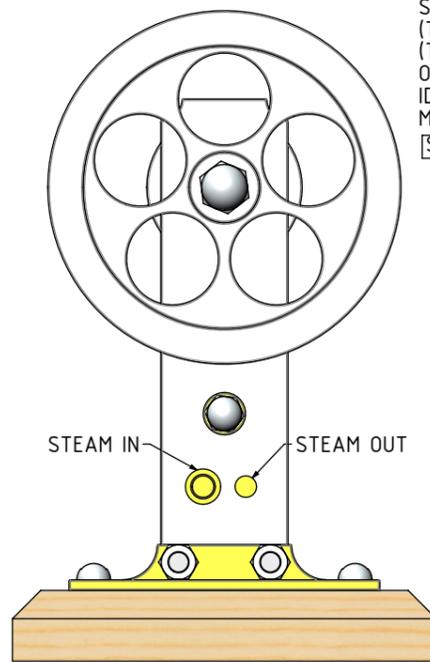
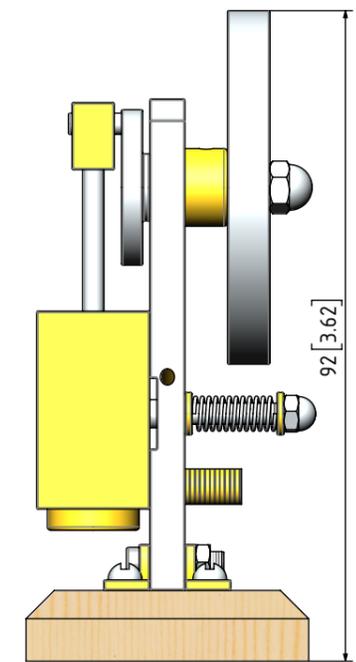
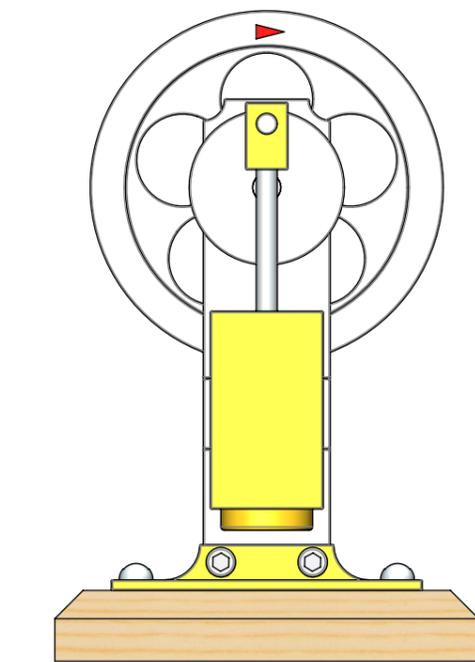
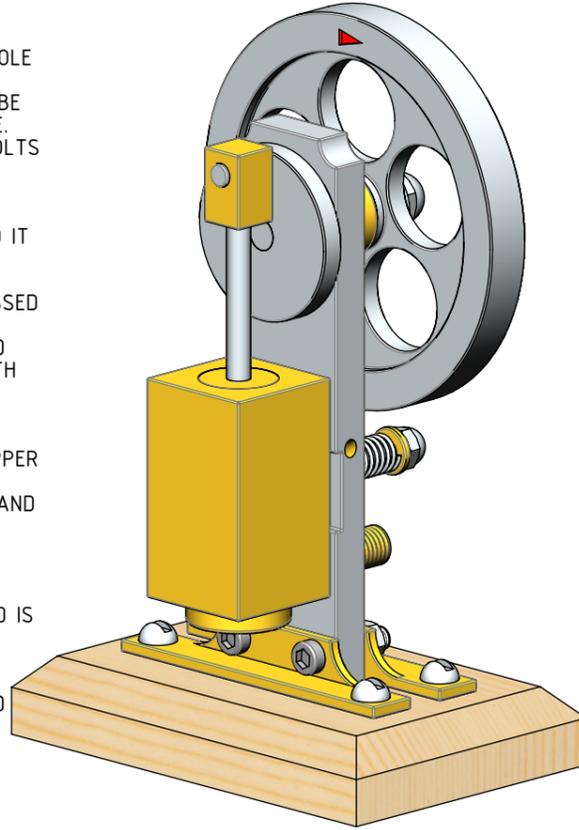


DUE TO THE LACK OF INFORMATION ON THE ORIGINAL DRAWING(S), SUCH AS VIEWS, DIMENSIONS, SECTIONS ETC AND/OR CLARITY OF COMPONENTS, OMITTED PARTS/COMPONENTS, SOME OF THE COMPONENTS MIGHT NOT BE AS CONSTRUCTED ORIGINALLY OR AS THE ORIGINAL DESIGNER INTENDED



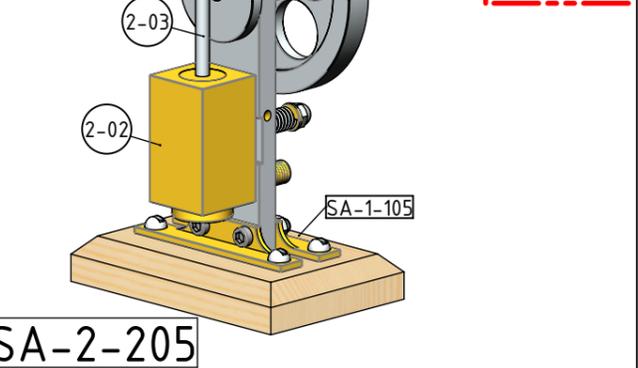
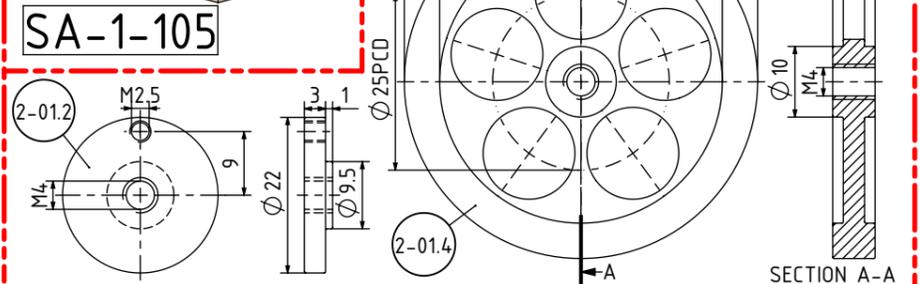
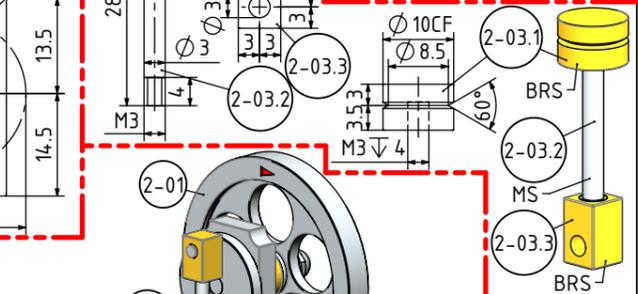
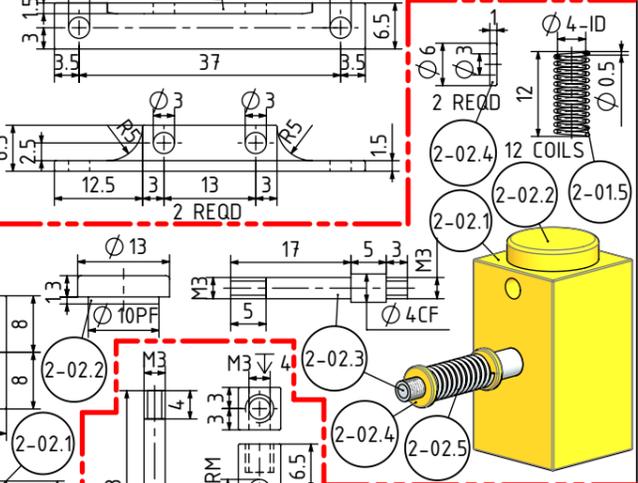
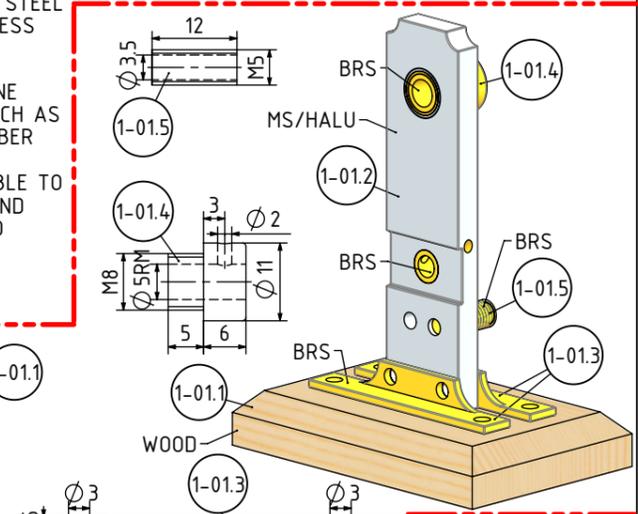
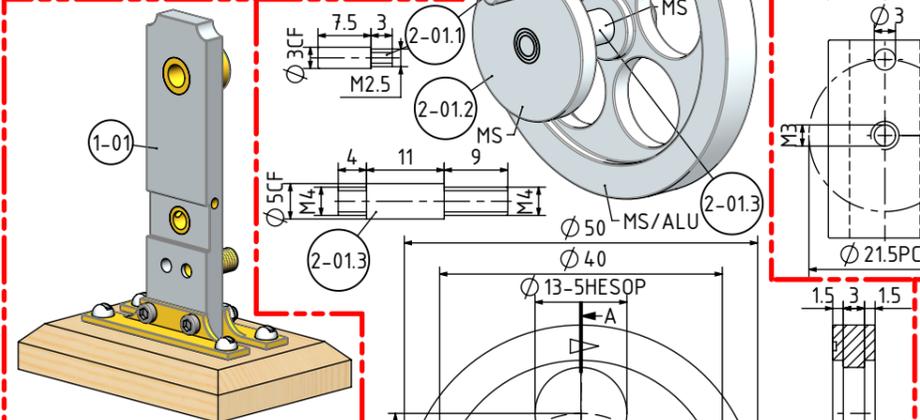
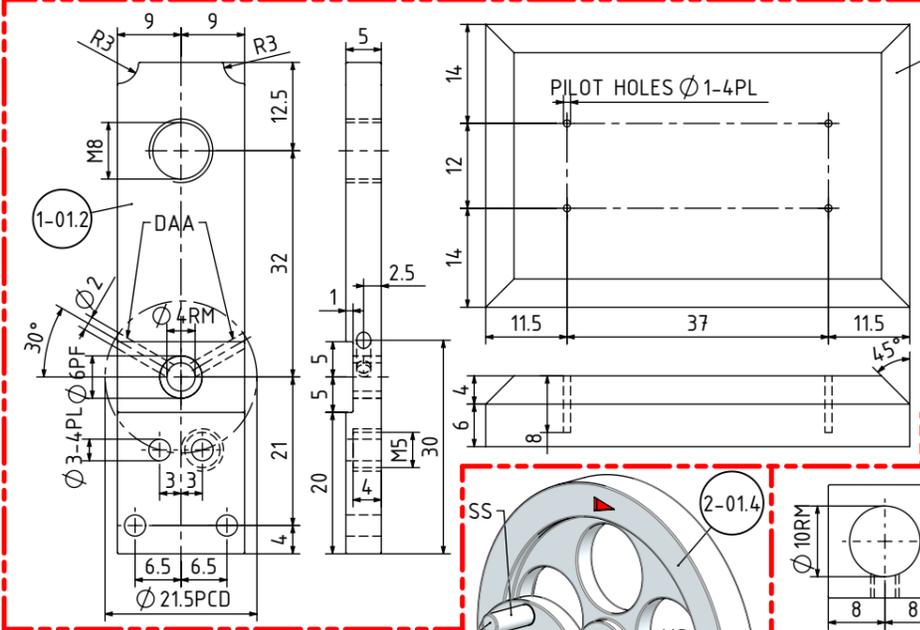
- GENERAL NOTES:**
- ALL DRAWINGS ARE IN METRIC MEASUREMENTS
 - ALL ENGINEERING PRACTICES SHALL BE APPLIED WITH REGARDS TO HOLE AND SHAFT TOLERANCES.
 - WHERE SCREWS OR BOLTS ARE USED THE CLEARANCE HOLES SHALL BE APPROXIMATELY 5% TO 8% LARGER THAN THE MATCHING TAPPED HOLE.
 - PREFERABLY ALL TAPPED HOLES AND MATCHING SCREWS AND/OR BOLTS TO BE METRIC FINE (MF)
 - MATERIALS SPECIFIED ON THE DRAWINGS ARE INDICATIVE ONLY. THE BUILDER CAN MAKE HIS/HER OWN MATERIAL CHOICE.
 - ALL CONNECTIONS/JOINTS WHICH HAVE STEAM PRESSURE APPLIED TO IT SHALL BE SILVER/HARD SOLDERED.
 - COMPRESSION SPRINGS ARE DRAWN IN COMPRESSED STATE (CP), UNCOMPRESSED STATE IS APPROX 40% TO 60% LONGER THEN COMPRESSED STATE.
 - 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.
 - 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.
 - THE ORDER IN WHICH THE PARTS/COMPONENTS ARE MANUFACTURED AND THE MODEL IS ASSEMBLED IS ENTIRELY LEFT TO THE BUILDER/MODEL MAKER.
 - A COLOUR SCHEME FOR THIS PROJECT IS ENTIRELY LEFT UP TO THE MODEL MAKER.
 - THE MANNER IN WHICH THE PARTS/COMPONENTS ARE MANUFACTURED IS ENTIRELY LEFT UP TO THE BUILDER.
 - USE LOCTITE, ON SCREW OR PRESS FIT CONNECTIONS OR SURFACES, WERE DEEMED NECESSARY TO PREVENT PARTS FROM LOOSENING.
 - WASHERS AND/OR SPRING WASHERS SHALL BE USED WHERE DEEMED NECESSARY.
 - REMOVE ALL SHARP EDGES
 - 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
 AS = AS SHOWN
 DP = DEEP
 DAA= DRILL AFTER ASSEMBLY
 D&TAA= DRILL AND TAP AFTER ASSEMBLY
 CF = CLOSE FIT (SIZE FOR SIZE)
 PF = PRESS FIT
 PFAA= PRESS FIT AFTER ASSEMBLY
 PCD = PITCH CIRCLE DIAMETER
 RM = REAM
 HEX = HEXAGON, 6SIDED
 CP = COMPRESSED
 KNL = KNURLED
 CSK = COUNTERSINK
 PL = PLACES
 DWL= DOWEL
 SPF= SPOTFACE
 (T)HESOP=(TAPPED)HOLES EQUALLY SPACED ON PCD
 (T)HESOC=(TAPPED)HOLES EQUALLY SPACED ON CIRCUMFERENCE
 OD = OUTSIDE DIAMETER
 ID = INSIDE DIAMETER
 MAX/MIN = CRITICAL DIMENSION
 [SA-xxx]= SUB ASSEMBLY-xxx

MATERIAL ABBREVIATIONS:
 ALU = ALUMINIUM
 HALU= HARD ALUMINIUM
 BRS = BRASS
 BRZ = BRONZE OR GUNMETAL (BRZ/GM)
 CI = CAST IRON
 CU = COPPER
 GRA = GRAPHITE
 MS = MILD STEEL/BRIGHT MILD STEEL
 SS = 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 SHOULD 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	09A-40-00-1-01-BASE+STANDARD
1	09A-40-00-2-01-CRANKSHAFT+ FLYWHEEL
1	09A-40-00-2-02-CYLINDER
1	09A-40-00-2-03-PISTON
1	09A-40-00-M3 DOME NUT
2	09A-40-00-M3 NUT
4	09A-40-00-M3x10-ROUND HEAD WOOD SCREW
2	09A-40-00-M3x12 A-K CYL HEAD SCREW
1	09A-40-00-M4 DOME NUT



NOTES: THE ORIGINAL DRAWINGS WERE GIVEN TO ME. THE ORIGINAL 2 DRAWINGS WERE DRAWN BY N.C.G., DATED 12-20-2007, REV:3, 17-09-2007, REV:2. DRAWING TITLE: "OSCILLATING ENGINE". THE ENGINE SHOWN ON THIS DRAWING INCORPORATE SOME MINOR ALTERATIONS.

TITLE
A 1 CYLINDER OSCILLATING STEAM ENGINE VERTICAL INVERTED (B=10mm S=18mm)

DRAWING CONTENTS
G.A., ISOMETRIC VIEW, NOTES, BOM, PARTS AND ASSEMBLIES

PROJECT No 09A-40-00
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 2110, NEW ZEALAND. PHONE: 0064 09 2988815. MOB: 0211791000 E-MAIL: dewaal@xtra.co.nz.

PROJECTION
 JDWDS
 DATE
 DECEMBER 2024
 SHEET: 01 OF 01

MODEL SCALE: 1:1
 DWG SCALE: 1:1 @A3 OR AS SHOWN
 Copyright © J.A.M. DE WAAL PAPAOKURA NZ
 A3 No:09A-40-00-SHT-01

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