

Fig (5.10.2-3) Schematic drawing of direct method used for purification of U-Metal

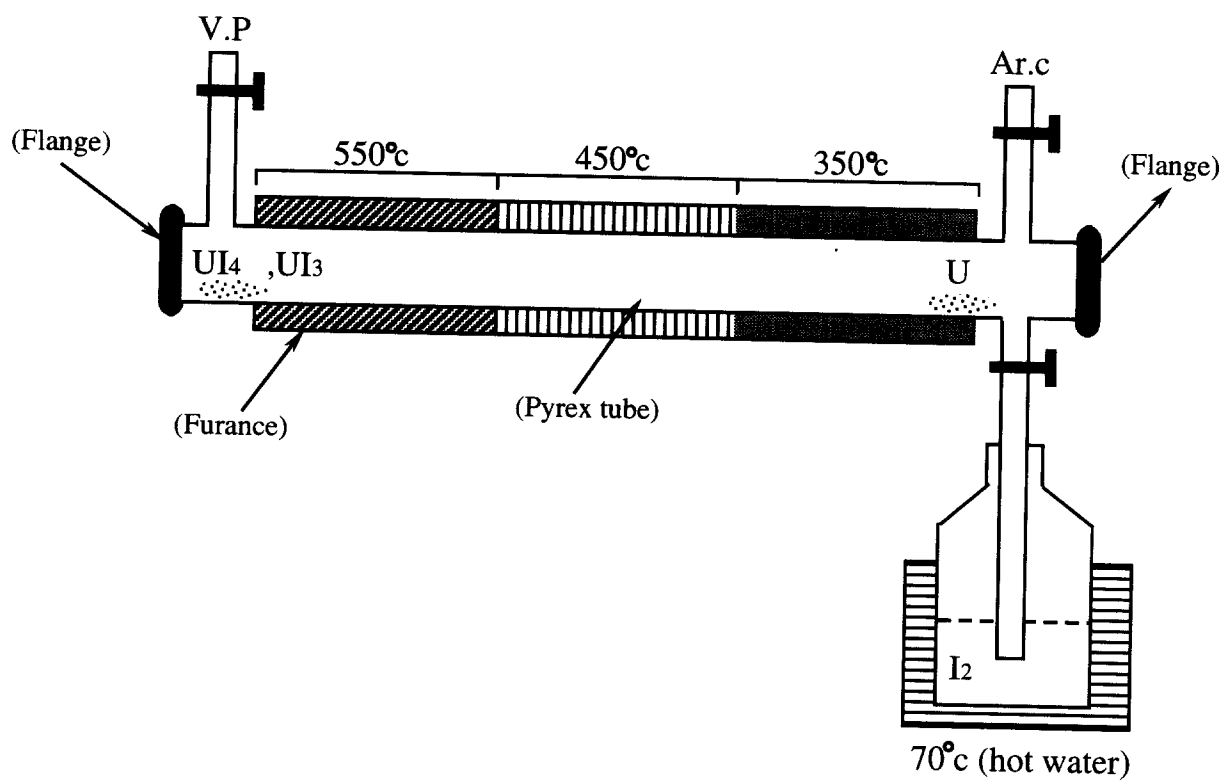


Fig (5.10.2-2) Schematic drawing of apparatus used for preparation of UI₄, UI₃

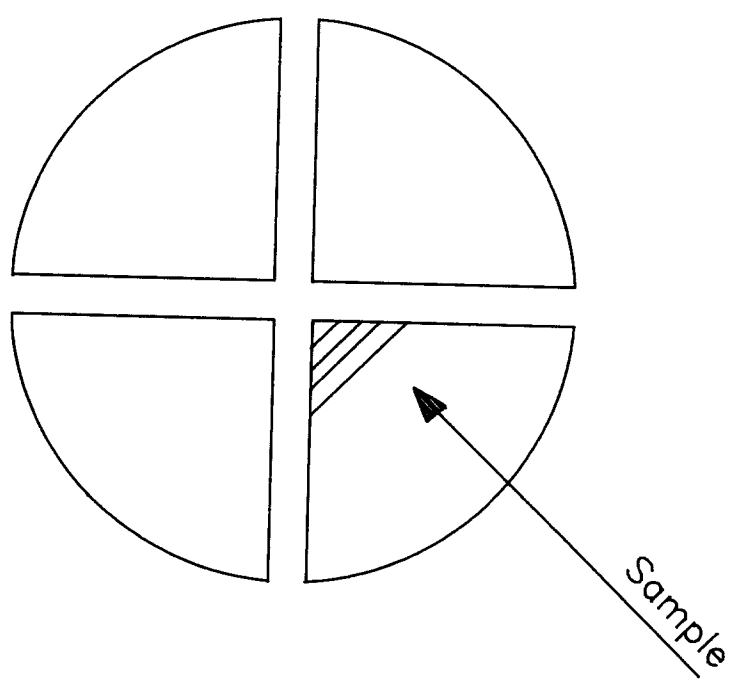


Fig.(5.10.1-10)
Sampling of metallic uranium derby.

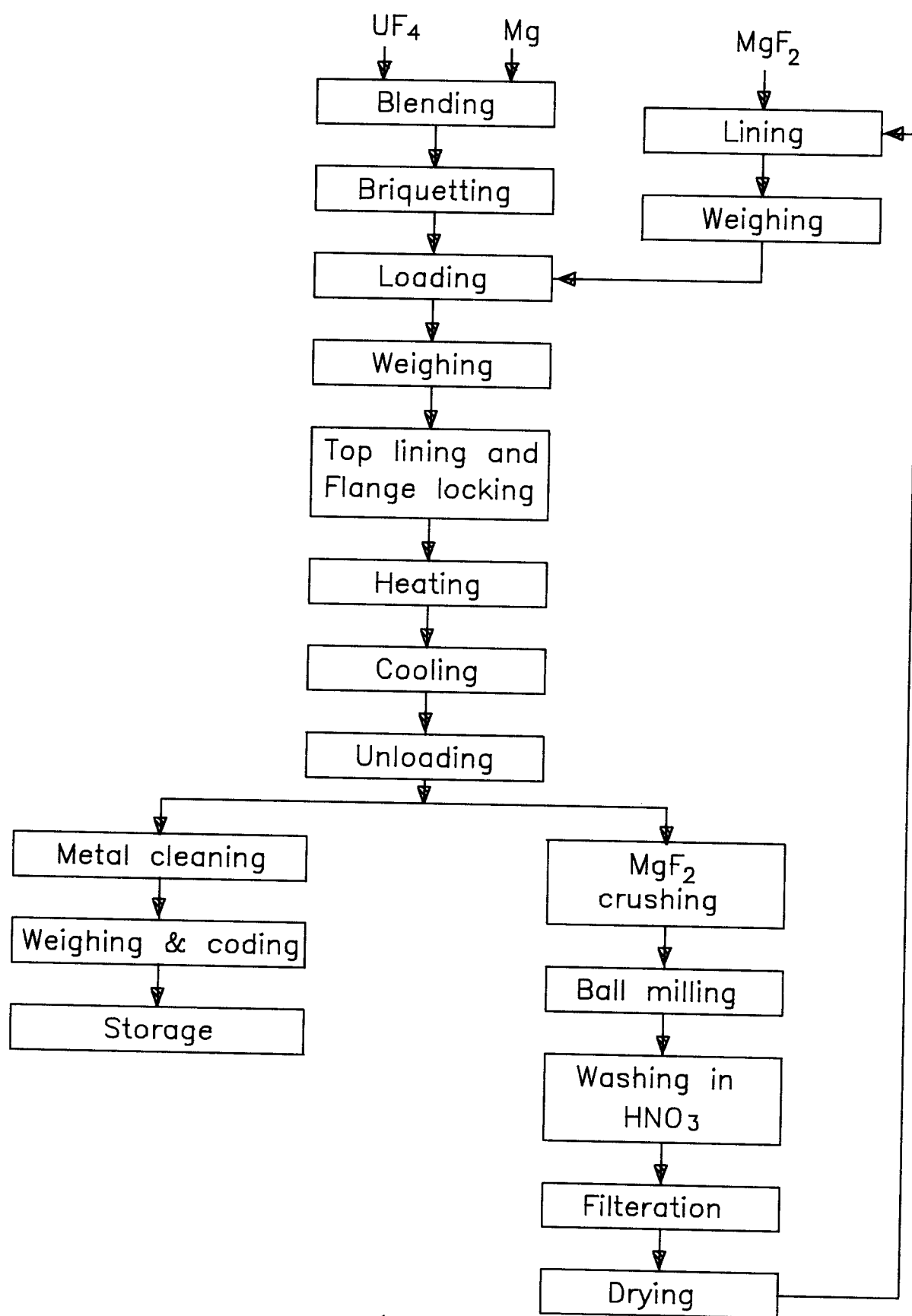


Fig.(5.10.1-9)
Block diagram for natural uranium production.

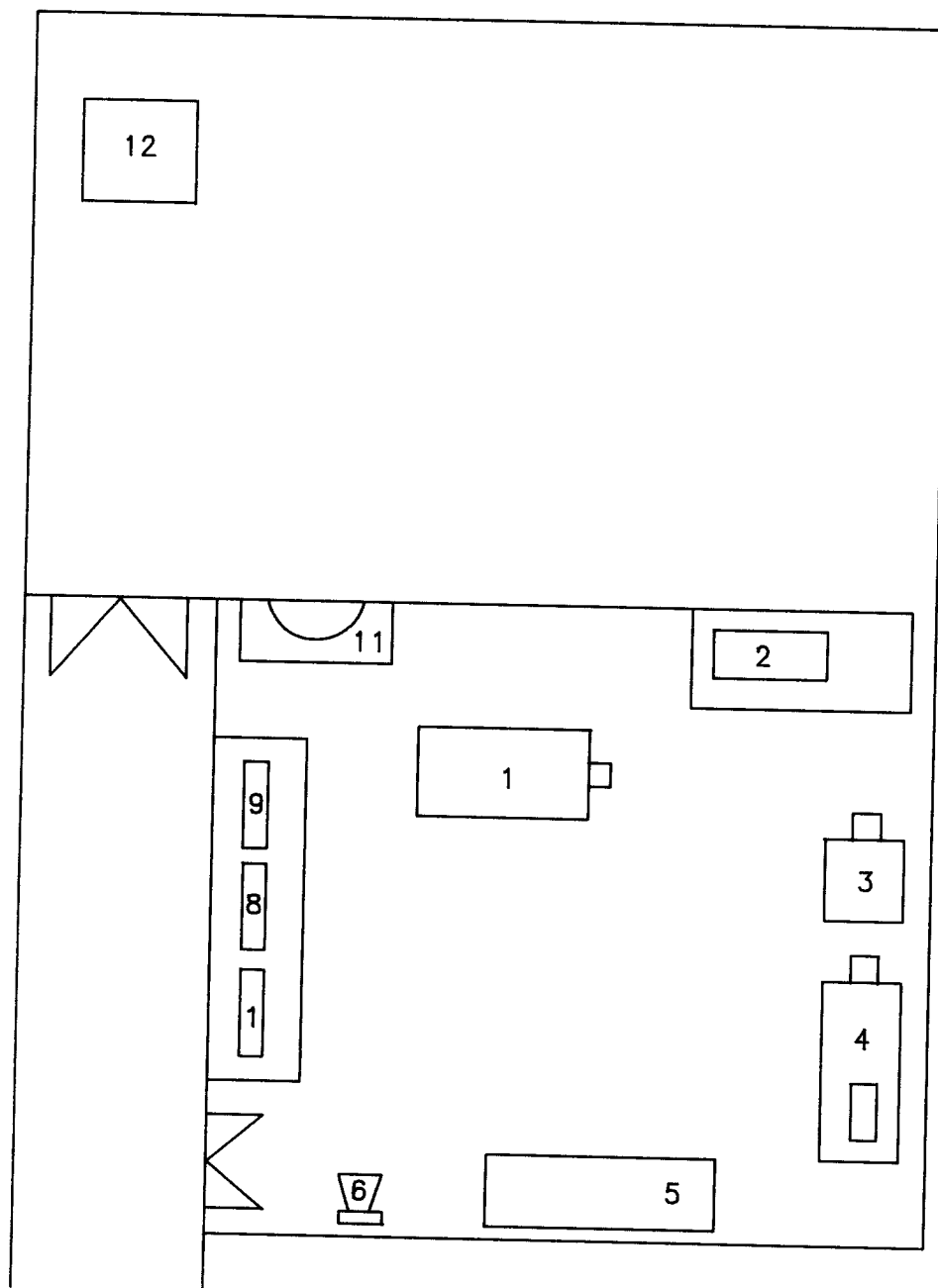


Fig.(5.10.1-6)

Layout of equipment of natural
uranium production lab.

- | | |
|--------------------------|----------------------------|
| 1-Lining G.B. | 7-Precise balance. |
| 2-Brequetting press. | 8-Discs temporary storage. |
| 3-Loading G.B. | 9-Blender. |
| 4-Unloading and crushing | 10-Cooling pit. |
| 5-Work bench. | 11-Sink. |
| 6-Balance. | 12-Top loading furnace. |

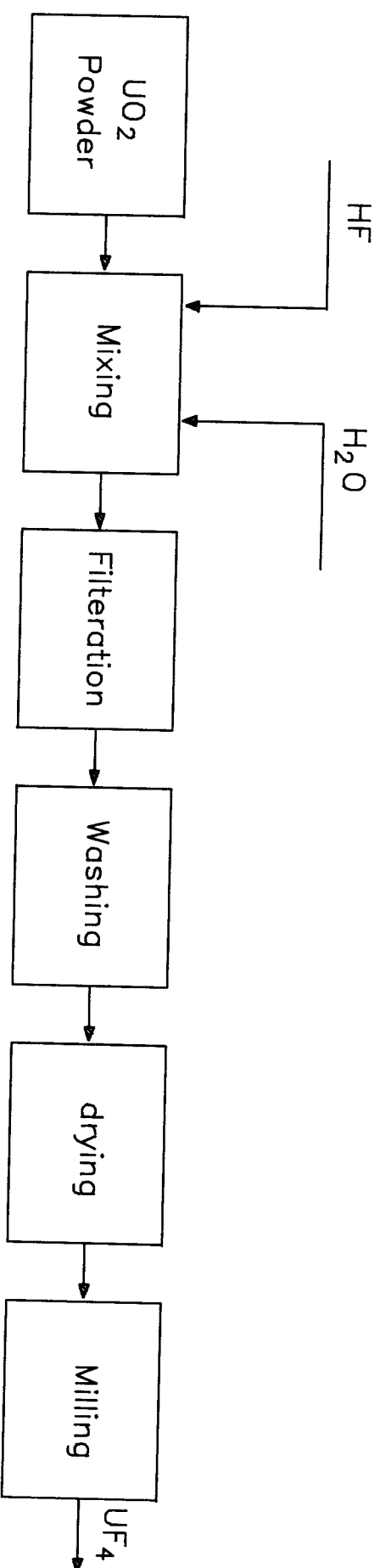


Fig.(5.10.1-4)

Block diagram for production of UF_4 .

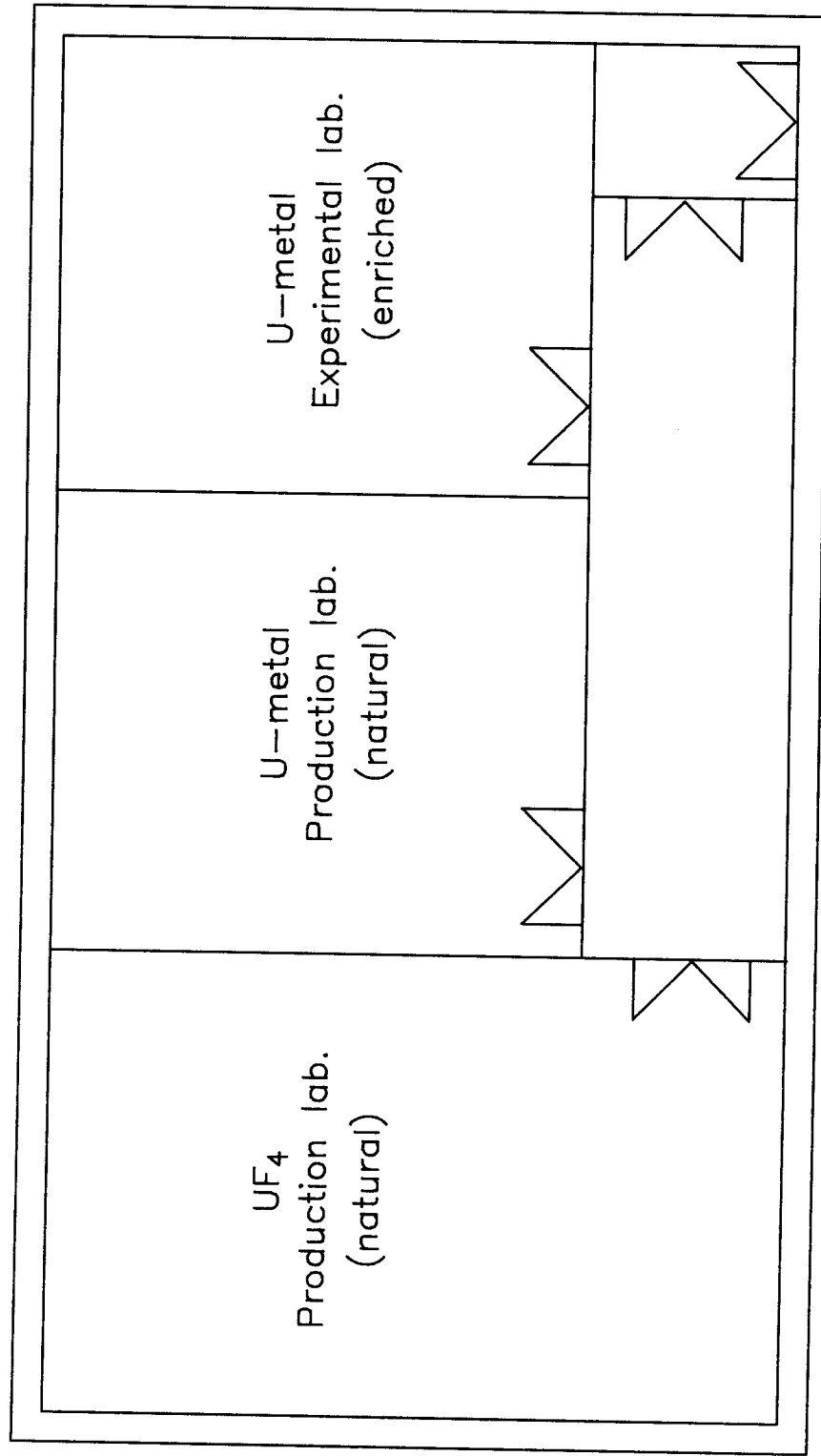
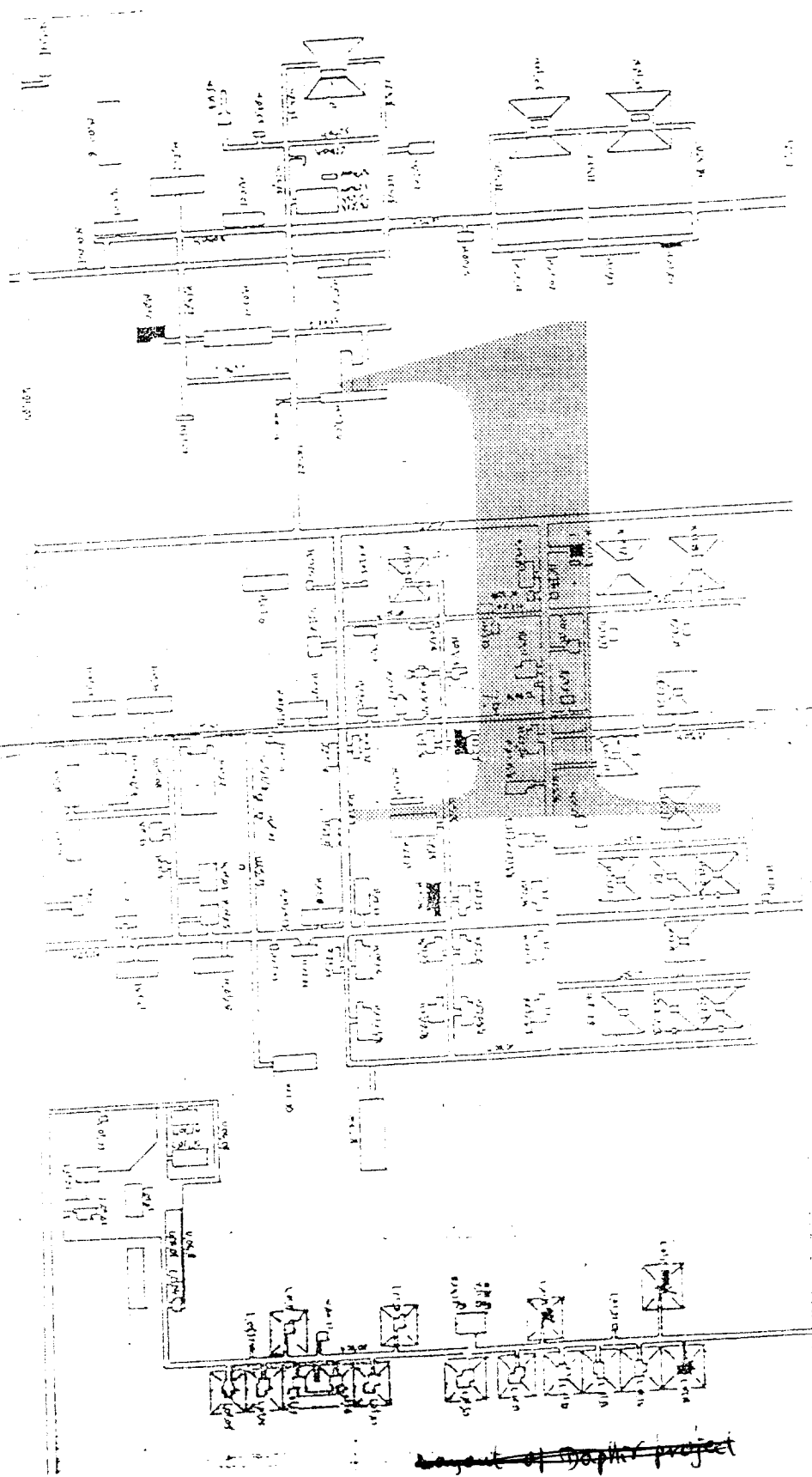


Fig.(5.10.1-2)

Schematic diagram of added area (shaded area of Fig.(5.10.1-1)).



هذا
التركيب
هو الصحيح !

~~Layout of Gapher project~~
 Fig. (5.8.1-2) Project site location
 Layout of (H) plant in (QGE)

obtained experimental results, a number of modifications were suggested including the following :

(2) Modification at Bldg. 73B

The feeding system was modified by the addition of a glove box made of stainless-steel with side door, and ball valve to feed the powder to dissolver as shown in Fig(4.2.1-6). The glove box was connected with the dissolver using a stainless steel pipe

(2.1) Filtration unit was added to remove all undissolved materials before adjustment and extraction .

- Feeding tank was added to feed the mixer settler with constant flowrate .
- Storage tank of the final product of extraction was connected to the conversion unit by-passing the evaporation stage.

Following these modification a trial operation including a continuous purification of UO_4 which was carried out using 50 - 100 kg per batch .

A large volume of uranium solution required for the filtration experiments was produced.

During these experiments, purification and precipitation of about 900 kg of high purity UO_4 were obtained. This product was used to produce high purity UO_2 . The results of this work were utilized to evaluate the operation of the facilities. The facility was operated for continuous purification in Jan. 1988 for one shift .

During these operations, a number of batches were rejected due to the presence of impurities, while the work was stopped due to a number of technical problems in the mixer settler, conversion unit, rotary kilns, blockage of the active ventilation filter, and other problems with the centrifuge and the utilities.

All these technical problems interrupted the continuous operation for few weeks . A description of the purification process at Bldgs. 73A and 73B is given below with overall capacity of about 50 kg/day.

LEGEND :

1. Offices, mechanical workshop (1A), chemical labs (1B), pilot plant (1C) and electrical workshop (1D).
2. High explosive and detonators labs.
3. Detonators manufacturing.
4. Machining of high explosives.
5. X-ray, vibration testing for H.E.
6. High explosive casting, composite explosive casting and pressing of (PBX).
7. Pilot plant for (PBX) manufacturing.

- Existing buildings
- Buildings under construction
- Building planned to be constructed

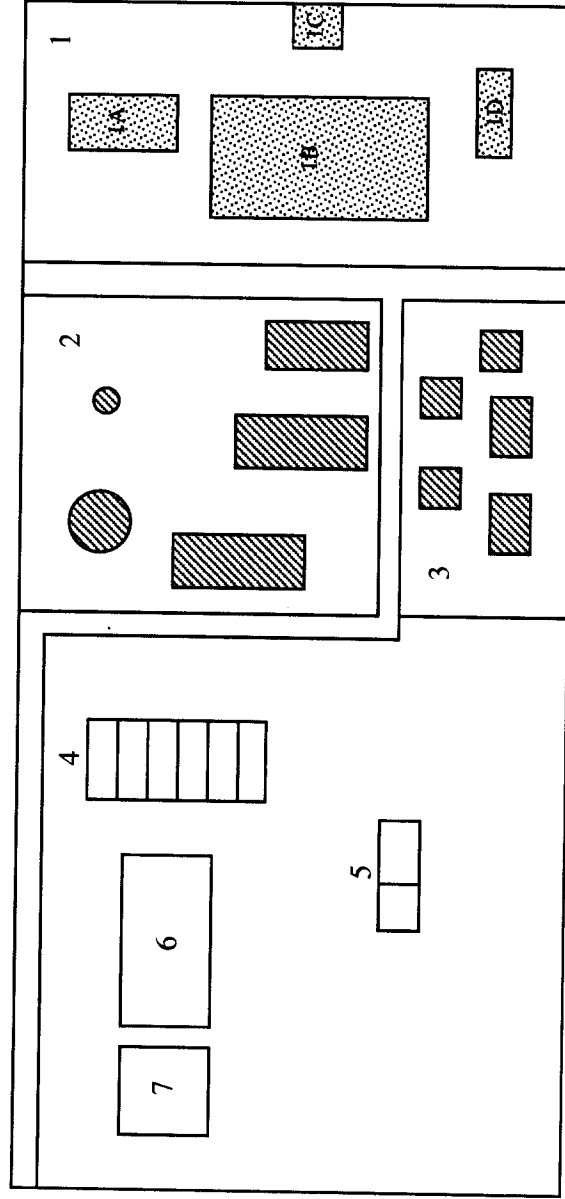


Fig (5.8.1-1)
Site location of Dhafir project

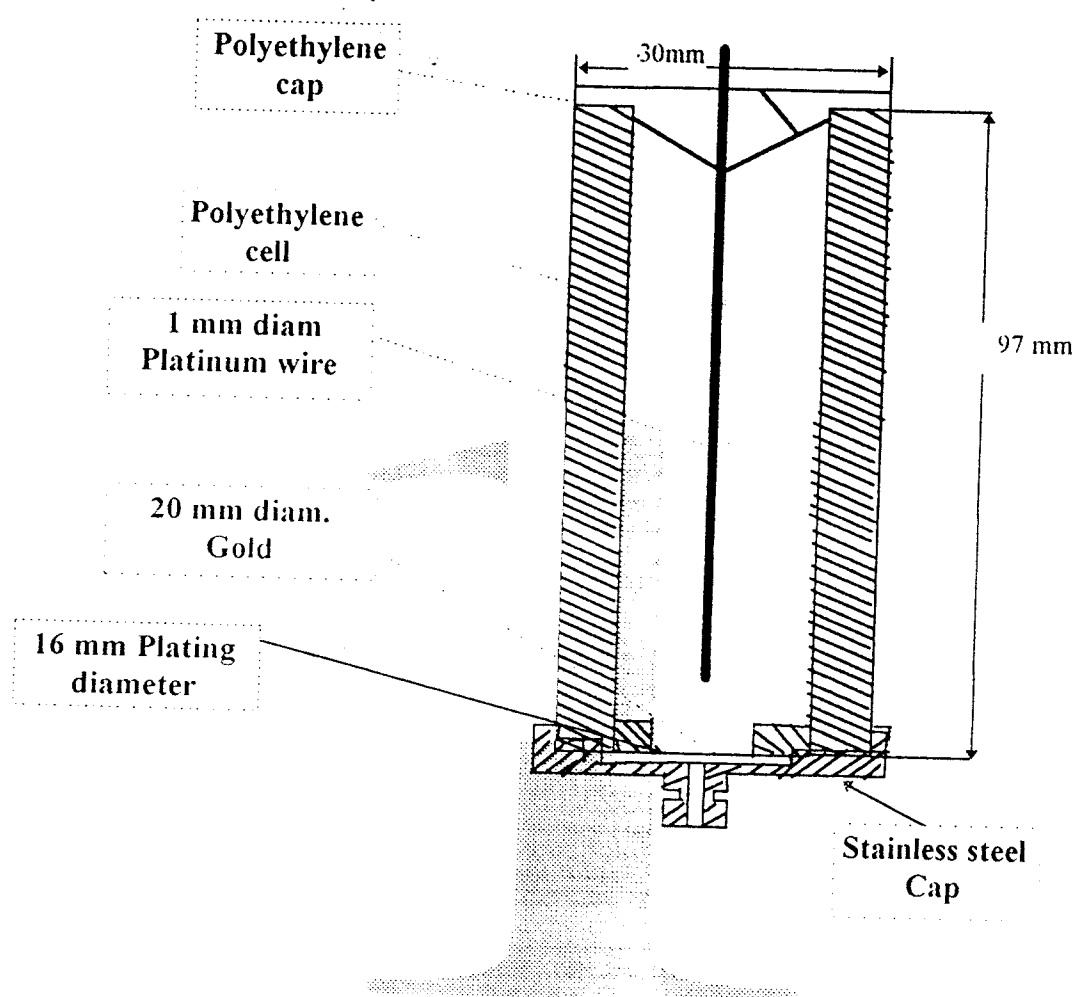


Fig. (5.10.3-3)
Perpendicular electrodeposition cell

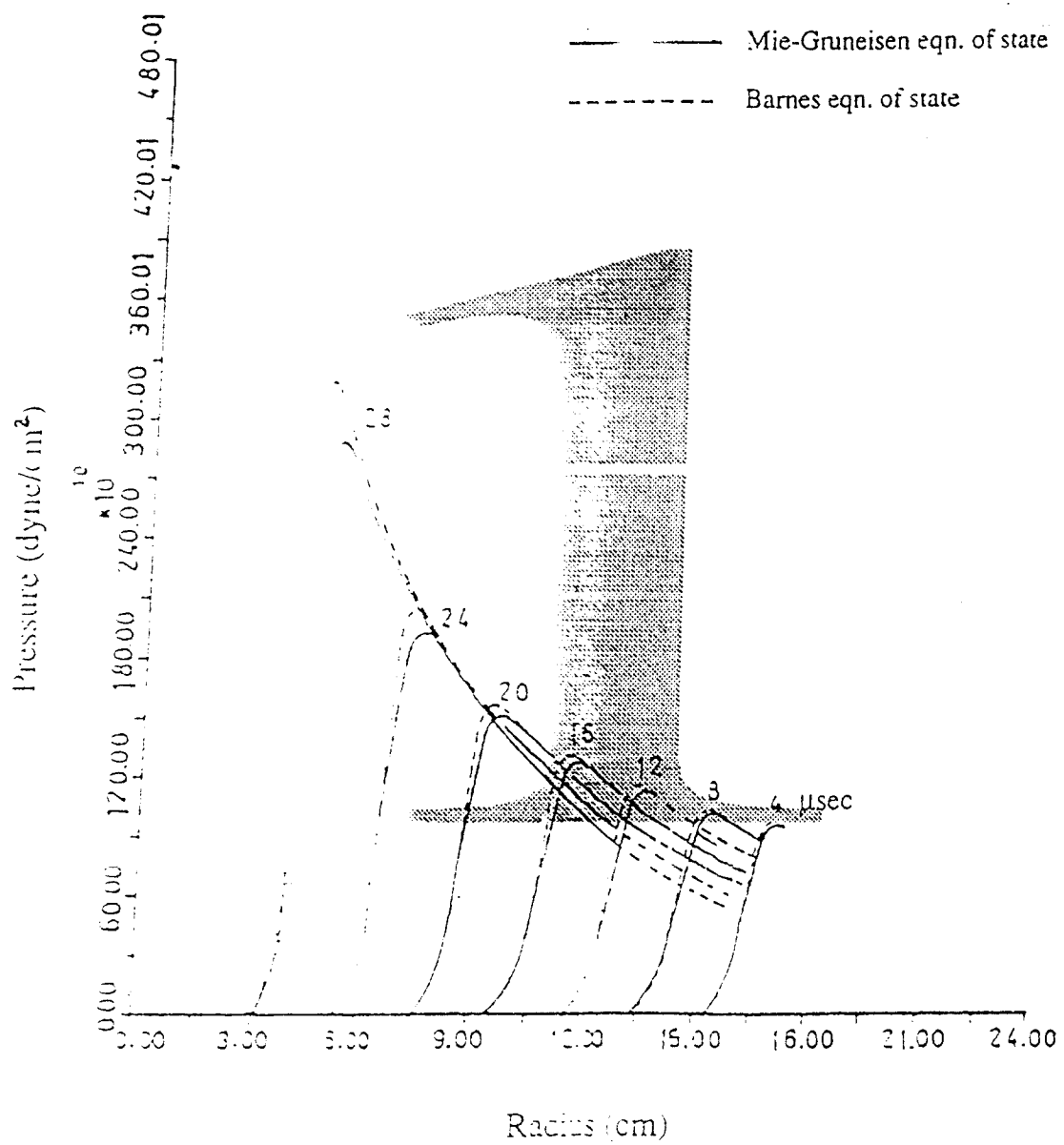


Fig (5.3.2-1) Pressure vs. radius as a function of time

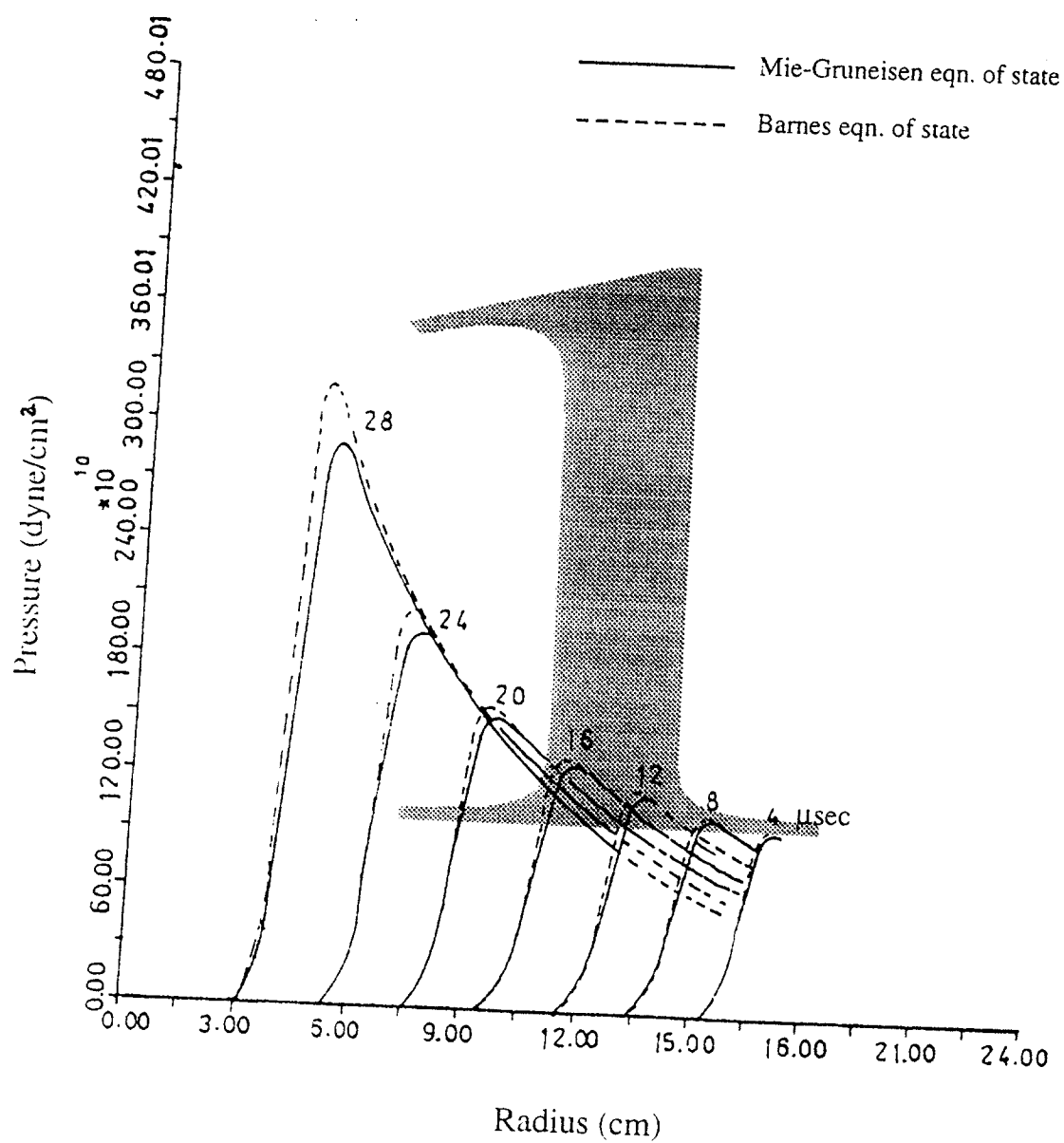


Fig (5.3.2-1) Pressure vs. radius as a function of time

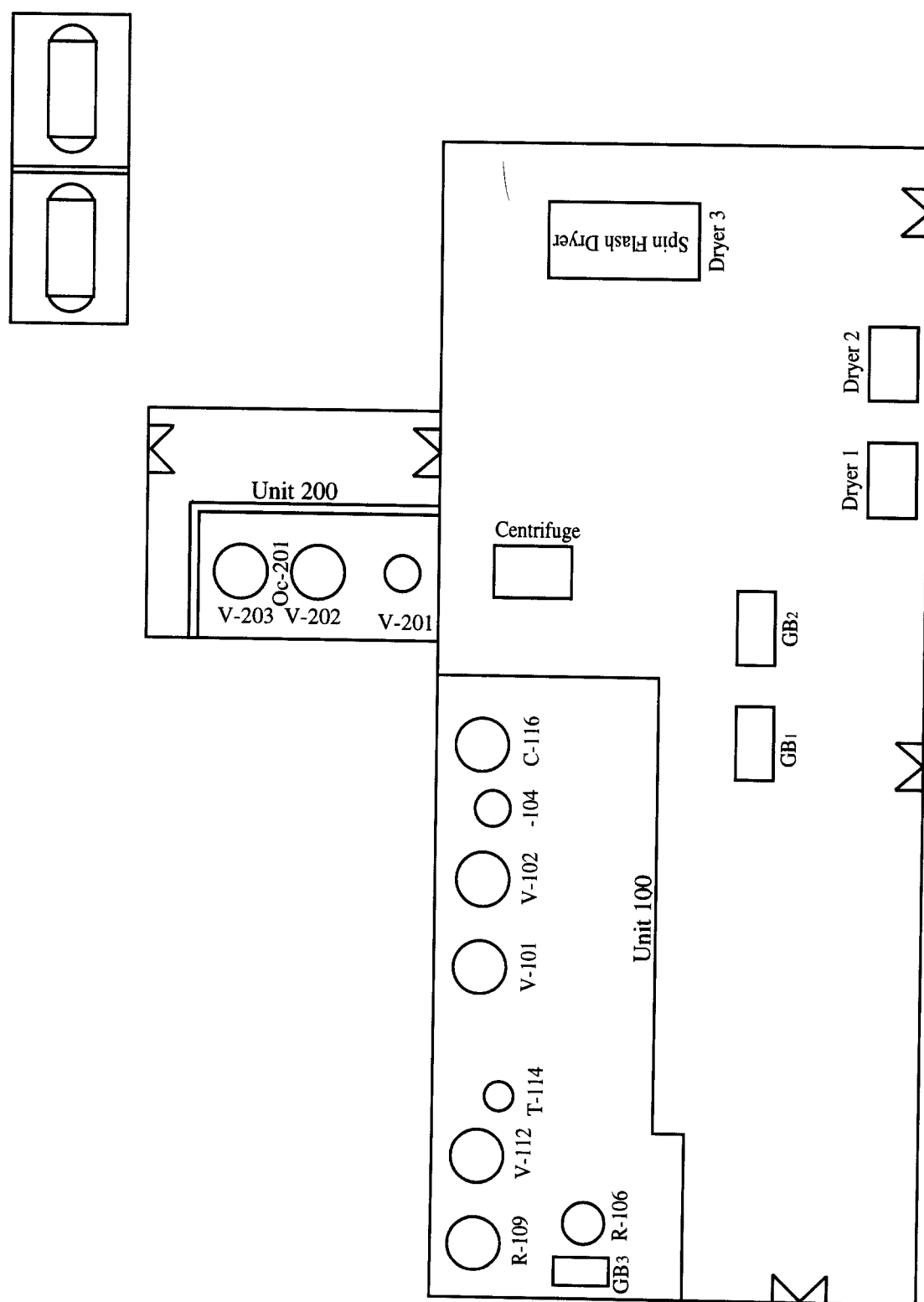


Fig (5.11.2-2)
Layout design of the units for production of UF₄ and wast treatment

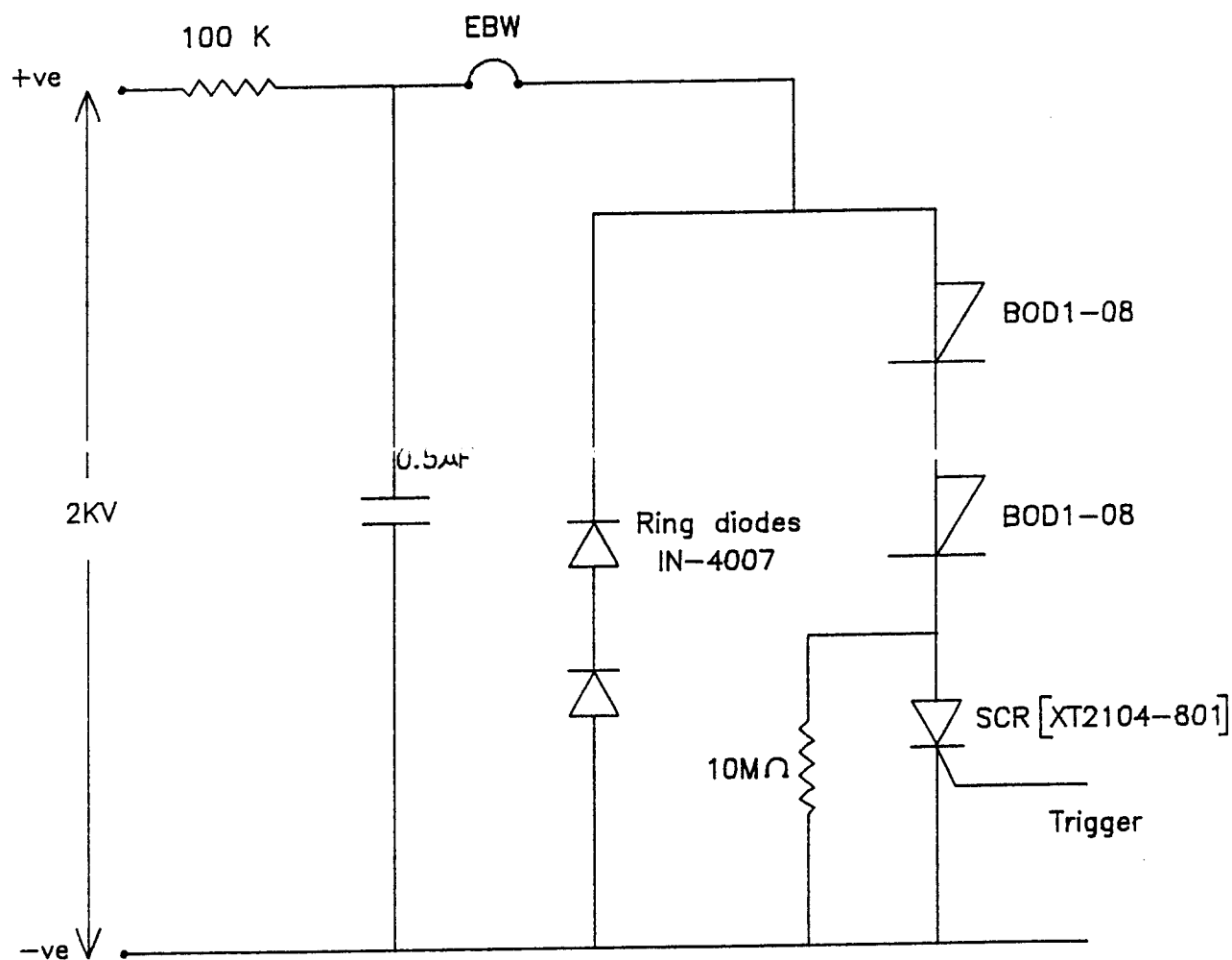


Fig.(5.8.5-1) (Bod-SCR) Firing circuit (switch)

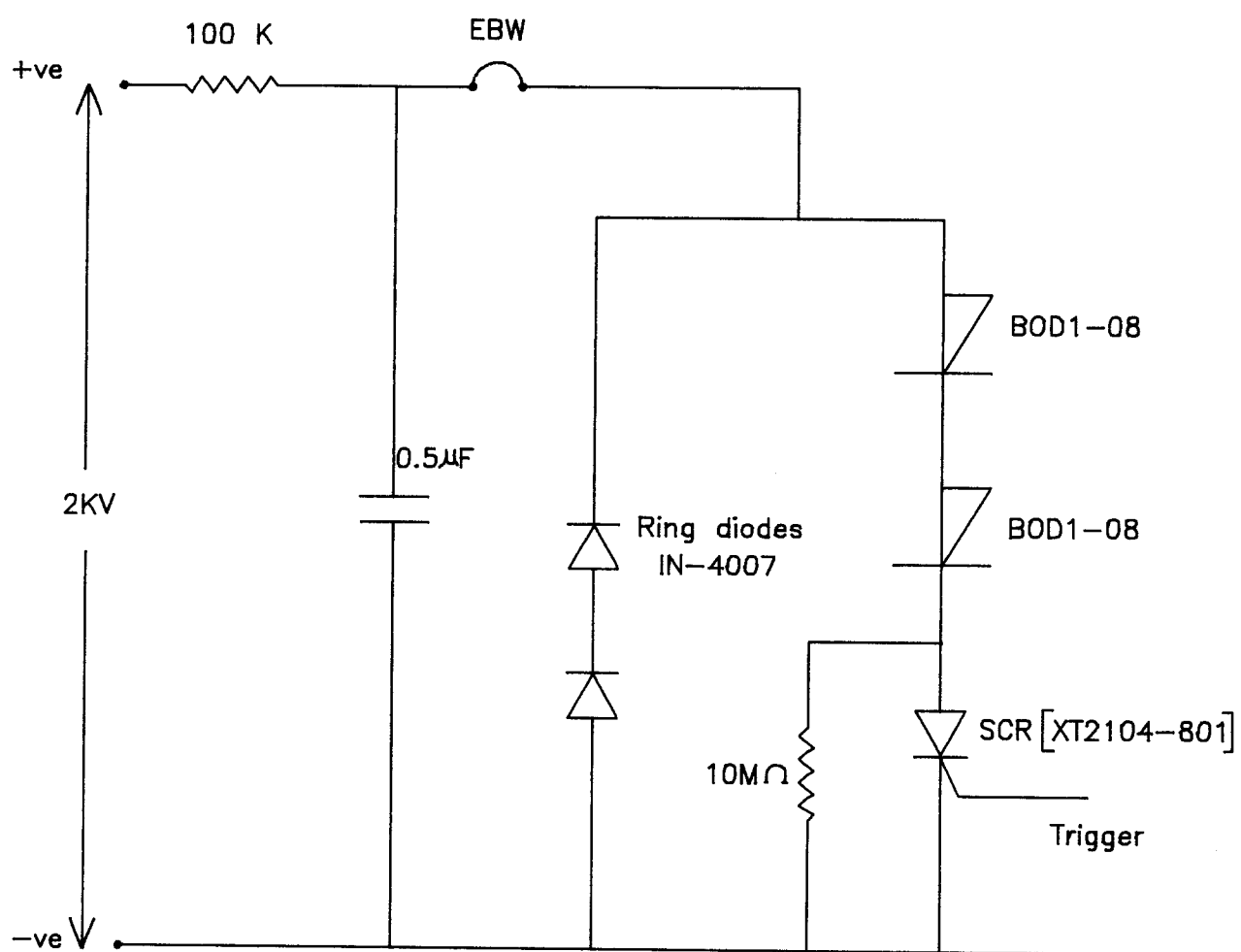
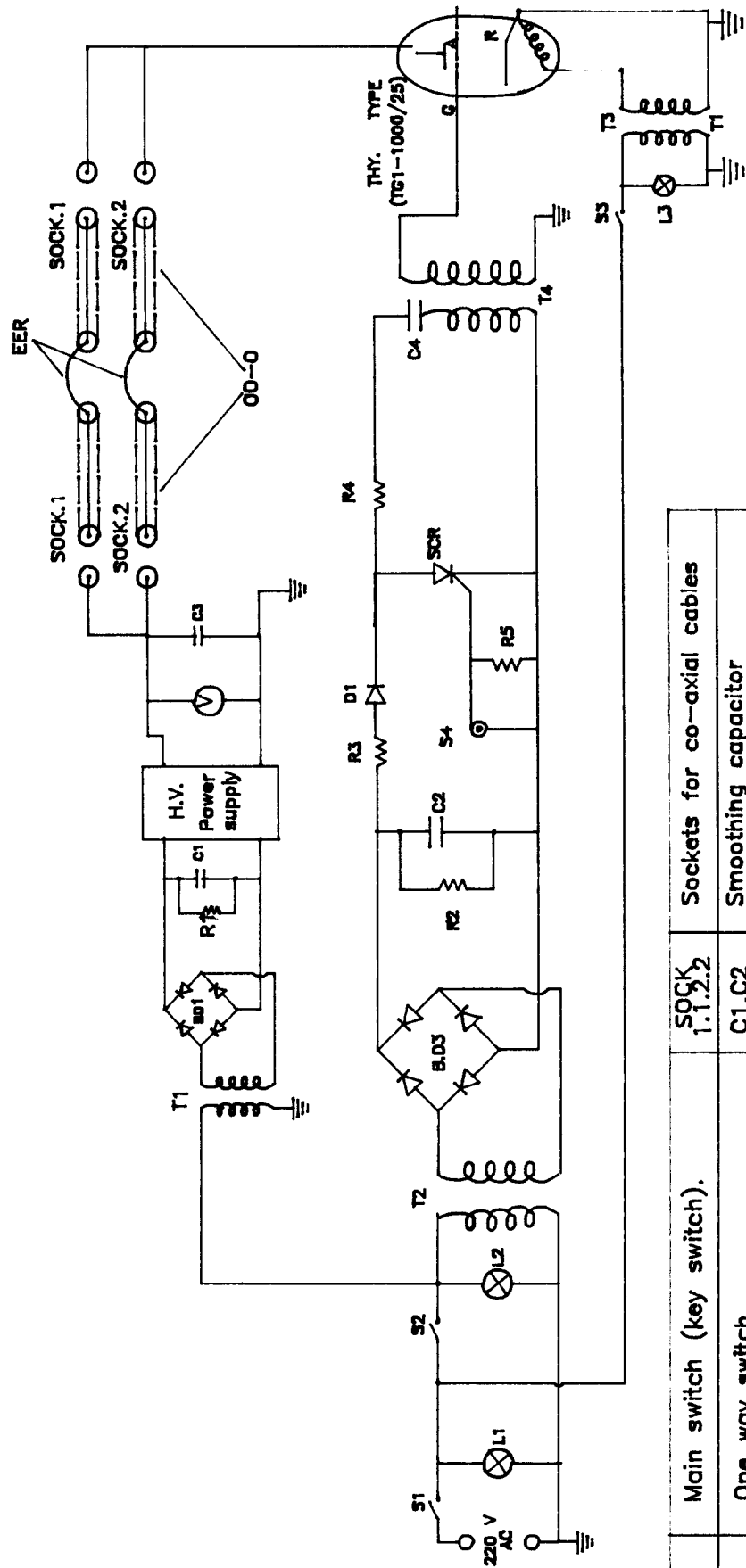


Fig.(5.8.5-1) (Bod-SCR) Firing circuit (switch)



S1	Main switch (key switch).	SOCK 1,1,2,2	Sockets for co-axial cables
S2,S3	One way switch	C1,C2	Smoothing capacitor
T1	Step-down transformer(220/24V)	C3	H.V capacitor, 1 μ F ,1000V
T2	Step-up transformer(220/600V)	C4	Capacitor 0.94 μ F ,1000V
T3	Step-down transformer(220/6.3V)	R1,R2	Bleeding resistors
T4	Trigger transformer	R3	10 Ω Resistor.
BD1,BD2	Bridge diode	R4	0.33 Ω ,8W Resistor.
L1,L2,L3	Indication lamps 220V	R5	1K Ω 2W Resistor
D1	Diode 1N 4007	THV	Thyristor 25KV/1000A
SCR	Thyristor type BTY 79-1000R		

Fig.(5.8.5-3) Firing circuit using thyristor switch

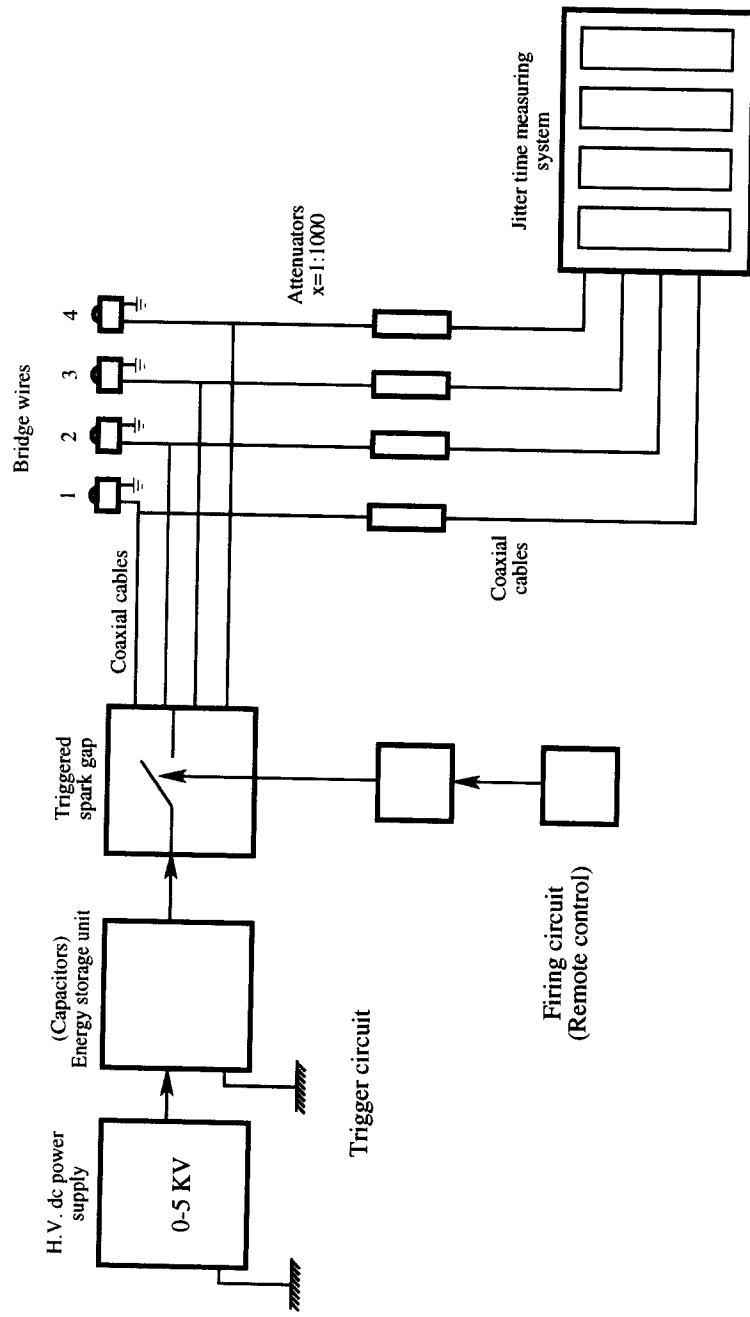
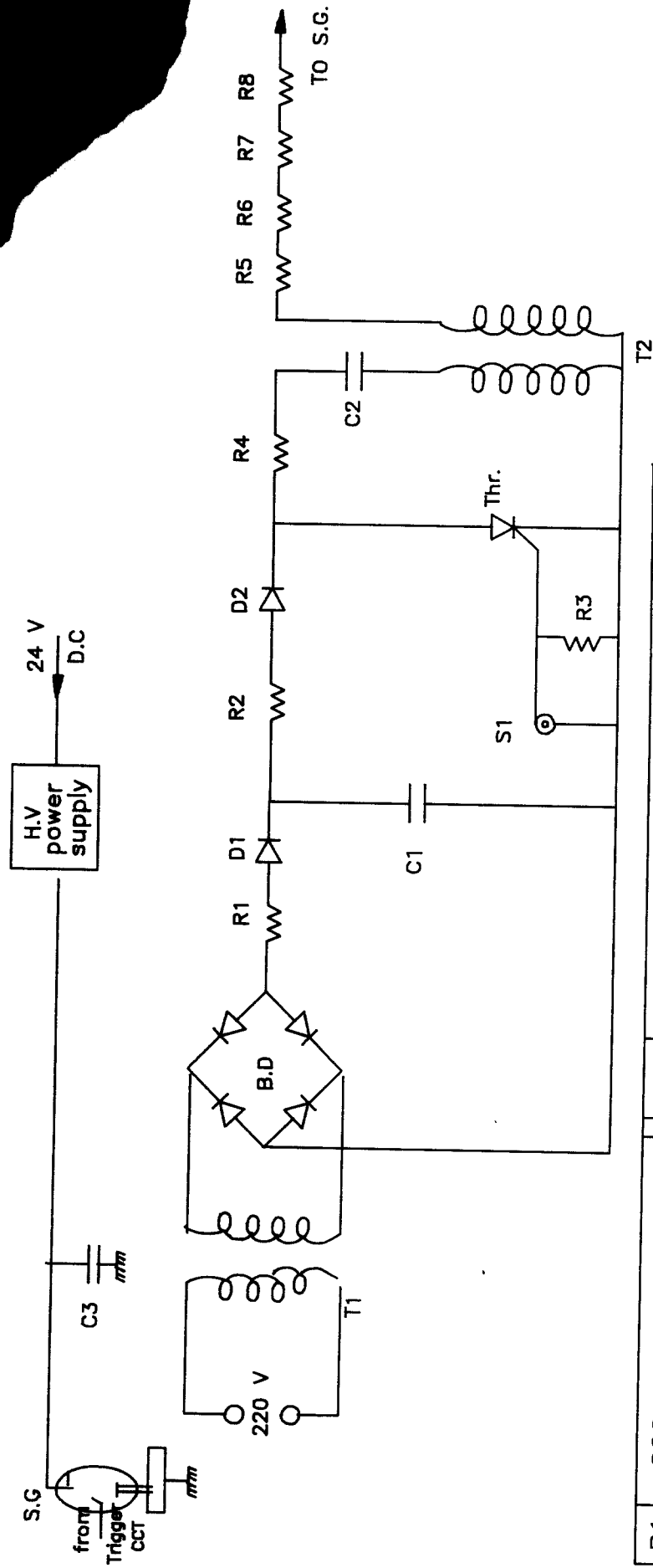


Fig (5.8.5-5)
Determination jitter time between the detonation of (4) B.W.S.



R1	220 Ω , 1w	c3	Bank of capacitors 12.5 μ F, 5000 V
R2	6.6K Ω , 12w	Thr.	Thyristor type CR 24 U 08 JY
R3	1K Ω , 1w	D1,D2	Diode type 1N4007
R4	0.5 Ω , 12w	B.D	Bridge diode (full-wave rect)
R (5-8)	1K Ω , 1w	T1	Transformer 220/130 V
C1	1 μ F , 250 V	T2	Pulse trans. type MA 819
C2	0.047 μ F , 250 V	G	Spark gap

Fig. (5.8.5-4) Firing circuit using spark-gap switch

Figure 1. The effect of the concentration of the *Agrobacterium* suspension on the transformation efficiency of *Agrobacterium* strains.

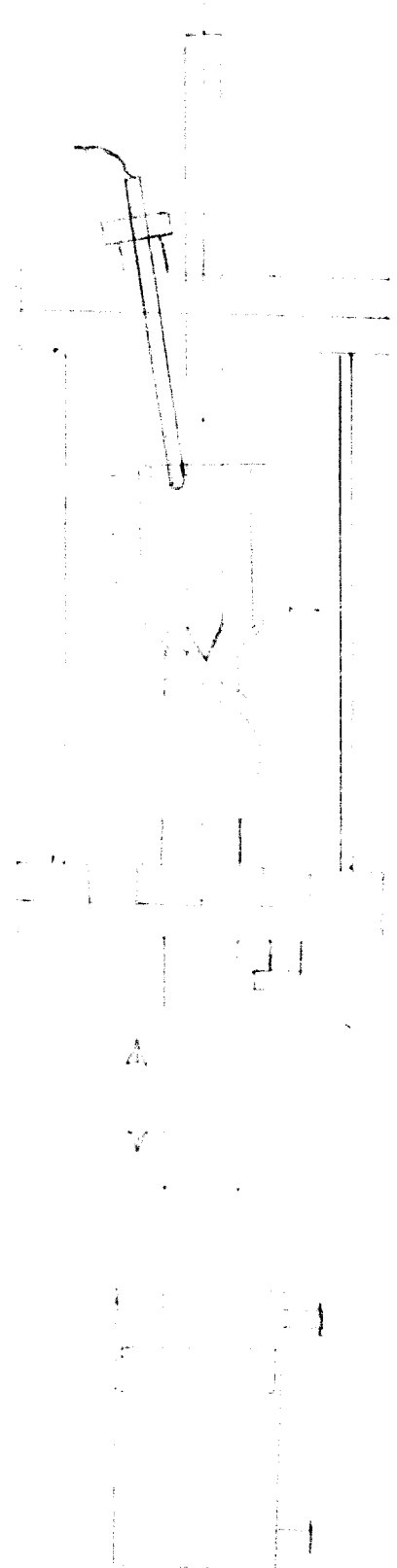
[illegible]

1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 26

11/10/1918

Country	1950	1960	1970	1980
United States	1	1	1	1
Canada	2	2	2	2
France	5	5	5	5
Germany	10	10	10	10
Italy	15	15	15	15
Japan	20	20	20	20
South Korea	30	30	30	30
Taiwan	40	40	40	40
Hong Kong	50	50	50	50
India	60	60	60	60
China	70	70	70	70
Indonesia	80	80	80	80
Philippines	90	90	90	90
Thailand	95	95	95	95
Malaysia	98	98	98	98
Singapore	100	100	100	100
South Africa	100	100	100	100
Argentina	100	100	100	100
Brazil	100	100	100	100
Chile	100	100	100	100
Colombia	100	100	100	100
Venezuela	100	100	100	100
Peru	100	100	100	100
Ecuador	100	100	100	100
Guatemala	100	100	100	100
Honduras	100	100	100	100
Nicaragua	100	100	100	100
Costa Rica	100	100	100	100
Panama	100	100	100	100
Cuba	100	100	100	100
Mexico	100	100	100	100
El Salvador	100	100	100	100
Haiti	100	100	100	100
Dominican Republic	100	100	100	100
Jamaica	100	100	100	100
Trinidad and Tobago	100	100	100	100
Guyana	100	100	100	100
Suriname	100	100	100	100
Paraguay	100	100	100	100
Uruguay	100	100	100	100
Rio de Janeiro	100	100	100	100
Spain	100	100	100	100
Portugal	100	100	100	100
Greece	100	100	100	100
Turkey	100	100	100	100
Iran	100	100	100	100
Pakistan	100	100	100	100
Bangladesh	100	100	100	100
India	100	100	100	100
China	100	100	100	100
Indonesia	100	100	100	100
Philippines	100	100	100	100
Thailand	100	100	100	100
Malaysia	100	100	100	100
Singapore	100	100	100	100
South Africa	100	100	100	100
Argentina	100	100	100	100
Brazil	100	100	100	100
Chile	100	100	100	100
Colombia	100	100	100	100
Venezuela	100	100	100	100
Peru	100	100	100	100
Ecuador	100	100	100	100
Guatemala	100	100	100	100
Honduras	100	100	100	100
Nicaragua	100	100	100	100
Costa Rica	100	100	100	100
Panama	100	100	100	100
Cuba	100	100	100	100
Mexico	100	100	100	100
El Salvador	100	100	100	100
Haiti	100	100	100	100
Dominican Republic	100	100	100	100
Jamaica	100	100	100	100
Trinidad and Tobago	100	100	100	100
Guyana	100	100	100	100
Suriname	100	100	100	100
Paraguay	100	100	100	

1. *Handwritten notes at the top left of the page.*
 2. *Handwritten notes below the first set.*

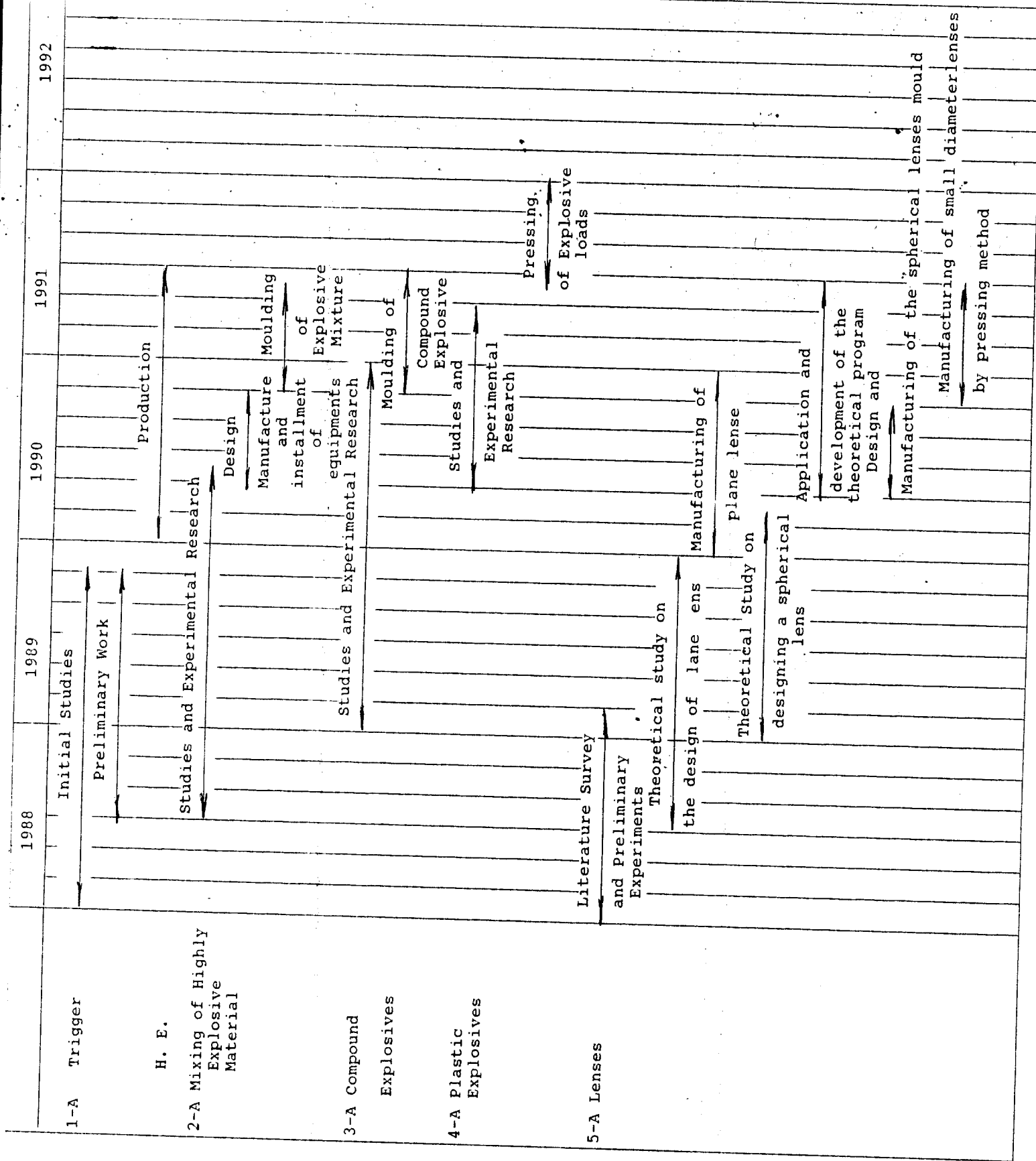


3. *Handwritten notes on the right side of the page.*
 4. *Handwritten notes below the diagram.*

5. *Handwritten notes at the bottom of the page.*
 6. *Handwritten notes below the last set.*

	1988				1989				1990				1991				1992			
General Establishment 1st programme review																				
Main Tasks																				
A- H. E. Lenses																				
B- Calculations, Designs Exp.																				
C- Chemistry																				
D- Material																				
E- Electronics																				
F- Mechanical Activities																				

Tim Schedule of Main Activities/ Table No (5.2.8.1)



					1992
					1991
					1990
					1989
					1988
6-A Explosive Machining					
7-A Testing					

Table No (5.28-1 A2)

	1988	1989	1990	1991	1992
1-B Theoretical Physics and Applied Calculations	Installation of Hydrodynamic and Coupled				
	Calculations		Use of computer		
	Studies of H.E		programmes for the design of experiments to improve designs		
2-B External Explosion Lab. Bunker 100	Completion of Laboratory-100	Spherical lenses Experiments.			
	It was anticipated to complete the qualification of Lenses, Experiments on metal compression and lenses jitter.				
	Planning for experiments with less than one Kg. of H.E.				
3-B Internal Explosion Lab. 6100	Studies, Designs, Construction, and manufacturing of mechanical components and systems for testing of initiator				
	Erection of Systems				
	Initiator experiments Finalization.				
4-B Gas - Gun Lab. 6610	Experiments with cylindrical				
	Initiator; Design of Spherical initiator; Manufacturing of neutron sources and detectors for DT initiator. Experiments to measure assembly time for the cylindrical initiator.				
	Studies for Planning for Experiments				
5-B Initiator Physics Lab. 6660	Construction	Requirements for testing of Initiator	With spherical lenses, Testing compression of metals, Production of neutrons from the initiator and use of Flash X-ray systems.		
	Assembly Building. Studies for Defining of Final Test requirements and studies of the requirements of the Desert Research Station				
	6-B Final Experiments of the Device				

Details of Time Schedule for Theoretical Calculations and Desings

1988		1989	1990	1991	1992
1-C Chemical Activity	Site selection and civil design	Starting of Civil and Mechanical work (Mechanical work stopped due to wrong selection of ducting pipes)	Erection of utilities and finishing (Radio active waste tanks and pipes were not completed)		
	2-C Polonium (Project 155)		Equipment erection (Hot cell and part of glove boxes were not completed)		
3-C Production and Purification of Uranium Metal		Research and development were not completed			
	Site prep. & Lab. Exp.	Starting of Experimental Production	Development of Production capacity and quality of purity (not completed) because of the war		
4-C Ore Preperation building 6580		Preparation of basic and detailed design	Civil and Utilities work (not completed due to the war)		
		Site selection and design preparation	Equipment, Utilities erection and finishing and trail operation (were not completed due to the war)		
5-C Project 156					

Details of Chemical Works Time Schedule/ Table No (5.2.8-1 C)

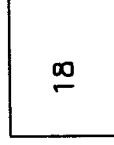
	1988	1989	1990	1991	1992
1-D Melting and Casting Bldg 6520		Basic Design & Implementation, Traing construction was delayed Hall 19 was completed on 8-1-91			
		contracting for equipment			
		Arrival of equipment		modific- obtaining production actions experience	
		(Delayed) Design and Implementation			
2-D Powder Metalorgy Bldg 6530		Training and obtaining experience			
		Contracting for equipment			
		Arrival of equipment		obtaining experience	
		Designs Construction			
3-D Quality Control Bldg 6570		Training and initial exp.			
		Contracting for equipment			
		Arrival of equipment			
		(it did not materialize)			
4-D Precession Machining Bldg		Contracting for equipment		obtaining exp.	
		This was not materialize			
				Obtaining experience	

Time Schedule of Details for Material works/ Table No (5.2.8-ID)

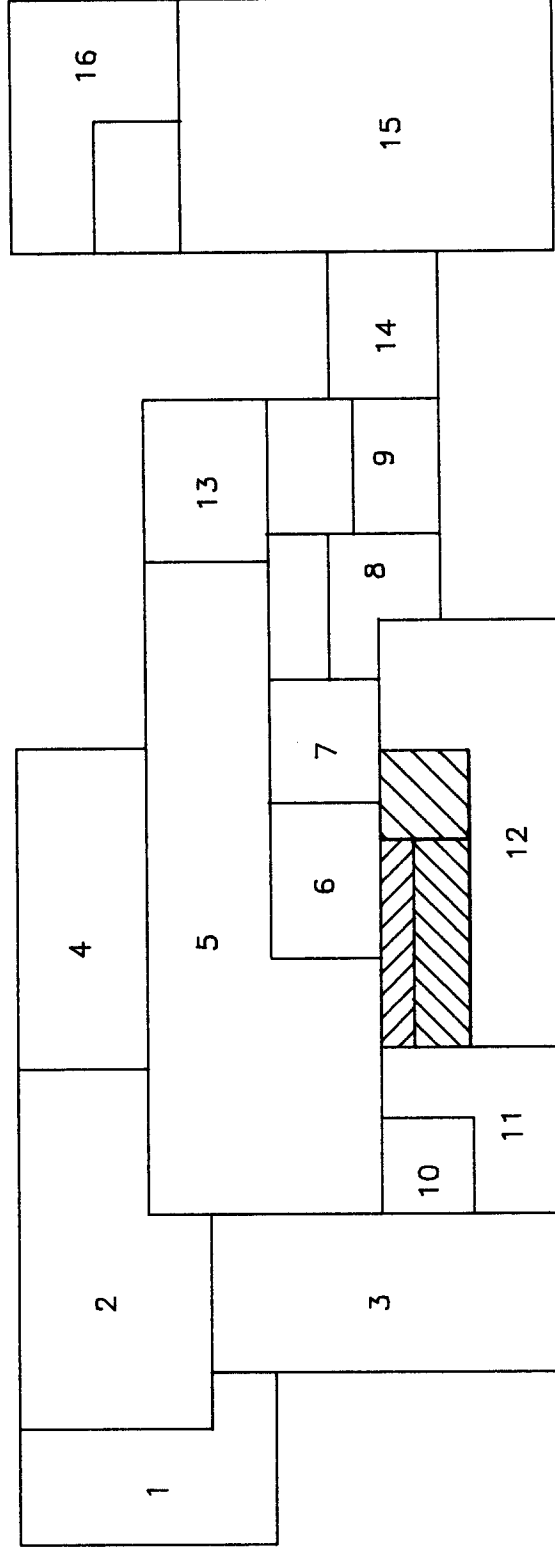
- 1- Cold offices
- 2- Entrance and health physics room
- 3- Cold work shop
- 4- Quality control lab.
- 5- Ceramic fuel fabrication line.
- 6- Pickling area



- 7- Assembly.
- 8- Bundle storage and testing.
- 9- Loading and unloading.
- 10- Powder and pellets storage.
- 11- Temporary storage
- 12- Added area.
- 13- Conversion unit.



- 14- Rad waste treatment.
- 15- Dissolution for purification
- 16- Cold area.
- 17- Chemical waste.
- 18- Hydrogen prod.



Fig(5.10.1-1)

Schematic diagram of building 73 A and B

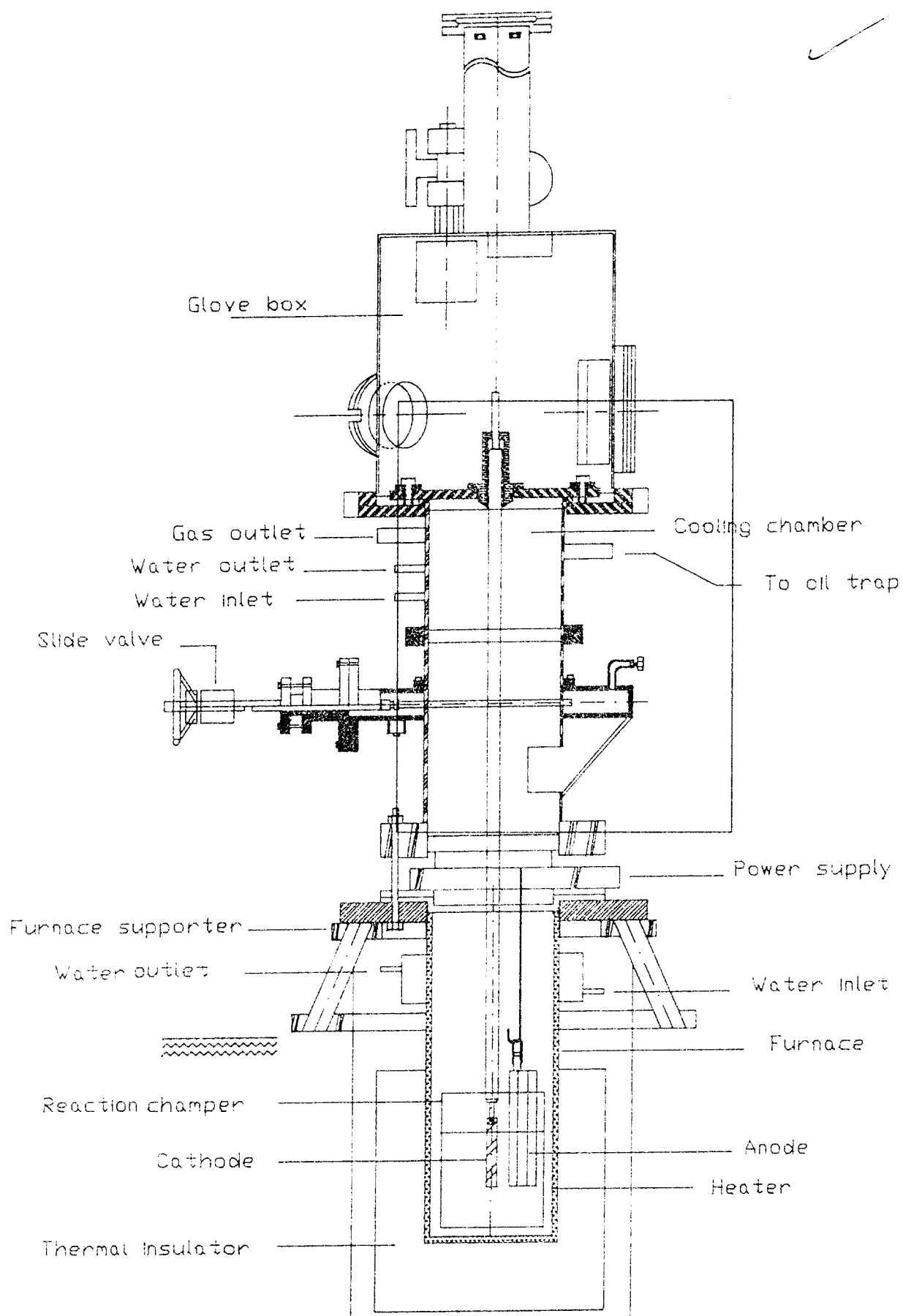


Fig.(5.10.2-4) Electrolytic cell

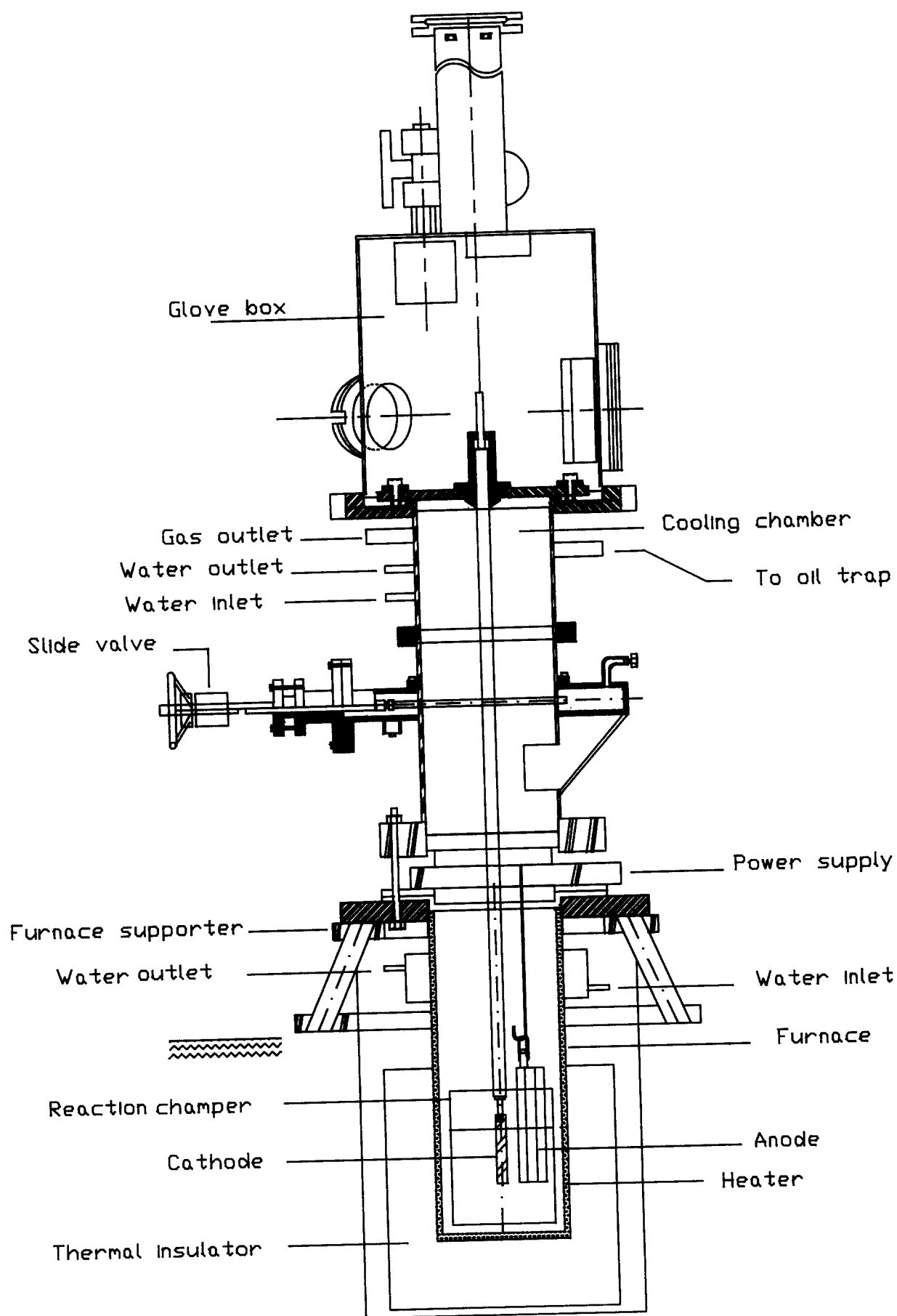


Fig.(5.10.2-4) Electrolytic cell

1- Cold offices.

2- Entrance and Health physics room .

3- Cold workshop .

4- Ceramic line area .

5- Quality Control lap. .

6- Pickling area .

7- Assembly area .

8- Bundle storage and testing area .

9- Loading and unloading area .

10- Powder and pellets storage .

11- Temporary storage .

12- Added area .

13- Conversion Unit .

14- Rad waste treatment area .

15- Dissolution of purification area .

16- Cold area .

17- Chemical waste treatment area .

18- Hydrogen production station .



17

18

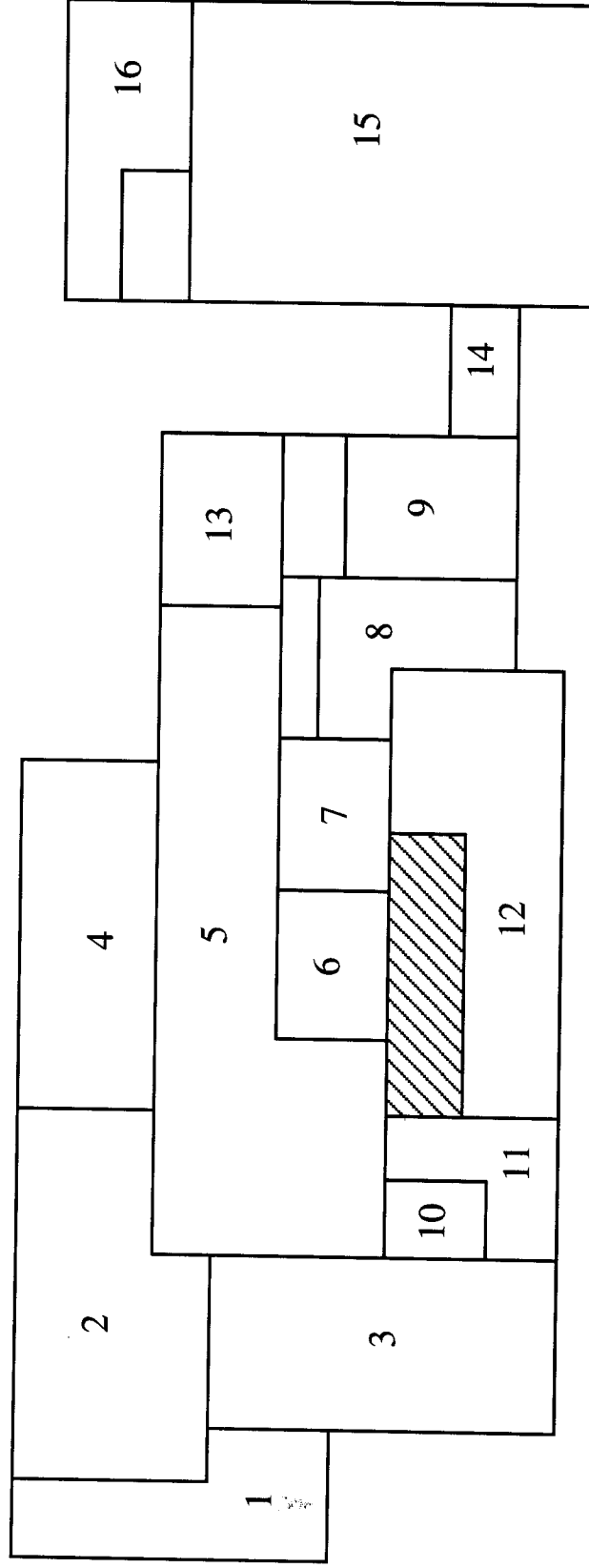


Fig (5.11.2-1)
General layout of all relevant facilities in bldg-64

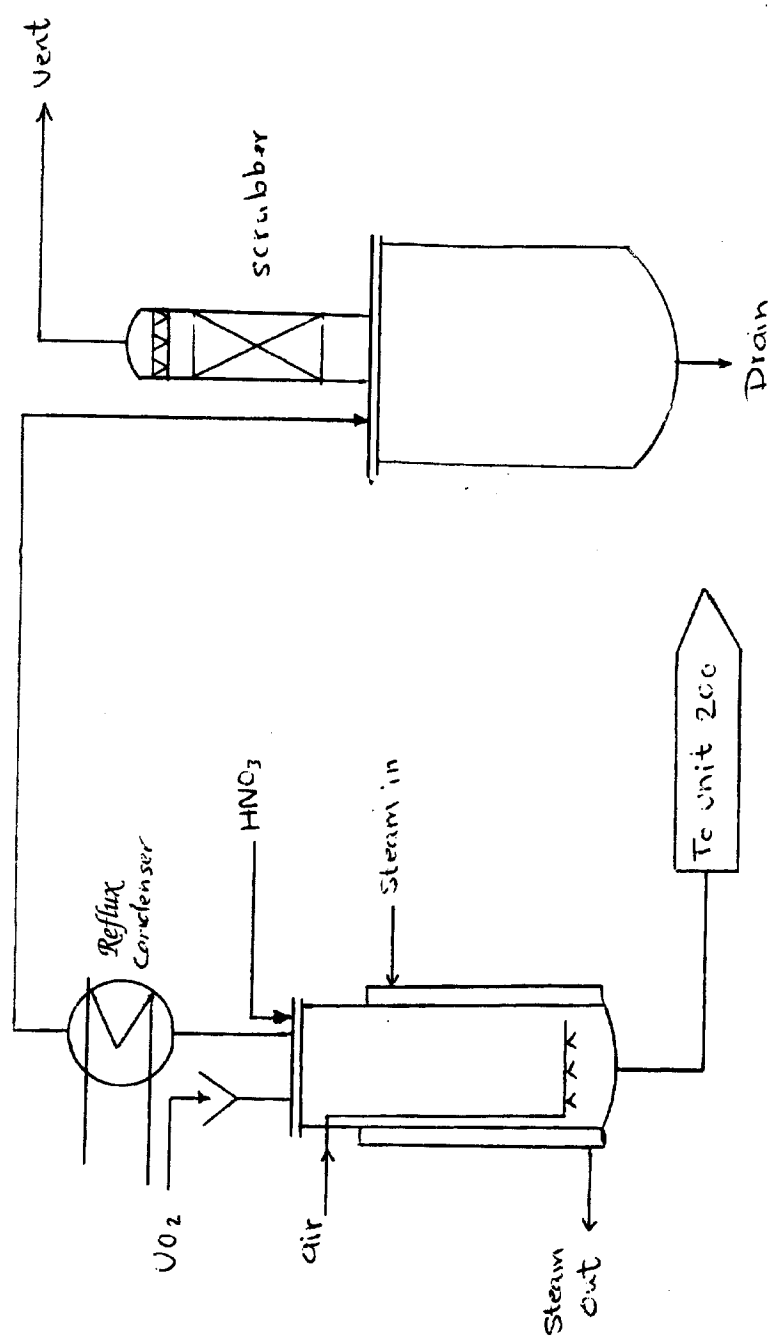


Fig (5.11.2-12)
Dissolution unit for highly enriched uranium out of specification

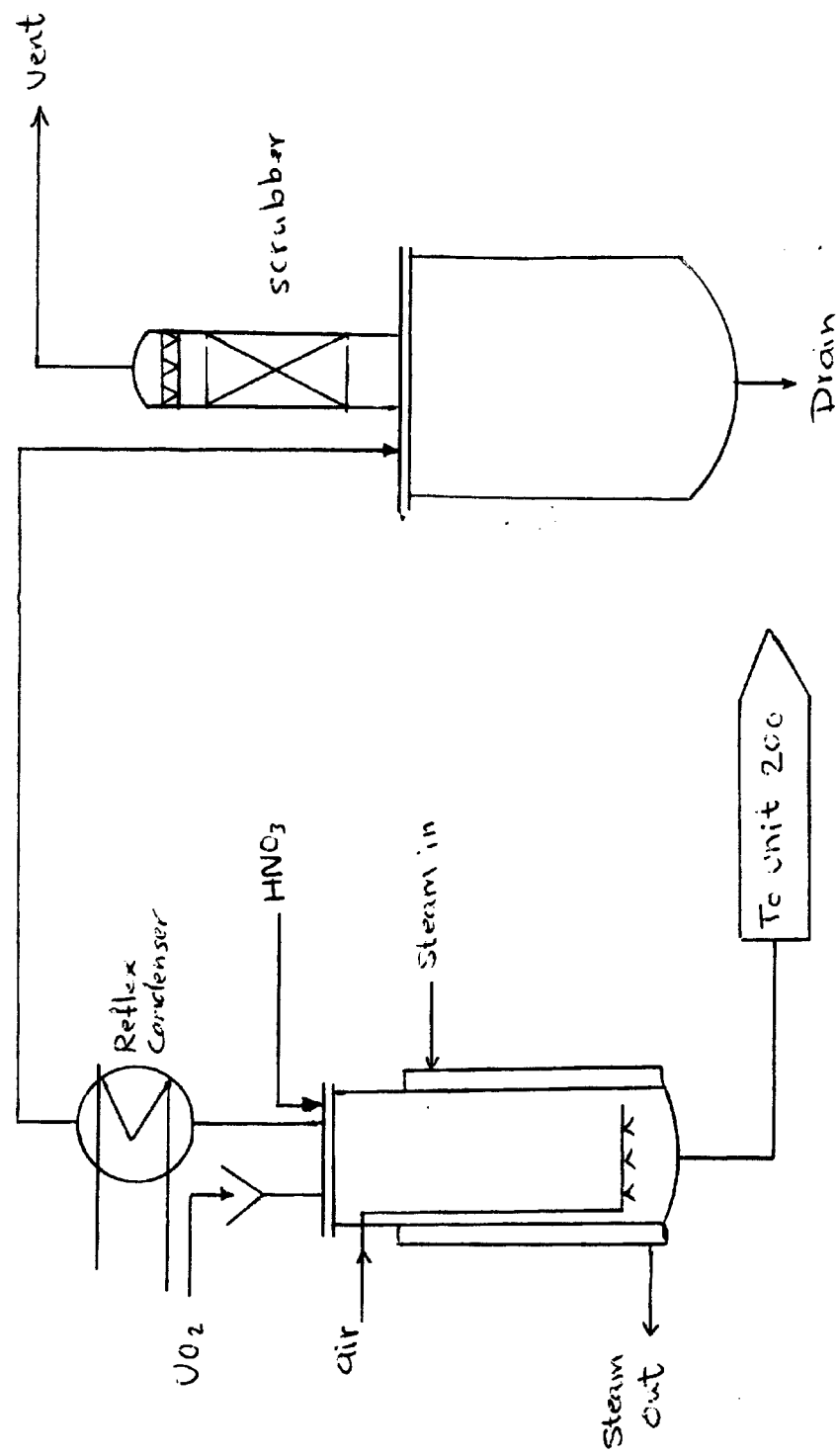


Fig (5.11.2-12)
Dissolution unit for high enriched Uranium out of specification

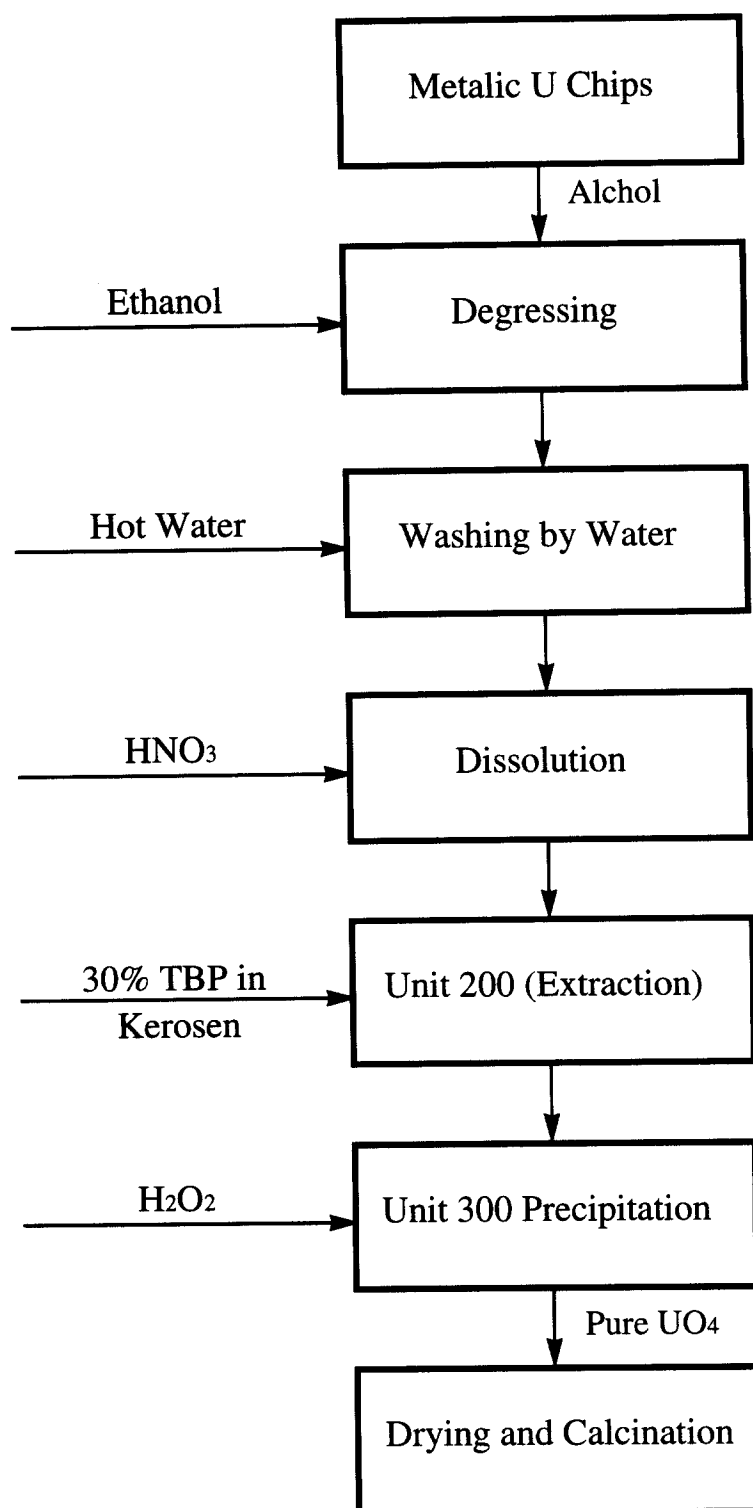


Fig (5.11.2-14)
Block Diagram for Recovery of Enriched Uranium

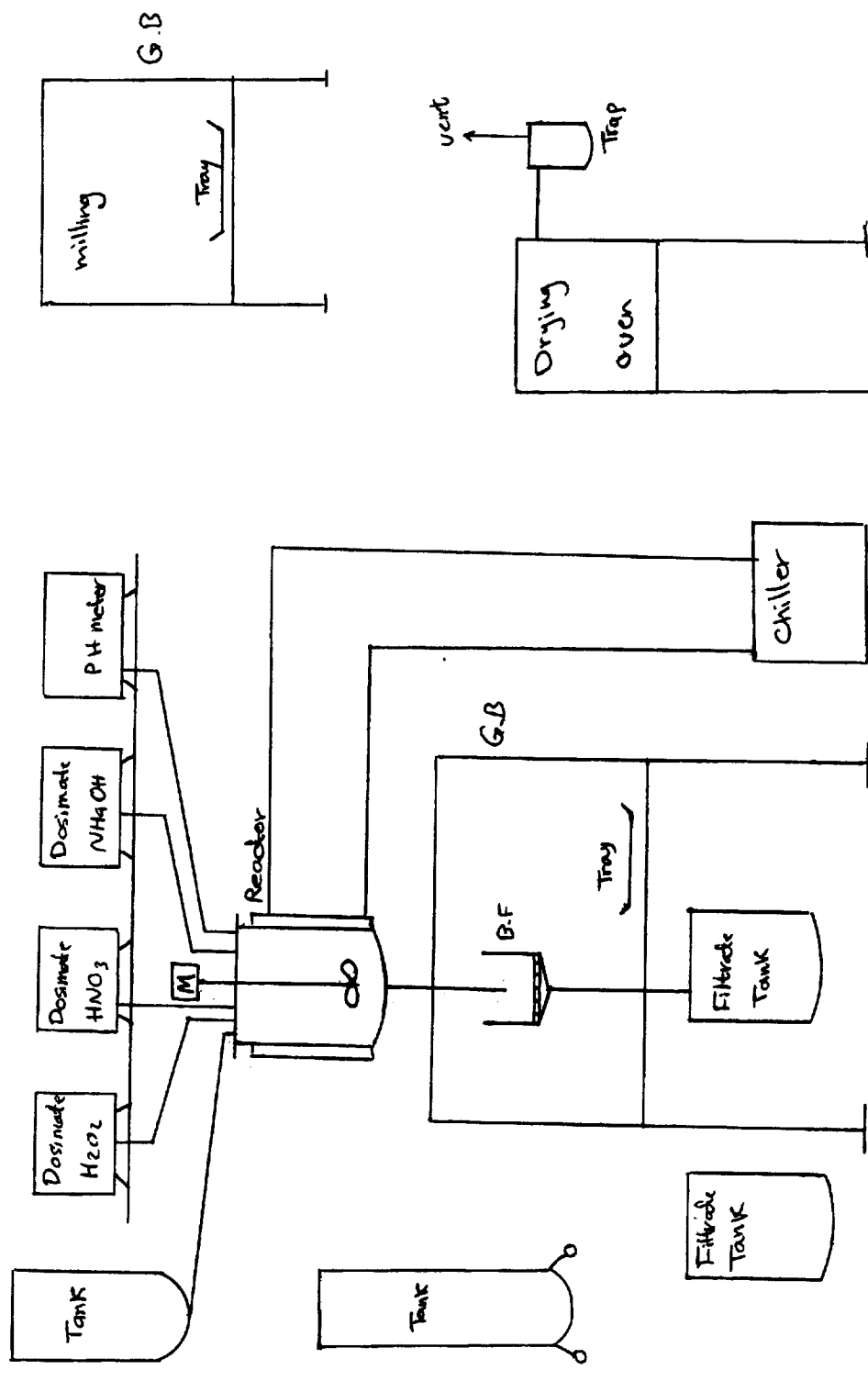


Fig (5.11.2-15)
Precipitation unit for high enriched Uranium solution

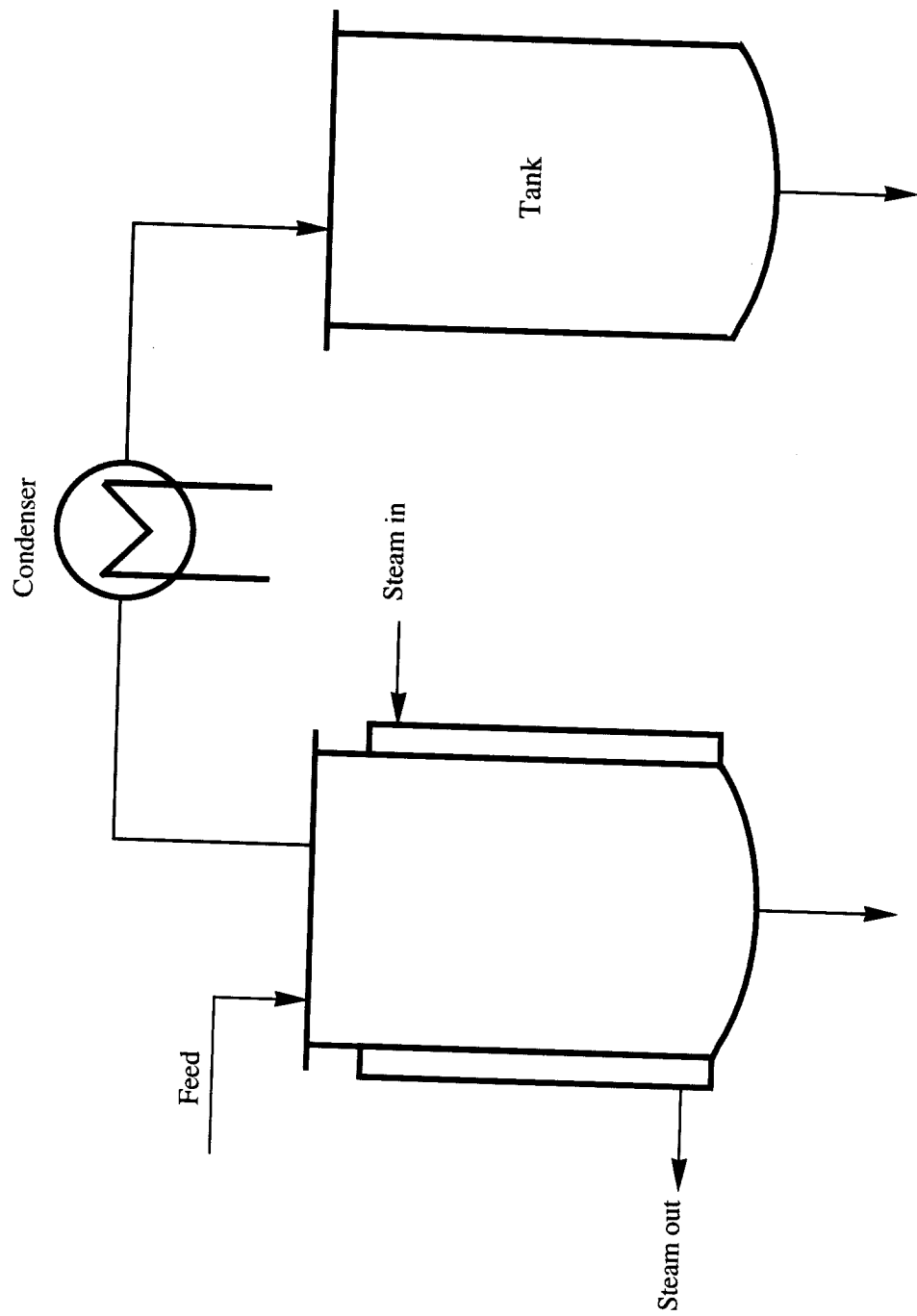


Fig (5.11.2-16)
Evaporation unit for concentration the aqueous Uranium solution

III . a

77 figures

<p>ملاحظات</p>	<p>18 * 19 * 27 74</p> <p>الصفحة 1</p>
<p>عدد الصفحات</p>	<p>5.10.1-6 5.10.1-5 5.10.1-6 5.10.2-1 5.10.6-1</p>
<p>ملاحظات</p>	<p>5.10.1-5 5.10.1-6 5.10.2-1 5.10.6-1</p>
<p>الصفحة 1</p>	<p>5.10</p>

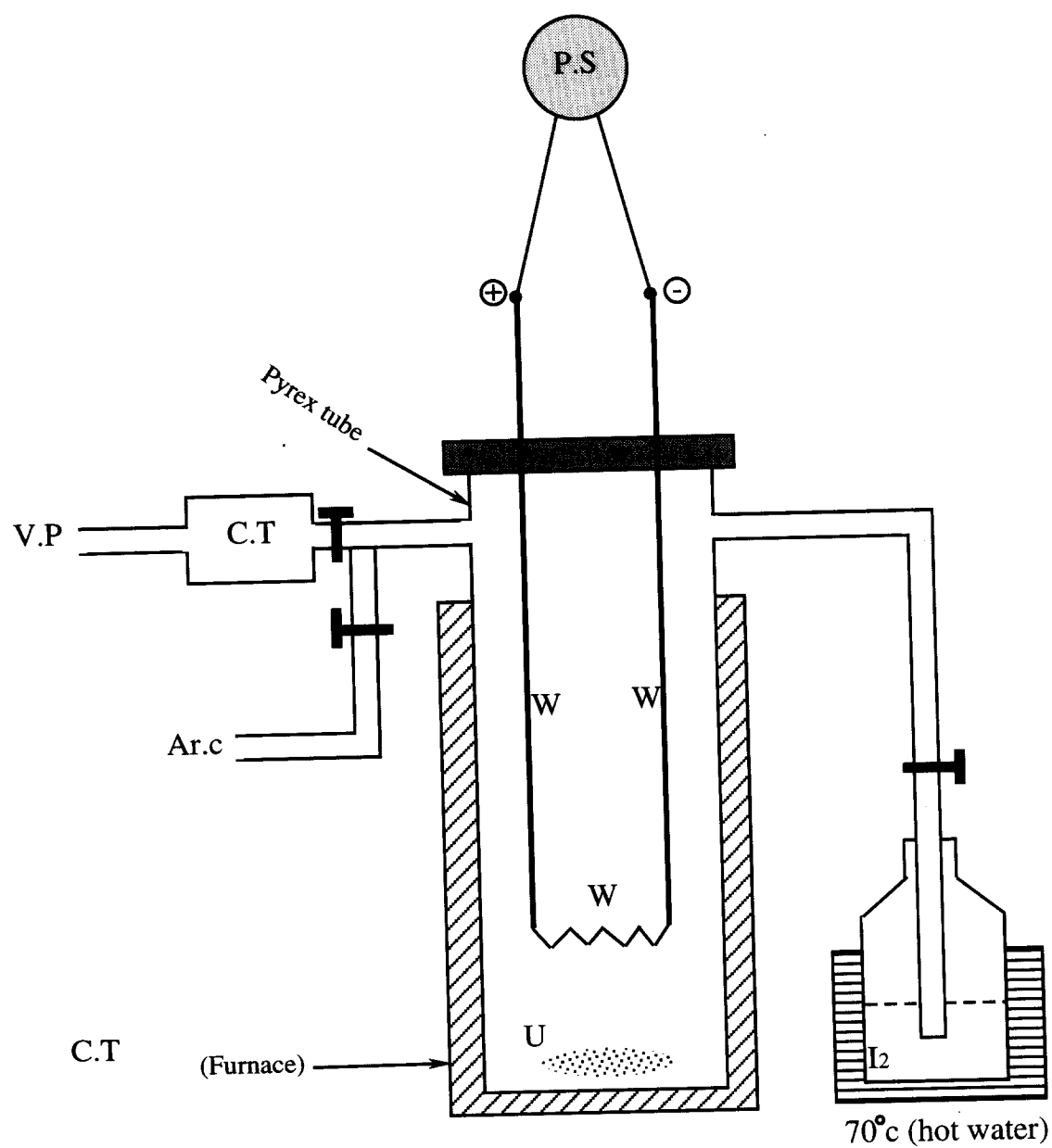


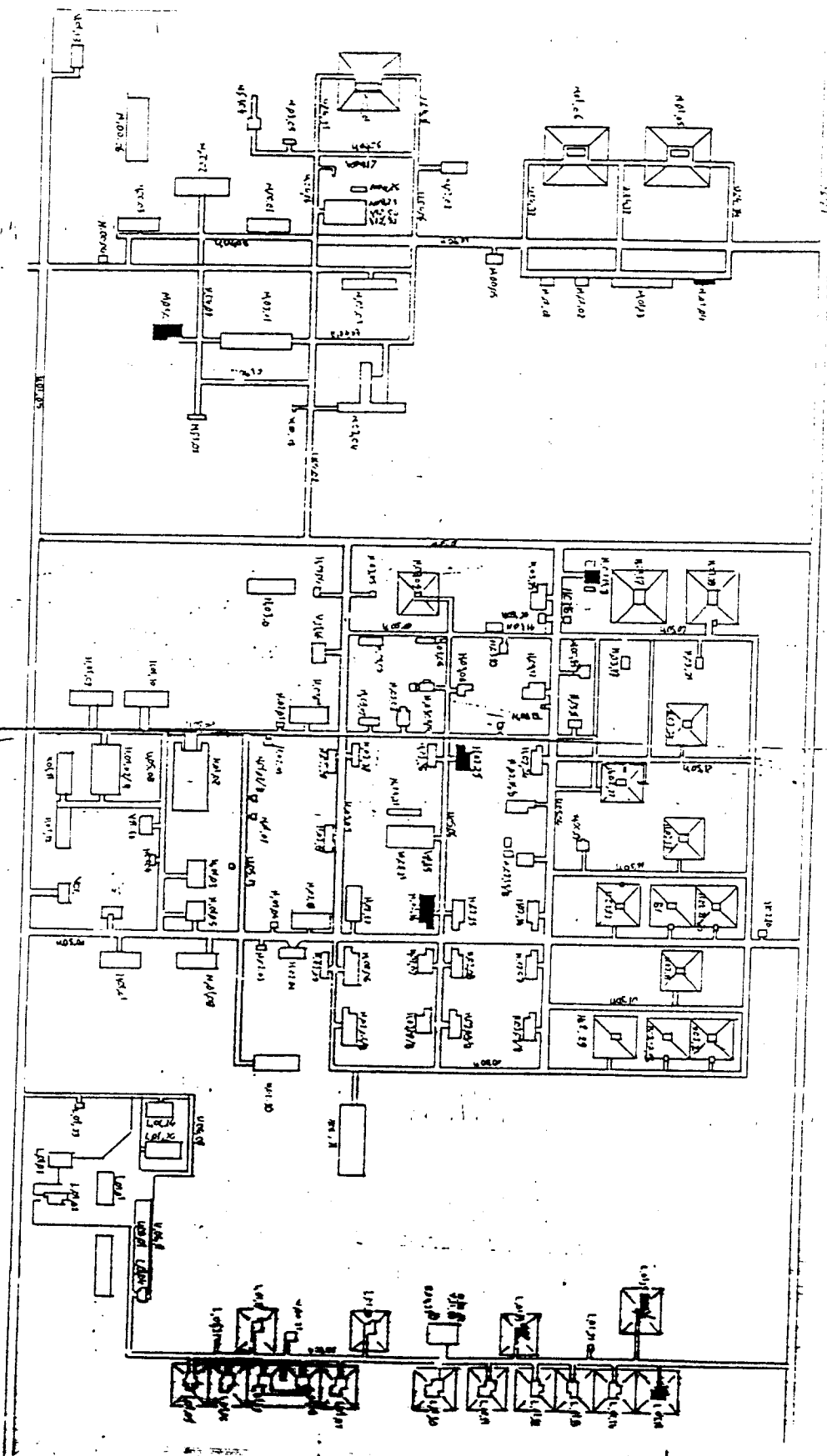
Fig (5.10.2-1) Schematic drawing of Van-Arkel method

أصم الملف	رقم المجلد	عدد الصفحات الفارسية	أرقام الصفحات
5-2	5.2.8-1	7	✓ 14 8
5-8	5.8.3-1	table ناقصة	✓ 12/62
5-8 tables	5.8.5-6	ناقصة	46/62
	5.8.5-7	ناقصة	47/62
	5.8.5-8	ناقصة	48/62

الاشكال

أصم الملف	رقم الشكل	عدد الصفحات الفارسية	أرقام الصفحات
5-2	5.3.2-1	1	12
5-3	5.2.4-3	خطأ لذا يصح 5.3.4-3	31
5-5	5.5.8-1	خطأ لذا يصح 5.5.7-1	X 14
5-5	5.5.7-2	خطأ لذا يصح 5.5.8-2	X 15
5-8	5.8.1-2	ناقصة	5/62
5-8	5.8.2-2	ناقصة	9/62

عند الاصل تدقق



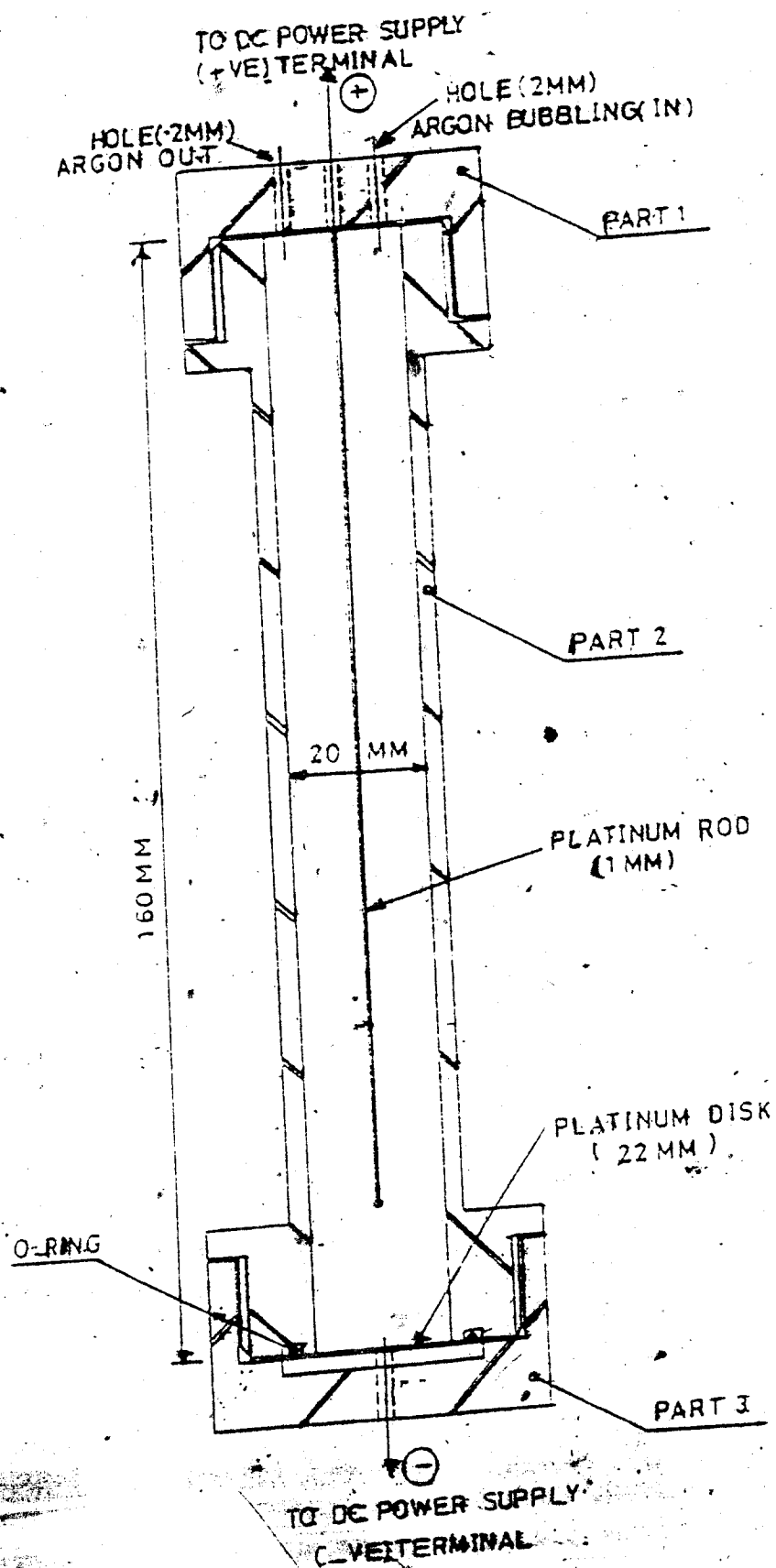


Fig. (5-10.6-1) The electrochemical cell

Table no. (5.8.5-8)

Results of experiments for preparing CE using HMX as an explosive material

Exper. No.	Explo. Perc.	Binder Perc. HTPE	DOA Perc.	TDT / HMDI Perc.	Anti- Oxid. Perc.	Licithin Perc.	Catalyst Perc.	Volumet- ric density for HMX	Charge density CE	Det. Velocity	Notes
CE1	85%	12.74%	1%	0.8%	0.15%	0.3%	0.01%				Detonation velocity not determined
CE2	86%	11.94%	1%	0.76%	0.15%	0.14%	0.05%	0.924	1.505		
CE3	85%	12.74%	1%	0.8%	0.15%	0.3%	0.01%	0.924	1.3		HMX with 3-5% Wax
CE4	86%	11.94%	1%	0.76%	0.15%	0.14%	0.01%	0.924	1.36		
CE5	86%	12.4%	0.66%	0.8%	0.15%	0.144%	0.01%	0.924	1.49		All charges were 25 cm in length & 12 cm in dia.

Tabel no.(5.8.5-7)

Results Of Experiments For Preparing C.E. Using RDX

Exper. No.	Percent Of exp. material	Percent Of Binder HTPB	Percent Of plastis. DOA,DBP	Percent Of TDT,HMDI	Percent Of ant.oxid material	Percent Of Licithin	Percent Of Catalyst	Vol. density for RDX gm/liter	Charge densit gm/cm3	Det. velocity m/sec	Notes
CE15	87%	11.4%	0.9%	0.1%		0.1%		1.106			
CE16	87%	11.4%	0.9%	0.6%		0.1%		1.060	1.52		
CE17	87%	11%	1.32%	0.58%		0.1%		1.060	1.55	7142	
CE18	87%	11%	1.32%	0.58%		0.1%		1.060	1.53	6896	
CE19	87%	10.78%	1.6	0.52%		0.1%					
CE20	87%	10.35%	2%	0.65%				1.007	1.4		
CE21	87%	10%	2.35%	65%				0.905	1.35		
CE22	85%	10.56	2.84%	0.75%							
CE23	86%	10.45%	2.8%	0.8%					1.45		
CE24	86%	10.1%	3%	0.77%	0.13%						
CE25	81%	16.19%	16.19%	1.19%	1.19%		1.9%	0.357%			
CE26	81.95%	15.5%	1.1%	1.1%		0.1%	0.25%	1.01	1.5		
CE27	82%	14.6%	1.79%	1.12%		0.15%	0.29%	0.938%	1.3		
CE28	84%	13%	1.6%	1%		0.14%	0.26%	0.938			

Table no. (5.8.5-6)

Results of Experiments For Preparing C.E. Using RDX

Exper. No.	Percent Of exp. material	Percent Of Binder HTPB,	Percent Of plastis. DOA, DBP	Percent Of TDT, HMDI	Percent Of ant.oxid material	Percent Of Licithin	Percent Of Catalyst	Vol. density for RDX gm/liter	Charge densit gm/cm ³	Det. velocity m/sec	Notes
CE1	85%	11.94%	2%	0.85%	0.1%	0.1%	0.01%		1.33		1- Det. velocity not determined because the aim of these exper. were to produce high density exp. charges 2- Experiments (CE1) to (CE14) were done in the period 1/4 - 25/10/90 3- All charges were cylindric cal casts with dimentions 12 cm in dia. 25 cm in length
CE2	85%	11.94%	2%	0.76%	0.15%	0.05%	0.01%		1.33		
CE3	85%	12.94%	1%	0.76%	0.15%	0.14%	0.01%		1.369		
CE4	85%	12.94%	1%	0.76%	0.15%	0.14%	0.01%		1.344		
CE5	82%	14%	2.5%	1.3%	0.15%		0.05%		1.28		
CE6	82%	14%	2.5%	1.3%	0.15%		0.05%		1.28		
CE7	85%	12.94%	0.5%	0.76%	0.15%	0.14%			1.4		
CE8	85%	13%	0.71%	1%	0.15%	0.13	0.01%		1.54		
CE9	85%	13%	0.71%	1%	0.15%	0.13%	0.01%		1.46		
CE10	85%	13.2%	0.7%	1%	0.05%	0.05%	0.01%		1.46		
CE11	86%	12.5%	0.5%	0.95%	0.05%			1.13	1.33	5774	
CE12	86%	12.5%	0.5%	0.95%	0.05%	0.16%		1.13	1.48	6178	
CE13	86%	12.4%	0.67%	0.77%	0.05%	0.16%		1.13	1.48	6178	
CE14	86%	12.4%	0.6%	0.8%	0.0285	0.1714%	0.01%		1.060	6054	

Table(5.83-1)Details Of Contracts

	Contract No.	L/C No.	Cost	Materials	Co. Name	Notes
1.	X 2890511 A&B	259/1/1989	9,000,000/- U.S.Dollars	Lab. s	Norinco (china)	* Few equipment and documents were shipped. * 4,244,920/-U.S Dollars were paid to the Co.
2.	302/55/1989	334/106	3,350,000/- D.M.	Mixing and casting equipment for explosives	propex (West Germany)	* Only few documents were shipped. * 502,000/- (D.M) were paid to the Co.
3.	266/55/1989	DOKA/35- 93/57	230,000/- Dollars (pounds)	detonators Test station	Bonavencher (swiss)	* All contract cost were transferred to the Iraqi Embassy in swissland (commercial dept). * equipments were not shipped due to the event of 2-aug-1990

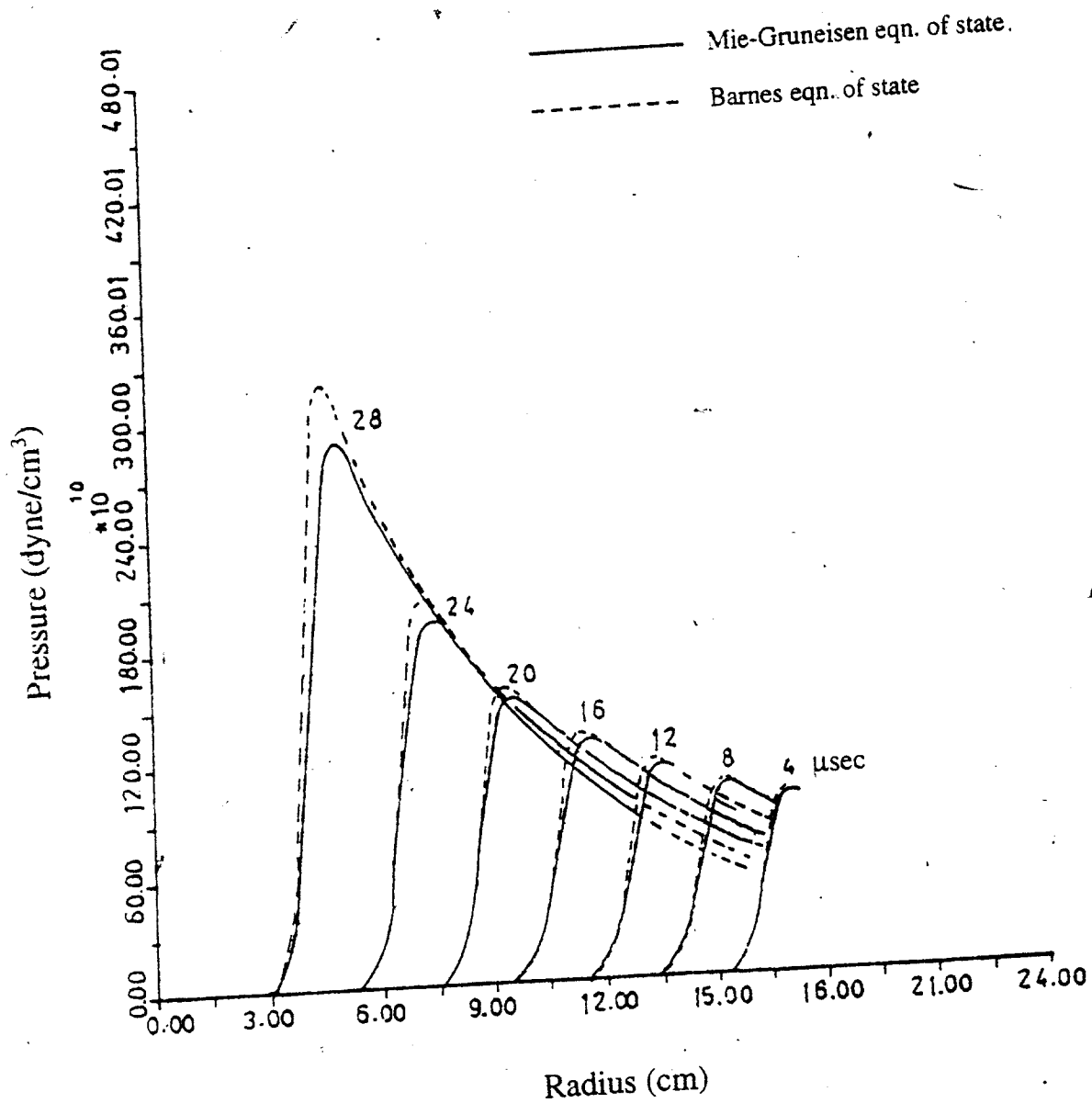


Fig (5.3.2-1) Pressure vs. radius as a function of time

	1988	1989	1990	1991	1992
1-E Electronics Bldg 6200	Design and Implementation				
	Power Supplies, Caparitions, Cables, Components				
				Pressure and other sensors	
	Design of triggering circuits, Fast electronics and high current and voltage measuring systems				
	Electronic Support for G-4 activities				
	(Design of measuring systems)				
				Design of Navigation System	
	Building of triggering and measurment systems				
1-F Mechanical Desi. gn	Building of measure systems for G-4 activities				
				Building of navigation system	
	Experiments with E B W				
	Experiments for improving jitter				
	Reliability experiments for triggering system				
	Experiments for improving the function of triggering system				
	Design of Device Support Structure				
				Manufacturing of Components	
				Enviromental Experiments	

Fig. (S.E. 1-2) Layout of Daphir project

10-11-1944 - 10-11-1944

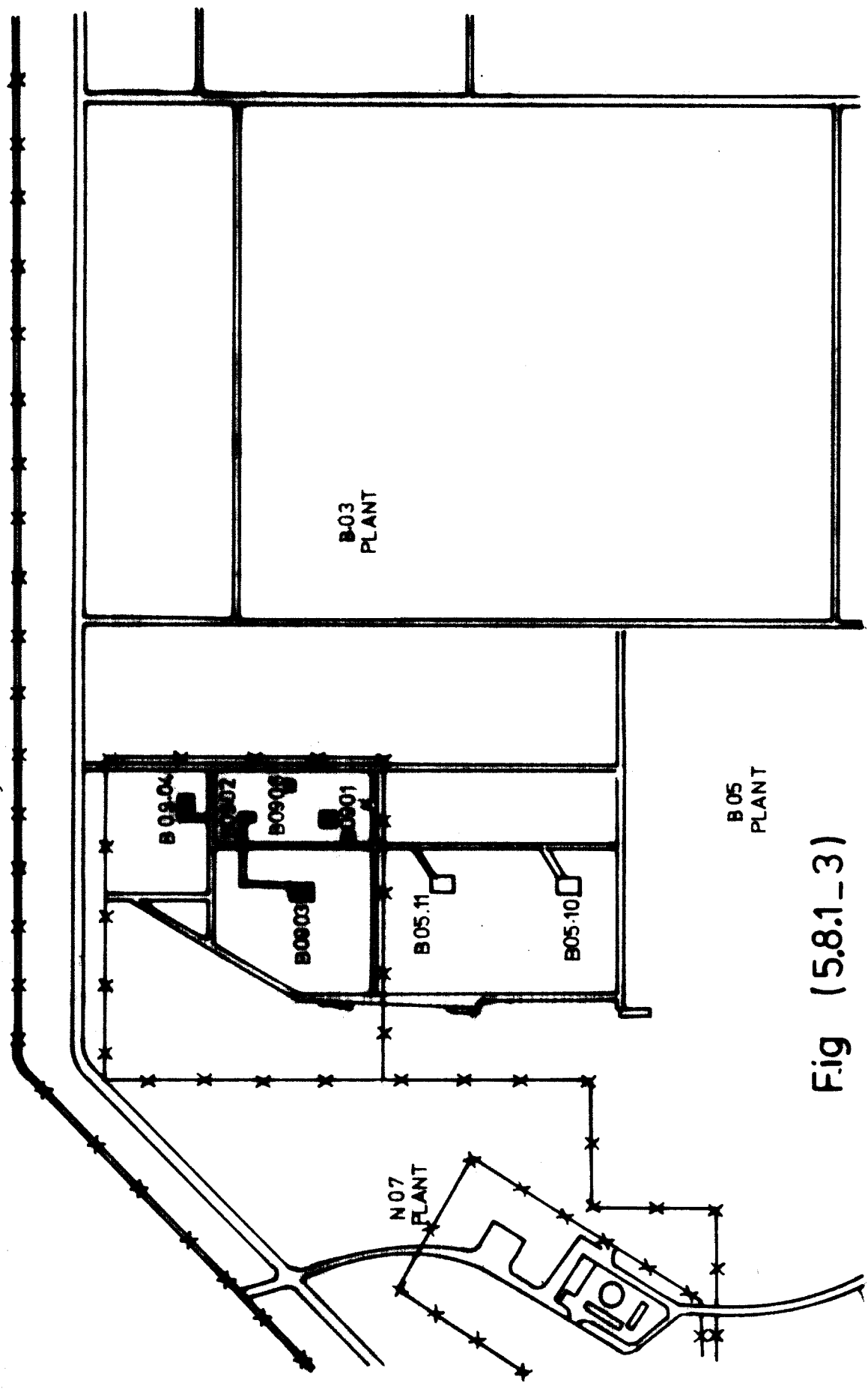


Fig (5.8.1_3)
Lay Out of (B09) Plant in Q.G.E