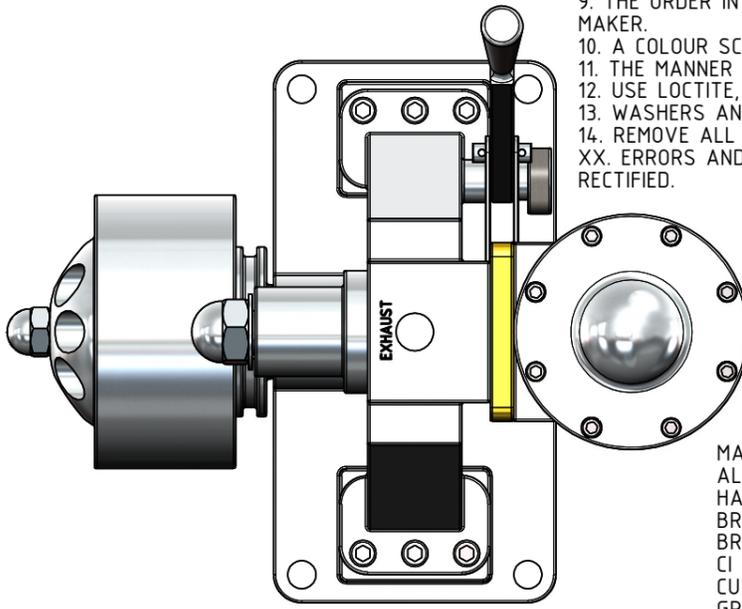


QTY.	PART NUMBER
1	09A-46-00-1-01-BASE PLATE
1	09A-46-00-2-01-CRANKSHAFT+FLYWHEEL
1	09A-46-00-2-02-REVERSING PLATE
1	09A-46-00-2-03-CYLINDER
1	09A-46-00-2-04-PISTON
1	09A-46-00-2-05-REVERSING HANDLE
1	09A-46-00-2-06-REVERSING HANDLE LINKS
1	09A-46-00-M3x5 A-K GRUB SCREW
16	09A-46-00-M3x9 A-K CYL HEAD SCREW
6	09A-46-00-M4x20 A-K CYL HEAD SCREW
1	09A-46-00-M6 DOME NUT
1	09A-46-00-M8 DOME NUT
1	09A-46-00-M8 WASHER

GENERAL NOTES:

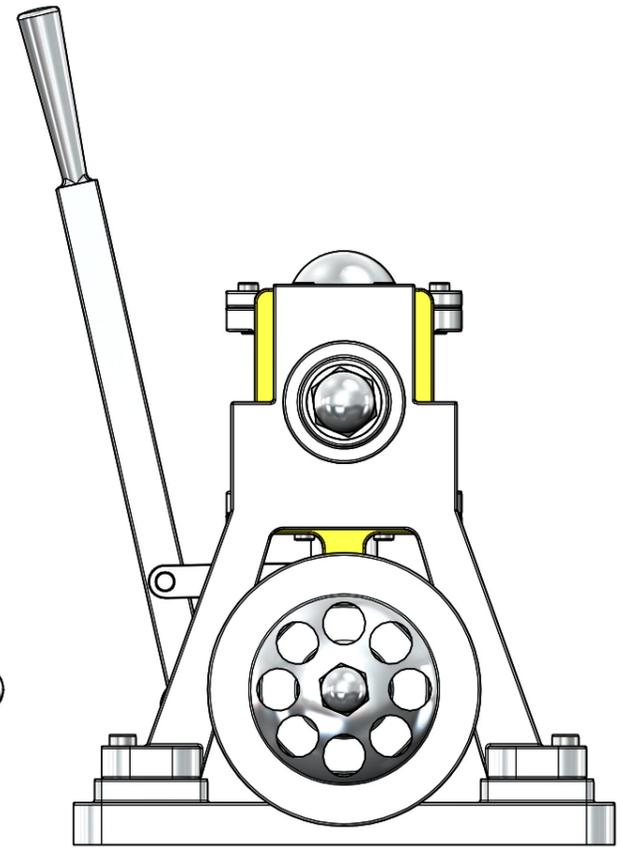
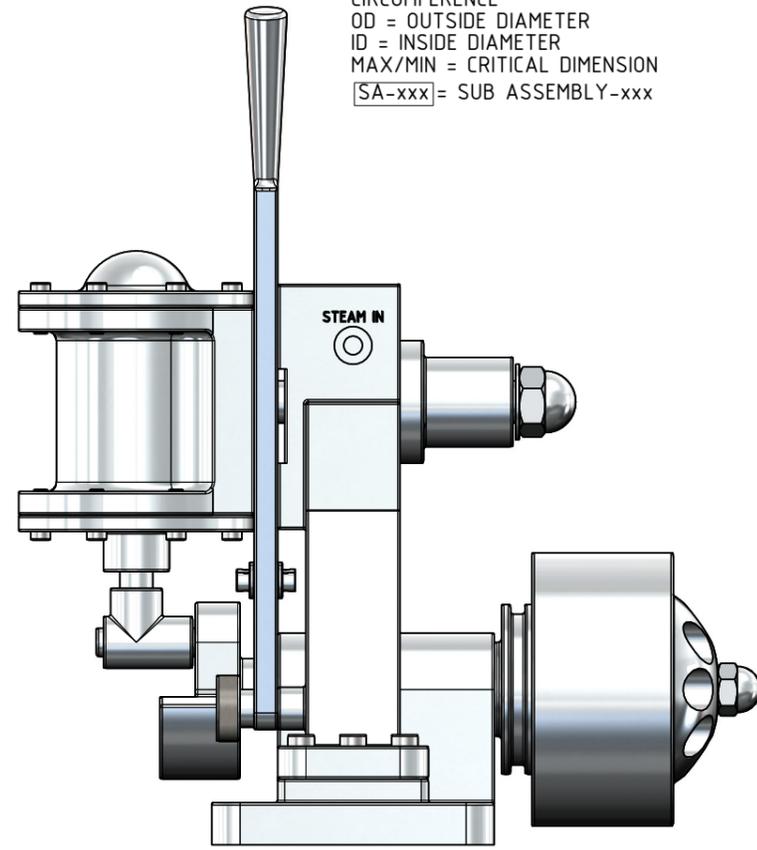
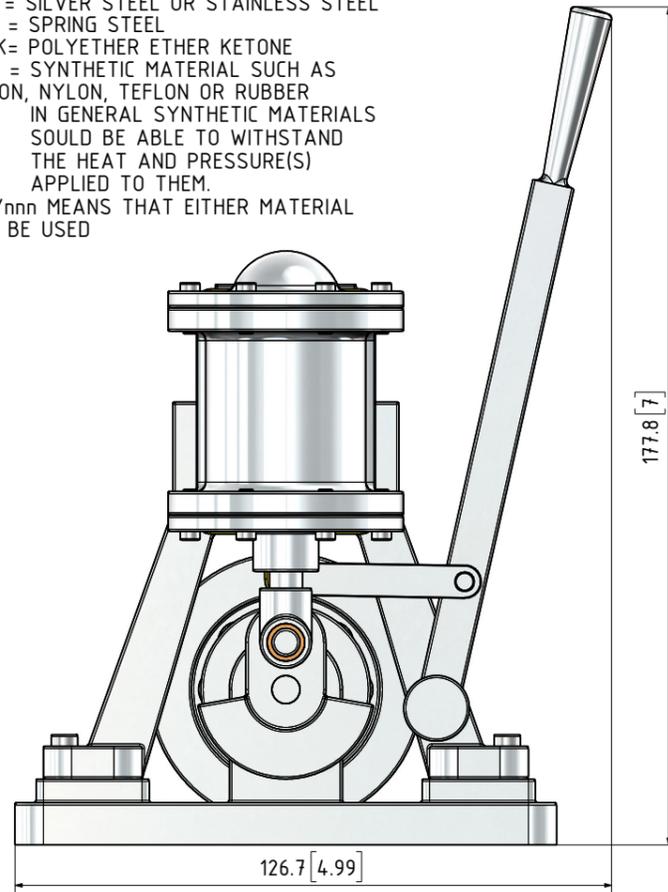
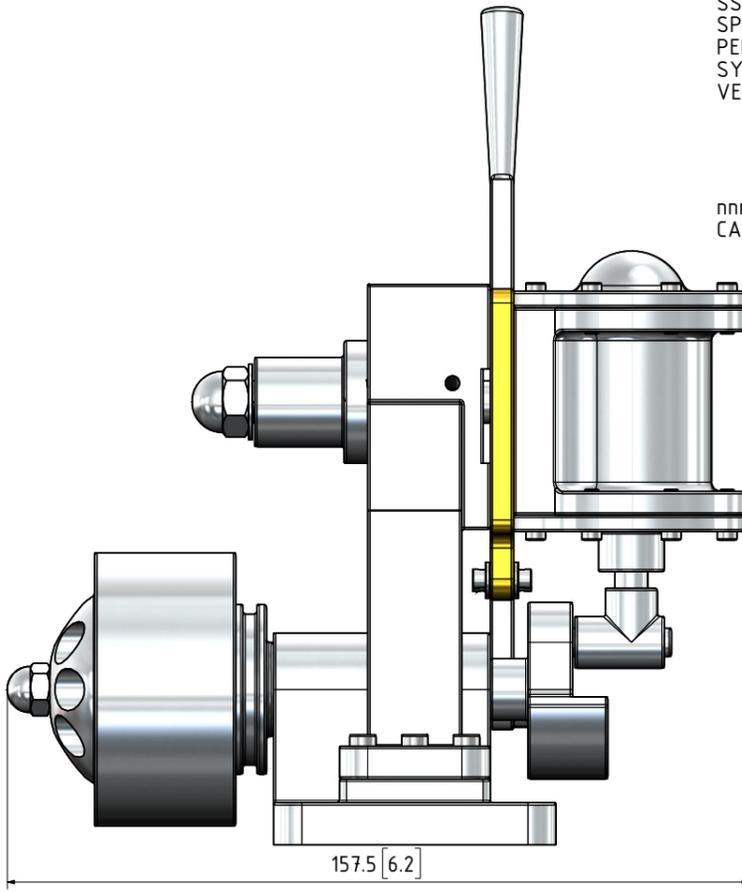
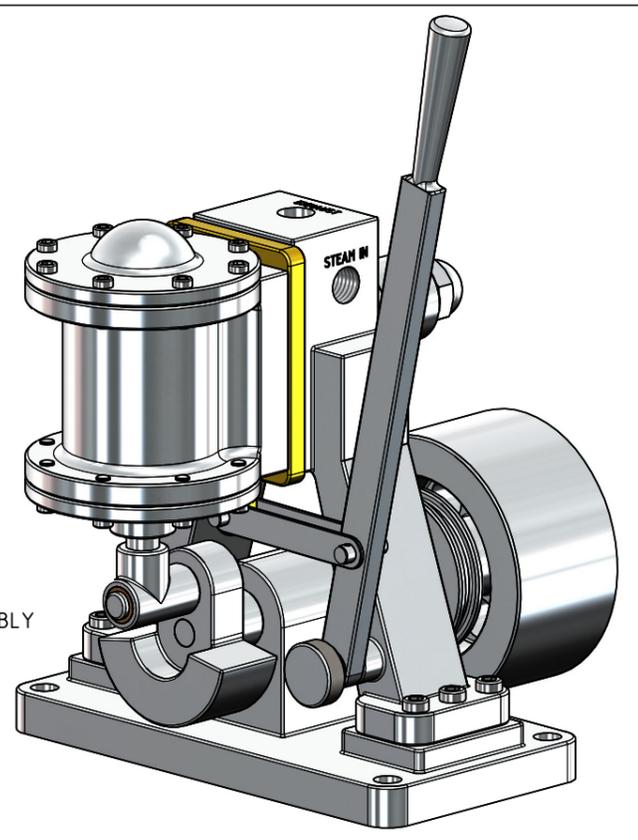
- ALL DRAWINGS ARE IN METRIC MEASUREMENTS
- ALL ENGINEERING PRACTICES SHALL BE APPLIED WITH REGARDS TO HOLE AND SHAFT TOLERANCES.
- WHERE SCREWS OR BOLTS ARE USED THE CLEARANCE HOLES SHALL BE APPROXIMATELY 5% TO 8% LARGER THAN THE MATCHING TAPPED HOLE.
- PREFERABLY ALL TAPPED HOLES AND MATCHING SCREWS AND/OR BOLTS TO BE METRIC FINE (MF)
- MATERIALS SPECIFIED ON THE DRAWINGS ARE INDICATIVE ONLY. THE BUILDER CAN MAKE HIS/HER OWN MATERIAL CHOICE.
- ALL CONNECTIONS/JOINTS WHICH HAVE STEAM PRESSURE APPLIED TO IT SHALL BE SILVER/HARD SOLDERED.
- COMPRESSION SPRINGS ARE DRAWN IN COMPRESSED STATE (CP), UNCOMPRESSED STATE IS APPROX 40% TO 60% LONGER THEN COMPRESSED STATE.
- 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.
- 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.
- THE ORDER IN WHICH THE PARTS/COMPONENTS ARE MANUFACTURED AND THE MODEL IS ASSEMBLED IS ENTIRELY LEFT TO THE BUILDER/MODEL MAKER.
- A COLOUR SCHEME FOR THIS PROJECT IS ENTIRELY LEFT UP TO THE MODEL MAKER.
- THE MANNER IN WHICH THE PARTS/COMPONENTS ARE MANUFACTURED IS ENTIRELY LEFT UP TO THE BUILDER.
- USE LOCTITE, ON SCREW OR PRESS FIT CONNECTIONS OR SURFACES, WERE DEEMED NECESSARY TO PREVENT PARTS FROM LOOSENING.
- WASHERS AND/OR SPRING WASHERS SHALL BE USED WHERE DEEMED NECESSARY.
- REMOVE ALL SHARP EDGES
- XX. ERRORS AND/OR OMISSIONS MAY OCCUR IN THE DRAWINGS, DO NOT HESITATE TO CONTACT ME SO THAT THE ERRORS/OMISSIONS CAN BE RECTIFIED.



DUE TO THE LACK OF INFORMATION ON THE ORIGINAL DRAWING(S), SUCH AS VIEWS, DIMENSIONS, SECTIONS ETC AND/OR CLARITY OF COMPONENTS, OMITTED PARTS/COMPONENTS, SOME OF THE COMPONENTS MIGHT NOT BE AS CONSTRUCTED ORIGINALLY OR AS THE ORIGINAL DESIGNER INTENDED

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

- OTHER ABBREVIATIONS**
- AS = AS SHOWN
 - DP = DEEP
 - DAA= 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
 - MAX/MIN = CRITICAL DIMENSION
 - [SA-xxx]= SUB ASSEMBLY-xxx



NOTES:THE ORIGINAL DRAWINGS WERE GIVEN TO ME. THE ORIGINAL DRAWINGS AND ARTICLE WERE PUBLISHED IN "POPULAR SCIENCE" MAGAZINE OF APRIL 1941 UNDER THE HEADING: "OSCILLATING STEAM ENGINE WITH REVERSE GEAR BY C.W.WOODSON". ENGINE SHOWN ON THESE DRAWING IS 1.5 TIMES THE ORIGINAL

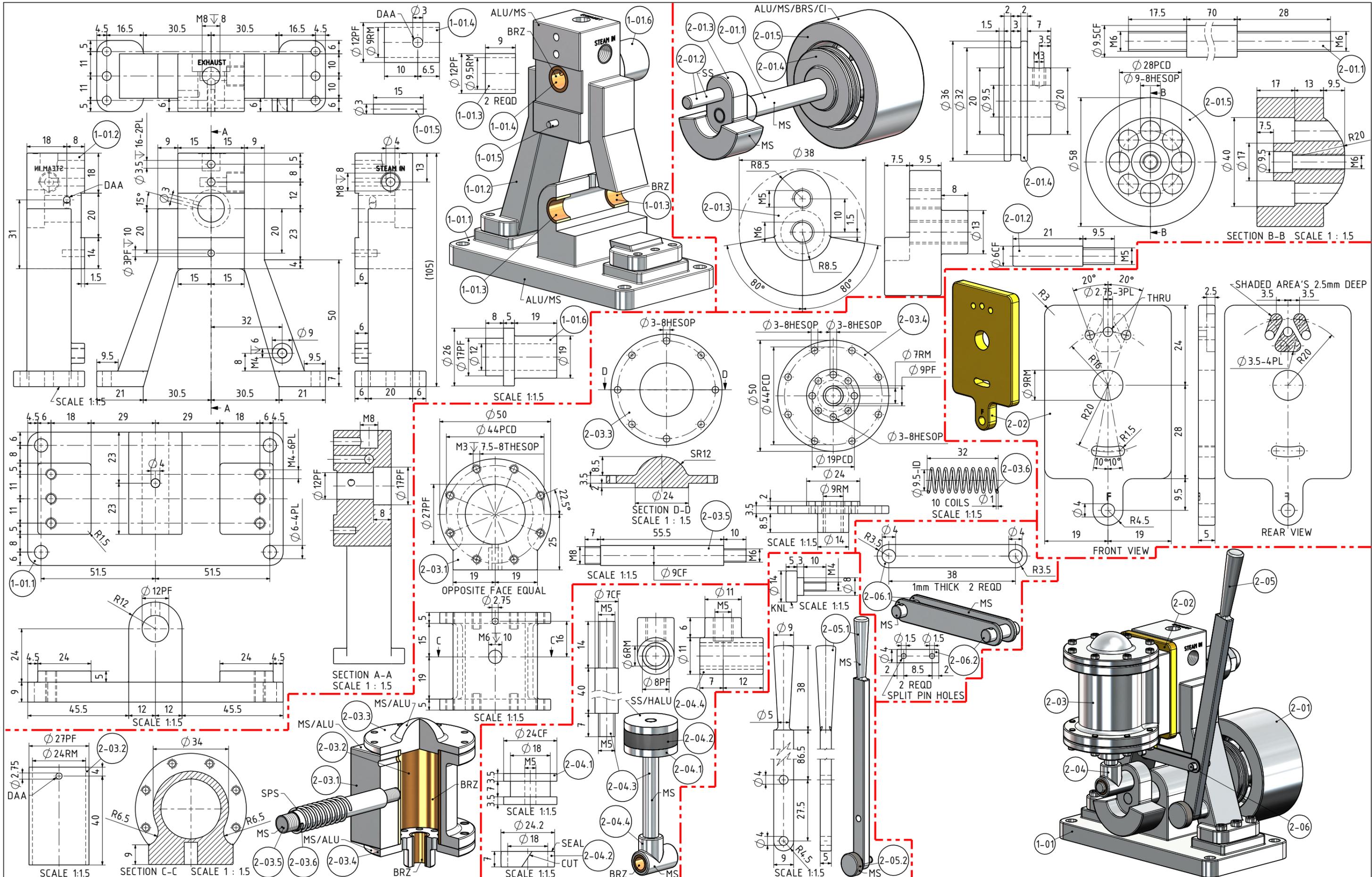
TITLE
1 CYLINDER VERTICAL OSCILLATING STEAM ENGINE WITH REVERSER (B=24mm S=20mm)

DRAWING CONTENTS
GENERAL ARRANGEMENT, NOTES, ISOMETRIC VIEW, BILL OF MATERIALS

PROJECT No 09A-46-00
 JDW DRAUGHTING SERVICES
 J.A.M. DE WAAL, 12 BRIGHTWELL STREET PAKAPURA
 2110, NEW ZEALAND. PHONE: 0064 09 2988815. MOB: 0211791000 E-MAIL: dewaal@xtra.co.nz.

PROJECTION
JDWDS
 DATE JANUARY 2025
 SHEET: 01 OF 02

MODEL SCALE: 1:1
 DWG SCALE: 1:1 @A3 OR AS SHOWN
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A3 No:09A-46-00-SHT-01



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1 CYLINDER VERTICAL OSCILLATING STEAM ENGINE WITH REVERSER (B=24mm S=20mm)

DRAWING CONTENTS
PARTS AND ASSEMBLIES

PROJECT No 09A-46-00
 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	MODEL SCALE: 1:1
DATE	JANUARY 2025	DWG SCALE: 1:1 @A3 OR AS SHOWN
SHEET: 02 OF 02	A3	Copyright © J.A.M. DE WAAL PAPAOKURA NZ
No:09A-46-00-SHT-02		

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