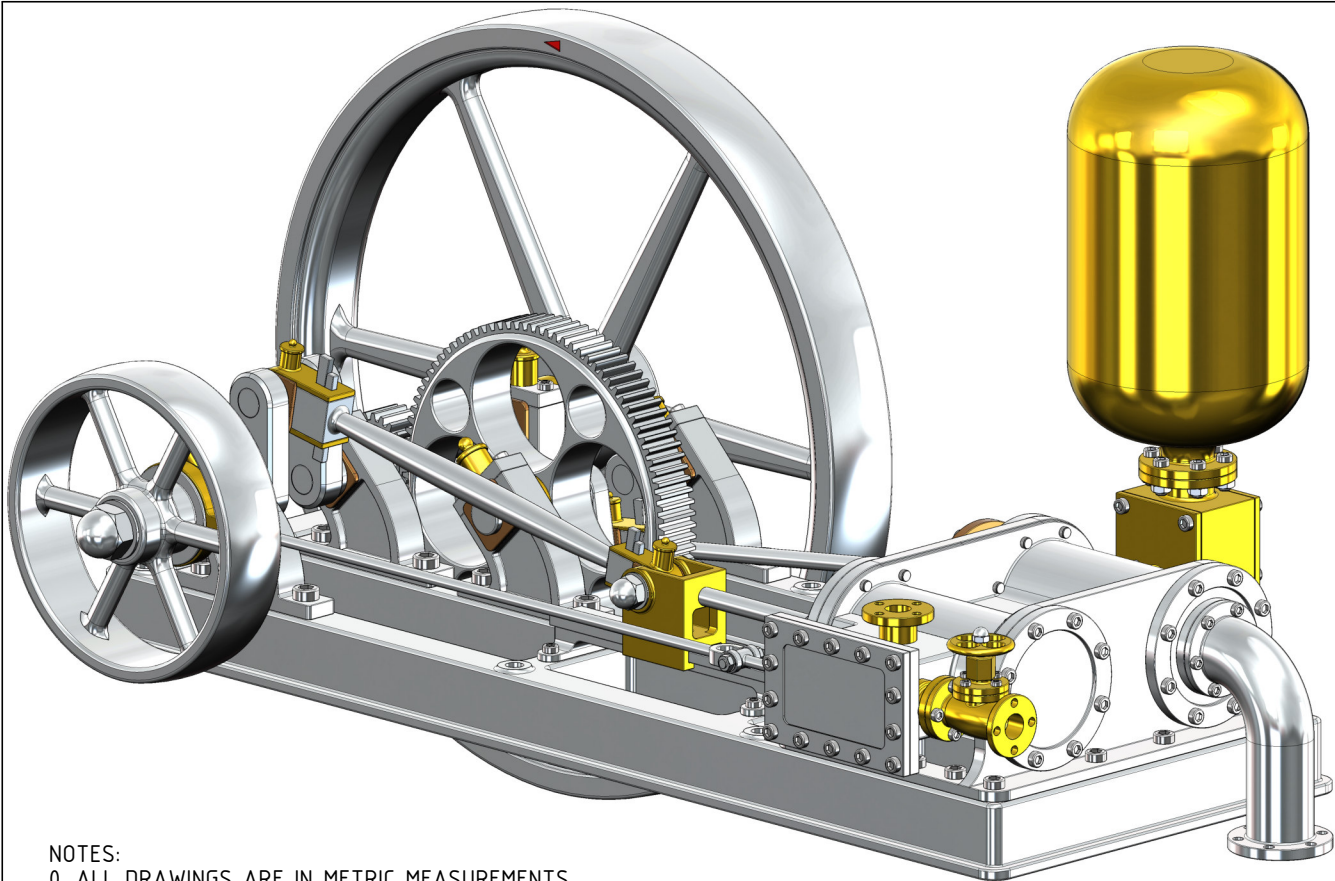


THE OFF SET ANGLE OF THE ECCENTRIC IN RELATION TO THE CRANK AXIS TO BE EXPERIMENTALLY DETERMINED FOR THE SMOOTH RUNNING OF THE ENGINE AND SATISFACTION OF THE BUILDER

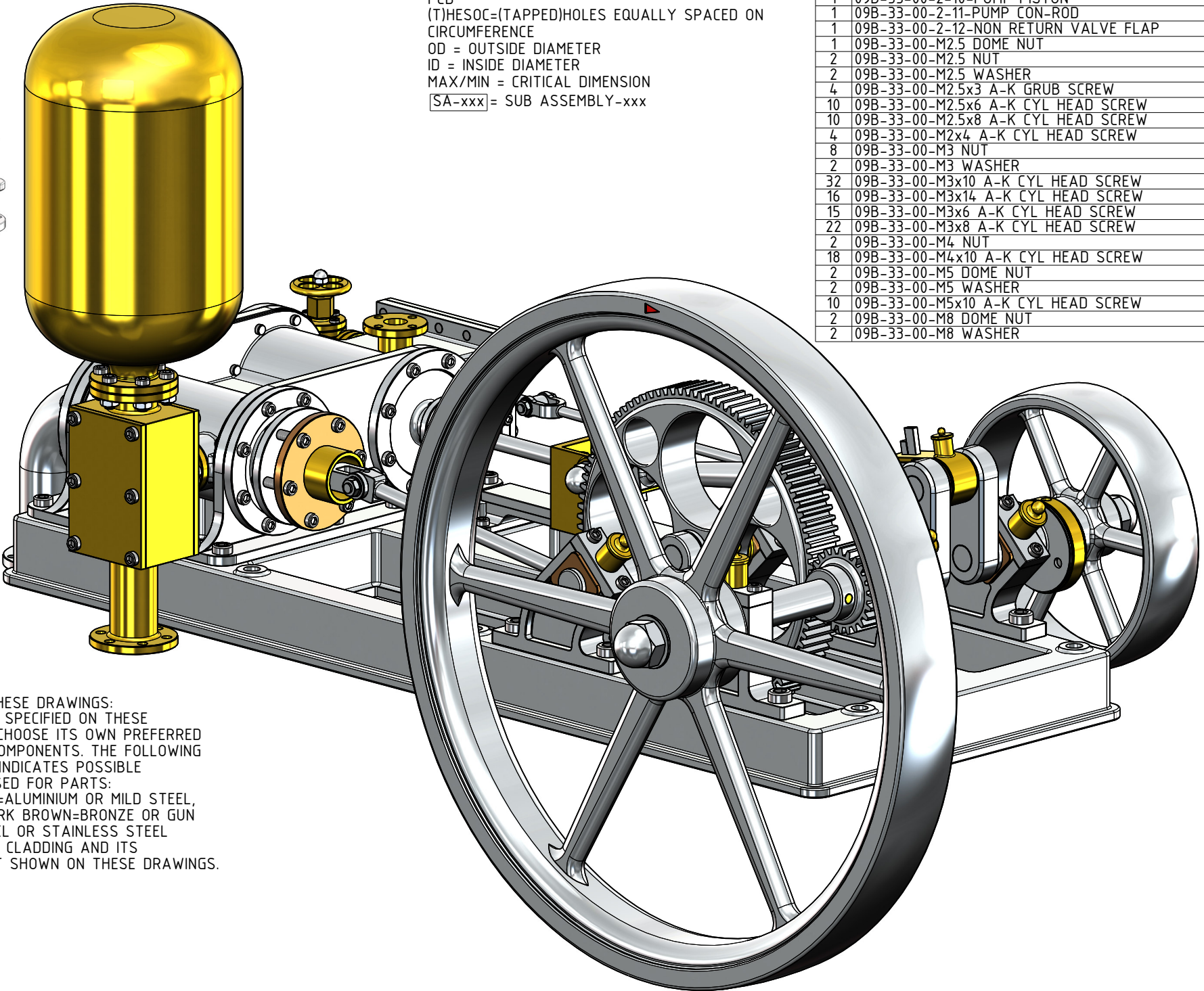
OTHER ABBREVIATIONS
AS = AS SHOWN
DP = DEEP
DAA= DRILL AFTER ASSEMBLY
D&TAA= DRILL AND TAP AFTER ASSEMBLY
CF = CLOSE FIT (SIZE FOR SIZE)
PF = PRESS FIT
PFAA= PRESS FIT AFTER ASSEMBLY
PCD = PITCH CIRCLE DIAMETER
RM = REAM
HEX = HEXACON, 6SIDED
CP = COMPRESSED
KNL = KNURLED
CSK = COUNTERSINK
PL = PLACES
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
2) CYLINDER INSULATION AND CLADDING AND ITS COMPONENTS/MATERIALS NOT SHOWN ON THESE DRAWINGS.

QTY.	PART NUMBER
1	09B-33-00-1-01-BASE BED
4	09B-33-00-1-02-CRANKSHAFT BEARING
1	09B-33-00-1-03-FLYWHEEL BEARING
1	09B-33-00-1-04-CROSSHEAD GUIDE
1	09B-33-00-1-05-STEAM+PUMP CYLINDER
1	09B-33-00-1-06-STEAM VALVE CHEST
1	09B-33-00-1-07-PUMP VALVE BOX
1	09B-33-00-1-08-STEAM CYLINDER FRONT COVER
1	09B-33-00-1-09-STEAM CYLINDER REAR COVER
1	09B-33-00-1-10-PUMP CYLINDER FRONT COVER
1	09B-33-00-1-11-PUMP CYLINDER REAR COVER
1	09B-33-00-1-12-STEAM SUPPLY VALVE
1	09B-33-00-2-01-CRANKSHAFT+FLYWHEEL
1	09B-33-00-2-02-SMALL GEAR WHEEL
1	09B-33-00-2-03-PUMP CRANKSHAFT
1	09B-33-00-2-04-LARGE GEAR WHEEL
1	09B-33-00-2-05-PISTON+CROSSHEAD
1	09B-33-00-2-06-CON-ROD
1	09B-33-00-2-07-SLIDE VALVE
1	09B-33-00-2-08-ECCENTRIC
1	09B-33-00-2-09-ECCENTRIC STRAP
1	09B-33-00-2-10-PUMP PISTON
1	09B-33-00-2-11-PUMP CON-ROD
1	09B-33-00-2-12-NON RETURN VALVE FLAP
1	09B-33-00-M2.5 DOME NUT
2	09B-33-00-M2.5 NUT
2	09B-33-00-M2.5 WASHER
4	09B-33-00-M2.5x3 A-K GRUB SCREW
10	09B-33-00-M2.5x6 A-K CYL HEAD SCREW
10	09B-33-00-M2.5x8 A-K CYL HEAD SCREW
4	09B-33-00-M2x4 A-K CYL HEAD SCREW
8	09B-33-00-M3 NUT
2	09B-33-00-M3 WASHER
32	09B-33-00-M3x10 A-K CYL HEAD SCREW
16	09B-33-00-M3x14 A-K CYL HEAD SCREW
15	09B-33-00-M3x6 A-K CYL HEAD SCREW
22	09B-33-00-M3x8 A-K CYL HEAD SCREW
2	09B-33-00-M4 NUT
18	09B-33-00-M4x10 A-K CYL HEAD SCREW
2	09B-33-00-M5 DOME NUT
2	09B-33-00-M5 WASHER
10	09B-33-00-M5x10 A-K CYL HEAD SCREW
2	09B-33-00-M8 DOME NUT
2	09B-33-00-M8 WASHER



NOTES: THE ORIGINAL LITHOGRAPH WAS PUBLISHED ON THE "MODELENGINEERINGWEBSITE" WEBSITE. THE TITLE ON THE LITHOGRAPH WAS: STEAM PUMPING ENGINE, MESSRS J. EVANS AND SONS, ENGINEERS, CULWELL FOUNDRY, WOLVERHAMPTON.

TITLE
1 CYLINDER HORIZONTAL STEAM ENGINE
WITH PUMP. (BORE=25mm STROKE=50mm)

DRAWING CONTENTS
ISOMETRIC VIEWS, NOTES,
BILL OF MATERIALS

PROJECT No 09B-33-00
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PROJECTION	JDWDS	MODEL SCALE: 1:1
DATE	SEPTEMBER 2021	DWG SCALE: 1:1 @A3 OR AS SHOWN
SHEET: 02 OF 07	A3	Copyright © J.A.M. DE WAAL PAPA KURA NZ
No: 09B-33-00-SHT02		

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