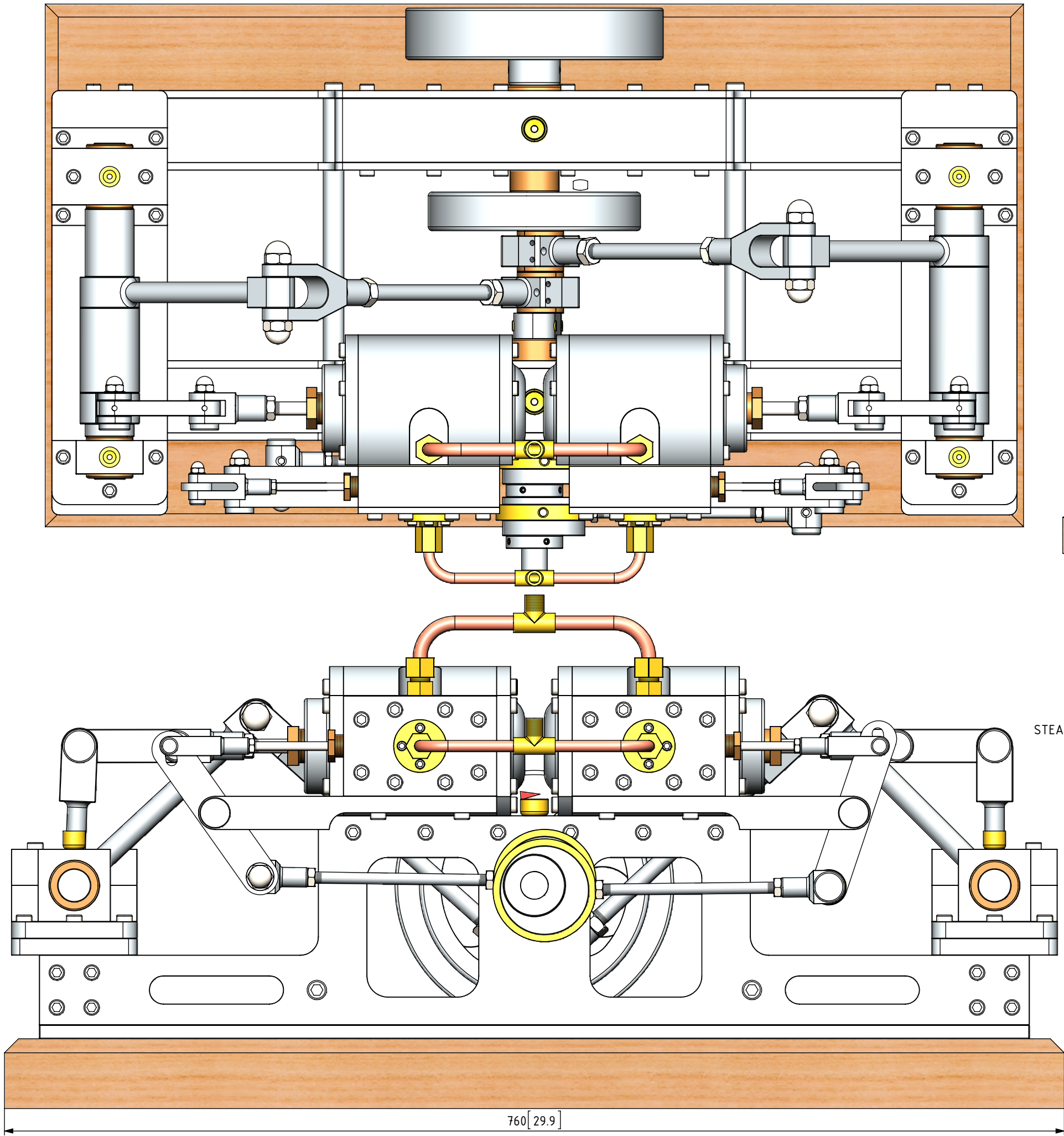
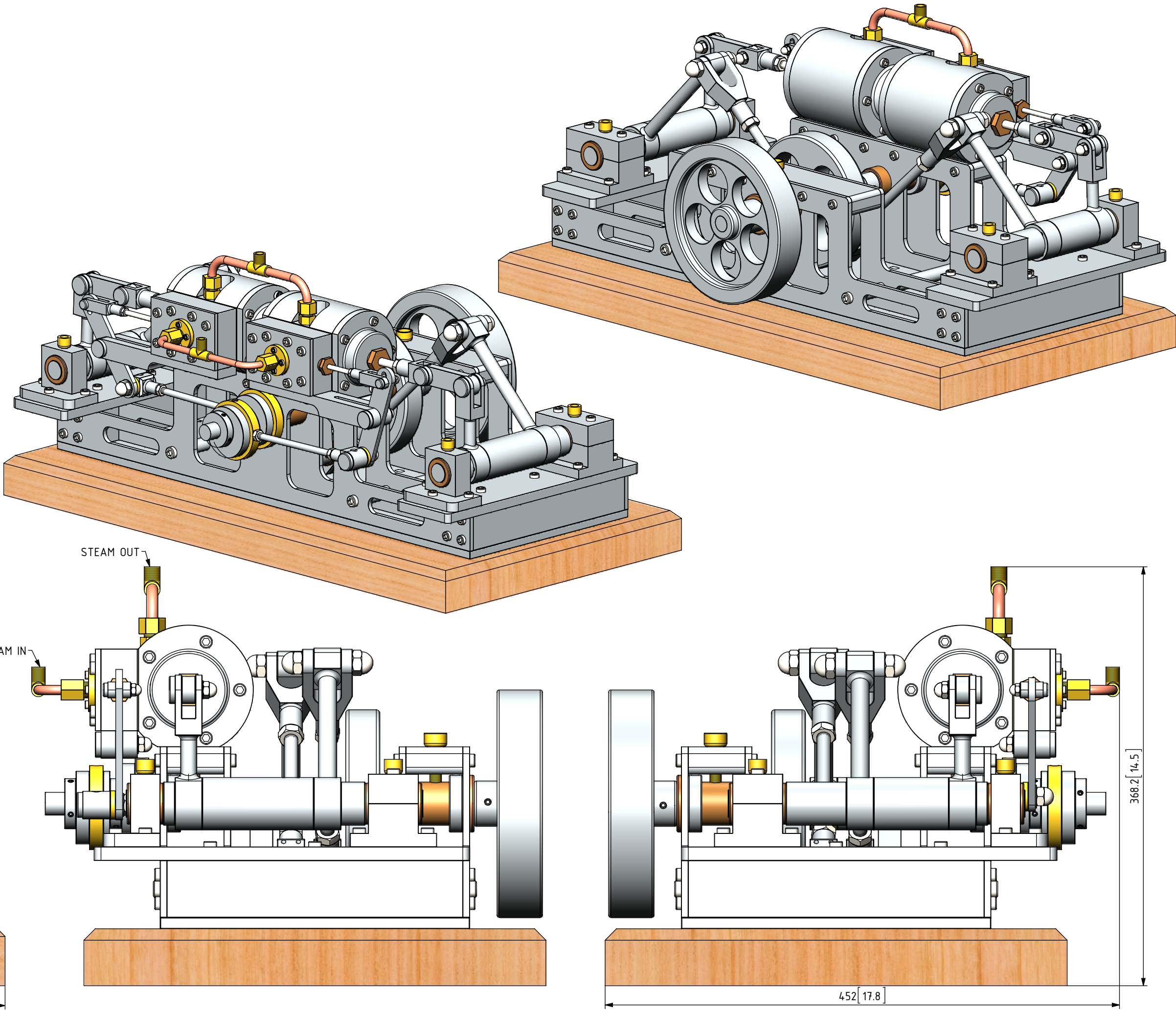




- NOTES:
0. ALL DRAWINGS ARE IN METRIC MEASUREMENTS
 1. ALL ENGINEERING PRACTICES SHALL BE APPLIED WITH REGARDS TO HOLE AND SHAFT TOLERANCES.
 2. WHERE SCREWS OR BOLTS ARE USED THE CLEARANCE HOLES SHALL BE APPROXIMATELY 5% TO 8% LARGER THAN THE MATCHING TAPPED HOLE.
 3. PREFERABLY ALL TAPPED HOLES AND 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)
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
(T)HESOP=(TAPPED)HOLES EQUALLY SPACED ON PCD
(T)HESOC=(TAPPED)HOLES EQUALLY SPACED ON CIRCUMFERENCE
[SA-n-xxx]= SUB ASSEMBLY-n-xxx
- 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



- 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	QTY.	PART NUMBER
8	MONITORX2-M5x12 A-K CYL HEAD SCREW	1	MONITORX2-1-01-WOOD BASE
8	MONITORX2-M5x12 A-K GRUB SCREW	1	MONITORX2-1-02-BASE FRAME
2	MONITORX2-M6 DOME NUT	2	MONITORX2-1-03-MAIN BEARING PLATE+BEARING
2	MONITORX2-M6 NUT	1	MONITORX2-1-04-CYLINDER+VALVE CHEST
2	MONITORX2-M6 WASHER	1	MONITORX2-1-04-CYLINDER+VALVE CHEST
2	MONITORX2-M6x10 A-K GRUB SCREW	1	MONITORX2-1-05-CYLINDER FRONT COVER
2	MONITORX2-M6x12 A-K C-SINK SCREW	1	MONITORX2-1-05-CYLINDER FRONT COVER
6	MONITORX2-M8 DOME NUT	1	MONITORX2-1-06-CYLINDER REAR COVER
4	MONITORX2-M8 NUT	1	MONITORX2-1-06-CYLINDER REAR COVER
12	MONITORX2-M8 WASHER	2	MONITORX2-1-07-VALVE SPINDLE GLAND
24	MONITORX2-M8x20 A-K CYL HEAD SCREW	1	MONITORX2-1-08-VALVE CHEST OUTRIGGER
2	MONITORX2-M8x24 A-K C-SINK SCREW	1	MONITORX2-1-08-VALVE CHEST OUTRIGGER
51	MONITORX2-M8x24 A-K CYL HEAD SCREW	1	MONITORX2-1-09-EXHAUST PIPE
4	MONITORX2-M8x44 A-K CYL HEAD SCREW	1	MONITORX2-1-10-STEAM INLET PIPE
1	MONITORX2-M8x45 A-K GRUB SCREW	1	MONITORX2-2-01-CRANKSHAFT
22	MONITORX2-M8x52 A-K CYL HEAD SCREW	2	MONITORX2-2-02-ECCENTRIC SHEAVE
8	MONITORX2-M8x75 A-K CYL HEAD SCREW	1	MONITORX2-2-03A-ROCKER SHAFT+LEVERS
2	MONITORX2-M10 DOME NUT	1	MONITORX2-2-03B-ROCKER SHAFT+LEVERS
2	MONITORX2-M10 NUT	2	MONITORX2-2-04-PISTON+ROD
2	MONITORX2-M10 WASHER	2	MONITORX2-2-05-PISTON ROD LINK PLATE
1	MONITORX2-M10x30 A-K GRUB SCREW	2	MONITORX2-2-06-CON-ROD
1	MONITORX2-M10x80 A-K CYL HEAD SCREW	1	MONITORX2-2-07-FLYWHEEL
4	MONITORX2-M12 DOME NUT	2	MONITORX2-2-08-SLIDE VALVE+SPINDLE
5	MONITORX2-M12 NUT	2	MONITORX2-2-09-VALVE SPINDLE ROCKER PLATE
		2	MONITORX2-2-10-ECCENTRIC STRAP+ROD

PLEASE NOTE THIS IS AN A2 SHEET SIZE

NOTES: THIS STEAM ENGINE WAS ORIGINALLY DESIGNED BY Mr. R MIDDLETON, MUNDELEY, NORFOLK, UK. THIS SET OF DRAWINGS IS A REDRAW OF A SET DRAWINGS DONE IN 2013,WHICH WERE DISTROYED IN 2015. THIS ENGINE IS TWICE THE SIZE OF THE ORIGINAL						
TITLE		DRAWING CONTENTS		PROJECT No 09E-11-01		PROJECTION
2 CYLINDER HORIZONTAL STEAM ENGINE OF THE "MONITOR" TYPE		GENERAL ARRANGEMENT, ISOMETRIC VIEWS, NOTES AND BILL OF MATERIALS		JDW DRAUGHTING SERVICES		 JDWDS
				J.A.M. DE WAAL. 12 BRIGHTWELL STREET PAPAKURA 2110. NEW ZEALAND. PHONE: 0064 09 2988815. MOB: 0211791000 E-MAIL: dewaal@xtra.co.nz.		DATE: DECEMBER 2017
				SHEET: 01 OF 04		Copyright © J.A.M. DE WAAL PAPAKURA NZ
				A2 No: MONITORX2-01		