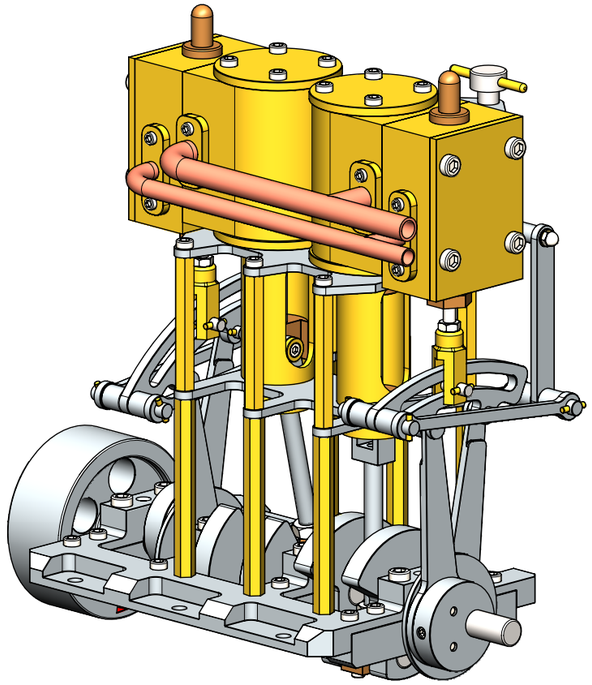

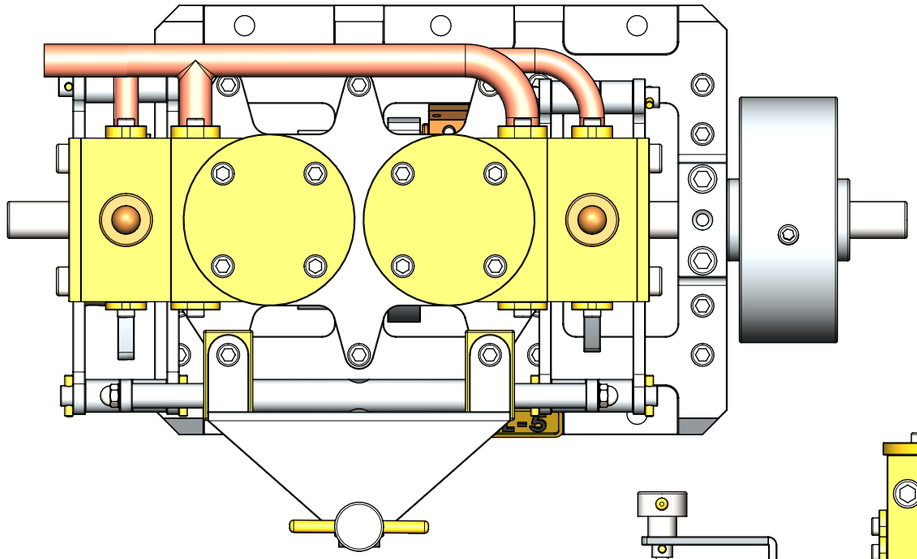

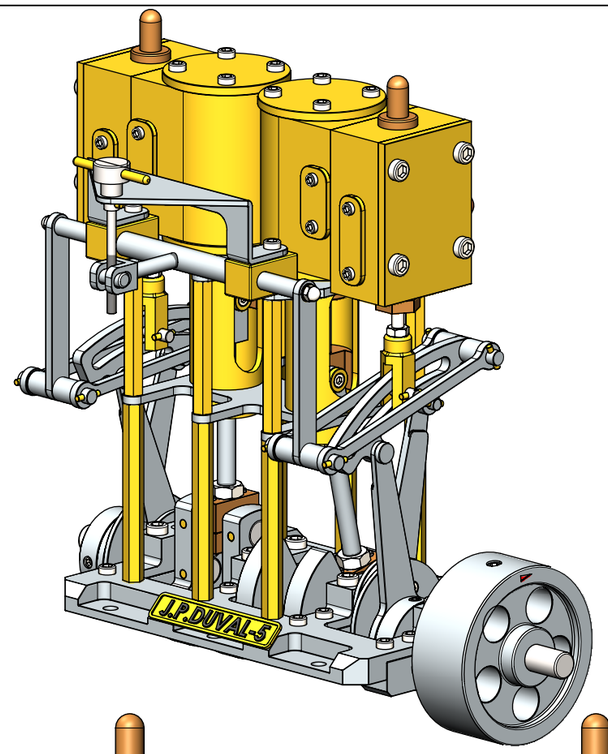

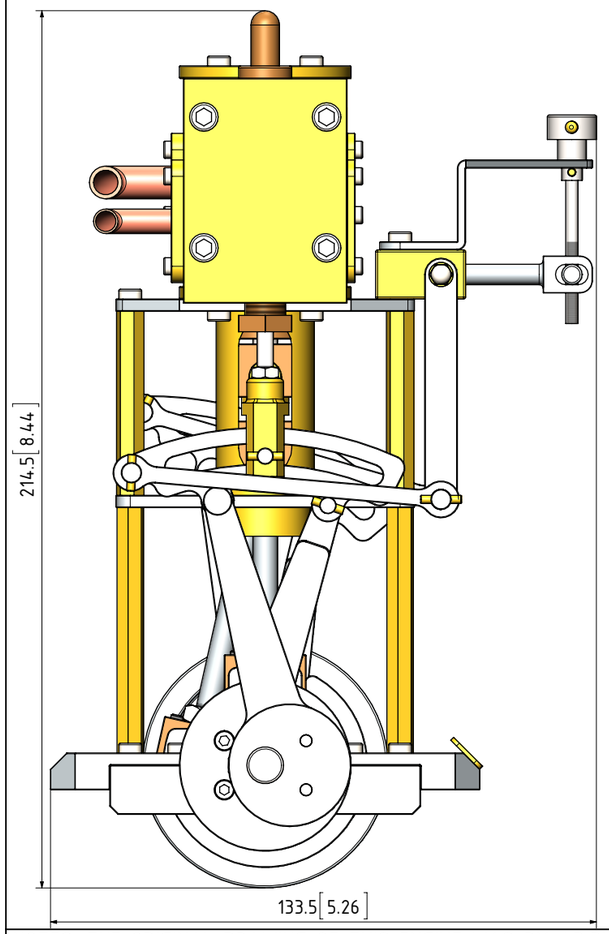

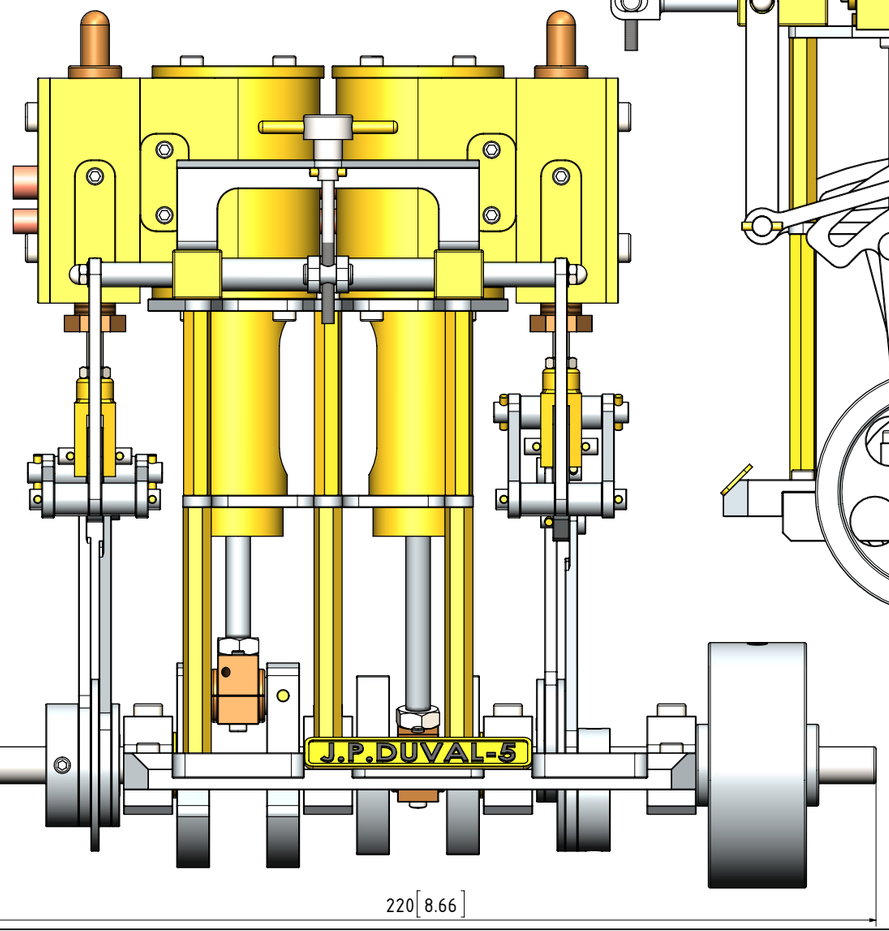

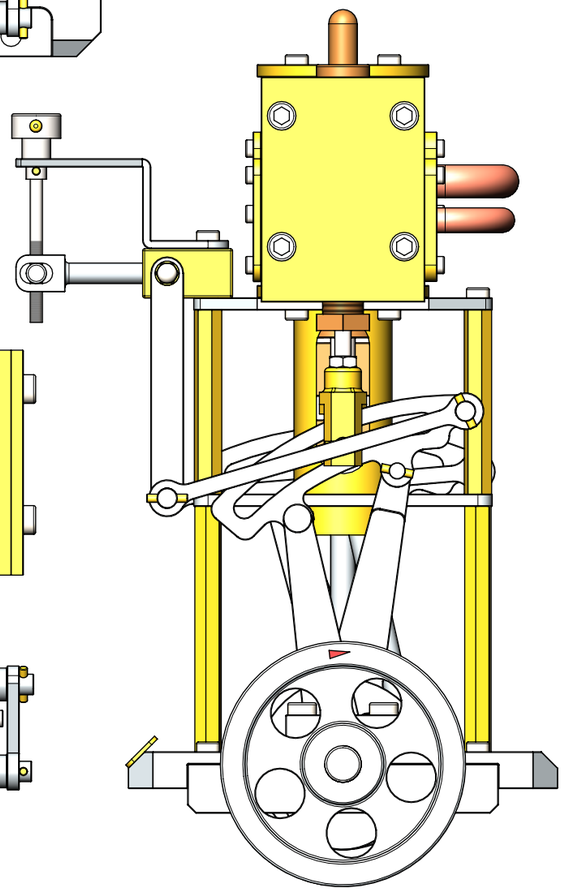

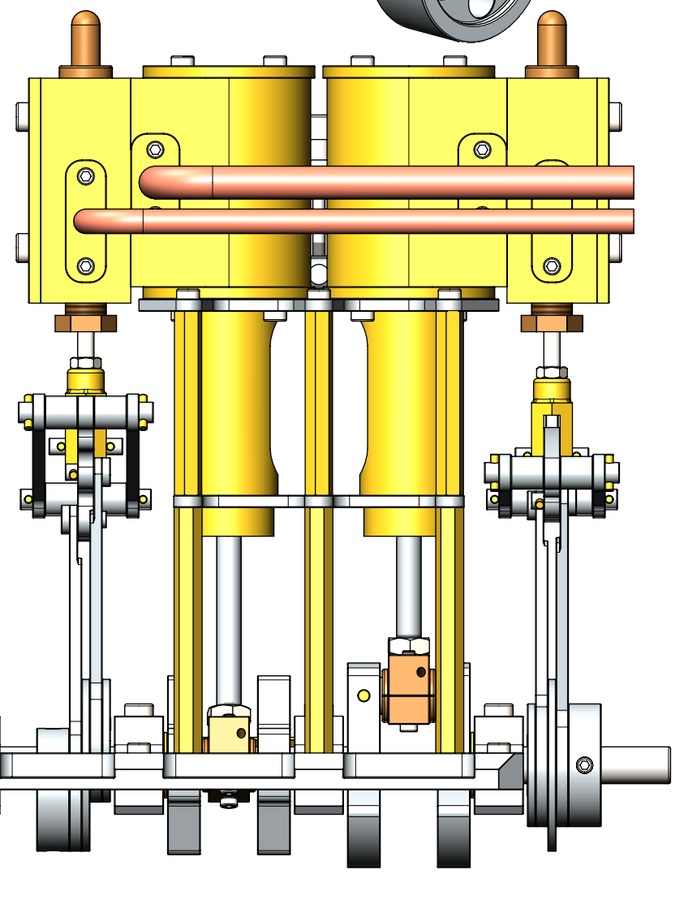

NOTES: THE ORIGINAL DRAWING OF THIS ENGINE WAS BY J.P.DUVAL AND FOUND ON THE INTRNET. THE ORIGINAL DRAWING NUMBER WAS MV 16x19 00 00 a DATED 10/2004 (THIS ENGINE IS 1.5 TIMES LARGER THAN THE ORIGINAL)

TITLE

2 CYL. VERT. STEAM ENGINE WITH REVERSER "J.P.DUVAL-5" (B= ∅ 24mmxS=34mm)

DRAWING CONTENTS

GENERAL ARRANGEMENT AND ISOMETRIC VIEWS

PROJECT No 09C-26-00

JDW DRAUGHTING SERVICES

J.A.M. DE WAAL. 12 BRIGHTWELL STREET PAPAKURA 2110. NEW ZEALAND. PHONE: 0064 09 2988815. MOB: 0211791000
E-MAIL: dewaal@xtra.co.nz.

PROJECTION JDWDS

DATE OCTOBER 2017

SHEET: 01 OF 04

MODEL SCALE: 1:1

DWG SCALE: 1:1 @A3 OR AS SHOWN

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A3 No: DUVAL-5-01

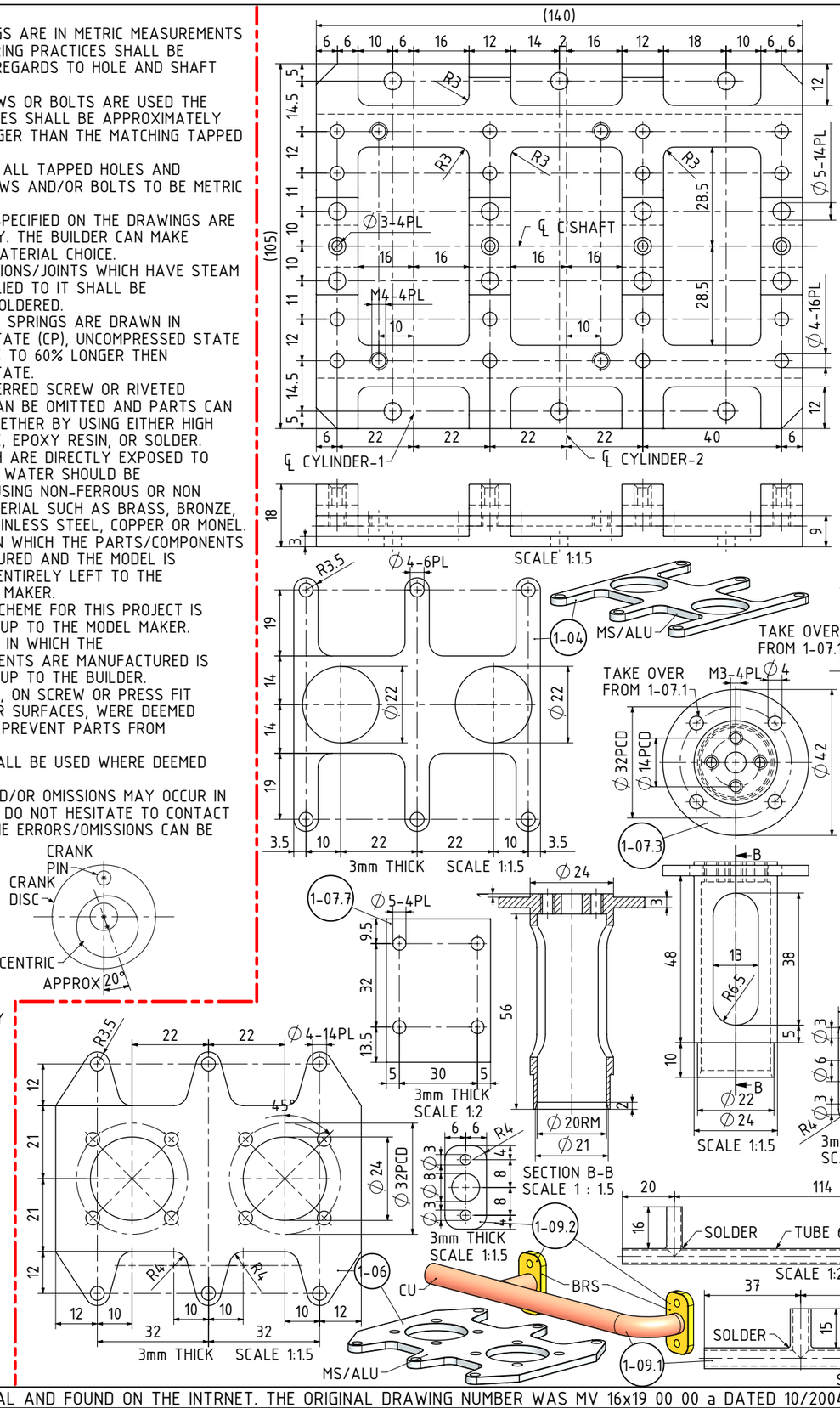
QTY.	PART NUMBER
1	DUVAL5-1-01-BASE PLATE
4	DUVAL5-1-02-CRANK SHAFT BEARING HOLDER
6	DUVAL5-1-03-SUB FLOOR PLATE SUPPORT
1	DUVAL5-1-04-SUB FLOOR PLATE
6	DUVAL5-1-05-CYLINDER FLOOR PLATE SUPPORT
1	DUVAL5-1-06-CYLINDR FLOOR PLATE
2	DUVAL5-1-07-CYLINDER
2	DUVAL5-1-08-PISTON ROD GLAND
1	DUVAL5-1-09-EXHAUST PIPE
1	DUVAL5-1-10-STEAM INLET PIPE
2	DUVAL5-1-11-EXHAUST COVER PLATE
2	DUVAL5-1-12-STEAM INLETCOVER PLATE
1	DUVAL5-1-13-NAME PLATE
2	DUVAL5-1-14-REV. SHAFT BEARING BLOCK
1	DUVAL5-1-15-REV SCREW MOUNTING PLATE
1	DUVAL5-2-01-CRANK SHAFT PART-1
1	DUVAL5-2-02-CRANK SHAFT PART-2
1	DUVAL5-2-03-CRANK SHAFT PART-3
2	DUVAL5-2-04-CRANK SHAFT PART-4
4	DUVAL5-2-05-CRANK WEB
2	DUVAL5-2-06-CRANK SHAFT SPACER
1	DUVAL5-2-07-FLYWHEEL
2	DUVAL5-2-08-ECCENTRIC
2	DUVAL5-2-09-PISTON+CROSSHEAD
2	DUVAL5-2-10-CON-ROD
4	DUVAL5-2-11-ECCENTRIC STRAP
2	DUVAL5-2-12-SLIDE VALVE+SPINDLE
2	DUVAL5-2-13-EXSPANSION LINK
1	DUVAL5-2-14-REVERSING SHAFT
4	DUVAL5-2-15-EXSPANSION LINK REV ARM LINK
1	DUVAL5-2-16-REVERSER SCREW
2	DUVAL5-M3 DOME NUT
2	DUVAL5-M3 WASHER
2	DUVAL5-M3x4 A-K GRUB SCREW
8	DUVAL5-M3x6 A-K CYL HEAD SCREW
8	DUVAL5-M3x7 A-K C-SINK SCREW
8	DUVAL5-M3x8 A-K CYL HEAD SCREW
4	DUVAL5-M3x12 A-K C-SINK SCREW
4	DUVAL5-M3x18 A-K CYL HEAD SCREW
2	DUVAL5-M4 NUT
2	DUVAL5-M4x4.5 A-K GRUB SCREW
34	DUVAL5-M4x12 A-K CYL HEAD SCREW
2	DUVAL5-M4x16 A-K GRUB SCREW
2	DUVAL5-M4x24 A-K CYL HEAD SCREW
8	DUVAL5-M5x18 A-K CYL HEAD SCREW
1	DUVAL5-M5x25 A-K GRUB SCREW
8	DUVAL5-M5x32 A-K CYL HEAD SCREW
2	DUVAL5-M6 NUT

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. WASHER 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.

MATERIAL ABBREVIATIONS:
ALU = ALUMINIUM
BRS = BRASS
BRZ = BRONZE OR GUNMETAL (BRZ/GM)
CI = CAST IRON
CU = COPPER
GRA = GRAPHITE
MS = MILD STEEL/BRIGHT MILD STEEL
S/S = 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 SOULD BE ABLE TO WITHSTAND THE HEAT AND PRESSURE(S) APPLIED TO THEM.
nnn/nnn MEANS THAT EITHER MATERIAL CAN BE USED

OTHER ABBREVIATIONS
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
(T)HESOP=(TAPPED)HOLES EQUALLY SPACED ON PCD
(T)HESOC=(TAPPED)HOLES EQUALLY SPACED ON CIRCUMFERENCE
SA-xxx = SUB ASSEMBLY-xxx

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



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TITLE
2 CYL. VERT. STEAM ENGINE WITH REVERSER "J.P.DUVAL-5" (B= ∅ 24mmxS=34mm)

DRAWING CONTENTS
BILL OF MATERIALS, NOTES, PARTS AND ASSEMBLIES

PROJECT No 09C-26-00
JDW DRAUGHTING SERVICES
J.A.M. DE WAAL. 12 BRIGHTWELL STREET PAPAKURA 2110. NEW ZEALAND. PHONE: 0064 09 2988815. MOB: 0211791000
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PROJECTION JDWDS
DATE OCTOBER 2017
SHEET: 02 OF 04

MODEL SCALE: 1:1
DWG SCALE: 1:1 @A3 OR AS SHOWN
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A3 No: DUVAL-5-02

SA-1-101

SA-1-105

SA-2-201

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TITLE

2 CYL. VERT. STEAM ENGINE WITH REVERSER "J.P.DUVAL-5" (B= ∅ 24mmxS=34mm)

DRAWING CONTENTS

PARTS AND ASSEMBLIES

JDW DRAUGHTING SERVICES
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E-MAIL: dewaal@xtra.co.nz.

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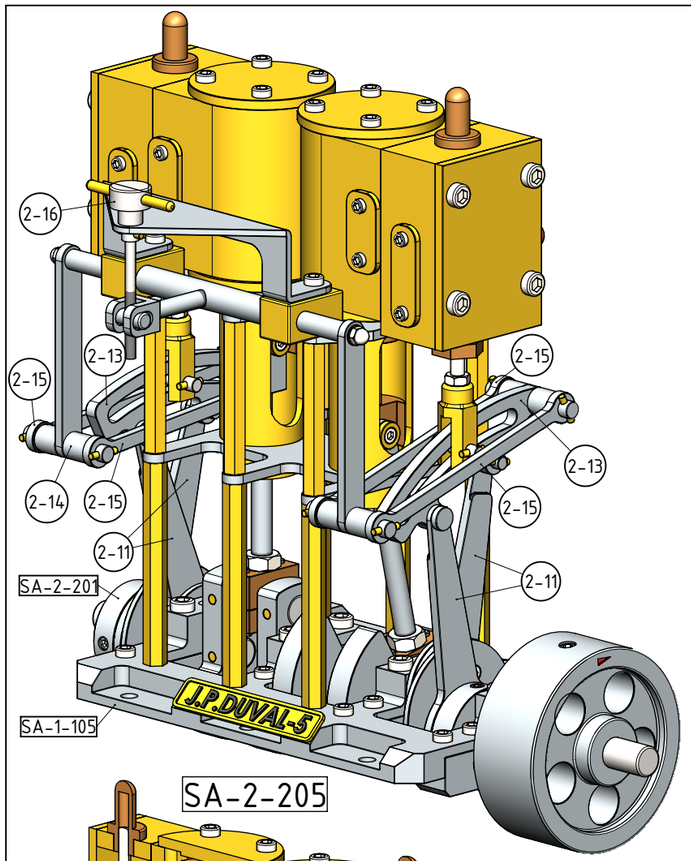
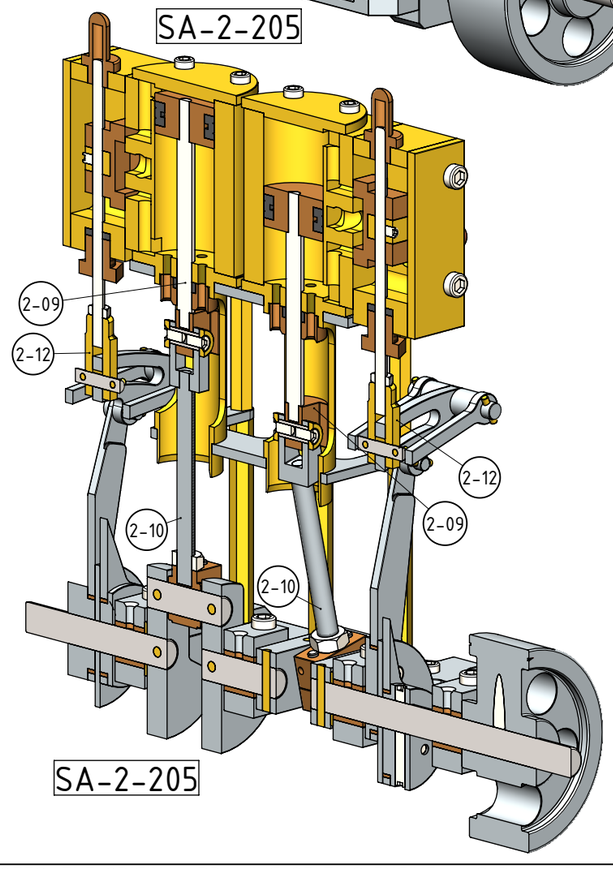
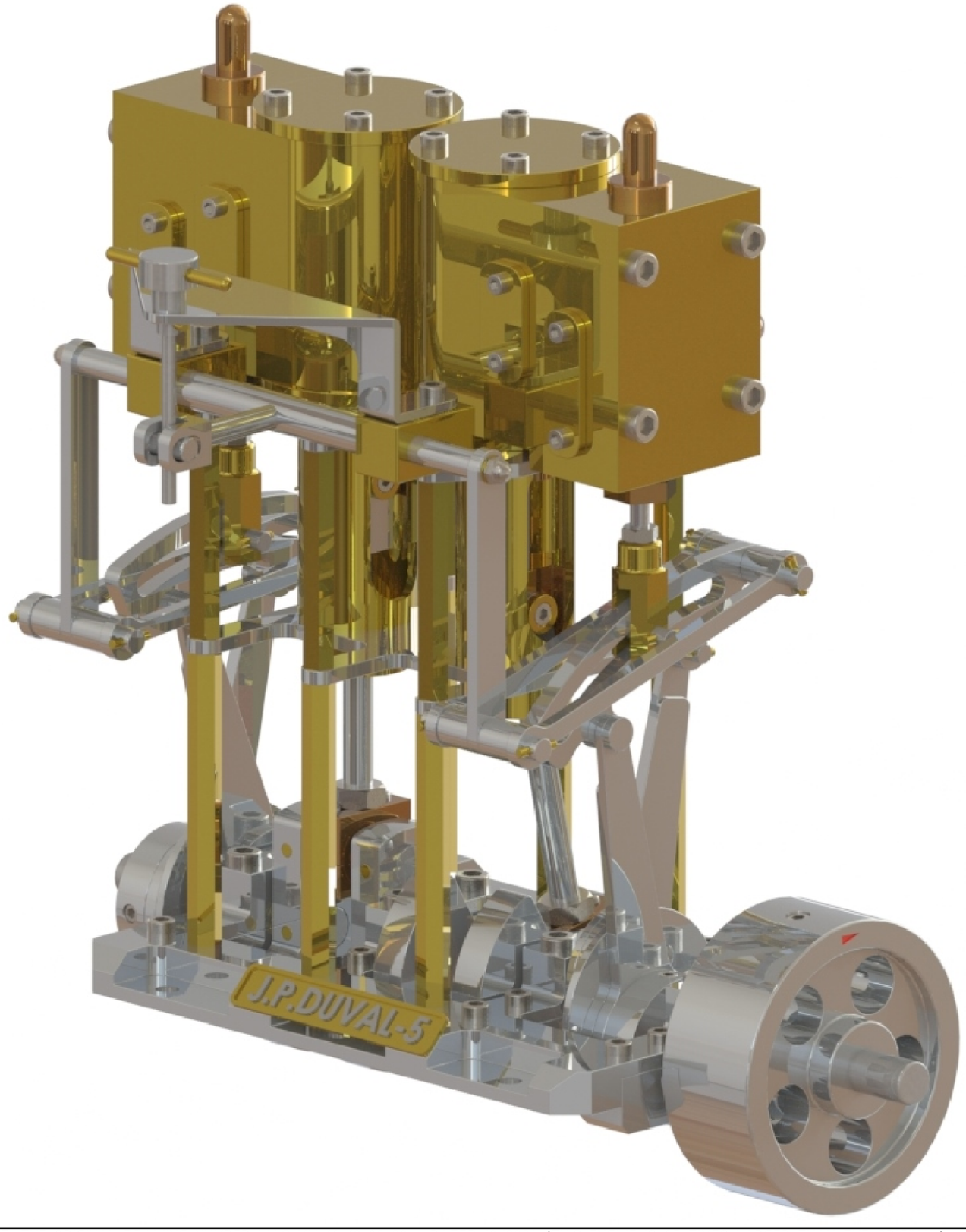
SHEET: 03 OF 04 | A3 | No: DUVAL-5-03



SA-2-205



SA-2-205



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DRAWING CONTENTS

ASSEMBLIES AND RENDERED PICTURE

PROJECT No 09C-26-00

JDW DRAUGHTING SERVICES

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