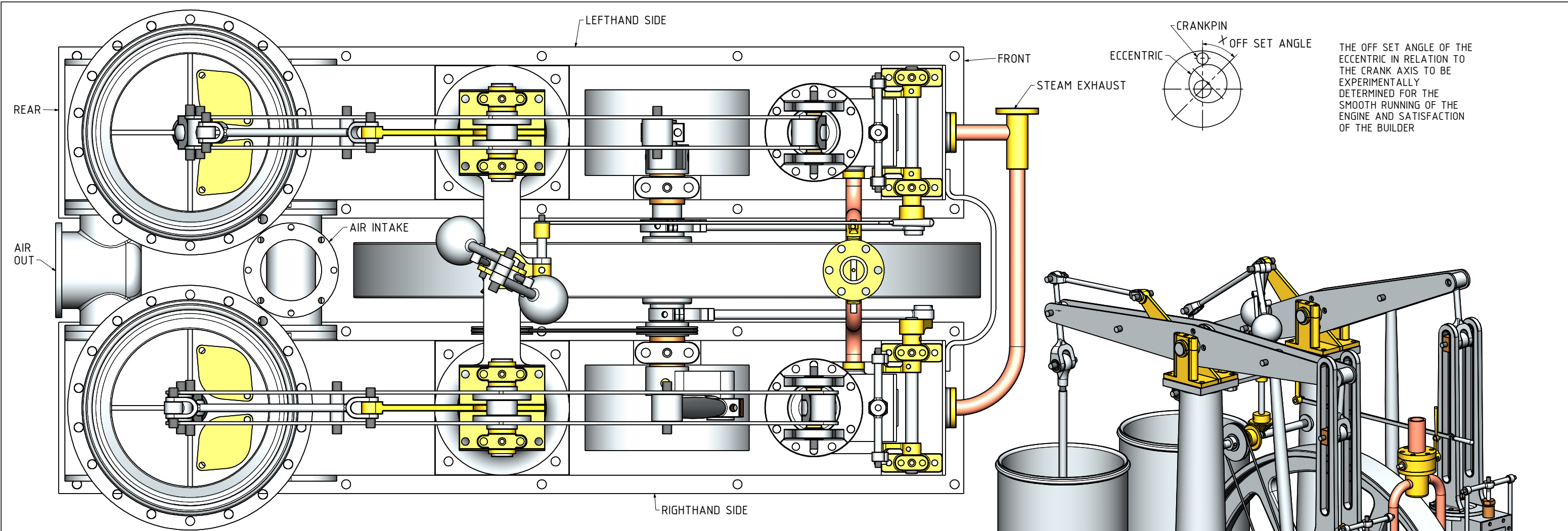




THE OFF SET ANGLE OF THE ECCENTRIC IN RELATION TO THE CRANK AXIS TO BE EXPERIMENTALLY DETERMINED FOR THE SMOOTH RUNNING OF THE ENGINE AND SATISFACTION OF THE BUILDER

QTY.	PART NUMBER
1	09E-52-00-1-01-BASE FRAMES
2	09E-52-00-1-02-AIR PIPE
8	09E-52-00-1-03-AIR PUMP VALVE
2	09E-52-00-1-04-AIR PUMP CYLINDER
1	09E-52-00-1-05-BEAM COLUMN
1	09E-52-00-1-05-BEAM COLUMN
2	09E-52-00-1-06-CRANKSHAFT BEARING
1	09E-52-00-1-07-STEAM CYLINDER
1	09E-52-00-1-07-STEAM CYLINDER
4	09E-52-00-1-08-VALVE ROCKER SHAFT BEARING
2	09E-52-00-1-09-STEAM CYLINDER TOP COVER
1	09E-52-00-1-10-EXHAUST PIPE
1	09E-52-00-1-11-STEAM SUPPLY PIPE
1	09E-52-00-1-12-GOVERNOR MOUTING PLATFORM
1	09E-52-00-1-13-GOVERNOR WHEEL DRIVEN SHAFT
1	09E-52-00-2-01-CRANK SHAFT+FLYWHEEL
2	09E-52-00-2-02-BALNCE BEAM
2	09E-52-00-2-03-CON-ROD
2	09E-52-00-2-04-STEAM CYLINDER PISTON+CROSSHEAD
2	09E-52-00-2-05-CROSSHEAD LINK
2	09E-52-00-2-06-AIR PUMP CYLINDER PISTON+CROSSHEAD
2	09E-52-00-2-07-AIR PUMP CROSSHEAD LINK
2	09E-52-00-2-08-AIR PUMP BEAM LINKAGE
2	09E-52-00-2-09-ECCENTRIC SHEAVE
1	09E-52-00-2-10-VALVE ROCKING SHAFT
1	09E-52-00-2-10-VALVE ROCKING SHAFT
2	09E-52-00-2-11-ECCENTRIC STRAP
2	09E-52-00-2-12-SLIDE VALVE+CROSSHEAD
4	09E-52-00-2-13-VALVE CROSSHEAD LINL
1	09E-52-00-2-14-GOVERNOR DRIVEN PULLEY
1	09E-52-00-2-15-GOVERNOR DRIVE BELT
1	09E-52-00-2-16-GOVERNOR MAIN GEAR SHAFT
2	09E-52-00-2-17-FLYWIGHT
2	09E-52-00-2-18-FLYWIGHT LINK
1	09E-52-00-2-19-CONTROL SPOOL
1	09E-52-00-2-20-CONTROL FORK
1	09E-52-00-2-21-INLET STEAM CONTROL FLAP
1	09E-52-00-2-22-CONTROL LEVER

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.

ADDITIONAL NOTES ABOUT THESE DRAWINGS:

0) 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

1) FASTENERS.

NO FASTENERS SUCH AS BOLTS, SCREWS, NUTS AND WASHERS HAVE BEEN SHOW ON THESE DRAWINGS. THE BUILDER TO CHOOSE ITS OWN PREFERRED TYPE OF FASTENERS.

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: THIS ENGINE WAS DESIGNED AND BUILT IN HE LATE 1800'S BY MESSRS. JOHN PENN AND SONS, ENGINEERS. THE ORIGINAL SKETCHES/DRAWINGS WERE PUBLISHED ON THE "MODELENGINEERINGWEBSITE" WEBSITE

TITLE
BLOWING ENGINE FOR THE GRAND ORGAN IN THE HALL OF ARTS AND SCIENCES (LONDON)

DRAWING CONTENTS
GENERAL ARRANGEMENT, TOP VIEW, ISOMETRIC VIEW, NOTES AND BOM

PROJECT No 09E-52-00
JDW DRAUGHTING SERVICES
J.A.M. DE WAAL, 12 BRIGHTWELL STREET PAKAKURA
2110, NEW ZEALAND. PHONE: 0064 09 2988815. MOB: 0211791000 E-MAIL: dewaal@xtra.co.nz.

PROJECTION	JDWDS	MODEL SCALE: 1:1
DATE	APRIL 2021	DWG SCALE: NTS @A3 OR AS SHOWN
SHEET: 03 OF 09	A3	Copyright © J.A.M. DE WAAL PAKAKURA NZ
No: 09E-52-00-SHT03		

DRAWINGS ARE FOR PERSONAL USE ONLY NOT FOR COMMERCIAL PURPOSES