

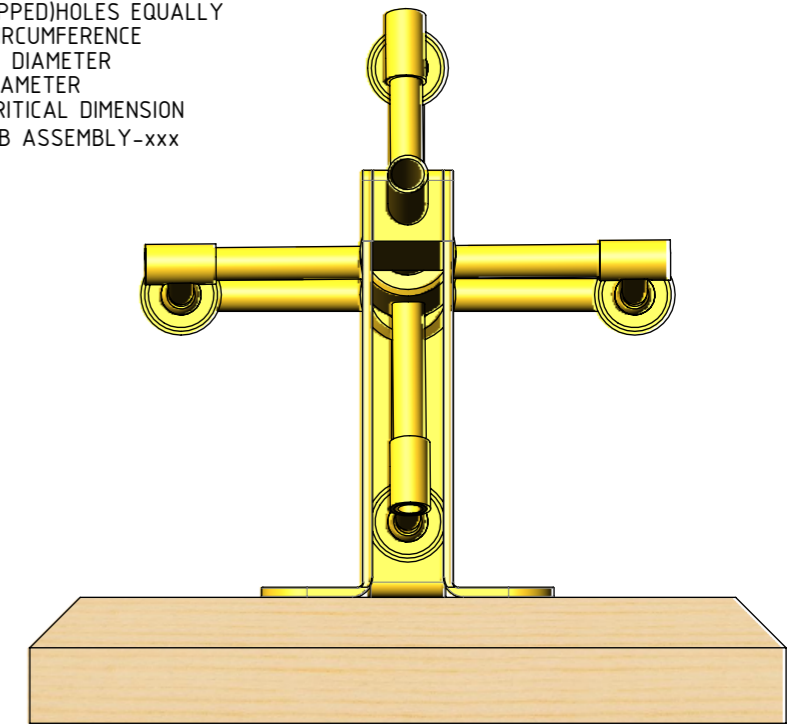
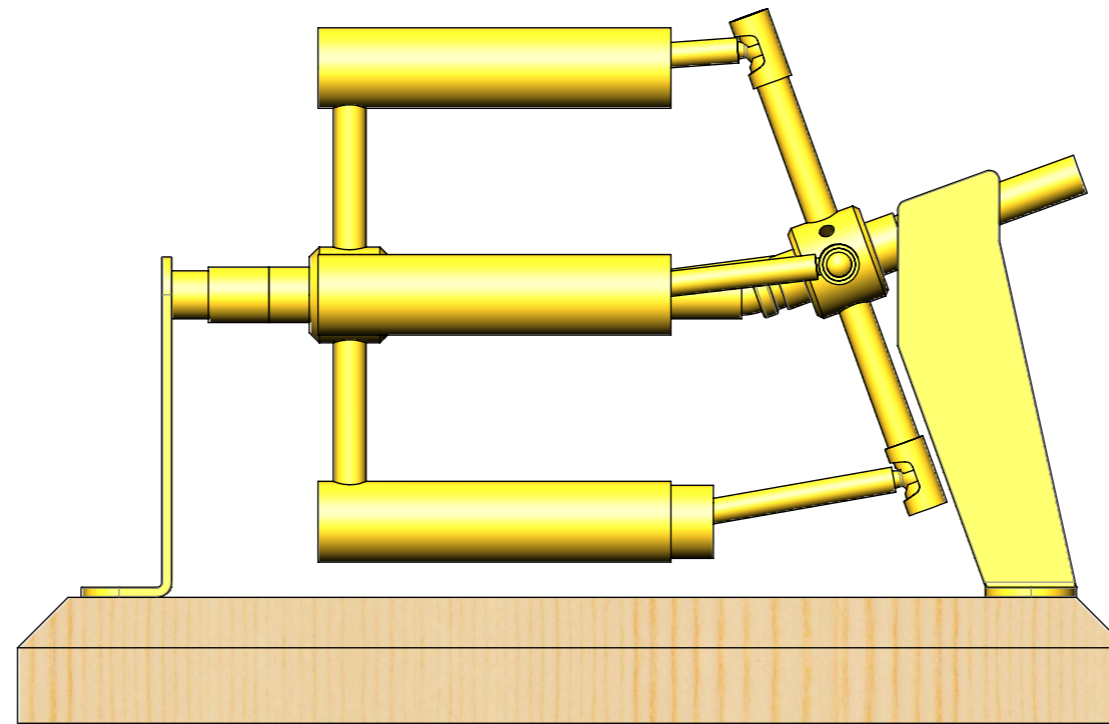
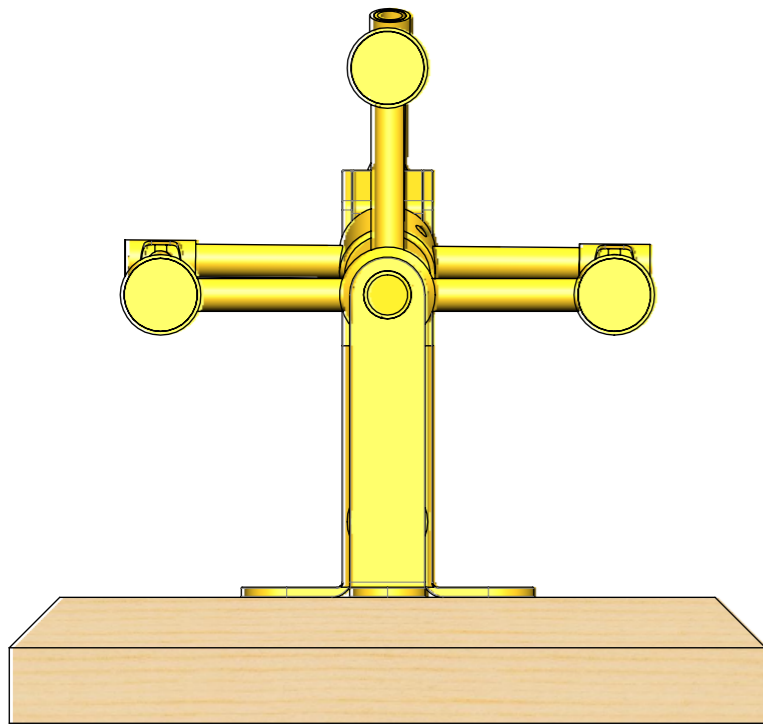
QTY.	PART NUMBER
1	09D-27-00-1-01-BASE STAND
1	09D-27-00-2-01-CRANKSHAFT CROSS
1	09D-27-00-2-02-CYLINDERS+VALVE CROSS
4	09D-27-00-2-03-PISTON
4	09D-27-00-2-04-CON-ROD

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

- GENERAL 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 SPRING WASHERS SHALL BE USED WHERE DEEMED NECESSARY.
  14. INQUIRE AT THE APPROPRIATE AUTHORITIES WHETHER OR NOT THIS BOILER REQUIRE A PRESSURE TEST CERTIFICATE.
  - 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  
 HALU= HARD ALUMINIUM  
 BRS = BRASS  
 BRZ = BRONZE OR GUNMETAL (BRZ/GM)  
 CI = CAST IRON  
 CU = COPPER  
 GRA = GRAPHITE  
 MS = MILD STEEL/BRIGHT MILD STEEL  
 SS = 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 SHOULD BE ABLE TO WITHSTAND THE HEAT AND PRESSURE(S) APPLIED TO THEM.  
 nnn/nnn MEANS THAT EITHER MATERIAL CAN BE USED

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: ORIGINAL DRAWINGS AND ARTICLE WERE FOUND ON THE INTERNET. THE ARTICLE WAS PUBLISHED IN "POPULAR SCIENCE" MAGAZINE JANUARY 1963 AND WAS TITLED "LOOK AN ORBITAL STEAM ENGINE" AND WAS BY BUFORD V. FRYE

TITLE  
**A 4 CYLINDER ORBITAL STEAM ENGINE**

DRAWING CONTENTS  
**GENERAL ARRANGEMENT, NOTES  
 BILL OF MATERIALS**

PROJECT No 09D-27-00  
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PROJECTION	<b>JDWDS</b>	MODEL SCALE: 1:1
DATE	JANUARY 2023	DWG SCALE: 1:1 @A3 OR AS SHOWN
SHEET: 01 OF 02	A3	Copyright © J.A.M. DE WAAL PAPAURA NZ
No:09D-27-00-SHT-01		

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