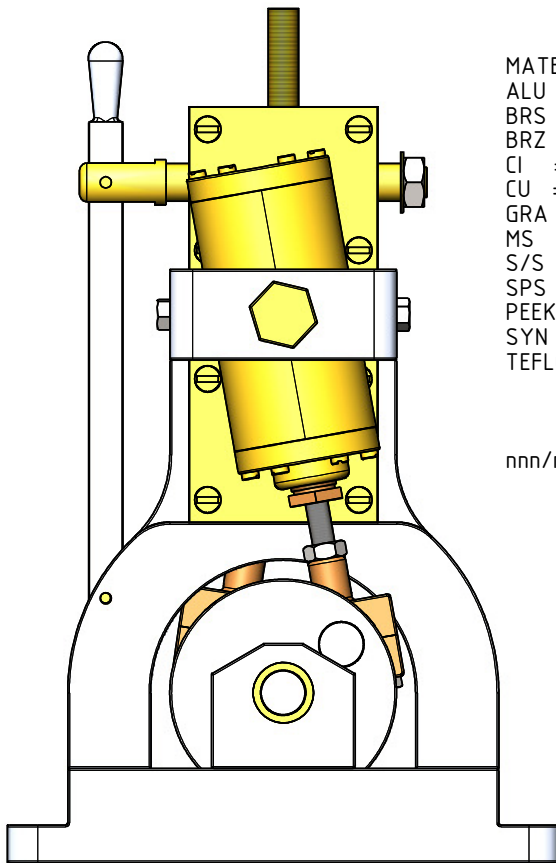
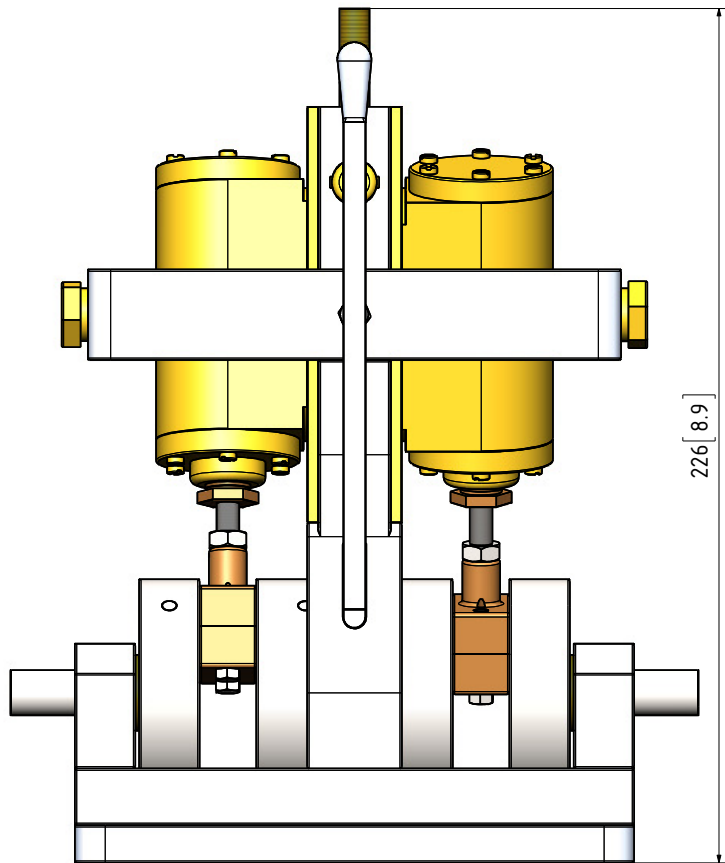
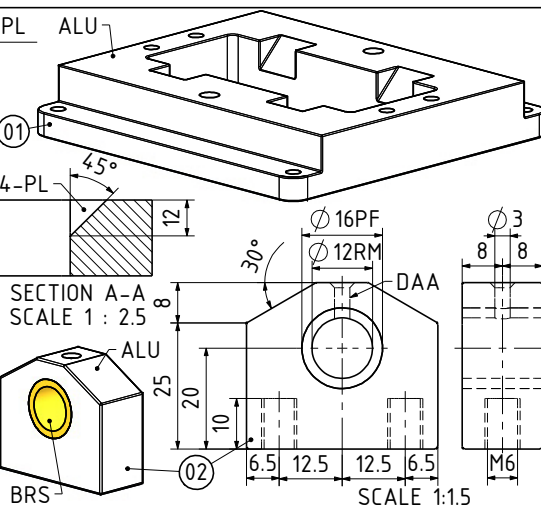
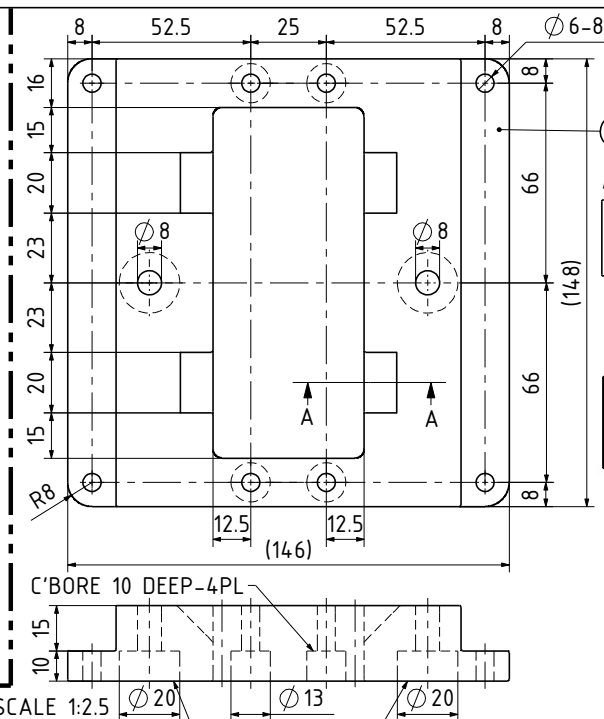


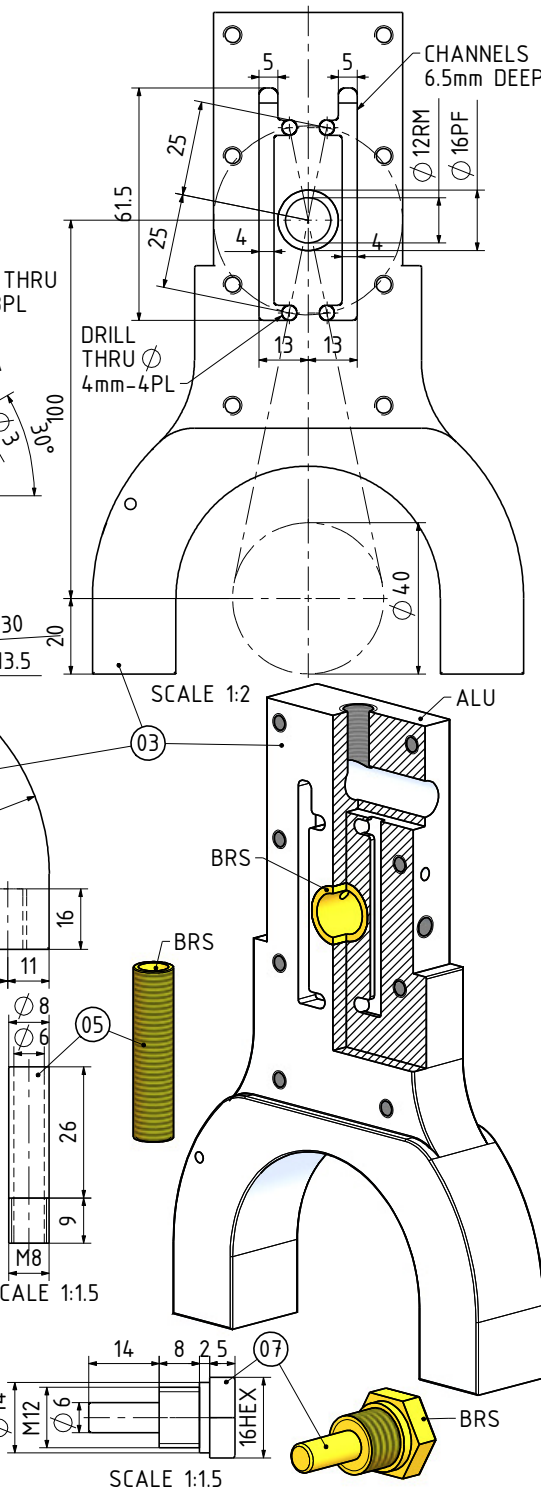
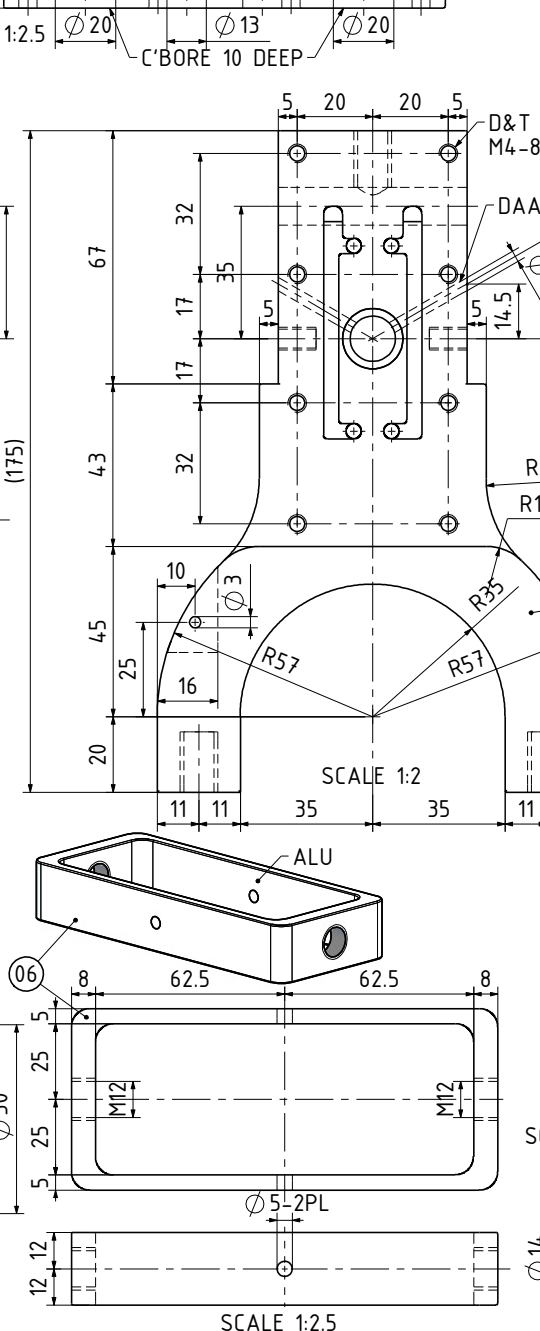
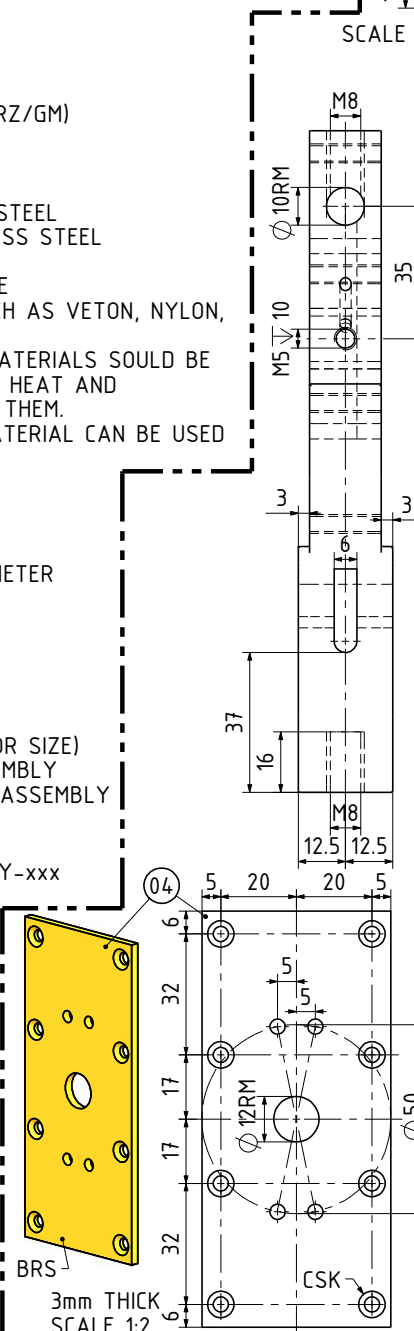
QTY.	PART NUMBER
1	EVG-P52-01-BASE PLATE
2	EVG-P52-02-CRANK SHAFT BEARING SUPPORT BLOCK
1	EVG-P52-03-CYLINDER SUPPORT STAND
2	EVG-P52-04-CYLINDER STAND FACE PLATE
1	EVG-P52-05-INLET STEAM CONNECTOR
1	EVG-P52-06-CYLINDER RETAINER FRAME
2	EVG-P52-07-CYLINDER RETAINER SCREW
2	EVG-P52-08-CRANK SHAFT
2	EVG-P52-09- OUTER CRANK DISC
2	EVG-P52-10-CRANK PIN
1	EVG-P52-11- CENTER CRANK DISC-FLYWHEEL
2	EVG-P52-12-CRANK SHAFT SPACER
1	EVG-P52-13-SUPPORT STAND HANDLE PIN
2	EVG-P52-14-CYLINDER
2	EVG-P52-15-CYLINDER TOP COVER
2	EVG-P52-16-CYLINDER BOTTOM COVER
2	EVG-P52-17-PISTON ROD PACKNUT
2	EVG-P52-18-PISTON
2	EVG-P52-19-PISTON ROD
2	EVG-P52-20-PISTON ROD CRANK BEARING
2	EVG-P52-21-CYLINDER PRESSURE SPRIG
1	EVG-P52-22-REVERSING VALVE
1	EVG-P52-23-RVERS CONTROL HANDLE
24	EVG-P52-M3x15 PAN HEAD SCREW
16	EVG-P52-M4x10 C-SINK SCREW
4	EVG-P52-M4x22 HEX BOLT
2	EVG-P52-M5x15 HEX BOLT
2	EVG-P52-M6 NUT
4	EVG-P52-M6x25 HEX BOLT
1	EVG-P52-M8 NUT
1	EVG-P52-M8 WASHER
2	EVG-P52-M8x30 HEX BOLT



MATERIAL ABBREVIATIONS:
ALU = ALUMINIUM OR DURAL(MIN)
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

OTHER ABBREVIATIONS
DP = DEEP
PF = PRESS FIT
PCD = PITCH CIRCLE DIAMETER
RM = REAM
HEX = HEXAGON, 6SIDED
CP = COMPRESSED
KNL = KNURLED
CSK = COUNTERSINK
PL = PLACES
CF = CLOSE FIT (SIZE FOR SIZE)
DAA= DRILL AFTER ASSEMBLY
PFAA= PRESSFIT AFTER ASSEMBLY
LCT = USE LOCTITE
LPF = LIGHT PRESS FIT
[SA-xxx]= SUB ASSEMBLY-xxx

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. N/A
6. ALL CONNECTIONS/JOINTS WHICH HAVE STEAM PRESSURE APPLIED TO IT SHALL BE SILVER/HARD SOLDERED.
7. COMPRESSION SPRINGS ARE DRAWN IN COMPRESSED STATE (CP), UNCOMPRESSED STATE IS APPROX 40% TO 60% LONGER THEN COMPRESSED STATE.
8. 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.
9. 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.
10. THE ORDER IN WHICH THE PARTS/COMPONENTS ARE MANUFACTURED AND THE MODEL IS ASSEMBLED IS ENTIRELY LEFT TO THE BUILDER/MODEL MAKER.
11. ERRORS AND/OR OMISSIONS MAY OCCUR IN THE DRAWINGS, DO NOT HESITATE TO CONTACT ME SO THAT THE ERRORS/OMISSIONS CAN BE RECTIFIED.
12. A COLOUR SCHEME FOR THIS PROJECT IS ENTIRELY LEFT UP TO THE MODEL MAKER.
13. THE MANNER IN WHICH THE PARTS/COMPONENTS ARE MANUFACTURED IS ENTIRELY LEFT UP TO THE BUILDER.



NOTES: THE ORIGINAL DRAWINGS AND ARTICLE OF THIS ENGINE WERE BY ELMER VERBURG AND PUBLISHED IN A BOOK AS CHAPTER 52. THE ORIGINAL DRAWINGS WERE POSTED ON: WWW.JOHN-TOM.COM (THIS ENGINE IS 2 TIMES LARGER THAN THE ORIGINAL)

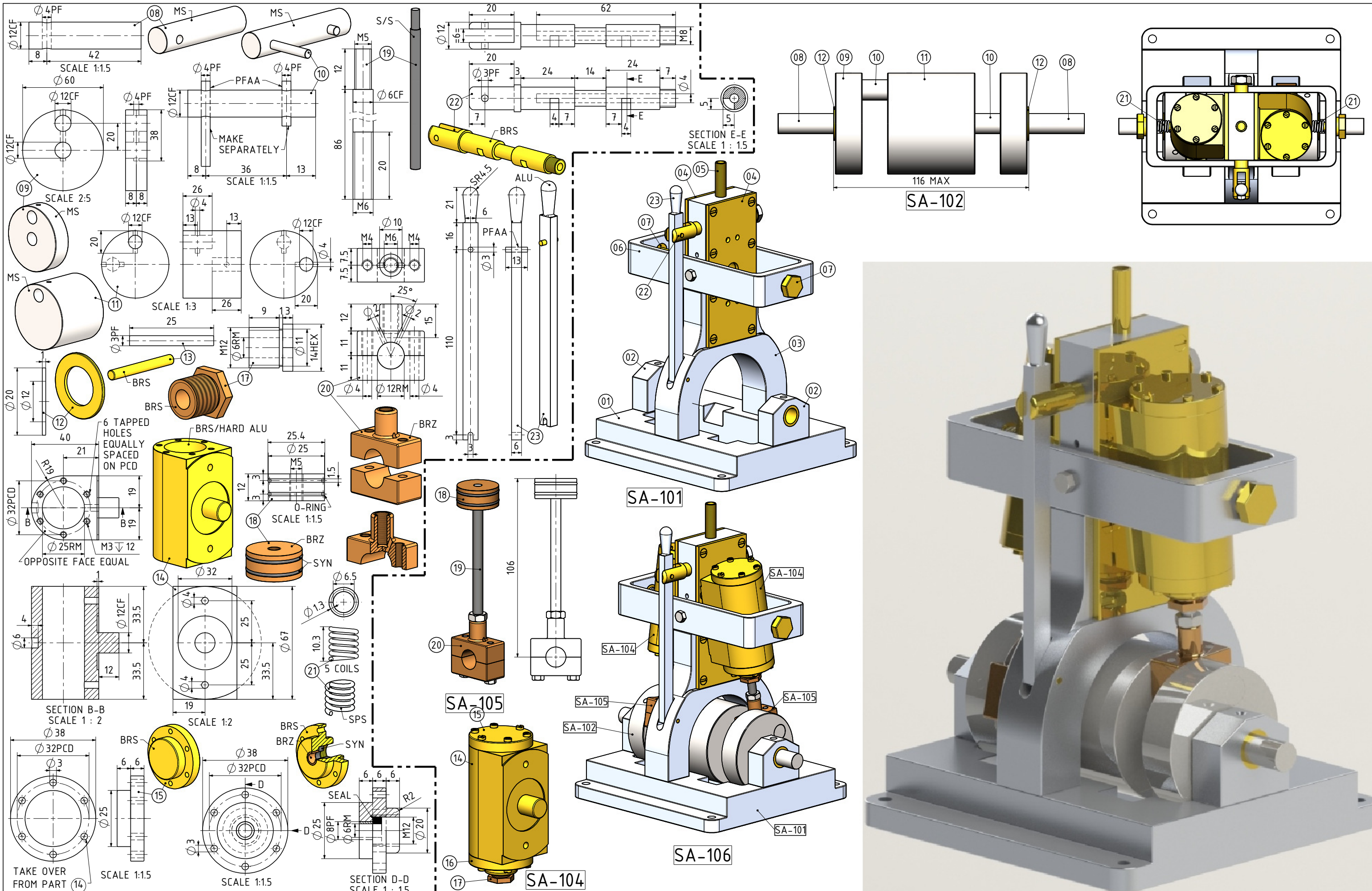
TITLE
2 CYLINDER VERTICAL OSCILLATING STEAM ENGINE WITH REVERSER


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

PROJECT No 10-52-00
JDW DRAUGHTING SERVICES
J.A.M. DE WAAL, 12 BRIGHTWELL STREET PAPA KURA 2110, NEW ZEALAND. PHONE: 0064 09 2988815. MOB: 0211791000
E-MAIL: dewaal@xtra.co.nz.

PROJECTION
JDWDS
DATE APRIL-2016
SHEET: 01 OF 02

MODEL SCALE: 1:1
DWG SCALE: 1:1 @A3 OR AS SHOWN
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A3 No: EVG-P52-01



NOTES: THE ORIGINAL DRAWINGS AND ARTICLE OF THIS ENGINE WERE BY ELMER VERBURG AND PUBLISHED IN A BOOK AS CHAPTER 52. THE ORIGINAL DRAWINGS WERE POSTED ON: WWW.JOHN-TOM.COM (THIS ENGINE IS 2 TIMES LARGER THAN THE ORIGINAL)											
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						JDW DRAUGHTING SERVICES				DATE APRIL-2016	DWG SCALE: 1:1 @A3 OR AS SHOWN
						J.A.M. DE WAAL, 12 BRIGHTWELL STREET PAKAPURA 2110. NEW ZEALAND. PHONE: 0064 09 2988815. MOB: 0211791000 E-MAIL: dewaal@xtra.co.nz.				Copyright © J.A.M. DE WAAL PAPAKURA N	
								SHEET: 02 OF 02		A3	No: EVG-P52-02