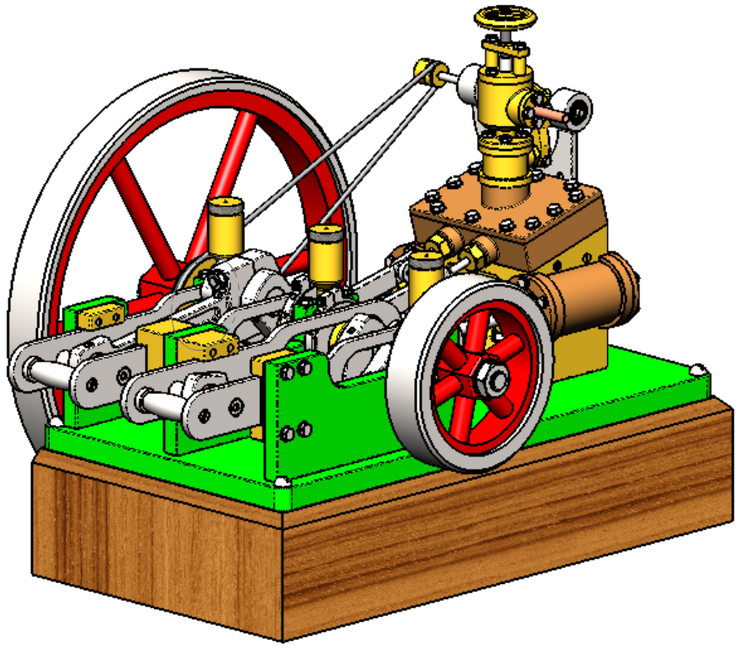

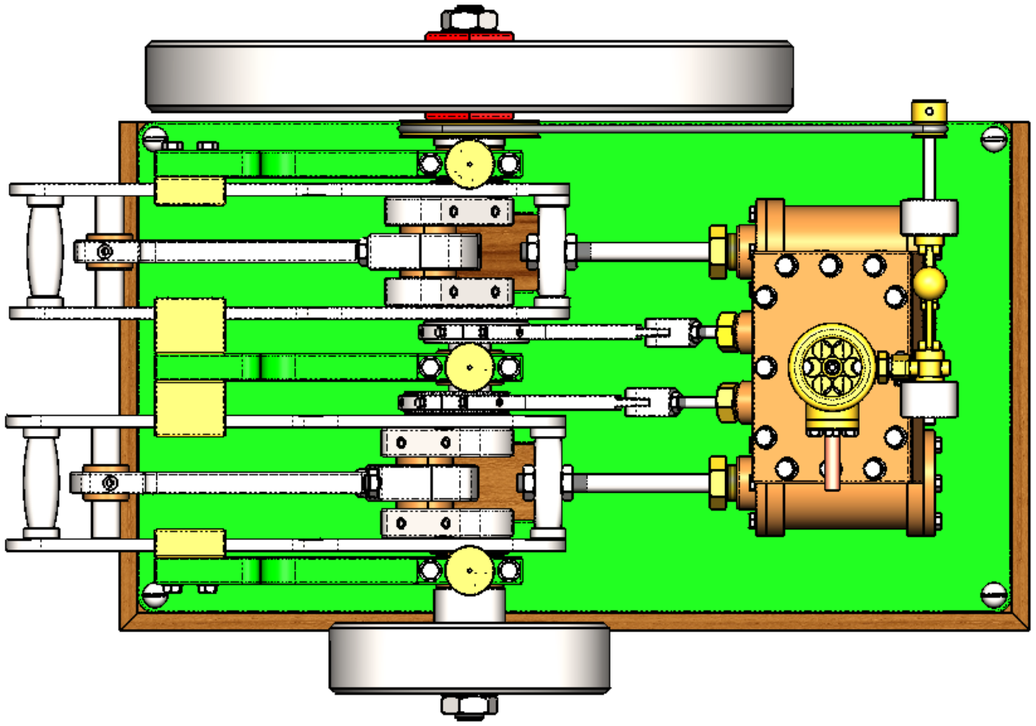

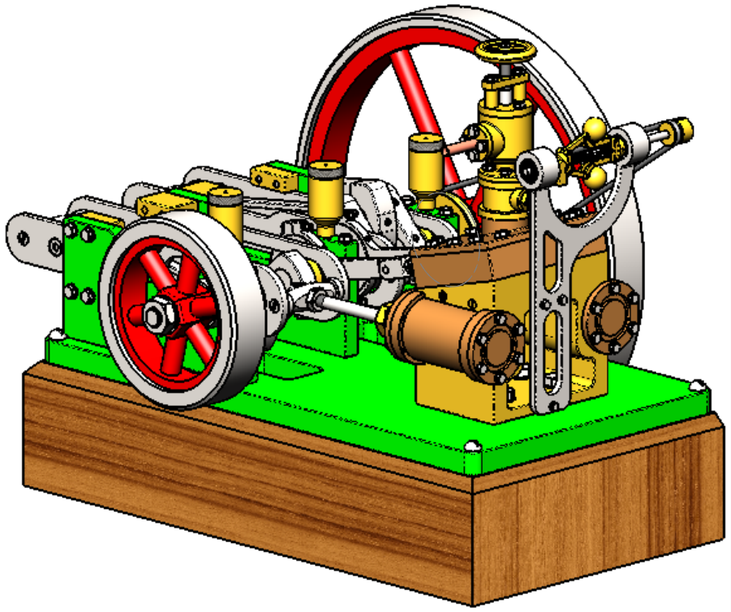

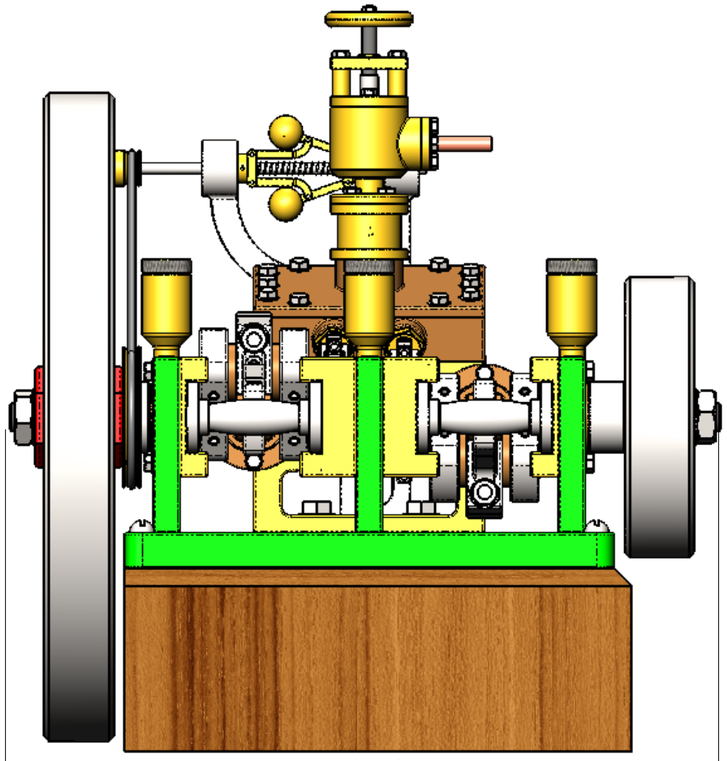


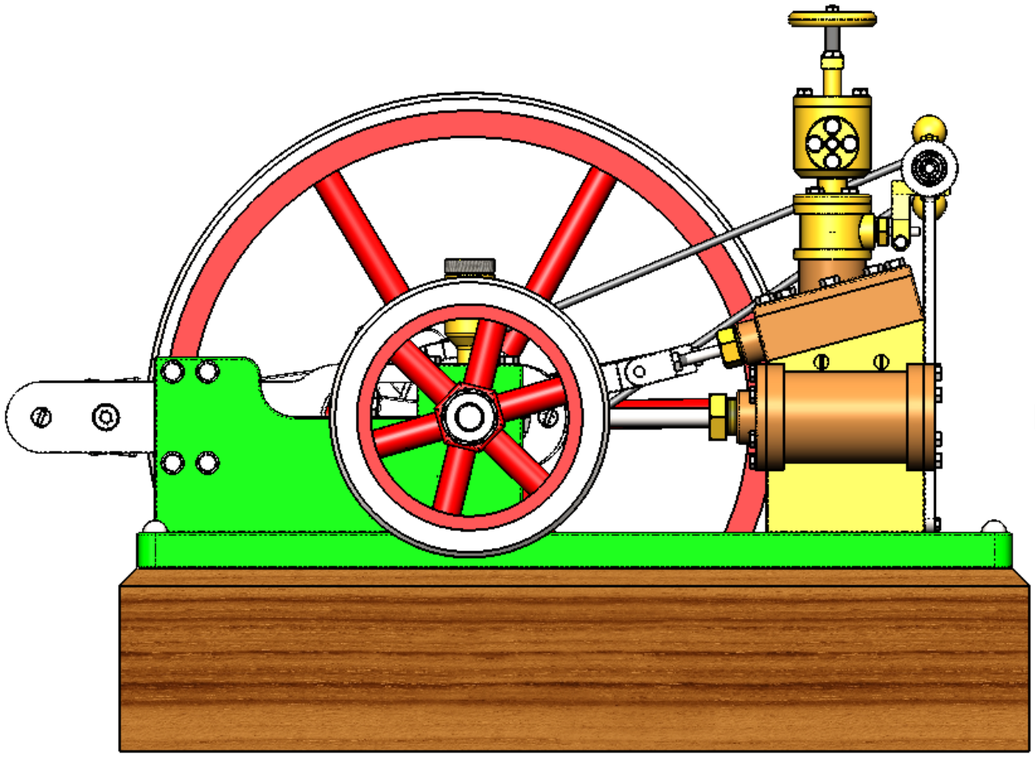

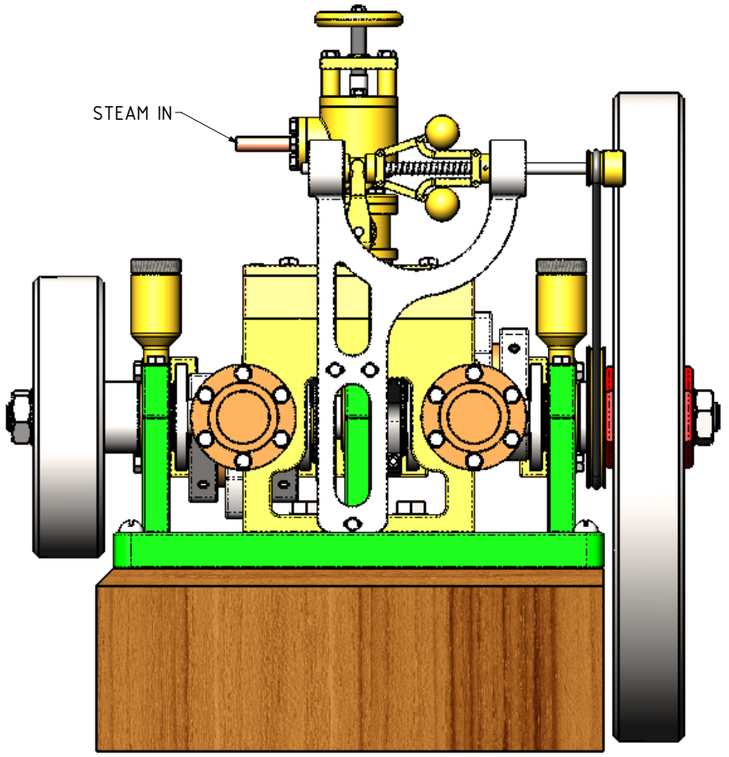


NOTES: THIS ENGINE WAS DESIGNED AND BUILT BY Mr. STEWART HART (POTTY ENGINEERING)

TITLE

# OVER CRANK TYPE STEAM ENGINE
# 40mm BORE x 70mm STROKE

DRAWING CONTENTS

## GENERAL ARRANGEMENT

PROJECT No
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 APRIL 2014

SHEET:01 OF 06

MODEL SCALE: 1:1

DWG SCALE: 1:1 @A3 OR AS SHOWN

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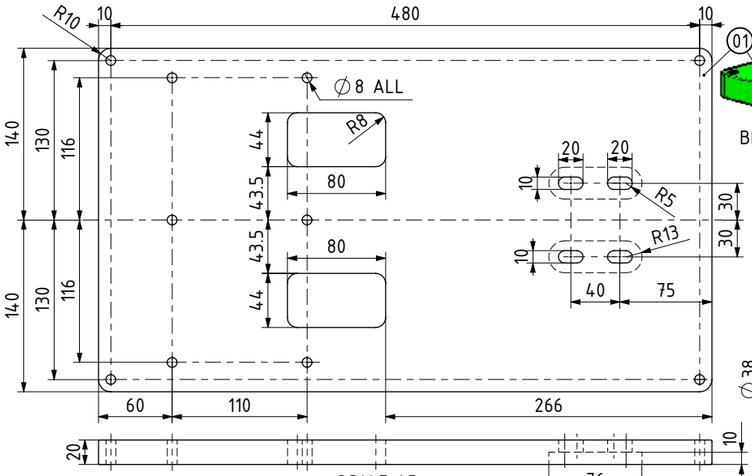
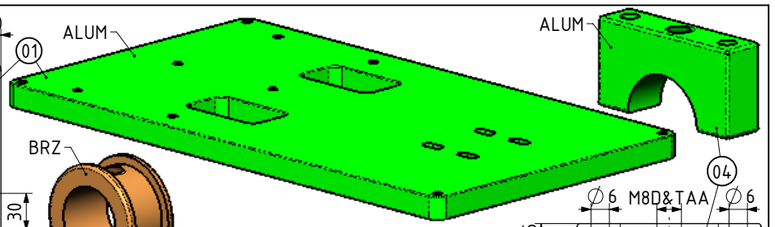
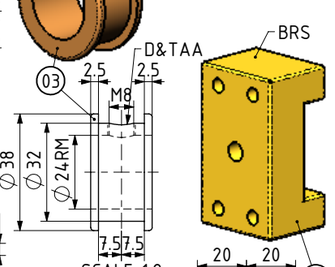
A3 No: OCE-01

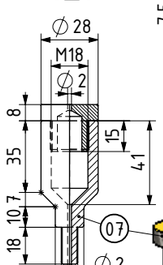
| QTY. | PART NUMBER |
|---|---|
| 1 | OCE-01-BASE MOUNTING PLATE |
| 2 | OCE-02-CRANK SHAFT MAIN BEARING HOUSING |
| 1 | OCE-02-CRANK SHAFT MAIN BEARING HOUSING |
| 3 | OCE-03-CRANK SHAFT MAIN BEARING |
| 3 | OCE-04-CRANK SHAFT MAIN BEARING CAP |
| 2 | OCE-05-MAIN BEARING HOUSING OUTER GUIDE BAR |
| 2 | OCE-06-MAIN BEARING HOUSING INNER GUIDE BAR |
| 3 | OCE-07-CRANK SHAFT MAIN BEARING CAP OILER CUP |
| 1 | OCE-08-CYLINDER COSOLE AND PORT BLOCK |
| 2 | OCE-09-CYLINDER |
| 1 | OCE-11-VALVE CHEST |
| 2 | OCE-12-VALVE CHEST GLAND |
| 2 | OCE-13-VALVE CHEST GLAND SEAL |
| 1 | OCE-14-VALVE CHEST COVER |
| 2 | OCE-15-CYLINDER FRONT COVER |
| 2 | OCE-16-CYLINDER REAR COVER |
| 2 | OCE-17-CYLINDER REAR COVER GLAND |
| 2 | OCE-18-CYLINDER REAR COVER GLAND SEAL |
| 1 | OCE-19-FLYWHEEL CENTRE |
| 1 | OCE-20-FLYWHEEL INNER RIM |
| 1 | OCE-21-FLYWHEEL OUTER RIM |
| 6 | OCE-22-FLYWHEEL SPOKE |
| 1 | OCE-23-PULLEY CENTRE |
| 1 | OCE-24-PULLEY INNER RIM |
| 1 | OCE-25-PULLEY OUTER RIM |
| 6 | OCE-26-PULLEY SPOKE |
| 1 | OCE-27-GOVERNOR PULLEY |
| 1 | OCE-28-CRANK SHAFT FLYWHEEL END |
| 1 | OCE-29-CRANK SHAFT PULLEY END |
| 1 | OCE-30-CRANK SHAFT CENTER PIECE |
| 2 | OCE-31-CRANK SHAFT CRANK PIN |
| 4 | OCE-32-CRANK CHEEK |
| 1 | OCE-33-SPACER FLYWHEEL END |
| 1 | OCE-34-SPACER PULLEY END |
| 2 | OCE-35-PISTON |
| 2 | OCE-36-PISTON ROD |
| 2 | OCE-37-PISTON ROD CROSS HEAD |
| 4 | OCE-38-RETURN CON-ROD |
| 2 | OCE-39-RETURN CON-ROD CONNECTOR END |
| 2 | OCE-40-GUDGION PIN |
| 4 | OCE-41-RETEURN CON-ROD GUIDE SPACER |
| 2 | OCE-42-CON-ROD BIG END CAP |
| 2 | OCE-43-CON-ROD |
| 4 | OCE-44-CON-ROD BIG END BEARING |
| 2 | OCE-45-CON-ROD SMALL END BEARING |
| 2 | OCE-46-M6 CON-ROD BEARING LOCK SCREW |
| 2 | OCE-47-SLIDE VALVE |
| 2 | OCE-48-SLIDE VALVE CROSS BAR NUT |
| 2 | OCE-49-SLIDE VALVE STEM |
| 2 | OCE-50-SLIDE VALVE STEM COUPLING END |
| 2 | OCE-51-ECCENTRIC SHEAVE |
| 4 | OCE-52-ECCENTRIC BEARING SHELL |
| 2 | OCE-53-ECCENTRIC STRAP |
| 1 | OCE-54-BUTTERFLY VALVE BODY |
| 1 | OCE-55-BUTTERFLY VALVE GLAND |
| 1 | OCE-56-BUTTERFLY VALVE GLAND SEAL |
| 1 | OCE-57-BUTTERFLY VALVE |
| 1 | OCE-58-BUTTERFLY VALVE STEM |
| 1 | OCE-59-BUTTERFLY VALVE CONTROL LINK ARM |
| 1 | OCE-60-STOP VALVE BODY |
| 1 | OCE-61-STOP VALVE TOP PLATE |
| 1 | OCE-62-STOP VALVE STEM SEAL |
| 2 | OCE-63-STOP VALVE TOP PLATE SPACER |
| 1 | OCE-64-STOP VALVE BRIDGE |
| 1 | OCE-65-STOP VALVE STEM |
| 1 | OCE-66-STOP VALVE HAND WHEEL |
| 1 | OCE-67-STOP VALVE INLET PIPE |
| 1 | OCE-68-GOVERNOR MOUNTING BRACKET |
| 2 | OCE-69-GOVERNER BALL BEARING |
| 2 | OCE-70-GOVERNOR BEARING SPACER |
| 2 | OCE-71-GOVERNOR GRAVITY BALL |
| 1 | OCE-72-GOVERNOR SPINDLE |
| 1 | OCE-73-GOVERNOR FIXED SPOOL |
| 1 | OCE-74-GOVERNOR SLIDING SPOOL |
| 2 | OCE-75-GOVERNOR YOKE LINK |
| 2 | OCE-76-GOVERNOR STRAIGHT LINK |
| 1 | OCE-77-GOVERNOR SMALL PULLEY |
| 1 | OCE-78-GOVERNOR PRESSURE SPRING |
| 1 | OCE-79-GOVERNOR BELT |
| 1 | OCE-80-WOODEN BASE |

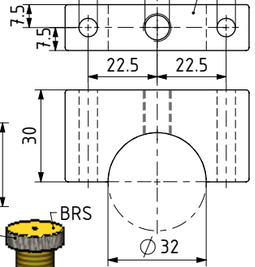
| QTY. | PART NUMBER |
|---|---|
| 8 | OCE-M10 NUT |
| 8 | OCE-M10 WASHER |
| 4 | OCE-M10x30 HEX BOLT |
| 2 | OCE-M16 NUT |
| 2 | OCE-M16 WASHER |
| 9 | OCE-M4 NUT |
| 13 | OCE-M4 WASHER |
| 4 | OCE-M4x16 HEX BOLT |
| 4 | OCE-M4x30 STUD |
| 6 | OCE-M5 NUT |
| 36 | OCE-M5 WASHER |
| 2 | OCE-M5x15 GRUB SCREW |
| 30 | OCE-M5x16 HEX BOLT |
| 2 | OCE-M5x42 STUD |
| 4 | OCE-M5x50 STUD |
| 2 | OCE-M6 NUT |
| 26 | OCE-M6 WASHER |
| 8 | OCE-M6x25 C-SINK SCREW |
| 8 | OCE-M6x30 HEX BOLT |
| 8 | OCE-M6x40 ROLLPIN |
| 12 | OCE-M6x42 HEX BOLT |
| 6 | OCE-M6x45 HEX BOLT |
| 4 | OCE-M6x76 DOWEL |
| 4 | OCE-M8 NUT |
| 10 | OCE-M8 WASHER |
| 4 | OCE-M8 WOOD SCREW |
| 4 | OCE-M8x18 PLUG SCREW |
| 4 | OCE-M8x25 C-SINK A-KEY SCREW |
| 2 | OCE-M8x27 C-SINK SCREW |
| 6 | OCE-M8x50 HEX BOLT |
| 4 | OCE-M8x55 STUD |

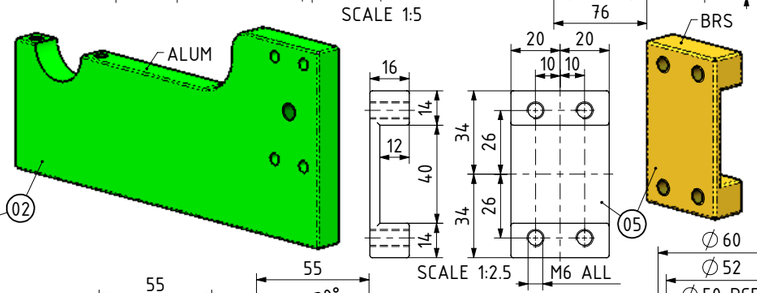


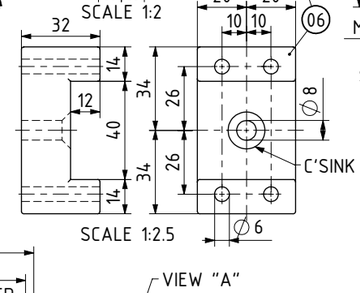



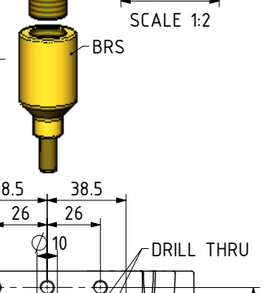



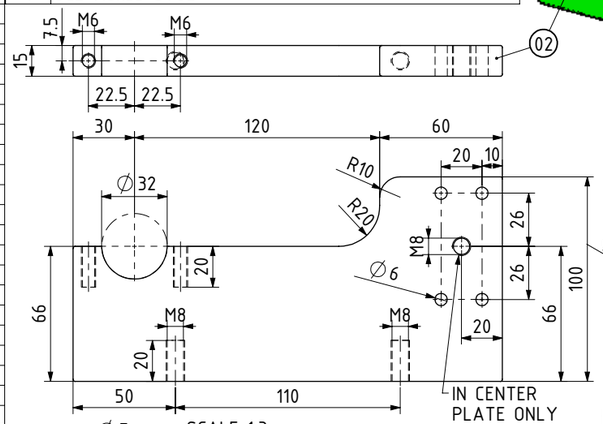



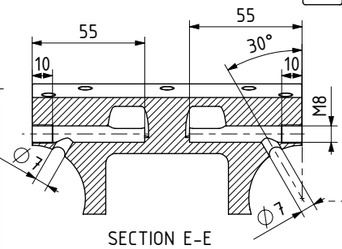



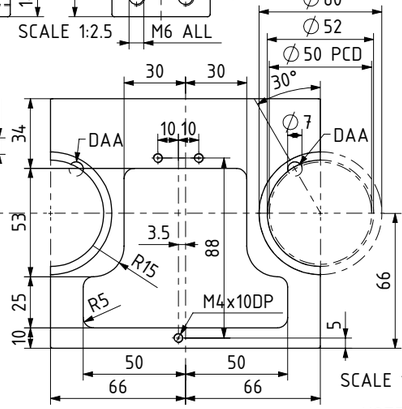



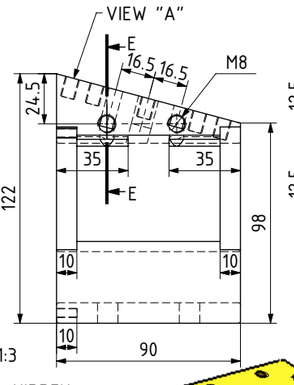



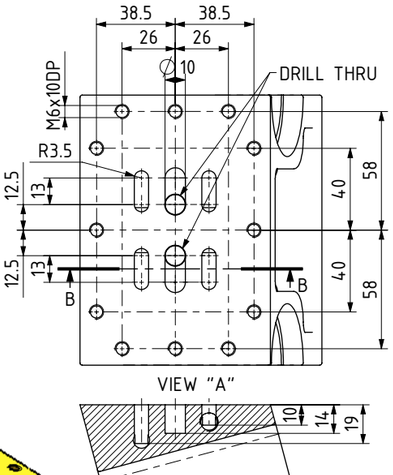



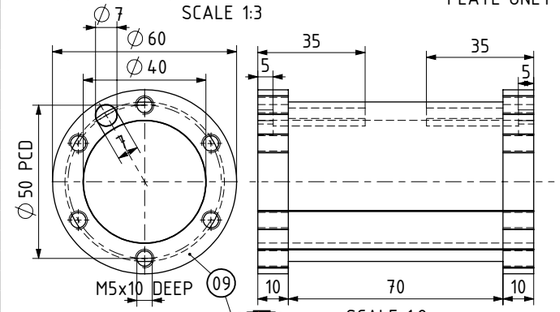



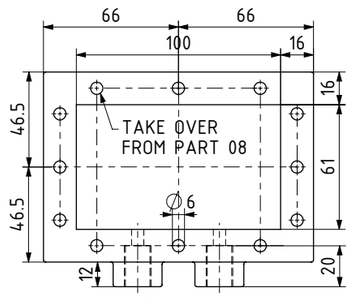



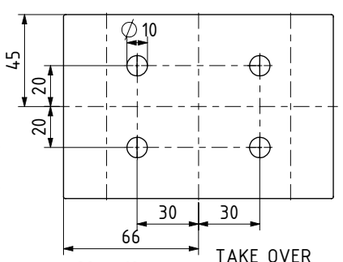



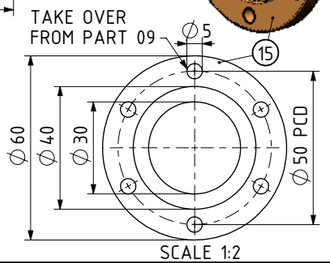



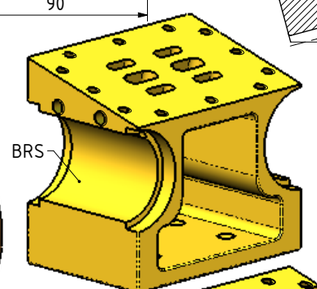



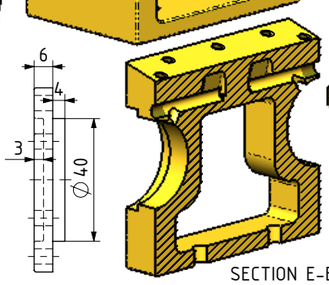



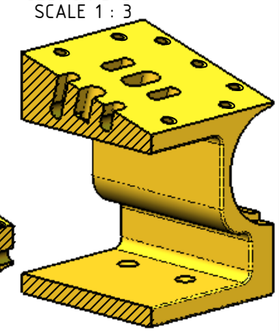



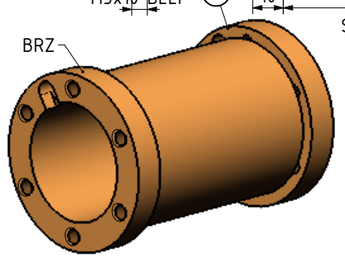



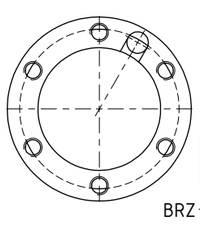



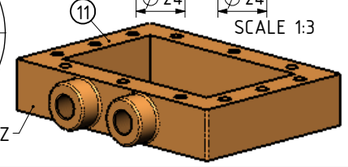


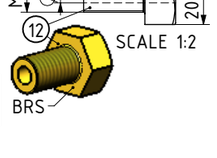






NOTES: THIS ENGINE WAS DESIGNED AND BUILT BY Mr. STEWART HART (POTTY ENGINEERING)

TITLE
# OVER CRANK TYPE STEAM ENGINE
# 40mm BORE x 70mm STROKE

DRAWING CONTENTS
## BILL OF MATERIALS
## PARTS AND ASSEMBLIES


PROJECT No
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
APRIL 2014
SHEET:02 OF 06

MODEL SCALE: 1:1
DWG SCALE: 1:1 @A3 OR AS SHOWN
Copyright © J.A.M. DE WAAL PAPAKURA NZ
A3 No: OCE-02

NOTES: THIS ENGINE WAS DESIGNED AND BUILT BY Mr. STEWART HART (POTTY ENGINEERING)

TITLE
# OVER CRANK TYPE STEAM ENGINE
# 40mm BORE x 70mm STROKE

DRAWING CONTENTS
## PARTS AND ASSEMBLIES

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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
DATE APRIL 2014
SHEET:03 OF 06

JDWDS
MODEL SCALE: 1:1
DWG SCALE: 1:1 @A3 OR AS SHOWN
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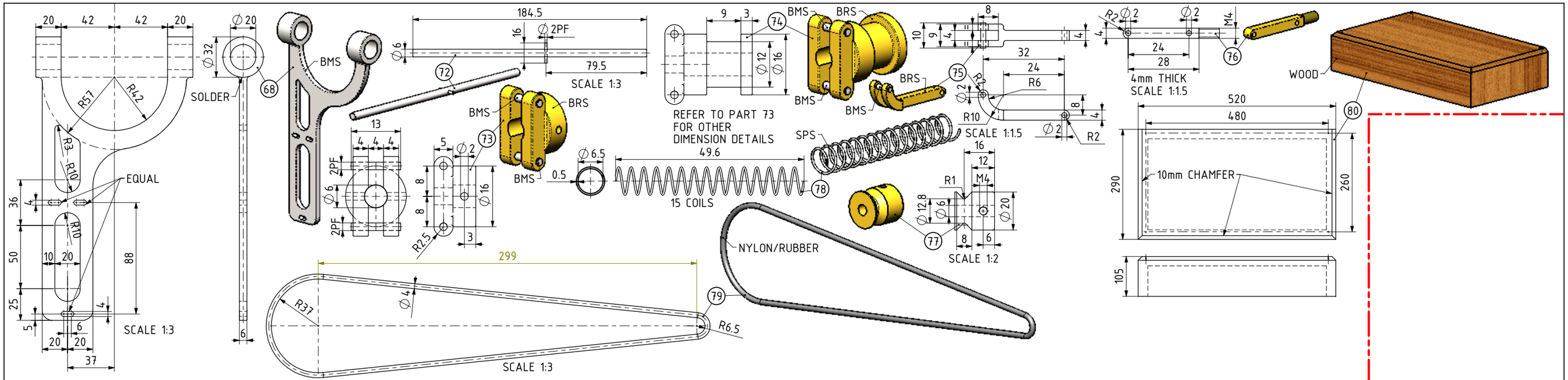
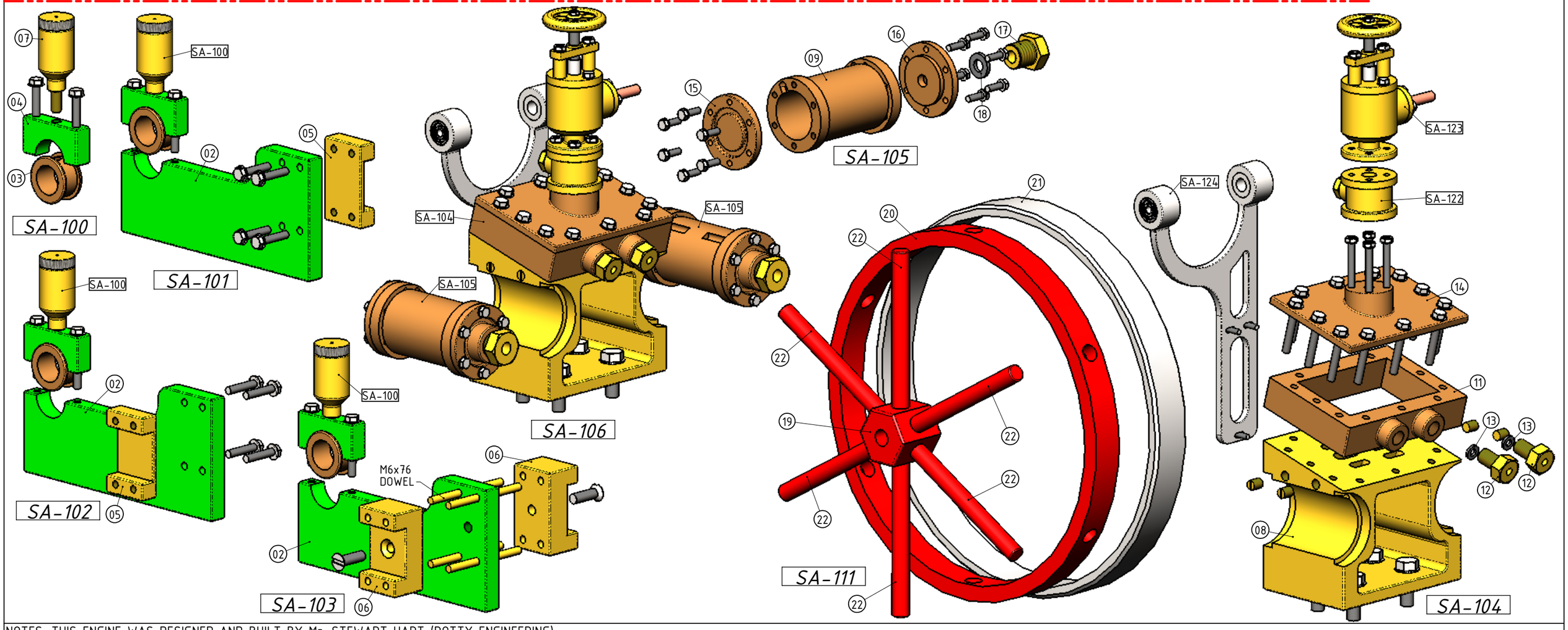
A3 No: OCE-03

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TITLE
# OVER CRANK TYPE STEAM ENGINE
# 40mm BORE x 70mm STROKE

DRAWING CONTENTS
## PARTS AND ASSEMBLIES

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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 | MODEL SCALE: 1:1
DATE APRIL 2014 | DWG SCALE: 1:1 @A3 OR AS SHOWN
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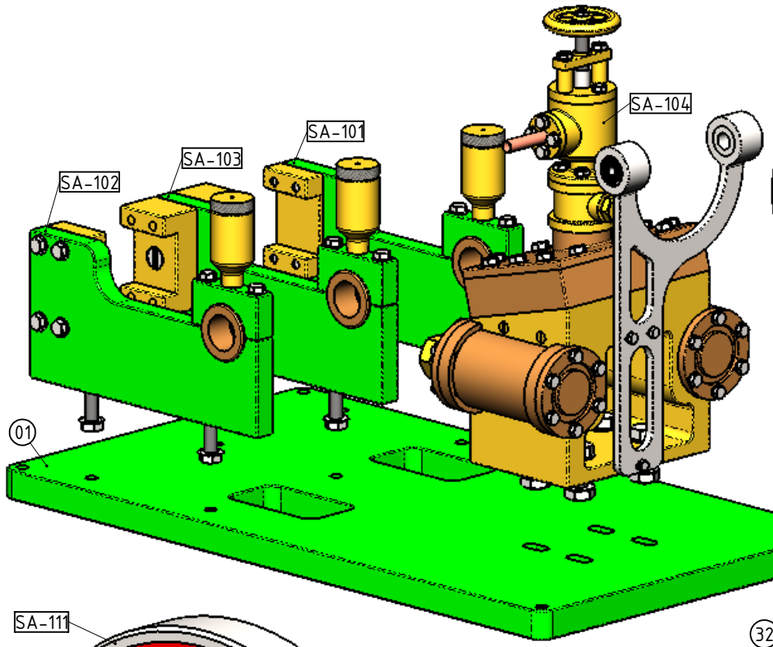
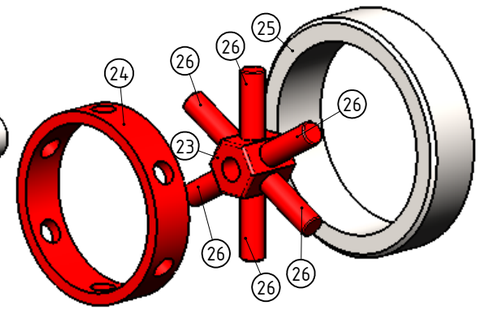
SHEET:04 OF 06 | A3 | No: OCE-04




SA-110

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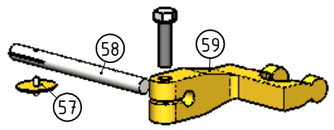


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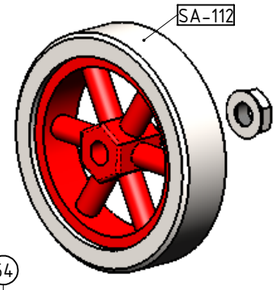
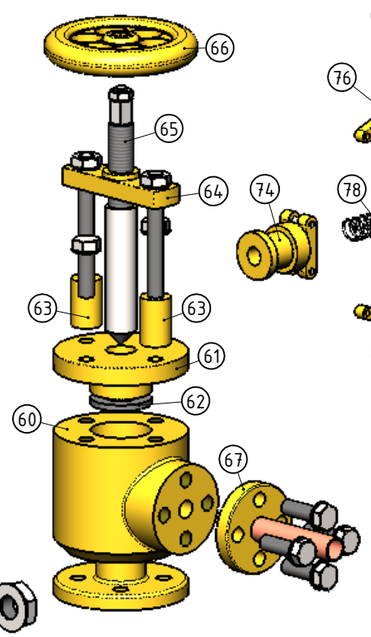
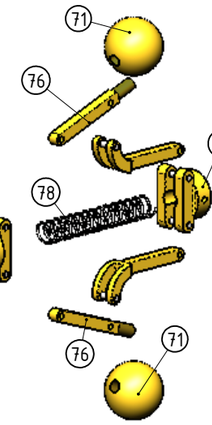



SA-123

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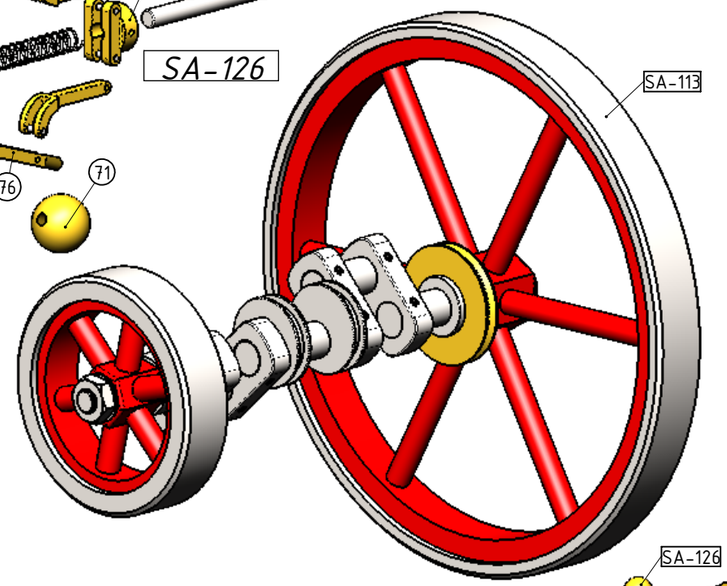


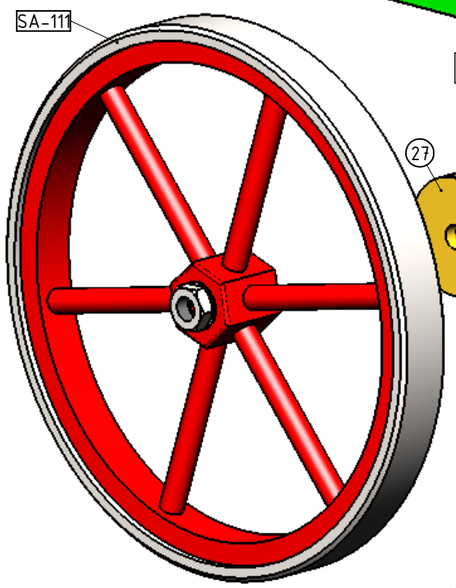


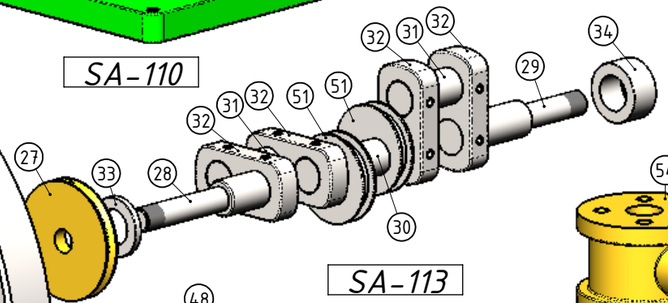


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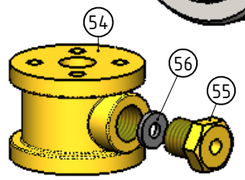


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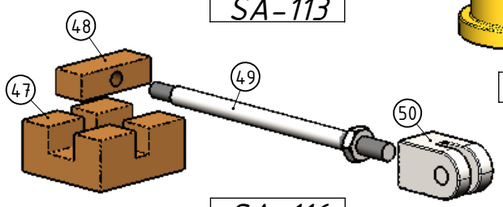


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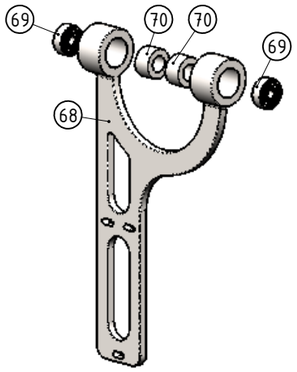


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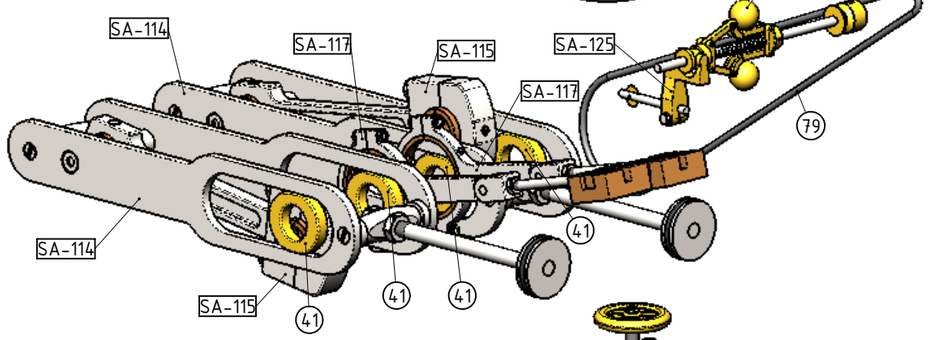


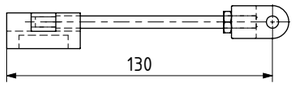


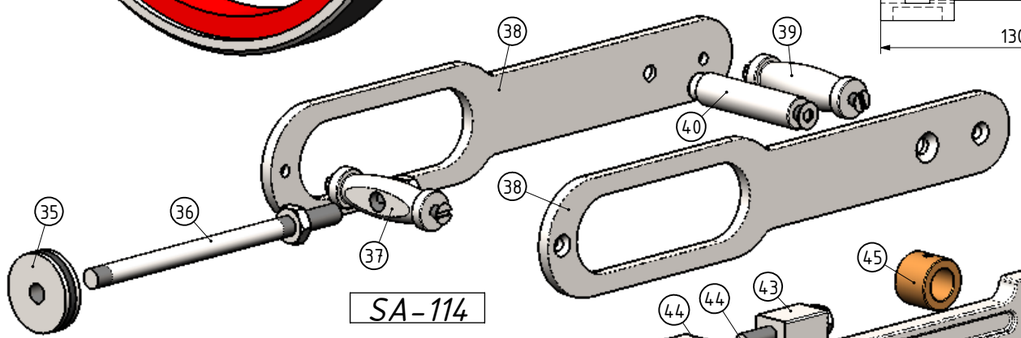


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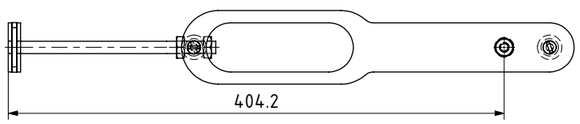


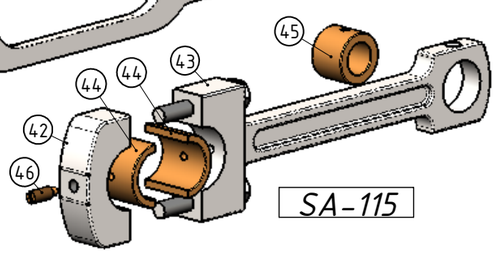


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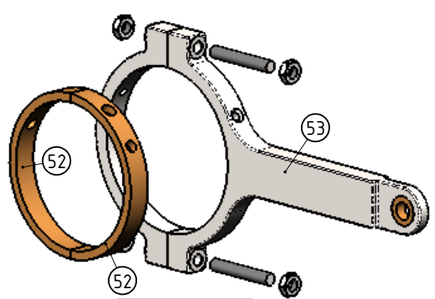
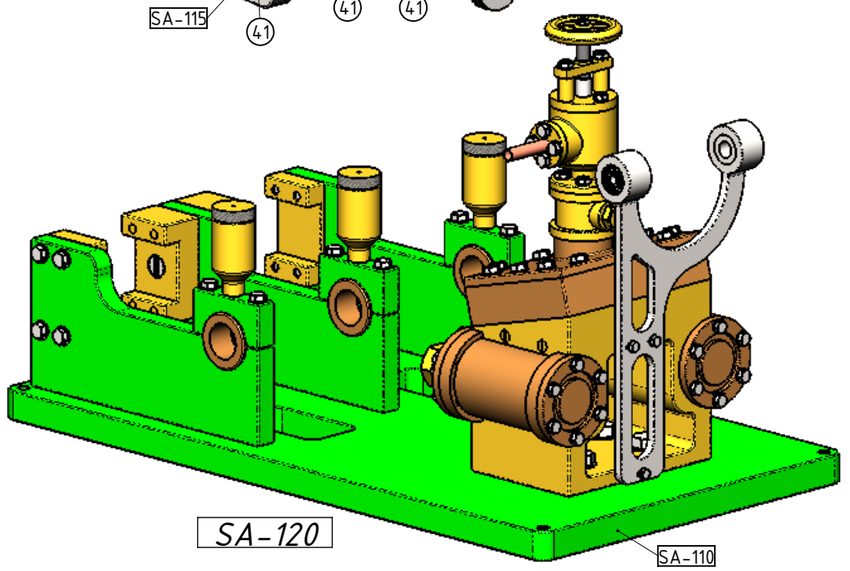



SA-117




SA-120

NOTES: THIS ENGINE WAS DESIGNED AND BUILT BY Mr. STEWART HART (POTTY ENGINEERING)

TITLE
# OVER CRANK TYPE STEAM ENGINE
# 40mm BORE x 70mm STROKE

DRAWING CONTENTS
## PARTS AND ASSEMBLIES

PROJECT No

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 | MODEL SCALE: 1:1
DWG SCALE: 1:1 @A3 OR AS SHOWN
DATE APRIL 2014 | Copyright © J.A.M. DE WAAL PAPAKURA NZ
SHEET:05 OF 06 | A3 | No: OCE-05

NOTES:

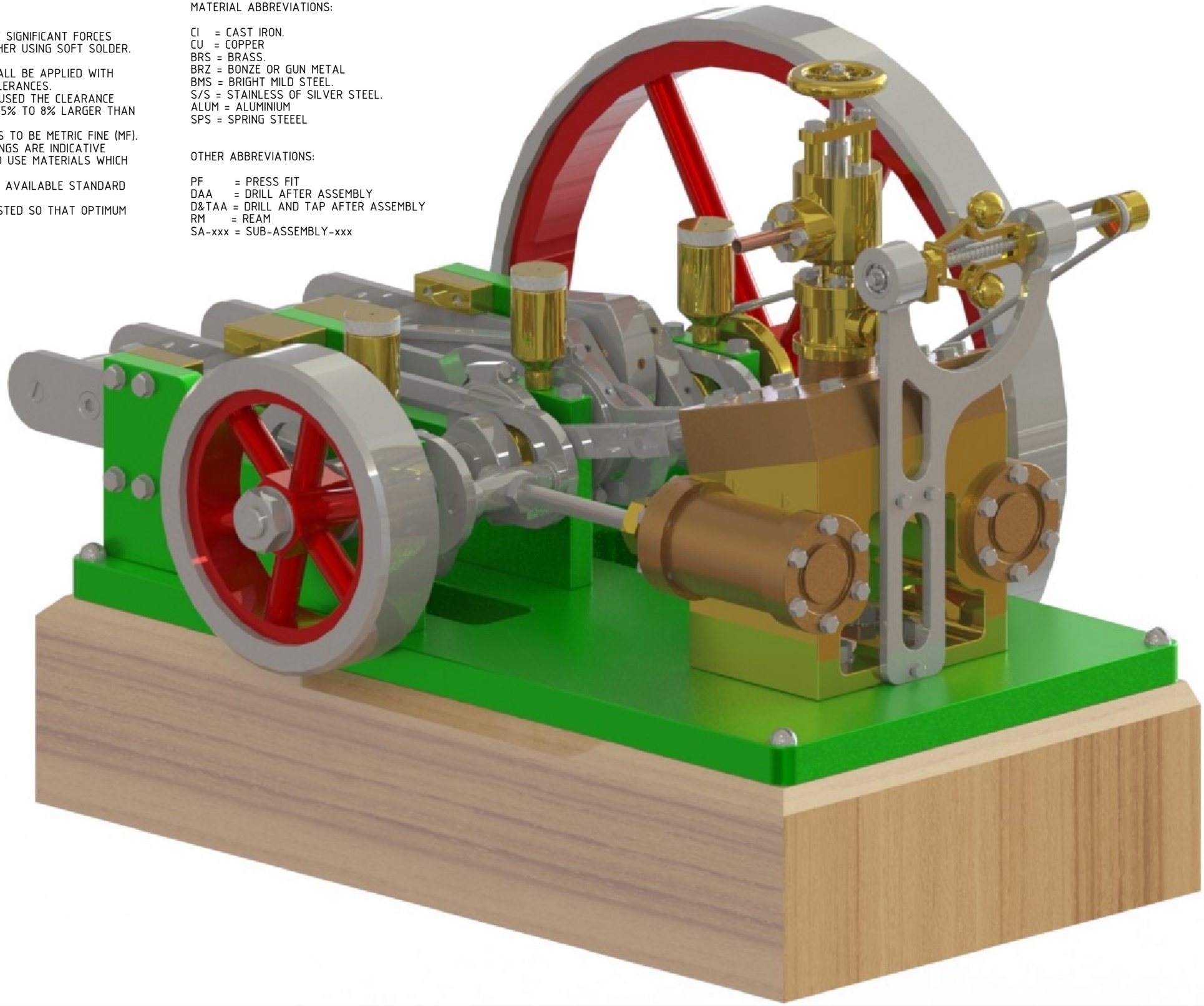
1. ALL PARTS WHICH DO NOT HAVE SIGNIFICANT FORCES APPLIED CAN BE SOLDERED TOGETHER USING SOFT SOLDER. OTHERWISE USE SILVER SOLDER
2. ALL ENGINEERING PRACTICES SHALL BE APPLIED WITH REGARDS TO HOLE AND SHAFT TOLERANCES.
3. WHERE SCREWS OR BOLTS ARE USED THE CLEARANCE HOLES SHALL BE APPROXIMATELY 5% TO 8% LARGER THAN THE MATCHING TAPPED HOLE.
4. PREFERABLY ALL TAPPED HOLES TO BE METRIC FINE (MF).
5. MATERIALS SPECIFIED ON DRAWINGS ARE INDICATIVE ONLY, IT IS UP TO THE BUILDER TO USE MATERIALS WHICH WOULD BE THE MOST SUITED.
6. THIS DESIGN IS BASED ON USING AVAILABLE STANDARD BAR STOCK MATERIALS
7. VALVE ECCENTRICS TO BE ADJUSTED SO THAT OPTIMUM RUNNING IS AQUIRED

MATERIAL ABBREVIATIONS:

CI = CAST IRON.
CU = COPPER
BRS = BRASS.
BRZ = BONZE OR GUN METAL
BMS = BRIGHT MILD STEEL.
S/S = STAINLESS OF SILVER STEEL.
ALUM = ALUMINIUM
SPS = SPRING STEEEL

OTHER ABBREVIATIONS:

PF = PRESS FIT
DAA = DRILL AFTER ASSEMBLY
D&TAA = DRILL AND TAP AFTER ASSEMBLY
RM = REAM
SA-xxx = SUB-ASSEMBLY-xxx



NOTES: THIS ENGINE WAS DESIGNED AND BUILT BY Mr. STEWART HART (POTTY ENGINEERING)

TITLE
OVER CRANK TYPE STEAM ENGINE
40mm BORE x 70mm STROKE

DRAWING CONTENTS
RENDERED PICTURE

PROJECT No
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
APRIL 2014
SHEET:06 OF 06

MODEL SCALE: 1:1
DWG SCALE: 1:1 @A3 OR AS SHOWN
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A3 No: OCE-06