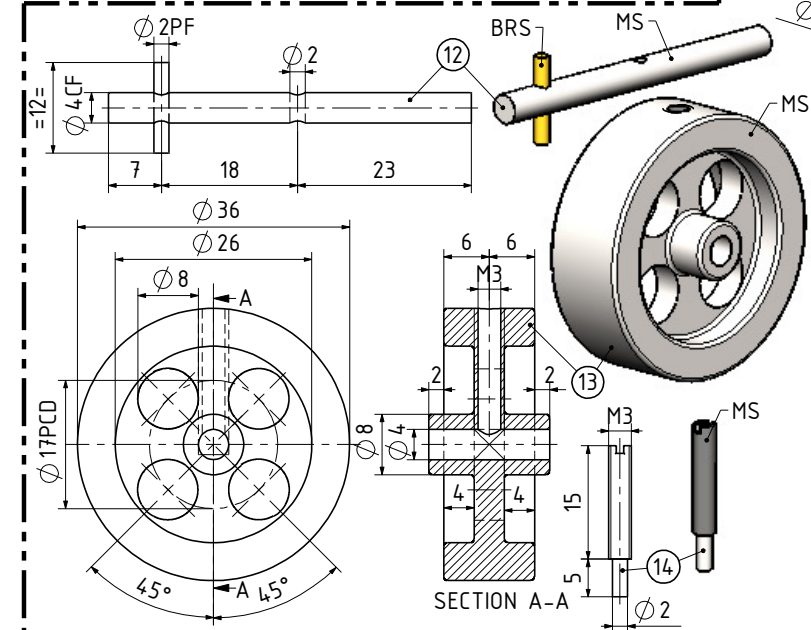
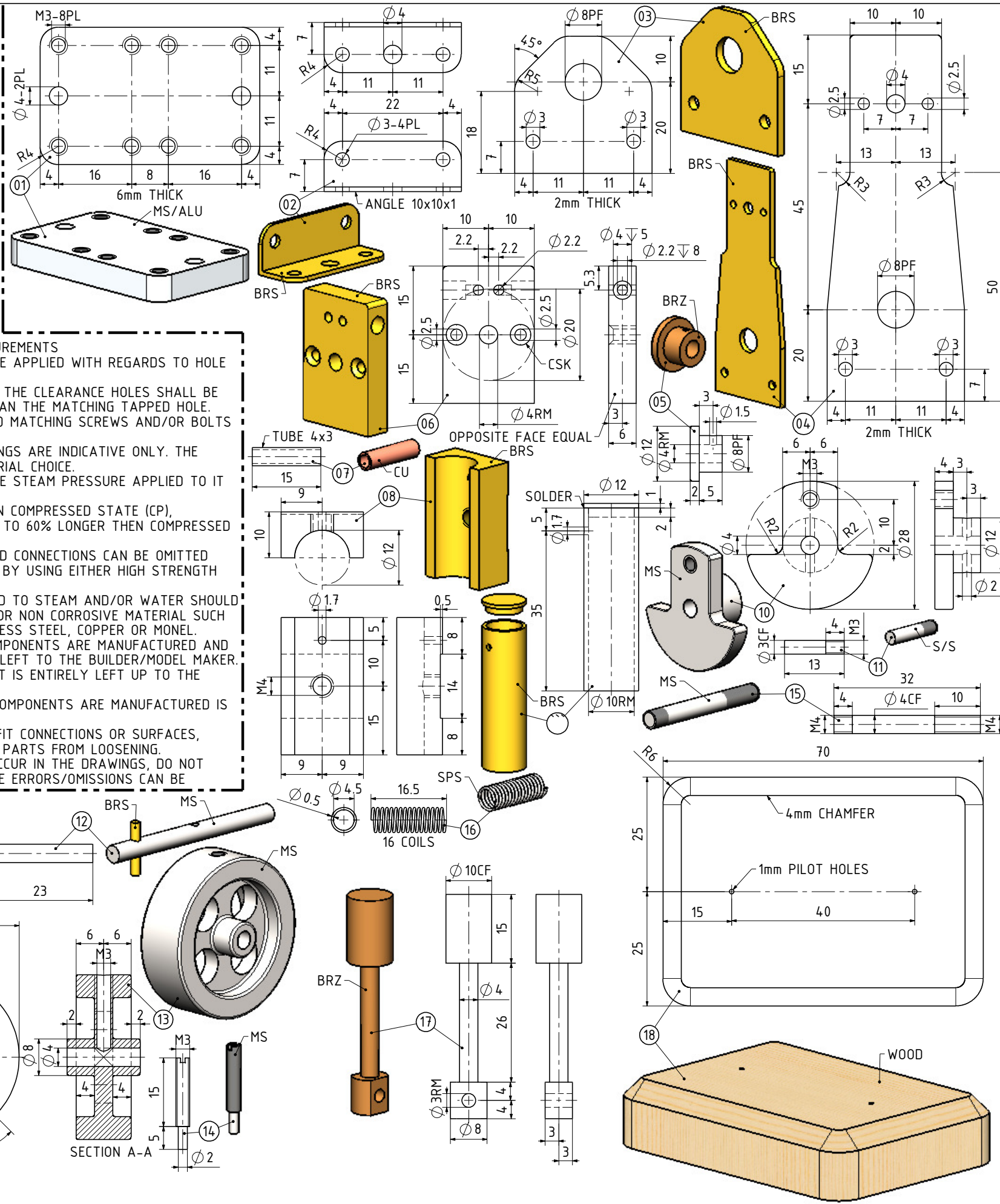


OTHER ABBREVIATIONS
 DP = DEEP
 PF = PRESS FIT
 PCD = PITCH CIRCLE DIAMETER
 RM = REAM
 HEX = HEXACON, 6SIDED
 CP = COMPRESSED
 KNL = KNURLED
 CSK = COUNTERSINK
 PL = PLACES
 [SA-n-xxx] = SUB ASSEMBL-n-xxx

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 SHOULD BE ABLE TO WITHSTAND THE HEAT AND PRESSURE(S) APPLIED TO THEM.
 nnn/nnn MEANS THAT EITHER MATERIAL CAN BE USED

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.
 XX. ERRORS AND/OR OMISSIONS MAY OCCUR IN THE DRAWINGS, DO NOT HESITATE TO CONTACT ME SO THAT THE ERRORS/OMISSIONS CAN BE RECTIFIED.

QTY.	PART NUMBER
1	WOBLER-01-BASE PLATE
4	WOBLER-02-ANGLE BRACKET
1	WOBLER-03-BEARING PLATE
1	WOBLER-04-CYLINDER SUPPORT PLATE
2	WOBLER-05-MAIN BEARING
1	WOBLER-06-PORT BLOCK
2	WOBLER-07-CONNECTOR PIPE
1	WOBLER-08-CYLINDER BASE
1	WOBLER-09-CYLINDER
1	WOBLER-10-CRANK PLATE
1	WOBLER-11-CRANK PIN
1	WOBLER-12-CRANK SHAFT
1	WOBLER-13-FLYWHEEL
1	WOBLER-14-FLYWHEEL SCREW
1	WOBLER-15-CYLINDER PIVOT SHAFT
1	WOBLER-16-PIVOT SHAFT SPRING
1	WOBLER-17-PISTON
1	WOBLER-18-WOOD BASE
2	WOBLER-M2.5 NUT
2	WOBLER-M2.5x10 C-SINK SCREW
4	WOBLER-M3 NUT
12	WOBLER-M3x6 PAN HEAD SCREW
1	WOBLER-M4 NUT
2	WOBLER-M4x15-WOOD SCREW



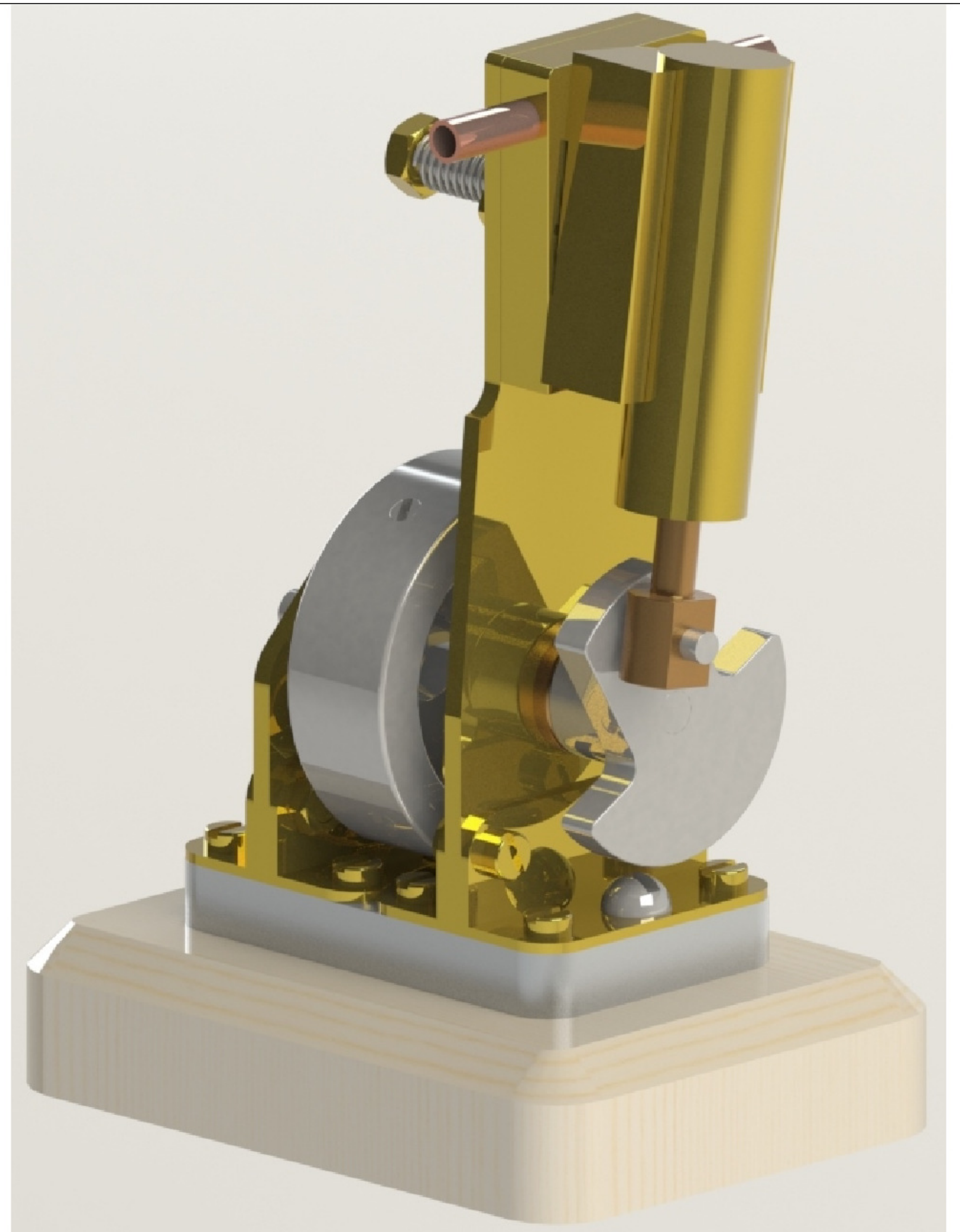
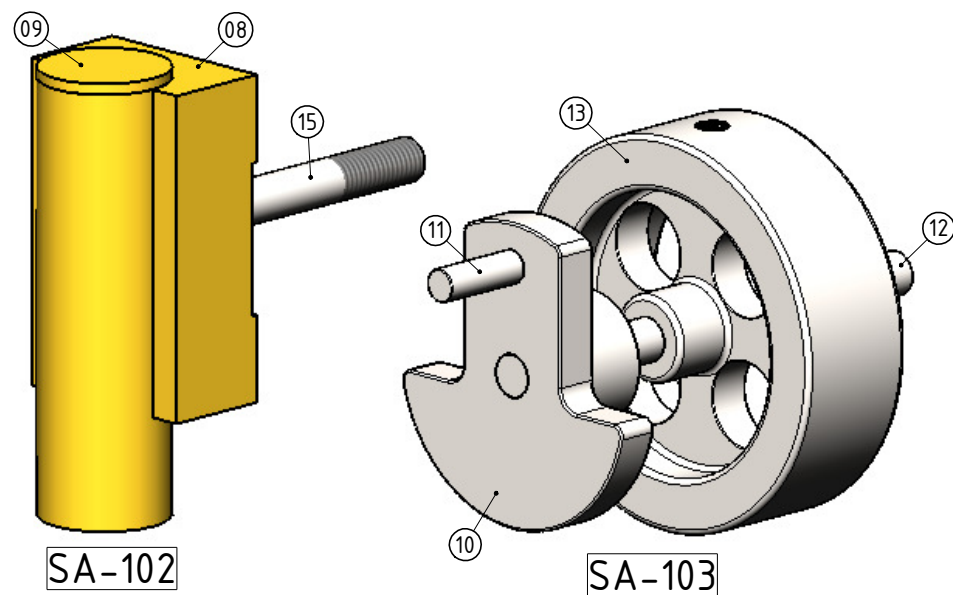
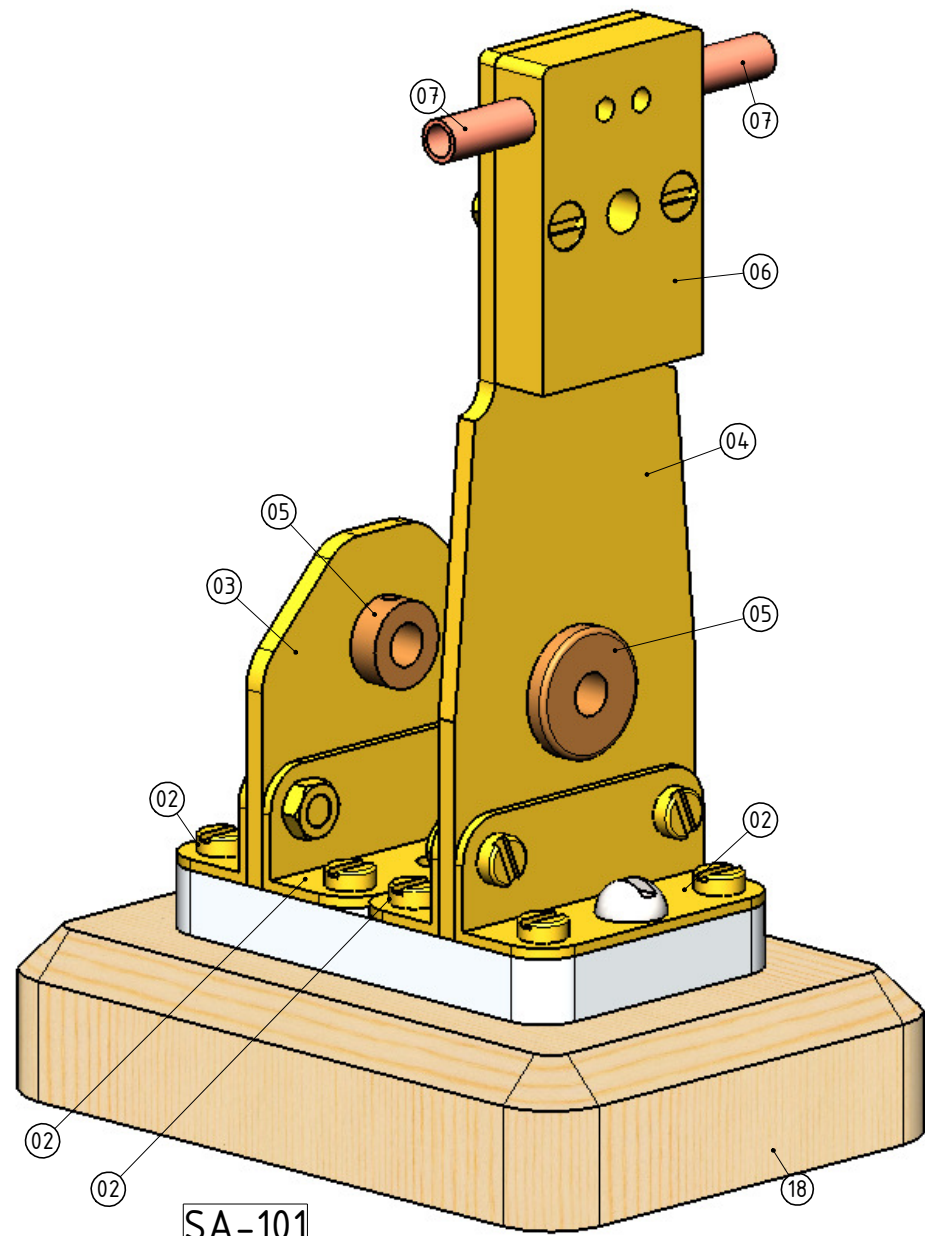
NOTES: ORIGINAL DESIGN OBTAINED FROM THE INTERNET DESIGN WAS ALL IN FRENCH. DESIGNER AND DRAFTER UNKNOWN

TITLE
1 CYLINDER VERTICAL OSCILATING STEAM ENGINE

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

PROJECT No 09A-18-00
 JDW DRAUGHTING SERVICES
 J.A.M. DE WAAL, 12 BRIGHTWELL STREET PAPAOKURA 2110.
 NEW ZEALAND. PHONE: 0064 09 2988815. MOB: 0211791000
 E-MAIL: dewaal@xtra.co.nz.

PROJECTION
JDWDS
 DATE
 MAY 2006
 SHEET: 01 OF 02
 MODEL SCALE: 1:1
 DWG SCALE: 1:1 @A3 OR AS SHOWN
 Copyright © J.A.M. DE WAAL PAPAOKURA NZ
A3 No: WOBLER-01



NOTES: ORIGINAL DESIGN OBTAINED FROM THE INTERNET DESIGN WAS ALL IN FRENCH. DESIGNER AND DRAFTER UNKNOWN

TITLE
1 CYLINDER VERTICAL OSCILATING STEAM ENGINE

DRAWING CONTENTS
PARTS AND ASSEMBLIES, RENDERED PICTURE

PROJECT No 09A-18-00
JDW DRAUGHTING SERVICES
J.A.M. DE WAAL, 12 BRIGHTWELL STREET PAPAURA 2110.
NEW ZEALAND. PHONE: 0064 09 2988815. MOB: 0211791000
E-MAIL: dewaal@xtra.co.nz.

PROJECTION	JDWDS	MODEL SCALE: 1:1
DATE	MAY 2006	DWG SCALE: 1:1 @A3 OR AS SHOWN
SHEET: 02 OF 02		Copyright © J.A.M. DE WAAL PAPAURA NZ
A3		No: WOBLER-02