

1

2

3

4

5

6

RevNo	Revision note	Date	Signature	Checked
-------	---------------	------	-----------	---------

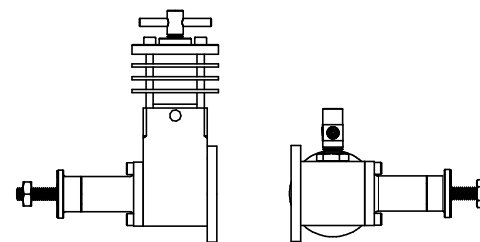
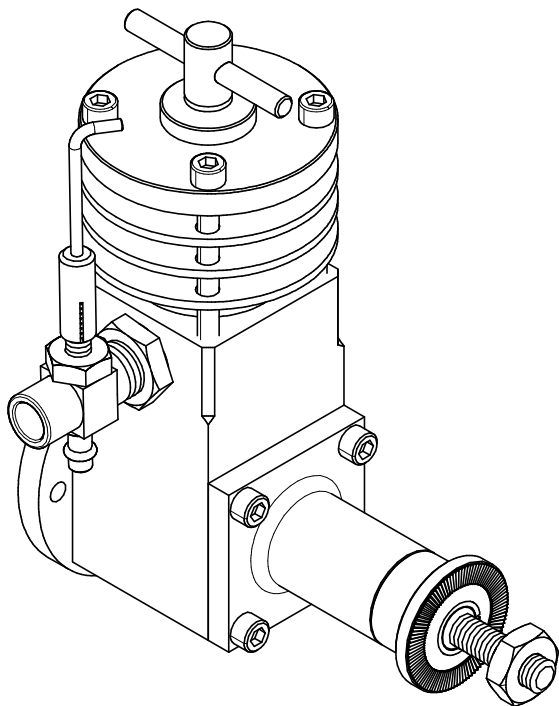
# BollAero 18

Designed by Chris Boll (UK)

**Bore: 0.500 (12.7 mm)**  
**Stroke: 0.560 (14.22 mm)**  
**Displacement: 0.110 cuin (1.8cc)**

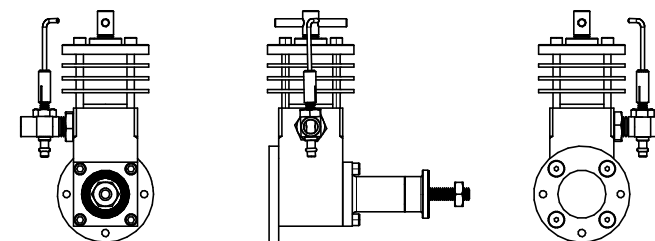
A

A



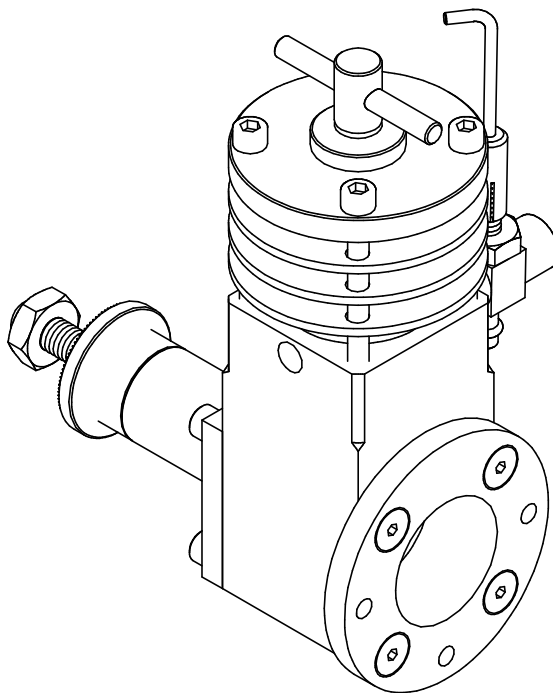
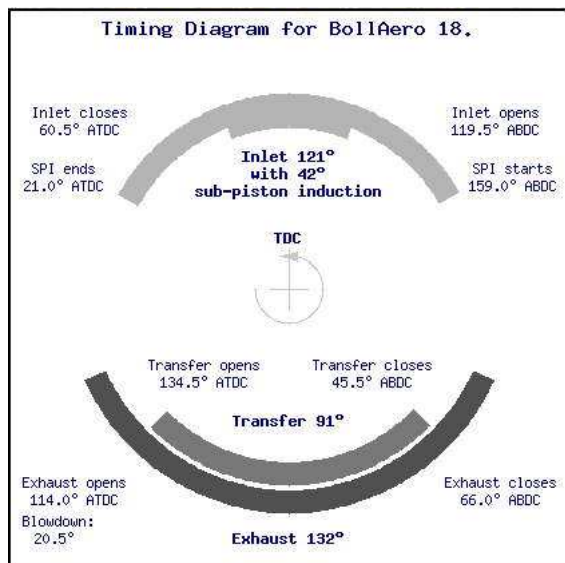
B

B



C

C



Note: The 1-1 Crankcase is symmetrical and may be reversed to place the venturi and needle valve on the side that is most convenient for the operator.

D

D

## BollAero 18 - 3 Views

Drawn by <b>Chris Boll</b>	CAD by Ron Chernich 2009-10-27		Edition 1	Sheet 9
-------------------------------	--------------------------------------	--	--------------	------------

1

2

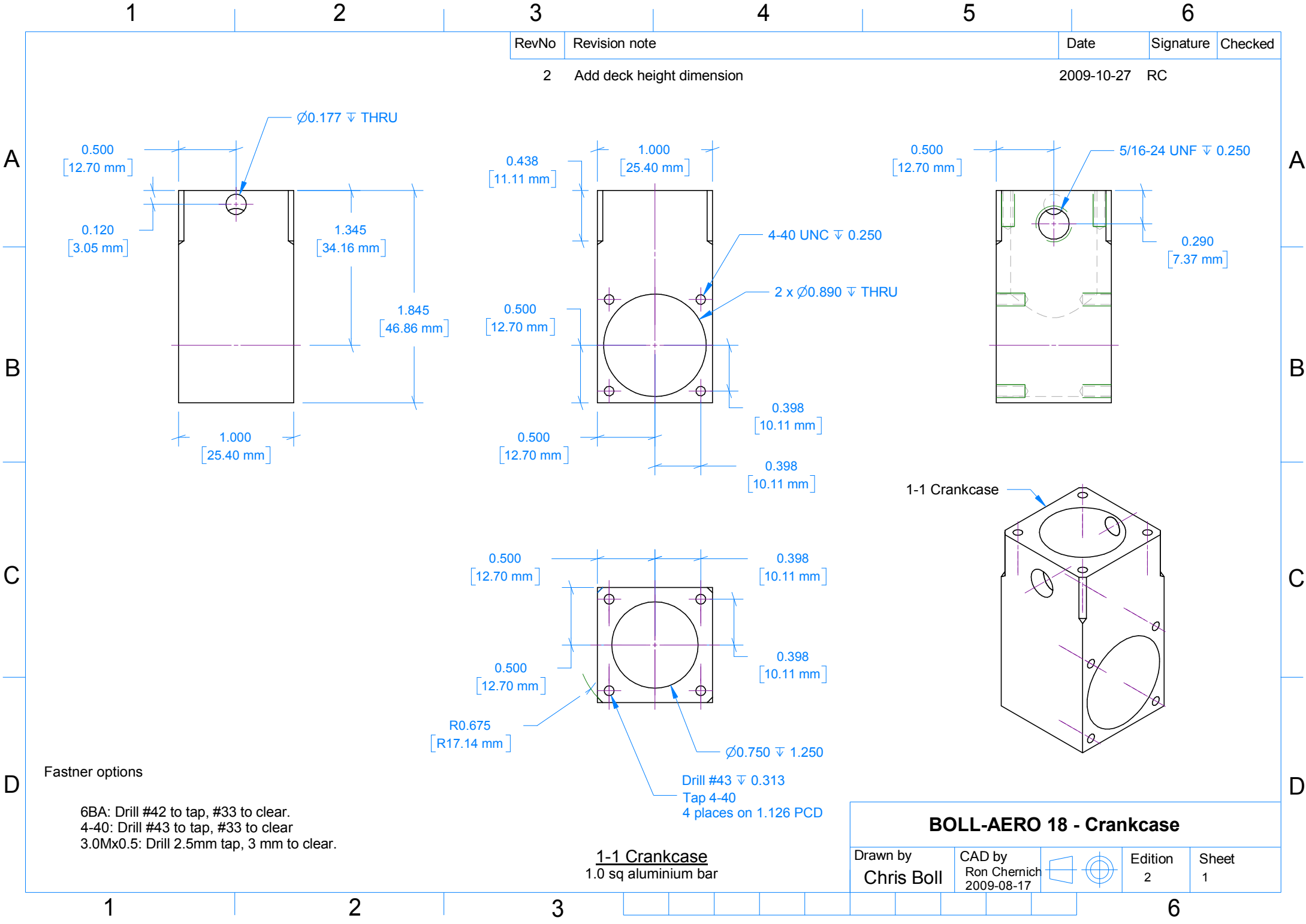
3

6

RevNo	Revision note	Date	Signature	Checked
-------	---------------	------	-----------	---------

2 Add deck height dimension

2009-10-27 RC



Fastner options

- 6BA: Drill #42 to tap, #33 to clear.
- 4-40: Drill #43 to tap, #33 to clear
- 3.0Mx0.5: Drill 2.5mm tap, 3 mm to clear.

**1-1 Crankcase**  
1.0 sq aluminium bar

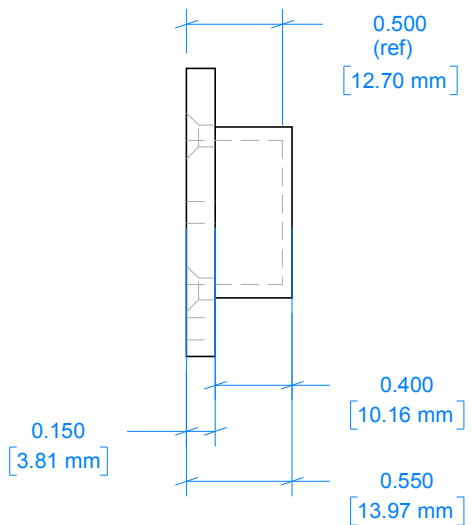
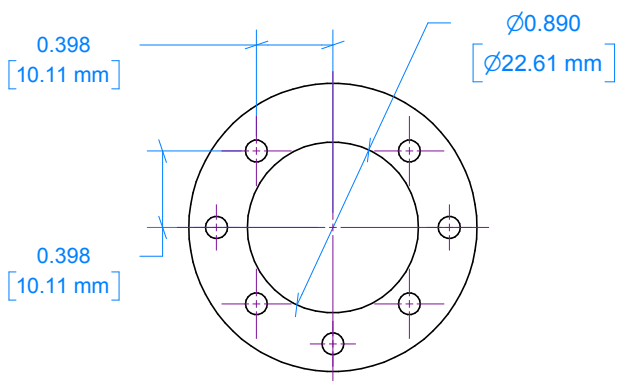
BOLL-AERO 18 - Crankcase				
Drawn by <b>Chris Boll</b>	CAD by Ron Chernich 2009-08-17		Edition 2	Sheet 1

RevNo	Revision note	Date	Signature	Checked
-------	---------------	------	-----------	---------

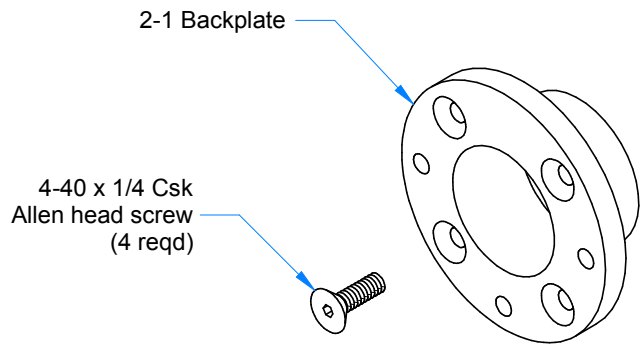
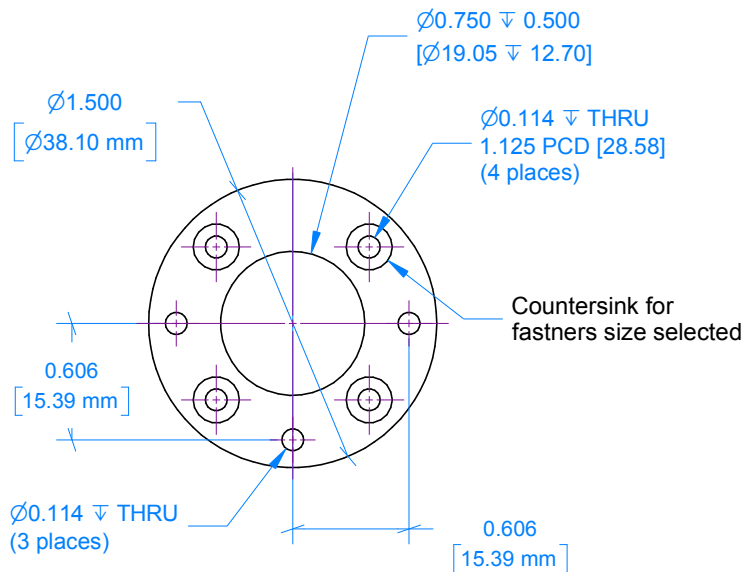
2 Correct Attachment hole spacing and reposition hole callout. 2009-10-19 Ron C.

A  
B  
C  
D

A  
B  
C  
D



**2-1 Backplate**  
Ø1-1/2 aluminium bar



BOLL-AERO 18 - Backplate				
Drawn by Chris Boll	CAD by Ron Chernich 2009-08-17		Edition 2	Sheet 2

1 2 3 4 5 6

1

2

3

4

5

6

RevNo	Revision note	Date	Signature	Checked
-------	---------------	------	-----------	---------

2 Add suggested radius dimension for turned journal to flange transition.

2009-10-19 Ron C

A

A

B

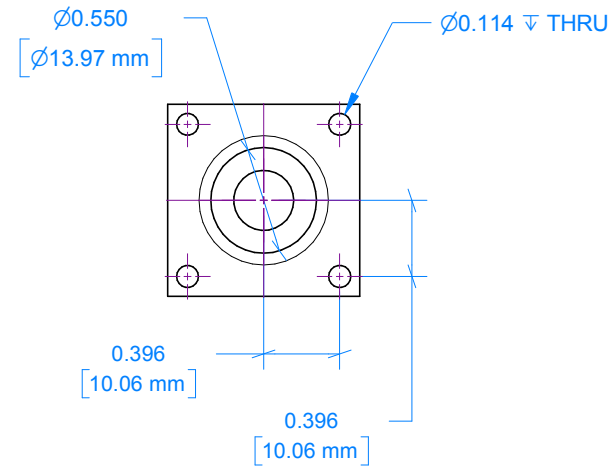
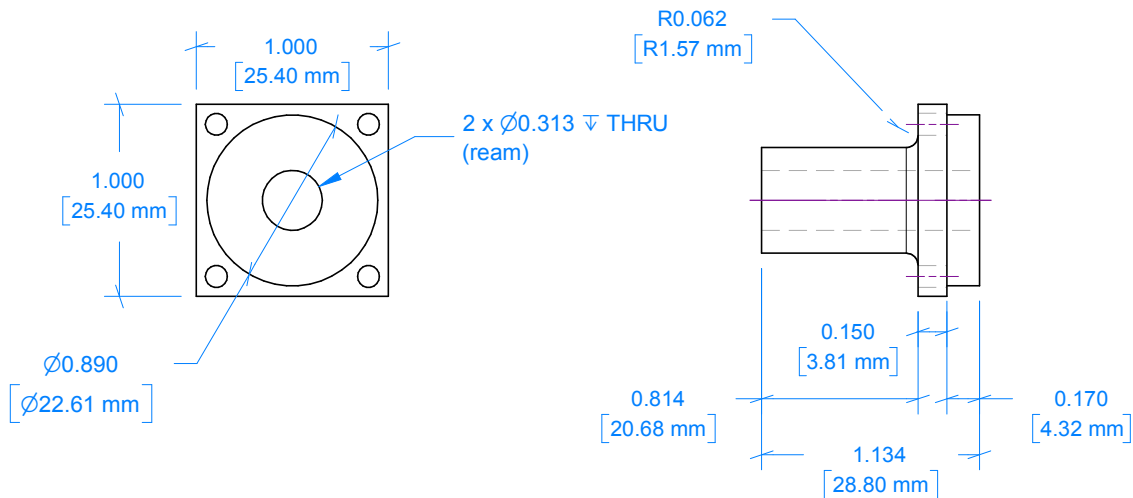
B

C

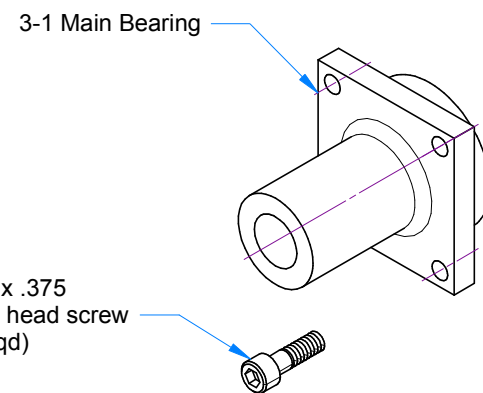
C

D


D



**3-1 Main Bearing Housing**  
1.0 sq aluminium bar



**BOLL-AERO 18 - Main Bearing**

Drawn by <b>Chris Boll</b>	CAD by Ron Chernich 2009-08-17		Edition 2	Sheet 3
-------------------------------	--------------------------------------	---	--------------	------------

1

2

3

6

1

2

3

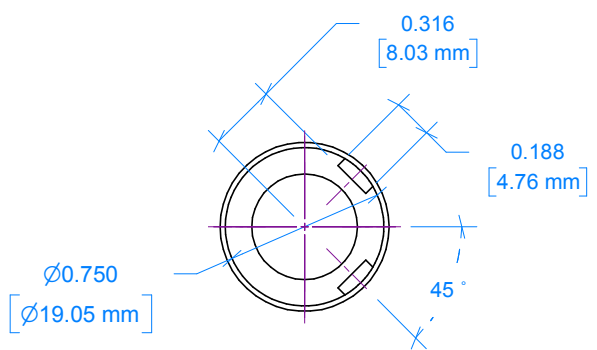
4

5

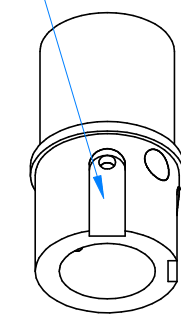
6

RevNo	Revision note	Date	Signature	Checked
2	Correct the note regarding milling depth of transfer passage.	2009-10-19	Ron C	

A

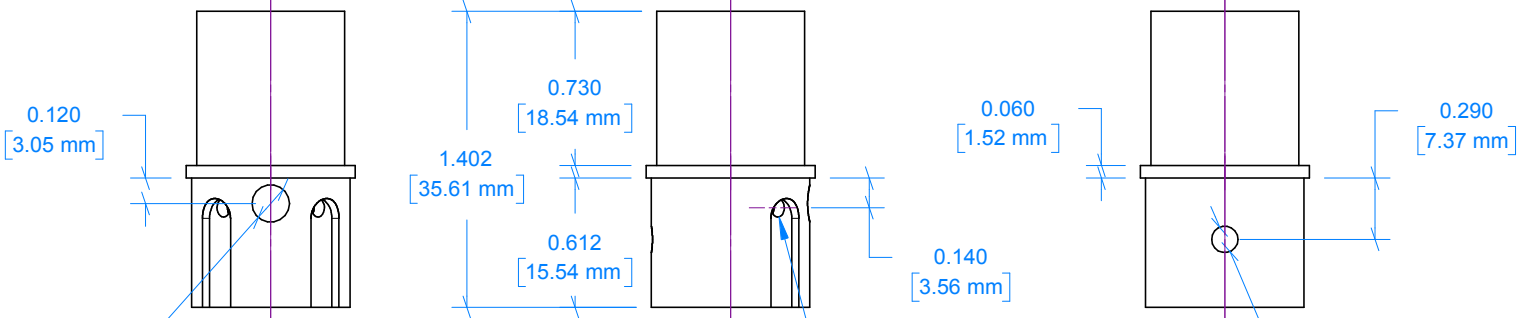


Mill Transfer passages 0.059" deep [1.5mm] using a Ø3/16" slot-drill [5 mm] so top of port reaches the top of the transfer port.



A

B



B

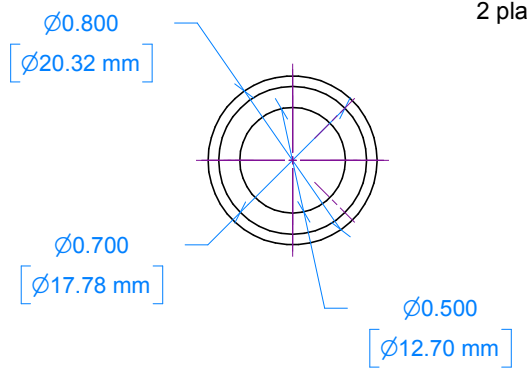
C

Exhaust port drill  $\text{Ø}0.177$  (#16) [Ø4.50 mm]  
 Transfer port drill 0.086 (#44) [2.2mm] 2 places  
 Inlet port drill  $\text{Ø}0.125$  [Ø3.18 mm]

C

D

**4-1 Cylinder**  
 Ø7/8 12L14 Steel



**BOLL-AERO 18 - Cylinder**

Drawn by <b>Chris Boll</b>	CAD by Ron Chemich 2009-10-01		Edition 2	Sheet 4
-------------------------------	-------------------------------------	--	--------------	------------

1

2

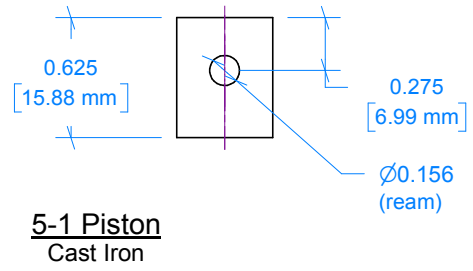
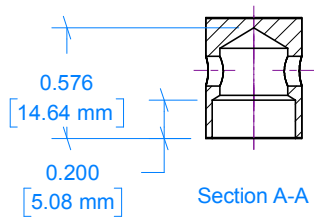
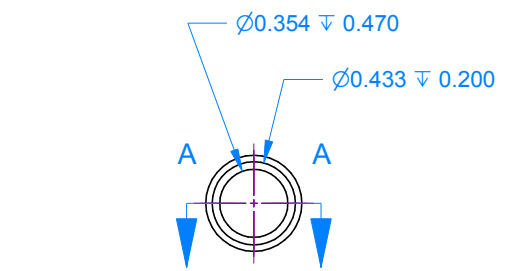
3

6

RevNo	Revision note	Date	Signature	Checked
2	Add Note 1.	2009-10-19	Ron C.	
3	Revise conrod cross section to circular.	2009-10-26	Ron C.	

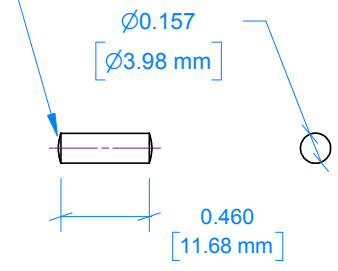
A  
B  
C  
D

A  
B  
C  
D

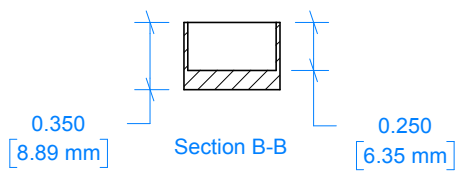
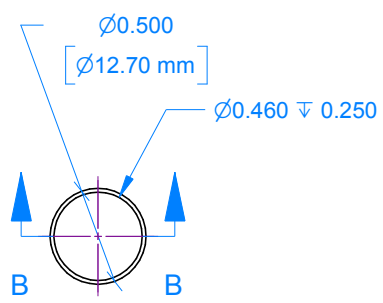
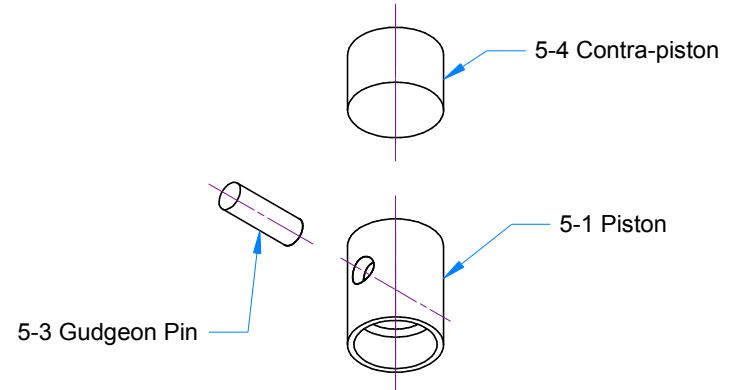


**5-1 Piston**  
Cast Iron

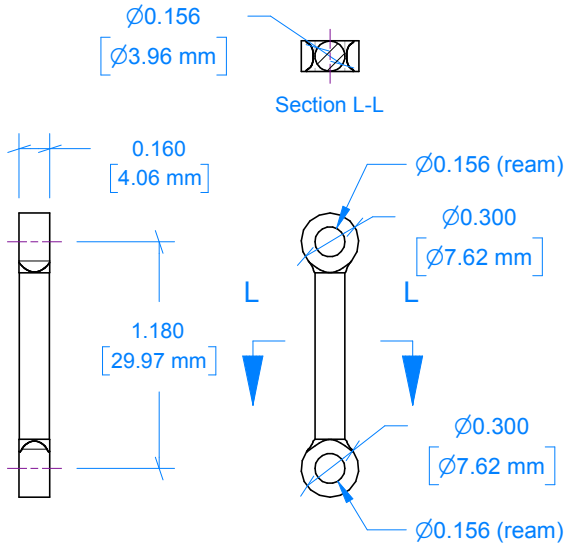
Dome and polish ends (Note 1)



**5-3 Gudgeon Pin**  
 $\varnothing 5/32$ " Drill Rod



**5-4 Contra-piston**  
Cast Iron



**5-2 Conrod**  
2024 T3 Aluminium

Note 1. The -3 Gudgeon pin is a fully floating fit in the -1 Piston and -2 Conrod. Dome and polish ends to prevent scoring of the 4-1 Cylinder Liner.

BOLL AERO 18 - Pistons and Rod				
Drawn by <b>Chris Boll</b>	CAD by Ron Chernich 2009-10-01		Edition 3	Sheet 5

1

2

3

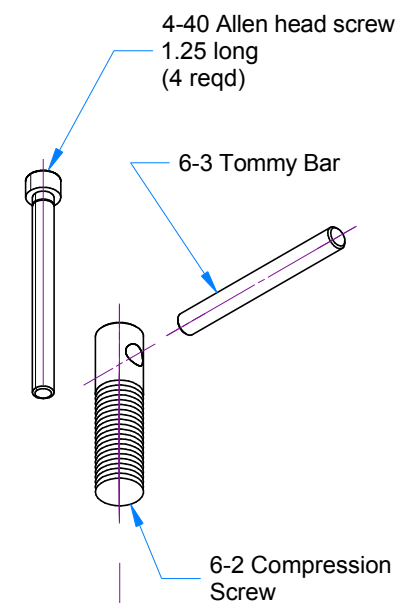
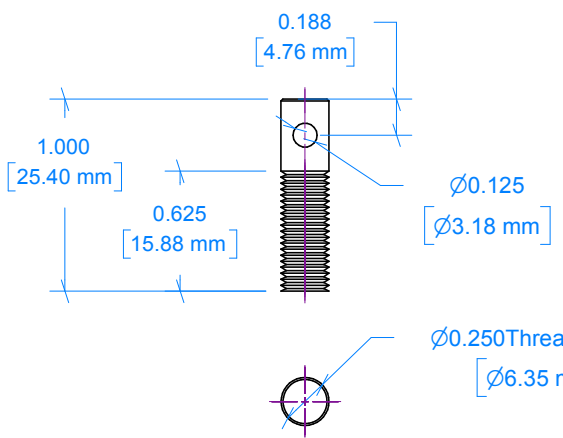
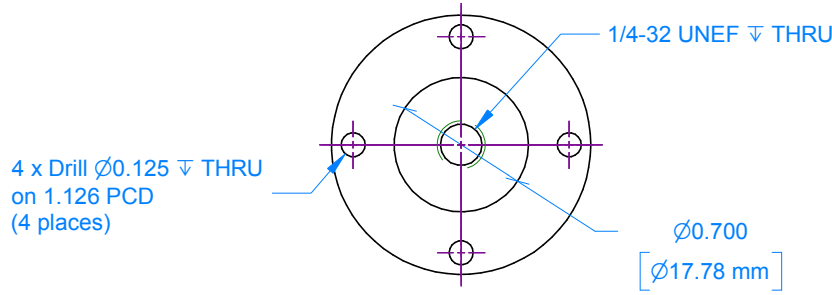
4

5

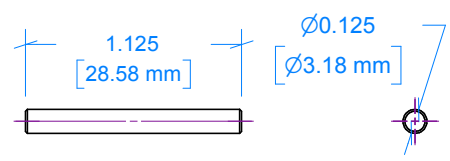
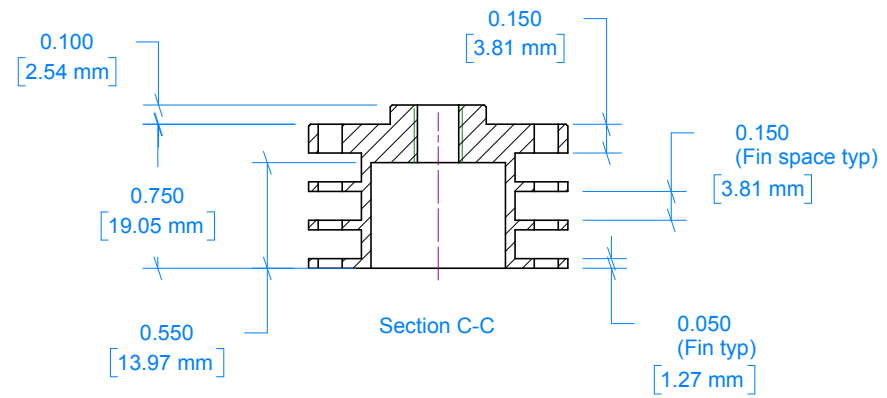
6

RevNo	Revision note	Date	Signature	Checked
2	Add Thread callout to -2 Compression Screw.	2009-10-19	Ron C.	
3	Correct the PCD note.	2009-10-27	Ron C.	

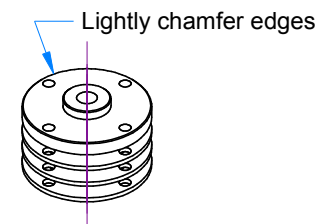
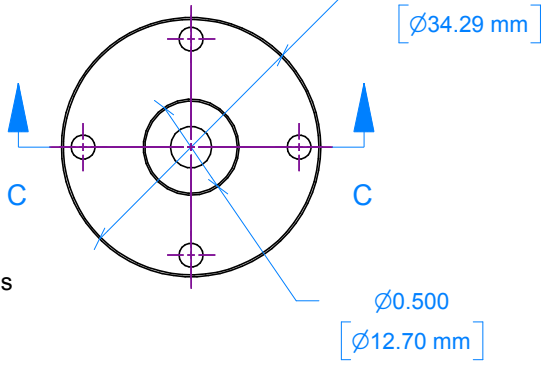
A



B



C



6-1 Cylinder Head  
 $\varnothing 1\text{-}3/8$  aluminium bar

6-3 Tommy Bar  
 $\varnothing 1/8$  Music Wire

6-2 Compression Screw  
 $\varnothing 1/4$  Steel

6-1 Cylinder Head

**BOLL AERO - Cylinder Muff**

Drawn by <b>Chris Boll</b>	CAD by Ron Chernich 2009-10-01		Edition 3	Sheet 6
-------------------------------	--------------------------------------	--	--------------	------------

1

2

3

6

A

B

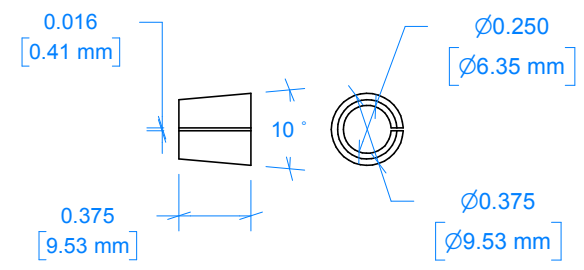
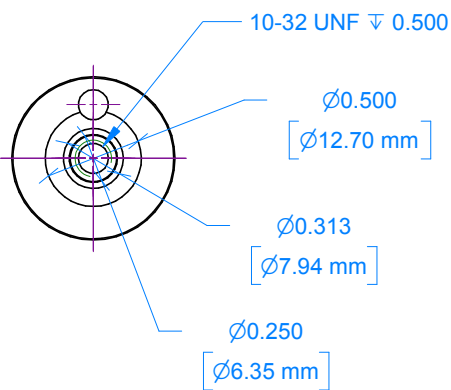
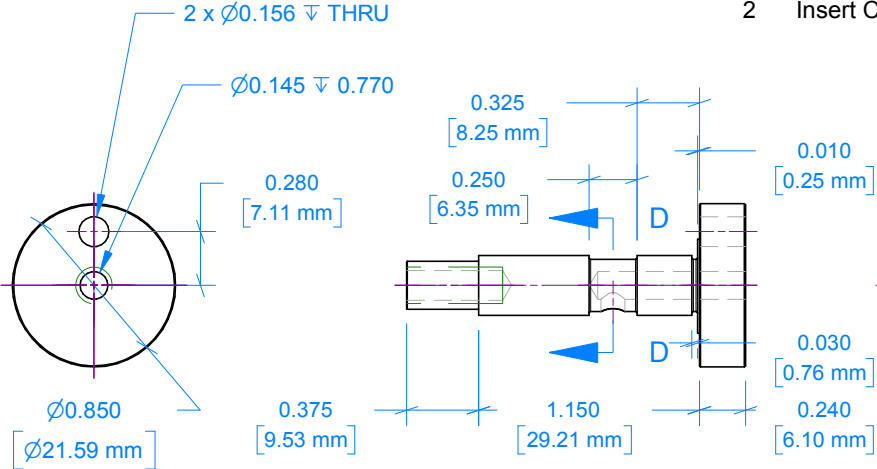
C

D

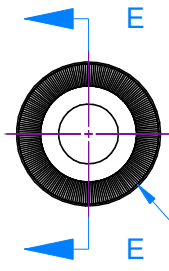
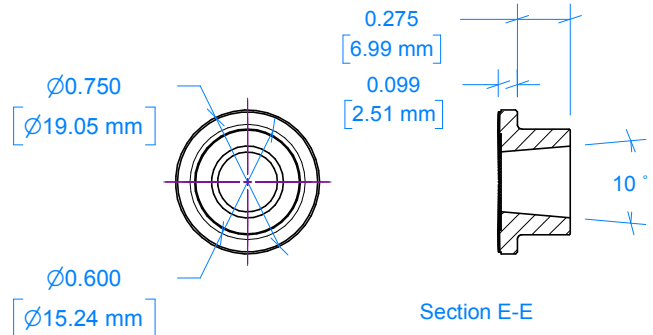
RevNo	Revision note	Date	Signature	Checked
2	Insert Centers.	2009-10-20	Ron C	

A  
B  
C  
D

A  
B  
C  
D

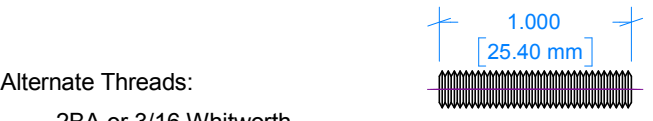


**7-5 Collet**  
 $\varnothing 3/8$  Brass



**7-2 Crankpin**  
 $\varnothing 5/32$  Steel Roller or Drill Rod

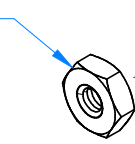
**7-2 Crankpin**  
 Loctite to 7-1 Crankshaft



Alternate Threads:  
 2BA or 3/16 Whitworth  
 UNF 10-32  
 4Mx0.7

10-32 machine nut

7-3 Stud

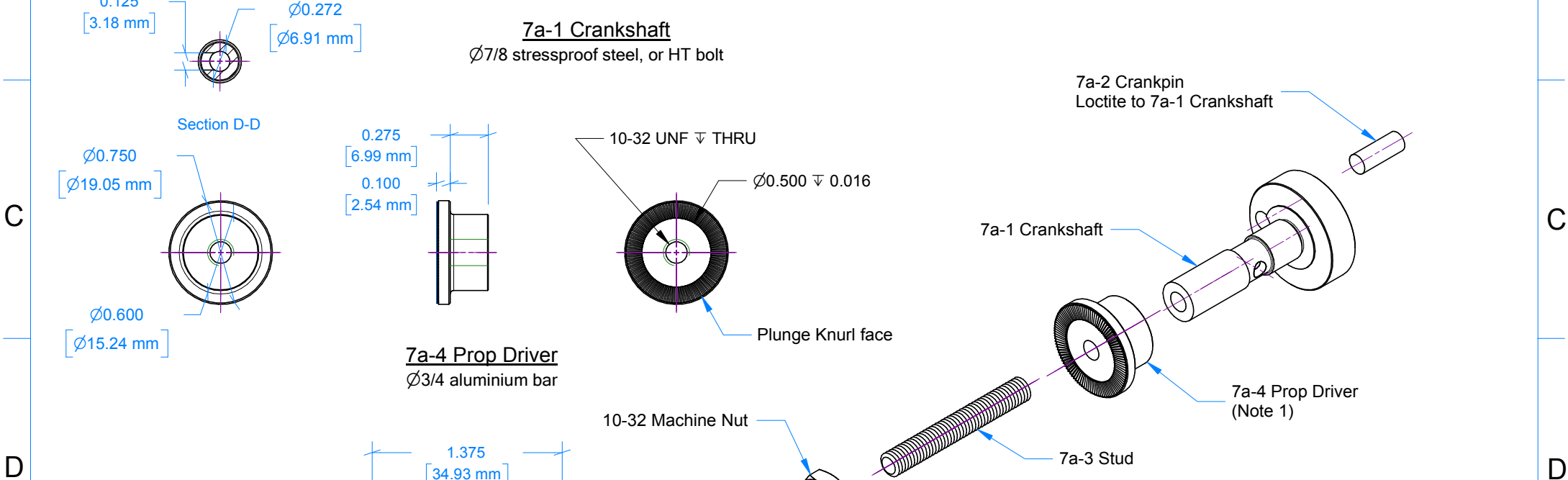
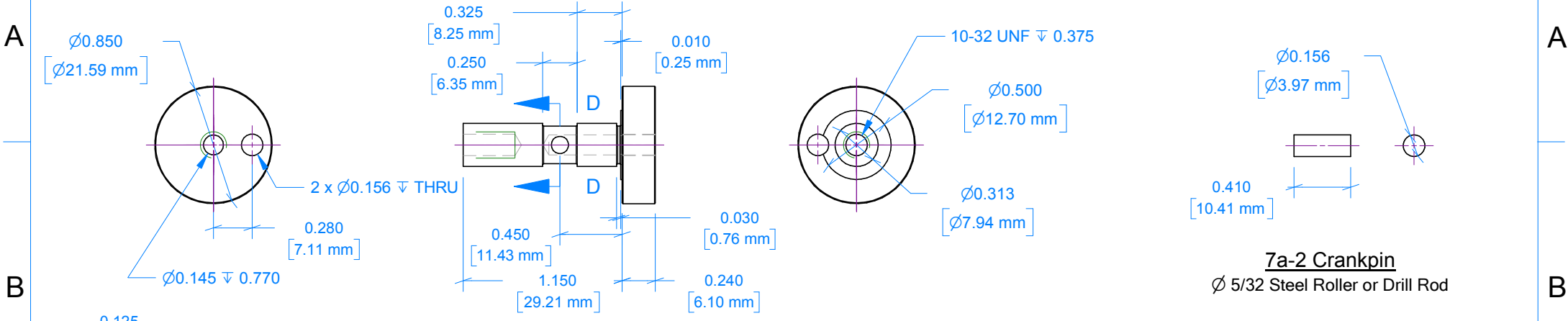


<b>BOLL AERO 18 - Crankshaft</b>				
Drawn by	CAD by Ron Chernich 2009-10-01		Edition 2	Sheet 7



RevNo	Revision note	Date	Signature	Checked

Note 1: This sheet depicts the original crankshaft and Prop Driver design. The method of fixing the -4 Prop Driver is simpler than that shown on Sheet 7, but may result in a thrown prop.



Alternate Threads:  
 2BA, or 3/16 Whitworth  
 UNF 10-32  
 4Mx0.7

BOLLAERO 18 - Crankshaft (alt 1)				
Drawn by <b>Chris Boll</b>	CAD by Ron Chernich 2009-10-20		Edition 1	Sheet 7a

1

2

3

4

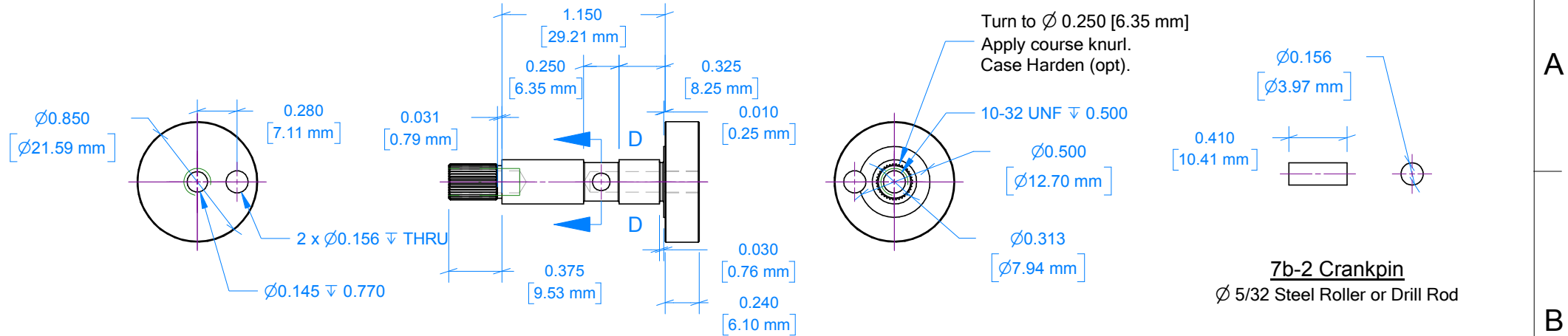
5

6

Note 1: Drill -4 Prop Driver 0.240 (Letter "C") for a force-fit on knurled section of -1 Crankshaft.

RevNo	Revision note	Date	Signature	Checked

A



B

C

D

Alternate Threads:  
 2BA or 3/16 Whitworth  
 UNF 10-32  
 4Mx0.7

**BOLLAERO 18 - Crankshaft (alt 2)**

Drawn by	CAD by Ron Chernich 2009-10-20		Edition 1	Sheet 7b
----------	--------------------------------------	--	--------------	-------------

1

2

3

6

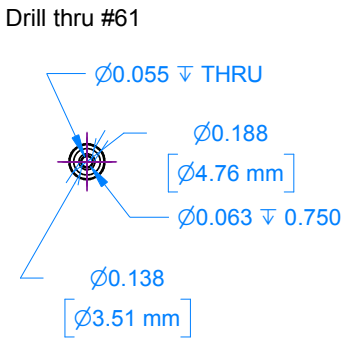
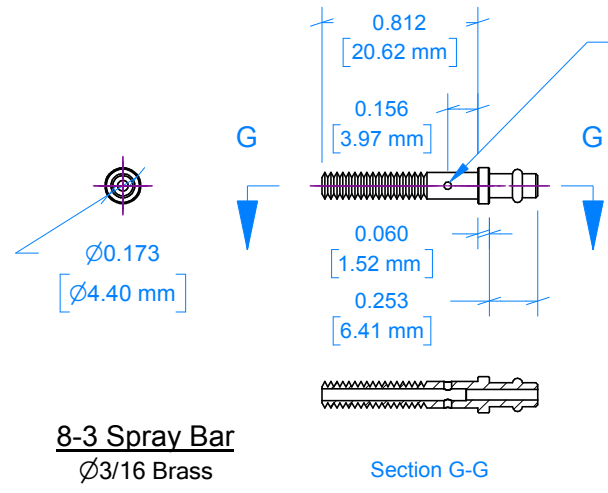
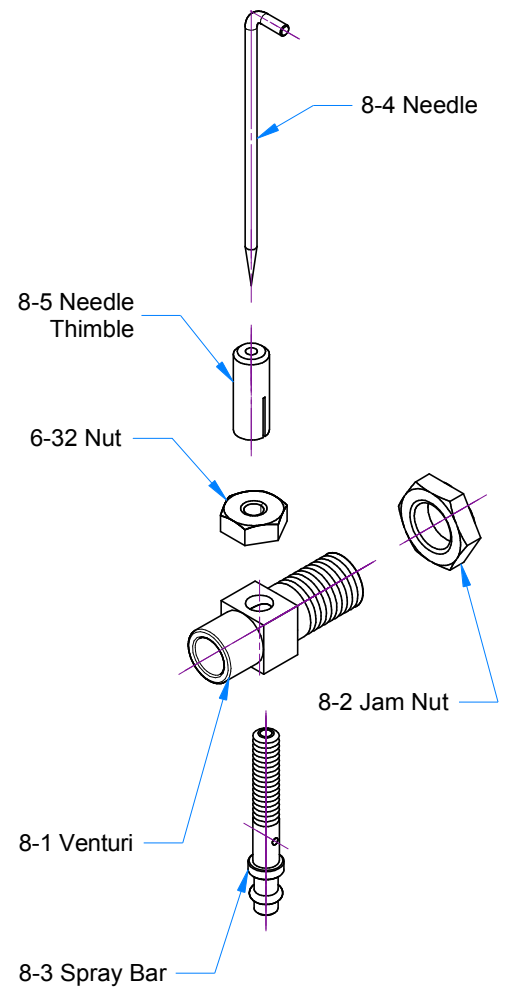
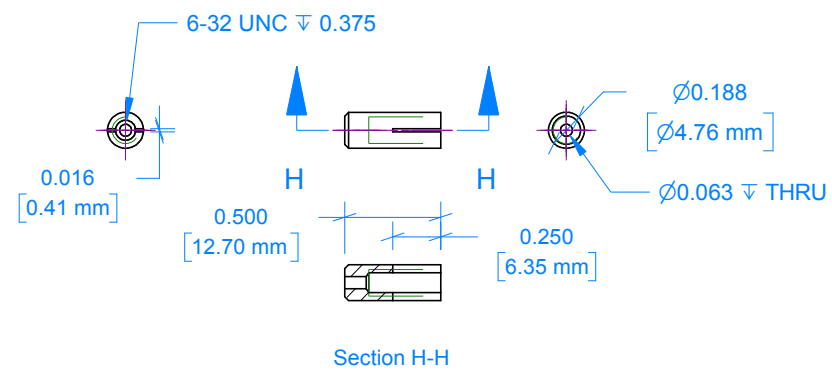
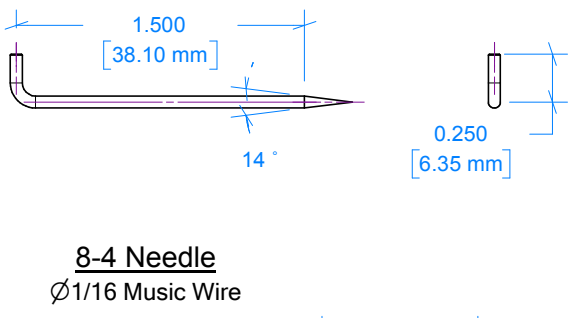
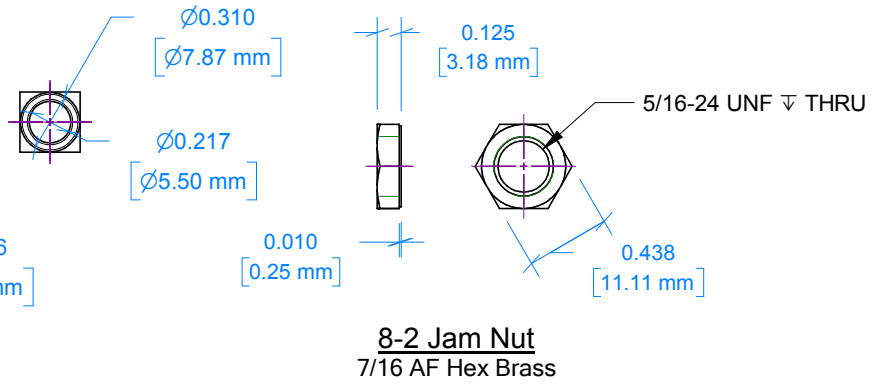
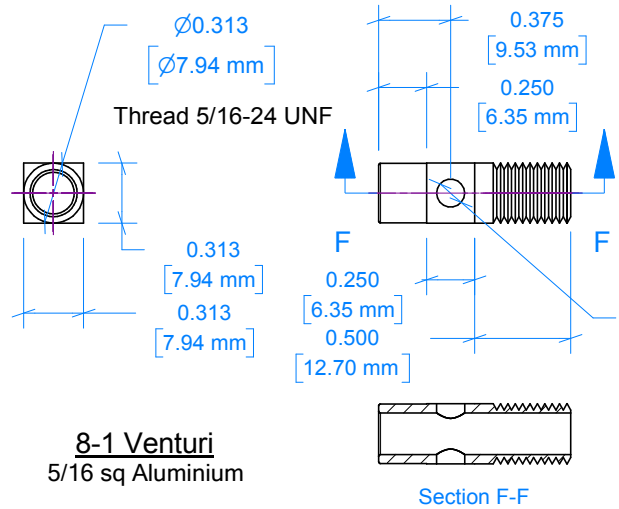
RevNo	Revision note	Date	Signature	Checked
-------	---------------	------	-----------	---------

2 Add thread callout to 8-1 Venturi.

2009-11-04 Ron C

A  
B  
C  
D

A  
B  
C  
D



Alternate Threads  
 Spraybar and Thimble: 6BA, 6-32 UNC. 3.5Mx0.6  
 Venturi and Jam Nut: 5/16-32 ME, 5/16-24 UNF, 8Mx1.25

BOLL AERO 18 - Fuel System				
Drawn by <b>Chris Boll</b>	CAD by Ron Chemich 2009-10-01		Edition 2	Sheet 8