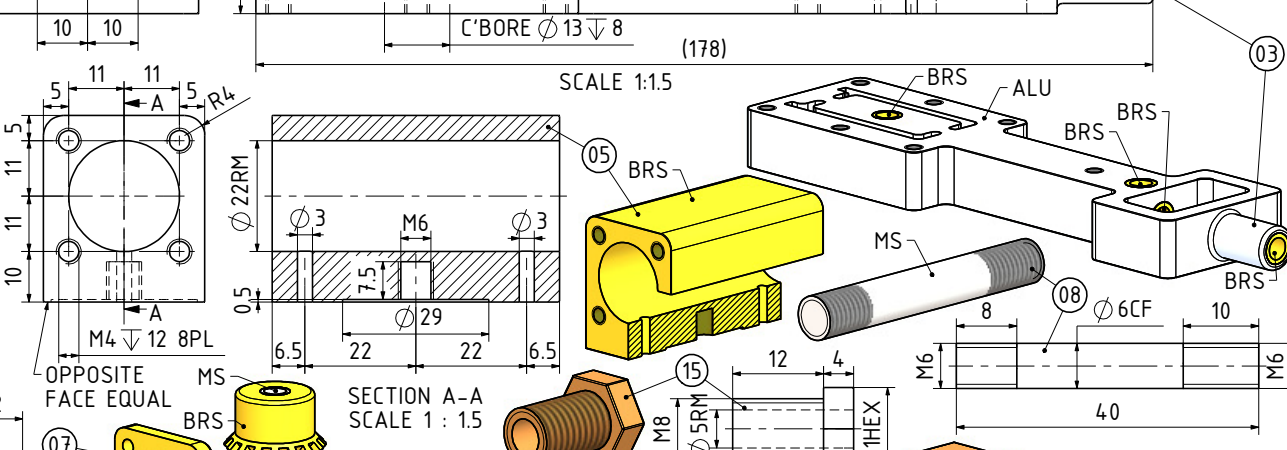
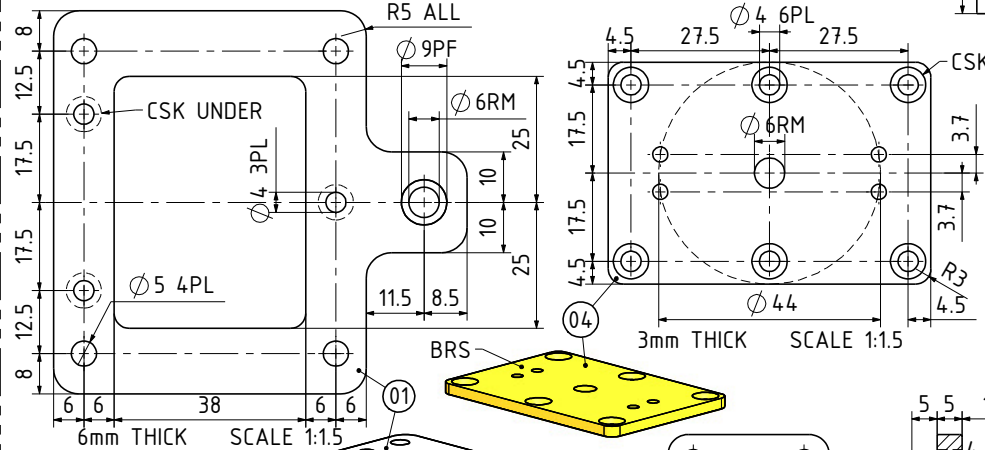
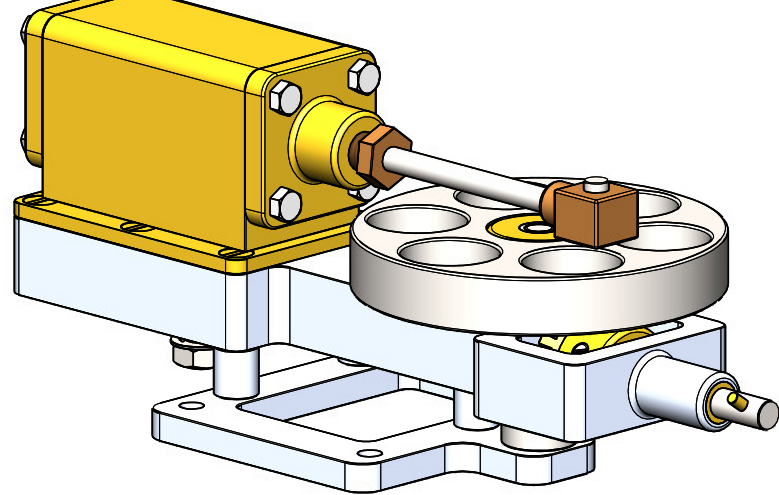
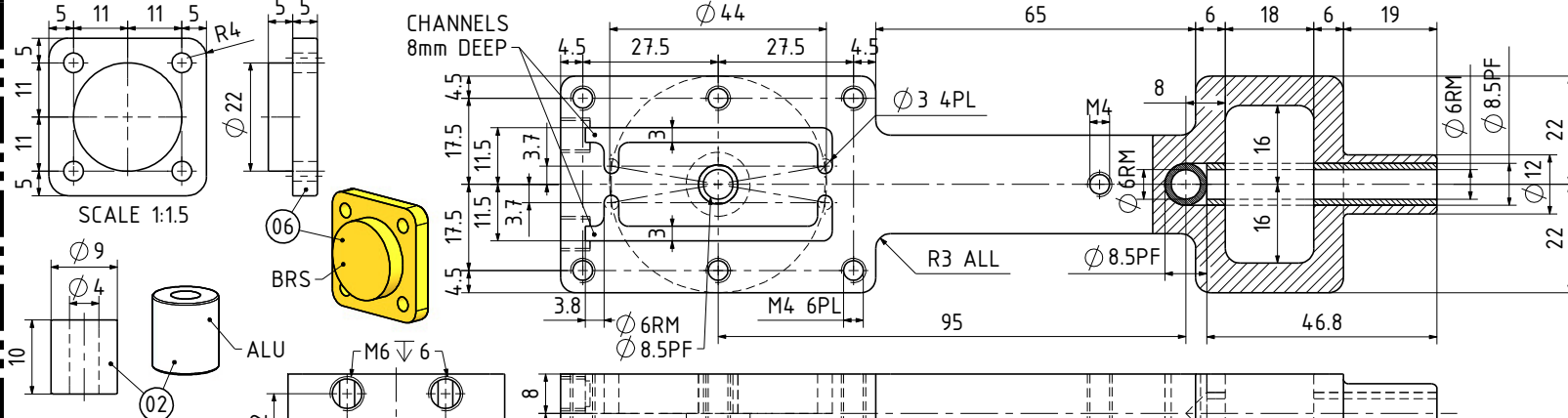
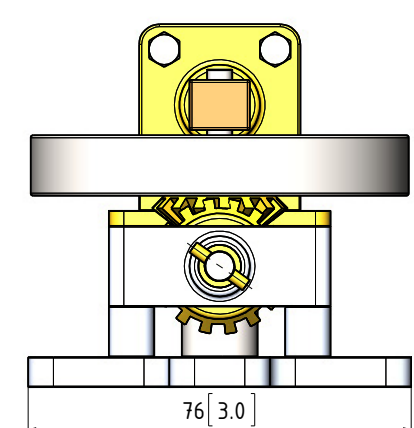
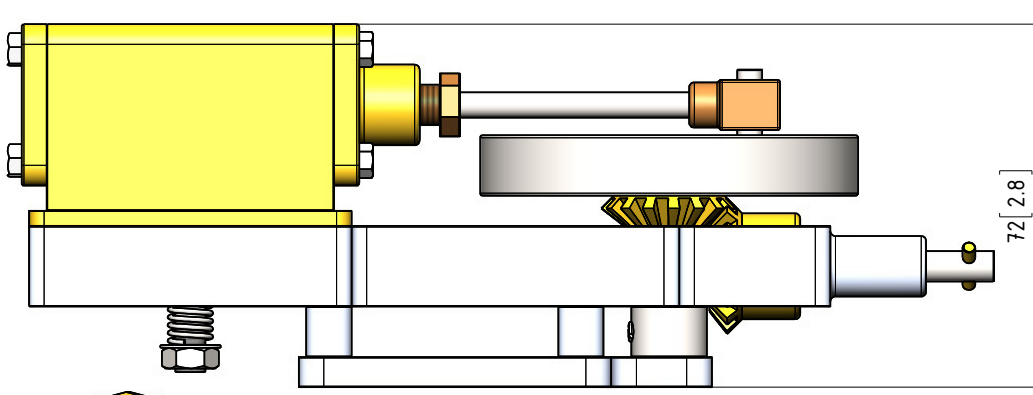


- NOTES:
0. ALL DRAWINGS ARE IN METRIC MEASUREMENTS
  1. ALL ENGINEERING PRACTICES SHALL BE APPLIED WITH REGARDS TO HOLE AND SHAFT TOLERANCES.
  2. WHERE SCREWS OR BOLTS ARE USED THE CLEARANCE HOLES SHALL BE APPROXIMATELY 5% TO 8% LARGER THAN THE MATCHING TAPPED HOLE.
  3. PREFERABLY ALL TAPPED HOLES 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.

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



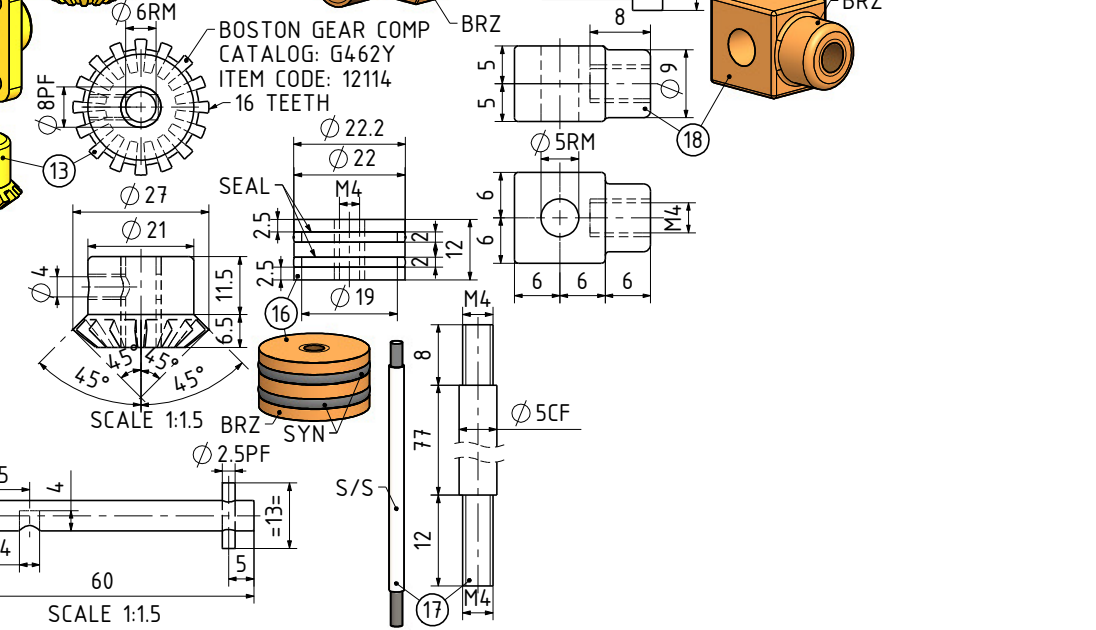
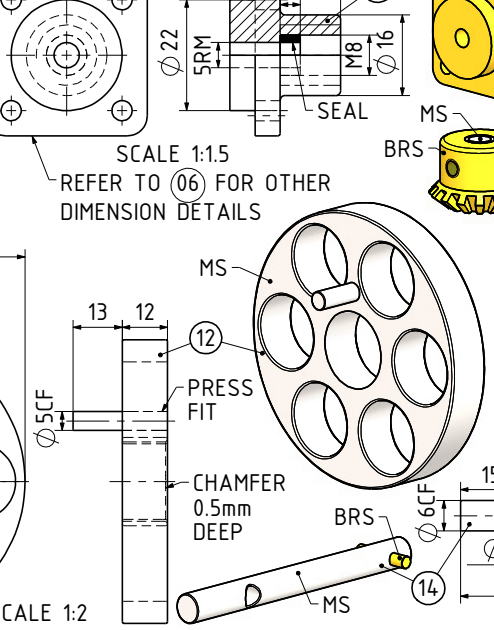
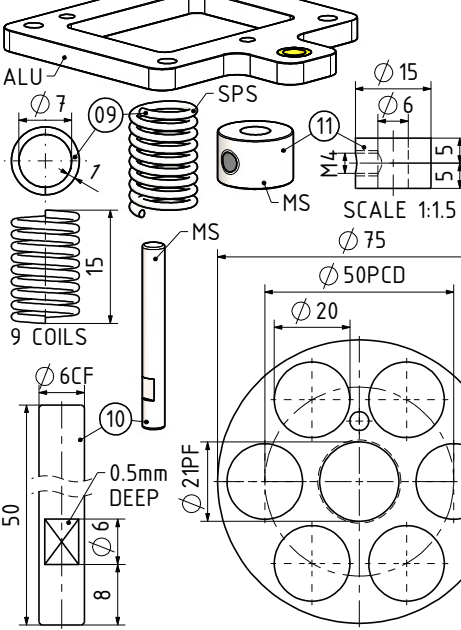
QTY.	PART NUMBER
1	EVG-P47-01-BASE PLATE
3	EVG-P47-02-ENGINE BED PLATE SPACER
1	EVG-P47-03-ENGINE BED PLATE
1	EVG-P47-04-ENGINE PORT PLATE
1	EVG-P47-05-CYLINDER
1	EVG-P47-06-CYLINDER FRONT COVER
1	EVG-P47-07-CYLINDER REAR COVER
1	EVG-P47-08-CYLINDER PIVOT SHAFT
1	EVG-P47-09-CYLINDER PIVOT PRESSURE SPRING
1	EVG-P47-10-FLWHEEL-CRANK SHAFT
1	EVG-P47-11-CRANKSHAFT LOCKING COLLAR
1	EVG-P47-12-CRANK PLATE-FLYWHEEL
1	EVG-P47-13-BEVELLED GEAR WHEEL
1	EVG-P47-13-BEVELLED GEAR WHEEL
1	EVG-P47-14-OUTPUT SHAFT
1	EVG-P47-15-PISTON ROD PACKNUT
1	EVG-P47-16-PISTON
1	EVG-P47-17-PISTON ROD
1	EVG-P47-18-PISTON ROD BIG END
1	EVG-P47-M4x6 GRUB SCREW
1	EVG-P47-M4x11.5 GRUB SCREW
9	EVG-P47-M4x15 C-SINK SCREW
8	EVG-P47-M4x15 HEX BOLT
2	EVG-P47-M5 WASHER
1	EVG-P47-M6 NUT

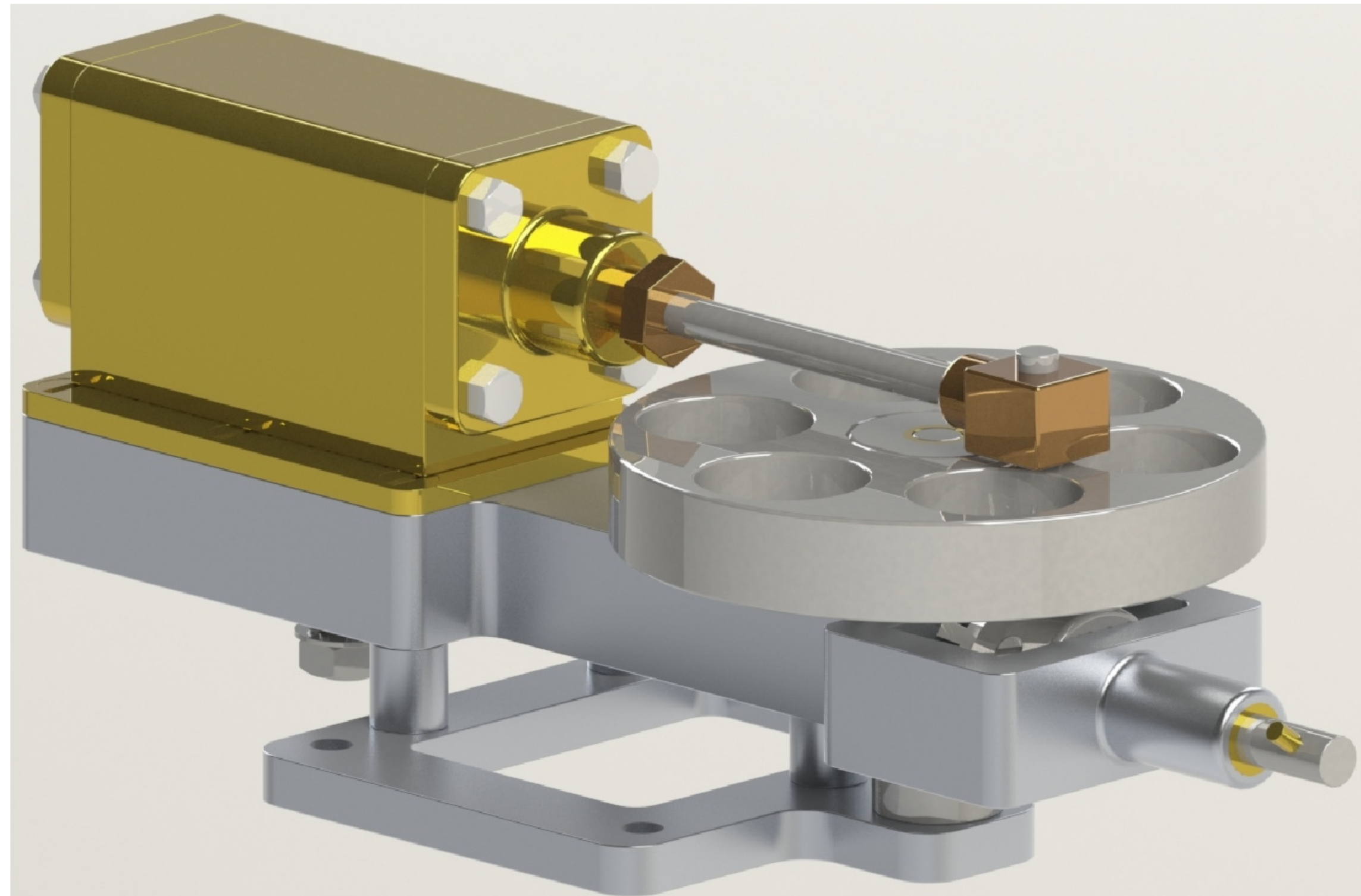
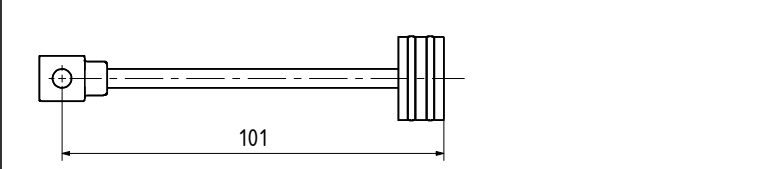
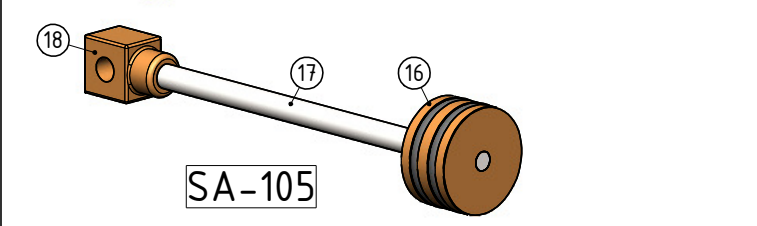
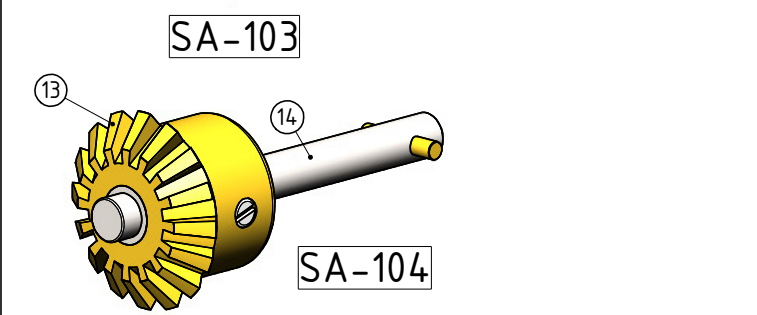
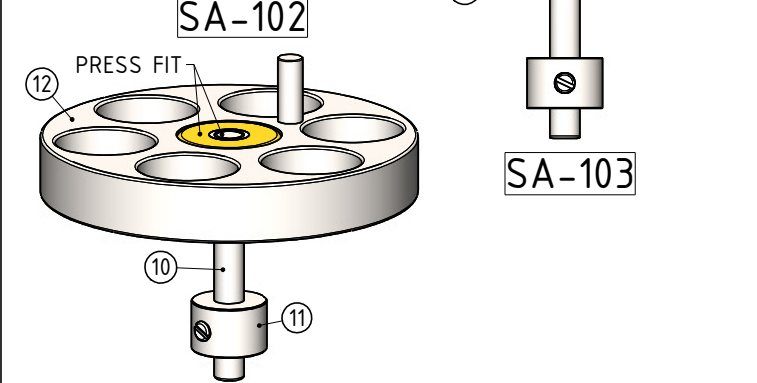
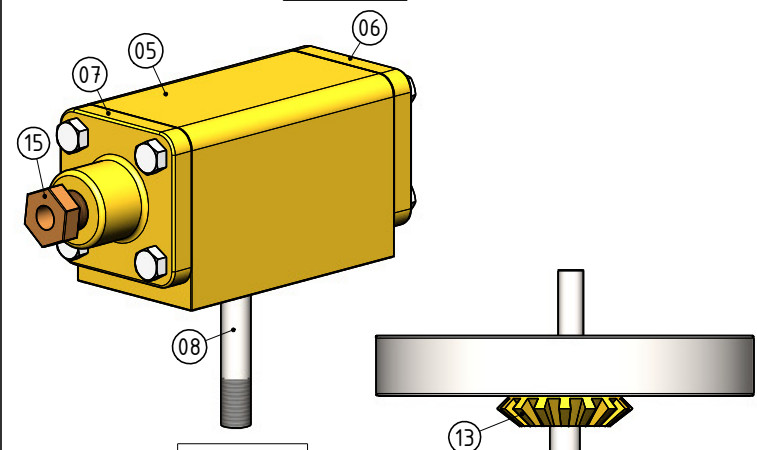
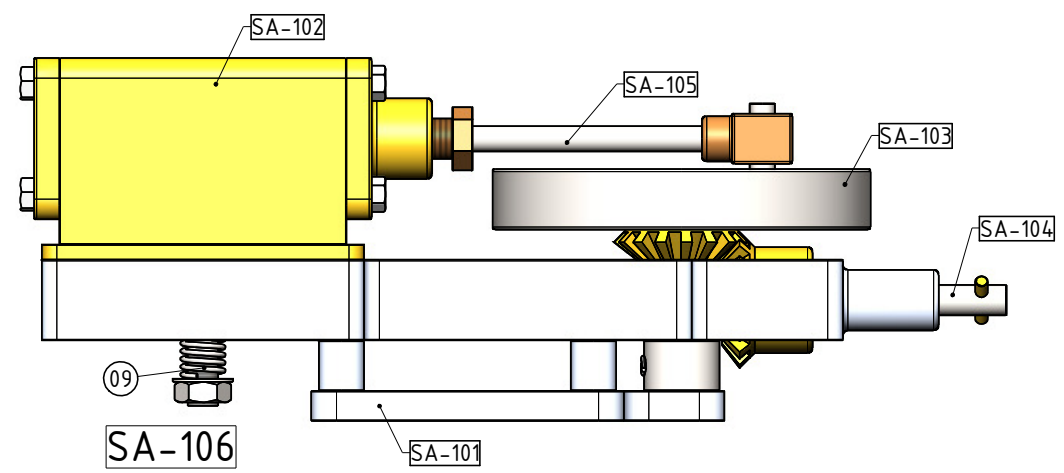
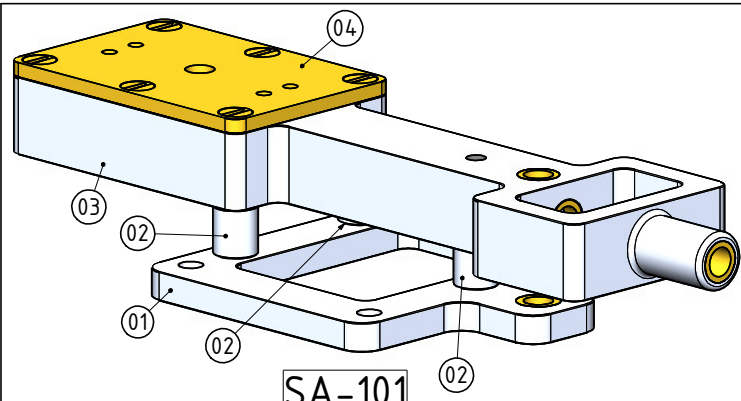
MATERIAL ABBREVIATIONS:

- 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





NOTES: THE ORIGINAL DRAWINGS AND ARTICLE OF THIS ENGINE WERE BY ELMER VERBURG AND PUBLISHED IN A BOOK AS CHAPTER 47. THE ORIGINAL DRAWINGS WERE POSTED ON: WWW.JOHN-TOM.COM (THIS ENGINE IS 2 TIMES LARGER THAN THE ORIGINAL)		PROJECT No 10-47-00	
TITLE <b>1 CYLINDER HORIZONTAL OSCILLATING MODEL BOAT STEAM ENGINE</b>		DRAWING CONTENTS <b>PARTS AND ASSEMBLIES, RENDERED PICTURE</b>	
J.D.W. 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 	MODEL SCALE: 1:1 DWG SCALE: 1:1 @A3 OR AS SHOWN Copyright © J.A.M. DE WAAL PAPA KURA NZ
DATE: APRIL-2016		SHEET: 02 OF 02	A3 No: EVG-P47-02