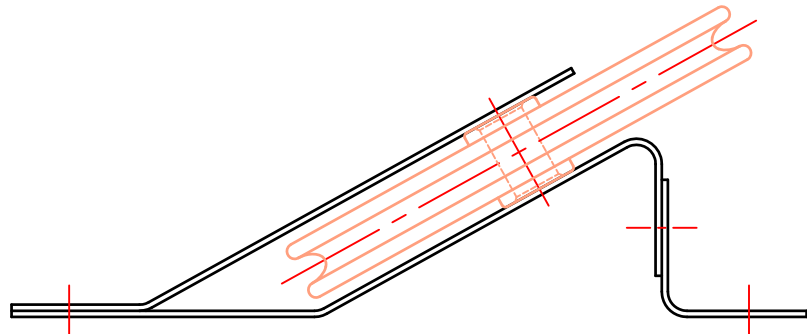
CS-72B-2 BRACKET

MATRL: 0.032" 2024-T3 ALUMINUM
(2 REQ'D)



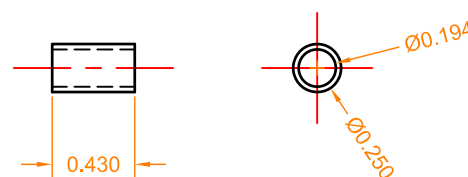
CS-72B BRACKET ASSEMBLY

FOR MS20219-4 PULLEY
(2 REQ'D)



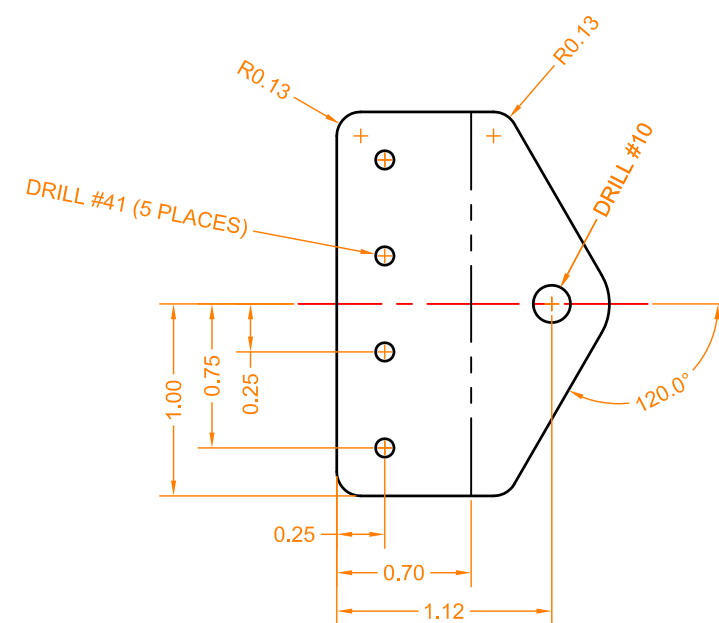
CS-72B-4 BUSHING

MATRL: 0.250 O.D. x 0.028 W.T. 4130N
(2 REQ'D)



CS-72B-3 BRACKET

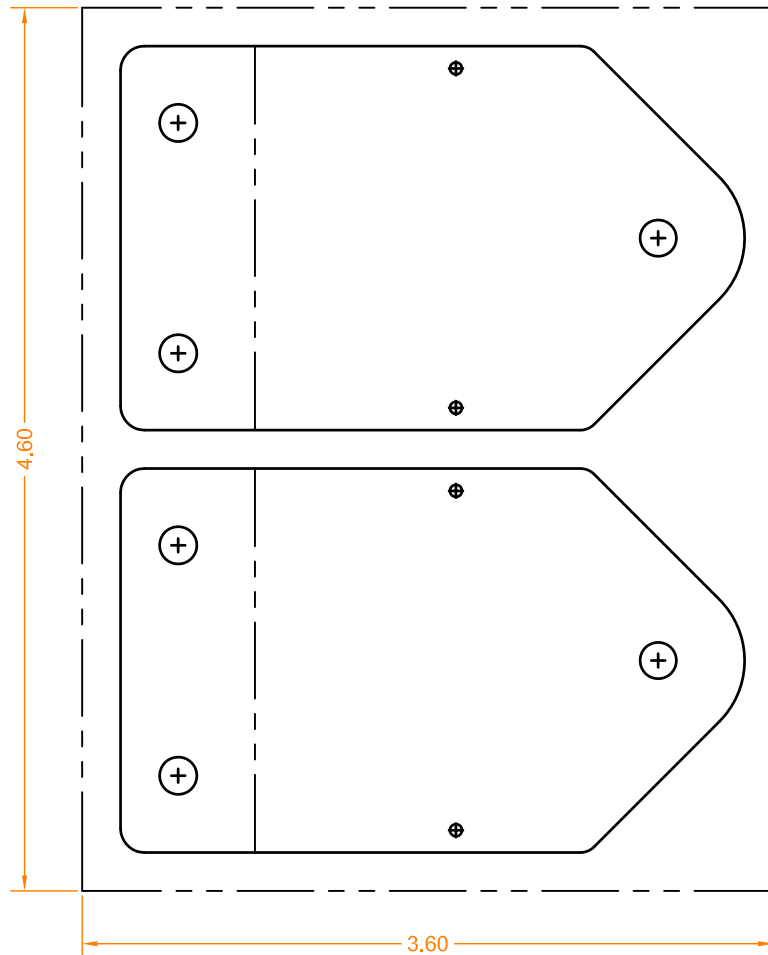
MATRL: 0.032" 2024-T3 ALUMINUM
(2 REQ'D)



This component is an alternate design for the MKCS-72. Installation procedures are not covered in the official plans set.

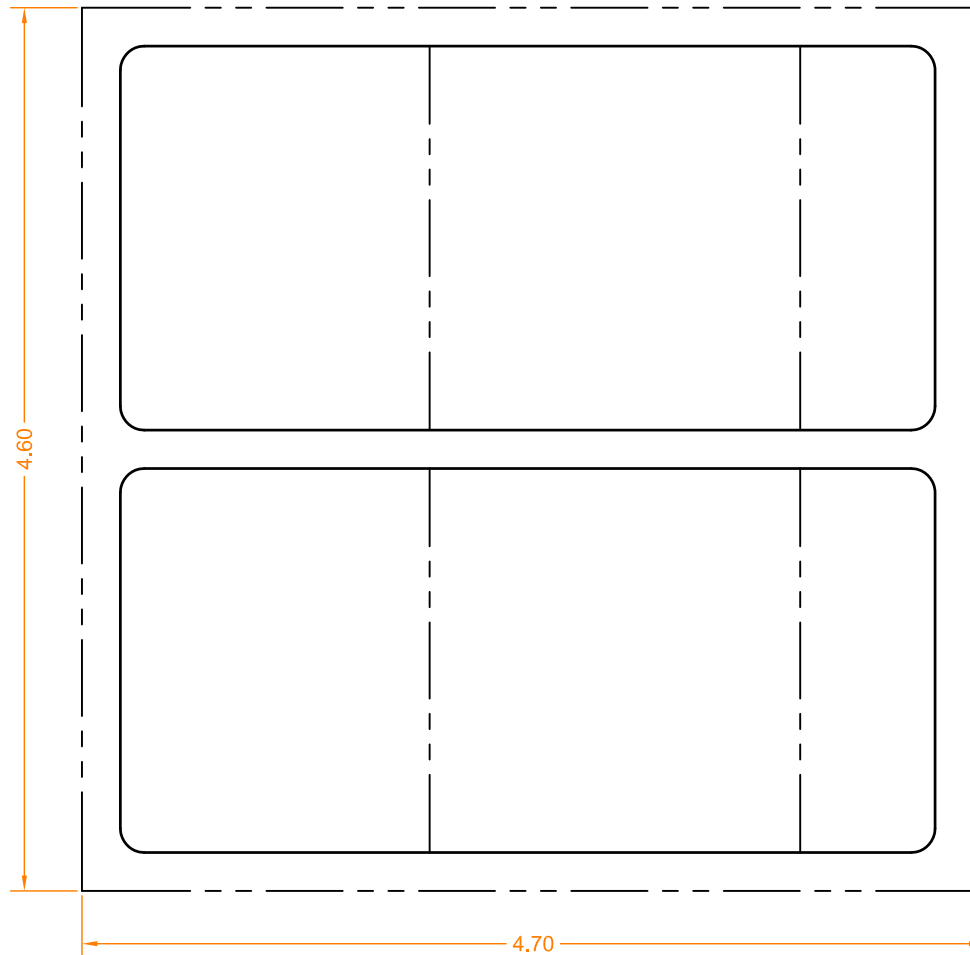
CS-72B-1 BRACKET
MATRL: 0.032" 2024-T3 ALUMINUM

CUTTING TEMPLATE



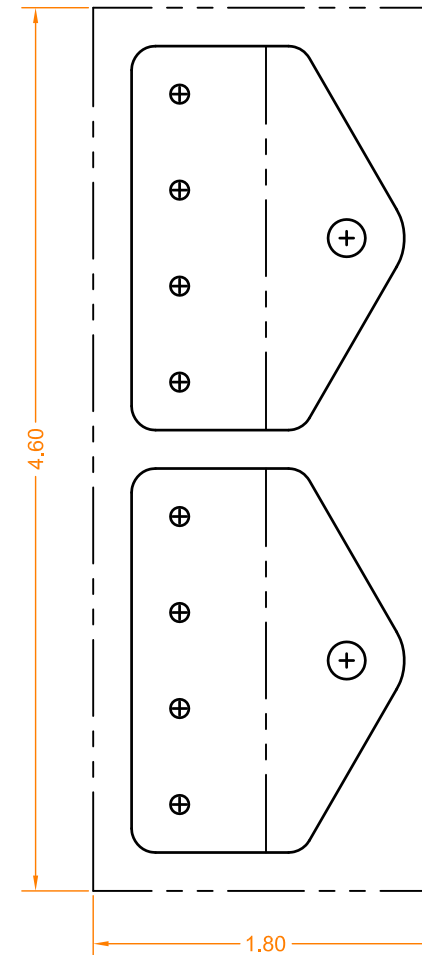
CS-72B-2 BRACKET
MATRL: 0.032" 2024-T3 ALUMINUM

CUTTING TEMPLATE



CS-72B-3 BRACKET
MATRL: 0.032" 2024-T3 ALUMINUM

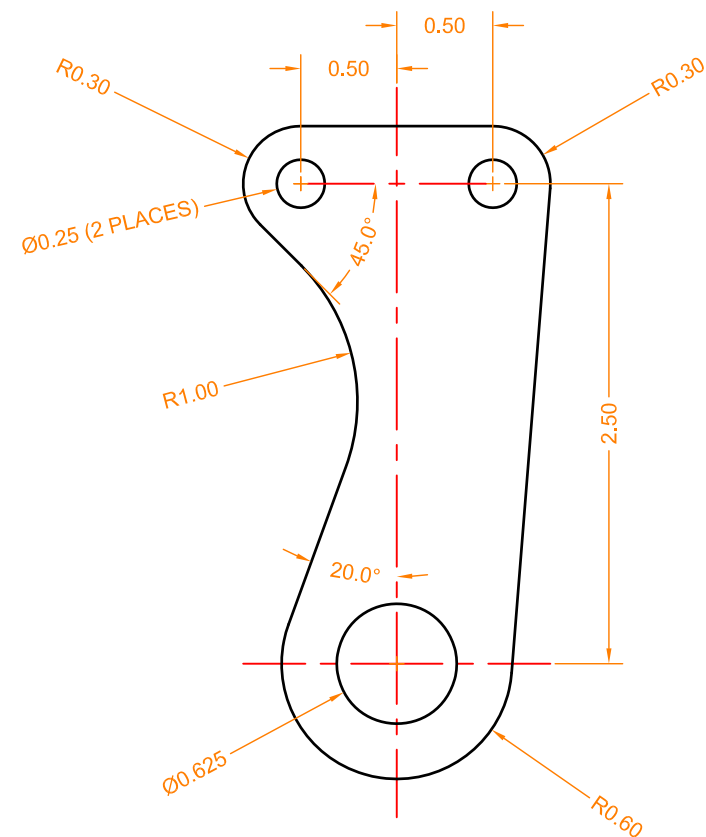
CUTTING TEMPLATE



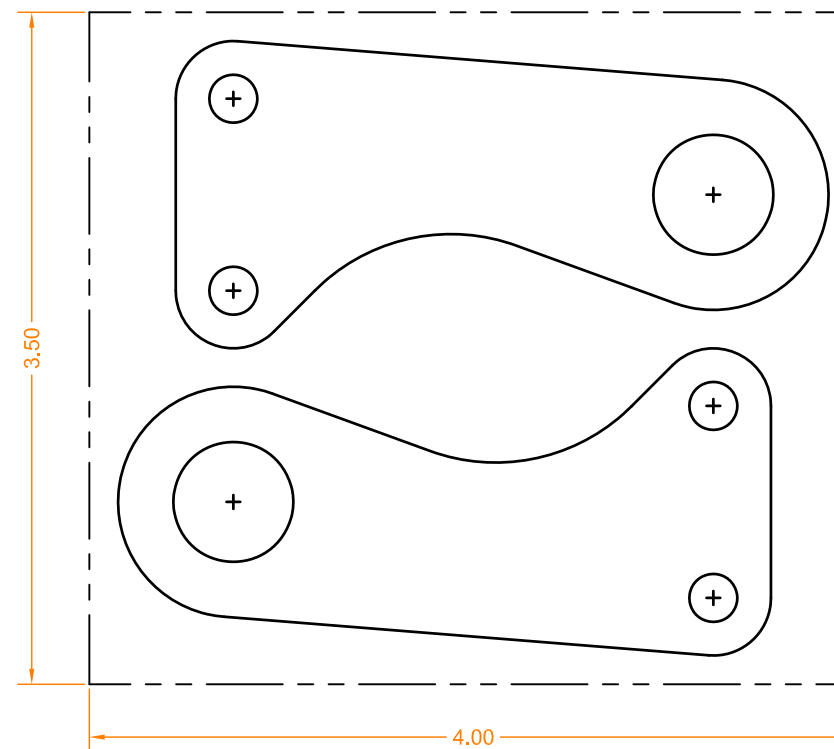
MKCS-124 CONTROL ARM

MATRL: 0.050" 4130N STEEL

MAKE 1 LEFT and 1 RIGHT CS-124 ASSEMBLY

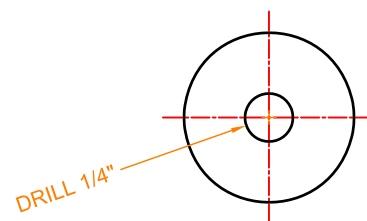


CUTTING TEMPLATE



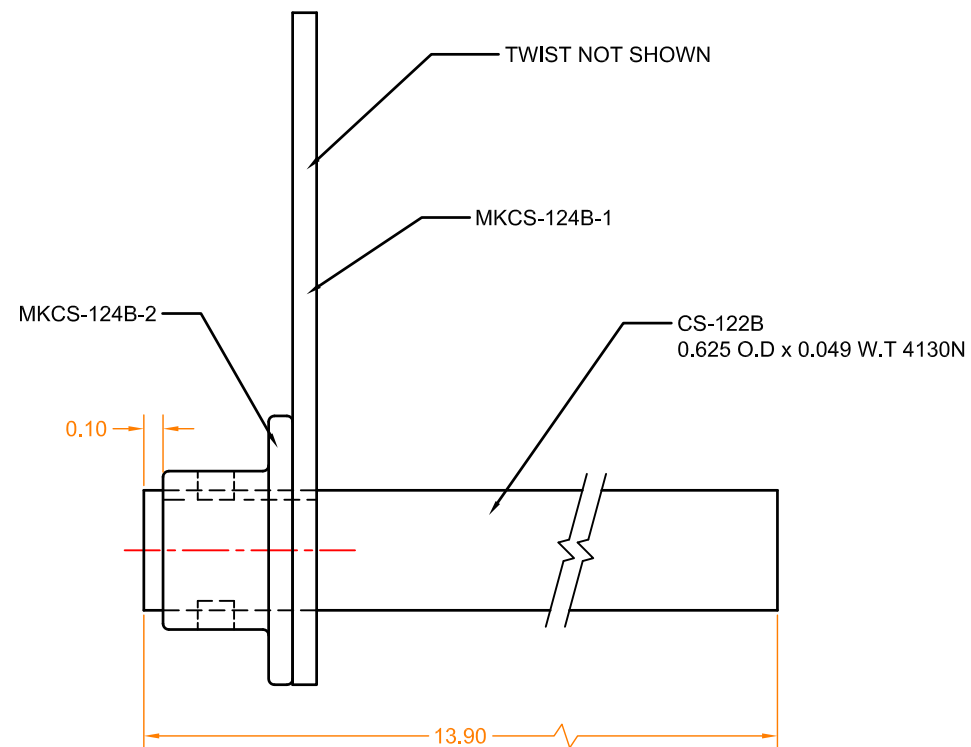
RETAINER WASHER FOR MB-4 ROD ENDS

MATRL: AN970-3 WASHER
(10 REQ'D)

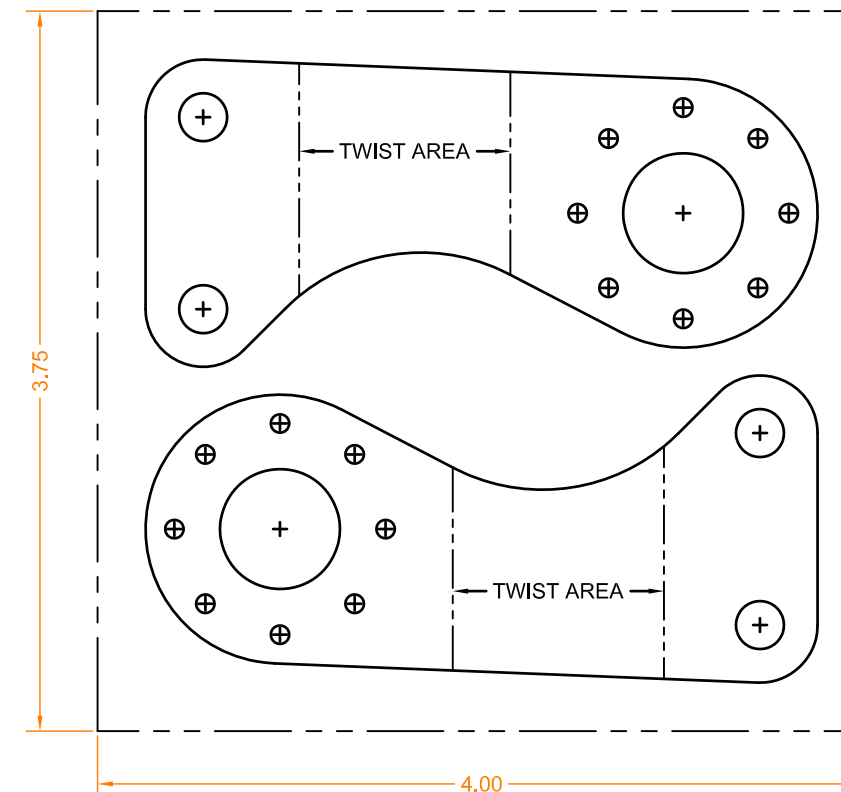


MKCS-124B ASSEMBLY

MAKE 1 LEFT AND 1 RIGHT



CUTTING TEMPLATE

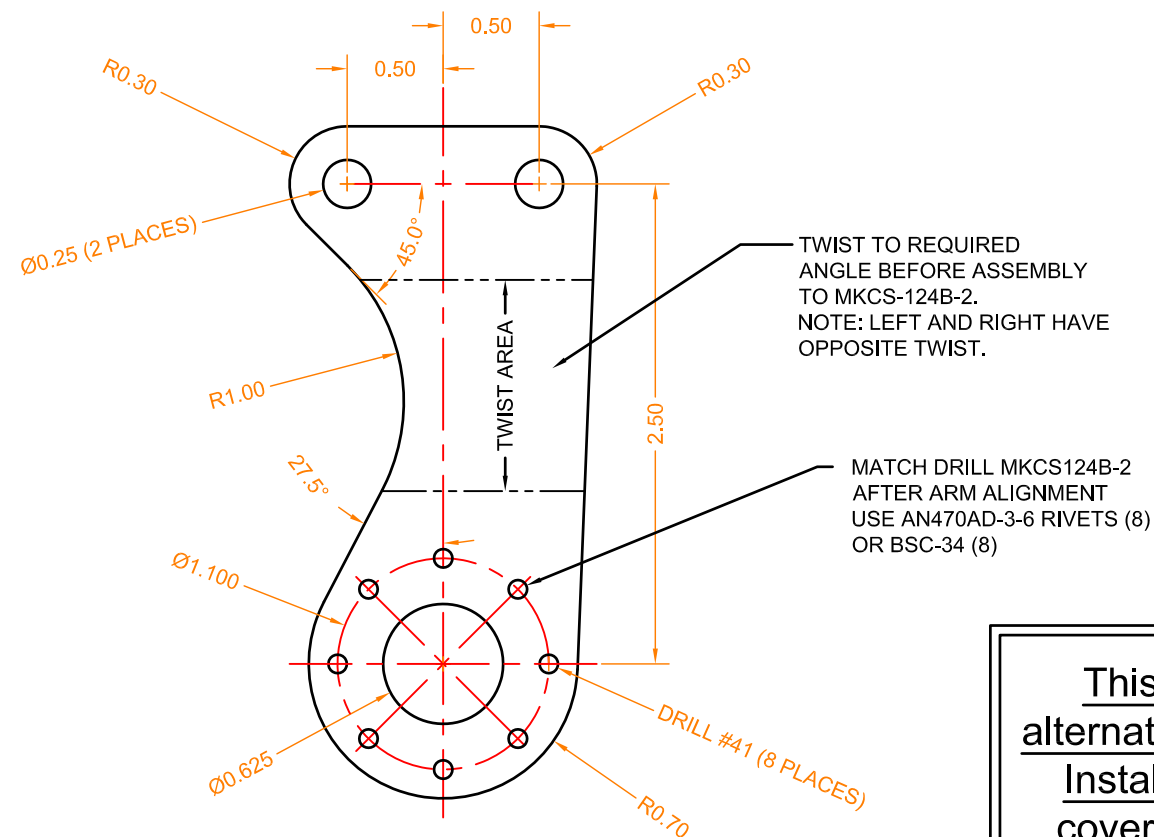
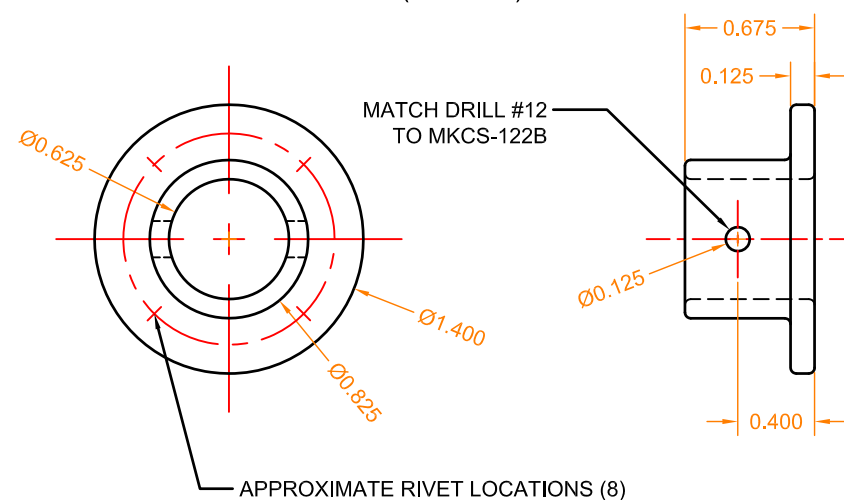


MKCS-124B-1 CONTROL ARM

MATRL: 0.125" 2024-T3 ALUMINUM
MAKE 1 LEFT AND 1 RIGHT MKCS-124B ASSEMBLY

MKCS-124B-2 FLANGE

MATRL: 1.50" DIA 2024-T3 OR 6061-T6 ALUMINUM
(2 REQ'D)

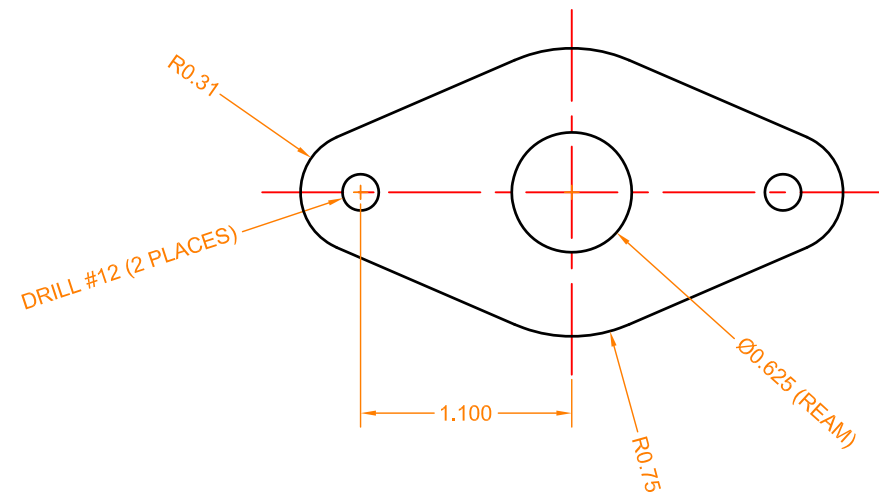


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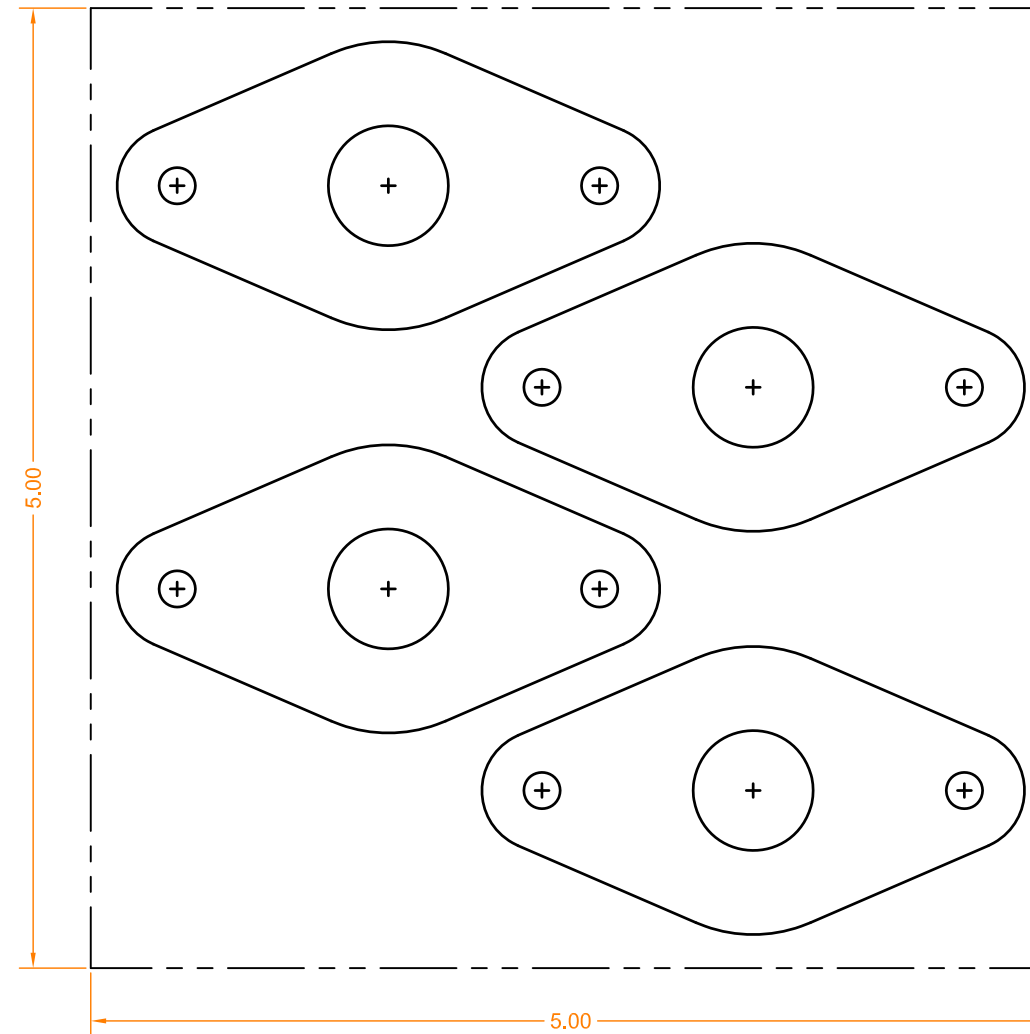
This component is part of an alternate design for the MKCS-124. Installation procedures are not covered in the official plans set.

CS-108 & CS-117 BEARING

MATRL: 0.250" PHENOLIC (MICARTA)
(4 REQ'D)

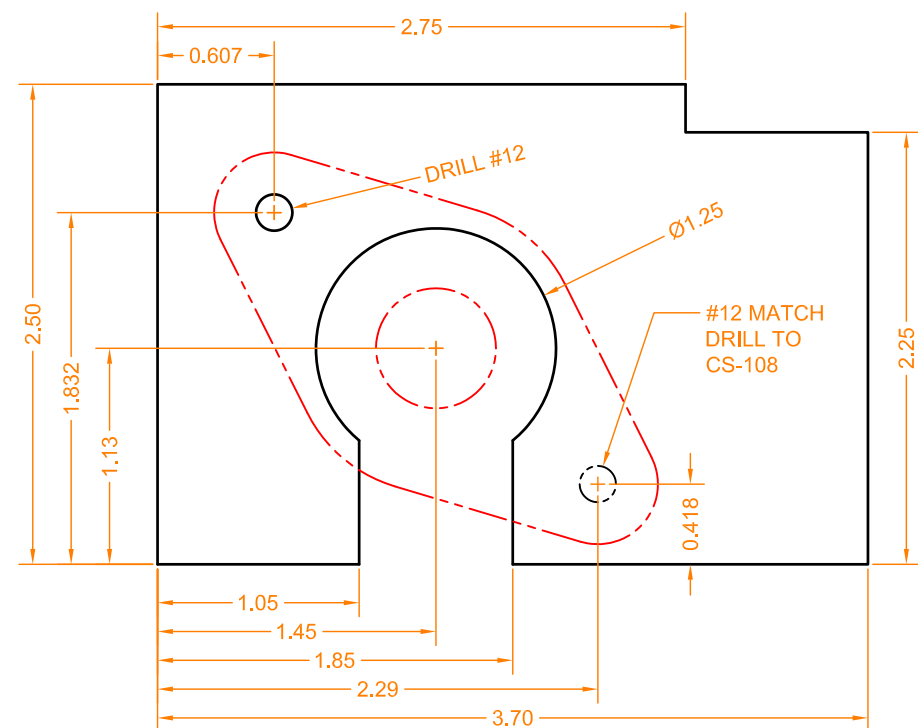


CUTTING TEMPLATE

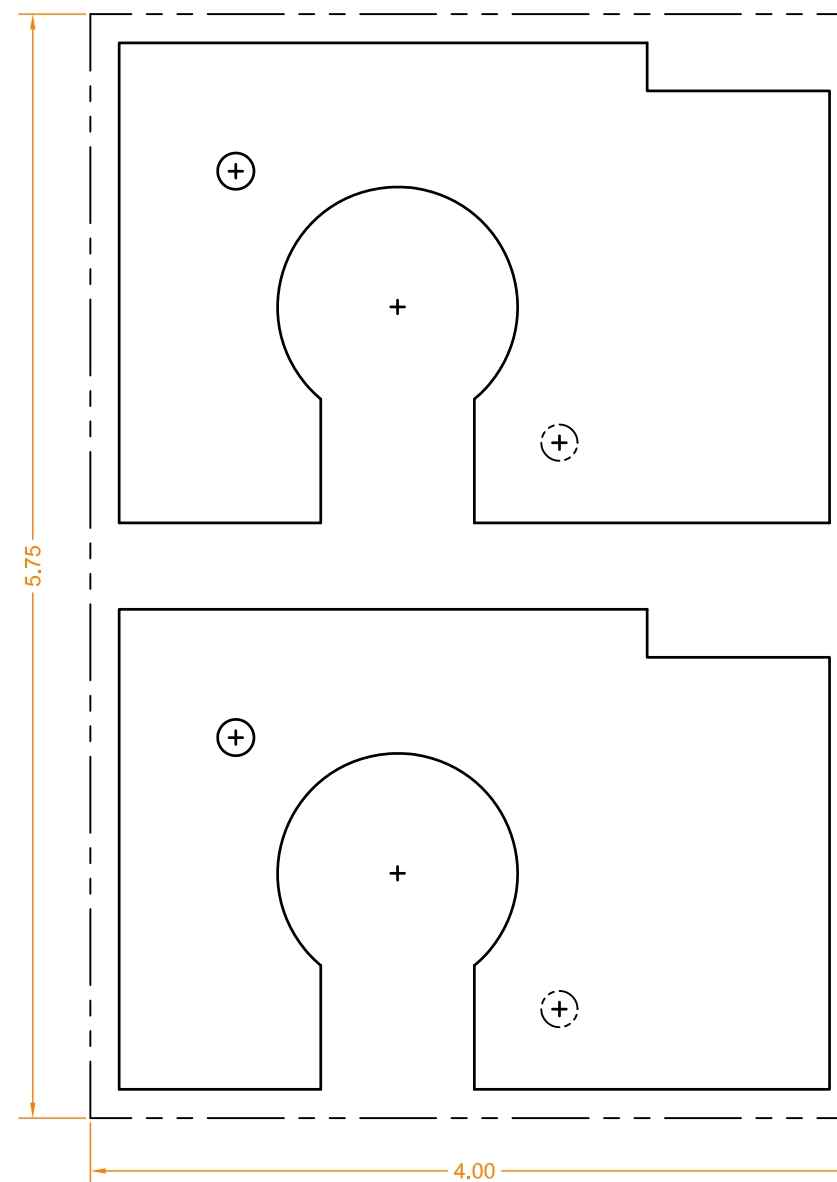


CS-109 BEARING PLATE

MATRL: 0.250" BIRCH PLYWOOD
(2 REQ'D)

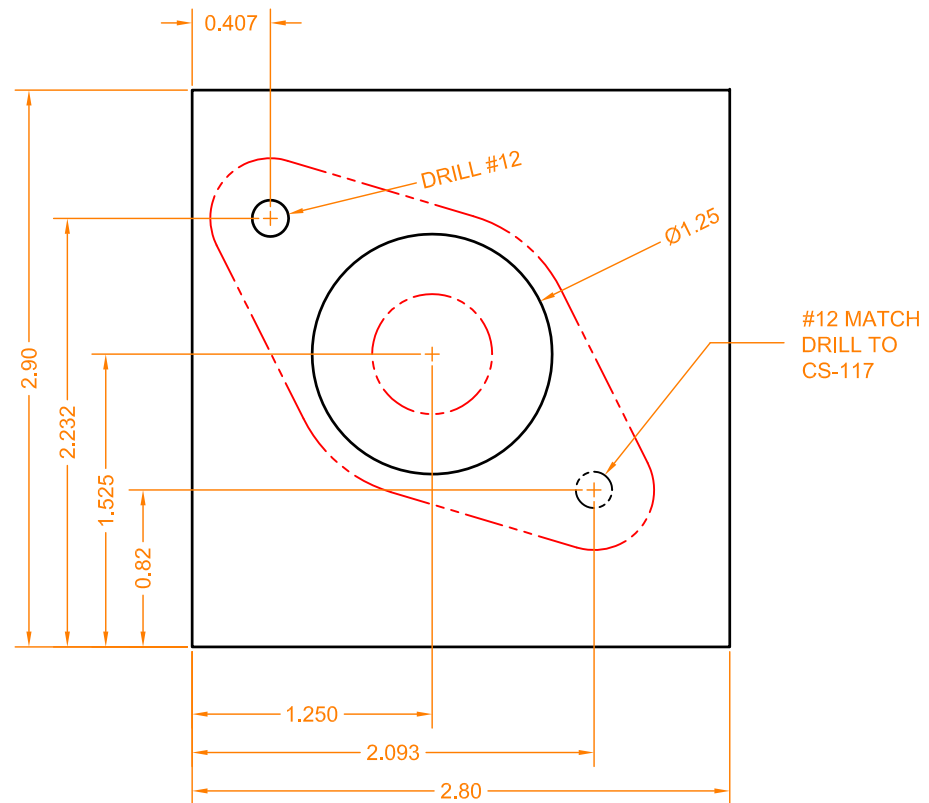


CUTTING TEMPLATE



CS-118 BEARING PLATE

MATRL: 0.250" BIRCH PLYWOOD
(2 REQ'D)



CUTTING TEMPLATE

