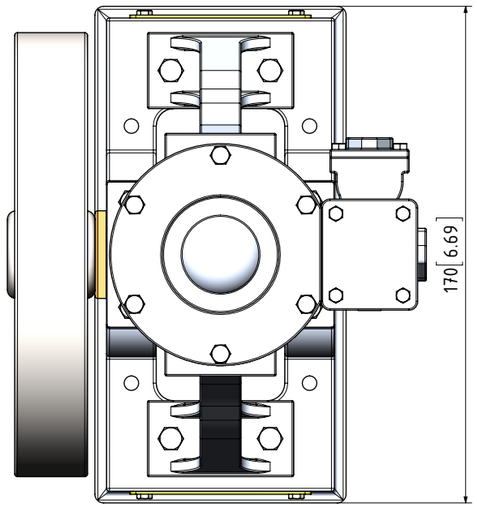
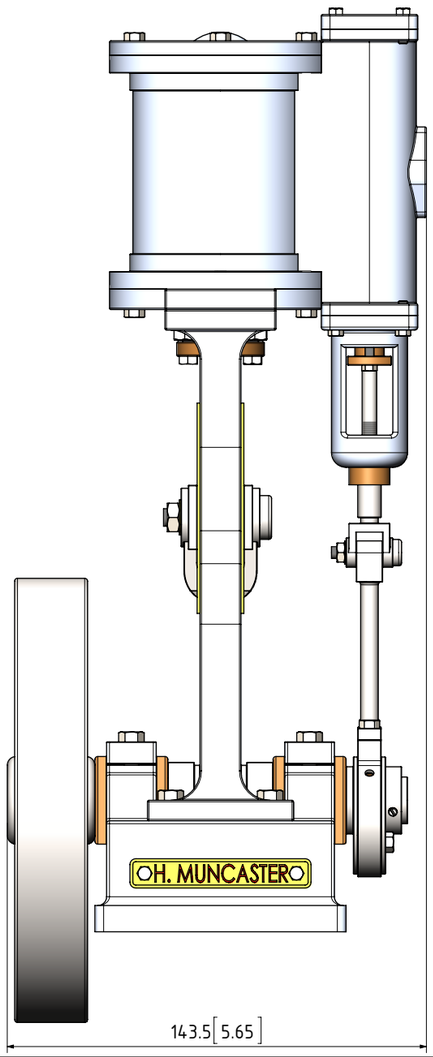
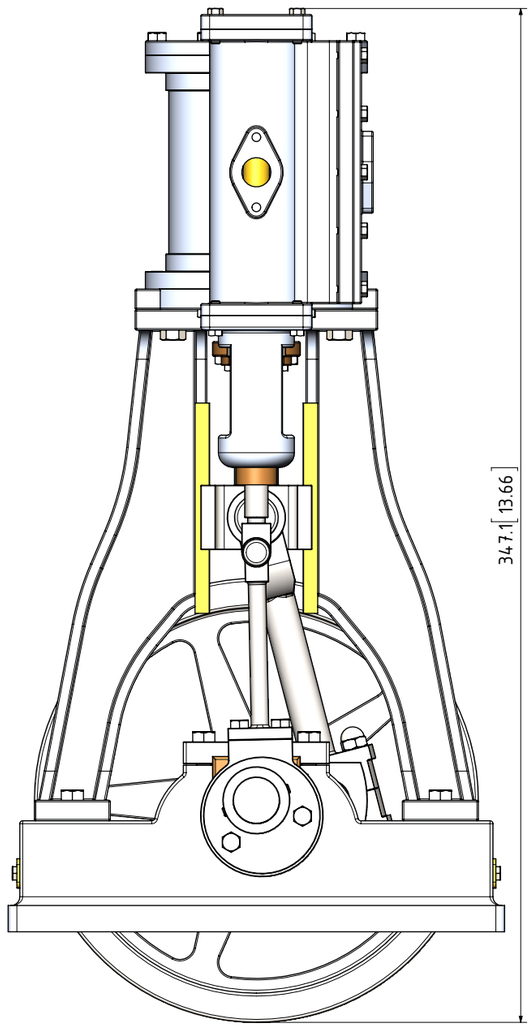


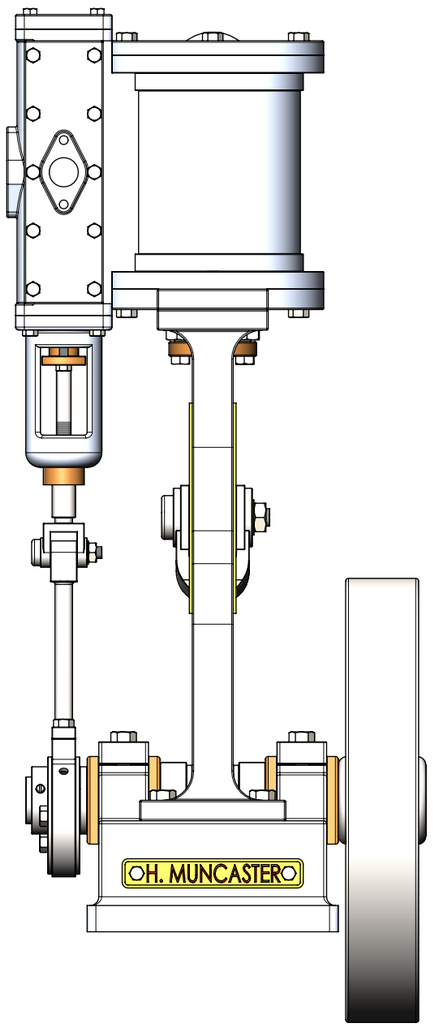
NOTES:
0. ALL DRAWINGS ARE IN METRIC MEASUREMENTS
1. ALL ENGINEERING PRACTICES SHALL BE APPLIED WITH REGARDS TO HOLE AND SHAFT TOLERANCES.
2. WHERE SCREWS OR BOLTS ARE USED THE CLEARANCE HOLES SHALL BE APPROXIMATELY 5% TO 8% LARGER THAN THE MATCHING TAPPED HOLE.
3. PREFERABLY ALL TAPPED HOLES AND MATCHING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

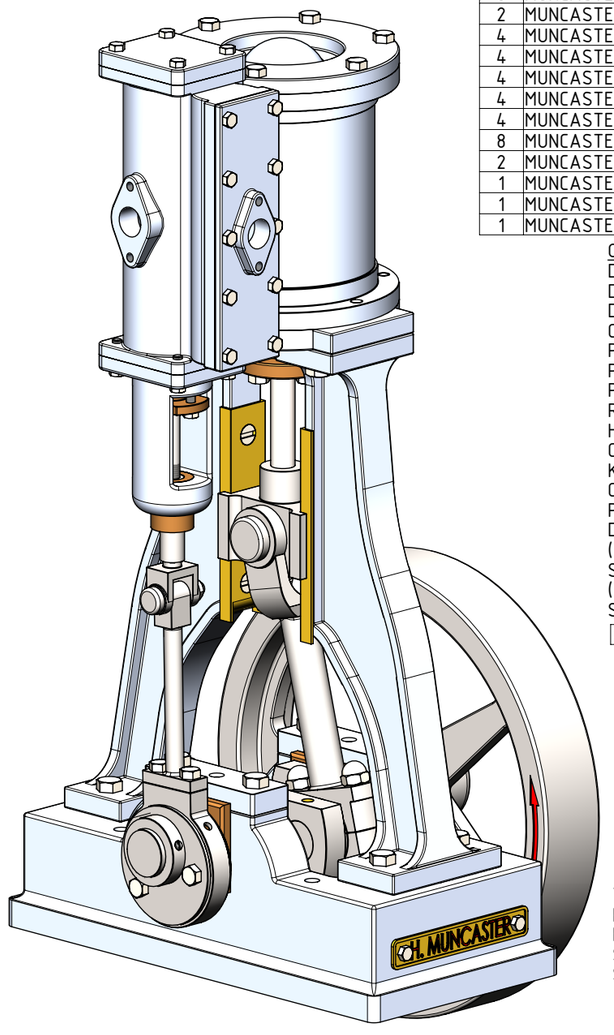
MATERIAL ABBREVIATIONS:
ALU = ALUMINIUM/HARD ALUMINIUM
BRS = BRASS
BRZ = BRONZE OR GUNMETAL (BRZ/GM)
CI = CAST IRON
CU = COPPER
GRA = GRAPHITE
MS = MILD STEEL/BRIGHT MILD STEEL
S/S = SILVER STEEL OR STAINLESS STEEL
SPS = SPRING STEEL
PEEK= POLYETHER ETHER KETONE
SYN = SYNTHETIC MATERIAL SUCH AS VETON, NYLON, TEFLON OR RUBBER
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

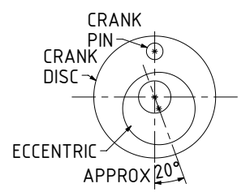








OTHER ABBREVIATIONS
DP = DEEP
DAA= DRILL AFTER ASSEMBLY
D&TAA= DRILL AND TAP AFTER ASSEMBLY
CF = CLOSE FIT (SIZE FOR SIZE)
PF = PRESS FIT
PFAA= PRESS FIT AFTER ASSEMBLY
PCD = PITCH CIRCLE DIAMETER
RM = REAM
HEX = HEXACON, 6SIDED
CP = COMPRESSED
KNL = KNURLED
CSK = COUNTERSINK
PL = PLACES
DWL= DOWEL
(T)HESOP=(TAPPED)HOLES 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
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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

A3 No:MUNCASTER5.1-01