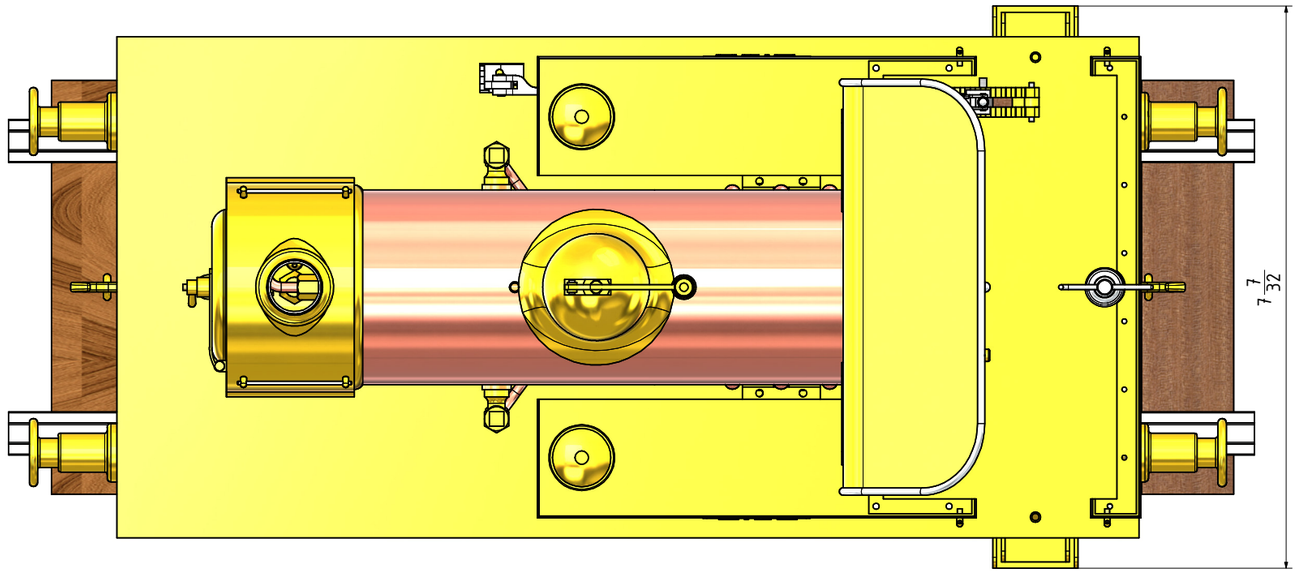

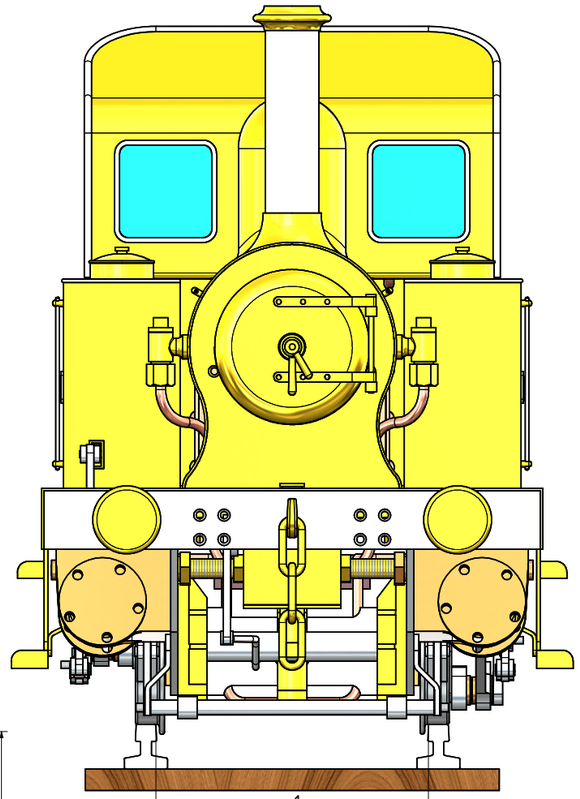

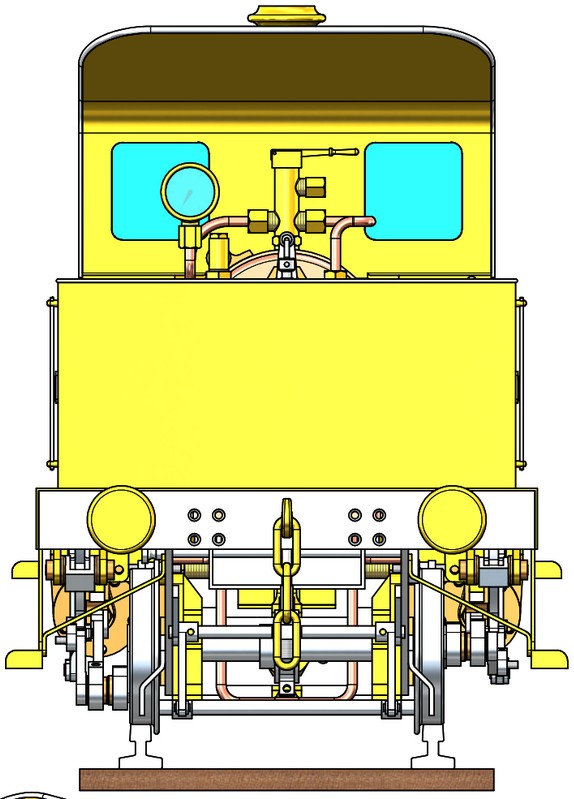

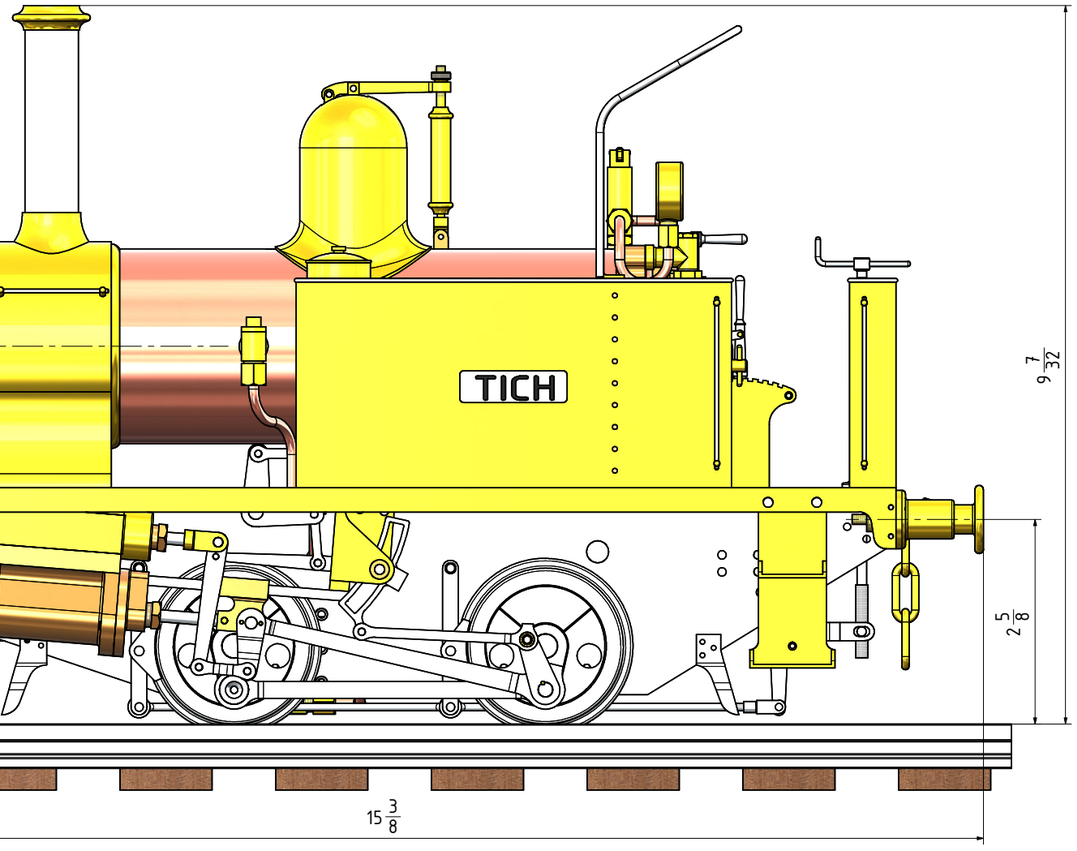

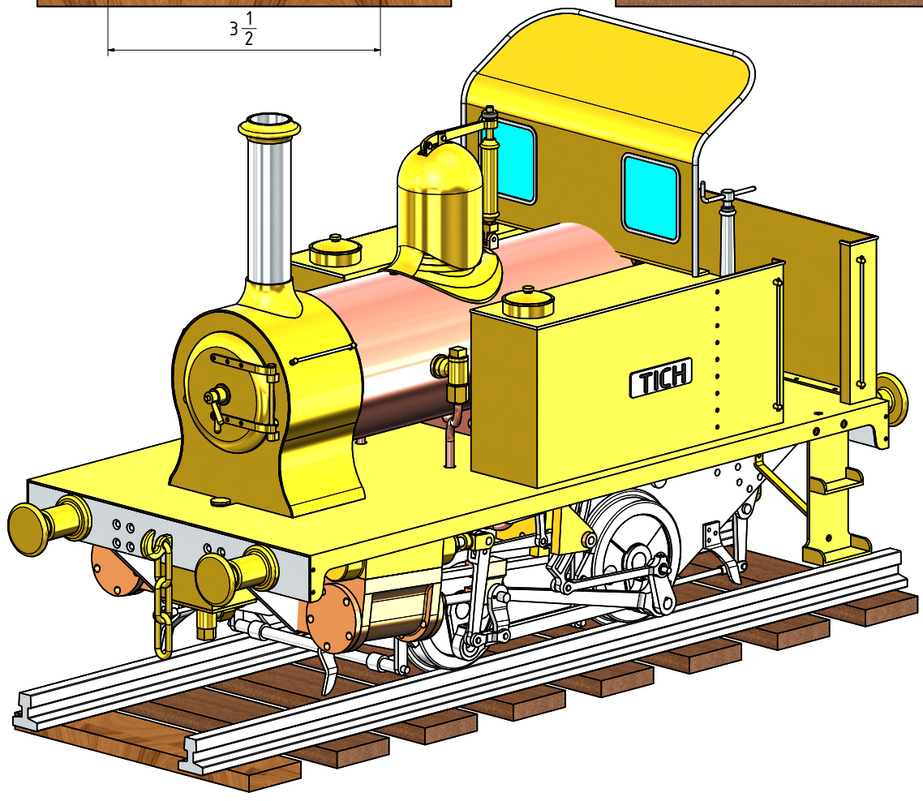

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TITLE

A 3.5" GAUGE COAL FIRED LOCOMOTIVE CALLED "TICH" BY L.B.S.C.

DRAWING CONTENTS

GENERAL ARRANGEMENT AND ISOMETRIC VIEW

PROJECT No 07B-27-00

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 | MODEL SCALE: 1:1

DWG SCALE: 1:1 @A3 OR AS SHOWN

DATE OCTOBER 2025

SHEET: 01 OF 12 | A3 | No:07B-27-00-SHT-01

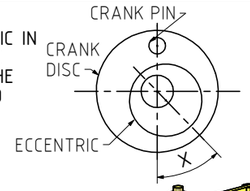
QTY.	PART NUMBER
1	07B-27-00-1-01-UNDER FRAME
4	07B-27-00-1-02-HORNBLOCK+BEARING
2	07B-27-00-1-03-PULL HOOK
4	07B-27-00-1-04-BUFFER
1	07B-27-00-1-05-CYLINDERS
1	07B-27-00-1-06-STEAM INLET PIPE
1	07B-27-00-1-07-EXPANSION LINK BRACKET
1	07B-27-00-1-07-EXPANSION LINK BRACKET
1	07B-27-00-1-08-FEED PUMP
1	07B-27-00-1-09-MECHANICAL LUBRICATOR
1	07B-27-00-1-10-REVERSER STAND
1	07B-27-00-1-11-FOOT PLATE
1	07B-27-00-1-12-SMOKE BOX
1	07B-27-00-1-13-SMOKE STACK
1	07B-27-00-1-14-BOILER
1	07B-27-00-1-15-FIREBOX+TUBES
1	07B-27-00-1-16-DUMPING PIN
18	07B-27-00-1-17-BOILER SIDE STAY
3	07B-27-00-1-18-BOILER THROAT PLATE STAY
3	07B-27-00-1-19-BOILER BACKHEAD STAY
1	07B-27-00-1-20-BOILER LONGITUDINAL STAY
1	07B-27-00-1-21-BLOWER PIPE
1	07B-27-00-1-22-STEAM SUPPLY MANIFOLD
1	07B-27-00-1-23-BLOWER CONNECTION PIPE
1	07B-27-00-1-24-WATER LEVEL GAUGE
1	07B-27-00-1-25-REGULATOR PORT STAND
1	07B-27-00-1-26-REGULATOR OPERATOR HANDLE
1	07B-27-00-1-27-SAFETY VALVE LEVER
1	07B-27-00-1-28-STEAM DOME
1	07B-27-00-1-29-CHECK VALVE
1	07B-27-00-1-29-CHECK VALVE
1	07B-27-00-1-30-SUPER HEATER
1	07B-27-00-1-31-FIREBOX DOOR
1	07B-27-00-1-32-BRAKE HANGER
1	07B-27-00-1-33-BRAKE OPERATING SHAFT
1	07B-27-00-1-34-WATER TANKS
2	07B-27-00-1-35-SMOKEBOX HAND RAIL
4	07B-27-00-1-36-WATER TANK SIDE HAND RAIL
1	07B-27-00-1-37-REAR PANEL
1	07B-27-00-1-38-BLOWER
1	07B-27-00-1-39-SNIFTER
2	07B-27-00-1-40-REAR STEPS
1	07B-27-00-1-41-BRAKE COLUMN
1	07B-27-00-1-42-PRESSURE GAUGE
1	07B-27-00-2-01-LEADING WHEEL SET
1	07B-27-00-2-02-DRIVING WHEEL SET
1	07B-27-00-2-03-COUPLING ROD
1	07B-27-00-2-03-COUPLING ROD
1	07B-27-00-2-04-PISTON + CROSSHEAD
1	07B-27-00-2-04-PISTON + CROSSHEAD
1	07B-27-00-2-05-CON-ROD
1	07B-27-00-2-05-CON-ROD
1	07B-27-00-2-06-WEIGHBAR SHAFT
1	07B-27-00-2-07-REVERSER OPERATOR HANDLE
1	07B-27-00-2-08-REACH ROD
2	07B-27-00-2-09-EXPANSION LINK
2	07B-27-00-2-10-EXPANSION LINK DIE BLOCK
1	07B-27-00-2-11-SLIDE VALVE+SPINDLE
1	07B-27-00-2-11-SLIDE VALVE+SPINDLE
2	07B-27-00-2-12-UNION LINK
2	07B-27-00-2-13-COMBINATION LEVER
2	07B-27-00-2-14-RADIUS ROD
2	07B-27-00-2-15-LIFTING LINK
1	07B-27-00-2-16-ECCENTRIC ROD
1	07B-27-00-2-16-ECCENTRIC ROD
1	07B-27-00-2-17-PUMP ECCENTRIC STRAP
1	07B-27-00-2-18-PUMP PLUNGER
1	07B-27-00-2-19-LUBRICATOR SWING ARM
1	07B-27-00-2-20-LUBRICATOR LINK ROD
1	07B-27-00-IM-3.5inch-RAIL

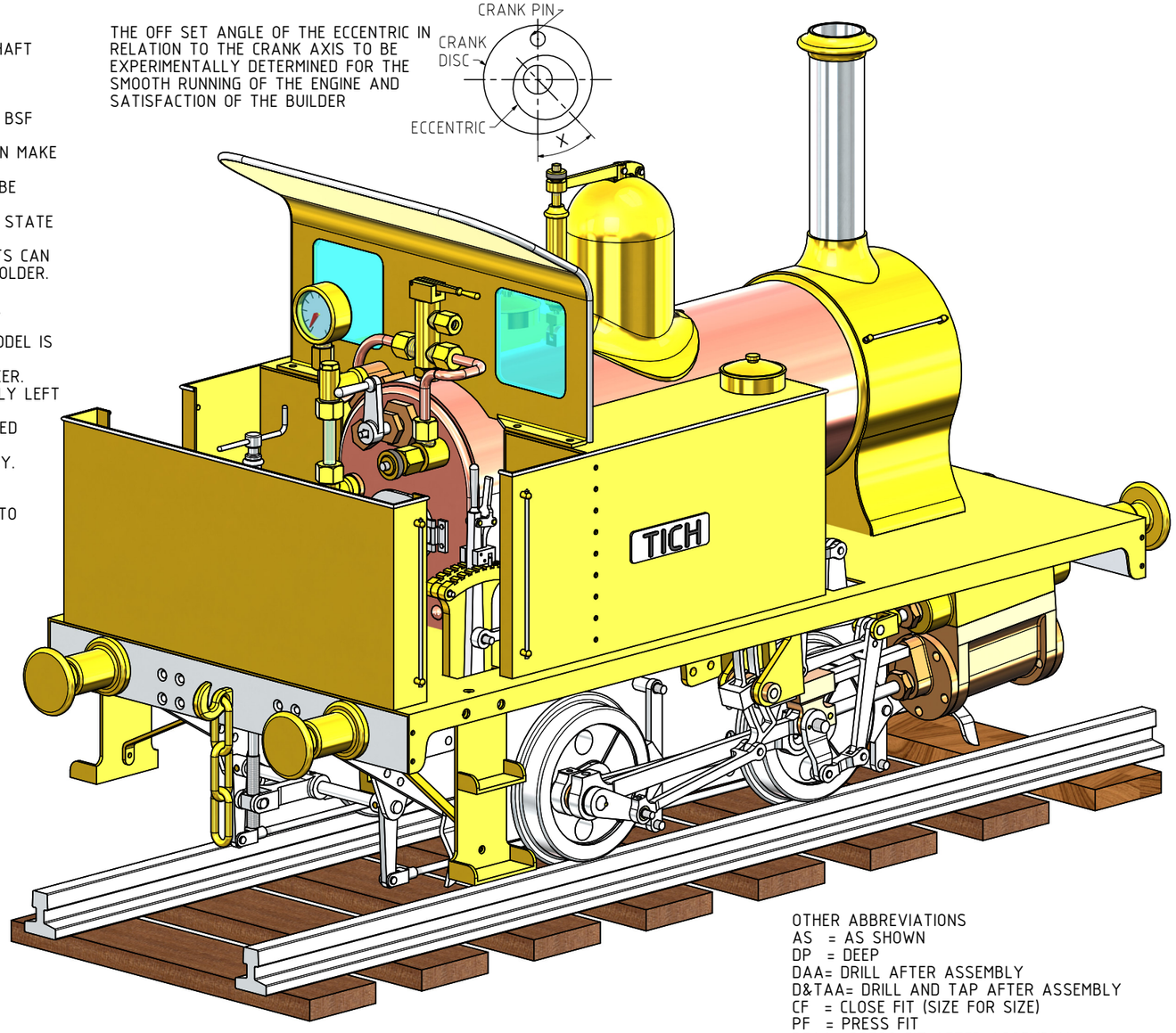
GENERAL NOTES:
0. ALL DRAWINGS ARE IN IMPERIAL MEASUREMENTS
1. ALL ENGINEERING PRACTICES SHALL BE APPLIED WITH REGARDS TO HOLE AND SHAFT TOLERANCES.
2. WHERE SCREWS OR BOLTS ARE USED THE CLEARANCE HOLES SHALL BE APPROXIMATELY 5% TO 8% LARGER THAN THE MATCHING TAPPED HOLE.
3. PREFERABLY ALL TAPPED HOLES AND MATCHING SCREWS AND/OR BOLTS TO BE BSF AND/OR BA THREAD
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.

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) PRESSURE GAUGE.
THE RANGE OF THE PRESSURE GAUGE TO BE DETERMENT AFTER MAXIMUM BOILER PRESSURE IS ESTABLISHED AND THE AVAILABILITY ON THE MARKET. THE PRESSURE GAUGE IS A PROPRIETY ITEM.
3) 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.
4) BOILER.
BEFORE STARTING: THE BOILER AS SHOWN ON THESE DRAWING SHOULD BE INSPECTED BY AN AUTHORISED PROFESSIONAL ENGINEER. THE RUNNING AND MAXIMUM BOILER PRESSURE TO BE CALCULATED. MAKE SURE THE THE BOILER FULLY COMPLIES WITH THE LOCAL RULES AND REGULATIONS OF MODEL BOILERS. A COMPLIANCE AND TEST CERTIFICATE SHOULD BE OBTAINED.
BOILER INSULATION IS NOT SHOWN ON THESE DRAWINGS.
IF BOILER INSULATION IS PREFERRED THEN THE BUILDER TO SOURCE THE APPROPRIATE MATERIAL AND THICKNESS
THE BOILER STRAPS DIAMETER SHOULD BE ADJUSTED ACCORDINGLY.
5) 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.
6) ENHANCEMENT
THE APPEARANCE OF THE LOCOMOTIVE COULD BE ENHANCED BY ADDING SOME EXTRA PARTS SUCH AS: LAMP HOLDERS, FRONT AND REAR LIGHTS, FLAG HOLDERS.

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





IMPORTANT NOTE:
BEFORE STARTING: IT IS STRONGLY ADVISED THAT THE BOILER AS SHOWN ON THESE DRAWINGS SHOULD BE INSPECTED BY AN AUTHORISED PROFESSIONAL ENGINEER AND THE WORKING AND MAXIMUM BOILER PRESSURE TO BE CALCULATED.
MAKE SURE THE BOILER FULLY COMPLIES WITH THE LOCAL RULES AND REGULATIONS OF MODEL BOILERS.
A COMPLIANCE AND SAFETY/TEST CERTIFICATE SHOULD BE OBTAINED.

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
#NNxXX = TAP OR THREADED
SA-xxx = SUB ASSEMBLY-xxx

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TITLE
A 3.5" GAUGE COAL FIRED LOCOMOTIVE CALLED "TICH" BY L.B.S.C.

DRAWING CONTENTS
ISOMETRIC VIEW, NOTES, BILL OF MATERIALS

PROJECT No 07B-27-00
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 | MODEL SCALE: 1:1
DWG SCALE: 1:1 @A3 OR AS SHOWN
DATE OCTOBER 2025

SHEET: 02 OF 12 | A3 | No:07B-27-00-SHT-02

A=1/16
B=3/32
C=1/8
D=7/64

3/32 THICK 2 REQD

4.5°

CSK

SCALE 1:1.5

FOR ALL OTHER DIMENSION DETAILS REFER TO 1-01.2

4 REQD (2xLH+2xRH)

2 REQD (1xLH+1xRH)

2 REQD (1xLH+1xRH)

OPPOSITE FACE EQUAL

5/64 THICK
2 REQD

3 REQD

SCALE 1:5:1

2 REQD

1/16 THICK

7 COILS
2 REQD
SCALE 2:1

7 COILS SCALE 1.5:1

REFER TO SHEET-04 FOR PART 1-04.3

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DRAWING CONTENTS

PARTS AND ASSEMBLIES

PROJECT No 07B-27-00

JDW DRAUGHTING SERVICES

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PROJECTION

JDWDS

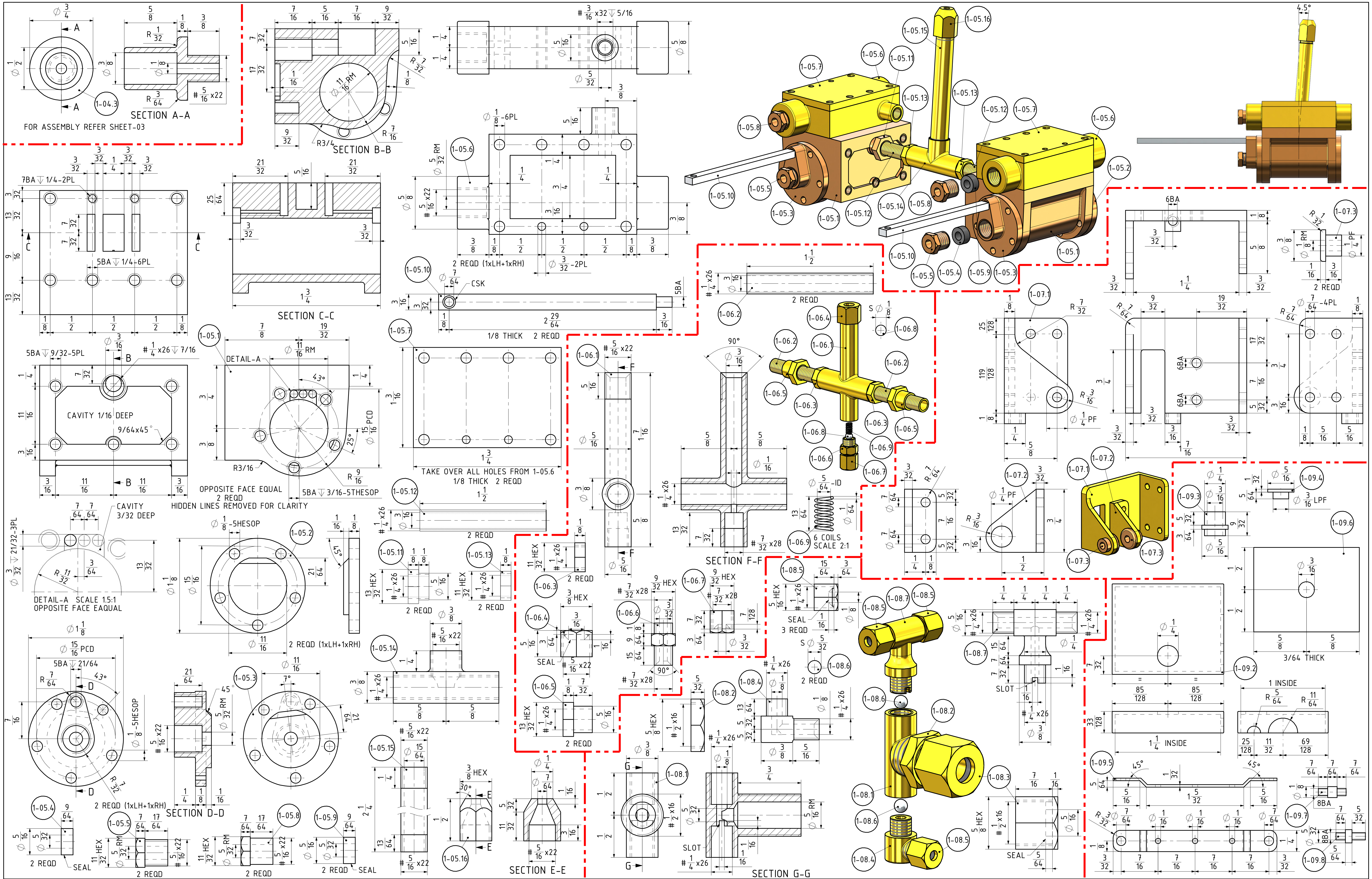
DATE OCTOBER 2025

SHEET: 03 OF 12

MODEL SCALE: 1:1

DWG SCALE: 1:1 @A3 OR AS SHOWN

A3 No:07B-27-00-SHT-03



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PROJECTION JDWDS

DATE OCTOBER 2025

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