

- NOTES:
1. ALL DRAWINGS ARE IN METRIC MEASUREMENTS
 2. ALL ENGINEERING PRACTICES SHALL BE APPLIED WITH REGARDS TO HOLE AND SHAFT TOLERANCES.
 3. WHERE SCREWS OR BOLTS ARE USED THE CLEARANCE HOLES SHALL BE APPROXIMATELY 5% TO 8% LARGER THAN THE MATCHING TAPPED HOLE.
 4. PREFERABLY ALL TAPPED HOLES AND MATCHING SCREWS AND/OR BOLTS TO BE METRIC FINE (MF)
 5. MATERIALS SPECIFIED ON THE DRAWINGS ARE INDICATIVE ONLY. THE BUILDER CAN MAKE HIS/HER OWN MATERIAL CHOICE.
 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.
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 11. A COLOUR SCHEME FOR THIS PROJECT IS ENTIRELY LEFT UP TO THE MODEL MAKER.
 12. THE MANNER IN WHICH THE PARTS/COMPONENTS ARE MANUFACTURED IS ENTIRELY LEFT UP TO THE BUILDER.
 13. USE LOCTITE, ON SCREW OR PRESS FIT CONNECTIONS OR SURFACES, WERE DEEMED NECESSARY TO PREVENT PARTS FROM LOOSENING.
 14. WASHER SHALL BE USED WHERE DEEMED NECESSARY.
 15. XX. ERRORS AND/OR OMISSIONS MAY OCCUR IN THE DRAWINGS, DO NOT HESITATE TO CONTACT ME SO THAT THE ERRORS/OMISSIONS CAN BE RECTIFIED.

MATERIAL ABBREVIATIONS:

ALU = ALUMINIUM/HARD ALUMINIUM
 BRZ = 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

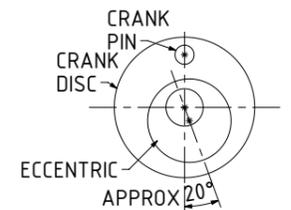
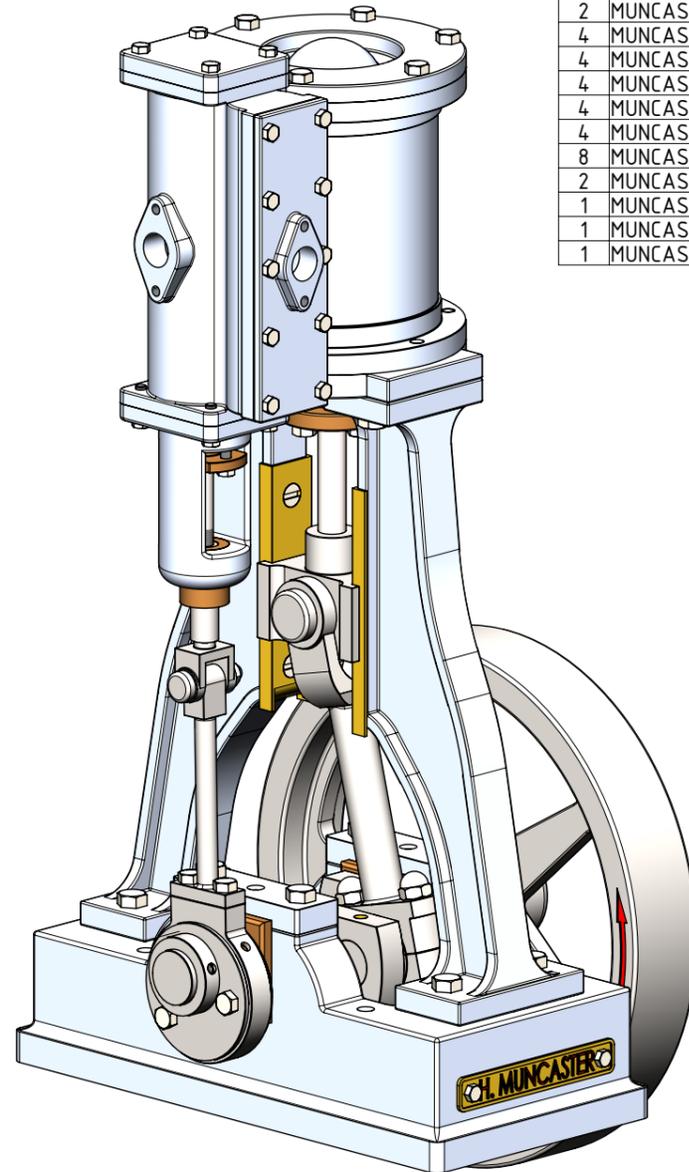
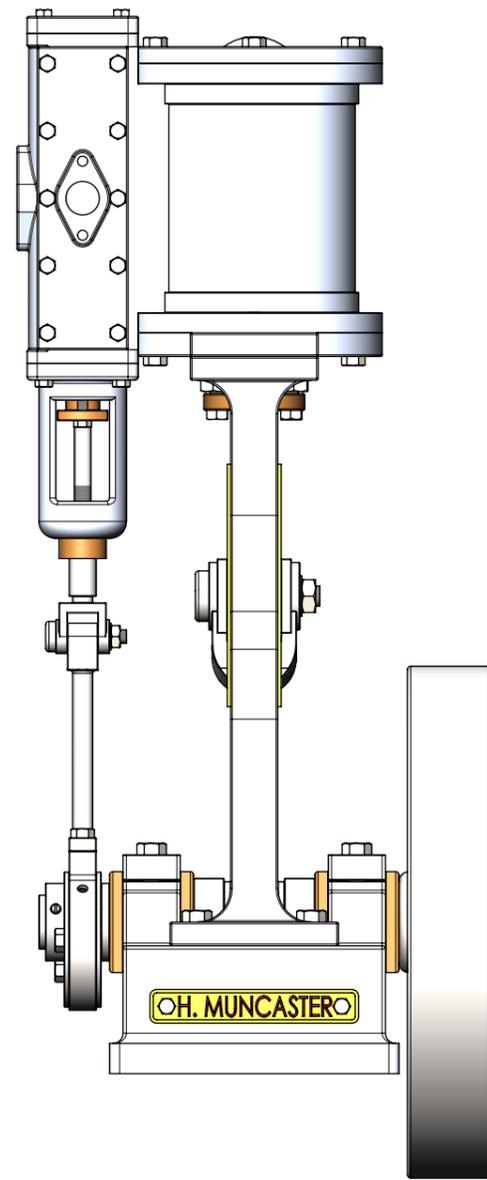
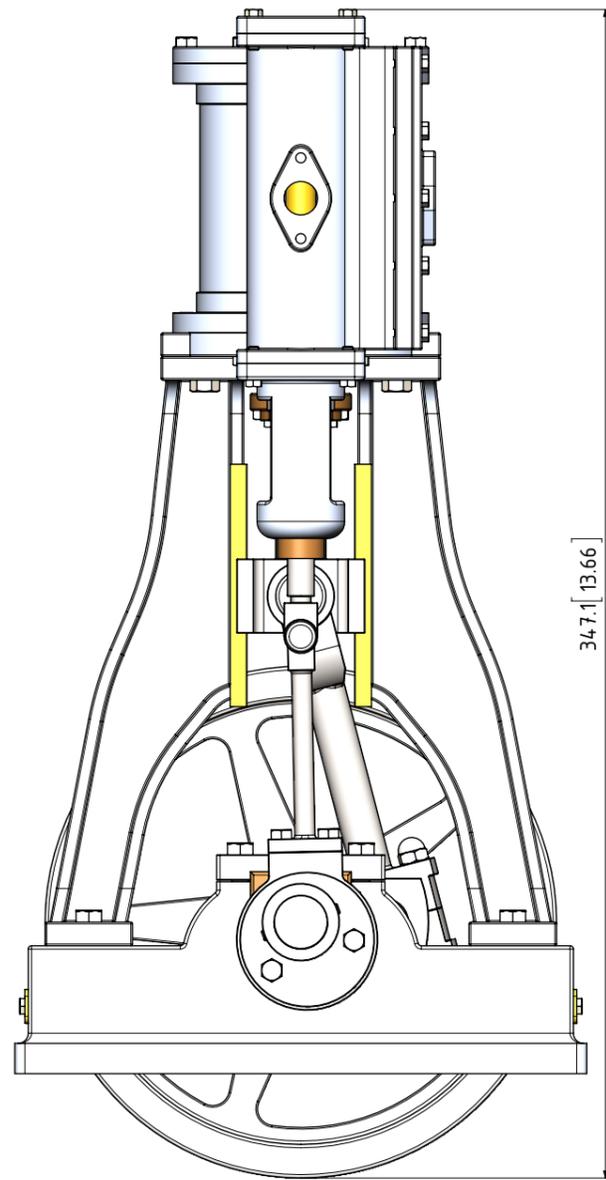
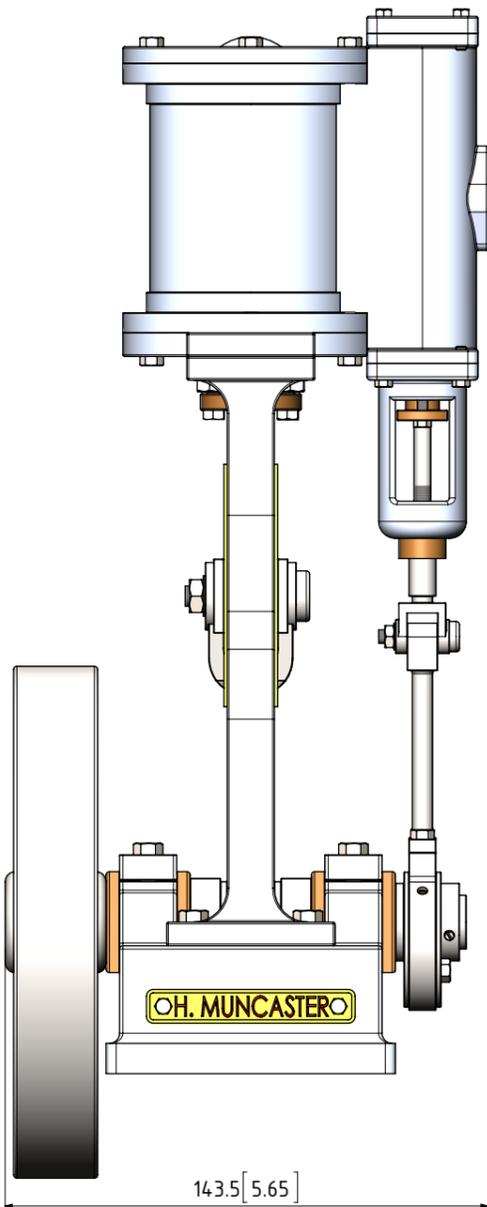
IN GENERAL SYNTHETIC MATERIALS SOULD BE ABLE TO WITHSTAND THE HEAT AND PRESSURE(S) APPLIED TO THEM.

nnn/nnn MEANS THAT EITHER MATERIAL CAN BE USED

QTY.	PART NUMBER
1	MUNCASTER5.1-1-01-BASE PLATE
2	MUNCASTER5.1-1-02-CYLINDER BLOCK SUPPORT LEG
2	MUNCASTER5.1-1-03-BEARING BLOCK
2	MUNCASTER5.1-1-04-BEARING BLOCK RETAINER PLATE
1	MUNCASTER5.1-1-05-CYLINDER BLOCK
1	MUNCASTER5.1-1-06-VALVE CHEST
1	MUNCASTER5.1-1-07-CYLINDER TOP COVER
1	MUNCASTER5.1-1-08-CYLINDER BOTTOM COVER
1	MUNCASTER5.1-1-09-VALVE CHEST TOP COVER
1	MUNCASTER5.1-1-10-VALVE CHEST BOTTOM COVER
1	MUNCASTER5.1-1-11-VALVE SPINDLE GLAND
2	MUNCASTER5.1-1-12-NAME PLATE
1	MUNCASTER5.1-2-01-CRANKSHAFT
1	MUNCASTER5.1-2-02-FLYWHEEL
1	MUNCASTER5.1-2-03-ECCENTRIC SHEAVE
1	MUNCASTER5.1-2-04-PISTON+CROSSHEAD
1	MUNCASTER5.1-2-05-CON-ROD
1	MUNCASTER5.1-2-06-SLIDE VALVE+SPINDLE
1	MUNCASTER5.1-2-07-ECCENTRIC STRAP
2	MUNCASTER5.1-M3x4 GRUB SREW
4	MUNCASTER5.1-M3x8 C-SINK SCREW
14	MUNCASTER5.1-M3x8 HEX BOLT
10	MUNCASTER5.1-M3x10 HEX BOLT
1	MUNCASTER5.1-M4 NUT
1	MUNCASTER5.1-M4 WASHER
2	MUNCASTER5.1-M4x8 HEX BOLT
8	MUNCASTER5.1-M4x11 HEX BOLT
2	MUNCASTER5.1-M4x12 C-SINK SCREW
4	MUNCASTER5.1-M4x13 HEX BOLT
4	MUNCASTER5.1-M4x18 HEX BOLT
4	MUNCASTER5.1-M5 DOME NUT
4	MUNCASTER5.1-M5 NUT
4	MUNCASTER5.1-M5x14 HEX BOLT
8	MUNCASTER5.1-M5x20 HEX BOLT
2	MUNCASTER5.1-M5x36 STUD
1	MUNCASTER5.1-M6 DOME NUT
1	MUNCASTER5.1-M6 NUT
1	MUNCASTER5.1-M6 WASHER

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)HESQP=(TAPPED)HOLES EQUALLY SPACED ON PCD
 (T)HESOC=(TAPPED)HOLES EQUALLY SPACED ON CIRCUMFERENCE
 [SA-xxx]= SUB ASSEMBLY-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

NOTES: THE ORIGINAL DRAWINGS WERE PUBLISHED IN THE "MODEL ENGINEER" MAGAZINE OF FEBTUARY 1957 UNDER THE HEADING OF "THE MUNCASTER STEAM-ENGINE MODELS".

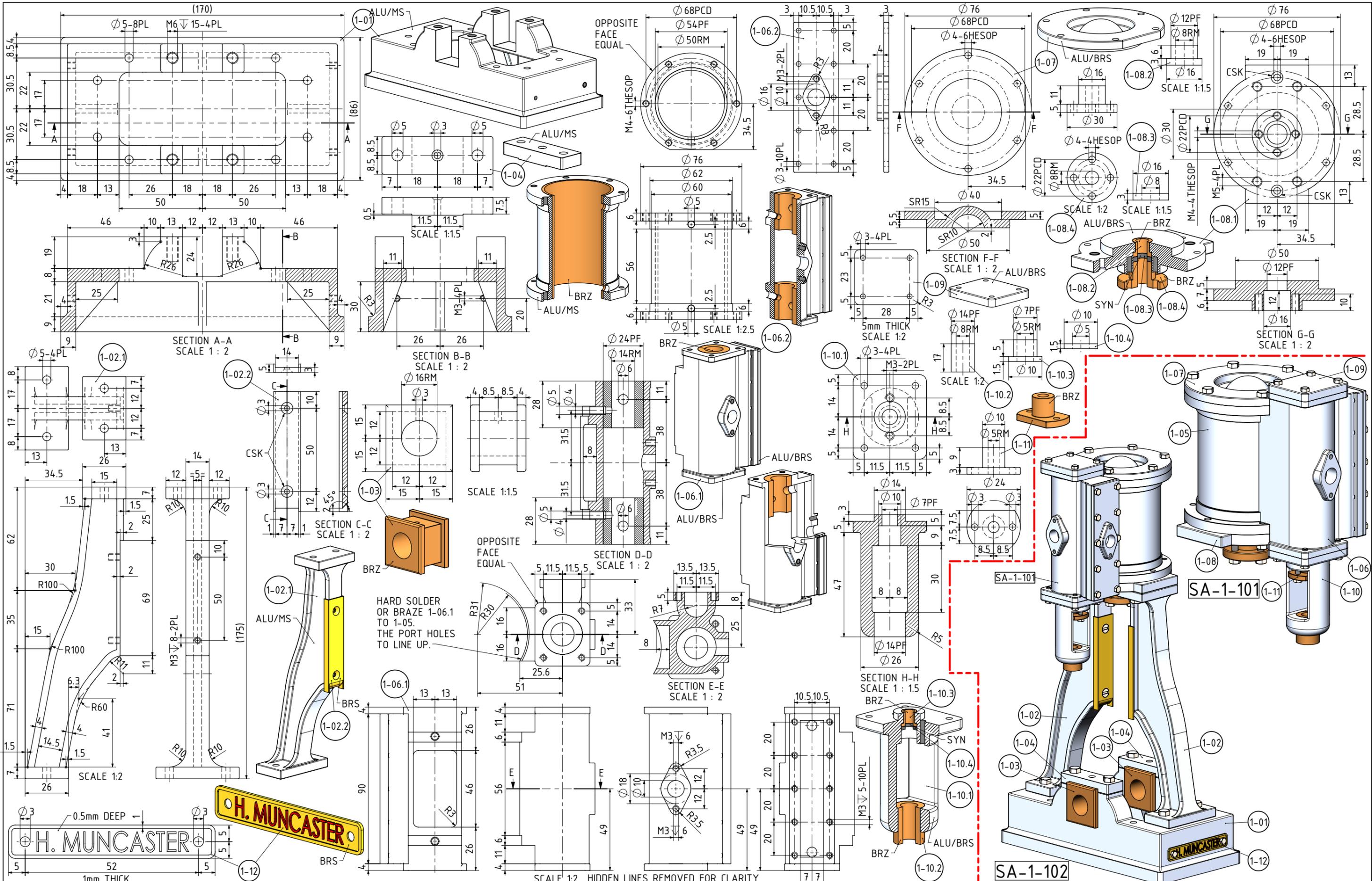
TITLE
1 CYL VERTICAL STEAM ENGINE "STEAM HAMMER" TYPE COLUMNS BY H.MUNCASTER.

DRAWING CONTENTS
G.A., B.O.M., NOTES, ISOMETRIC VIEW

PROJECT No 11-05-01
 JDW DRAUGHTING SERVICES
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 NEW ZEALAND. PHONE: 0064 09 2988815. MOB: 0211791000
 E-MAIL: dewaal@xtra.co.nz.

PROJECTION
JDWDS
 DATE JUNE-2017
 SHEET: 01 OF 03

MODEL SCALE: 1:1
 DWG SCALE: 1:1 @A3 OR AS SHOWN
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A3 No:MUNCASTER5.1-01



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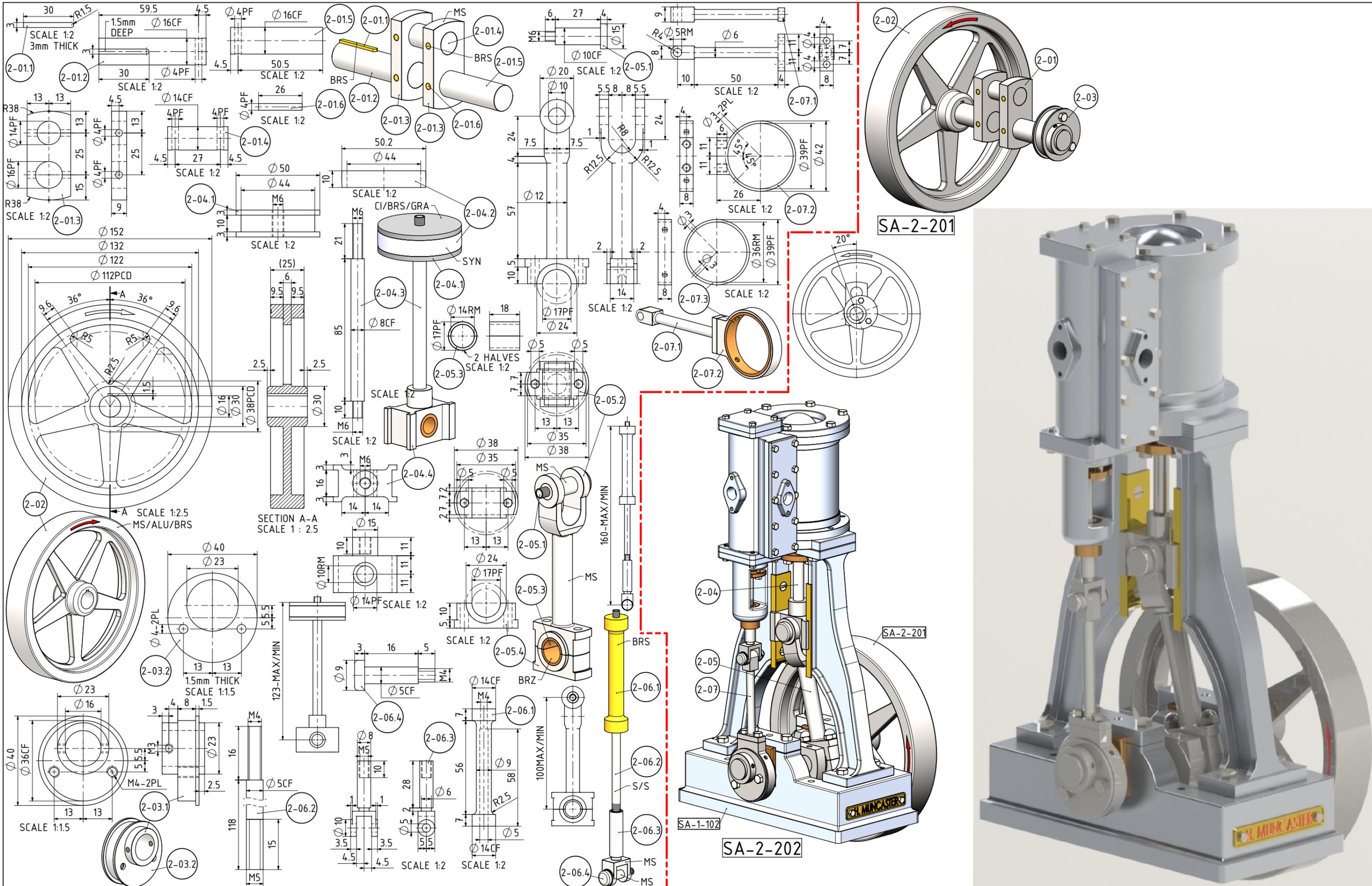
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DRAWING CONTENTS
PARTS AND ASSEMBLIES

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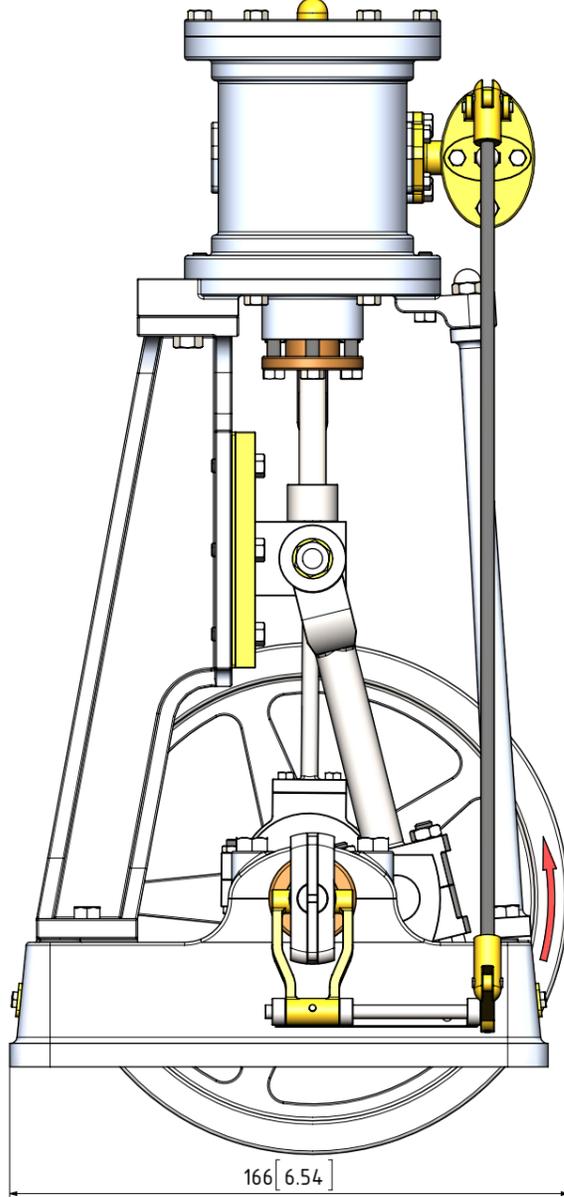
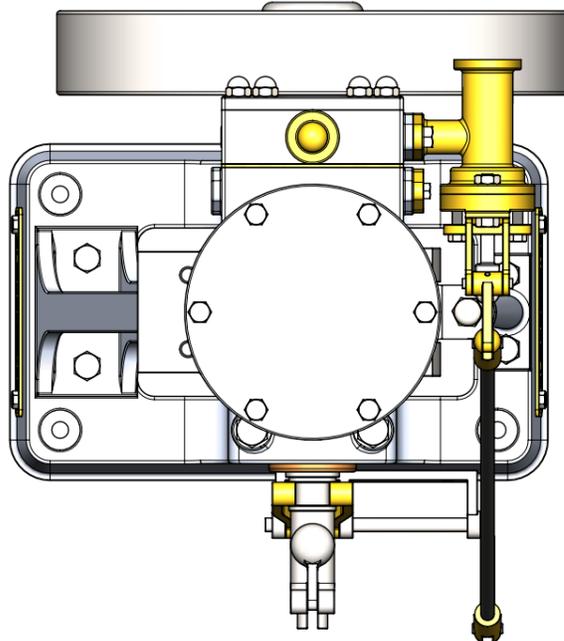
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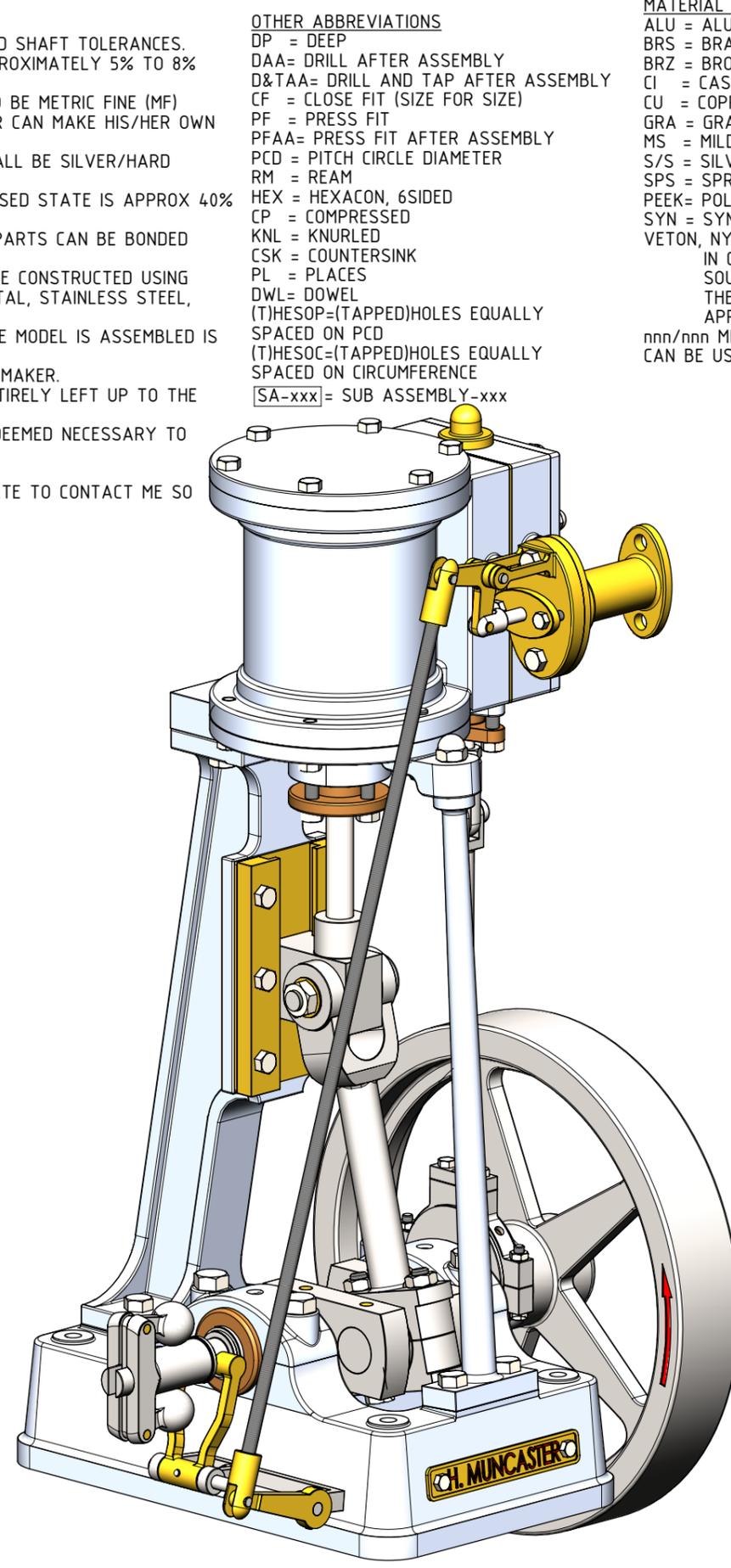
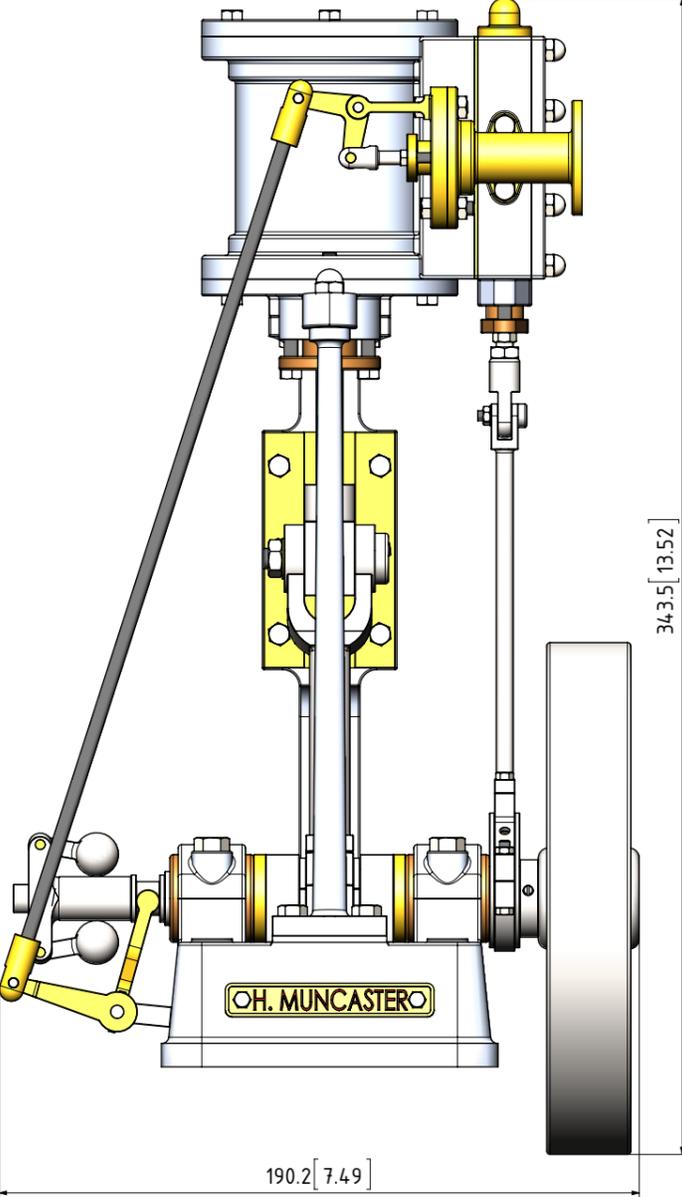
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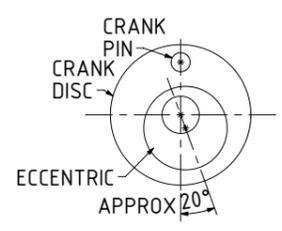


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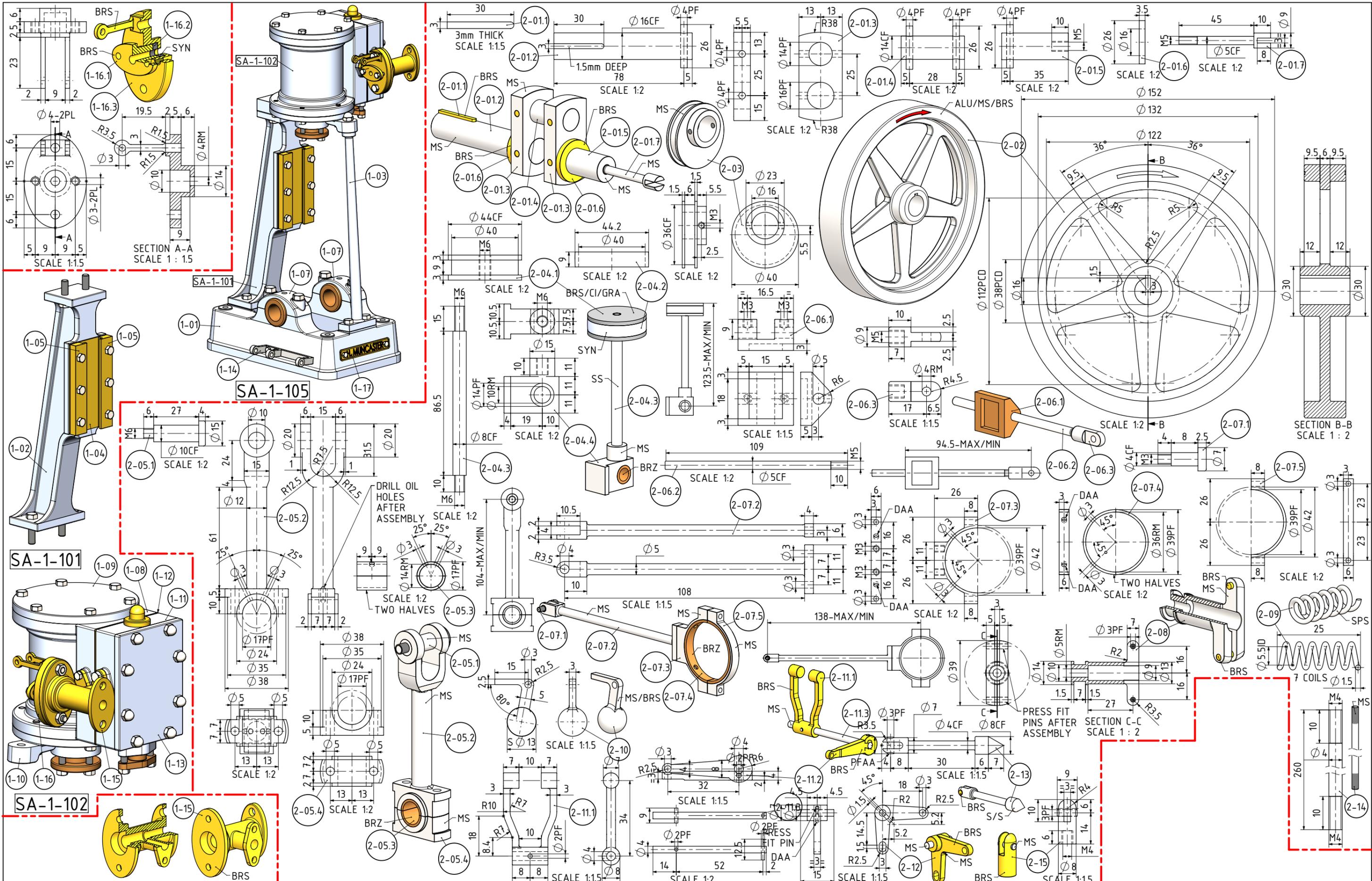
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QTY.	PART NUMBER
1	MUNCASTER5.2-1-01-BASE
1	MUNCASTER5.2-1-02-CYLINDER SUPPORT LEG-1
1	MUNCASTER5.2-1-03-CYLINDER SUPPORT LEG-2
1	MUNCASTER5.2-1-04-CROSSHEAD SLIDE PLATE
2	MUNCASTER5.2-1-05-CROSSHEAD SLIDE GUIDE
2	MUNCASTER5.2-1-06-MAIN BEARING
2	MUNCASTER5.2-1-07-BEARING TOP CAP
1	MUNCASTER5.2-1-08-CYLINDER BLOCK
1	MUNCASTER5.2-1-09-CYLINDER BLOCK TOP COVER
1	MUNCASTER5.2-1-10-CYLINDER BLOCK BOTTOM COVER
1	MUNCASTER5.2-1-11-VALVE CHEST
1	MUNCASTER5.2-1-12-PORT PLATE
1	MUNCASTER5.2-1-13-VALVE CHEST COVER
1	MUNCASTER5.2-1-14-GOVERNOR FORK PIVOT BRACKET
1	MUNCASTER5.2-1-15-THROTTLE VALVE HOUSING
1	MUNCASTER5.2-1-16-THROTTLE VALVE HOUSING COVER
2	MUNCASTER5.2-1-17-NAME PLATE
1	MUNCASTER5.2-2-01-CRANKSHAFT
1	MUNCASTER5.2-2-02-FLYWHEEL
1	MUNCASTER5.2-2-03-ECCENTRIC SHEAVE
1	MUNCASTER5.2-2-04-PISTON+CROSSHEAD
1	MUNCASTER5.2-2-05-CON-ROD
1	MUNCASTER5.2-2-06-SLIDE VALVE+SPINDLE
1	MUNCASTER5.2-2-07-ECCENTRIC STRAP
1	MUNCASTER5.2-2-08-GOVERNOR SLIDING HOUSING
1	MUNCASTER5.2-2-09-GOVERNOR SPRING
2	MUNCASTER5.2-2-10-GOVERNOR FLY WEIGHT
1	MUNCASTER5.2-2-11-GOVERNOR YOKE AND CRANK
1	MUNCASTER5.2-2-12-THROTTLE VALVE CRANK
1	MUNCASTER5.2-2-13-THROTTLE VALVE
1	MUNCASTER5.2-2-14-GOVERNOR CONTROL ROD
2	MUNCASTER5.2-2-15-GOVERNOR CONTROL ROD END
3	MUNCASTER5.2-M3 NUT
1	MUNCASTER5.2-M3 WASHER
4	MUNCASTER5.2-M3x4 GRUB SREW
4	MUNCASTER5.2-M3x8 HEX BOLT
8	MUNCASTER5.2-M3x10 HEX BOLT
2	MUNCASTER5.2-M3x20 HEX BOLT
8	MUNCASTER5.2-M4 DOME NUT
2	MUNCASTER5.2-M4 NUT
12	MUNCASTER5.2-M4x12 HEX BOLT
10	MUNCASTER5.2-M4x13 HEX BOLT
1	MUNCASTER5.2-M4x18 C-SINK SCREW
5	MUNCASTER5.2-M4x18 HEX BOLT
8	MUNCASTER5.2-M4x34 STUD
1	MUNCASTER5.2-M5 DOME NUT
3	MUNCASTER5.2-M5 NUT
2	MUNCASTER5.2-M5x6 HEX BOLT
2	MUNCASTER5.2-M5x14 HEX BOLT
2	MUNCASTER5.2-M5x20 HEX BOLT
2	MUNCASTER5.2-M5x35 HEX BOLT
1	MUNCASTER5.2-M6 NUT
1	MUNCASTER5.2-M6 WASHER
4	MUNCASTER5.2-M6x26 HEX BOLT



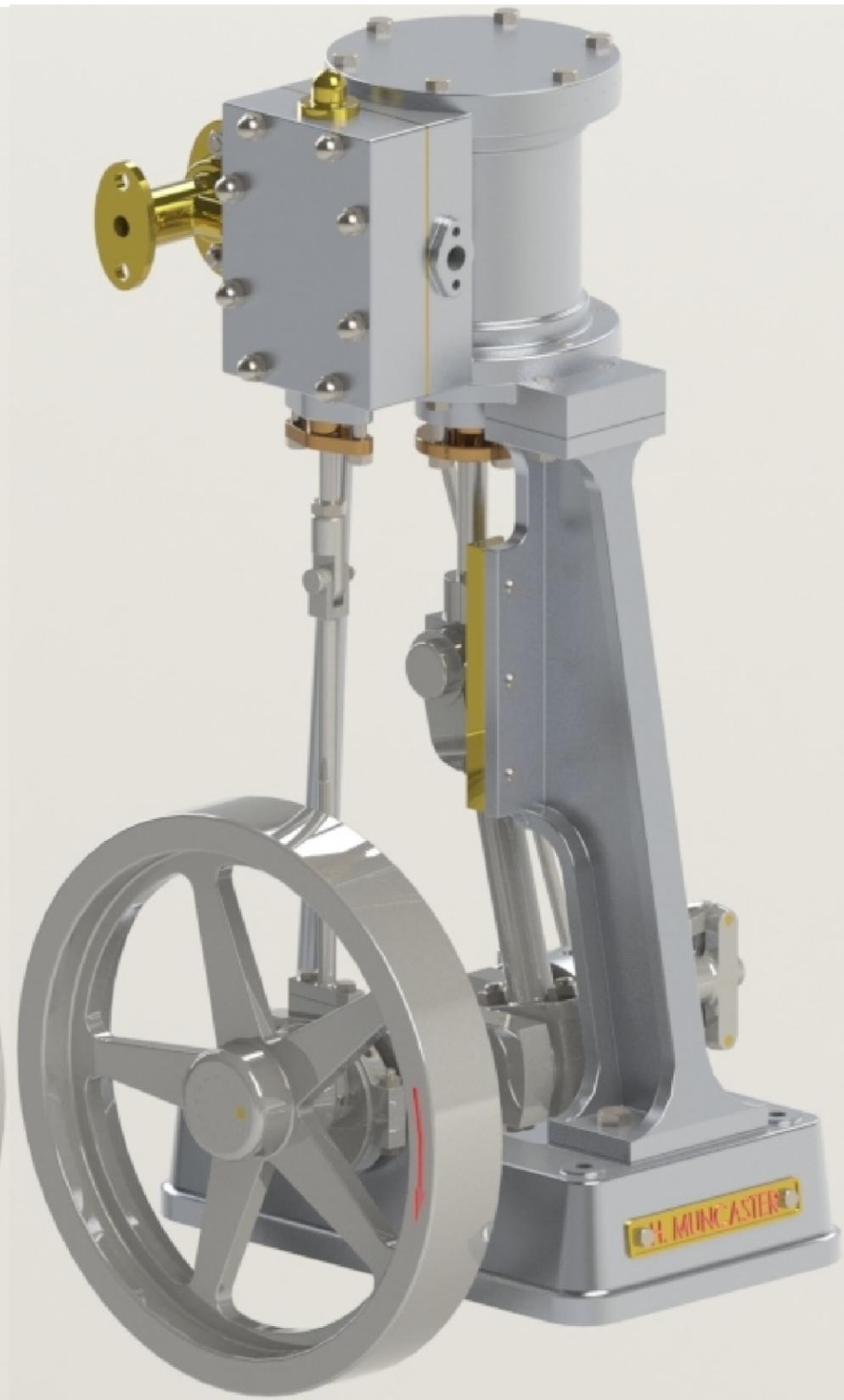
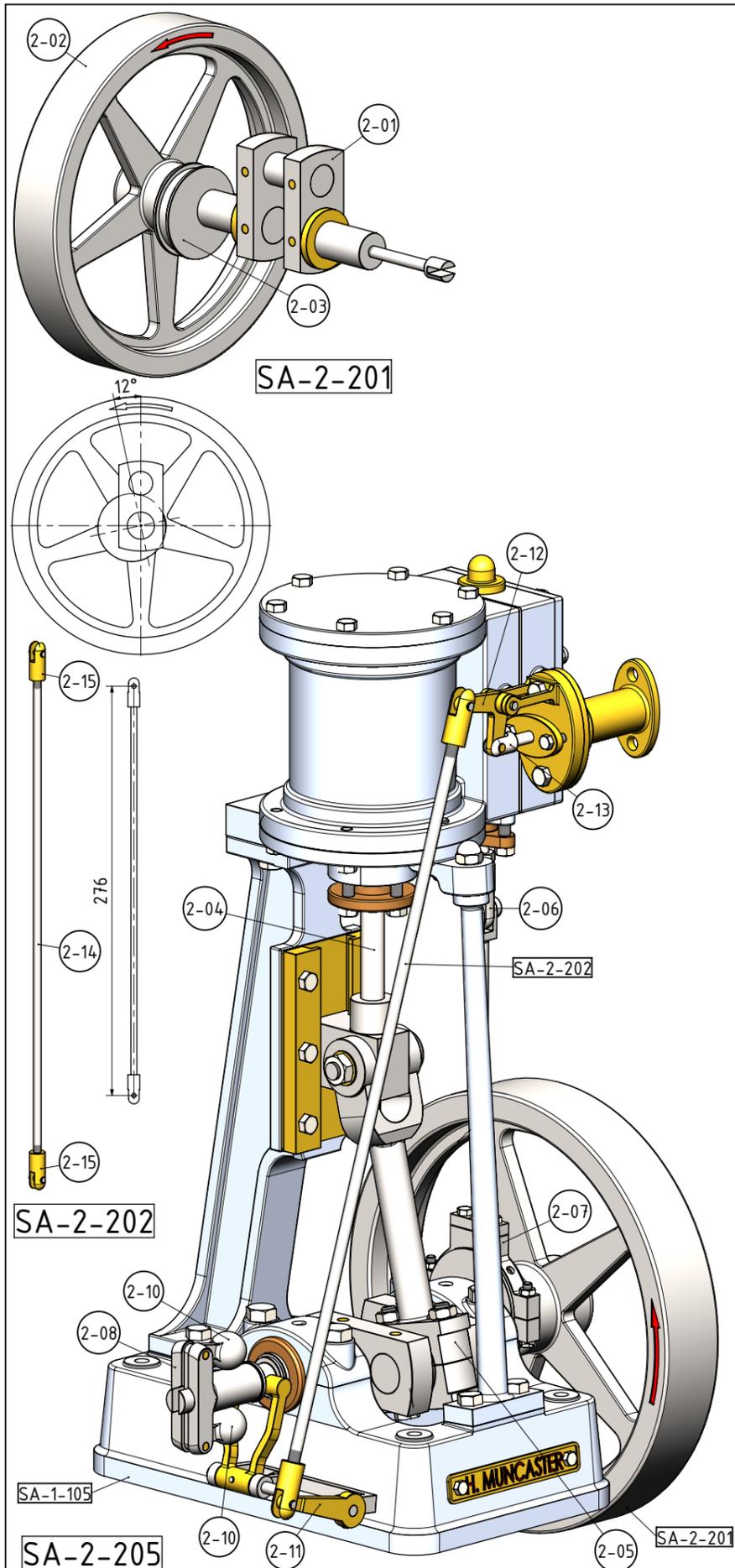
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TITLE
1 CYL VERTICAL STEAM ENGINE OF THE SINGLE COLUMN TYPE BY H.MUNCASTER.

DRAWING CONTENTS
PARTS AND ASSEMBLIES

PROJECT No 11-05-02
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DRAWING CONTENTS
PARTS AND ASSEMBLIES RENDERED PICTURES

PROJECT No 11-05-02
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A3 No: MUNCASTER5.2-04