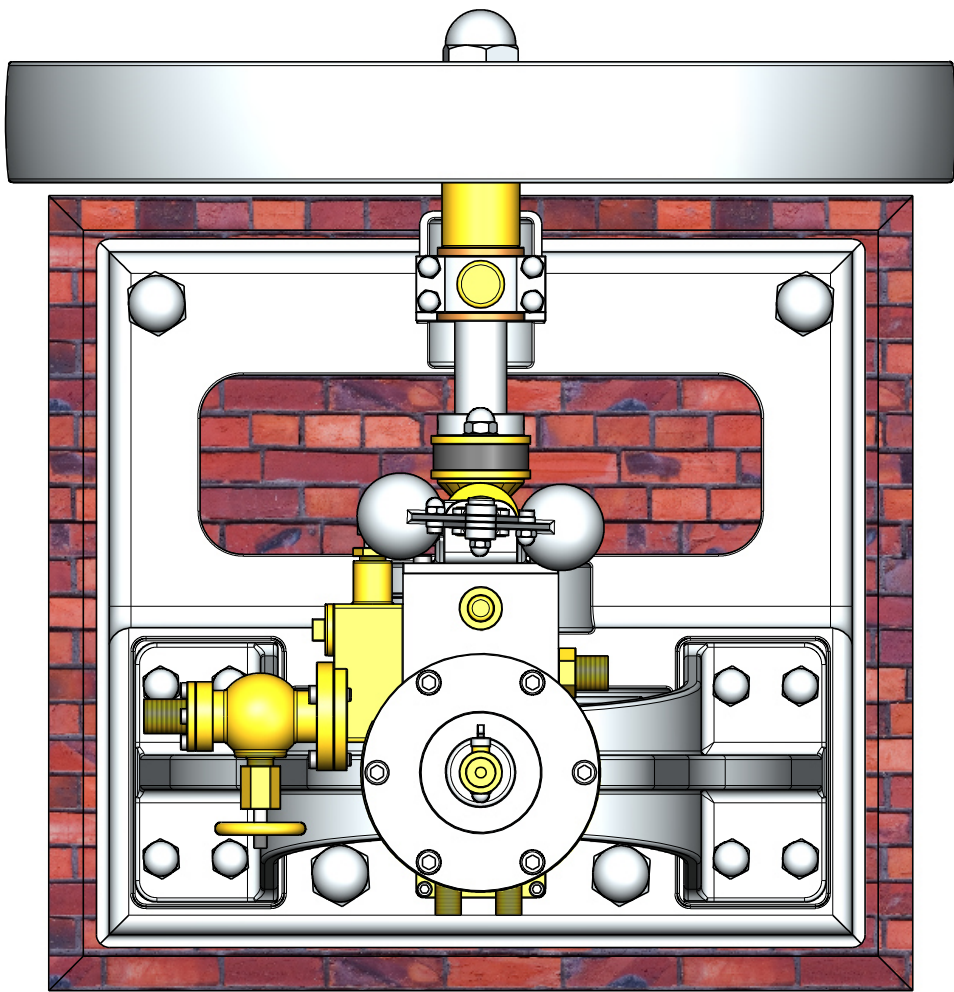


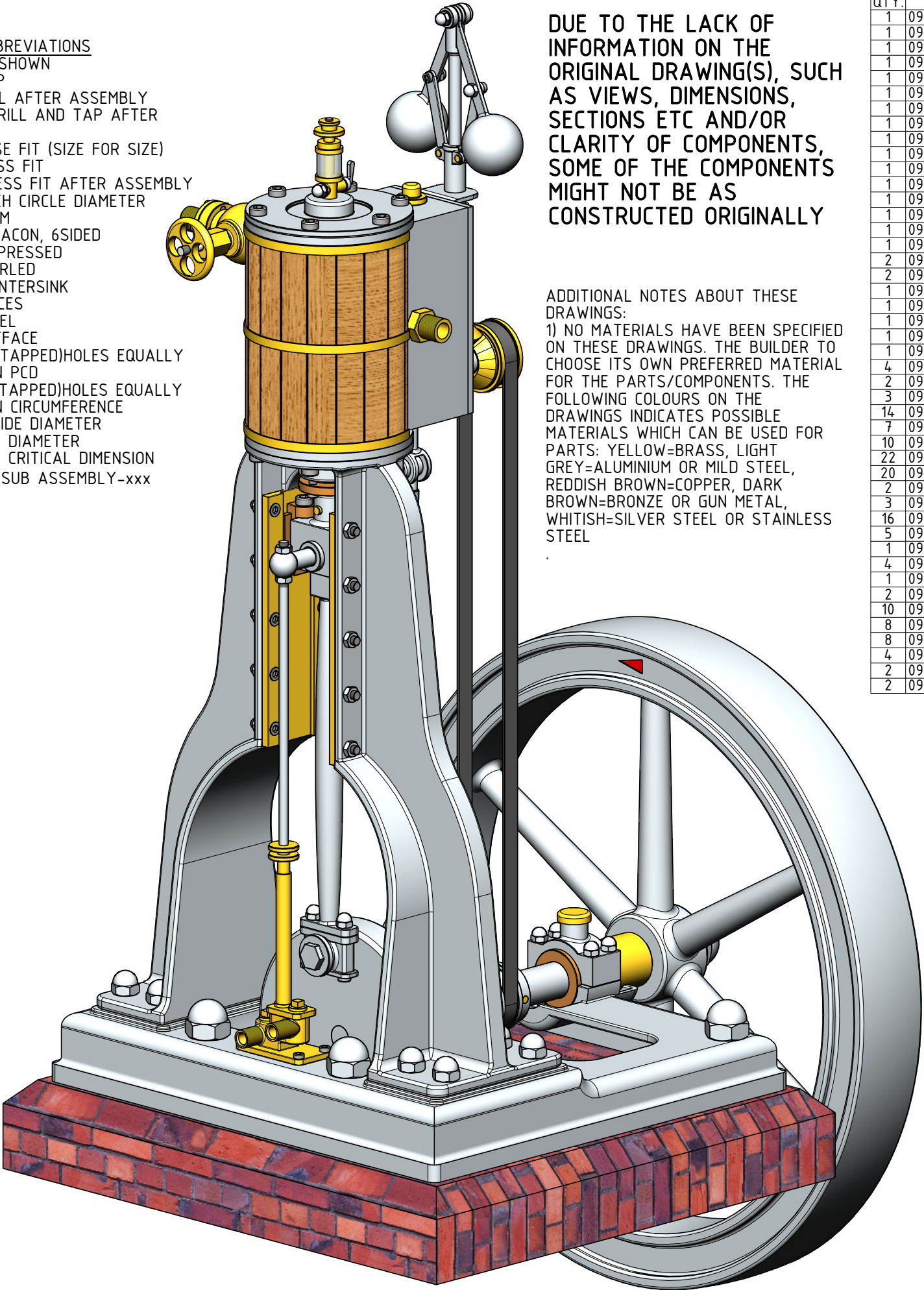


OTHER ABBREVIATIONS  
AS = AS SHOWN  
DP = DEEP  
DAA= DRILL AFTER ASSEMBLY  
D&TAA= DRILL AND TAP AFTER ASSEMBLY  
CF = CLOSE FIT (SIZE FOR SIZE)  
PF = PRESS FIT  
PFAA= PRESS FIT AFTER ASSEMBLY  
PCD = PITCH CIRCLE DIAMETER  
RM = REAM  
HEX = HEXACON, 6SIDED  
CP = COMPRESSED  
KNL = KNURLED  
CSK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

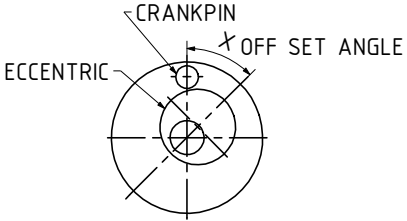
NOTES:  
0. ALL DRAWINGS ARE IN METRIC MEASUREMENTS  
1. ALL ENGINEERING PRACTICES SHALL BE APPLIED WITH REGARDS TO HOLE AND SHAFT TOLERANCES.  
2. WHERE SCREWS OR BOLTS ARE USED THE CLEARANCE HOLES SHALL BE APPROXIMATELY 5% TO 8% LARGER THAN THE MATCHING TAPPED HOLE.  
3. PREFERABLY ALL TAPPED HOLES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

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

ADDITIONAL NOTES ABOUT THESE DRAWINGS:  
1) NO MATERIALS HAVE BEEN SPECIFIED ON THESE DRAWINGS. THE BUILDER TO CHOOSE ITS OWN PREFERRED MATERIAL FOR THE PARTS/COMPONENTS. THE FOLLOWING COLOURS ON THE DRAWINGS INDICATES POSSIBLE MATERIALS WHICH CAN BE USED FOR PARTS: YELLOW=BRASS, LIGHT GREY=ALUMINIUM OR MILD STEEL, REDDISH BROWN=COPPER, DARK BROWN=BRONZE OR GUN METAL, WHITISH=SILVER STEEL OR STAINLESS STEEL



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



| QTY. | PART NUMBER                               |
|------|-------------------------------------------|
| 1    | 09C-53-00-1-01-BEDPLATE+BEARINGS          |
| 1    | 09C-53-00-1-02-COLUMN                     |
| 1    | 09C-53-00-1-03-CYLINDER                   |
| 1    | 09C-53-00-1-04-CYLINDER TOP COVER         |
| 1    | 09C-53-00-1-05-DUMMY PUMP                 |
| 1    | 09C-53-00-1-06-STEAM SUPPLY VALVE         |
| 1    | 09C-53-00-2-01-ECCENTRIC SHEAVE           |
| 1    | 09C-53-00-2-02-CRANKSHAFT+FLYWHEEL        |
| 1    | 09C-53-00-2-03-PISTON+CROSSHEAD           |
| 1    | 09C-53-00-2-04-CON-ROD                    |
| 1    | 09C-53-00-2-05-PUMP PLUNGER               |
| 1    | 09C-53-00-2-06-ECCENTRIC STRAP            |
| 1    | 09C-53-00-2-07-SLIDE VALVE                |
| 1    | 09C-53-00-2-08-GOVERNOR VERTICAL SPINDLE  |
| 1    | 09C-53-00-2-09-GOVERNOR DRIVEN GEAR WHEEL |
| 1    | 09C-53-00-2-10-GOVERNOR SLIDING COLLAR    |
| 2    | 09C-53-00-2-11-FLYWEIGHT                  |
| 2    | 09C-53-00-2-12-FLYWEIGHT LINK             |
| 1    | 09C-53-00-2-13-STEAM IN CONTROL FLAP      |
| 1    | 09C-53-00-2-14-GOVERNOR SPRING            |
| 1    | 09C-53-00-2-15-DRIVE BET                  |
| 1    | 09C-53-00-M10 DOME NUT                    |
| 1    | 09C-53-00-M10 WASHER                      |
| 4    | 09C-53-00-M2.5 DOME NUT                   |
| 2    | 09C-53-00-M2.5 WASHER                     |
| 3    | 09C-53-00-M2.5x3 A-K GRUB SCREW           |
| 14   | 09C-53-00-M2.5x6 A-K CYL HEAD SCREW       |
| 7    | 09C-53-00-M2x4 A-K CYL HEAD SCREW         |
| 10   | 09C-53-00-M3 DOME NUT                     |
| 22   | 09C-53-00-M3 NUT                          |
| 20   | 09C-53-00-M3x10 A-K C-SINK SCREW          |
| 2    | 09C-53-00-M3x20 A-K CYL HEAD SCREW        |
| 3    | 09C-53-00-M3x5 A-K GRUB SCREW             |
| 16   | 09C-53-00-M3x6 A-K CYL HEAD SCREW         |
| 5    | 09C-53-00-M3x8 A-K CYL HEAD SCREW         |
| 1    | 09C-53-00-M4 DOME NUT                     |
| 4    | 09C-53-00-M4 NUT                          |
| 1    | 09C-53-00-M4 WASHER                       |
| 2    | 09C-53-00-M4x10 A-K CYL HEAD SCREW        |
| 10   | 09C-53-00-M4x6 A-K CYL HEAD SCREW         |
| 8    | 09C-53-00-M5 DOME NUT                     |
| 8    | 09C-53-00-M5x18 A-K CYL HEAD SCREW        |
| 4    | 09C-53-00-M8 DOME NUT                     |
| 2    | 09C-53-00-M8x45 A-K CYL HEAD SCREW        |
| 2    | 09C-53-00-M8x50 A-K CYL HEAD SCREW        |

NOTES: A LITHOGRAPH OF THIS ENGINE WAS PUBLISHED ON THE "MODELENGINEERINGWEBSITE" WEBSITE. THE TITLE ON THE LITHOGRAPH WAS: VERTICAL ENGINE, CONSTRUCTED BY MESSRS. PIECY AND CO.,ENGINEERS, BIRMINGHAM.

TITLE  
A VERTICAL STEAM ENGINE CIRCA 1896  
BORE=32mm X STROKE=60mm

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

PROJECT No 09C-53-00  
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2110. NEW ZEALAND. PHONE: 0064 09 2988815. MOB:  
0211791000 E-MAIL: dewaal@xtra.co.nz.

PROJECTION  
DATE  
SHEET: 02 OF 07  
JDWDS  
DECEMBER 2021  
A3  
MODEL SCALE: 1:6.35 (1/4INCH)  
DWG SCALE: 1:1 @A3 OR AS SHOWN  
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No: 09C-53-00-SHT-02

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