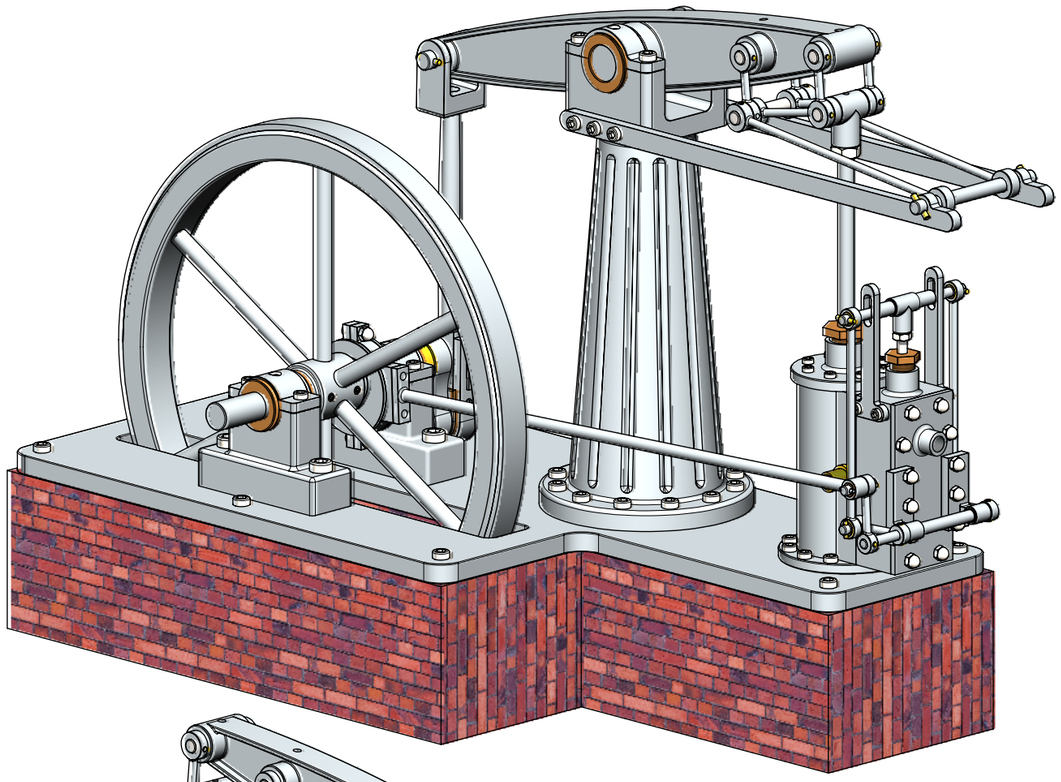
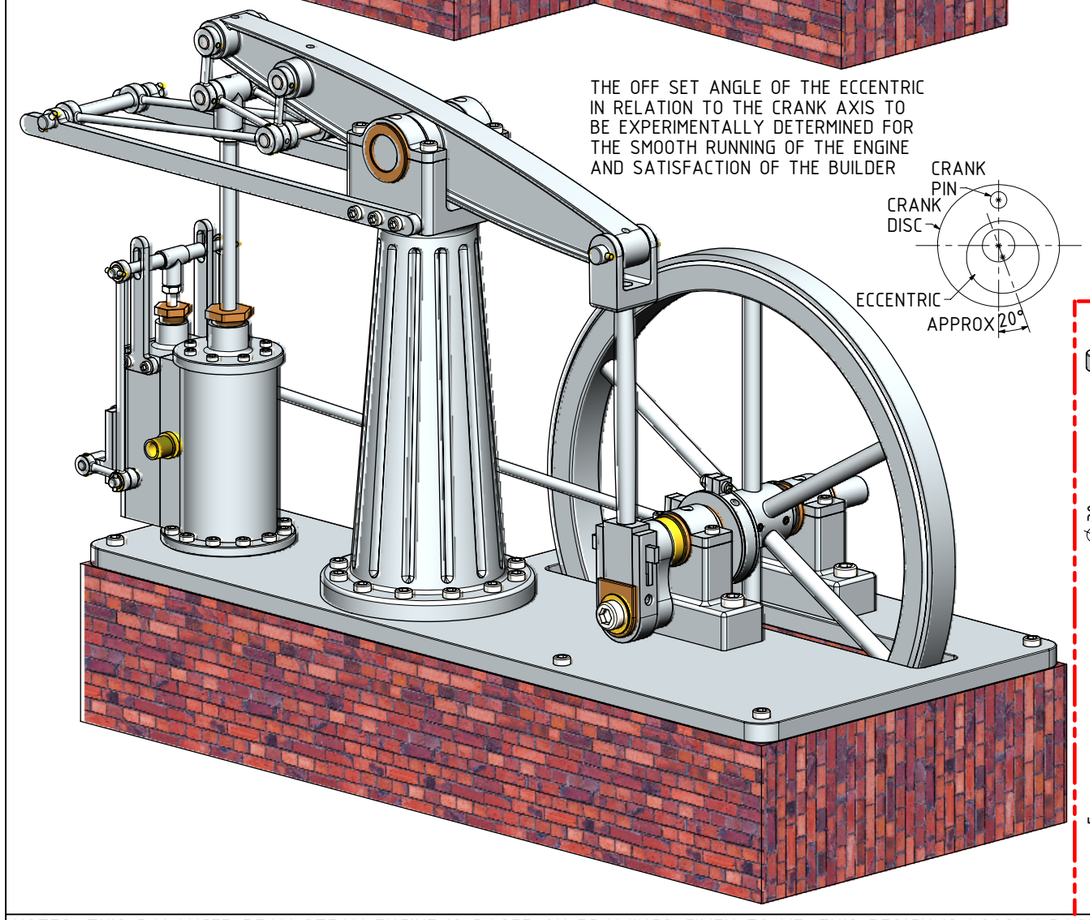




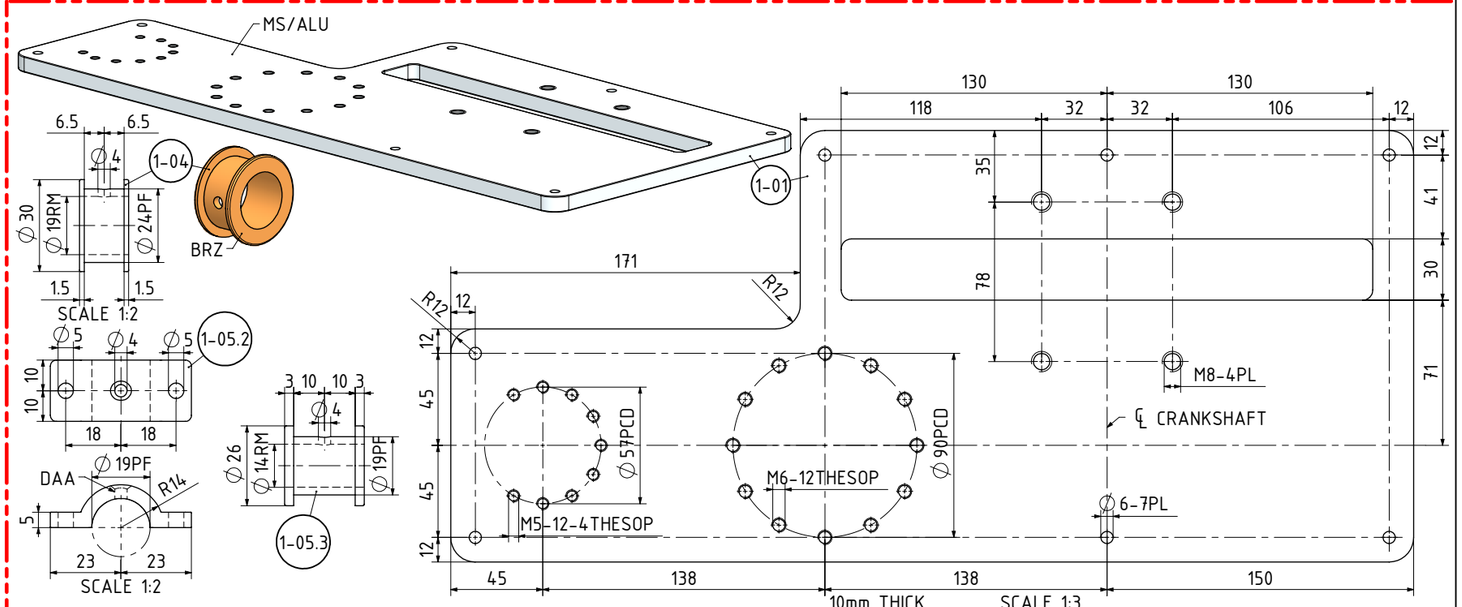
THE OFF SET ANGLE OF THE ECCENTRIC IN RELATION TO THE CRANK AXIS TO BE EXPERIMENTALLY DETERMINED FOR THE SMOOTH RUNNING OF THE ENGINE AND SATISFACTION OF THE BUILDER

NOTES:
0. ALL DRAWINGS ARE IN METRIC MEASUREMENTS
1. ALL ENGINEERING PRACTICES SHALL BE APPLIED WITH REGARDS TO HOLE AND SHAFT TOLERANCES.
2. WHERE SCREWS OR BOLTS ARE USED THE CLEARANCE HOLES SHALL BE APPROXIMATELY 5% TO 8% LARGER THAN THE MATCHING TAPPED HOLE.
3. PREFERABLY ALL TAPPED HOLES AND MATCHING SCREWS AND/OR BOLTS TO BE METRIC FINE (MF)
4. MATERIALS SPECIFIED ON THE DRAWINGS ARE INDICATIVE ONLY. THE BUILDER CAN MAKE HIS/HER OWN MATERIAL CHOICE.
5. ALL CONNECTIONS/JOINTS WHICH HAVE STEAM PRESSURE APPLIED TO IT SHALL BE SILVER/HARD SOLDERED.
6. COMPRESSION SPRINGS ARE DRAWN IN COMPRESSED STATE (CP), UNCOMPRESSED STATE IS APPROX 40% TO 60% LONGER THEN COMPRESSED STATE.
7. WHERE PREFERRED SCREW OR RIVETED CONNECTIONS CAN BE OMITTED AND PARTS CAN BE BONDED TOGETHER BY USING EITHER HIGH STRENGTH GLUE, EPOXY RESIN, OR SOLDER.
8. PARTS WHICH ARE DIRECTLY EXPOSED TO STEAM AND/OR WATER SHOULD BE CONSTRUCTED USING NON-FERROUS OR NON CORROSIVE MATERIAL SUCH AS BRASS, BRONZE, GUNMETAL, STAINLESS STEEL, COPPER OR MONEL.
9. THE ORDER IN WHICH THE PARTS/COMPONENTS ARE MANUFACTURED AND THE MODEL IS ASSEMBLED IS ENTIRELY LEFT TO THE BUILDER/MODEL MAKER.
10. A COLOUR SCHEME FOR THIS PROJECT IS ENTIRELY LEFT UP TO THE MODEL MAKER.
11. THE MANNER IN WHICH THE PARTS/COMPONENTS ARE MANUFACTURED IS ENTIRELY LEFT UP TO THE BUILDER.
12. USE LOCTITE, ON SCREW OR PRESS FIT CONNECTIONS OR SURFACES, WERE DEEMED NECESSARY TO PREVENT PARTS FROM LOOSENING.
13. WASHER SHALL BE USED WHERE DEEMED NECESSARY.
14. N/A
XX. ERRORS AND/OR OMISSIONS MAY OCCUR IN THE DRAWINGS, DO NOT HESITATE TO CONTACT ME SO THAT THE ERRORS/OMISSIONS CAN BE RECTIFIED.

OTHER ABBREVIATIONS
DP = DEEP
DAA= DRILL AFTER ASSEMBLY
D&TAA= DRILL AND TAP AFTER ASSEMBLY
CF = CLOSE FIT (SIZE FOR SIZE)
(L)PF= (LIGHT)PRESS FIT
PFAA= PRESS FIT AFTER ASSEMBLY
PCD = PITCH CIRCLE DIAMETER
RM = REAM
HEX = HEXACON, 6SIDED
CP = COMPRESSED
KNL = KNURLED
CSK = COUNTERSINK
PL = PLACES
DWL= DOWEL
(T)HESOP=(TAPPED)HOLES EQUALLY SPACED ON PCD
(T)HESOC=(TAPPED)HOLES EQUALLY SPACED ON CIRCUMFERENCE
SA-xxx = SUB ASSEMBLY-xxx

MATERIAL ABBREVIATIONS:
ALU = ALUMINIUM
BRS = BRASS
BRZ = BRONZE OR GUNMETAL (BRZ/GM)
CI = CAST IRON
CU = COPPER
GRA = GRAPHITE
MS = MILD STEEL/BRIGHT MILD STEEL
S/S = SILVER STEEL OR STAINLESS STEEL
SPS = SPRING STEEL
PEEK= POLYETHER ETHER KETONE
SYN = SYNTHETIC MATERIAL SUCH AS VETON, NYLON, TEFLON OR RUBBER
IN GENERAL SYNTHETIC MATERIALS SOULD BE ABLE TO WITHSTAND THE HEAT AND PRESSURE(S) APPLIED TO THEM.
nnn/nnn MEANS THAT EITHER MATERIAL CAN BE USED

QTY.	PART NUMBER
1	BBSEBH-1-01-BASE PLATE
1	BBSEBH-1-02-BASE WALL
1	BBSEBH-1-03-BEARING COLUMN
2	BBSEBH-1-04-COLUMN BEARING
2	BBSEBH-1-05-CRANKSHAFT BEARING
1	BBSEBH-1-06-CYLINDER
1	BBSEBH-1-07-CYLINDER BOTTOM COVER
1	BBSEBH-1-08-CYLINDER TOP COVER
1	BBSEBH-1-09-LOWER CROSS SHAFT BEARING
1	BBSEBH-1-09-LOWER CROSS SHAFT BEARING
2	BBSEBH-1-10-ENTABLATURE BAR
1	BBSEBH-1-11-ENTABLATURE END LINK SHAFT
1	BBSEBH-2-01-CRANK SHAFT
1	BBSEBH-2-02-ECCENTRIC SHEAVE
1	BBSEBH-2-03-FLYWHEEL
1	BBSEBH-2-04-BALANCE BEAM
1	BBSEBH-2-05-CON-ROD
1	BBSEBH-2-06-PISTON+ROD+CROSSHEAD
4	BBSEBH-2-07-BEAM PARALLEL LINK-1
2	BBSEBH-2-08-BEAM PARALLEL LINK-2
2	BBSEBH-2-09-BEAM PARALLEL LINK-3
3	BBSEBH-2-10-LINK PIN TYPE-1
1	BBSEBH-2-11-LINK PIN TYPE-2
1	BBSEBH-2-12-ECCENTRIC STRAP
1	BBSEBH-2-13-VALVE+VALVE ROD+CROSSHEAD
1	BBSEBH-2-14-VALVE CROSS SHAFT
2	BBSEBH-2-15-VALVE CROSS SHAFT LEVER TYPE-1
1	BBSEBH-2-15-VALVE CROSS SHAFT LEVER TYPE-1
2	BBSEBH-2-16-VALVE CROSSHEAD LINK BAR
14	BBSEBH-M4 DOME NUT
1	BBSEBH-M4x7 A-K GRUB SCREW7
4	BBSEBH-M4x8 A-K GRUB SCREW
4	BBSEBH-M4x10 A-K CYL HEAD SCREW
8	BBSEBH-M4x12 A-K C-SINK SCREW
10	BBSEBH-M4x14 A-K CYL HEAD SCREW
1	BBSEBH-M4x16 A-K GRUB SCREW
6	BBSEBH-M4x38 THREADED ROD
6	BBSEBH-M4x42 THREADED ROD
1	BBSEBH-M5 NUT
19	BBSEBH-M5x14 A-K CYL HEAD SCREW
4	BBSEBH-M6x12 A-K CYL HEAD SCREW
7	BBSEBH-M6x18 A-K CYL HEAD SCREW
12	BBSEBH-M6x22 A-K CYL HEAD SCREW
1	BBSEBH-M8 NUT
4	BBSEBH-M8x30 A-K CYL HEAD SCREW
1	BBSEBH-M10 WASHER
1	BBSEBH-M10x16 A-K CYL HEAD SCREW



NOTES: THIS BALANCED BEAM STEAM ENGINE IS BASED ON DRAWINGS GIVEN TO ME. THIS DESIGN IS LOOSLY BASED ON A DESIGN BY BOB HOLME DATED AUGUST-2013. THIS ENGINE WAS CALLED "THE TRIPLE B"

TITLE
BALANCED BEAM STEAM ENGINE

DRAWING CONTENTS
ISOMETRIC VIEWS, NOTES, B.O.M., PARST AND ASSEMBLIES

PROJECT No 09E-24-00
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E-MAIL: dewaal@xtra.co.nz.

PROJECTION JDWDS
DATE NOVEMBER-2017
MODEL SCALE: 1:1
DWG SCALE: 1:1 @A3 OR AS SHOWN
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SHEET: 02 OF 05 | A3 | No: BBSEBH-02