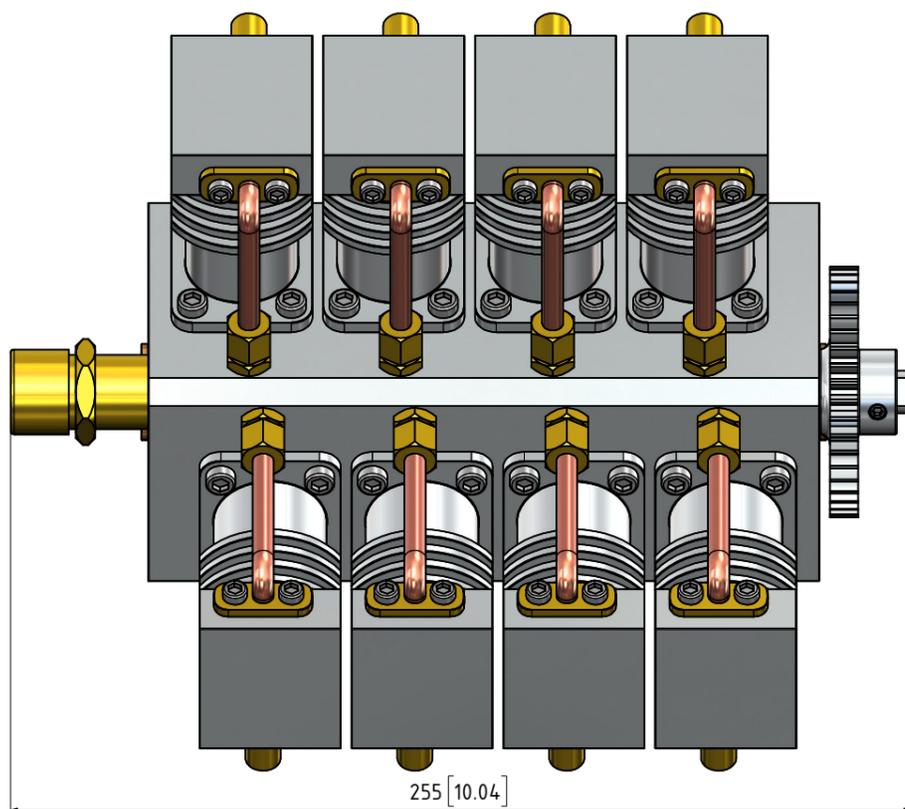


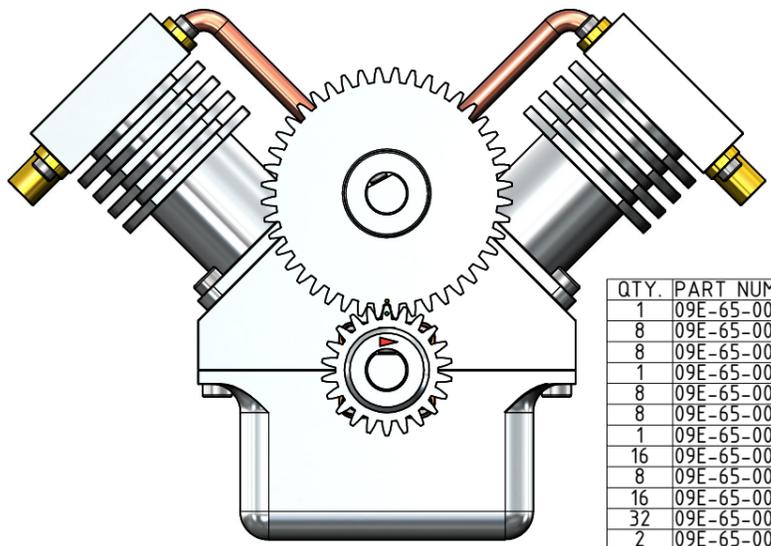
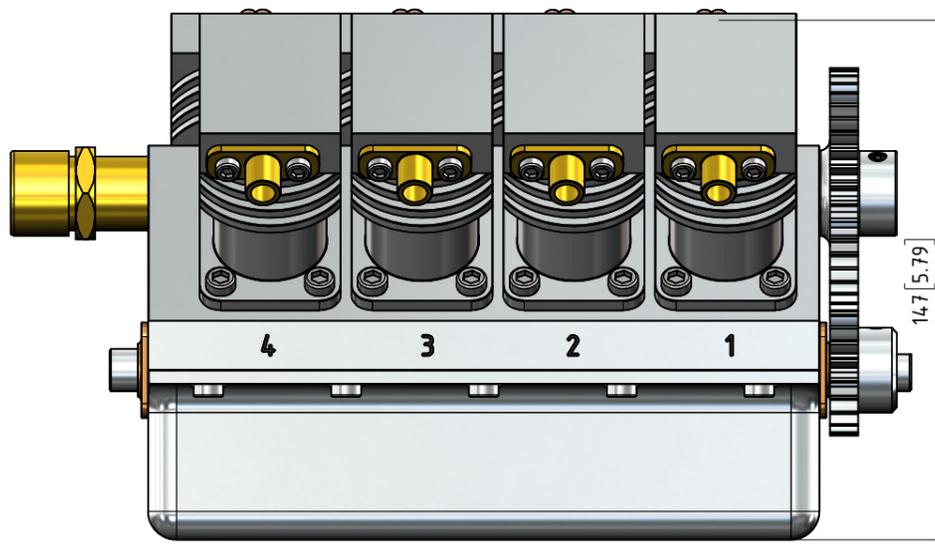
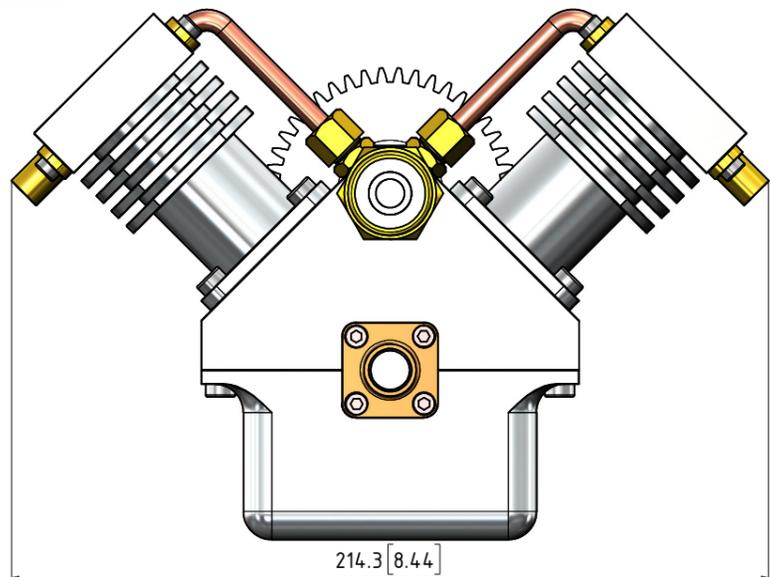
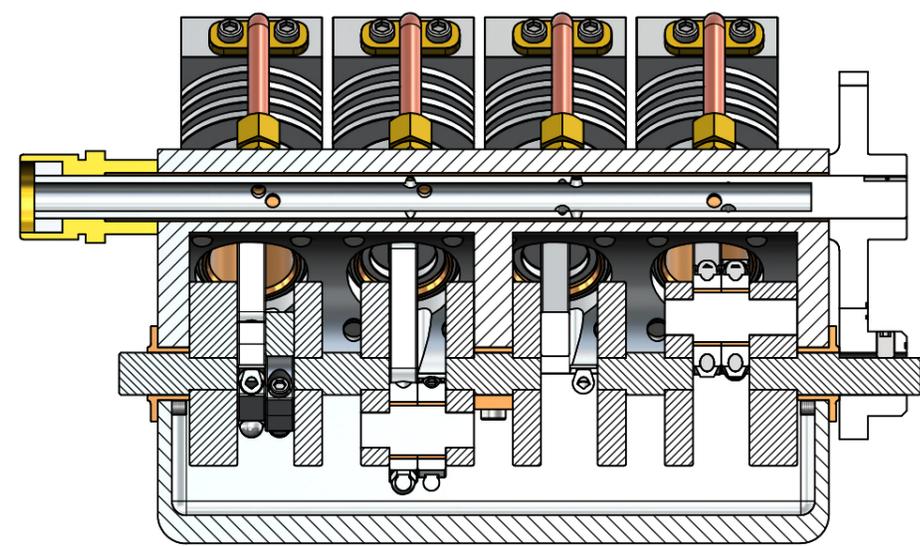
- GENERAL NOTES:
0. ALL DRAWINGS ARE IN METRIC MEASUREMENTS
 1. ALL ENGINEERING PRACTICES SHALL BE APPLIED WITH REGARDS TO HOLE AND SHAFT TOLERANCES.
 2. WHERE SCREWS OR BOLTS ARE USED THE CLEARANCE HOLES SHALL BE APPROXIMATELY 5% TO 8% LARGER THAN THE MATCHING TAPPED HOLE.
 3. PREFERABLY ALL TAPPED 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. REMOVE ALL SHARP EDGES
 - XX. ERRORS AND/OR OMISSIONS MAY OCCUR IN THE DRAWINGS, DO NOT HESITATE TO CONTACT ME SO THAT THE ERRORS/OMISSIONS CAN BE RECTIFIED.

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

MATERIAL ABBREVIATIONS:
 ALU = ALUMINIUM
 HALU= HARD ALUMINIUM
 BRS = BRASS
 PBRZ= PHOSPHORE BRONZE
 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 SOULD BE ABLE TO WITHSTAND THE HEAT AND PRESSURE(S) APPLIED TO THEM.
 nnn/nnn MEANS THAT EITHER MATERIAL CAN BE USED



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



QTY.	PART NUMBER
1	09E-65-00-1-01-ENGINE BLOCK
8	09E-65-00-1-02-STEAM INLET NOZZLE
8	09E-65-00-1-03-CYLINDER
1	09E-65-00-2-01-CRANKSHAFT
8	09E-65-00-2-02-PISTON
8	09E-65-00-2-03-CON-ROD
1	09E-65-00-2-04-ROTARY VALVE
16	09E-65-00-M4 DOME NUT
8	09E-65-00-M4x10 A-K C-SINK SCREW
16	09E-65-00-M4x18 A-K CYL HEAD SCREW
32	09E-65-00-M5x12 A-K CYL HEAD SCREW
2	09E-65-00-M5x22 A-K CYL HEAD SCREW
2	09E-65-00-M5x7.5 A-K GRUB SCREW
42	09E-65-00-M6x16 A-K CYL HEAD SCREW

NOTES: THE ORIGINAL DRAWINGS WERE GIVEN TO ME. THE ENGINE SHOWN ON THESE DRAWINGS IS BASED ON A DESIGN OF LATE CHUCK FELLOWS. THE ORIGINAL DRAWINGS WERE REDRAWN WITH PERMISSION FROM ENGINE DESINGER BY J. McLELLAND. THE DRAWINGS WERE DATED 11-16-12 (16/11/2012). THE ENGINE SHOWN IS 2.5 TIMES LARGER THAN THE ORIGINAL. (SOME SMALL MODIFICATIONS HAVE BEEN INCORPORATED IN THESE DRAWINGS)

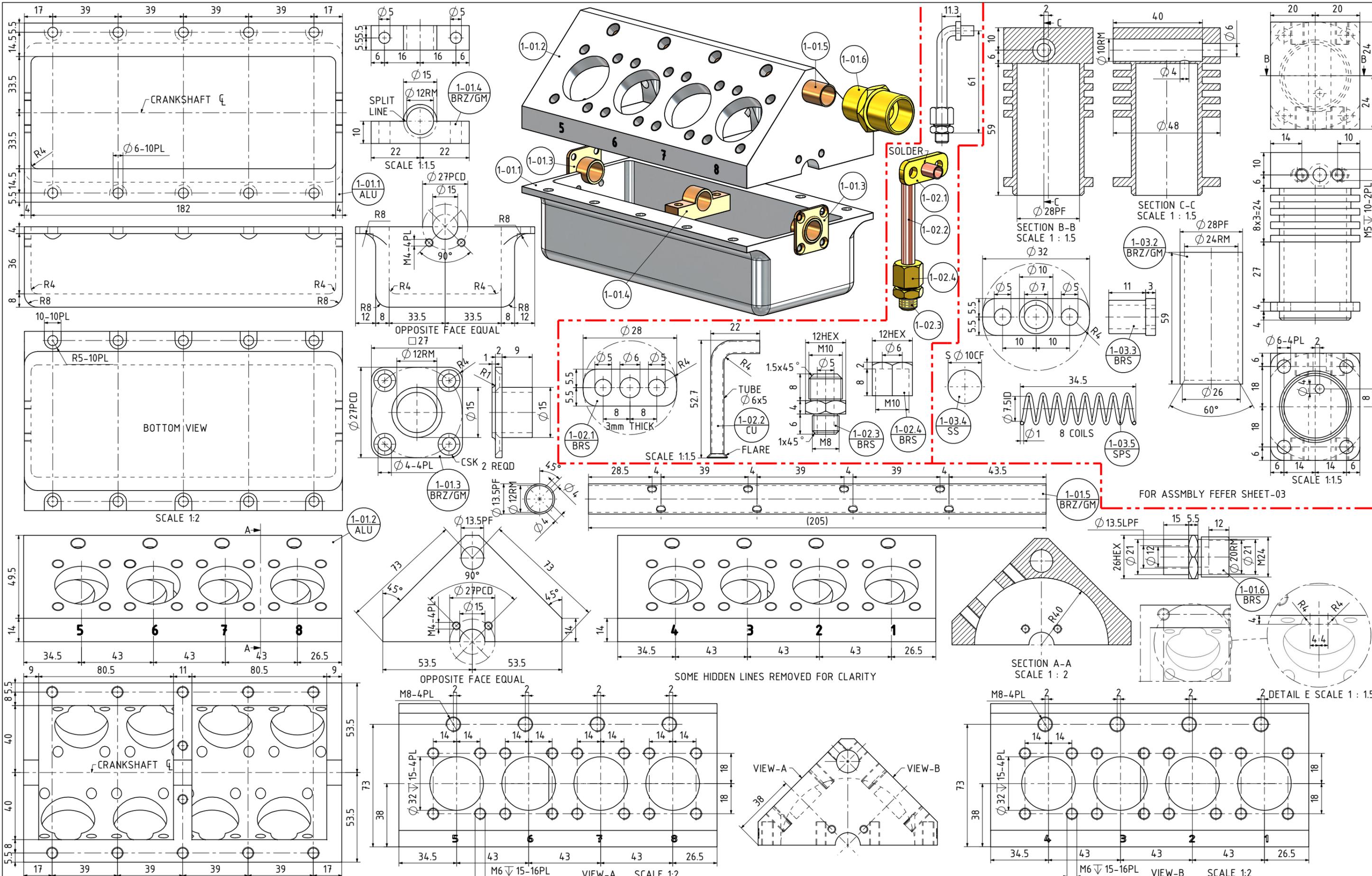
TITLE
AN 8 CYLINDER V-SHAPED STEAM ENGINE CALLED "CIRRUS" (B=24mm S=32mm)

DRAWING CONTENTS
GENERAL ARRANGEMENT, ISOMETRIC VIEW, NOTES, BILL OF MATERIALS

PROJECT No 09E-65-00
 JDW DRAUGHTING SERVICES
 J.A.M. DE WAAL, 12 BRIGHTWELL STREET PAPAOKURA
 2110, NEW ZEALAND. PHONE: 0064 09 2988815. MOB: 0211791000 E-MAIL: dewaal@xtra.co.nz.

PROJECTION
JDWDS
 DATE MARCH 2025
 SHEET: 01 OF 03

MODEL SCALE: 1:1
 DWG SCALE: 1:1 @A3 OR AS SHOWN
 Copyright © J.A.M. DE WAAL PAPAOKURA NZ
A3 No:09E-65-00-SHT-01



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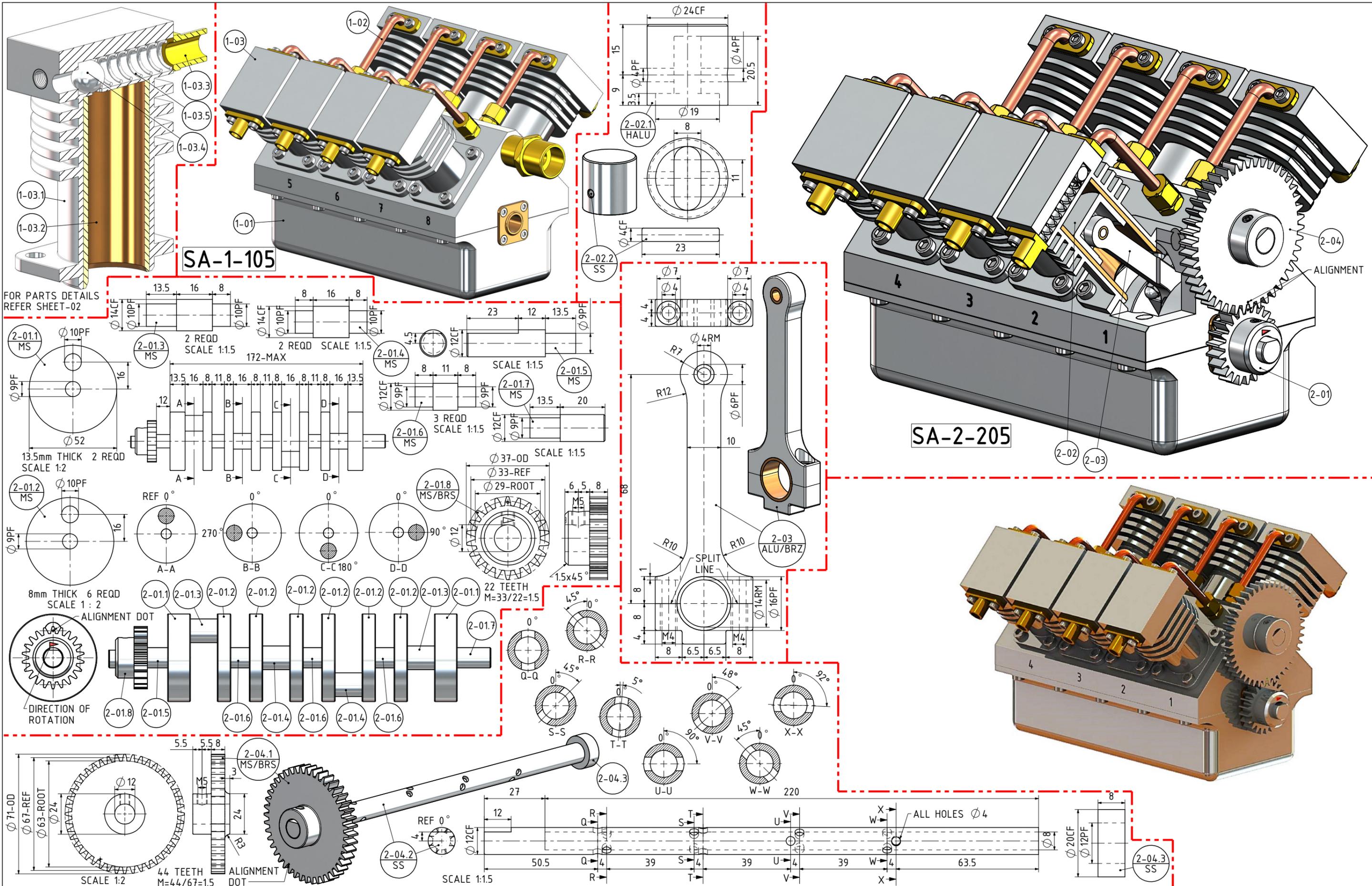
TITLE
**AN 8 CYLINDER V-SHAPED STEAM ENGINE
 CALLED "CIRRUS" (B=24mm S=32mm)**

DRAWING CONTENTS
PARTS AND ASSEMBLIES

PROJECT No 09E-65-00
 JDW DRAUGHTING SERVICES
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 2110, NEW ZEALAND. PHONE: 0064 09 2988815. MOB:
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PROJECTION **JDWDS** MODEL SCALE: 1:1
 DWG SCALE: 1:1 @A3 OR AS SHOWN
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FOR PARTS DETAILS REFER SHEET-02

SA-1-105

SA-2-205

NOTES: THE ORIGINAL DRAWINGS WERE GIVEN TO ME. THE ENGINE SHOWN ON THESE DRAWINGS IS BASED ON A DESIGN OF LATE CHUCK FELLOWS. THE ORIGINAL DRAWINGS WERE REDRAWN WITH PERMISSION FROM ENGINE DESIGNER BY J. McLELLAND. THE DRAWINGS WERE DATED 11-16-12 (16/11/2012). THE ENGINE SHOWN IS 2.5 TIMES LARGER THAN THE ORIGINAL. (SOME SMALL MODIFICATIONS HAVE BEEN INCORPORATED IN THESE DRAWINGS)

TITLE
**AN 8 CYLINDER V-SHAPED STEAM ENGINE
 CALLED "CIRRUS" (B=24mm S=32mm)**

DRAWING CONTENTS
**PARTS AND ASSEMBLIES
 RENDERED PICTURE**

PROJECT No 09E-65-00
 JDW DRAUGHTING SERVICES
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 0211791000 E-MAIL: dewaal@xtra.co.nz.

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 DWG SCALE: 1:1 @A3 OR AS SHOWN
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