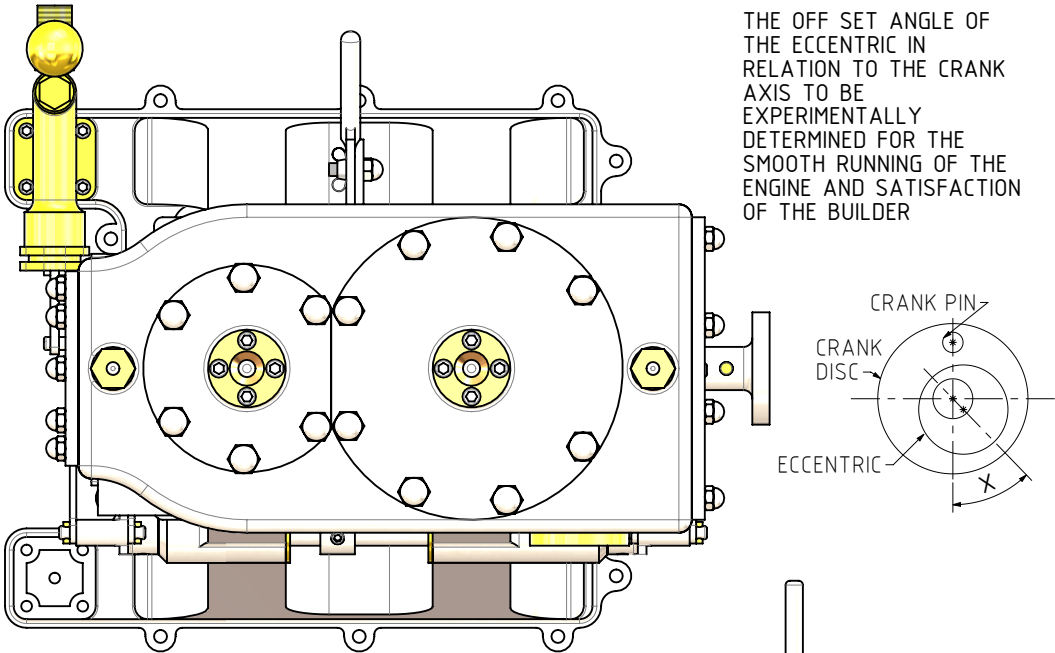
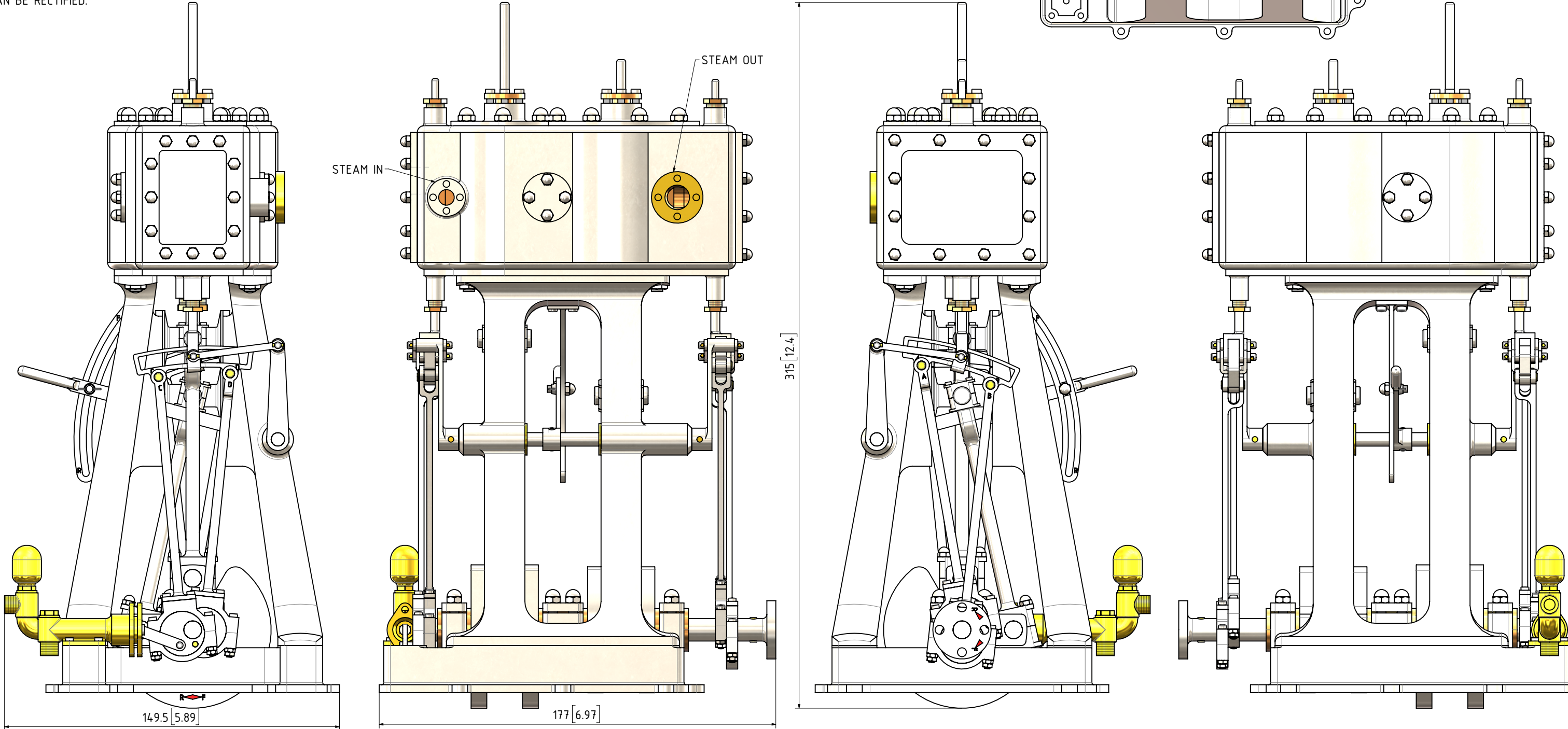


- GENERAL NOTES:
- 0. ALL DRAWINGS ARE IN METRIC MEASUREMENTS
 - 1. ALL ENGINEERING PRACTICES SHALL BE APPLIED WITH REGARDS TO HOLE AND SHAFT TOLERANCES.
 - 2. WHERE SCREWS OR BOLTS ARE USED THE CLEARANCE HOLES SHALL BE APPROXIMATELY 5% TO 8% LARGER THAN THE MATCHING TAPPED HOLE.
 - 3. PREFERABLY ALL 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. USE SEALING GASKETS WERE DEEMED NECESSARY.
 - 15. 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.

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



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

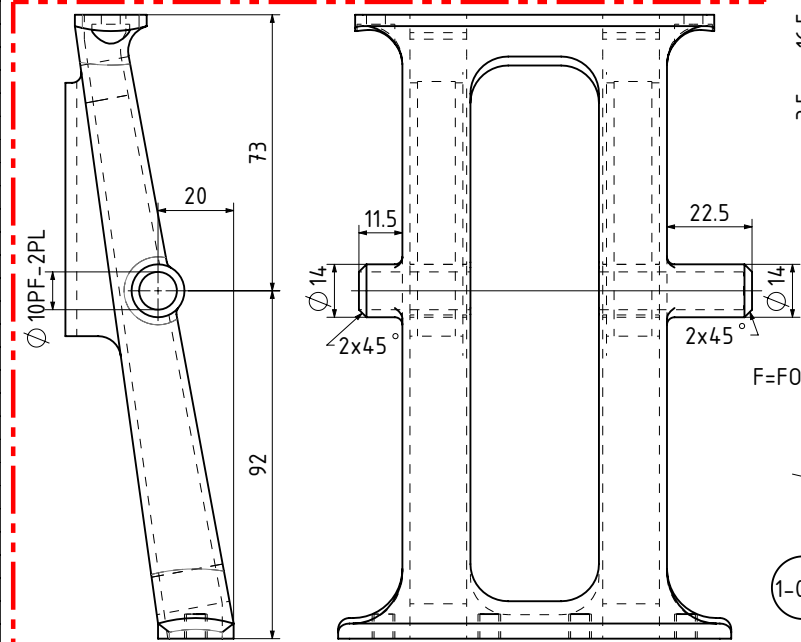


NOTES: THE ORIGINAL DRAWINGS WERE PUBLISHED ON INTERNET (MODELENGINEERINGWEBSITE) THE HEADING ON THE ORIGINAL DRAWING WAS "COMPOUND ENGINE FOR THE STEAM LAUNCH "BELL BIRD", CONSTRUCTED BY MORTS DOCK AND ENGINEERING COMPANY, LIMITED, ENGINEERS, SYDNEY.			
TITLE A 2 CYL.VERT. COMPOUND STEAM ENGINE WITH REVERSER B1=30mm/B2=52mm/S=46mm	DRAWING CONTENTS GENERAL ARRANGEMENT, NOTES	PROJECT No 09C-78-00 JDW DRAUGHTING SERVICES J.A.M. DE WAAL, 12 BRIGHTWELL STREET PAPA KURA 2110, NEW ZEALAND. PHONE: 0064 09 2988815. MOB: 0211791000 E-MAIL: dewaal@xtra.co.nz.	PROJECTION DATE AUGUST 2026
			JDWDS
			SHEET: 01 OF 06
			MODEL SCALE: 1:1 DWG SCALE: 1:1 @A3 OR AS SHOWN Copyright © J.A.M. DE WAAL PAPA KURA NZ A3 No:09C-78-00-SHT-01

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.
FASTENERS SUCH AS BOLTS, SCREWS, RIVETS, NUTS AND WASHERS HAVE BEEN SHOWN ON THESE DRAWINGS. HOWEVER THE BUILDER TO CHOOSE ITS OWN PREFERRED TYPE OF FASTENERS.
3) DUMMY PARTS.
IF PREFERRED SOME OF THE DUMMY PARTS COULD BE REPLACED WITH REAL OPERATING PART(S). THE BUILDER TO DESIGN THE PART OR ALTERNATIVELY PURCHASE.

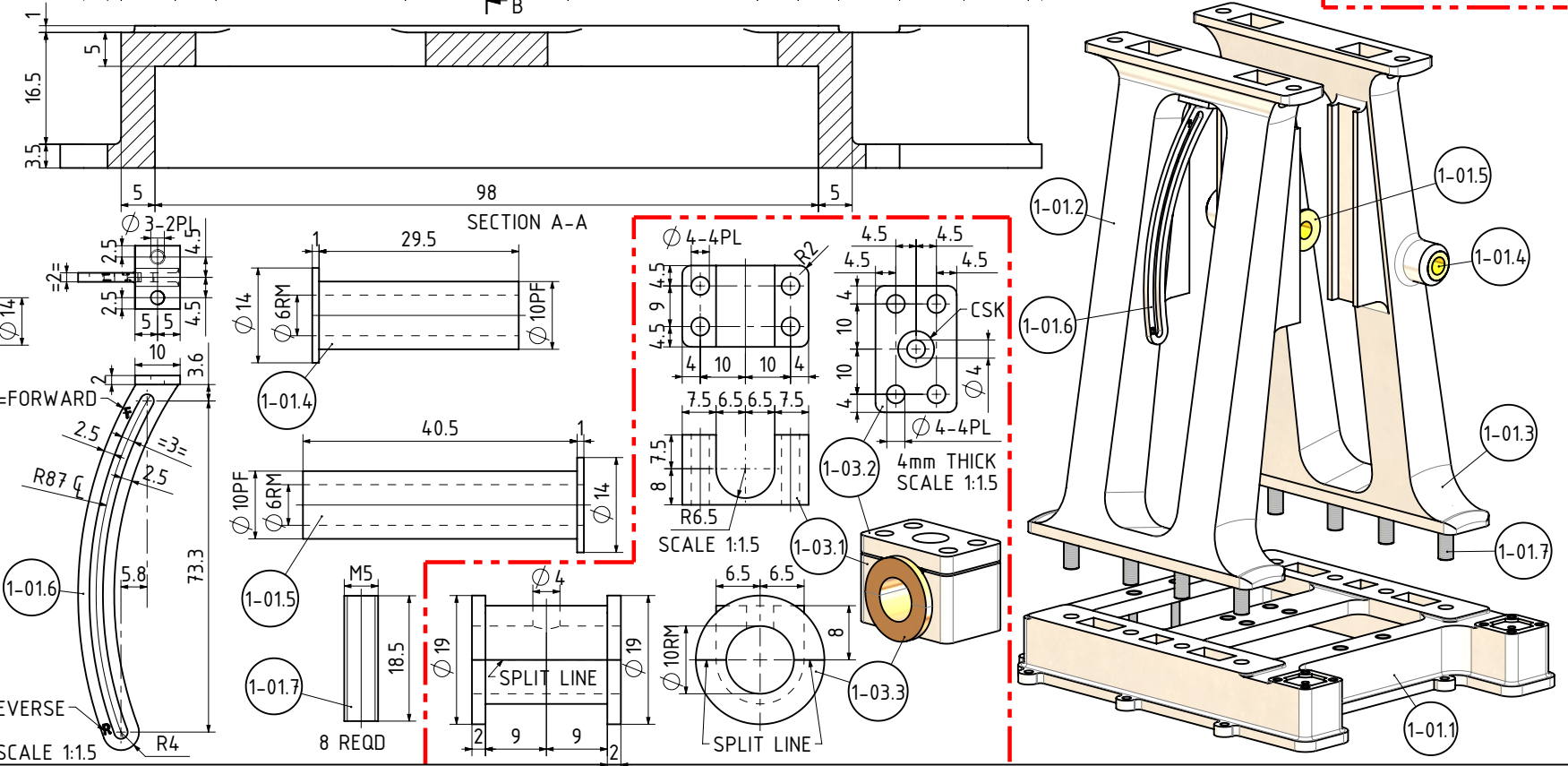
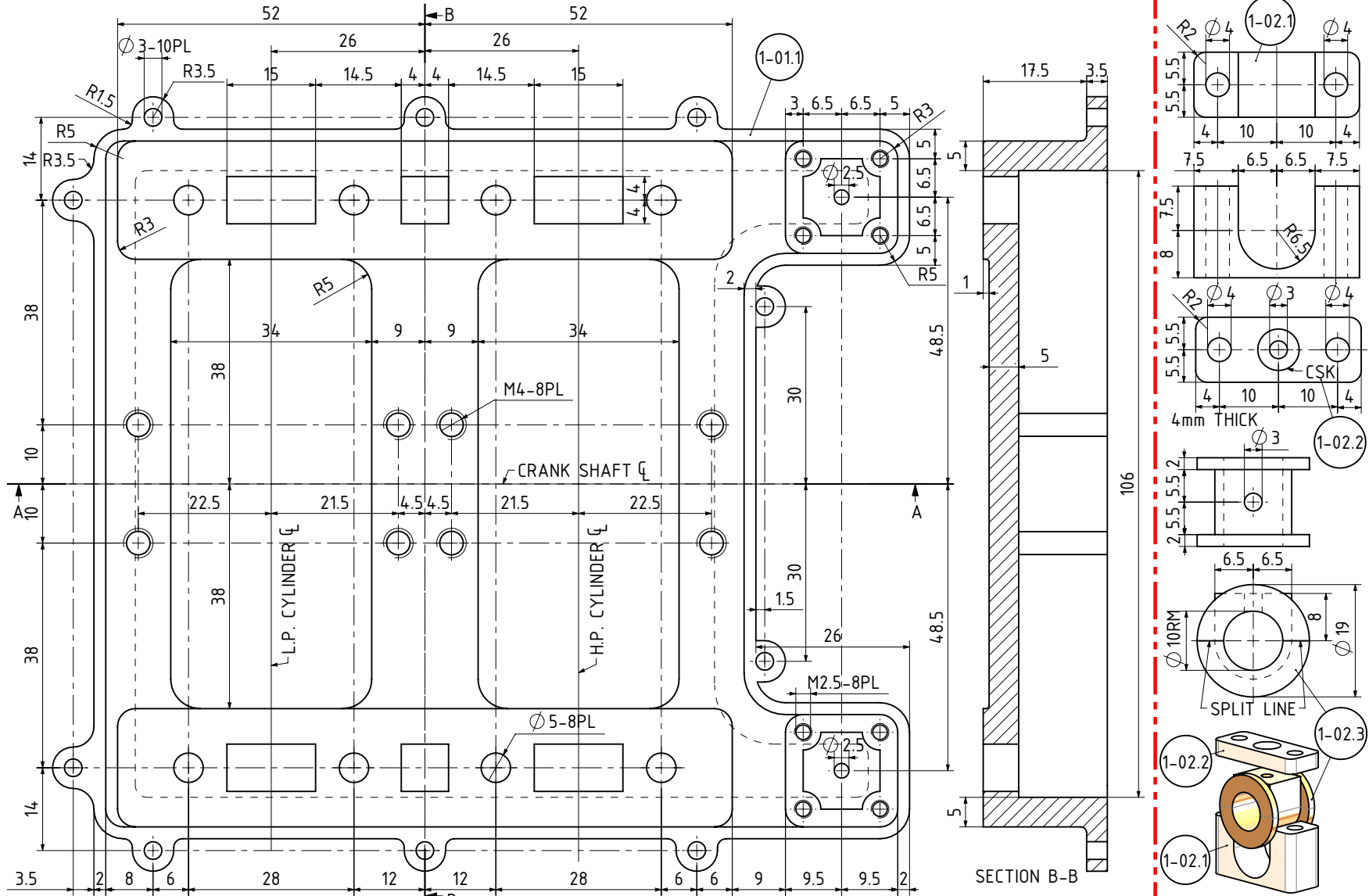
OTHER ABBREVIATIONS
AS = AS SHOWN
DP = DEEP
CB = COUNTERBORE
DAA= DRILL AFTER ASSEMBLY
D&TAA= DRILL AND TAP AFTER ASSEMBLY
CF = CLOSE FIT (SIZE FOR SIZE)
PF = PRESS FIT
PFAA= PRESS FIT AFTER ASSEMBLY
PCD = PITCH CIRCLE DIAMETER
RM = REAM
HEX = HEXACON, 6SIDED
CP = COMPRESSED
KNL = KNURLED
CSK = COUNTERSINK
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

QTY.	PART NUMBER
1	09C-78-00-1-01-BASE+SUPPORT COLUMN
2	09C-78-00-1-02-OUTER CRANK BEARING
1	09C-78-00-1-03-INNER CRANK BEARING
1	09C-78-00-1-04-CYLINDER HOUSING
1	09C-78-00-1-05-HIGH PRESSURE CYLINDER COVER
1	09C-78-00-1-06-LOW PRESSURE CYLINDER COVER
1	09C-78-00-1-07-DUMMY PUMP
1	09C-78-00-2-01-CRANK SHAFT
1	09C-78-00-2-02-HIGH PRESSURE PISTON
1	09C-78-00-2-03-LOW PRESSURE PISTON
2	09C-78-00-2-04-CON-ROD
1	09C-78-00-2-05-HIGH PRESSURE SLIDE VALVE
2	09C-78-00-2-06-EXPANSION LINK
1	09C-78-00-2-07-REVERSING SHAFT+HANDLE
4	09C-78-00-2-08-REVERSING LINK
1	09C-78-00-2-09-ECCENTRIC SHEAVES
1	09C-78-00-2-09-ECCENTRIC SHEAVES
2	09C-78-00-2-10-ECCENTRIC STRAP
1	09C-78-00-2-11-ECCENTRIC STRAP
1	09C-78-00-2-11-ECCENTRIC STRAP
1	09C-78-00-2-12-LOW PRESSURE SLIDE VALVE
1	09C-78-00-2-13-PUMP PLUNGER
1	09C-78-00-2-14-PLUNGER CON-ROD
16	09C-78-00-M2.5 NUT
4	09C-78-00-M2.5x10 A-K CYL HEAD SCREW
8	09C-78-00-M2.5x18 A-K CYL HEAD SCREW
8	09C-78-00-M2.5x6 A-K CYL HEAD SCREW
4	09C-78-00-M2x11 A-K GRUB SCREW
8	09C-78-00-M2x12 A-K CYL HEAD SCREW
8	09C-78-00-M3 NUT
1	09C-78-00-M3 WING NUT
2	09C-78-00-M3x2 A-K GRUB SCREW
8	09C-78-00-M3x22 DOME HEAD SCREW
8	09C-78-00-M3x6 DOME HEAD SCREW
10	09C-78-00-M3x8 A-K CYL HEAD SCREW
25	09C-78-00-M3x8 DOME HEAD SCREW
8	09C-78-00-M4 NUT
8	09C-78-00-M4x26 DOME HEAD SCREW
14	09C-78-00-M4x8 A-K C-SINK SCREW
14	09C-78-00-M4x8 DOME HEAD SCREW
14	09C-78-00-M5 NUT
4	09C-78-00-M5x10 A-K C-SINK SCREW



FOR ALL OTHER DIMENSION DETAILS REFER TO (1-01.2)

FOR PART (1-01.2) REFER TO SHEET-03



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TITLE
**A 2 CYL.VERT. COMPOUND STEAM ENGINE
WITH REVERSER B1=30mm/B2=52mm/S=46mm**

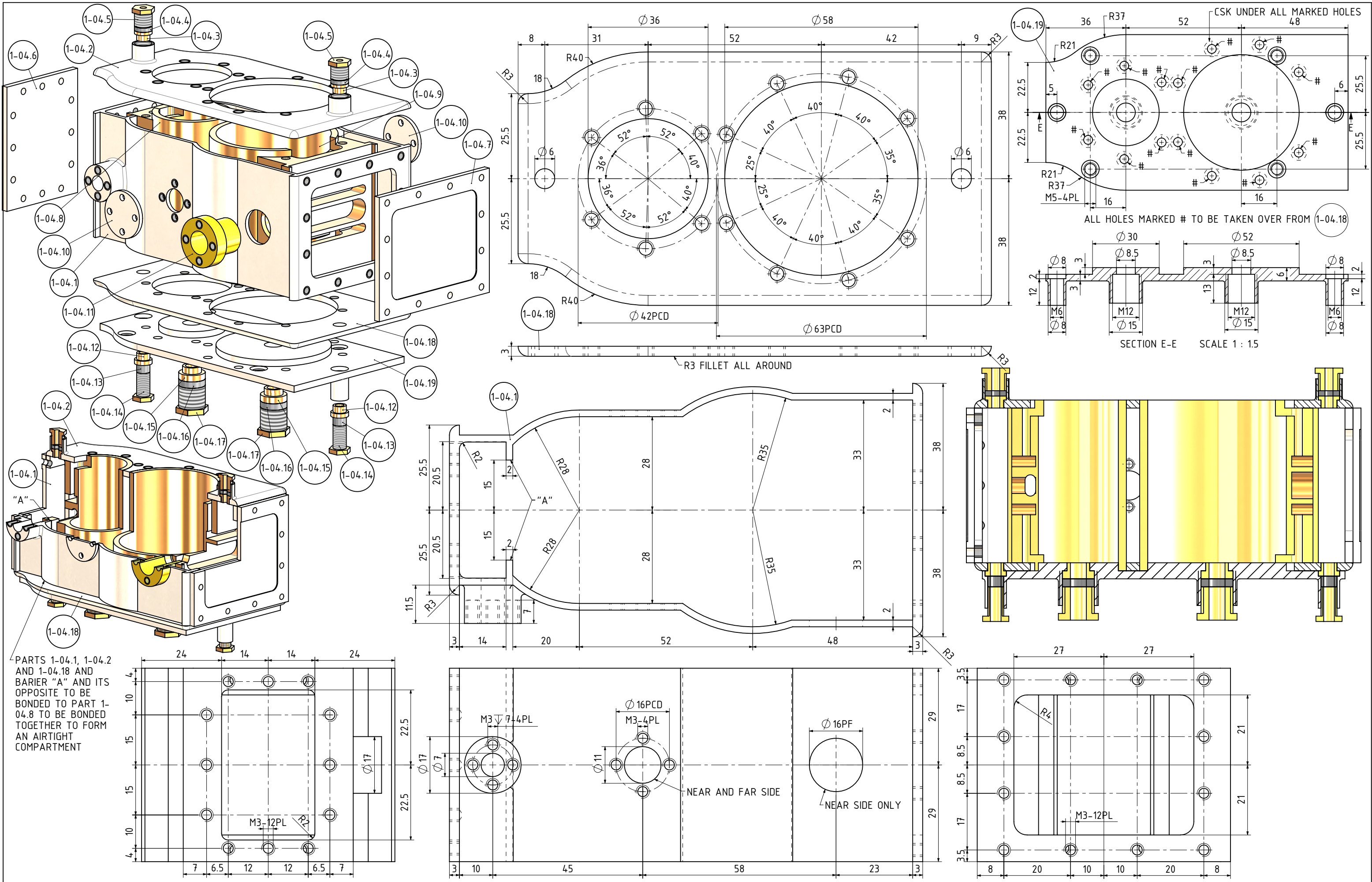
DRAWING CONTENTS
**ISOMETRIC VIEW, NOTES, BILL OF
MATERIAL, PARTS AND ASSEMBLIES**

PROJECT No 09C-78-00
JDW DRAUGHTING SERVICES
J.A.M. DE WAAL, 12 BRIGHTWELL STREET PAKAPURA
2110, NEW ZEALAND. PHONE: 0064 09 2988815. MOB:
0211791000 E-MAIL: dewaal@xtra.co.nz.

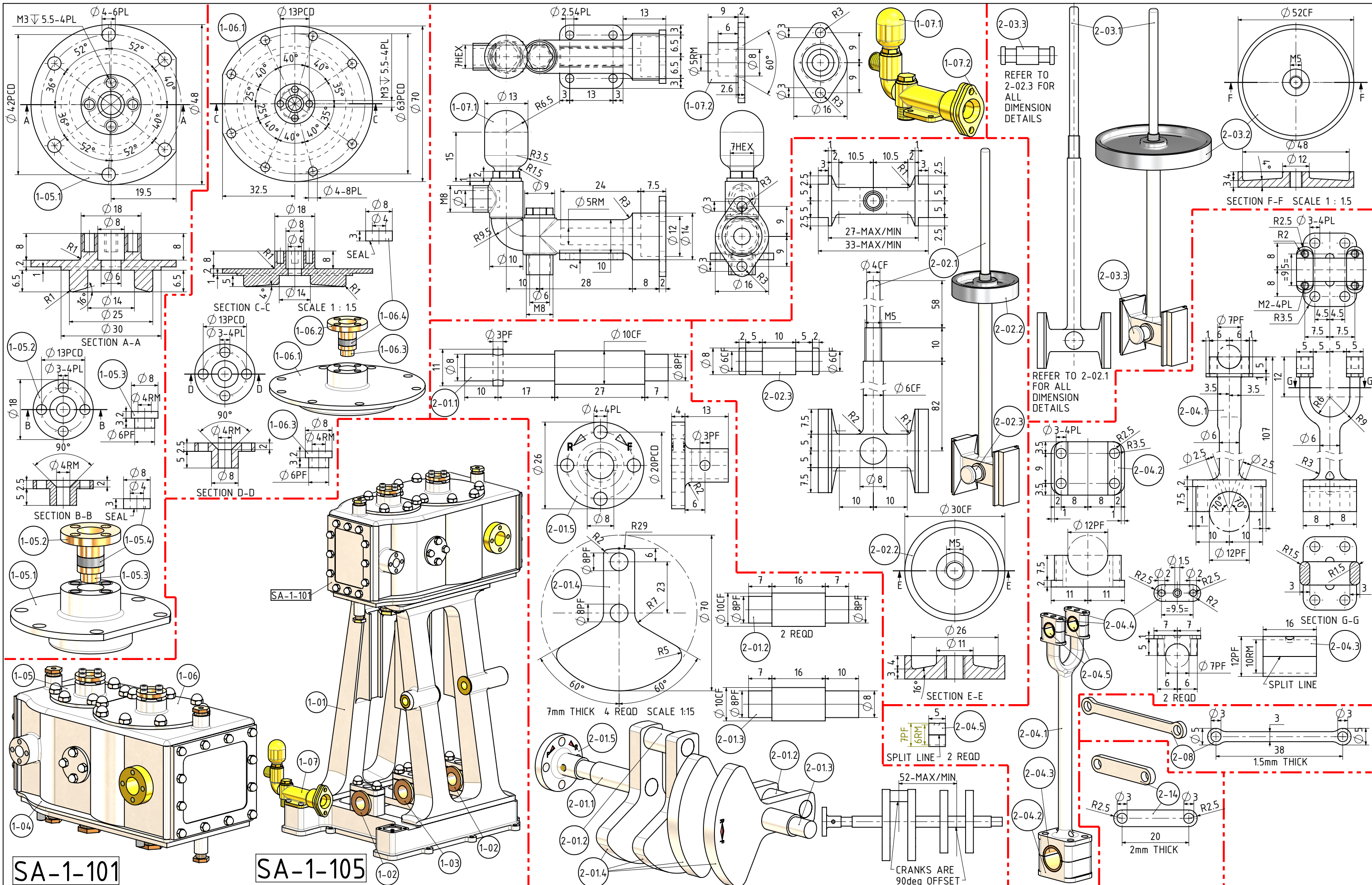
PROJECTION
DATE AUGUST 2026
SHEET: 02 OF 06

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DWG SCALE: 1:1 @A3 OR AS SHOWN
A3 No:09C-78-00-SHT-02

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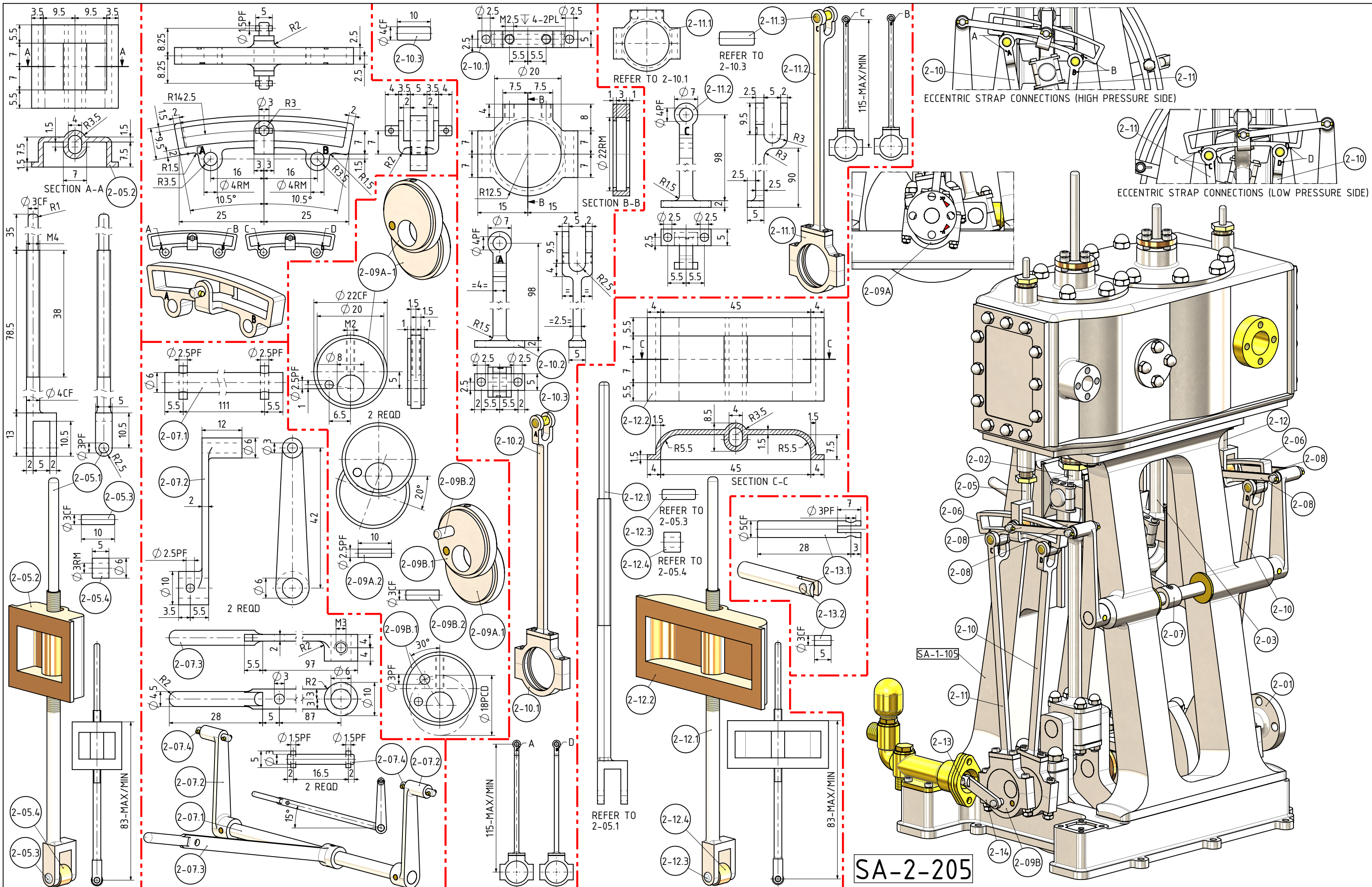


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TITLE A 2 CYL.VERT. COMPOUND STEAM ENGINE WITH REVERSER B1=30mm/B2=52mm/S=46mm			DRAWING CONTENTS PARTS AND ASSEMBLIES			PROJECT No 09C-78-00 JDW DRAUGHTING SERVICES J.A.M. DE WAAL, 12 BRIGHTWELL STREET PAPAURA 2110, NEW ZEALAND, PHONE: 0064 09 2988815. MOB: 0211791000 E-MAIL: dewaal@xtra.co.nz.		PROJECTION 	JDWDS	MODEL SCALE: 1:1	
								DATE AUGUST 2026		DWG SCALE: 1:1 @A3 OR AS SHOWN	
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								SHEET: 04 OF 06			



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TITLE A 2 CYL.VERT. COMPOUND STEAM ENGINE WITH REVERSER B1=30mm/B2=52mm/S=46mm			DRAWING CONTENTS PARTS AND ASSEMBLIES		SHEET: 05 OF 06 A3 No:09C-78-00-SHT-05	

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DRAWING CONTENTS
PARTS AND ASSEMBLIES

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2110, NEW ZEALAND. PHONE: 0064 09 2988815. MOB:
0211791000 E-MAIL: dewaal@xtra.co.nz.

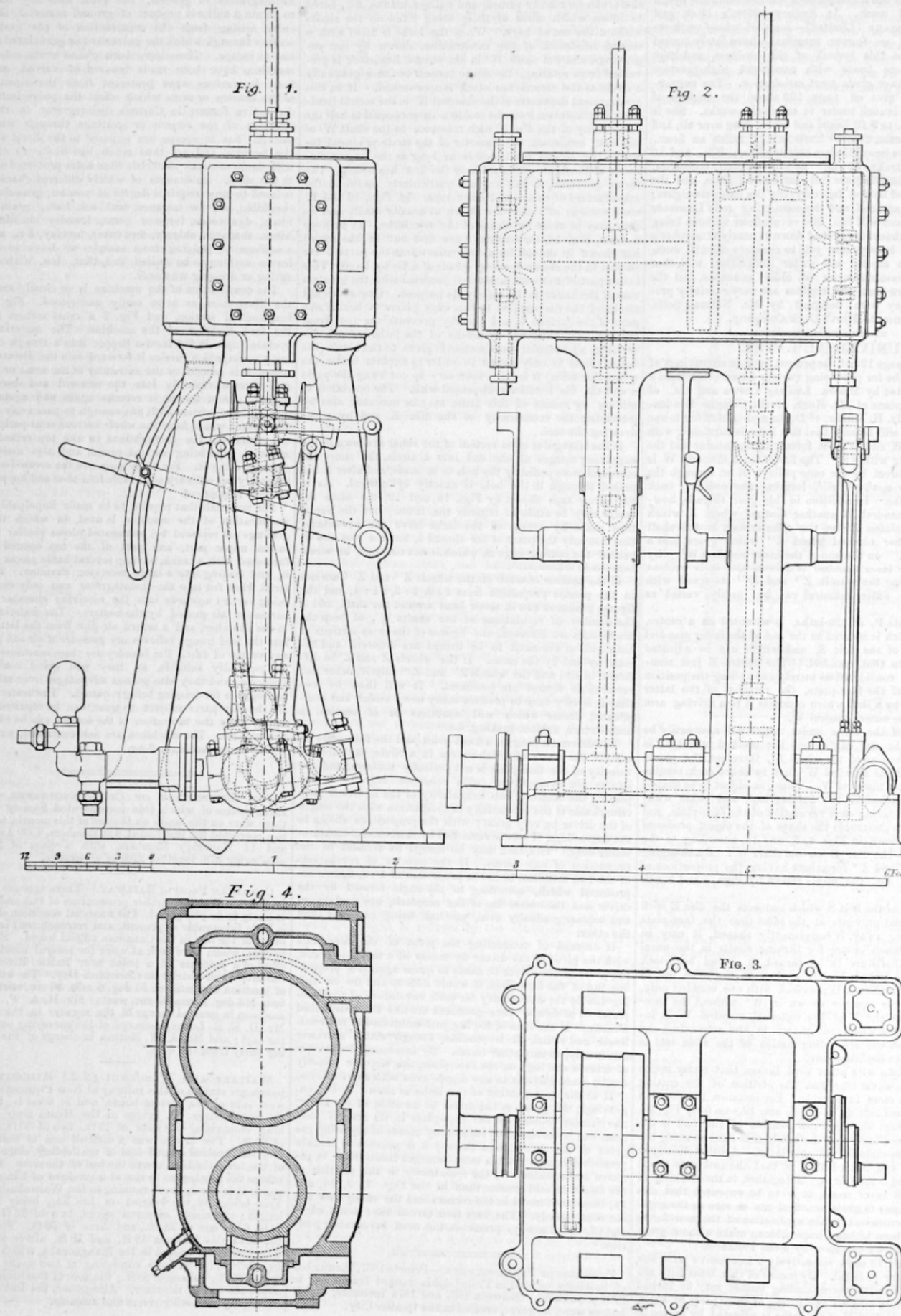
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SHEET: 06 OF 06		A3 No:09C-78-00-SHT-06

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COMPOUND ENGINE FOR THE STEAM LAUNCH "BELL BIRD."

CONSTRUCTED BY MORT'S DOCK AND ENGINEERING COMPANY, LIMITED, ENGINEERS, SYDNEY.

(For Description, see Page 129.)



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DRAWING CONTENTS
ORIGINAL DRAWING

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JDW DRAUGHTING SERVICES
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