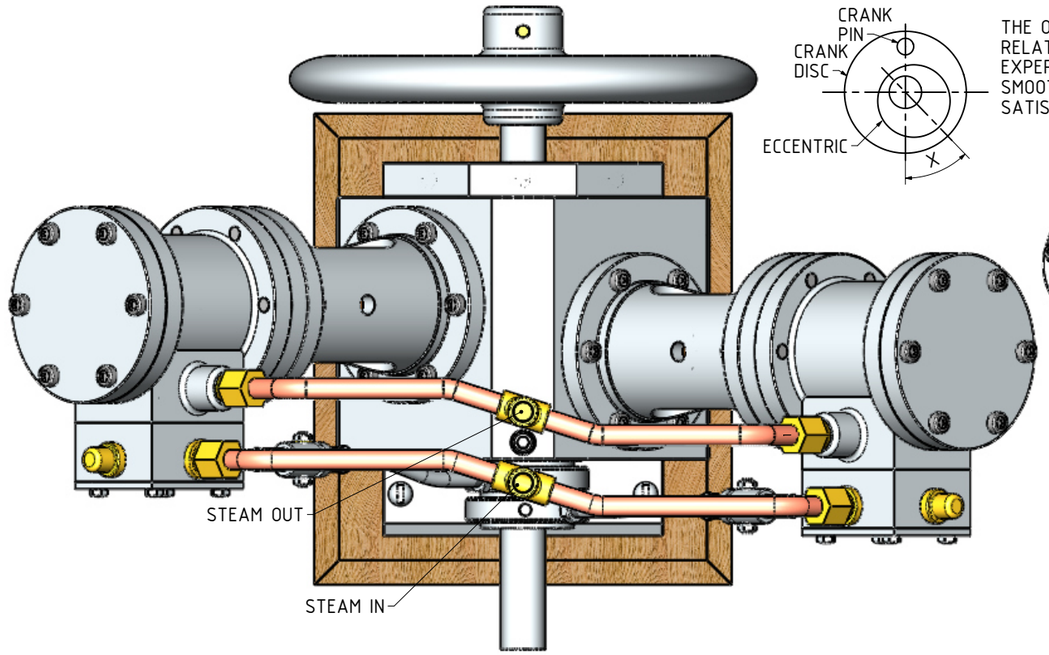
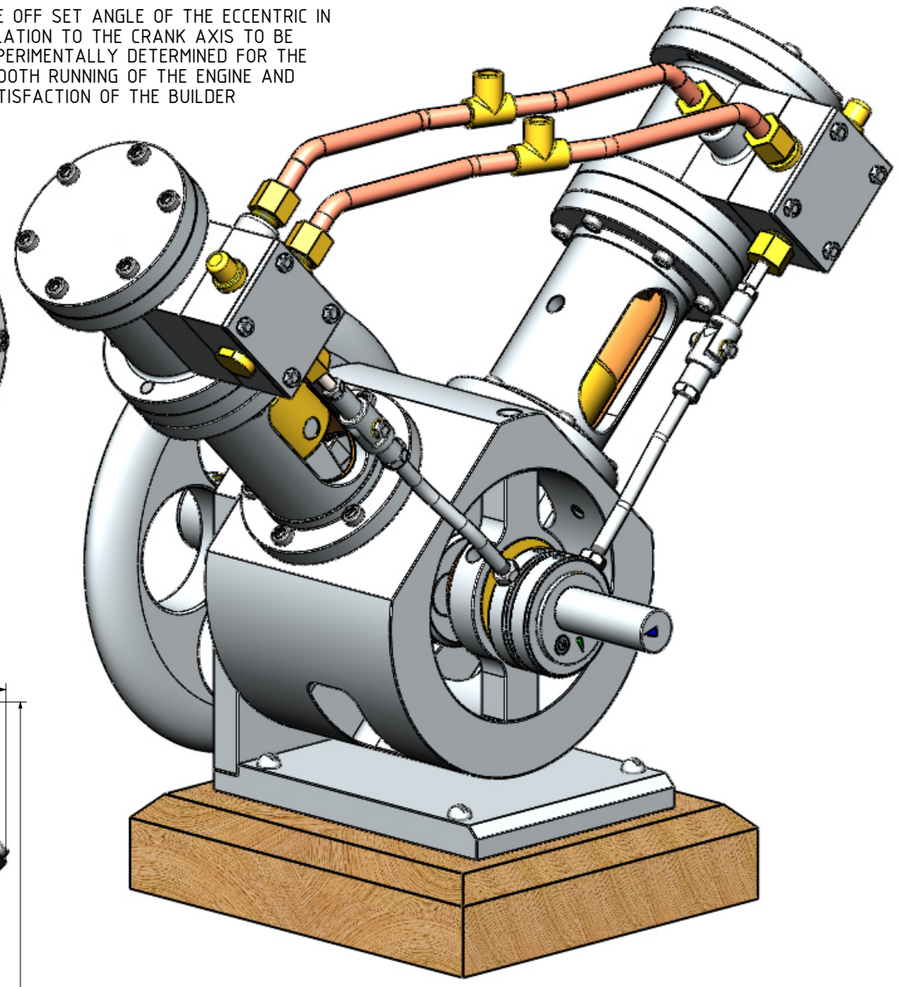
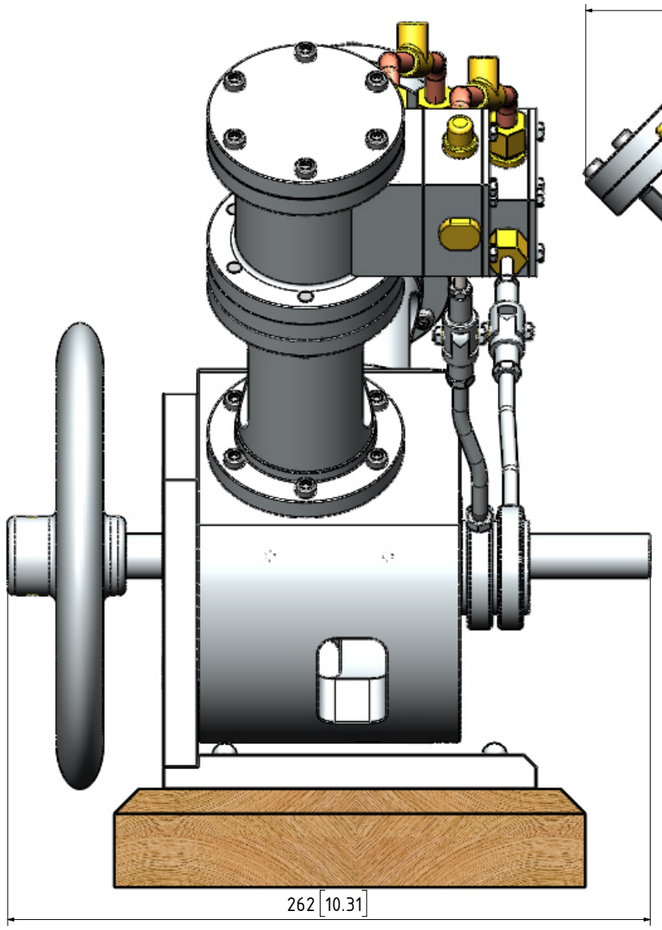
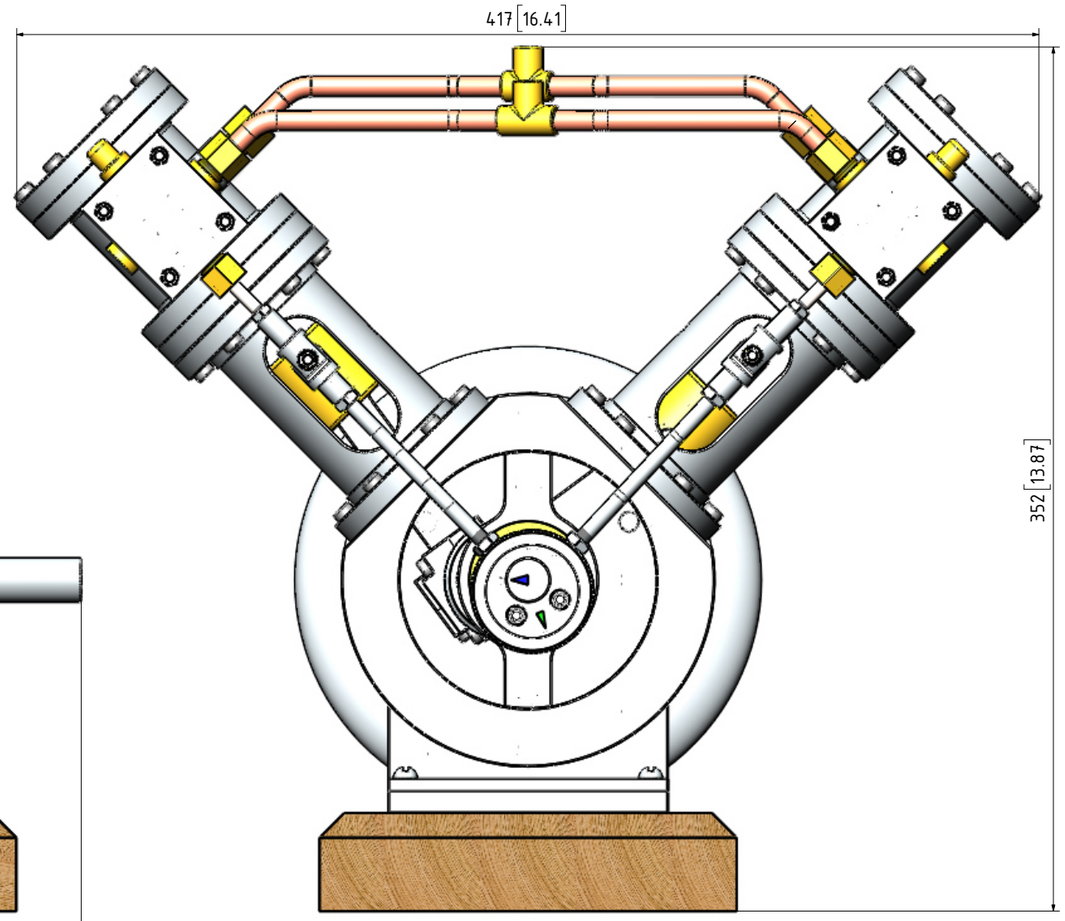
QTY.	PART NUMBER
1	09E-37-00-1-01-MOUNTING BASE
1	09E-37-00-1-02-ENGINE BLOCK
2	09E-37-00-1-03-CROSSHEAD GUIDE
1	09E-37-00-1-04-CYLINDER
1	09E-37-00-1-04-CYLINDER
2	09E-37-00-1-05-CYLINDER TOP COVER
2	09E-37-00-1-06-CYLINDER LOWER COVER
1	09E-37-00-1-07-STEAM SUPPLY PIPE
1	09E-37-00-1-08-STEAM EXHAUST PIPE
1	09E-37-00-2-01-CRANKSHAFT+FLYWHEEL
1	09E-37-00-2-02-ECCENTRICS
2	09E-37-00-2-03-PISTON+CROSSHEAD
2	09E-37-00-2-04-CON-ROD
2	09E-37-00-2-05-SLIDE VALVE + ROD
1	09E-37-00-2-06-ECCENTRIC STRAP-1
1	09E-37-00-2-07-ECCENTRIC STRAP-2
12	09E-37-00-M4 NUT
4	09E-37-00-M4 WASHER
2	09E-37-00-M4x12 A-K GRUB SCREW
8	09E-37-00-M4x40 THREADED ROD
2	09E-37-00-M5 NUT
6	09E-37-00-M5x26 A-K C-SINK SCREW
4	09E-37-00-M6 NUT
12	09E-37-00-M6x18 A-K CYL HEAD SCREW
12	09E-37-00-M6x20 A-K CYL HEAD SCREW
3	09E-37-00-M6x24 A-K C-SINK SCREW
18	09E-37-00-M6x28 A-K CYL HEAD SCREW
4	09E-37-00-M6x40-ROUND HEAD WOOD SCREW
3	09E-37-00-M8x26 A-K C-SINK SCREW



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. WASHERS AND/OR SPRINGWASHERS SHALL BE USED WHERE DEEMED NECESSARY.
XX. ERRORS AND/OR OMISSIONS MAY OCCUR IN THE DRAWINGS, DO NOT HESITATE TO CONTACT ME SO THAT THE ERRORS/OMISSIONS CAN BE RECTIFIED.

NOTES: THIS STURDY ENGINE DESIGN IS BASED ON A SET OF DRAWINGS WHICH I FOUND ON THE INTERNET. THE ORIGINAL DESIGN AND DRAWINGS WERE BY "ROB" AND DATED 1-29-2019 (CHIRICO ENGINE WORKS)

TITLE
A 2 CYLINDER V-SHAPE TYPE STEAM ENGINE (BORE=48mm STROKE=40mm)

DRAWING CONTENTS
GENERAL ARRANGEMENT, NOTES BILL OF MATERIALS

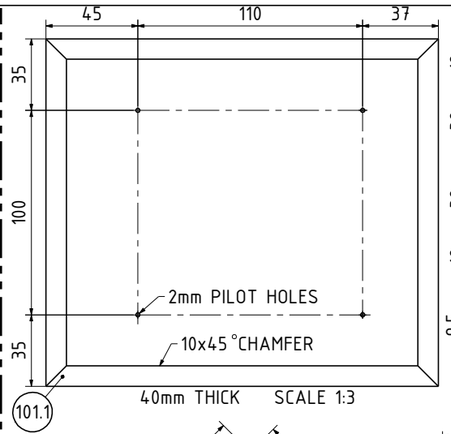
PROJECT No 09E-37-00
JDW DRAUGHTING SERVICES
J.A.M. DE WAAL. 12 BRIGHTWELL STREET PAPAKURA 2110. NEW ZEALAND. PHONE: 0064 09 2988815. MOB: 0211791000 E-MAIL: dewaal@xtra.co.nz.

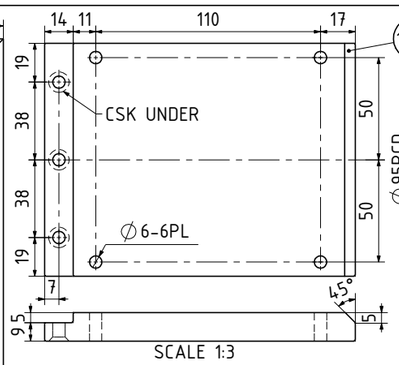
PROJECTION | JDWDS | MODEL SCALE: 1:1
DWG SCALE: 1:1 @A3 OR AS STATED
DATE DECEMBER 2019
Copyright © J.A.M. DE WAAL PAPAKURA NZ
SHEET: 01 OF 04 | A3 | No: 09E-37-00-SHT01

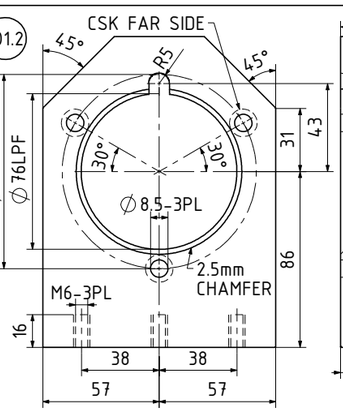
DRAWINGS ARE FOR PERSONAL USE ONLY NOT FOR COMMERCIAL PURPOSES

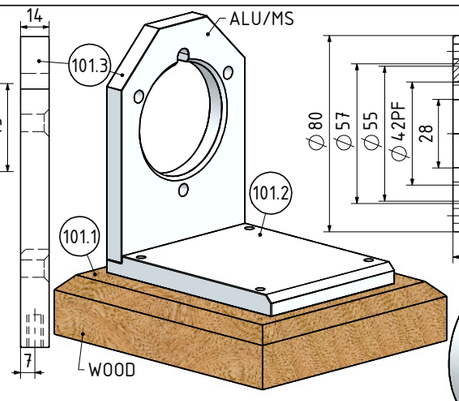
OTHER ABBREVIATIONS
DP = DEEP
DAA= DRILL AFTER ASSEMBLY
D&TAA= DRILL AND TAP AFTER ASSEMBLY
CF = CLOSE FIT (SIZE FOR SIZE)
PF = PRESS FIT
PFAA= PRESS FIT AFTER ASSEMBLY
PCD = PITCH CIRCLE DIAMETER
RM = REAM
HEX = HEXACON, 6SIDED
CP = COMPRESSED
KNL = KNURLED
CSK = COUNTERSINK
PL = PLACES
DWL= DOWEL
SPF=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

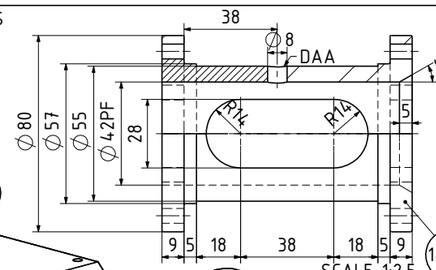
MATERIAL ABBREVIATIONS:
ALU = ALUMINIUM
HALU= HARD ALUMINIUM
BRS = BRASS
BRZ = BRONZE OR GUNMETAL (BRZ/GM)
CI = CAST IRON
CU = COPPER
GRA = GRAPHITE
MS = MILD STEEL/BRIGHT MILD STEEL
SS = SILVER STEEL OR STAINLESS STEEL
SPS = SPRING STEEL
PEEK= POLYETHER ETHER KETONE
SYN = SYNTHETIC MATERIAL SUCH AS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

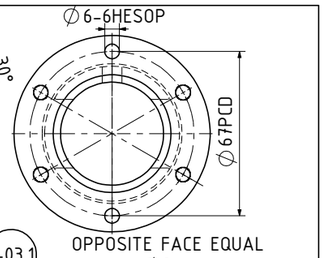


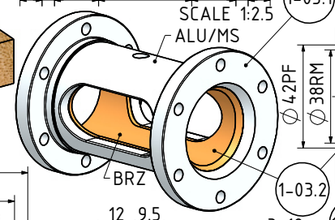


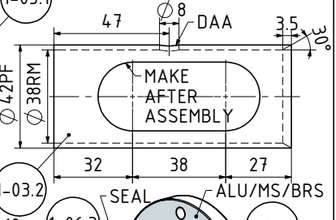


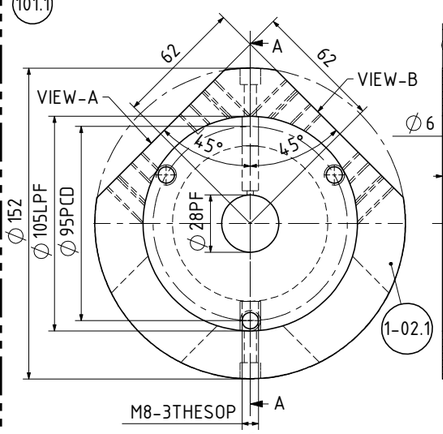


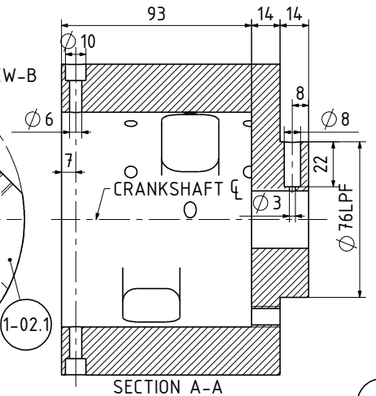


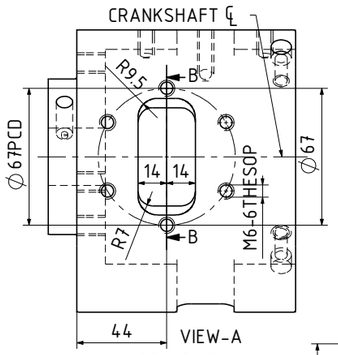


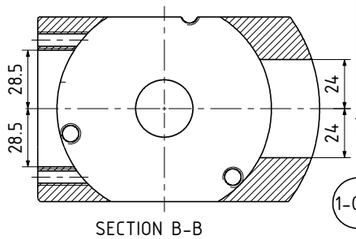


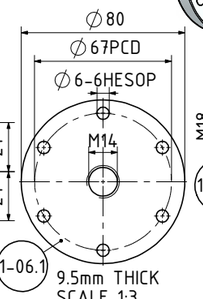


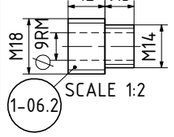


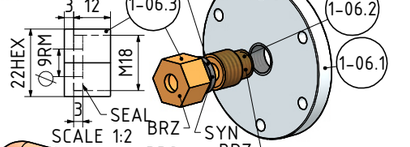


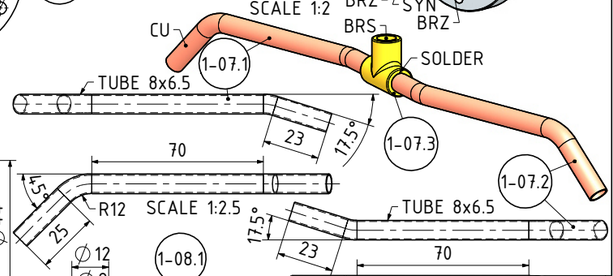




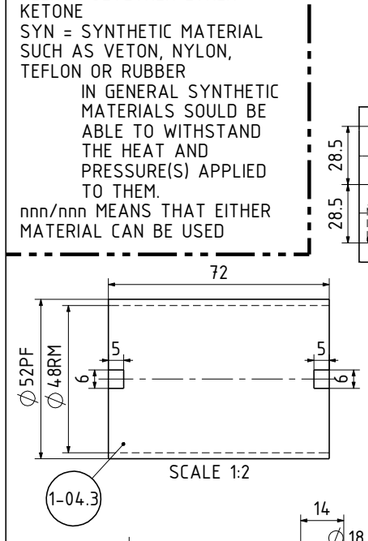


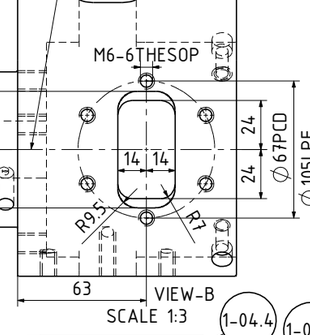


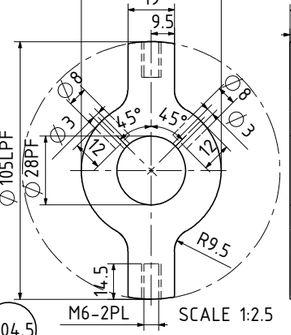


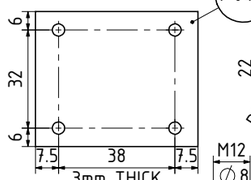


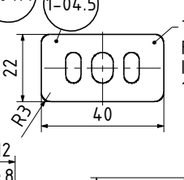
NOTE: COPPER PIPE LENGTH AND SHAPE/FORM TO BE DETERMINED FROM WORK PIECE

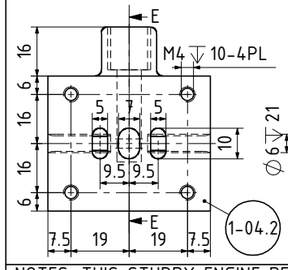


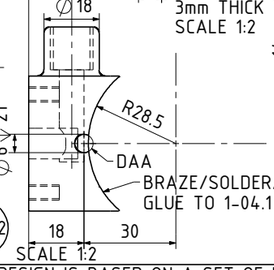


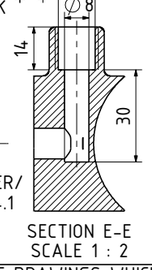


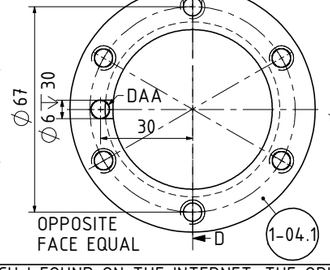


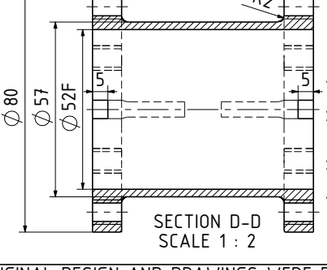


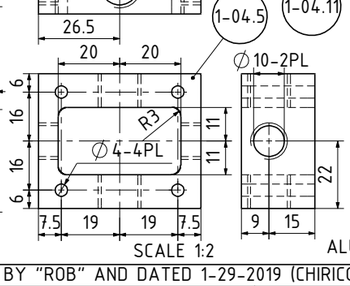


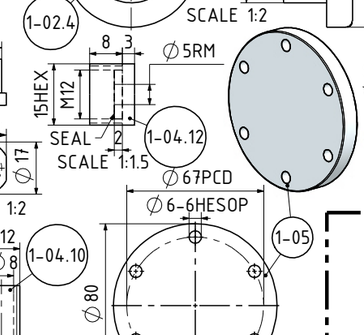


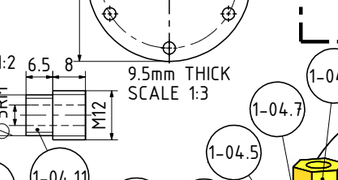


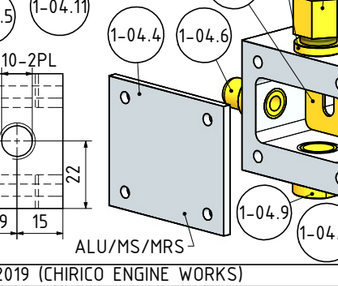


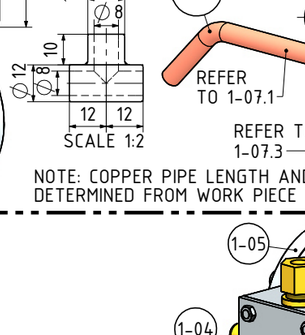


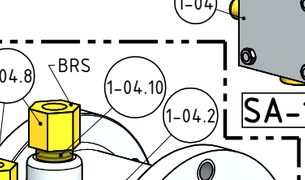


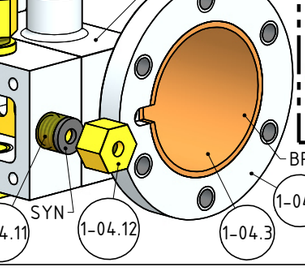


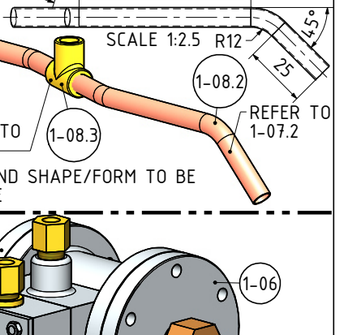


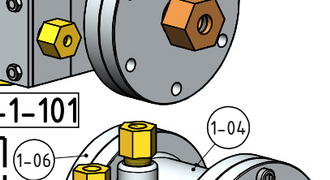


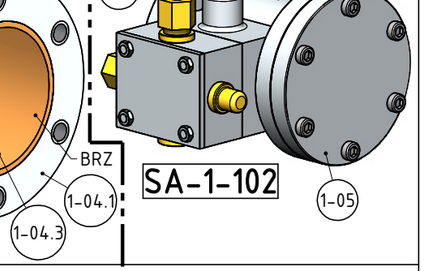












SA-1-101

SA-1-102

NOTES: THIS STURDY ENGINE DESIGN IS BASED ON A SET OF DRAWINGS WHICH I FOUND ON THE INTERNET. THE ORIGINAL DESIGN AND DRAWINGS WERE BY "ROB" AND DATED 1-29-2019 (CHIRICO ENGINE WORKS)

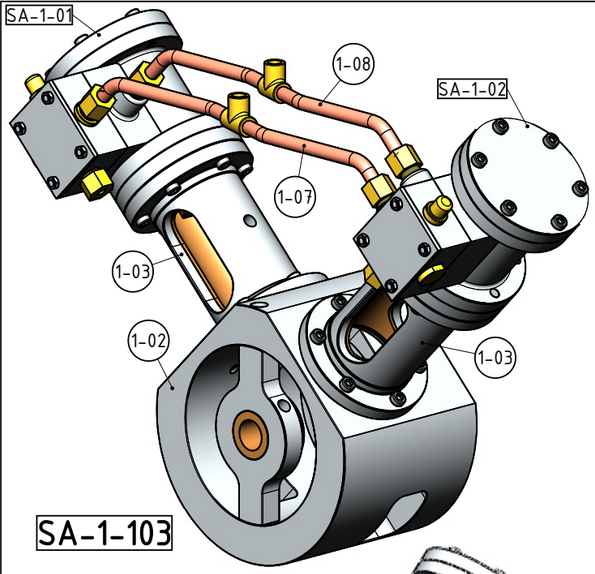
TITLE
A 2 CYLINDER V-SHAPE TYPE STEAM ENGINE (BORE=48mm STROKE=40mm)

DRAWING CONTENTS
NOTES, PARTS AND ASSEMBLIES

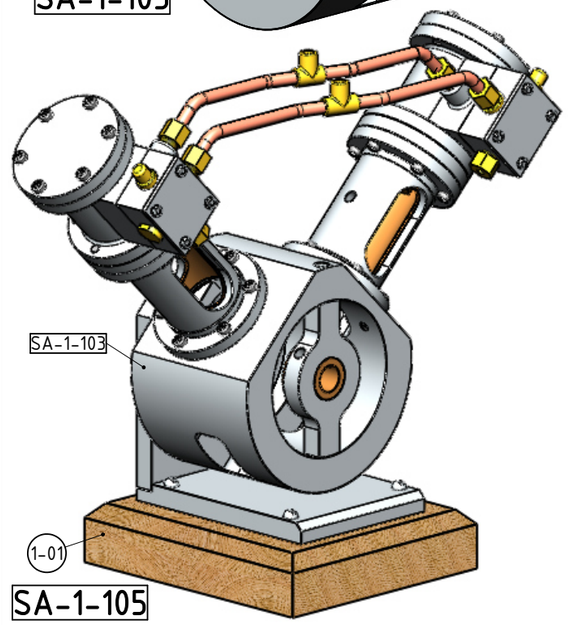
PROJECT No 09E-37-00
JDW DRAUGHTING SERVICES
J.A.M. DE WAAL. 12 BRIGHTWELL STREET PAPAKURA 2110. NEW ZEALAND. PHONE: 0064 09 2988815. MOB: 0211791000 E-MAIL: dewaal@xtra.co.nz.

PROJECTION | JDWDS | MODEL SCALE: 1:1
DWG SCALE: 1:1 @A3 OR AS STATED
DATE DECEMBER 2019
Copyright © J.A.M. DE WAAL PAPAKURA NZ
SHEET: 02 OF 04 | A3 | No: 09E-37-00-SHT02

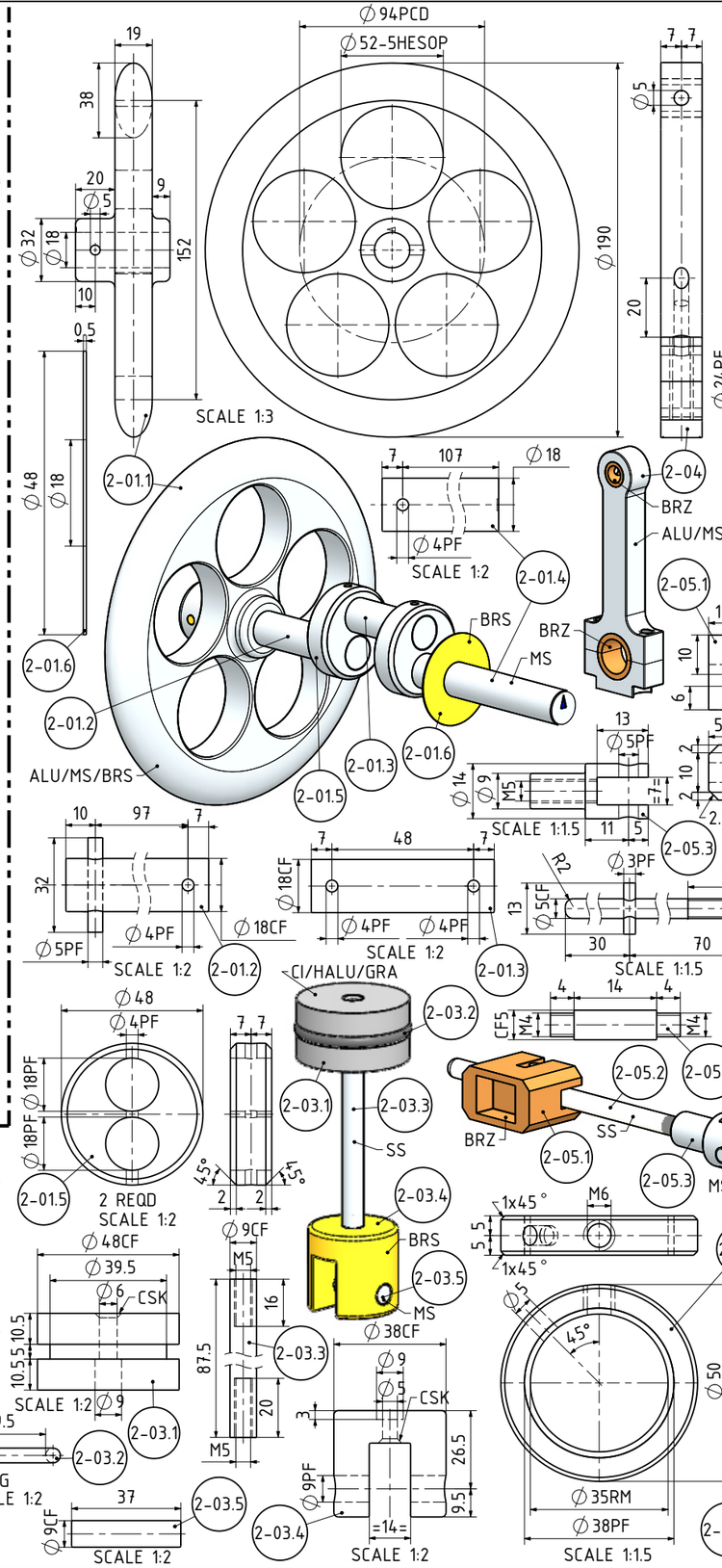
DRAWINGS ARE FOR PERSONAL USE ONLY NOT FOR COMMERCIAL PURPOSES

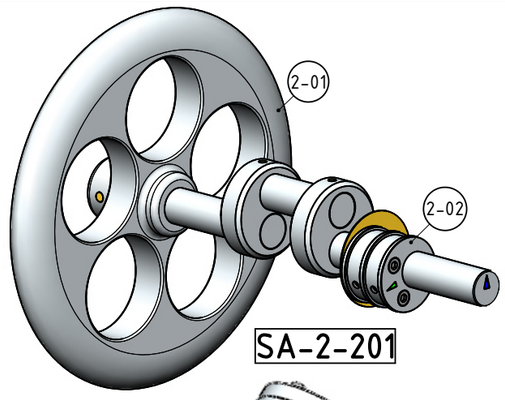


SA-1-103

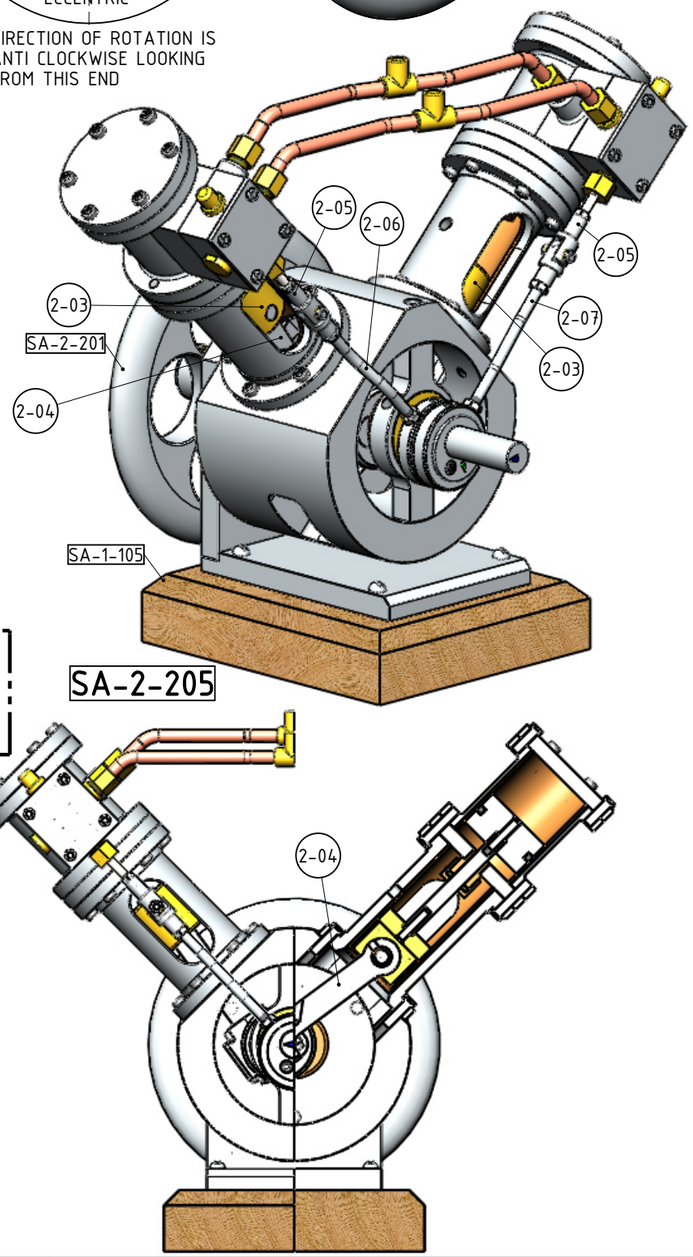


SA-1-105





SA-2-201



SA-2-205

NOTES: THIS STURDY ENGINE DESIGN IS BASED ON A SET OF DRAWINGS WHICH I FOUND ON THE INTERNET. THE ORIGINAL DESIGN AND DRAWINGS WERE BY "ROB" AND DATED 1-29-2019 (CHIRICO ENGINE WORKS)

TITLE

A 2 CYLINDER V-SHAPE TYPE STEAM ENGINE (BORE=48mm STROKE=40mm)

DRAWING CONTENTS

PARTS AND ASSEMBLIES

JDW DRAUGHTING SERVICES
J.A.M. DE WAAL. 12 BRIGHTWELL STREET PAPAKURA 2110. NEW ZEALAND. PHONE: 0064 09 2988815. MOB: 0211791000 E-MAIL: dewaal@xtra.co.nz.

PROJECT No 09E-37-00

PROJECTION | JDWDS | MODEL SCALE: 1:1

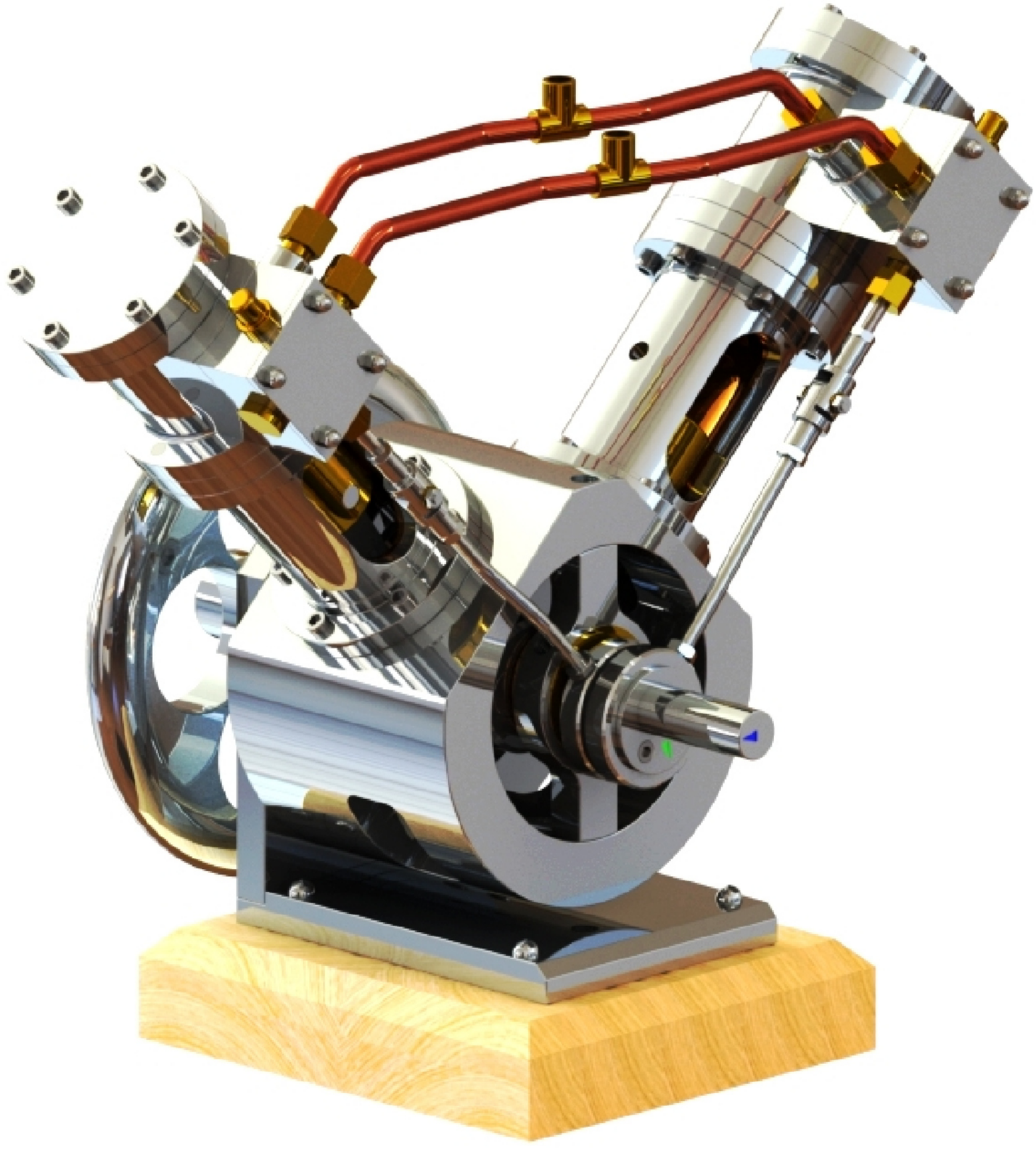
DWG SCALE: 1:1 @A3 OR AS STATED

DATE DECEMBER 2019

Copyright © J.A.M. DE WAAL PAPAKURA NZ

SHEET: 03 OF 04 | A3 | No: 09E-37-00-SHT03

DRAWINGS ARE FOR PERSONAL USE ONLY NOT FOR COMMERCIAL PURPOSES



NOTES: THIS STURDY ENGINE DESIGN IS BASED ON A SET OF DRAWINGS WHICH I FOUND ON THE INTERNET. THE ORIGINAL DESIGN AND DRAWINGS WERE BY "ROB" AND DATED 1-29-2019 (CHIRICO ENGINE WORKS)

TITLE
A 2 CYLINDER V-SHAPE TYPE STEAM ENGINE (BORE=48mm STROKE=40mm)

DRAWING CONTENTS
RENDERED PICTURE

PROJECT No 09E-37-00
JDW DRAUGHTING SERVICES
J.A.M. DE WAAL. 12 BRIGHTWELL STREET PAPAKURA 2110. NEW ZEALAND. PHONE: 0064 09 2988815. MOB: 0211791000 E-MAIL: dewaal@xtra.co.nz.

PROJECTION JDWDS
DATE DECEMBER 2019
MODEL SCALE: 1:1
DWG SCALE: 1:1 @A3 OR AS STATED
Copyright © J.A.M. DE WAAL PAPAKURA NZ
SHEET: 04 OF 04 | A3 | No: 09E-37-00-SHT04

DRAWINGS ARE FOR PERSONAL USE ONLY NOT FOR COMMERCIAL PURPOSES