

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 = HEXAGON, 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

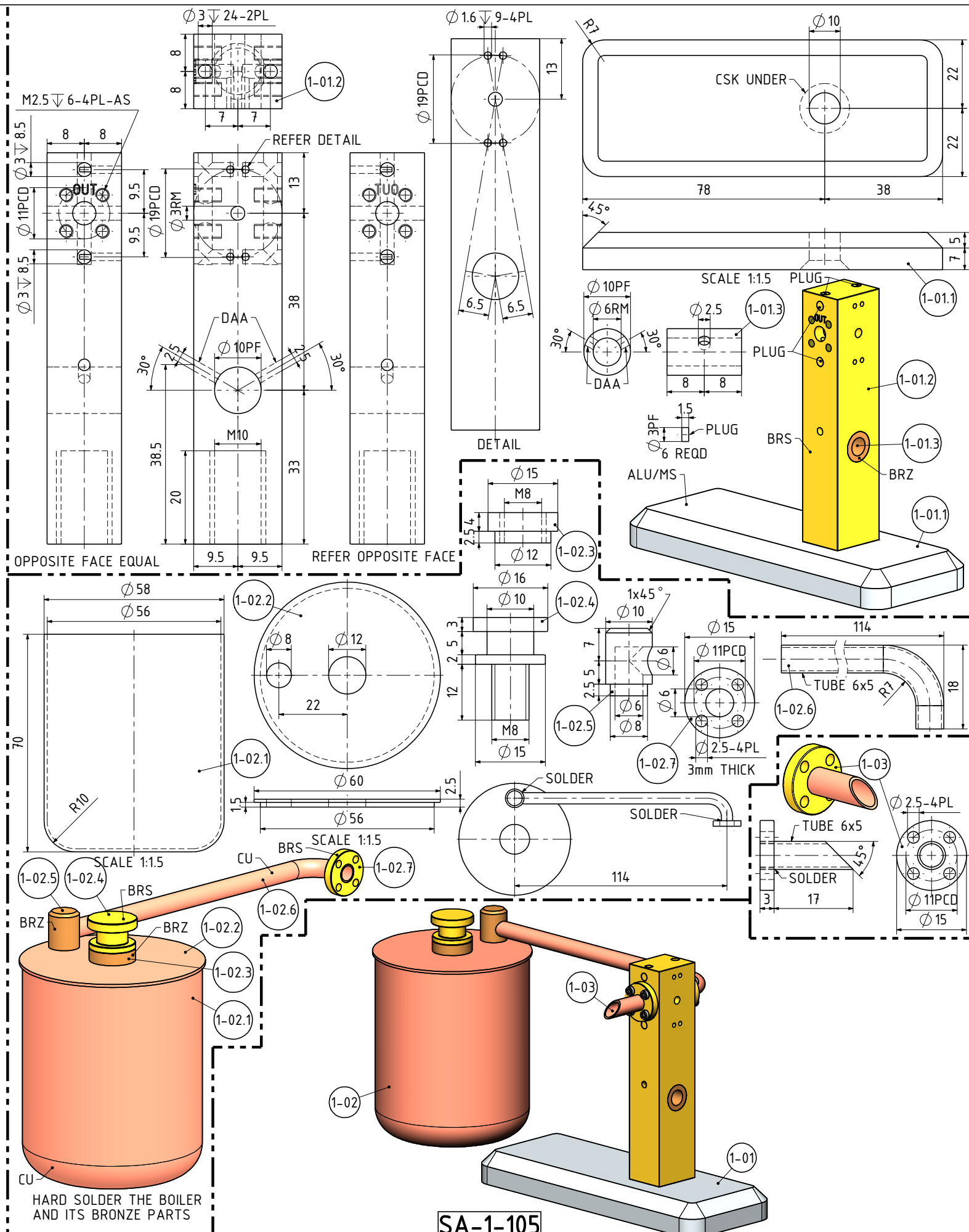
MATERIAL ABBREVIATIONS:

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

- NOTES:
- ALL DRAWINGS ARE IN METRIC MEASUREMENTS
 - ALL ENGINEERING PRACTICES SHALL BE APPLIED WITH REGARDS TO HOLE AND SHAFT TOLERANCES.
 - WHERE SCREWS OR BOLTS ARE USED THE CLEARANCE HOLES SHALL BE APPROXIMATELY 5% TO 8% LARGER THAN THE MATCHING TAPPED HOLE.
 - PREFERABLY ALL TAPPED HOLES AND MATCHING SCREWS AND/OR BOLTS TO BE METRIC FINE (MF)
 - MATERIALS SPECIFIED ON THE DRAWINGS ARE INDICATIVE ONLY. THE BUILDER CAN MAKE HIS/HER OWN MATERIAL CHOICE.
 - ALL CONNECTIONS/JOINTS WHICH HAVE STEAM PRESSURE APPLIED TO IT SHALL BE SILVER/HARD SOLDERED.
 - COMPRESSION SPRINGS ARE DRAWN IN COMPRESSED STATE (CP), UNCOMPRESSED STATE IS APPROX 40% TO 60% LONGER THEN COMPRESSED STATE.
 - 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.
 - 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.
 - THE ORDER IN WHICH THE PARTS/COMPONENTS ARE MANUFACTURED AND THE MODEL IS ASSEMBLED IS ENTIRELY LEFT TO THE BUILDER/MODEL MAKER.
 - A COLOUR SCHEME FOR THIS PROJECT IS ENTIRELY LEFT UP TO THE MODEL MAKER.
 - THE MANNER IN WHICH THE PARTS/COMPONENTS ARE MANUFACTURED IS ENTIRELY LEFT UP TO THE BUILDER.
 - USE LOCTITE, ON SCREW OR PRESS FIT CONNECTIONS OR SURFACES, WERE DEEMED NECESSARY TO PREVENT PARTS FROM LOOSENING.
 - WASHERS AND/OR SPRINGWASHERS 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.

QTY.	PART NUMBER
1	09A-31-00-1-01-BASE PLATE
1	09A-31-00-1-02-BOILER
1	09A-31-00-1-03-EXHAUST
1	09A-31-00-2-01-CYLINDER
1	09A-31-00-2-02-CRANK SHAFT+FLYWHEEL
1	09A-31-00-2-03-PISTON
1	09A-31-00-M10x30 A-K C-SINK SCREW
1	09A-31-00-M2.5x3.5 A-K GRUB SCREW
16	09A-31-00-M2.5x8 A-K CYL HEAD SCREW
1	09A-31-00-M3 DOME NUT
1	09A-31-00-M3 WASHER



NOTES: THE ORIGINAL DRAWINGS WERE GIVEN TO ME. THE AUTHOR AND DRAFTER ARE UNKNOW. THE ORIGINAL DRAWINGS WERE IN FRENCH. DRAWING TITLE "MOTEUR A VAPEUR A CYLINDRE OSCILLANT ALESAGE 6,3 COURSE 6,3. THIS ENGINE IS TWICE THE ORIGINAL

TITLE
A SIMPLE OSCILLATING STEAM ENGINE AND BOILER FOR BEGINNER (B=13mm S=13mm)

DRAWING CONTENTS
G.A, ISOMETRIC VIEW, NOTES, BOM, PARTS AND ASSEMBLIES

PROJECT No 09A-31-00
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 APRIL 2021
SHEET: 01 OF 02
JDWDS
Copyright © J.A.M. DE WAAL PAPA KURA NZ
MODEL SCALE: 1:1
DWG SCALE: 1:1 @A3 OR AS SHOWN
A3 No: 09A-31-00-SHT01

DRAWINGS ARE FOR PERSONAL USE ONLY NOT FOR COMMERCIAL PURPOSES