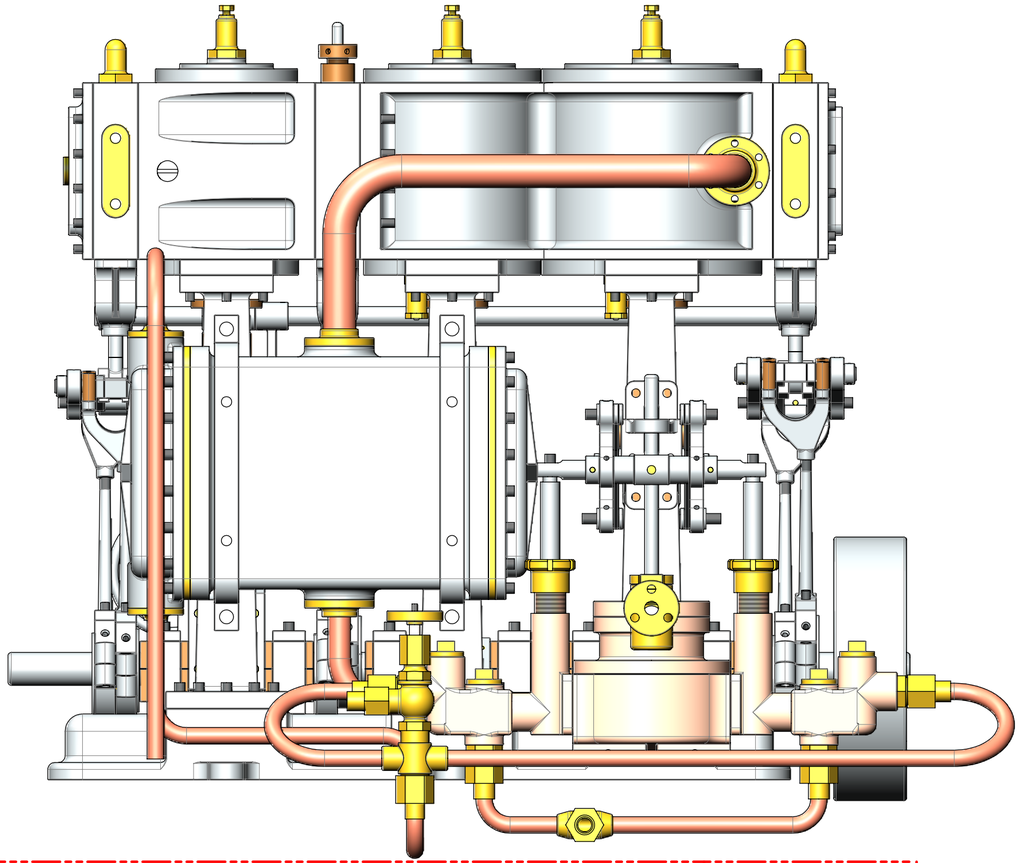
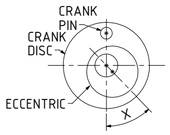


QTY.	PART NUMBER
1	09E-62-00-1-01-BED PLATE
6	09E-62-00-1-02-CRANK SHAFT BEARING
1	09E-62-00-1-03A-COLUMN-1
1	09E-62-00-1-03B-COLUMN-2
1	09E-62-00-1-03C-COLUMN-3
1	09E-62-00-1-03D-COLUMN-4
1	09E-62-00-1-03E-COLUMN-5
1	09E-62-00-1-03F-COLUMN-6
3	09E-62-00-1-04-WEIGHSHAFT BEARING
1	09E-62-00-1-05-CONDENSER SHELL
1	09E-62-00-1-06-CONDENSER FRONT COVER
1	09E-62-00-1-07-CONDENSER REAR COVER
1	09E-62-00-1-08-AIR PUMP BODY
2	09E-62-00-1-09-WATER PUMP CYLINDER
1	09E-62-00-1-10-PUMP ROCKER BEARING+PISTON GUIDE
2	09E-62-00-1-11-WATER PUMP VALVE BOX
1	09E-62-00-1-12-HP-BOTTOM COVER
1	09E-62-00-1-13-IP-BOTTOM COVER
1	09E-62-00-1-14-LP-BOTTOM COVER
1	09E-62-00-1-15-CYLINDER BLOCK
1	09E-62-00-1-16-HP-VALVE CHEST
1	09E-62-00-1-17-LP-VALVE CHEST
1	09E-62-00-1-18-IP-EXHAUST FLANGE
1	09E-62-00-1-19-LP-EXHAUST FLANGE
1	09E-62-00-1-20-HP-TOP COVER
1	09E-62-00-1-21-IP-TOP COVER
1	09E-62-00-1-22-LP-TOP COVER
3	09E-62-00-1-23-CYLINDER RELIEF VALVE-TOP
2	09E-62-00-1-24-CYLINDER RELIEF VALVE-BOTTOM
2	09E-62-00-1-25-HP+LP VALVE CHEST BLANKING PLATE
1	09E-62-00-1-26-WATER SUCTION PIPE
1	09E-62-00-1-27-FEED PUMP BYPASS VALVE
4	09E-62-00-1-28-CYLINDER DRAIN VALVE-1
1	09E-62-00-1-29-CYLINDER DRAIN VALVE-2
1	09E-62-00-1-30-CYLINDER DRAIN VALVE-3
1	09E-62-00-1-31-COND. COLD WATER SUPPLY PIPE
1	09E-62-00-1-32-COND. WARM WATER EXHAUST PIPE
1	09E-62-00-1-33-LP-EXHAUST PIPE
1	09E-62-00-1-34-IP-EXHAUST PIPE
1	09E-62-00-1-35-COND. TEPID WATER OUTLET PIPE
1	09E-62-00-1-36-STEAM REGULATOR CONNECTOR
2	09E-62-00-1-37-SLIDE VALVE STEM GUIDE
1	09E-62-00-1-37-SLIDE VALVE STEM GUIDE
1	09E-62-00-2-01-PISTONS+CROSSHEAD
1	09E-62-00-2-01-PISTONS+CROSSHEAD
1	09E-62-00-2-01-PISTONS+CROSSHEAD
1	09E-62-00-2-02-CRANKSHAFT
2	09E-62-00-2-03-CON-ROD
1	09E-62-00-2-03-CON-ROD
2	09E-62-00-2-04-HP+LP ECCENTRIC SHEAVES
1	09E-62-00-2-05-IP ECCENTRIC SHEAVE
1	09E-62-00-2-06-PUMP ROCKING LEVER
2	09E-62-00-2-07-ROCKER-CON-ROD LINK
1	09E-62-00-2-08-PUMP PISTONS YOKE
2	09E-62-00-2-09-ROCKER-PUMP LINK
1	09E-62-00-2-10-WEIGHSHAFT+REVERSING LEVER
1	09E-62-00-2-11-REVERSING CRANK
1	09E-62-00-2-12-REVERSER OPERATING LINK
1	09E-62-00-2-13-REVERSING HANDWHEEL
1	09E-62-00-2-14-HP SLIDE VALVE
1	09E-62-00-2-15-IP SLIDE VALVE
1	09E-62-00-2-16-LP SLIDE VALVE
3	09E-62-00-2-17-EXPANSION LINK
3	09E-62-00-2-18-DIE BLOCK
6	09E-62-00-2-19-ECCENTRIC STRAP
6	09E-62-00-2-20-DRAG LINK

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. N/A
XX. ERRORS AND/OR OMISSIONS MAY OCCUR IN THE DRAWINGS, DO NOT HESITATE TO CONTACT ME SO THAT THE ERRORS/OMISSIONS CAN BE RECTIFIED.

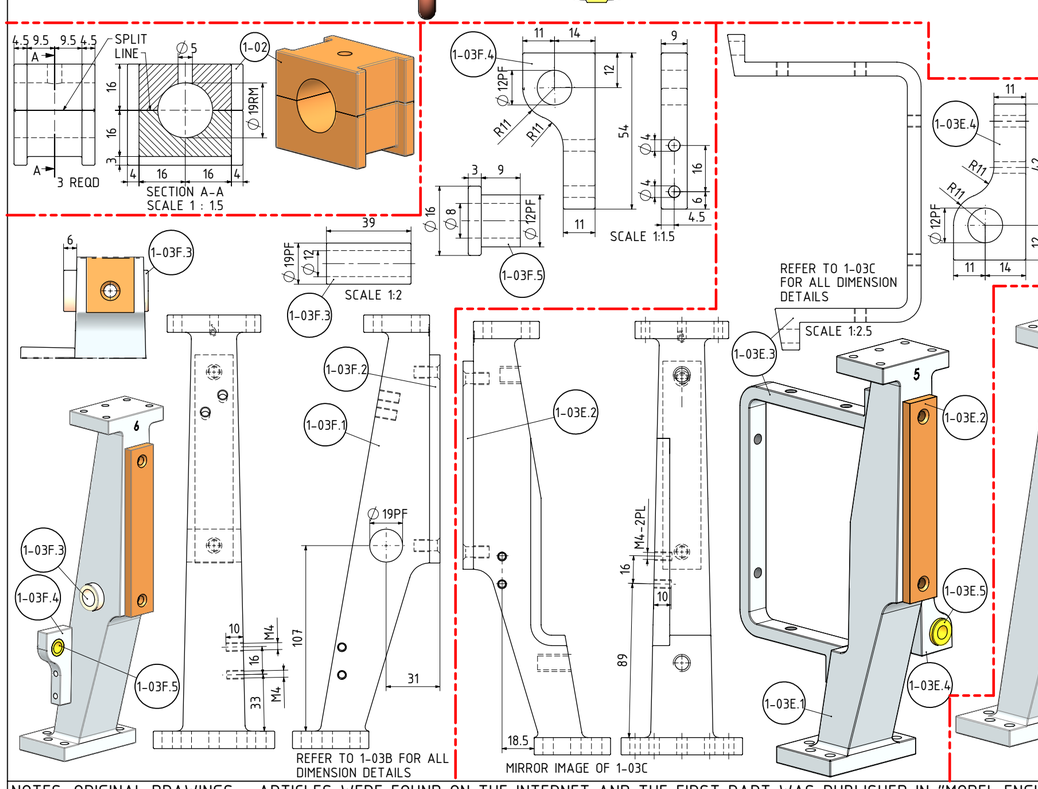
ADDITIONAL NOTES ABOUT THESE DRAWINGS:
1) NO MATERIALS HAVE BEEN SPECIFIED ON THESE DRAWINGS. THE BUILDER TO CHOOSE ITS OWN PREFERRED MATERIAL FOR THE PARTS/COMPONENTS. THE FOLLOWING COLOURS ON THE DRAWINGS INDICATES POSSIBLE MATERIALS WHICH CAN BE USED FOR PARTS:
YELLOW=BRASS, LIGHT GREY=ALUMINIUM OR MILD STEEL, REDDISH BROWN=COPPER, DARK BROWN=BRONZE OR GUN METAL, WHITISH=SILVER STEEL OR STAINLESS STEEL
2) FASTENERS.
NO FASTENERS SUCH AS BOLTS, SCREWS, RIVETS, NUTS AND WASHERS HAVE BEEN SHOWN ON THESE DRAWINGS. THE BUILDER TO CHOOSE ITS OWN PREFERRED TYPE OF FASTENERS.
2) PIPING
PREFERABLY ALL PIPING TO BE COPPER. THE PIPING ON THE DRAWINGS ARE INDICATIVE ONLY. THE BUILDER TO ESTABLISH THE PIPE LENGTH AND ROUTE FROM WORK PIECE. THE PIPE SIZES ARE INDICATIVE ONLY. THE BUILDER TO ESTABLISH THE AVAILABILITY OF THE PIPE SIZE(S) FROM THE LOCAL SUPPLIER(S). THE PIPE NUT(S) TO BE ADJUSTED TO THE USED PIPE SIZE.

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

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



NOTES: ORIGINAL DRAWINGS + ARTICLES WERE FOUND ON THE INTERNET AND THE FIRST PART WAS PUBLISHED IN "MODEL ENGINEER" MAGAZINE DATED 16 AUGUST 1985 PAGE 207. THE HEADING OF ARTICLE WAS "A MARINE TRIPLE EXPANSION ENGINE" THE O.B.BOLTON DESIGN UPRATED BY J.P. BERTINAT

TITLE
A MODEL OF A MARINE TRIPLE EXPANSION STEAM ENGINE (BORE: HP=44, IP=64, LP=90 S=64mm)

DRAWING CONTENTS
VIEW, NOTES, BILL OF MATERIALS PARTS AND ASSEMBLIES

PROJECT No 09E-62-00

JDW DRAUGHTING SERVICES
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PROJECTION | JDWDS | MODEL SCALE: 1:1
DATE: JANUARY 2023 | DWG SCALE: 1:1 @A2 OR AS SHOWN
Copyright © J.A.M. DE WAAL PAPAKURA NZ
SHEET: 02 OF 08 | A2 | No:09E-62-00-SHT-02

PLEASE NOTE THIS IS AN "A2" SIZE SHEET

DRAWINGS ARE FOR PERSONAL USE ONLY NOT FOR COMMERCIAL PURPOSES