

QTY	PART NUMBER
1	09E-70-00-1-01-ENGINE BLOCK
1	09E-70-00-1-02-ROTARY VALVE CHEST
1	09E-70-00-1-03-BOTTOM OIL PAN
1	09E-70-00-1-04-END COVER PLATE
1	09E-70-00-1-04-END COVER PLATE
1	09E-70-00-1-05-RESPERATOR
1	09E-70-00-1-06-GEARWHEEL MOUTING PLATE
1	09E-70-00-2-01-CRANK SHAFT
1	09E-70-00-2-02-CRANKSHAFT GEARWHEEL 48T-M0.8
2	09E-70-00-2-03-IDLER GEARWHEEL 32T-M0.8
2	09E-70-00-2-04-PISTON
2	09E-70-00-2-05-CON-ROD
1	09E-70-00-2-06-ROTATING VALVE
1	09E-70-00-2-07-ROTATING VALVE GEARWHEEL 48T-M0.8
1	09E-70-00-M10 DOME NUT
1	09E-70-00-M10 WASHER
6	09E-70-00-M2.5x6 A-K CYL HEAD SCREW
12	09E-70-00-M4 DOME NUT
2	09E-70-00-M4 WASHER
13	09E-70-00-M4x10 A-K C-SINK SCREW
2	09E-70-00-M4x12 A-K C-SINK SCREW
6	09E-70-00-M4x12 A-K CYL HEAD SCREW
8	09E-70-00-M4x16 A-K C-SINK SCREW
4	09E-70-00-M4x7.5 A-K C-SINK SCREW
2	09E-70-00-M5x11 A-K C-SINK SCREW
1	09E-70-00-M6 DOME NUT

GENERAL NOTES:

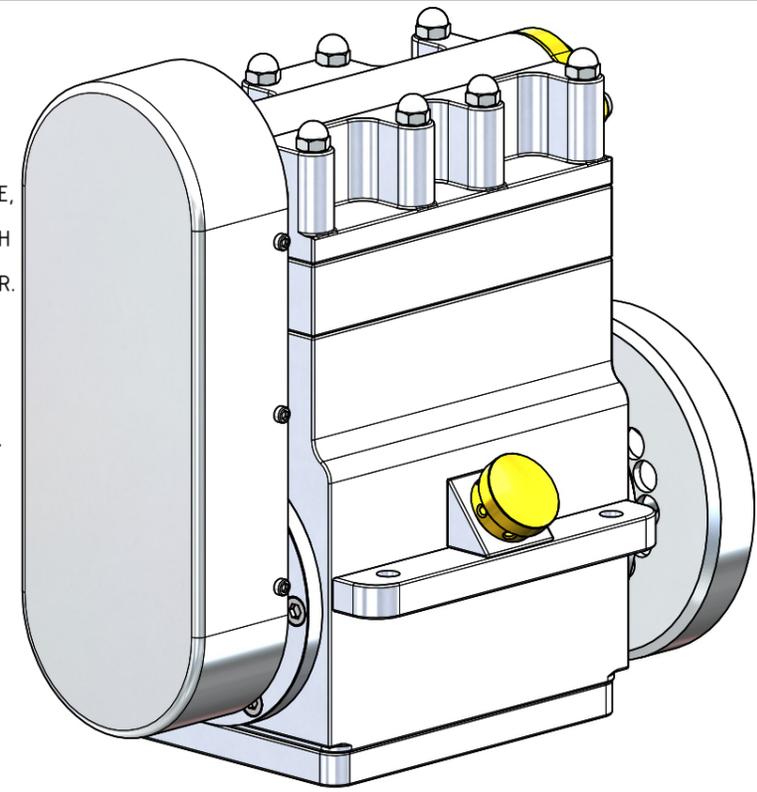
0. ALL DRAWINGS ARE IN METRIC MEASUREMENTS
1. ALL ENGINEERING PRACTICES SHALL BE APPLIED WITH REGARDS TO HOLE AND SHAFT TOLERANCES.
2. WHERE SCREWS OR BOLTS ARE USED THE CLEARANCE HOLES SHALL BE APPROXIMATELY 5% TO 8% LARGER THAN THE MATCHING TAPPED HOLE.
3. PREFERABLY ALL TAPPED HOLES AND MATCHING SCREWS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

OTHER ABBREVIATIONS

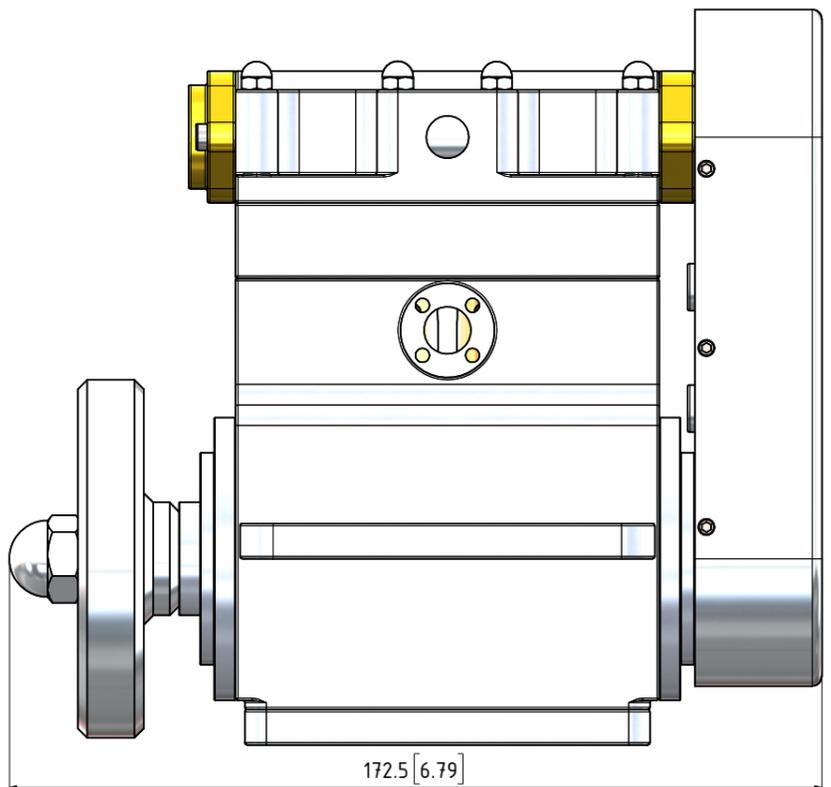
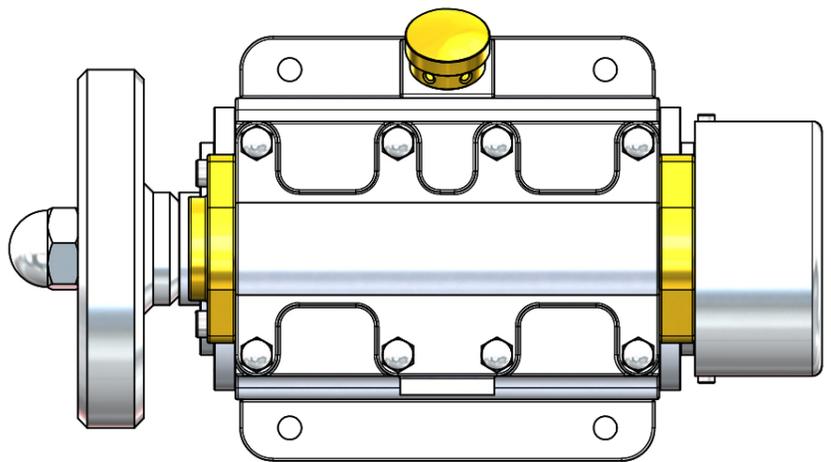
- AS = AS SHOWN
- DP = DEEP
- D&TAA= DRILL AND TAP AFTER ASSEMBLY
- CF = CLOSE FIT (SIZE FOR SIZE)
- PF = PRESS FIT
- PFAA= PRESS FIT AFTER ASSEMBLY
- PCD = PITCH CIRCLE DIAMETER
- RM = REAM
- HEX = HEXACON, 6SIDED
- CP = COMPRESSED
- KNL = KNURLED
- CSK = COUNTERSINK
- PL = PLACES
- DWL= DOWEL
- SPF= 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:

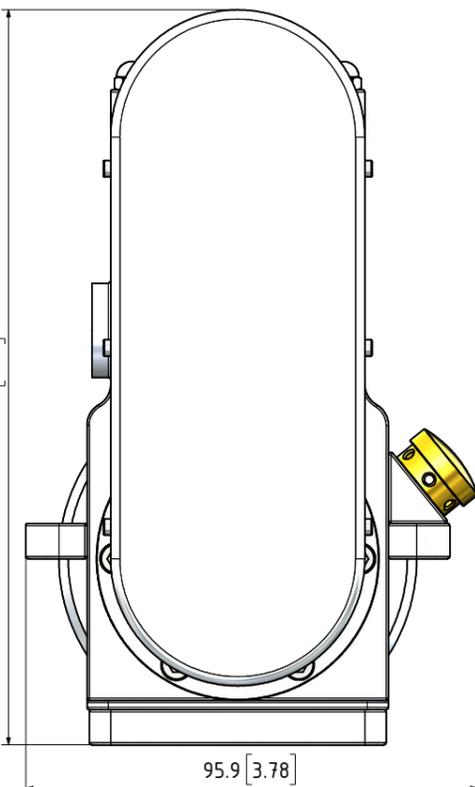
- ALU = ALUMINIUM
- HALU= HARD ALUMINIUM
- BRS = BRASS
- PBRZ= PHOSPHORE BRONZE
- BRZ = BRONZE OR GUNMETAL (BRZ/GM)
- OLT = OILITE
- CI = CAST IRON
- CU = COPPER
- GRA = GRAPHITE
- MS = MILD STEEL/BRIGHT MILD STEEL
- SS = SILVER STEEL OR STAINLESS STEEL
- SPS = SPRING STEEL
- PEEK= POLYETHER ETHER KETONE
- 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

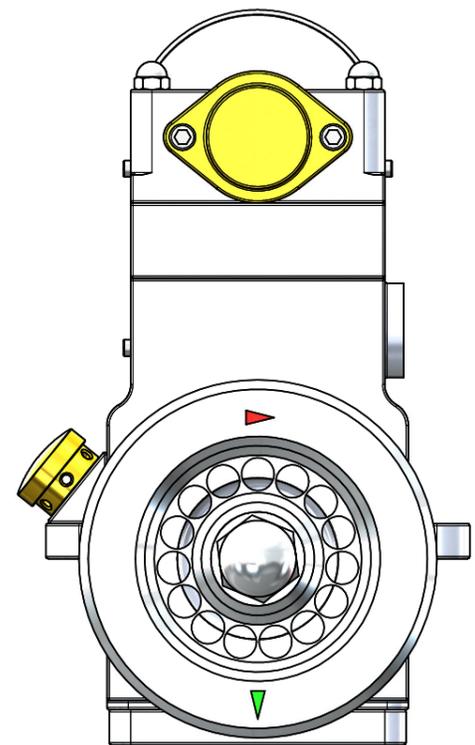
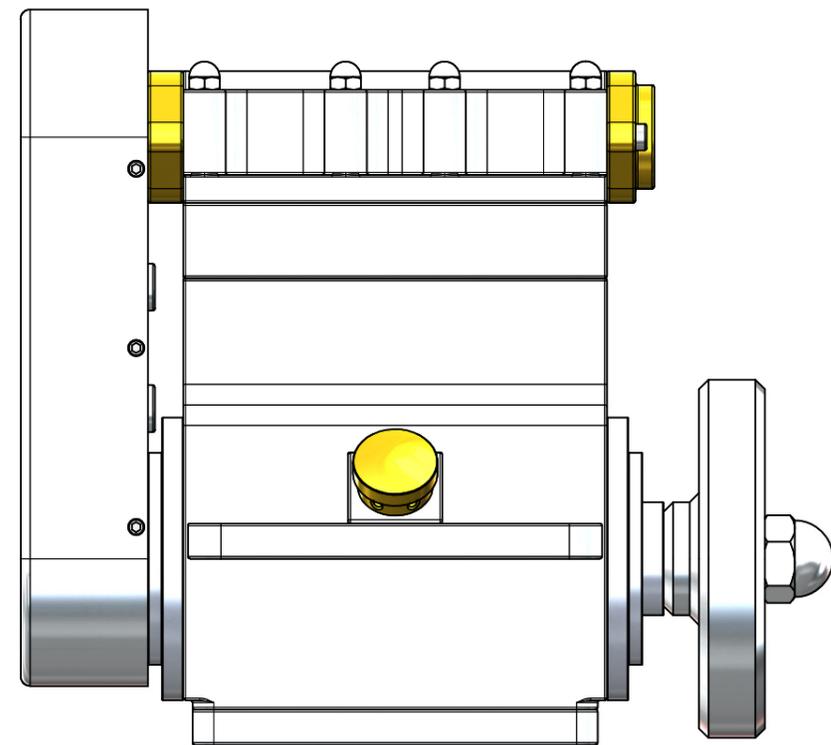


172.5 [6.79]



156 [6.14]

95.9 [3.78]



NOTES: THE ENGINE SHOWN ON THESE DRAWINGS ARE LOOSLY BASED ON A SET OF DRAWINGS WHICH I FOUND ON THE INTERNET AND WERE DRAWN BY PATRICK LECLERE, DATED 03/12/2017. THE DRAWINGS AND ARTICLES WERE IN THE FRENCH LANGUAGE (ENGINE IS 1.5 TIMES LARGER)

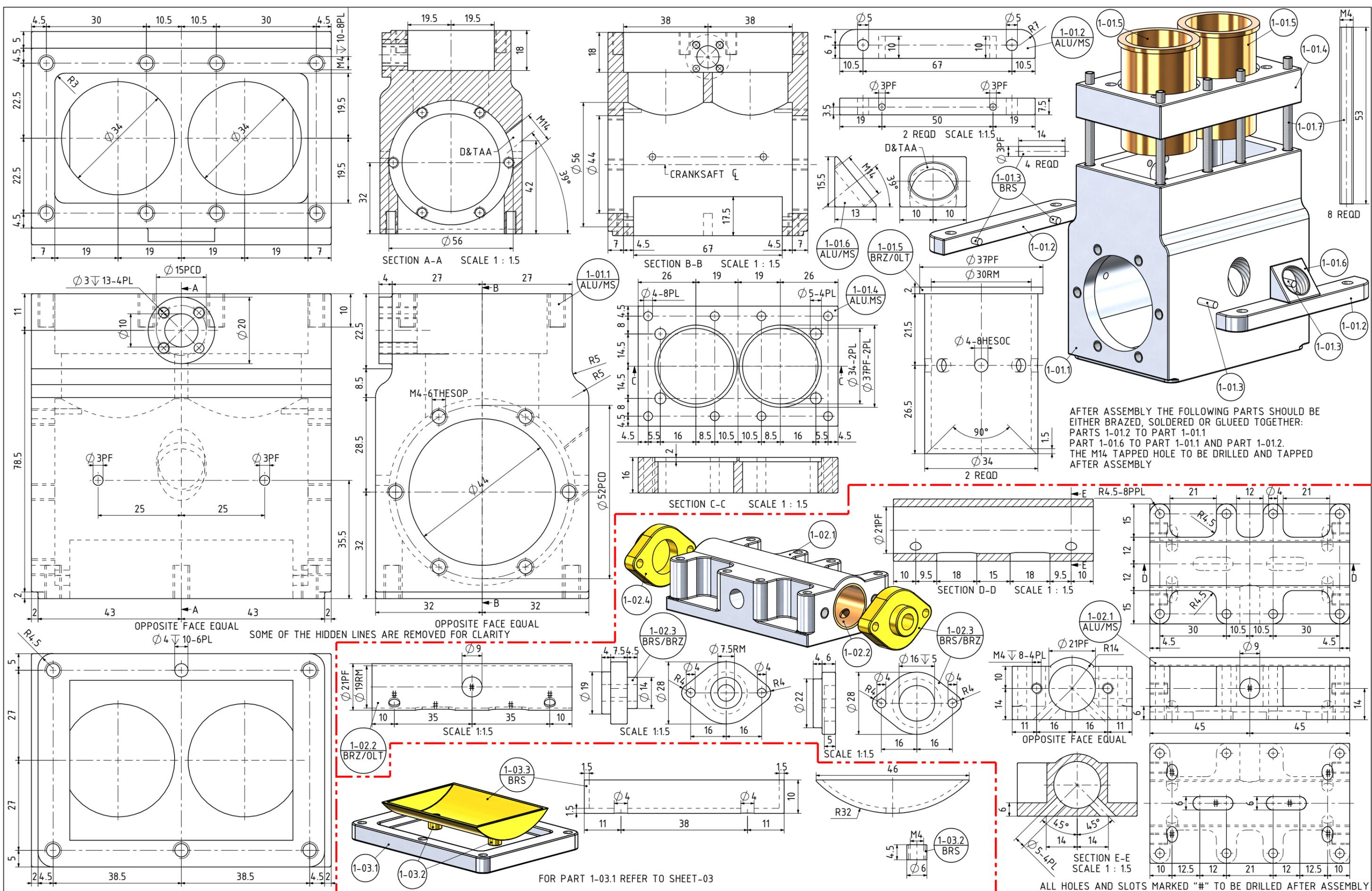
TITLE
2 CYLINDER VERTICAL STEAM ENGINE CALLED "GEMINI" (FLASH STEAM)

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

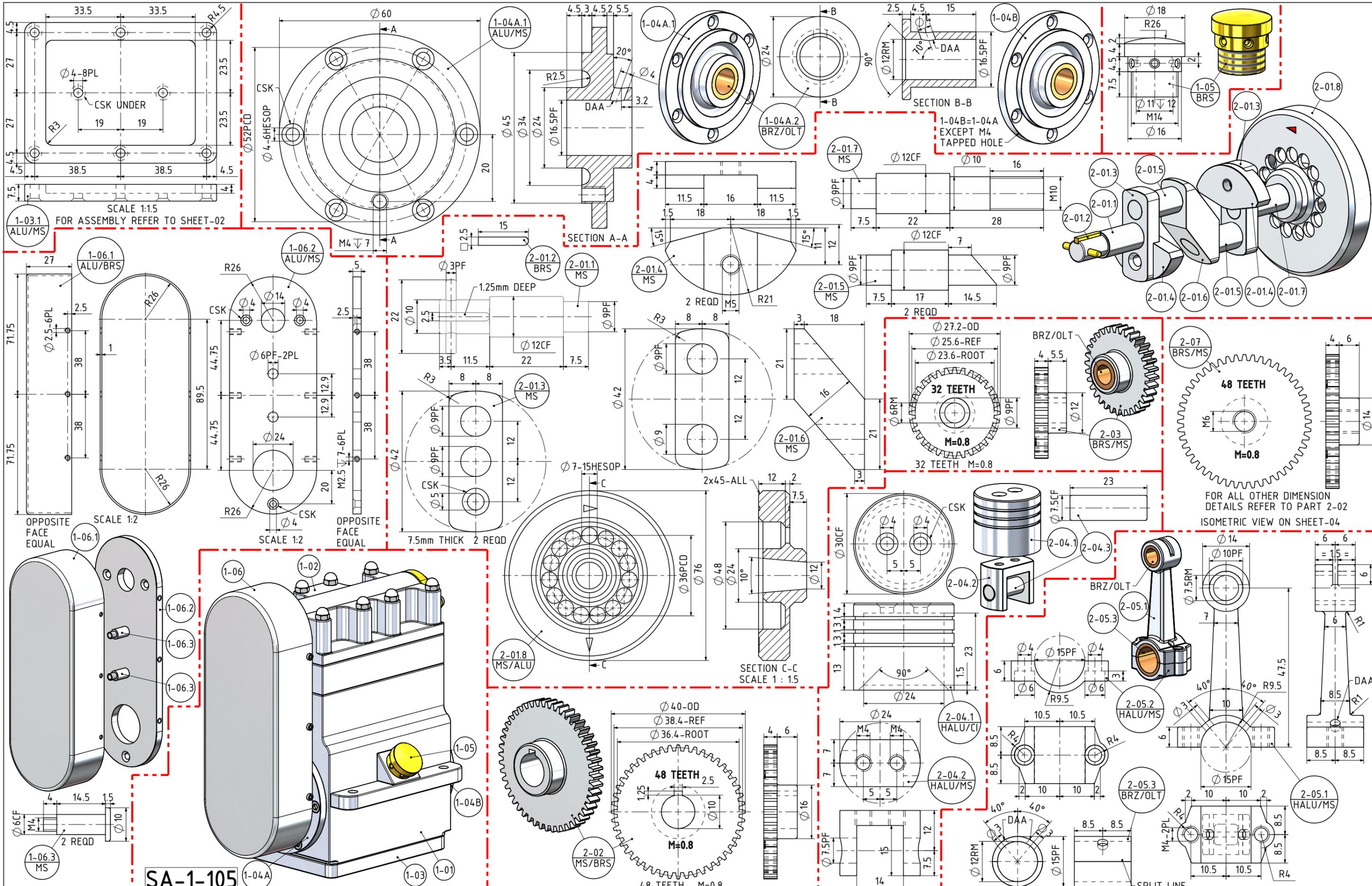
PROJECT No 09E-70-00
 JDW DRAUGHTING SERVICES
 J.A.M. DE WAAL, 12 BRIGHTWELL STREET PAKAPURA
 2110, NEW ZEALAND. PHONE: 0064 09 2988815. MOB: 0211791000 E-MAIL: dewaal@xtra.co.nz.

PROJECTION	JDWDS	MODEL SCALE: 1:1
DATE	JULY 2025	DWG SCALE: 1:1 @A3 OR AS SHOWN
SHEET: 01 OF 04	A3	Copyright © J.A.M. DE WAAL PAKAPURA NZ
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TITLE 2 CYLINDER VERTICAL STEAM ENGINE CALLED "GEMINI" (FLASH STEAM)		DRAWING CONTENTS PARTS AND ASSEMBLIES	
J.D.W. 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 JULY 2025	
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TITLE
**2 CYLINDER VERTICAL STEAM ENGINE
 CALLED "GEMINI" (FLASH STEAM)**

DRAWING CONTENTS
PARTS AND ASSEMBLIES

PROJECT No 09E-70-00
 JDW DRAUGHTING SERVICES
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