**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)

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**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.
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.
2-1 Backplate

\( \varnothing 1-1/2 \) aluminium bar

4-40 x 1/4 Csk Allen head screw (4 reqd)

Countersink for fasteners size selected

2 2

Ron Chernich 2009-08-17

Chris Boll

Drawn by CAD by

BOLL-AERO 18 - Backplate

Edition 2  Sheet 2

2-1 Backplate

\( \varnothing 0.890 \) [22.61 mm]

\( \varnothing 0.114 \uparrow \text{THRU} \) [12.70 mm] (3 places)

\( \varnothing 0.114 \uparrow \text{THRU} \) [12.70 mm] (4 places)

\( \varnothing 1.500 \) [38.10 mm]

\( \varnothing 0.750 \uparrow 0.500 \) [19.05 \( \uparrow 12.70 \) mm] (4 places)

\( \varnothing 0.500 \) (ref) [12.70 mm]

\( \varnothing 0.400 \) [10.16 mm]

\( \varnothing 0.606 \) [15.39 mm]

\( \varnothing 0.550 \) [13.97 mm]

\( \varnothing 0.398 \) [10.11 mm]

\( \varnothing 0.150 \) [3.81 mm]

2 Correct Attachment hole spacing and reposition hole callout.

2009-10-19 Ron C.
Add suggested radius dimension for turned journal to flange transition.

3-1 Main Bearing Housing
1.0 sq aluminium bar

3-1 Main Bearing

4-40 x .375 Allen head screw (4 reqd)
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.

Transfer port drill Ø0.086 (#44) [2.2mm] 2 places

Exhaust port drill Ø0.177 (#16) [4.50 mm]

Inlet port drill Ø0.125 [3.18 mm]
BOLL AERO 18 - Pistons and Rod

5-1 Piston
Cast Iron

5-2 Conrod
2024 T3 Aluminium

5-3 Gudgeon Pin
\( \varnothing 5/32^\prime\) Drill Rod

Dome and polish ends (Note 1)

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

5-4 Contra-piston
Cast Iron

5-2 Conrod
Cast Iron

Drawn by
Chris Boll

CAD by
Ron Chernich
2009-10-01
6-1 Cylinder Head
Ø1-3/8 aluminium bar

6-2 Compression Screw
Ø1/4 Steel

6-3 Tommy Bar
Ø1/8 Music Wire

4 x Drill Ø0.125 THRU
on 1.126 PCD
(4 places)

Lightly chamfer edges

1/4-32 UNEF THRU

0.100
2.54 mm

0.150
3.81 mm

0.750
19.05 mm

0.550
13.97 mm

Section C-C

0.050
(Fin typ)
1.27 mm

0.150
(Fin space typ)
3.81 mm

0.700
17.78 mm

0.0700
1.27 mm

4-40 Allen head screw
1.25 long
(4 reqd)

6-3 Tommy Bar

6-2 Compression Screw

A

B

C

D

RevNo | Revision note |
---|---|
2 | Add Thread callout to -2 Compression Screw. |
3 | Correct the PCD note. |

Date | Signature | Checked |
---|---|---|
2009-10-19 | Ron C. | |
2009-10-27 | Ron C. | |

BOLL AERO - Cylinder Muff

Drawn by Chris Boll

CAD by Ron Chemich

Edition 3

Sheet 6
**7-1 Crankshaft**

φ7/8 stressproof steel, or HT bolt

**7-2 Crankpin**

5/32 Steel Roller or Drill Rod

**7-3 Stud**

Cut from 10-32 machine screw

**7-4 Prop Driver**

φ3/4 aluminium bar

**7-5 Collet**

φ3/8 Brass

**7-2 Crankpin**

Locitite to 7-1 Crankshaft

Alternate Threads:

2BA or 3/16 Whitworth

UNF 10-32

4Mx0.7

10-32 UNF φ 0.500

φ0.250

φ6.35 mm

φ0.375

φ9.53 mm

7-3 Stud

10-32 machine nut

7-5 Collet

7-4 Prop Driver
**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.

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**7a-1 Crankshaft**

Ø7/8 stressproof steel, or HT bolt

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**7a-2 Crankpin**

Ø 5/32 Steel Roller or Drill Rod

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**7a-3 Stud**

Cut from 10-32 machine screw

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**Alternate Threads:**

2BA, or 3/16 Whitworth

UNF 10-32

4Mx0.7
Note 1: Drill -4 Prop Driver 0.240 (Letter "C") for a force-fit on knurled section of -1 Crankshaft.

7b-1 Crankshaft

♂7/8 stressproof steel, or HT bolt

7b-2 Crankpin

♂ 5/32 Steel Roller or Drill Rod

7b-4 Prop Driver

♂3/4 aluminium bar

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

7b-3 Stud

Cut from 10-32 machine screw

10-32 Hex Machine Nut