

QTY.	PART NUMBER
1	MUNCASTER10.1-1-01-BASE BED PLATE
1	MUNCASTER10.1-1-02-MAIN BEARING BLOCK
2	MUNCASTER10.1-1-03-SUPPORT COLUMN
1	MUNCASTER10.1-1-04-GOVERNOR GEAR BEARING BRACKET
1	MUNCASTER10.1-1-05A-CYLINDER BASE PLATE
1	MUNCASTER10.1-1-05B-CYLINDER
1	MUNCASTER10.1-1-05C-CYLINDER PORT BLOCK
2	MUNCASTER10.1-1-05D-CYLINDER TIE RING
1	MUNCASTER10.1-1-06-CYLINDER BEAM MOUNTING BRACKET
1	MUNCASTER10.1-1-07-VALVE CHEST
1	MUNCASTER10.1-1-08-VALVE ROD GLAND
1	MUNCASTER10.1-1-09-INPUT STEAM REGULATOR HOUSING
2	MUNCASTER10.1-1-10-ECC STRAP BEARING BRACKET
1	MUNCASTER10.1-1-11-U-BEAM
1	MUNCASTER10.1-1-11-U-BEAM
2	MUNCASTER10.1-1-12-FIXED TOP STAY-1
2	MUNCASTER10.1-1-13-STAY-2 MOUNTING BLOCK
2	MUNCASTER10.1-1-14-FIXED STAY-2
1	MUNCASTER10.1-1-15-STAY-2 LOWER CROSS SHAFT
1	MUNCASTER10.1-1-16-STAY-1 UPPER CROSS SHAFT
1	MUNCASTER10.1-1-17-CYLINDER TOP COVER
1	MUNCASTER10.1-1-18-GOVERNOR UPPER BEARING BRACKET
1	MUNCASTER10.1-1-19-REAR STAY CROSS SHAFT
1	MUNCASTER10.1-1-20-NAME PLATE
1	MUNCASTER10.1-1-21-DUMMY PUMP
1	MUNCASTER10.1-2-01-CRANK SHAFT
1	MUNCASTER10.1-2-02-ECCENTRIC SHEAVE
1	MUNCASTER10.1-2-03-FLYWHEEL
1	MUNCASTER10.1-2-04-PISTON+ROD
1	MUNCASTER10.1-2-05-CON ROD
2	MUNCASTER10.1-2-06-BALANCE BEAM MOVABLE END STAY
1	MUNCASTER10.1-2-07-BALANCE BEAM
2	MUNCASTER10.1-2-08-BALANCE BEAM MOVABLE MID STAY
1	MUNCASTER10.1-2-09-BALANCE BEAM END STAY ROD
1	MUNCASTER10.1-2-10-BALANCE BEAM MID STAY ROD
1	MUNCASTER10.1-2-11-ECCENTRIC STRAP
1	MUNCASTER10.1-2-12-VALVE ROD ROCKING SHAFT
1	MUNCASTER10.1-2-13-SLIDE VALVE+ROD
2	MUNCASTER10.1-2-14-SLIDE VALVE CON-ROD
1	MUNCASTER10.1-2-15-DUMMY PUMP PLUNGER
1	MUNCASTER10.1-2-16-DUMMY PUMP CON-ROD
1	MUNCASTER10.1-2-17-GOVERNOR DRIVEN SHAFT+GEAR
1	MUNCASTER10.1-2-18-GOVERNOR CRANK
1	MUNCASTER10.1-2-19-GOVERNOR VERTICAL SPINDLE
1	MUNCASTER10.1-2-20-GOVERNOR SLIDING COLLAR
2	MUNCASTER10.1-2-21-GOVERNOR UPPER FLYWEIGHT ARM
2	MUNCASTER10.1-2-22-GOVERNOR LOWER FLYWEIGHT ARM
1	MUNCASTER10.1-2-23-GOVERNOR CONTROL YOKE
1	MUNCASTER10.1-2-24-STEAM SUPPLY CONTROL VALVE
1	MUNCASTER10.1-2-25-STEAM SUPPLY CONTROL ROD
2	MUNCASTER10.1-M2.5x12 A-K GRUB SCREW
21	MUNCASTER10.1-M3 DOME NUT
4	MUNCASTER10.1-M3 NUT
18	MUNCASTER10.1-M3 WASHER
5	MUNCASTER10.1-M3x4 A-K GRUB SCREW
8	MUNCASTER10.1-M3x6 A-K CYL HEAD SCREW
2	MUNCASTER10.1-M3x8 A-K CYL HEAD SCREW
8	MUNCASTER10.1-M3x9 A-K C-SINK SCREW
12	MUNCASTER10.1-M3x10 A-K CYL HEAD SCREW
10	MUNCASTER10.1-M3x14 A-K CYL HEAD SCREW
5	MUNCASTER10.1-M3x20 A-K CYL HEAD SCREW
2	MUNCASTER10.1-M3x32 A-K CYL HEAD SCREW
8	MUNCASTER10.1-M4 DOME NUT
2	MUNCASTER10.1-M4 NUT
8	MUNCASTER10.1-M4 WASHER
4	MUNCASTER10.1-M4x8 A-K CYL HEAD SCREW
4	MUNCASTER10.1-M4x10 A-K CYL HEAD SCREW
10	MUNCASTER10.1-M4x13 A-K CYL HEAD SCREW
8	MUNCASTER10.1-M4x25 A-K CYL HEAD SCREW
7	MUNCASTER10.1-M5 DOME NUT
1	MUNCASTER10.1-M5 NUT
3	MUNCASTER10.1-M5 WASHER
1	MUNCASTER10.1-M5x12 A-K CYL HEAD SCREW
2	MUNCASTER10.1-M5x20 A-K CYL HEAD SCREW
2	MUNCASTER10.1-M6 DOME NUT
2	MUNCASTER10.1-M8 NUT
2	MUNCASTER10.1-M8 WASHER

STEAM OUT

STEAM IN

H. MUNCASTER

372.1 [14.65]

130.5 [5.14]

335.5 [13.21]

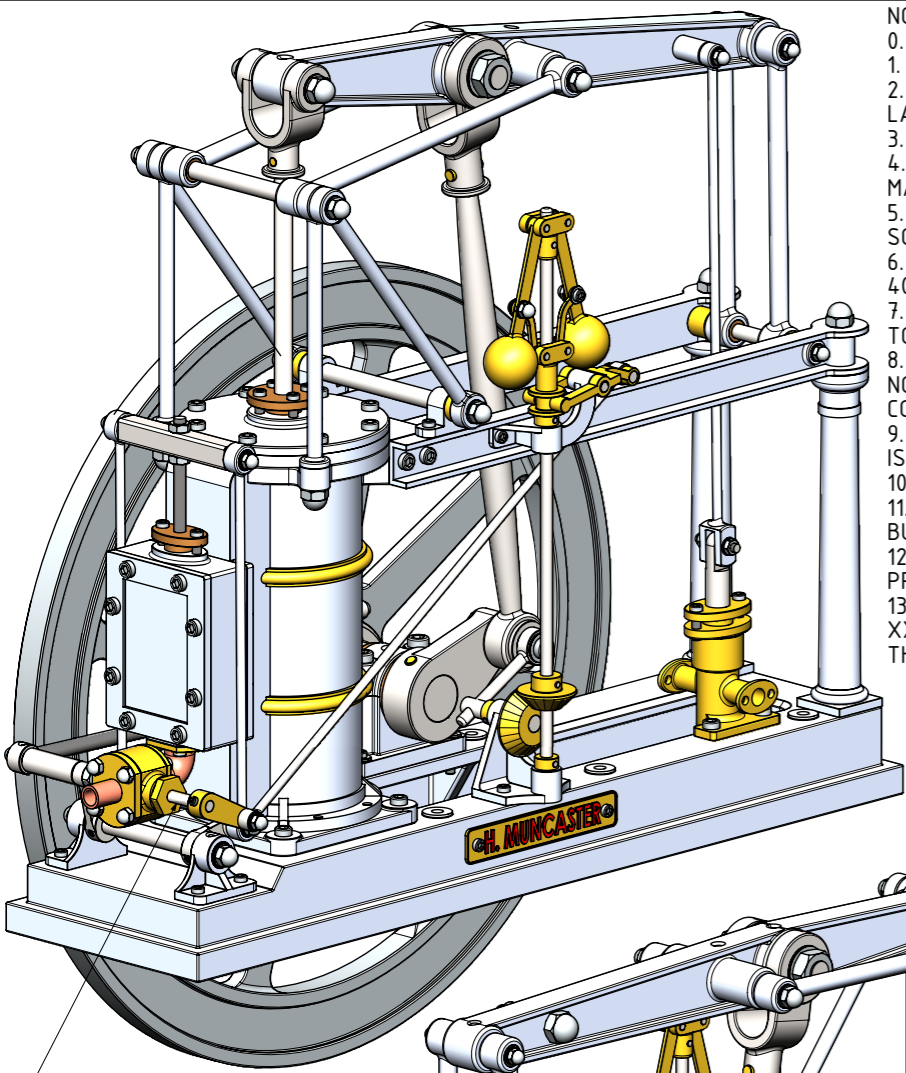
NOTES: THE ORIGINAL DRAWINGS WERE PUBLISHED IN THE "MODEL ENGINEER" MAGAZINE OF FEBRUARY 1957 UNDER THE HEADING OF "THE MUNCASTER STEAM-ENGINE MODELS".

TITLE
1 CYLINDER STEAM ENGINE KNOWN AS A "GRASSHOPPER" ENGINE BY H.MUNCASTER.

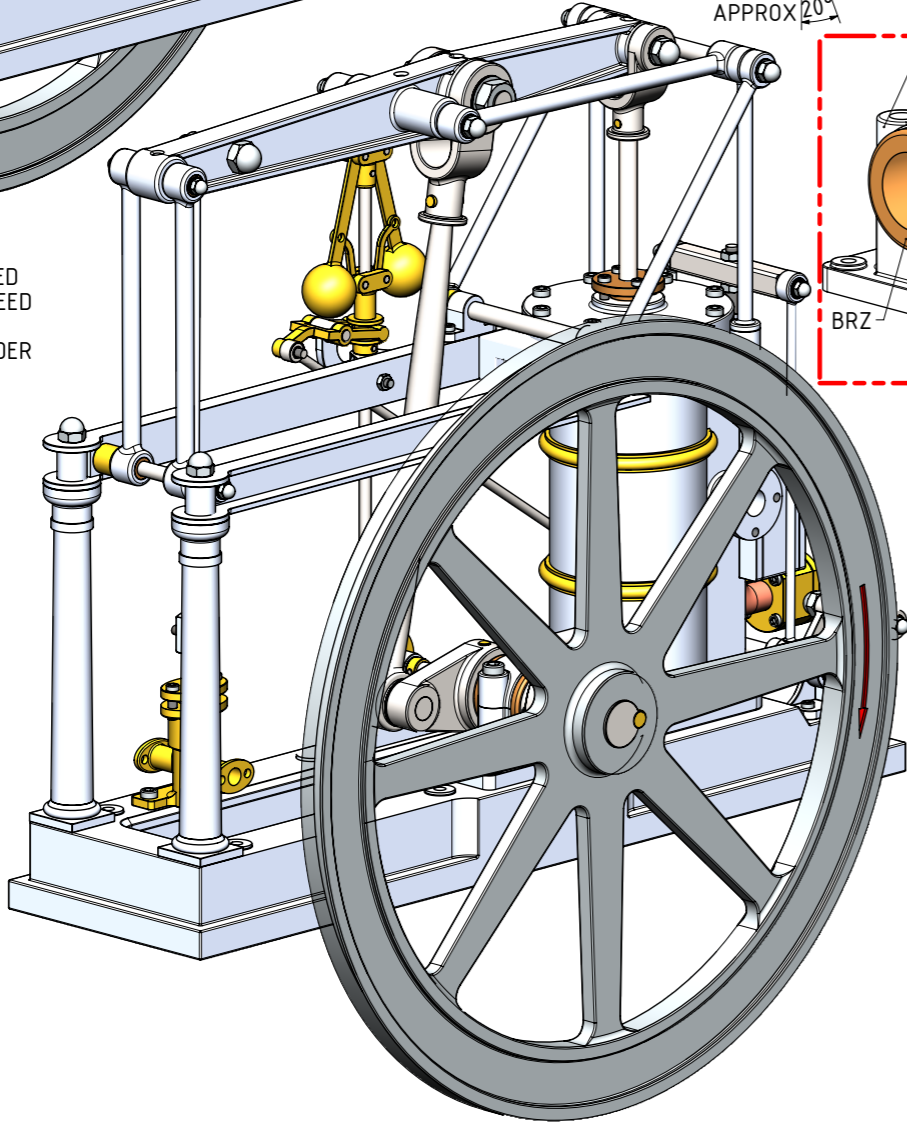
DRAWING CONTENTS
GENERAL ARRANGEMENT AND BILL OF MATERIALS

PROJECT No 11-10-01
JDW DRAUGHTING SERVICES
 J.A.M. DE WAAL, 12 BRIGHTWELL STREET PAPAURA 2110.
 NEW ZEALAND. PHONE: 0064 09 2988815. MOB: 0211791000
 E-MAIL: dewaal@xtra.co.nz.

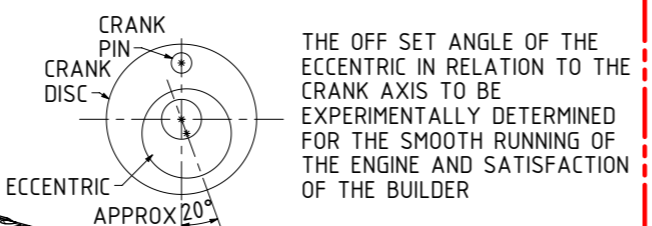
PROJECTION
JDWDS
 DATE **JULY-2017**
 SHEET: 01 OF 05
 MODEL SCALE: 1:1
 DWG SCALE: 1:1 @A3 OR AS SHOWN
 Copyright © J.A.M. DE WAAL PAPAURA NZ
A3 No:MUNCASTER10.1-1



THE INLET STEAM CONTROL VALVE SHOULD BE ADJUSTED SO THAT THE REQUIRED SPEED OF THE MACHINE IS TO THE SATISFACTION OF THE BUILDER

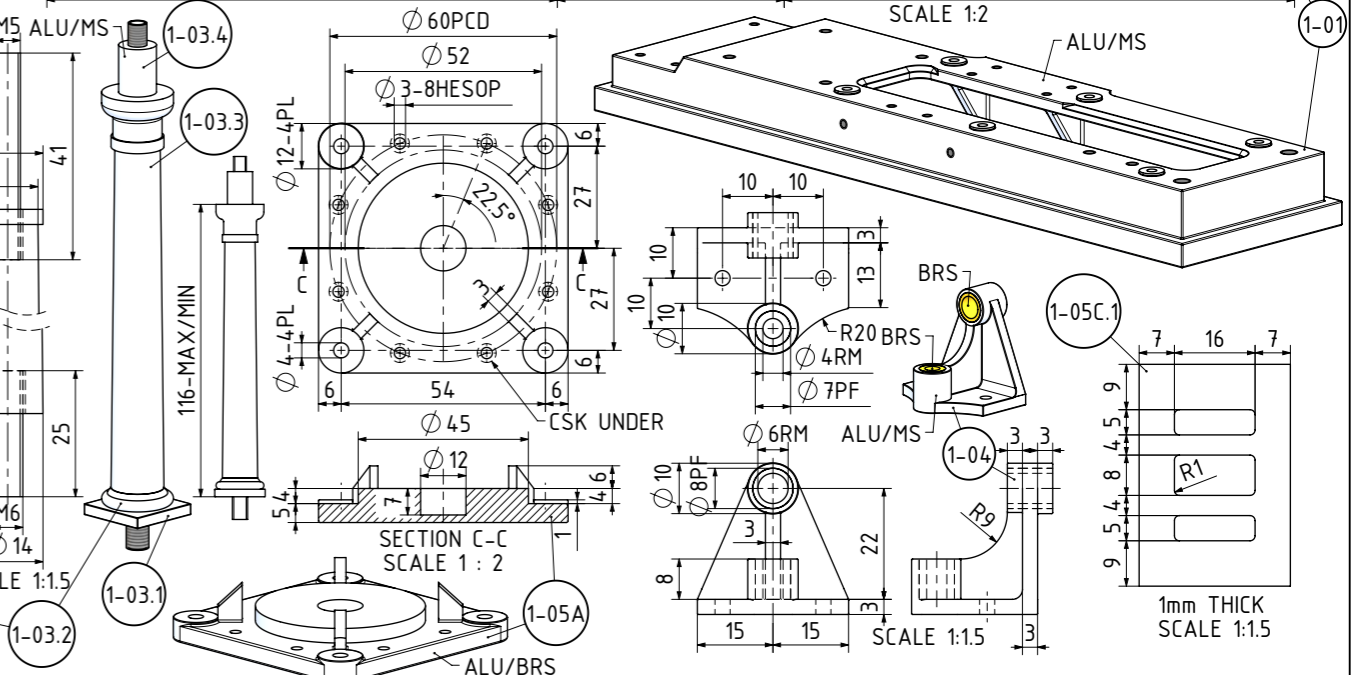
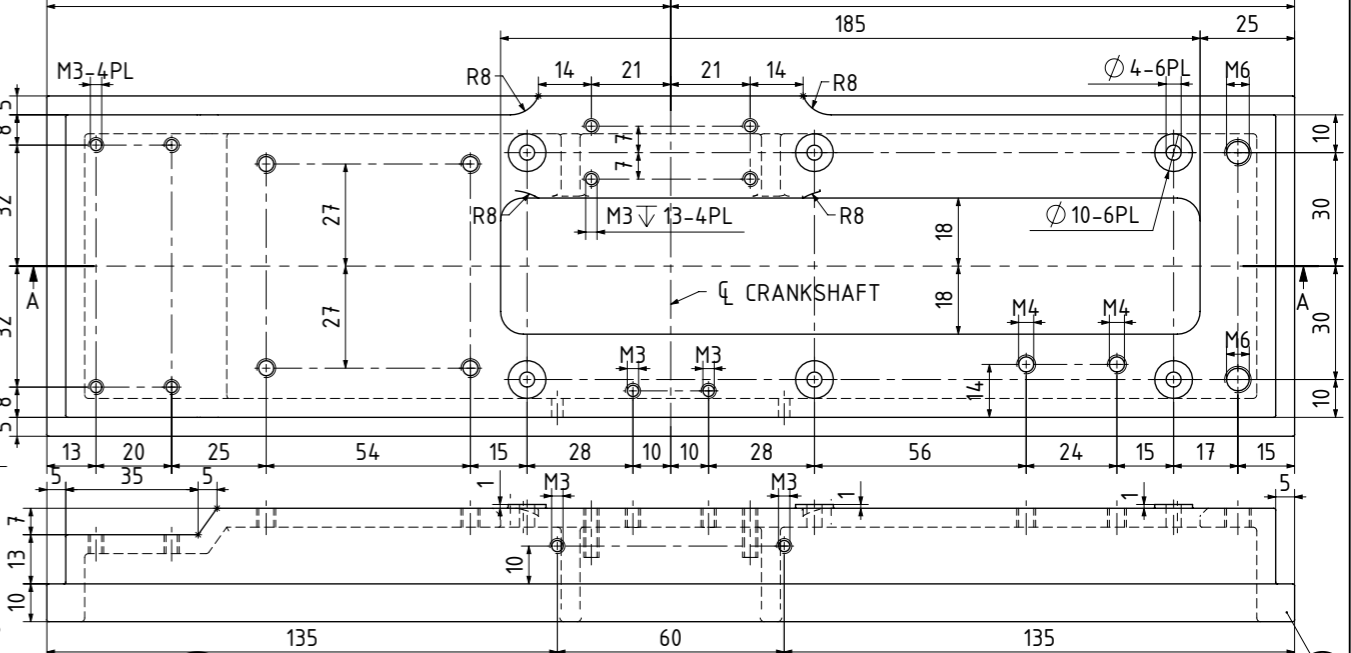
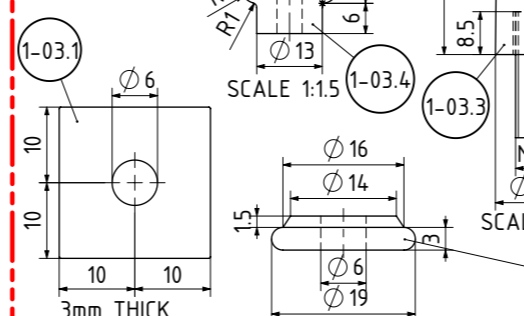
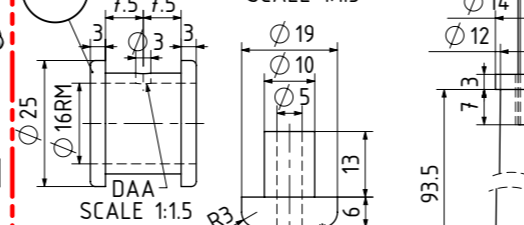
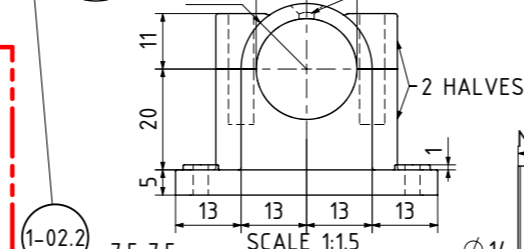
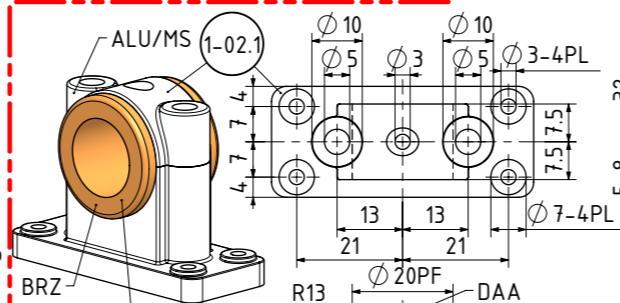
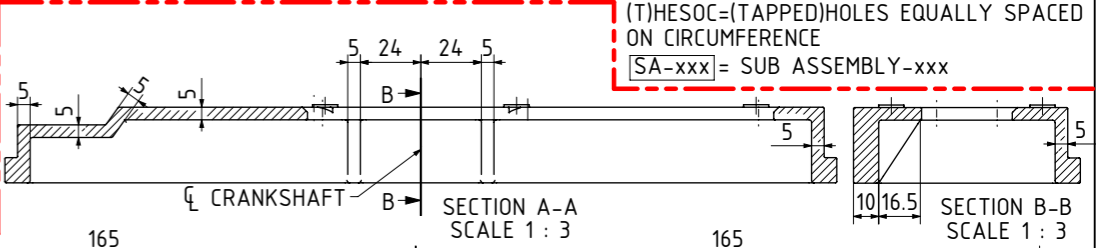


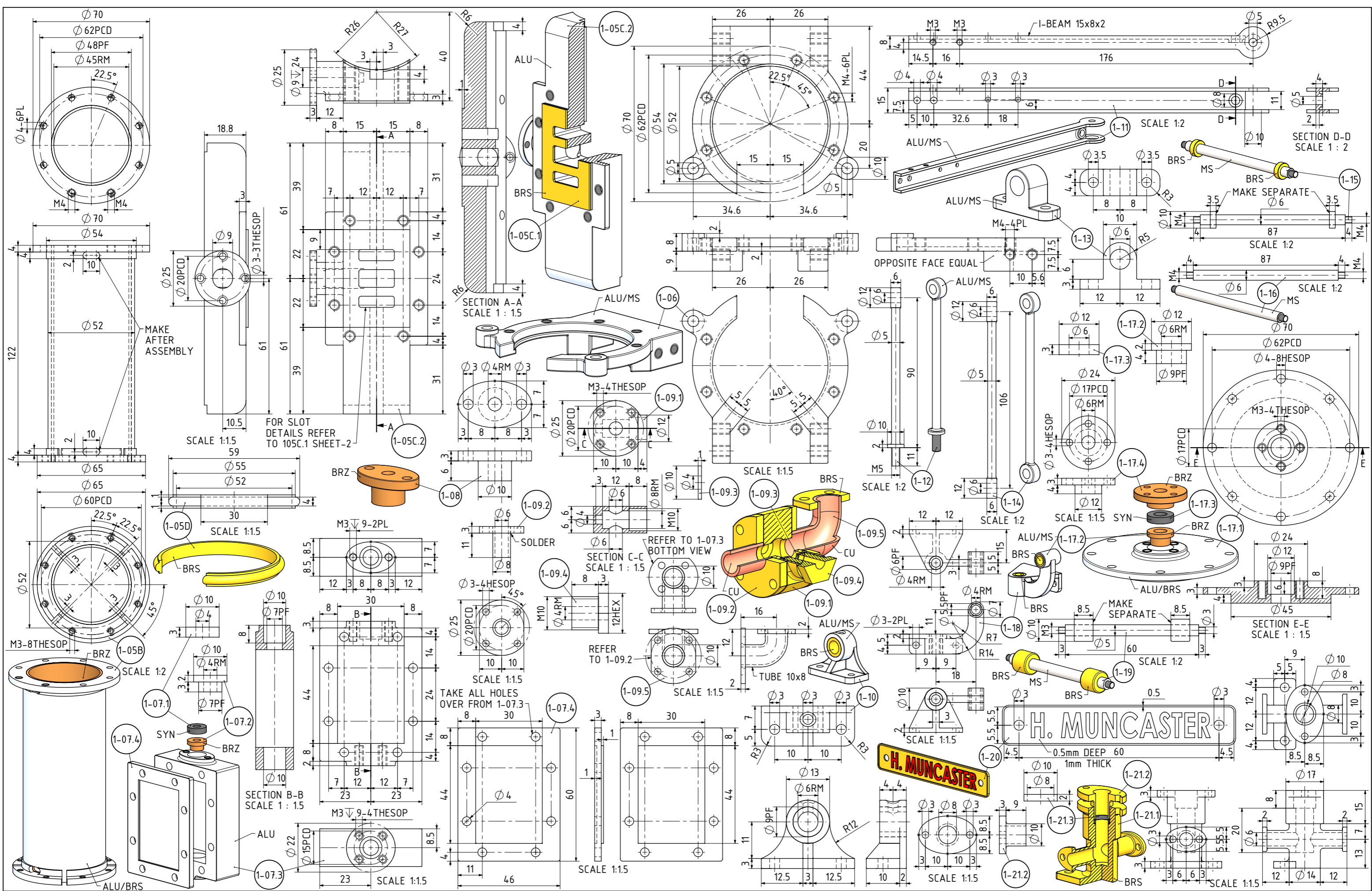
- NOTES:
0. ALL DRAWINGS ARE IN METRIC MEASUREMENTS
 1. ALL ENGINEERING PRACTICES SHALL BE APPLIED WITH REGARDS TO HOLE AND SHAFT TOLERANCES.
 2. WHERE SCREWS OR BOLTS ARE USED THE CLEARANCE HOLES SHALL BE APPROXIMATELY 5% TO 8% LARGER THAN THE MATCHING TAPPED HOLE.
 3. PREFERABLY ALL TAPPED HOLES AND 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.
 - XX. ERRORS AND/OR OMISSIONS MAY OCCUR IN THE DRAWINGS, DO NOT HESITATE TO CONTACT ME SO THAT THE ERRORS/OMISSIONS CAN BE RECTIFIED.



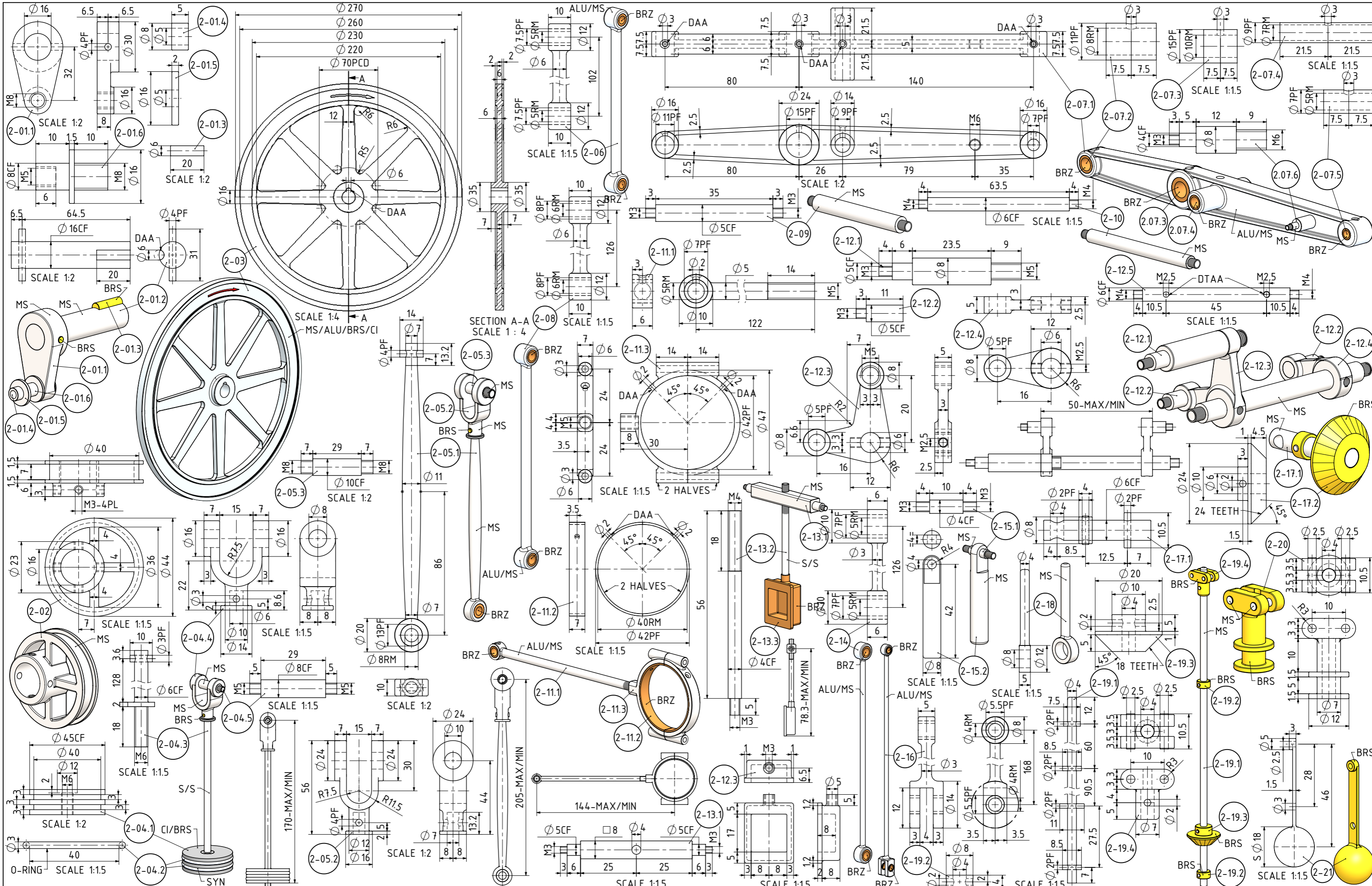
THE OFF SET ANGLE OF THE ECCENTRIC IN RELATION TO THE CRANK AXIS TO BE EXPERIMENTALLY DETERMINED FOR THE SMOOTH RUNNING OF THE ENGINE AND SATISFACTION OF THE BUILDER

- MATERIAL ABBREVIATIONS:
- ALU = ALUMINIUM/HARD 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
- 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 = HEXAGON, 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-xxx]= SUB ASSEMBLY-xxx
- 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





<p>NOTES: THE ORIGINAL DRAWINGS WERE PUBLISHED IN THE "MODEL ENGINEER" MAGAZINE OF FEBRUARY 1957 UNDER THE HEADING OF "THE MUNCASTER STEAM-ENGINE MODELS".</p>	<p>DRAWING CONTENTS</p>	<p>PROJECT No 11-10-01</p>	<p>PROJECTION </p>	<p>MODEL SCALE: 1:1</p>
<p>TITLE 1 CYLINDER STEAM ENGINE KNOWN AS A "GRASSHOPPER" ENGINE BY H.MUNCASTER.</p>	<p>PARTS AND ASSEMBLIES</p>	<p>JDW DRAUGHTING SERVICES J.A.M. DE WAAL, 12 BRIGHTWELL STREET PAPAURA 2110. NEW ZEALAND. PHONE: 0064 09 2988815. MOB: 021791000 E-MAIL: dewaal@xtra.co.nz.</p>	<p>DATE JULY-2017</p>	<p>DWG SCALE: 1:1 @A3 OR AS SHOWN Copyright © J.A.M. DE WAAL PAPAURA NZ A3 No: MUNCASTER10.1-3</p>
<p>SHEET: 03 OF 05</p>		<p>DATE: JULY-2017</p>		



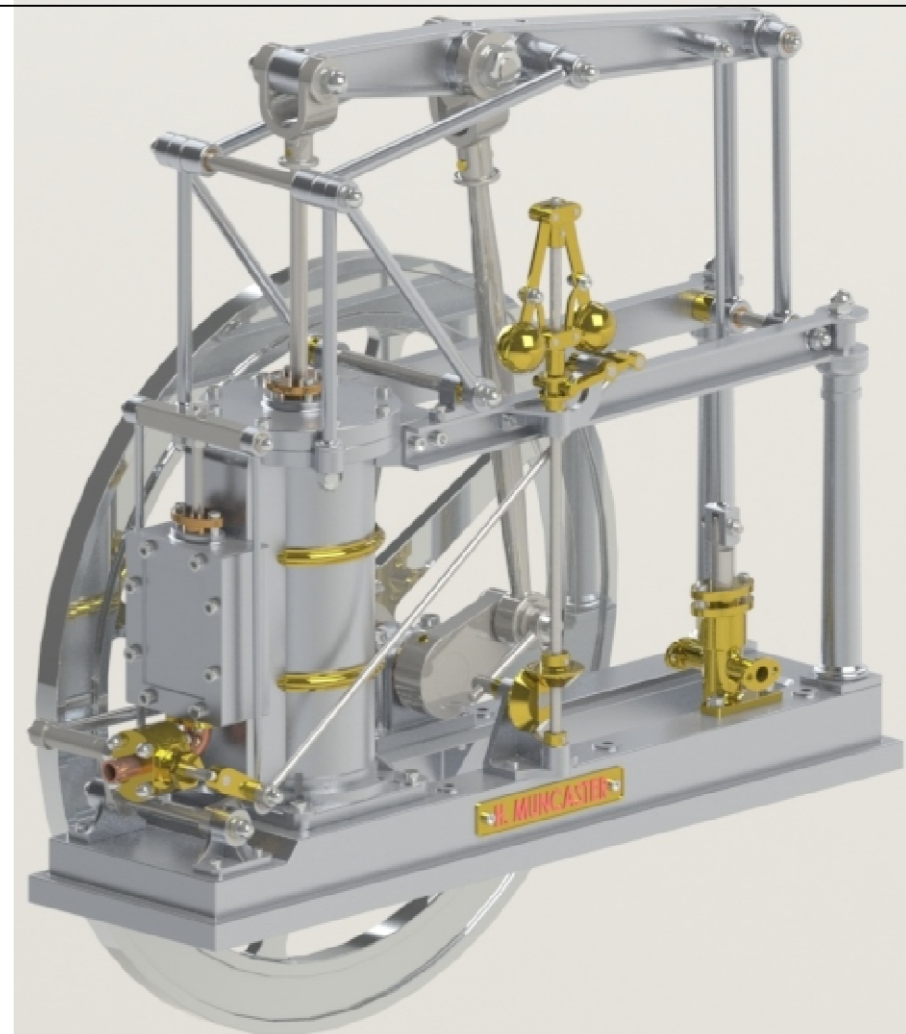
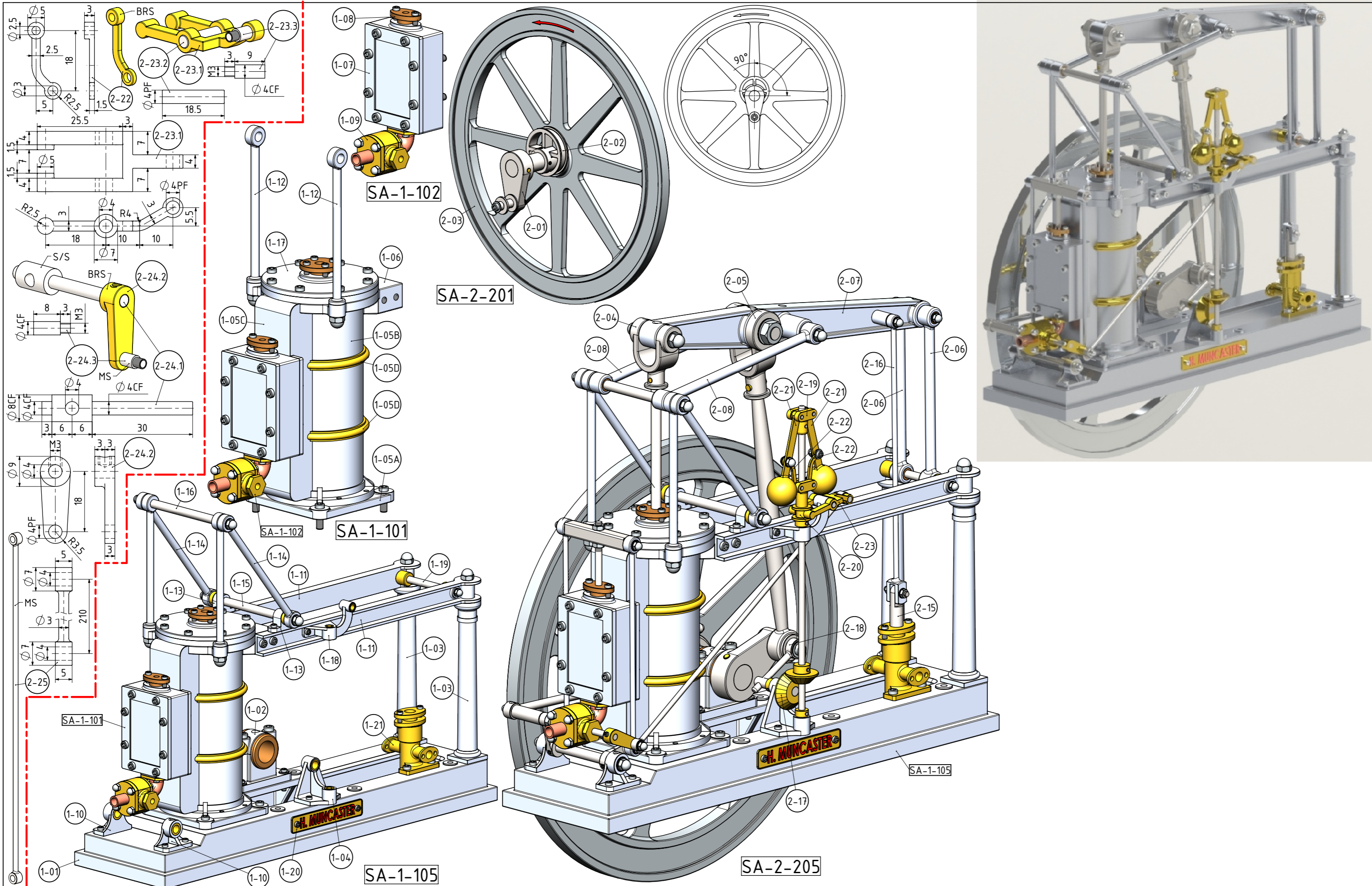
NOTES: THE ORIGINAL DRAWINGS WERE PUBLISHED IN THE "MODEL ENGINEER" MAGAZINE OF FEBRUARY 1957 UNDER THE HEADING OF "THE MUNCASTER STEAM-ENGINE MODELS".

TITLE
**1 CYLINDER STEAM ENGINE KNOWN AS A
 "GRASSHOPPER" ENGINE BY H.MUNCASTER.**

DRAWING CONTENTS
PARTS AND ASSEMBLIES

PROJECT No 11-10-01
 JDW DRAUGHTING SERVICES
 J.A.M. DE WAAL, 12 BRIGHTWELL STREET PAPAURA 2110.
 NEW ZEALAND. PHONE: 0064 09 2988815. MOB: 021791000
 E-MAIL: dewaal@xtra.co.nz.

PROJECTION
 DATE
 SHEET: 04 OF 05
 MODEL SCALE: 1:1
 DWG SCALE: 1:1 @A3 OR AS SHOWN
 Copyright © J.A.M. DE WAAL PAPAURA NZ
 A3 No: MUNCASTER10.1-4



NOTES: THE ORIGINAL DRAWINGS WERE PUBLISHED IN THE "MODEL ENGINEER" MAGAZINE OF FEBRUARY 1957 UNDER THE HEADING OF "THE MUNCASTER STEAM-ENGINE MODELS".		PROJECT No 11-10-01	
TITLE 1 CYLINDER STEAM ENGINE KNOWN AS A "GRASSHOPPER" ENGINE BY H.MUNCASTER.		DRAWING CONTENTS PARTS AND ASSEMBLIES	
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 JULY-2017		MODEL SCALE: 1:1 DWG SCALE: 1:1 @A3 OR AS SHOWN	
SHEET: 05 OF 05		Copyright © J.A.M. DE WAAL PAPA KURA NZ A3 No: MUNCASTER10.1-5	