ABSTRACT

Assembly and part drawings for all the equipment used in the purification of plutonium in Building D are compiled in this report.
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SN Tube Extractor
Ref No. 2181
Pyrex Glass

4"

2"

3/4"

10mm o.d. thick walled

10/30 $ Male

Tips for springs

Note: 30' piece should be free from scale.
Wash Ring

Part No. 2150  Scale 1"=1"
Pyrex Glass - One Reg'd.

Note: The symbol → indicates a 1/16 in. i.d. hole in the glass tube to direct a stream of water in the direction indicated by the arrow.
UNCLASSIFIED

Extractor Stirrer
Part No. 870
Pyrex Glass
One Reyn.

Grind flat & chamfer base

10 mm ± 0.1 mm
or to fit bushing furnished

20.5"

1" 1/4"
S/N Tube Boiler

Port No. 2220

Material: Pyrex Glass

One Required, Scale: 1" = 1"

22"

3""
Diagram of mechanical components with annotations:

- Boiler Liquid Intake at Lube
- 3/4" fittings
- Ball valves
- One Revolution Scale 1/8

Note: All 3's numbered
A, A' are in parallel planes;
all 8's numbered B, B' are parallel.

UNCLASSIFIED

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S.N. Transfer Head and Bottom
Part No 2250
Material: Glass
I required
Scale 1" = 1"

1.5/40 Semihard Joint

19/30 F Joint

15 mm od.

UNCLASSIFIED
Stirrer Boiler
Part No. 67-70
Material: Glass, Pyrex
One Required
Scale 1" = 1"

- Cut flat & chamfer edge.
- 10mm ± 0.1mm or fit bushing furnished.

UNCLASSIFIED
REAGENT RESERVOIR
PART NO. 2311
PYREX GLASS

102/75 Semi-ball Male

Seal as close as practical

6" O.D. PYREX TUBE
WALL 1/4" - 1/8 - 1/32

16-1/4

Saran Tip
4 mm - 3 way stopcock

Saran Tip
8 & 10 mm od.

18/9 semi-ball (female)
with 3 mm su. drip tip

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Reagent Reservoir Cap
Part No. 2320
Pyrex Glass

One Part per Apparatus

\[2''\]

\[3''\]

\[8\text{mm} \text{ dia.}\]

\[8\text{mm} \text{ dia.}\]

\[102/75\text{ Female}\]

Section Dwg.

\(\frac{1}{2}''\) from id. of male when engaged

4-23-45 Redesign

APPROVED FOR PUBLIC RELEASE
500 ml plain neck pyrex bottle

1" Saran Tip
8mm & 10mm o.d.

1" horizontal Saran Tip

4mm pressure stopcock

1 1/2" Swivelbail female with 3mm (id) drip tip

GILLED

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Ether Reservoir
Part No. E391
Pyrex Glass

A liter plain Serum bottle

1" Saran Tubing
8mm. 12mm. OD

1" horizontal Saran Tip

4mm. 3way pressure stopcock

10mm. Qd.

18/4 Semiball (female)
with 3mm. (ld.) 34 tip

ZILFED
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Saran Adapters
Pyrex Glass

PART NO. 2355-A-B-C-D

Critical! 8mm o.d.

18/19 Semi-bail (male)

35/20 Semi-bail (female)

8mm drip tip

Critical! 8mm o.d.

19/38 Female Taper Joint

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Condenser Return Tube
Port No. 2360
Pyrex Glass
One Rep'd

35/20 SBUM

2 cm OD Tubing

11 1/4" ± 1/8"

17 3/4" ± 1/8"

12 mm ID drop tip

Short as possible
Ether Vapor Safety Tube
Part No. 2370
Pyrex Glass
One Reg'd.

59/50 $ - male

52mm CK

ZILIED
PAGE 29
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Material: Pyrex
3 per Apparatus

Scale ½" = 1"
Spray Trap
Port No. 2460

Material: Pyrex
3 per Apparatus

Scale: 1/2" = 1"
Kjeldahl Trap
Part No. 2430

Material: Pyrex
3 per Apparatus

Scale 1/2" = 1"

UNCLASSIFIED
Approved for public release

DEVLAP

BUBBLER

PART NO. 2442

10 mm GLASS TUBING

66-46 SEMI BALL JOINT

WIRE TUBE TO CYLINDER USE

CORK SPACERS

3/8 SPACE BETWEEN TUBES

ATTACH TO OUTSIDE OF CYLINDER

MAKE 6161 (FOR RUBBER TIPS) ON ALL 10 mm TUBE ENDS

APPROVED FOR PUBLIC RELEASE
Liquid Drip Catchers
Drawing No. 6-4
Part No 2470.

Material: Pyrex
4 Per Apparatus.

Scale 1/2” = 1”
Et$_2$O Vapor Tube
Part No. 2540

Material: Pyrex
1 per Apparatus

80-min tube

Scale: 1" = 5"
Tolerance ± 1/16" on all dimensions

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4/15/74
Etc.
SMALL STORAGE BOTTLE
Part No. 2610
Pyrex Glass
Four Parts per Apparatus

65/40 semi-ball
Seal joint as close to main tube as practical

4mm wall -12mm on rounded part

100mm o.d. ± 1.5mm.
Transfer Bottle
Drw. No. 2630

Pyrex Glass
Four Parts per
Apparatus
65/45
Semia

This dimension
CRITICAL!

1 liter pyrex n.e. flask

4-23-45 Redimension

APPROVED FOR PUBLIC RELEASE
ALL PARTS MADE OF ¼" PLYWOOD.

ALSO RECOMMEND 4 PCS. ¼" HOUND BRASS ROD.

6" LONG THD 2" ON BOTH ENDS WITH #20 DIE (3410-B)

SCALE: HALF
Ethene bottle holder

4 holes drill 3/4" holes lie at corners of a 6" square whose center is concentric with center of circles.

Round corners ~1/4" radius

All parts made of 1/2" ply

Also apply 4 pcs, 1/4" round brass rod 11" long, thd 3/4" on both ends with 1/4-20 die (3420-8)
DECLASIFIED

CLAMP FOR STORAGE BOTTLE

PART 3430-D

2 SCREWS

½" 28 NP-2

FLAT HEAD SCREWS 

1 ¼" LONG

4 1½" LONG

HOLES, COUNTERSINK HOLE

1 HOLE DRILL AND TAP FOR ¼" 2-TANG TO ½" 1 HOLE

DRILL AND TAP FOR ¾" 10X 32 NF-2 - 4 HOLES

3" DEEP

4 HOLES DRILL AND TAP 1/16 32 NF-2

7/8" DEEP

DRILL HOLES - SAW INTO 2 PIECES

IGNORE METAL COST

4 ⅜" HOLES COUNTERSINK

DRILL TAP ¼" 28 NP-2 TO CENTER

APPROVED FOR PUBLIC RELEASE
SPECIAL BALL JOINT CLAMP ASSEMBLY

PART 3440-C-1

SCALE 1" = 1"

APPROVED FOR PUBLIC RELEASE
SPECIAL BALL-JOINT CLAMP

PART 3440-C-2

MATERIAL - 1/4" SHEET BRASS

4" DIAM.

3 1/2" DIAM.

2 3/8" DIAM.

SECTION A-A

3 Holes @ 120°
3 1/2" DIAM Ø

1/8" Drill & Ream Thru

1/8" Drill Thru

AND FILE OUT

1/8" Chamfer @ 45°

8" Radius

65/140

Stamp this mark as shown on both sides

Note position of slots

Break all corners

PART A
SPECIAL BALL JOINT CLAMP

Part 3-440-C-11

NOTE: PROVIDE THREE THUMB NUTS AND THREE HEX JAM NUTS.

PROVIDE THREE SPRINGS - 3/4" FREE LENGTH - GROUND ENDS - 1/8" PITCH - 0.029" SPRING WIRE - SPRING 3/8" O.D.

PART D - BRASS - MAKE THREE

FILE ROUND 3/16" DRILL

8" CHAMFER @ 45°

PART C - BRASS - MAKE THREE

SUB-ASSEMBLY

(SOFT SOLDER TOGETHER)

PART B - BRASS - MAKE THREE

10-24-NC-1

PART B - BRASS - MAKE THREE

APPROVED FOR PUBLIC RELEASE
CONDENSER CLAMP

MATERIAL - PINE
MAKE TWO

15/16" DRILL THRU 2 HOLES

APPROVED FOR PUBLIC RELEASE

GROUP CM-5
PHONE 233
CEILING CLAMP FOR CONDENSER STAND

MATERIAL - PINE
MAKE ONE

CUT SLOT TO FIT VERTICAL "2X4"

REGULAR "2X4" STOCK

SPLIT IN TWO PIECES

APPROVED FOR PUBLIC RELEASE
HOOD TRAP DOOR

MATERIAL - PLYWOOD ☐ ☐ PINE ☐
MAKE ONE

3470-A

SECTION A-A

4 1/2" BEVEL ON ALL SIDES

UNCLASSIFIED

APPROVED FOR PUBLIC RELEASE
Hood Support Brace

PART 3480

7" L-iron welded to 3/4 x 3" Butt Plate - Make 2

Drill & countersink 4 holes to hold #12 Wood screws from L-iron side.

2 pcs: 3/16 x 1 1/2 x 1 1/2"

Note: All bolts 1 1/8" - 75°.

MAKE TWO

CM-5
Glycol Solution Storage Tank 13790

Note: Tank to be made of 18 gauge galvanized iron (welded).

CM-5
Scale 1" = 2'-0"
March 26, 1945
Make Tray of 18 gauge Black Iron Hard Solder
VAPOUR TUBE SEAL
MATERIAL: 1/2" PLYWOOD
MAKE ONE
3520-A

CONDENSER SEAL
MATERIAL: 1/2" PLYWOOD
MAKE ONE
3520-B

APPROVED FOR PUBLIC RELEASE
Material: Galvanized Iron
Can must not leak and must be of sturdy construction. Details of construction left to the discretion of builder.
REMOTE CONTROL

PART NO.

DRAW. NO. CM5-2-4314 12/12

STOP LOCK CLAMP

THUMB NUT - BRASS

UNCLASSIFIED

NO. 3/8 DRILL THRU WALL
NO. S-40 TAP THRU WALL

SOLDER THESE TWO PARTS TOGETHER

NO. 1/8 DRILL

NO. 18 DRILL THROUGH

BRASS - MAKE TWO

SOLDER ROD IN CENTER

BRASS - MAKE ONE

BRASS - MAKE ONE

3/8 DRILL THRU

AFTER ASSEMBLY, BOTH ENDS

NO SOLDER

APPROVED FOR PUBLIC RELEASE

APPROVED FOR PUBLIC RELEASE
UNCLASSIFIED

Bubbler Shield

4" x 4" x 12" x 6 1/4"

Mats & Sides - 1/4" ply
Bottom - 1/2" ply

Pieces held together with screws.
1" x 1" x 9" Strips A Rod
Screw to Sides
ADAPTER FOR FLEXIBLE CABLE
PART 3640

DRILL & TAP 10-24

PRAS: UNCLASSIFIED

APPROVED FOR PUBLIC RELEASE

APPROVED FOR PUBLIC RELEASE
UNCLASSIFIED

Air Motor Support
Part No. 1234

1 1/8"

4 3/8" 2 1/4"

2 1/4" 1"

4 1/8"

DRILL 4 HOLES 1/4"

MAT: 7/8 STEEL
1/8 DIA. STEEL ROD
MAKE TWO
VALVE HANDLE
3 WAY VALVES
PART 3650

Make from 1/8" x 3/8" strap.

SOURCE

APPROVED FOR PUBLIC RELEASE
1/4" RADIUS, ALL CORNERS

3/8" SQUARE HOLE REMOVED BURR.

5/32" DRILL ONE HOLE

FIRE EXTINGUISHER HANDLE
MAT'L: BRASS

PART: 3660 - PA61 119

APPROVED FOR PUBLIC RELEASE
Bottom Assembly Reagent Res. Holder

Part 3710

Parts held together with screws. Joints Glued.

APPROVED FOR PUBLIC RELEASE
Bottom: Reagent Res. Holder
Part 3710

Mat: 3/8" Lucite - 1 req'd.

Note: Change in dimension would change this drawing and the assembly. Will not change the constructional holes are located from back, etc.
Front & Back Plate Assembly

Part 3710

4 Holes Drill #28
csk. for G-32 Flat Hd Screw
Holes 3/16 from sides

2 Holes Drill #26 Tack G-32
1" deep

Mat 8 3/8 Lucite 2 per rigid.
Reagent Res. Holder

SIFTED

UNCLASSIFIED

Parts held together with screws.
Joints glued.

Top assembly.
Part 3710

UNCLASSIFIED

3710

APPROVED FOR PUBLIC RELEASE
Headset Assy Holder
Part 3710

Mats 5/8" Lucite 1 Req'd.

Notes: Do not glue this piece in place.

Holes
Drill 1/16
Top 6-32
1" Deep

Mats 5/8" Lucite 1 Req'd.
Reagent Res. Holder
Part. 3710

"28 DRILL CSK
FOR FLAT HEAD
SCREWS"

SIDES AND TOP ASSEMBLY

LUCITE
2 REQUIRED

SCALE 1"
1. Boiler
2. Extractor
3. Support Block
4. Nozzles (CO₂ system)
5. Boiler Introducer Tube
6. Wolff Bottles
7. Transfer Apparatus
8. Transfer Bottle Holder
9. Ether Vapor Tube
10. Angle Iron Support
SLEEVE DETAIL

1" HOLE 1/2" DEEP FOR ARM

DRILL AND TAP FOR 1/8" S. 4097-2.

MILL AND LENGTH.

NEAR END BLIND TO BE CEMENTED TO LEVER END.

0.5 S126

DUHAL

APPROVED FOR PUBLIC RELEASE
DECLASIFIED

TRANSFER APPAR.

PART 4150

DECLASIFIED

UNCLASSIFIED

5/12" O.D. 30 BWG (0.02" WT)
S.S. TUBING

8-32" HOLES

(1065 #8)
4 O.D. 16 BWG 3/8" TUBING
THT. LENGTH +3"

FULL SIZE

STAINLESS STEEL

APPROVED FOR PUBLIC RELEASE

5/7/45

WJM
SPLASH GUARD - E BOTTLE
PART 4170
ROUGH CUT - BOMB HOLDER SUPPORT
PART 4180

APPROVED FOR PUBLIC RELEASE
NITRIC ACID BOTTLE HOLDER

PART 4210
BOMB DRYER INSERT

Part 4230

18-8 STAINLESS STEEL 20 BWG (0.035")

1/2 SIDE
Bomb Holder

Part 4240

Inside dimensions: 5 5/8 x 5 5/8 x 3 1/2"
1. Bomb Holder and Rack
2. Transfer Can Holder
3. Pan Balance
4. Graduate Rack
5. Bottle Rack
6. Wash Bottle
7. Nitric Acid Bottle
8. Acetic Bottles
Shelf for "Cut" Room

Section A-A

Scale: 1" = 8"
Part F connects D and B
Part G connects E and C

ASSEMBLY OF MOTOR MOUNT

4320
Part D

Make 2

Inside Dimension Should Have a Slip Fit Over the 1" Steel Rod Marked "Part A."

Part E

Make 2

Inside Dimension Should Have a Slip Fit Over the 3/4" Steel Rod Marked "Part B"

Brass Bushings for Motor Mount

4320 - A
STEEL ADAPTERS FOR MOTOR MOUNT

1/2" Hole Has a Slip Fit Over Brass Bushing, Part D
3/4" Hole Has a Slip Fit Over Steel Rod, Part B

1/4" Hole Has a Slip Fit Over Brass Bushing, Part E
1/2" Hole Has a Slip Fit Over Steel Rod, Part C

Scale: 1" = 1"
Part A Steel  Make 2

Part H should be a slip fit into the 1/8" holes drilled in Part B.

Part B Steel  Make 2

In this piece, drill 12 1/8" holes at 3" intervals. The first is to be 3" from one end, and the last 4 inches from the other end.

Note: Tolerance is not critical.

Part C Steel  Make 3

Part C should slip into 1/2" adapter which is furnished.

Tolerances: ±0.01 on diameters
±0.15 on lengths

Parts for Motor Mount

211556 - P

APPROVED FOR PUBLIC RELEASE
# 8-32 Allen head set screws
#2 fit on threads for Allen head

Make from stainless steel.
Grind inside to tolerance of 5/64" ± 0.003"
SN Cut Pipette

Part 4360

12/30 tapered joint, female

1 ml. micro stock

1 ml. pipette
S.N. Cut Room Drip Catchers - Part 4380

Top flanges, 1/4" wide.
Since tubing is in mm, select nearest undersize piece.

Pyrex glass throughout
CAN CABINET - 3 REQ'D

SEE DETAIL #2 FOR

BACK AND DOORS 3/16" PLYWOOD

DOORS (2 5" X 6" EACH UNIT)

76"

DETAIL #2

1"

FINGER PULL

2 1/8"

5/8" PLYWOOD

39" TO SIZE

ALL BORE HOLES (TOP, BOTTOM & SIDES)

# SIZE

PIN - DAP N TYPE CYLINDER

1/2" DIA., 1-1/2" LONG, SELF-LOCK

TO BE ILED WITH COUPLING SCREW THRU CENTER OF PIN.

APPROVED FOR PUBLIC RELEASE
M.S.A.: MINE SAFETY APPARATUS ALARM

REDHEAD: Device that activates Automatic CO₂ Tanks when the rate of temperature rise is rapid.
Vane Switch to activate CO₂ mechanism when air exhaust fan cuts out.
DOLLY HANDLE

ALL 3/8" STEEL ROD

MAKE

RUBBER TUBING TO FIT OVER LEGS OF "U"
S.N. Cart Frame - Of ½" Plywood
Finish - Shellac and White Enamel

APPROVED FOR PUBLIC RELEASE
NOTE: HEAVY LINE WILL BE SHIPPED LOOSE TO BE INSTALLED IN FIELD.
### Data Sheet on Standard Industrial Equipment Purchased

<table>
<thead>
<tr>
<th>Equipment Type</th>
<th>Description</th>
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<td>Air Motors</td>
<td>Binks Agitating Unit 939-A, page 939 in catalogue Binks Manufacturing Corporation</td>
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<td>Circulating Pumps</td>
<td>Style 153 B 700, Gould Centrifugal Pump, Gould Pumps Incorporated</td>
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<td>Combustible Gas Indicator</td>
<td>Type W-5, calibrated for diethyl ether, Catalogue DM-7782, Mine Safety Appliance Company</td>
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<tr>
<td>Combustible Gas Alarm</td>
<td>Page 62 in catalogue Mine Safety Appliance Company</td>
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<tr>
<td>CO₂ Fire Extinguishing System</td>
<td>Kidde Proposal 7975, Walter Kidde &amp; Company</td>
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<td>Dial Thermometer</td>
<td>Serial D-34371, Bulletin 148-7, Foxboro Company</td>
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<td>Flexible Cable</td>
<td>Shaft, Control, Flexible, #150154, Casing, Flexible, #16946, S. S. White Dental Manufacturing Company</td>
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<tr>
<td>Intercommunication System</td>
<td>Type W - 222 - A, Rauland Engineer Corp.</td>
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<tr>
<td>Mercoid Switch</td>
<td>Control, Mercoid, 115/230V, 20 watt maximum, Type DA-231-3, 12-30&quot; vacuum, Mercoid Corporation</td>
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<td>Reducing Valve</td>
<td>No. 227, ½&quot; valve, Catalogue 73, Mason-Nelan Regulator Company</td>
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<tr>
<td>Refrigeration Unit</td>
<td>Compressor, Expansion chamber, Reservoir, Brine, Circulating Pump, Centrifugal Pump from W. S. Kirkpatrick &amp; Co.</td>
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<tr>
<td>Resistance Thermometer</td>
<td>Catalogue 9004, Page 8, Serial No. 229381, Brown Instrument Company</td>
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<tr>
<td>Supernatant Carts</td>
<td>Trucks, Box, Standard Steel, Fig. 870-3, Code LUCRN, Fig. 871 and 975, Nutter Truck and Caster Co.</td>
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<tr>
<td>Vacuum Unit</td>
<td>from Yoeman Brothers Company, Chicago, Ill.</td>
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