REPORT
ON
HOSPITAL FACILITIES IMPROVEMENT PROJECT
REPUBLIC OF INDONESIA

VOLUME 3

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JAPAN INTERNATIONAL COOPERATION AGENCY

VOLUME 1

VOLUME 2

4. Electrical facilities and workshop

VOLUME 3

5. Water supply facilities and others

5 WATER SUPPLY AND OTHERS

5-1 Water Supply facilities (A1)

Water supply facilities etc.	List of selected capacity of each hospital water supply

Class	Name of hospital	Number of beds	Group	Group symbol: Water supply facility	Kitchen facility	Laundry facility	Waste disposal facility	Boiler facility	Cooling facility
D	Porsea	60		ⓓ					
	Bantaeng	100		ⓑ					C - ①
	Tanjung Balai	130							
D^+	Tentawaru	75		ⓐ ⓑ					
	Tebing Tinggi	80		ⓐ					
	Liun Kendage	80	I	W-I	K-I	L-I	D-I-II		C - ②
	Soppeng	100		ⓐ					
	Rantan Prapat	100		ⓒ					
	Elim Rantepao	120		ⓐ					
	Palopo	120		ⓐ				-	
C	Pare-Pare	100		ⓐ					
	Kisaran	100		ⓐ					
	Gorontalo(OG)	40	O	-	K-O				C - ③
		140 main		ⓑ					
	Tondano	150	II	W-II	K-II	L-II			
	Kotamobagu	200							
	Tartung	225		ⓐ					
B	Rematang Siantar	290	III	W-III	K-III	L-III			C - ④
	Gunung Wenang	450	IV	W-IV	K-IV	L-IV	D-III-IV	B-IV	C - ⑤
A	Ujung Pandang	450							C - ⑥
	Medan	750	V	W-V	K-V	L- V	D-V	B-V	C - ⑦

The water supply facilities are divided into the following sub-groups as the water supply systems differ according to the type of water source.

ⓐ PAM or local self-governing body ⓑ Well
ⓒ Well and water wagon ⓓ River

Construction classification

Item	local currency	foreign exchange	Remarks
Building (common to all facilities)	Everything (machine base included)	-	
Water supply facility	Well/Water receiving tanks/ Outdoor water feed pipes arrangement/ Indoor water supply facilities (except in the kitchen, laundry and boiler house)	Water supply facilities except the well and water receiving tanks/ water treatment facility/Control facility	For comparison of costs, the elevated water tank and lift pump are quoted as options.
Kitchen facility	Lead-in of pipes to the necessary portion in the kitchen (primary side) / Construction of all facilities of hood, ventilating fan, drain pit, funshade on the tank, built-in shelves, and the office, warehouse, water closet, etc. appendant to the kitchen	All appliances/ all facilities concerning kirosene/ Connection of lead-in pipes to appliances in the kitchen (secondary side)	Thorough discussion should be made on the floor foreign exchange
Laundry facility	Lead-in of pipes to the necessary positions in the laundry (primary side) / Drain pit	All appliances/ Connection of lead-in pipes to the appliances in the laundry (secondary side)/ Ventilating duct	Same as above

Item	local currency	foreign exchange	Remarks
Waste disposal facility	-	Main body of incinerator (chimney included)/ All facilities concerning oil	
Boiler facility	Chimney/Lead-in of water supply pipes to the necessary positions in the boiler house and the drain facility subsequent to the drain pit	All equipments and pipes in the boiler house/All facilities concerning oil (except the tank base)/All outdoor steam pipe arrangement	Excavation and foundation for the outdoor tanks are included in the local currency Thorough discussion should be made on the floor finish.
Cooling facility	All constructions but estimated as foreign exchange	Only the supply of main body	
Miscellaneous construction	All repair constructions of buildings related to this construction	Works concerning the presentation and approval of the working drawings and samples of materials and products	

It is necessary to separately estimate the following costs as not included in this estimation

① Traffic expenses and hotel charges if foreign supervisors or other personnel are dispatched.

② Materials for carry-in and installation (tow truck etc.) and large tools

③ Wages of native workers (estimation is made on assumption that only the field overseer will be dispatched).

④ Temporary construction cost, power cost, water cost, etc.

.1 Water Supply Facilities Appliance Selection Criteria

Each hospital improvement plan

Name of Hospital	Water supply facility	Water treatment facility	Outdoor pipe arrangement	Remarks
Gunung Wenang	-	-	-	No improvement is necessary, judging from the present condition of PAM.
Tondano	-	-	○ For PAM	No improvement is necessary, judging from the present condition of PAM.
Kotamobagu	-	-	-	No improvement is necessary, judging from the present condition of PAM, except that the open pipes in the site should be protected.
Gorontalo	○ Only from the well to the main ward	○ Two systems for the main ward and maternity ward	Only for the main ward ○	The shallow well in the site can be used. The deep well in the possetion of the local government is necessary. Both are temporary water sources before the water becomes available from the PAM water source.
Ujun Kendage	-	-	-	No improvement is necessary, judging from the water supply facilities of the local governing body and the future plan of PAM. Since the water is directly fed from the pipes, water treatment is necessary at the water source.
Ujung Pandang	2) ○	4) ○	○ Newly installed for PAM	The plan is based on the assumption of water supply from the PAM.
Pare-Pare	○	○	◎	It is necessary to substitute 3" size pipes for the 2" size pipes arranged from the water distributing tower to the hospital. All pipes in the site should be replaced.
Palopo	○	4) ○	○	

Name of Hospital	Water supply facility	Water treatment facility	Outdoor pipe arrangement	Remarks
Soppeng	◎	○	○	Water should be derived from the spring, using a water wagon. It is desired, however, that the spring water is reused by the PAM in the future.
Tenri-awaru	1) well 3) PAM ○ x 2 Two systems for PAM and the well	4) PAM ○ x 2 Two systems for PAM and the well	○ Two systems for PAM and the well	The well in the site should be reused until the completion of improvement construction of PAM, so that water is available from two supply systems. The well water should be used solely in the water closets and laundry, which should be substituted by the PAM water in the future. The measurement of water quantity is necessary. Covers should be put on the existing PAM water receiving tank and the well.

Notes:

1. Water supply facilities

   ○ New facility installation.

   ◎ A water wagon is necessary in addition to the new facility installation.

   1) The existing elevated water tank should be checked whether usable or not.

   2) Unnecessary if the water pressure of PAM-supplied water is sufficient.

   3) The existing water receiving tank is used.

2. Water treatment facility

   ○ Installation of chlorine sterilization facility.

   ◎ Installation of water filter in addition to the above.

   4) Unnecessary if the outdoor pipes are newly installed and water treatment is completed by the PAM.

3. Outdoor pipe arrangement

   ○ Installation of pipes in the hospital.

   ◎ Installation of pipes from the water source to the hospital, in addition to the above.

Name of Hospital	Water supply facility	Water treatment facility	Outdoor pipe arrangement	Remarks
Elim Rantepao	1) ○	○	○	Water supply facility should be newly installed for cholrine sterilization and stabilization of water quantity and pressure.
Bantoeng	1) ○ For well	○	○	The well in the site should be used. The quantity of well water should be checked.
Medan	1) ○	4) ○	○	
Pematang Siantar	2) -	4) -	○	No improvement is necessary, judging from the future plan of PAM. Since the water is directly fed from the pipes, water treatment is necessary on the PAM side.
Tartung	3) ○	○	◎	For the purpose of chlorine sterilization and attaining a sufficient water pressure, a water supply facility should be newly installed besides the water receiving tank. The 4" size exclusive pipes should be newly installed from the water source of distributing reservoir to the hospital.
Kisaran	○	4) ○	○	Water should be derived from the 5" size pipes now under the construction by PAM. A water supply facility should be newly installed to cope with the hour-restricted water supply.
Rantau Prapat	For the well ◎	○	○	Since there is no way of increasing water quantity, a water wagon is necessary until water becomes available from the PAM. Also a water receiving tank should be newly installed in the site to store water sent by the water wagon.

Name of Hospital	Water supply facility	Water treatment facility	Outdoor pipe arrangement	Remarks
Tebing Tinggi	-	○	○	Improvement should be made by effective opeation of valves and pumps of the PAM. It is desired, however, that the water is derived from the new water source of PAM in the future. It is preferable to reserve the shallow well for emergency.
Tanjung Balai	-	-	◎	Exclusive pipes should be newly installed from the elevated water tank of PAM to the hospital. The water pressure will be sufficient for direct feeding from the pipes.
Porsea	For the river ◎	◎	◎	The water, as directly derived from the river, should be once stored in a water storage tank and then supplied to the water receiving tank via a water filter. In case of transfer of the hospital, pipes should be installed from the river to the hospital.

Notes:

1 Water supply facility

○New facility installation.

◎A water wagon is necessary in addition to the new facility installation.

1) The existing elevated water tank should be checked whether usable or not.

2) Unnecessary if the water pressure of PAM-supplied water is sufficient.

3) The existing water receiving tank is used.

2 Water treatment facility

○Installation of chlorine sterilization facility.

◎Installation of water filter in addition to the above.

4) Unnecessary if the outdoor pipes are newly installed and water treatment is completed by the PAM.

3 Outdoor pipe arrangement

○ Installation of pipes in the hospital.

◎ Installation of pipes from the water source to the hospital, in addition to the above.

Appliance selection criteria

	Classes A and B	Classes C, D^+ and D	Remarks
Water supply quantity/day	500 l/bed, day	300 l/bed, day	
Lowest water pressure limit	0.7 Kg/cm^2	0.7 Kg/cm^2	A booster pump is installed for appliances requiring higher water pressure.
Water receiving tank capacity	Water supply quantity/day	Water supply quantity/day	To facilitate maintenance, the water tanks are divided into two groups.
1. Elevated water tank system			
Elevated water tank capacity	(Water supply quantity/day) ÷ 10(Hr)	(Water supply quantity/day) ÷ 5 (Hr)	To facilitate maintenance, the water tanks are divided into two groups.
Lift pump capacity	(Water supply quantity/day) ÷ 2.5 (Hr)	(Water supply quantity/day) ÷ 2.5 (Hr)	Two pumps automatically alternate their operations.
2. Pressure tank system/Pump capacity	(Water supply quantity/day) ÷ 2.5 (Hr)	(Water supply quantity/day) ÷ 2.5 (Hr)	Pumps automatically alternate their operations. Or both automatic alternating operation and parallel operation are available (to allow a large flow capacity). For parallel operation, the pump capacity is divided according to the number of pumps, and another pipe is added as a stand-by.
3. Direct pump feed system with no tank/ pump capacity	(Water supply quantity/day) ÷ 2.5 (Hr)	(Water supply quantity/day) ÷ 2.5 (Hr)	

Filter

$A = \frac{Q}{LV}$

A: Sectional area of filter (M^2)

Q: Water supply quantity (M^3/Hr)

LV: Filter flow speed (M/Hr) = 6

Chlorine sterilization facility

$B = 100 \times N \times Q$

B: Quantity of NaclO solution (10% strength) (cc/Hr)

N: Strength of NH_4 (ppm)

Remarks) Necessary quantity of NaclO

≈10ppm / NH_4 1ppm

Necessary quantity of NaclO solution

(10% strength)≈100ppm / NH_4 1ppm

A1	WATER SUPPLY -- WATER SUPPLY EQUIPMENT	1/34	EQUIPMENT LIST	1/10

NAME	Water Lifting Pump

TECHNICAL DATA

Type : Horizontal multistage pump

Handling fluid : Clean water (Temperature 0 ∿ 40°C PH 6 ∿ 9)

Suction side : Suction operation only (Lift Head -- within -6 meters)

Installation site: Indoor

Accessory motor : Dripproof, cage type, 3 phase induction motor

Starting method : 11 Kw below : Direct on Line
11 Kw over : λ - Δ

Operating method : Automatic alternate operation

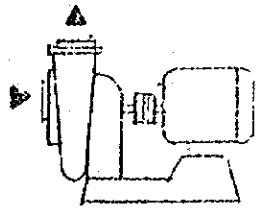
Power supply : 3 phase, 220 volts, 50 Hz

No. of pumps : two sets

Accessories (per one set)

- Sluice value -- one set
- Check value -- one set
- Foot value -- one set
- Suction cover -- one set
- Pressure guage -- one set

also, one full set of other standard accessories.



Spare parts (per one set)

- gland packing -- two sets

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
1 - I	50φ × 200 ℓ/min × 30m × 3.7kW × 2 sets	0.4 0.52	3.7
1 - II	80φ × 400 ℓ/min × 30m × 5.5kW × 2 sets	0.57 0.74	5.5
1 - III	100φ × 1000 ℓ/min × 30m × 11kW × 2 sets	0.9 1.17	11
1 - IV	125φ × 1300 ℓ/min × 30m × 15kW × 2 sets	1.2 1.56	15
1 - V	125φ × 2000 ℓ/min × 30m × 18.5kW × 2 sets	1.25 1.62	18.5
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

NAME	Elevated Water Tank (FRP)

TECHNICAL DATA

* Elevated Water Tank

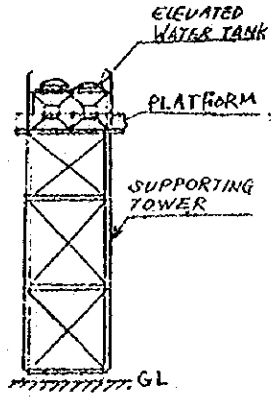
Material: FRP Panel

Type : Rectangular type with partition wall (double compartment type) made by unit panel (1000mm × 1000mm)

Assembly method: Job-site bolt construction type

Accesory:

Manhole (600)	2 p.c.s.
Inner ladder	2
Outer ladder	2
Air vent (with insect screen)	2
Nozzle (optional size)	8
Electrode base (with cover)	2



* Supporting Tower

Angle steel structure with platform 10mH

* Spare Parts

Bolt, nut with washer	20 p.c.s.
Gasket	10 "
Stay Bolt	2 "
Sealing Block	4 "
Silicone Sealer	4 "

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
2 - I	$2{,}000^{L} \times 2{,}000^{W} \times 2{,}000^{H}$	4.78 10.78	-
2 - II	2,500 × 3,000 × 2,000	5.48 17.48	-
2 - III	3,000 × 3,000 × 2,000	6.09 21.09	-
2 - IV	3,000 × 4,000 × 2,000	6.3 26.3	-
2 - V	3,000 × 4,000 × 3,000	8.57 38.57	-
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

A	WATER SUPPLY - WATER SUPPLY EQUIPMENT	3/34	EQUIPMENT LIST	3/10

NAME	Elevated Water Tank

TECHNICAL DATA

Elevated Water Tank

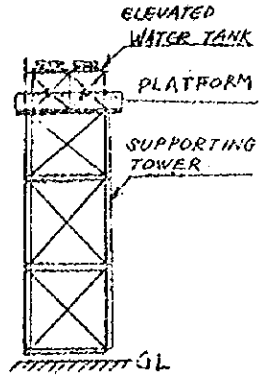
Material: FRP Panel
Steel Panel with Nylon-12 coating

Type : Rectangular type with partition wall (double compartment type) made by unit panel (1000mm 1000mm)

Assembly method: Job-site bolt construction type

Accesory:

Manhole (600)	2 p.c.s.
Inner ladder	2
Outer ladder	2
Air vent (with insect screen)	2
Nozzle (optional size)	8
Electrode base (with cover)	2



Supporting Tower

Angle steel structure with platform 10mH

Spare Parts

Bolt, nut with washer	20 p.c.s.
Gasket	10 "
Stay Bolt	2 "
Sealing Block	4 "
Silicone Sealer	4 "

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
- I	$2{,}000^{L} \times 2{,}000^{W} \times 2{,}000^{H}$	5.32 11.32	-
- II	2,500 × 3,000 × 2,000	6.21 18.21	-
- III	3,000 × 3,000 × 2,000	6.92 21.92	-
- IV	3,000 × 4,000 × 2,000	7.27 27.27	-
- V	3,000 × 4,000 × 3,000	9.83 39.83	-
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

WATER SUPPLY	WATER SUPPLY — EQUIPMENT	4/34	EQUIPMENT LIST	4/10

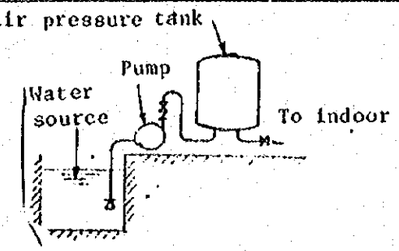
NAME: Meter Lifting Pump

TECHNICAL DATA

Equipment list

Equipment name; Pressure Tank Unit

Standard specifications



Outline of unit

This unit, composed namely of a centrifugal pump, an air pressure tank, and an automatic control panel, is capable of automatically operating with pressure from the air tank.

The automatic air-feeding device eliminates the need for air compressor.

Operating conditions

1) Installation site; Indoors

2) Handling fluid; Clean water (temperature 0-40°C, pH 6-9)

3) Suction side; uction operation only (Lift Head -i within -6 meters)

4) Power supply: 3 phase, 220 volts, 50 Hz
   11 Kw below : Direct on Line
   11 Kw over : λ - Δ

Component structure

1) Air pressure tank (steel with epoxy-coated interior) -- one set

   Accessories -- one set each --

   pressure gauge

   Safety valve

   Discharge valve

   Sluice valve

   Air suction valve

   Water supply magnetic valve

   Water discharge magnetic valve

2) Pump (Horizontal type) -- 2 sets (Automatic alternate operation)
   or 3 sets (Automatic alternate parallel operation)

   Accessories -- one set each --

   Sluice valve

   Check valve

   Foot valve

   Suction cover

   Auxiliary water tank

3) Control panel (for automatic operation, with dry-operation-preventive device) -- one set

4) Other components -- Suction pipe

   Piping for connecting pump with water tank

   Electric wiring between pump and control panel.

Spare parts

Air discharge valve -- one set

Pressure switch -- two sets

Water discharge magnetic valve -- one set

Water suction magnetic valve -- one set

Air suction valve -- one set

Gland packing -- two sets

ITEM NO.	SPECIFICATION							WEIGHT (T)	ELECTRIC CAPACITY (KW)
	Water Supply ℓ/min	Starting pressure kg/cm²	Stop pressure kg/cm²	Tank m³	Pump Diameter	Pump power kw	Pump Number of installation		
4 - I	200	3.0	4.1	1.2	50	3.7	2	0.94 2.14	3.7
4 - II	400	4.0	6.3	2.3	50	5.5 x 2	3	2.51 4.81	5.5 x 2
4 - III	1,000	4.0	6.2	3.0	65	7.5 x 2	3	3.5 6.50	7.5 x 2
4 - IV	1,300	4.0	6.2	4.0	80	11 x 2	3	4.96 8.96	11 x 2
4 - V	2,000			8.0	100	15 x 2	3	6.09 14.04	15 x 2
REMARKS									

Weight; Left - Gross shipping weight
Right - Net weight

A1	WATER SUPPLY - WATER SUPPLY EQUIPMENT	5/34	EQUIPMENT LIST	5/10

NAME	Tankless Direct Pump Unit

TECHNICAL DATA

1) Pumps are started or stopped by water quantity or pressure.

Case I, II ; The pump is started by pressure switch. The pump is stopped by proximity switch at V.S type flow detector.

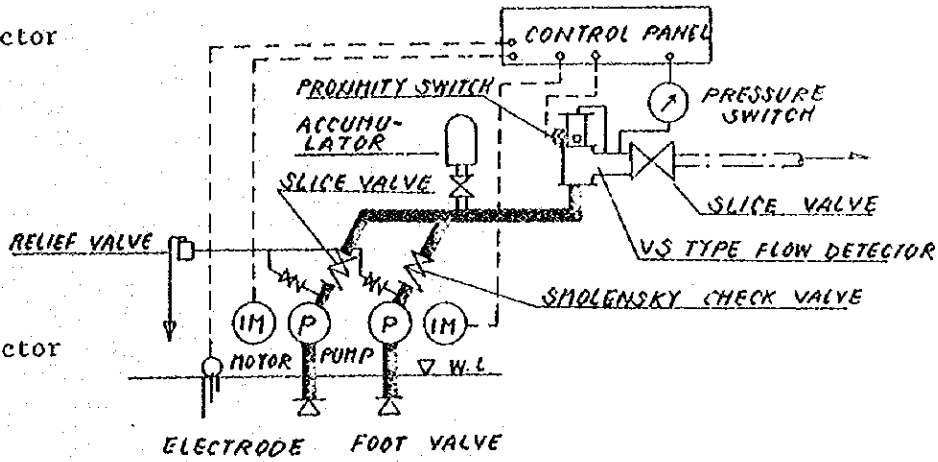
Case III, IV, V; No.1 pump and No.2 pump are started by pressure switch. No.2 pump is stopped by pressure switch at the V.S type flow detector, and No.1 pump is stopped by proximity switch.

2) Item

V.S type flow detector
Pressure Switch
Proximity Switch
Accumulator
Control panel
Pumps and motors
Valves
Common base

3) Spare parts

V.S type flow detector
pressure switch
magnets



Starting Method 11 Kw below : Direct on Line
11 Kw over : λ - Δ

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
5 - I	65φ x 50 x 200 ℓ/min x 30m x 3.7 KW x 2	0.54	3.7
	AUTOMATIC ALTERNATE OPERATION 50φ	0.32	
5 - II	65φ x 50φ x 400 ℓ/min x 30m x 5.5KW x 2	0.56	5.5
	AUTOMATIC ALTERNATE OPERATION 50φ	0.33	
5 - III	80φ x 500 ℓ/min x 40m x 7.5 KW x 3 (SPARE 1)	3.20	7.5 × 2
	AUTOMATIC ALTERNATE OPERATION AUTOMATIC PARALLEL OPERATION 100φ x 125φ	2.00	
5 - IV	100φ x 650 ℓ/min x 40m x 11 KW x 3 (SPARE 1)	4.27	11 × 2
	AUTOMATIC ALTERNATE OPERATION AUTOMATIC PARALLEL OPERATION 100φ x 125φ	2.20	
5 - V	125φ x 1000 ℓ/min x 40m x 15 KW x 3 (SPARE 1)	4.57	15 × 2
	AUTOMATIC ALTERNATE OPERATION AUTOMATIC PARALLEL OPERATION 100φ x 125φ	2.90	
REMARKS			

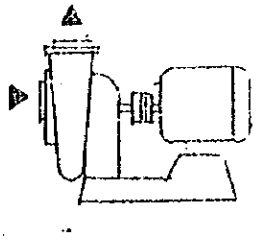
Weight; Top - Gross shipping weight
Bottom - Net weight

A1	WATER SUPPLY – WATER SUPPLY EQUIPMENT	6/34	EQUIPMENT LIST	6/10

NAME	Water Lifting Pump

TECHNICAL DATA

Type : Horizontal centrifugal pump
Handling fluid : Clean water (Temperature 0 ∿ 40°C PH6 ∿ 9)
Suction side : Suction operation only (Lift head-within -6 meters)
Installation site: Indoor
Accessory motor : Dripproof, cage type, 3 phase induction motor
Starting method : Direct on line
Operating method : Automatic alternate operation
Power supply : 3 phase, 220 volts, 50 Hz
No. of pumps : two sets



Accessories (per one set)

- Sluice valve -- one set
- Check valve -- one set
- Foot valve -- one set
- Suction cover -- one set
- Pressure guage -- one set
- also, one full set of other standard accessories.

Spare parts (per one set)

- gland packing -- two sets

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
6 - I	50 ϕ × 200 ℓ/min × 10 m × 1.5 kw × two sets	0.27 0.30	1.5
6 - II	65 ϕ × 400 ℓ/min × 10 m × 1.5 kw × tow sets	0.30 0.33	1.5
REMARKS			

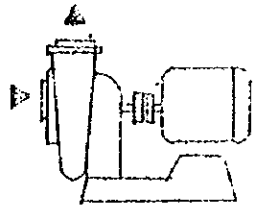
Weight; Top - Gross shipping weight
Bottom - Net weight

A1	WATER SUPPLY	WATER SUPPLY EQUIPMENT	7/34	EQUIPMENT LIST	7/10

NAME	Water Lifting Pump

TECHNICAL DATA

Type : Horizontal multistage pump
Handling fluid : Clean water (Temperature 0 ∿ 40°C PH 6 ∿ 9)
Suction side : Suction operation only (Lift Head -- within -6 meters)
Installation site: Indoor
Accessory motor : Dripproof, cage type, 3 phase induction motor
Starting method : Direct on line
Operating method : Automatic alternate operation
Power supply : 3 phase, 220 volts, 50 Hz
No. of pumps : two sets



Accessories (per one set)

- Sluice valve -- one set
- Check valve -- one set
- Foot valve -- one set
- Suction cover -- one set
- Pressure guage -- one set
- also, one full set of other standard accessories.

Spare parts (per one set)

- gland packing -- two sets

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
7 - I	65 ϕ × 400 ℓ/min × 55 m × 7.5 kw × two sets	0.69 0.76	7.5
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

A1	WATER SUPPLY – WATER TREATMENT EQUIPMENT	8/34	EQUIPMENT LIST	8/10

NAME	Chlorine Disinfectant Injector

TECHNICAL DATA

Continuous chemical feeder

Components : Fixed quantity pump, chemical tank

Spare parts: Diaphram below 2

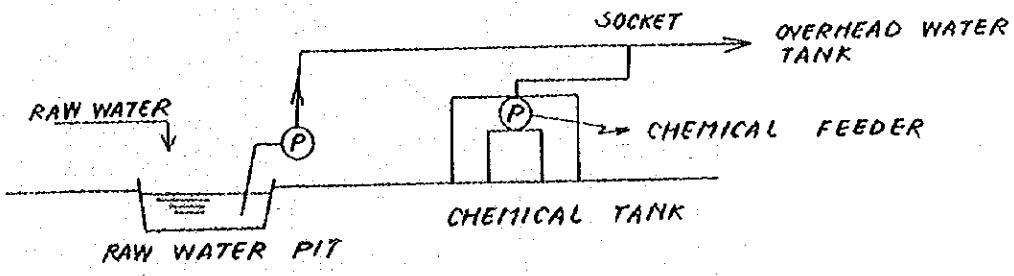
Pump head 1

Residual chroline measure 1

Nacl 0 20ℓ ∿ 40ℓ

Work division: Fitting guide only

Flow plan



ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
8	Delivery Capacity: 4 ∿ 17 cc/min Delivery Pressure: 4 mH Motor Specis : 220 V × 50 Hz × Single phase Chemical Tank : Polivinyl Chloride : 368 mm × 368 mm × 412 mmH	0.06 0.1	0.06
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

NAME	Filter

TECHNICAL DATA

High flow filter

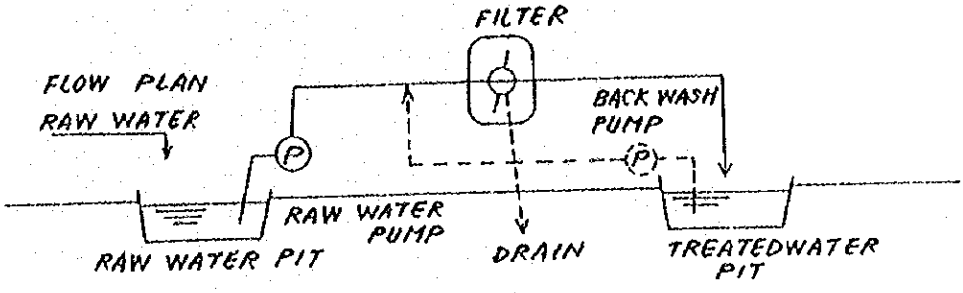
Terms : Raw water quality Turbidity 50°
Treated water quality " 5°
Flow rate LV = 6 m/Hr
Back wash rate LV =24 m/Hr

Components : Raw water pump, backs wash pump, flow meter, single control valve, shell, operation panell.

Spare parts : Filter media 1,000 ℓ
Sheet packin 1
Gauge tube 2

Work division: Fitting guide only

Flow plan



ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
9	Flow water quantity: 6 m^3/Hr, 30 m^3/Day Filter dimention : 1,150 ϕ × 2,450 H Main pipe diagram : Filter media : 1,000 ℓ Raw water pump : 40 ϕ × 0.1 m^3/min × 1.5 kw Back wash pump : 65 ϕ × 0.4 m^3/min × 2.2 kw Motor : 220 V × 50 Hz × three phase Operation panell : 250mm × 300mm × 200mm	5.0 4.5	3.7
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

A1	WATER SUPPLY - WATER TANK LORRY	10/34	EQUIPMENT LIST	10/10

NAME	Water Tank Lorry

TECHNICAL DATA

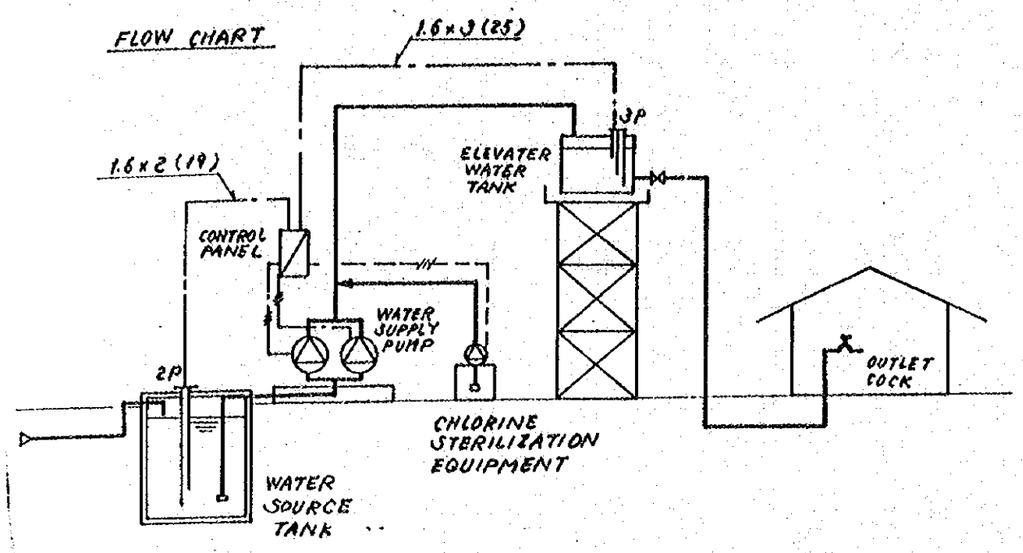
Body	Engine Type	: 4-cycle, direct-injection, water cooled, in-line diesel engine
	Number of cylinders	: 6
	Total Piston Displacement	: 6,000 cc (min.)
	Max. Gross Output (SAE)	: 140 HP at 2,800 rpm
	Wheelbase	: 4,300 mm (min.)
	Number of tires	: 4 × 2
	Optional Equipment	: Large size radiator Air cleaner Exhaust brake Water level, overheat, engine overrun warning devices Tachometer Cigarette lighter
Tank	Max. loading capacity	: 6,000 ℓ
	Thickness	: 3.2 mm
	Pump	: 500 ℓ/min × 2 kg/cm^2

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
		11.5	
REMARKS			

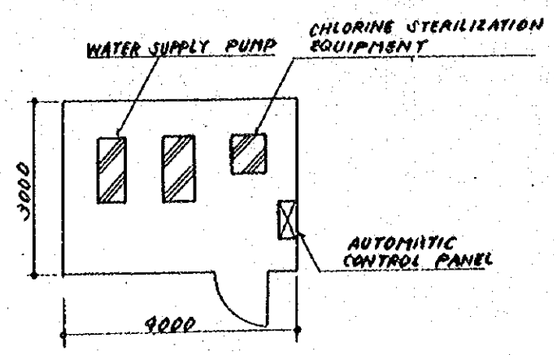
Weight; Top - Gross shipping weight
Bottom - Net weight

A1	Water supply plant – Water supply equipment and Water treatment equipment	11/34	Equipment List by Group Code	1/24	Group Code	W - I - ⓐ - H

FLOW CHART



SPACE ARRANGEMENT



Building area	Total weight	12 M²	Foundation	1,100x500x200Hx2 600x600x200Hx1	
Gross weight		5.39t			
Electric capacity		3.76kW			

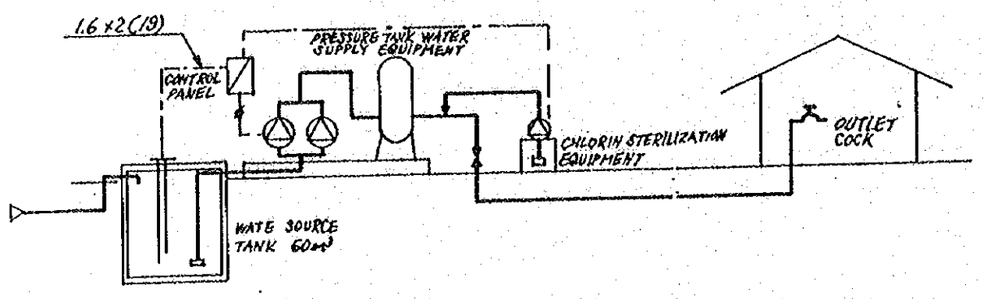
Equipment List

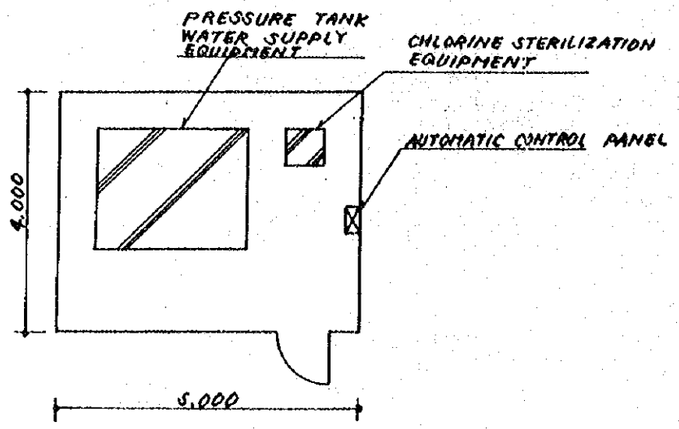
Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
Water source tank	1	-	-	-	
Water supply pump	1	1-I	0.4	3.7	
Elevated water tank	1	2-I	4.78	-	
Chlorine sterilization	1	8	0.06	0.06	
Relevant items for automatic control equipment	1	-	0.15	-	
Sub-Total:					
Erection fee	1	-	-	-	
Total			5.39	3.76	

Erection fee includes the construction charge of automatic control equipment.

A1	Water supply plant – Water supply equipment and Water treatment equipment	12/34	Equipment List by Group Code	2/24	Group Code	W - I - (a) - P

FLOW CHART





Equipment List

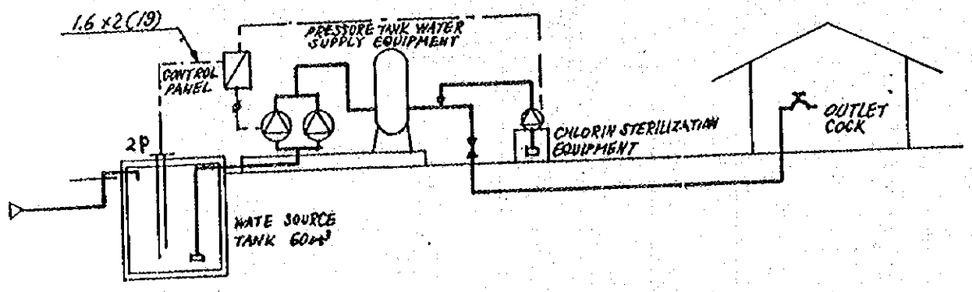
Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
Water source tank	1	-	-	-	
Pressure tank water supply equipment	1	4.1	0.94	3.7	
Chlorine sterilization equipment	1	8-C	0.06	0.06	
Relevant items for automatic control equipment	1	-	0.15	-	
Sub-Total:					
Erection fee	1				
Site management fee	1				
Sub-Total:					
Total			1.15	3.76	

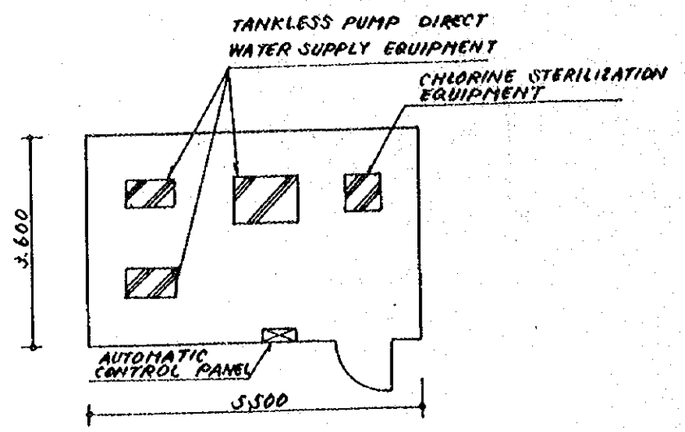
Erection fee includes the consturction charge of automatic control equipment.

Building area	Pressure tank water supply equipment	20 M²	Foundation	2,500x2000x200Hx1 600x600x200Hx1	
Gross weight	chamber	1.15t			
Electric capacity		3.76kW			

A1	Water supply plant – Water supply equipment and Water treatment equipment	13/34	Equipment List by Group Code	3/24	Group Code	W - I - ⓐ - T

FLOW CHART





Equipment List

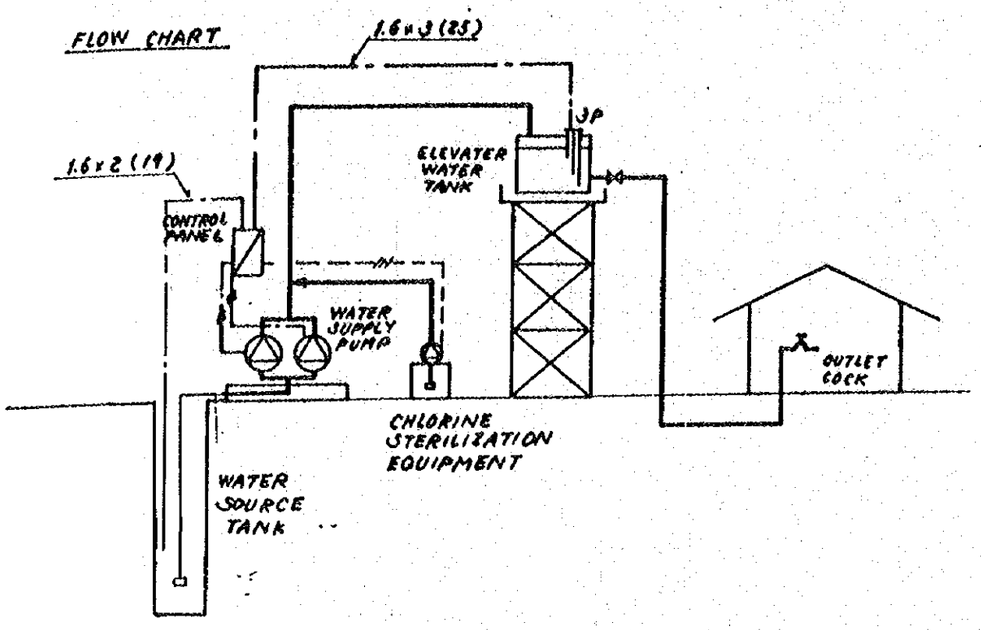
Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
Water source tank	1	-	-	-	
Tankless pump direct water supply equipment	1	5-I	0.54	3.7	
Chlorine sterilization equipment	1	8	0.06	0.06	
Relevant items for automatic control equipment	1		0.15	-	
Sub-Total:					
Erection fee	1				
Site management fee	1				
Sub-Total:					
Total		0.75	3.76		

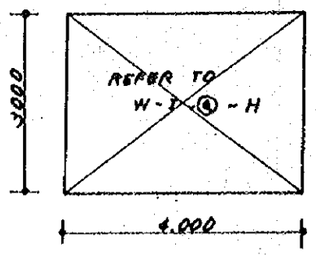
Erection fee includes the construction charge of automatic control equipment.

Building area	Tankless pump chamber	19.8 M^2	Foundation	800x500x200Hx2 11,000x800x200Hx1	
Gross weight		0.75^t		1,000x600x200Hx1	
Electric capacity		3.76Kw		600x600x200Hx1	

A1	Water supply plant -- Water supply equipment and Water treatment equipment	14/34	Equipment List by Group Code	4/24	Group Code	W - I - ⓑ - H

FLOW CHART





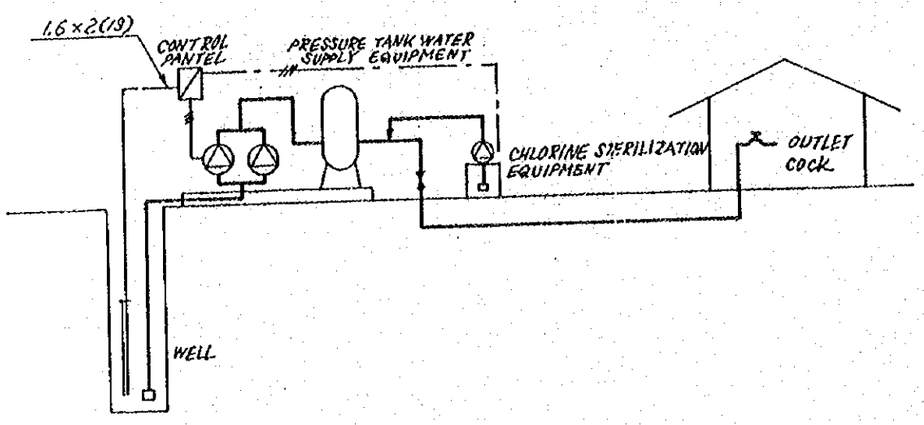
Equipment List

Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
Water supply pump	1	1-I	0.4	3.7	
Elevated water tank	1	2-I	4.78	-	
Chlorine sterilization equipment	1	8	0.06	0.06	
Relevant items for automatic control equipment	1		0.15	-	
Sub-Total:					
Erection fee	1				
Total			5.39	3.76	

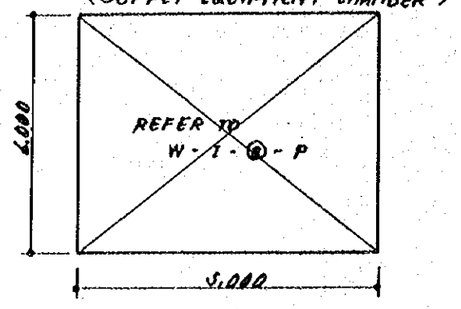
Erection fee includes the construction charge of automatic control equipment.

Building area	Pump chamber	12 M^2	Foundation	1,100x500x200Hx2 600x600x200Hx1	
Gross weight		5.34t			
Electric capacity		3.76kW			

FLOW CHART



(PRESSURE TANK WATER SUPPLY EQUIPMENT CHAMBER)



Equipment List

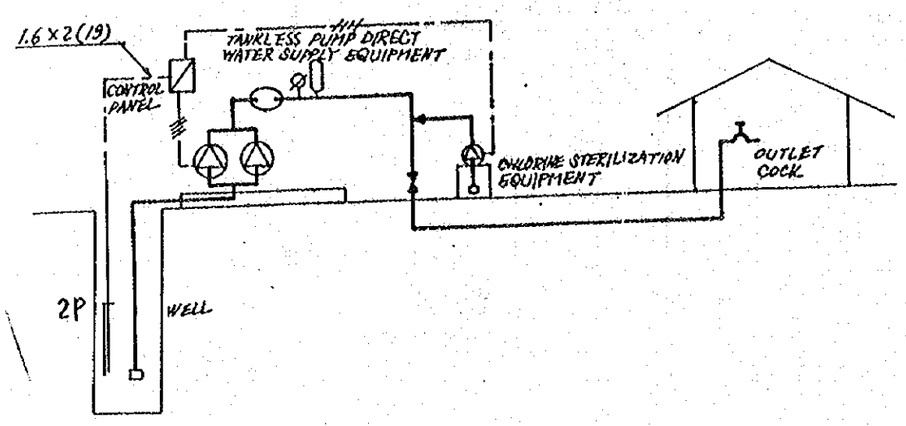
Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
Pressure tank water supply equipment	1	4-1	0.94	3.7	
Chlorine sterilization equipment	1	8	0.06	0.06	
Relevant items for automatic control equipment	1		0.15	-	
Sub-Total:					
Erection fee	1				
Site management fee	1				
Sub-Total:					
Total			1.15	3.76	

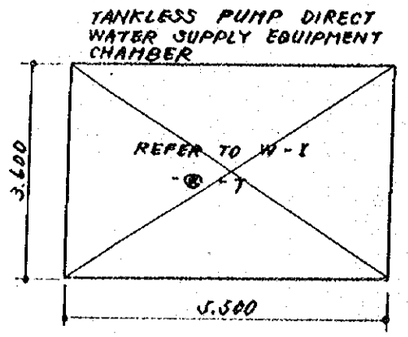
Erection fee includes the construction charge of automatic control equipment.

Building area	Pressure tank water supply equipment	20 M^2	Foundation	2,500x2,000x200Hx1 600x600x200Hx1	
Gross weight	chamber	1.15t			
Electric capacity		3.76kW			

A1	Water supply plant – Water supply equipment and Water treatment equipment	16/34	Equipment List by Group Code	6/24	Group Code	W - I - ⓑ - T

FLOW CHART



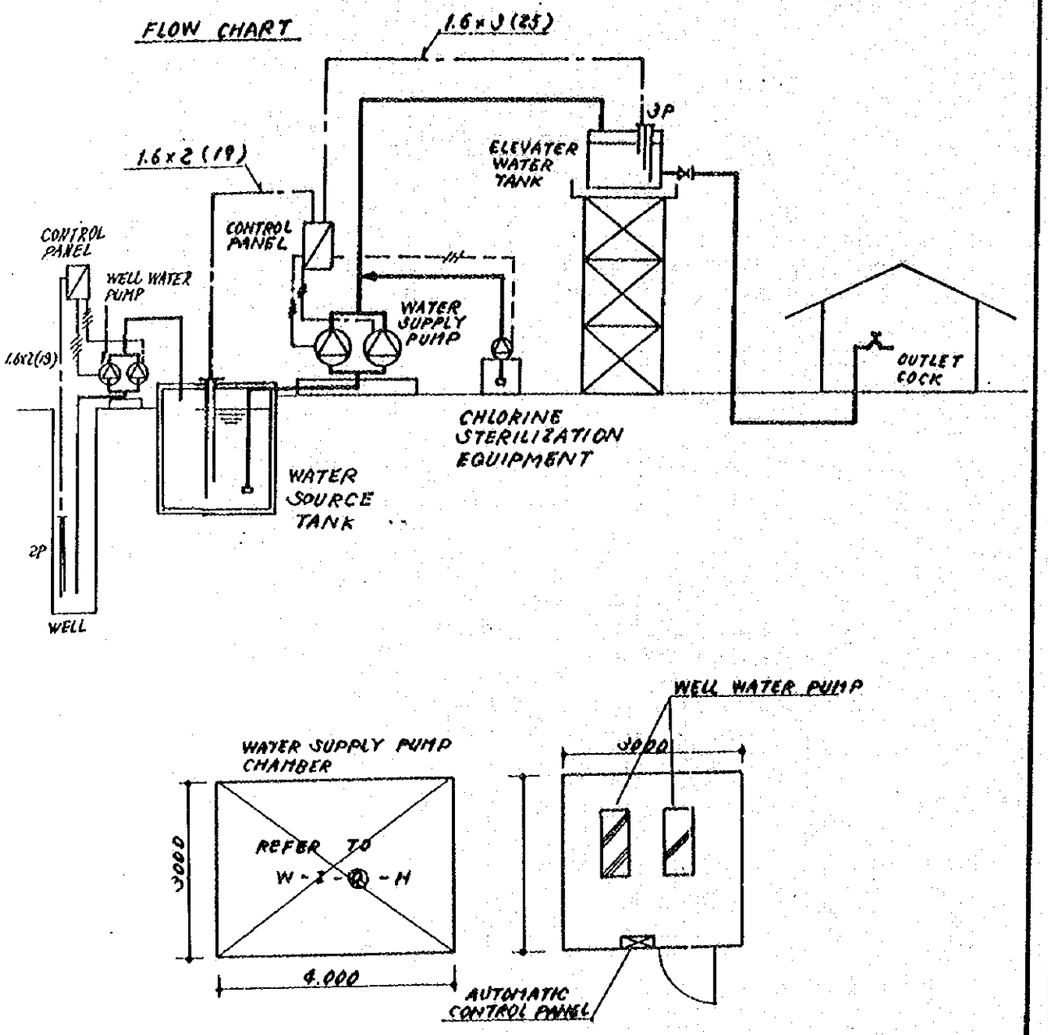


Equipment List

Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
Tankless pump direct water supply equipment	1	5-I	0.54	3.7	
Chlirine sterilization equipment	1	8	0.06	0.06	
Relevant items for automatic control equipment	1	-	0.15	-	
Sub-Total:					
Erection fee	1				
Site management fee	1				
Sub-Total:					
Total			0.75	3.76	

Building area	Tankless pump chamber	19.8 M²	Foundation	800x500x200Hx2 1,100x800x200Hx1	
Gross weight		0.75t			
Electric capacity		3.76kW			

A1	Water supply plant – Water supply equipment and Water treatment equipment	17/34	Equipment List by Group Code	7/24	Group Code	W - I - ⑥ - H



Equipment List

Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
Water source tank	1	-	-	-	
Well water pump	1	6-I	0.27	1.5	
Water supply pump	1	1-I	0.4	3.7	
Elevated water tank	1	2-I	4.78	-	
Chlorine sterilization equipment	1	8	0.06	0.06	
Relevant items for automatic control equipment	1		0.3	-	
Sub-Total:					
Erection fee	1				
Total			5.81	5.26	

Building area	Water supply pump chamber and well water	21 M^2	Foundation	1,100×500×200Hx4 600×600×200Hx1	
Gross weight	pump chamber	5.81t			
Electric capacity		5.26kW			

A1	Water supply plant – Water supply equipment and Water treatment equipment	18/34	Equipment List by Group Code	8/24	Group Code	W - I - Ⓒ - P

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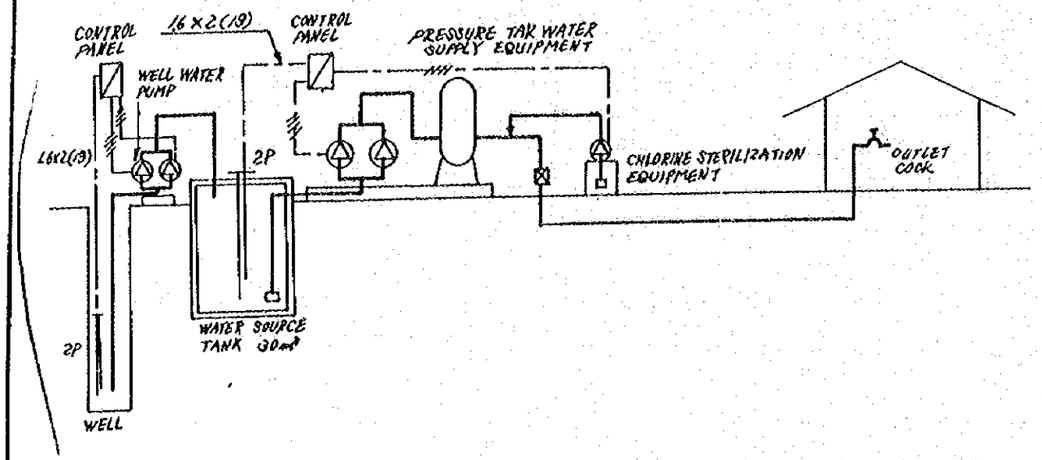
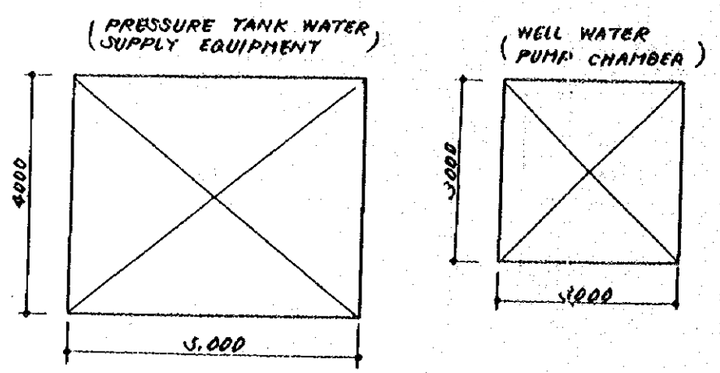




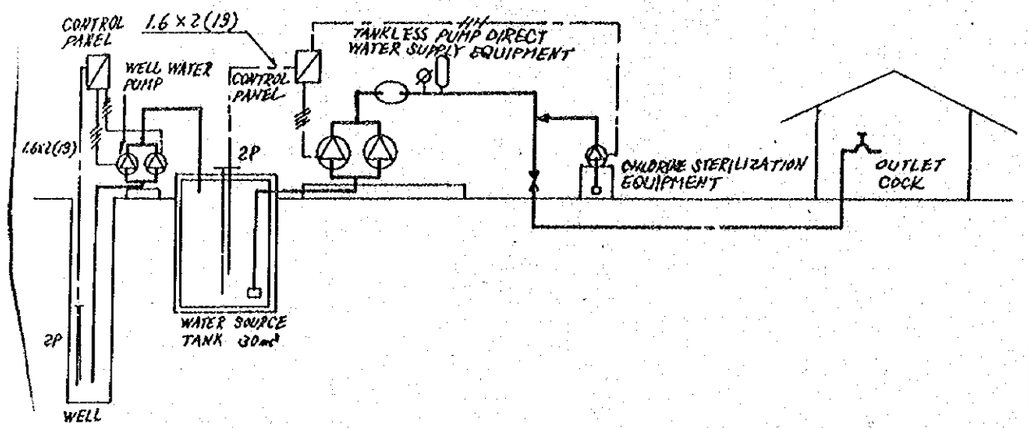
Building area	Pressure tank water equipment chamber and well water pump chamber	29 M²	Foundation	2,500x2,000x200Hx1 600x600x200Hx1	
Gross weight		1.57t		1,100x500x200Hx2	
Electric capacity		5.26kW			

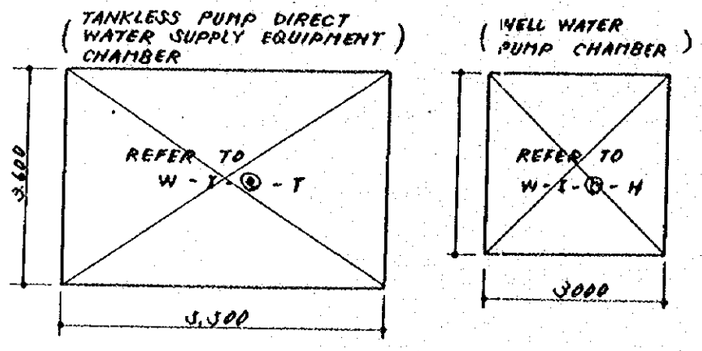
Equipment List

Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
Water source tank	1	-	-	-	
Well water pump	1	6-I	0.27	1.5	
Pressure tank water supply equipment	1	4-I	0.94	3.7	
Chlorine sterilization equipment	1	8	0.06	0.06	
Relevant items for automatic control equipment	1	-	0.3	-	
Sub-Total:					
Erection fee	1				
Total			1.57	5.26	

A1	Water supply plant – Water supply equipment and Water treatment equipment	19/34	Equipment List by Group Code	9/24	Group Code	W - I - ⑨ - T

FLOW CHART





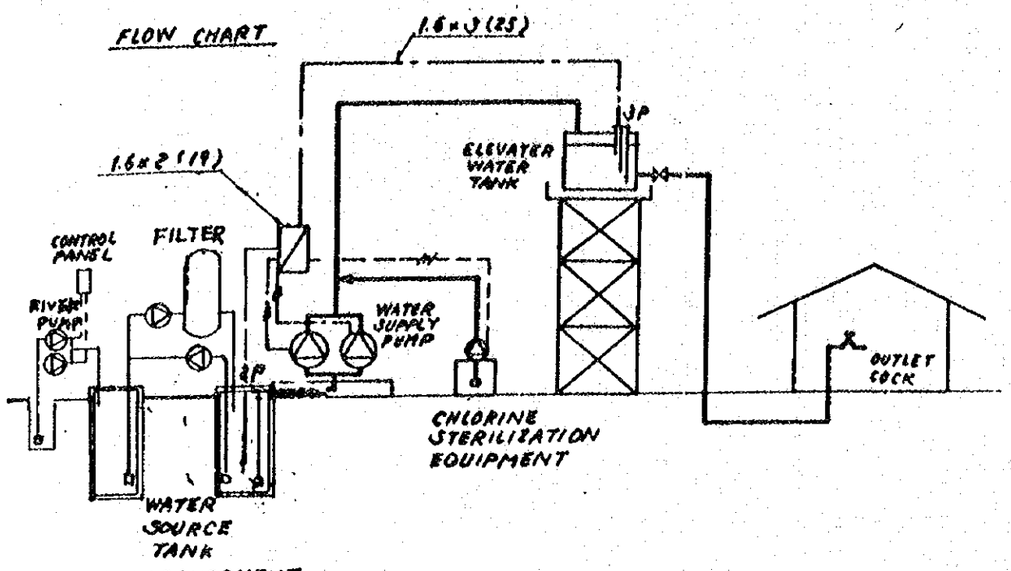
Building area	Pressure tank water equipment chamber and ~~well water pump chamber~~	28.8 M²	Foundation	800x500x200Hx2 1,100x800x200Hx1	
Gross weight		1.17t		600x800x200Hx1	
Electric capacity		5.26kW		1,100x500x200Hx2	

Equipment List

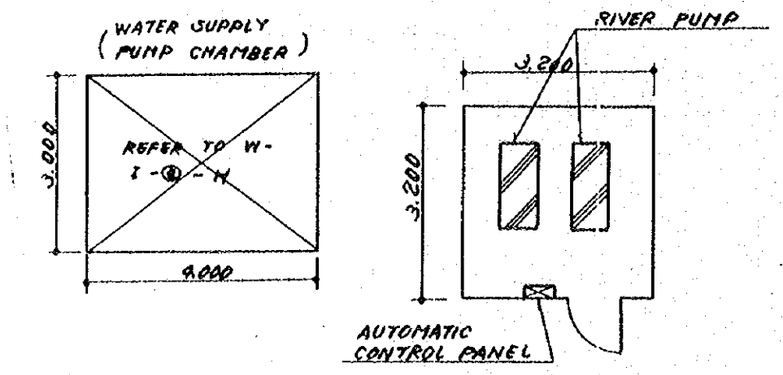
Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
Water source tank	1	-	-	-	
Well water pump	1	6-I	0.27	1.5	
Tankless pump direct water supply equipment	1	5-I	0.54	3.7	
Chlorine sterilization equipment	1	8	0.06	0.06	
Relevant items for automatic control control equipment	1	-	0.3	-	
Sub-Total:					
Erection fee	1				
Total			1.17	5.26	

A1	Water supply plant – Water supply equipment and Water treatment equipment	20/34	Equipment List by Group Code	10/14	Group Code	W - I - ④ - H

FLOW CHART



SPACE ARRANGEMENT



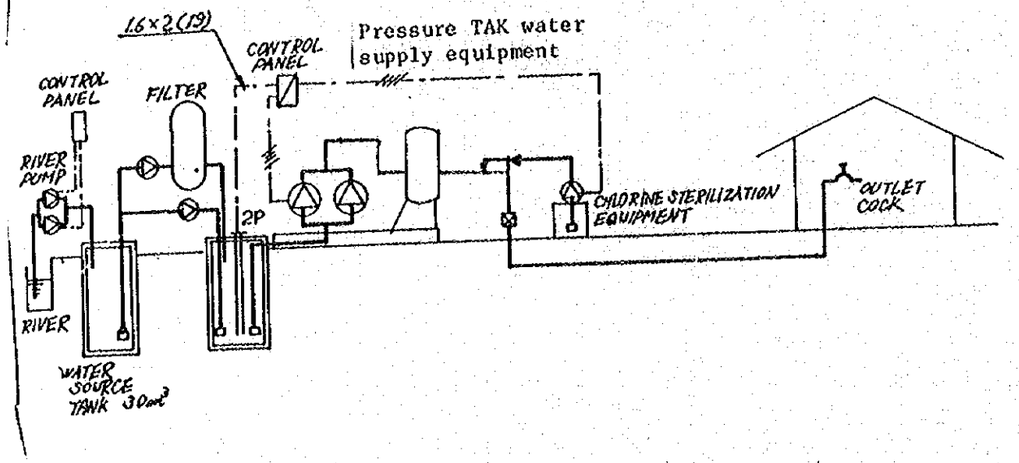
Building area	Water supply pump + River pump	22.24 M²	Foundation	1,100x500x200Hx2 600x600x200Hx1	
Gross weight		11.23t		1,400x600x200Hx2	
Electric capacity		14.96kW		1,600x1,600x500Hx1 800x500x200Hx2	

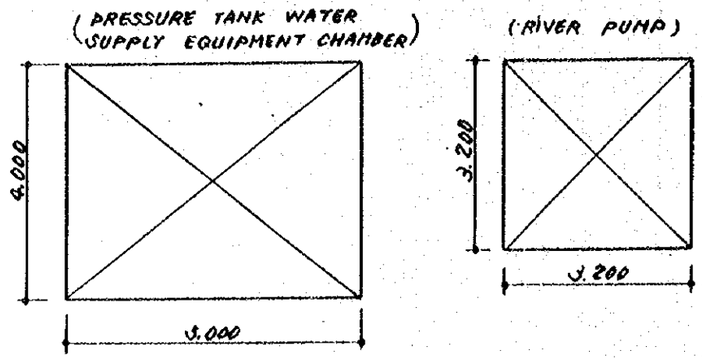
Equipment List

Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
Water source tank	1	-	-	-	
Water source tank	1	-	-	-	
River pump	1	7-I	0.69	7.5	
Filter	1	9	5.0	3.7	
Water supply pump	1	1-I	0.4	3.7	
Elevated water tank	1	2-I	4.98	-	
Chlorine steirlization equipment	1	8	0.06	0.06	
Relevant items for automatic control equipment	1	-	0.3	-	
Sub-Total:					
Erection fee	1				
Total			11.23	14.96	

A1	Water supply plant — Water supply equipment and Water treatment equipment	21/34	Equipment List by Group Code	11/24	Group Code	W - I - ⓓ - P

FLOW CHART





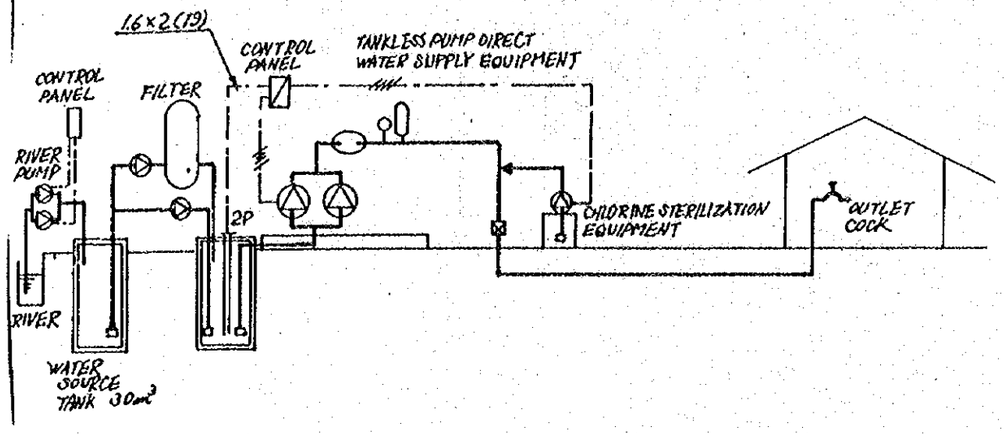
Equipment List

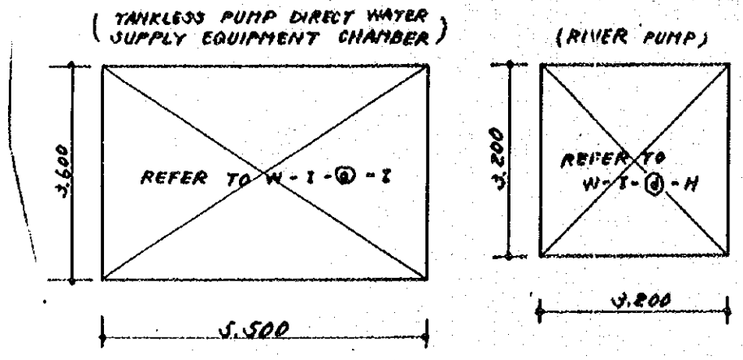
Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
Water source tank	1	-	-	-	
Water source tank	1	-	-	-	
River pump	1	7-I	0.69	7.5	
Filter	1	9	5.0	3.7	
Pressure tank water supply equipment	1	4-I	0.94	3.7	
Chlorine sterilization equipment	1	8	0.06	-	
Relevant items for automatic control equipment	1	-	0.3	-	
Sub-Total:					
Erection fee	1				
Total			6.99	14.96	

Building area	Water supply pump + River pump	30.24 M²	Foundation	2,500x2,000x200Hx1 600x600x200Hx1	
Gross weight		6.99t		1,400x600x200Hx2	
Electric capacity		14.96kW		1,600x1,600x500Hx1 800x500x200Hx2	

A1	Water supply plant – Water supply equipment and Water treatment equipment	22/34	Equipment List by Group Code	12/24	Group Code	W - I - ⑨ - T

FLOW CHART





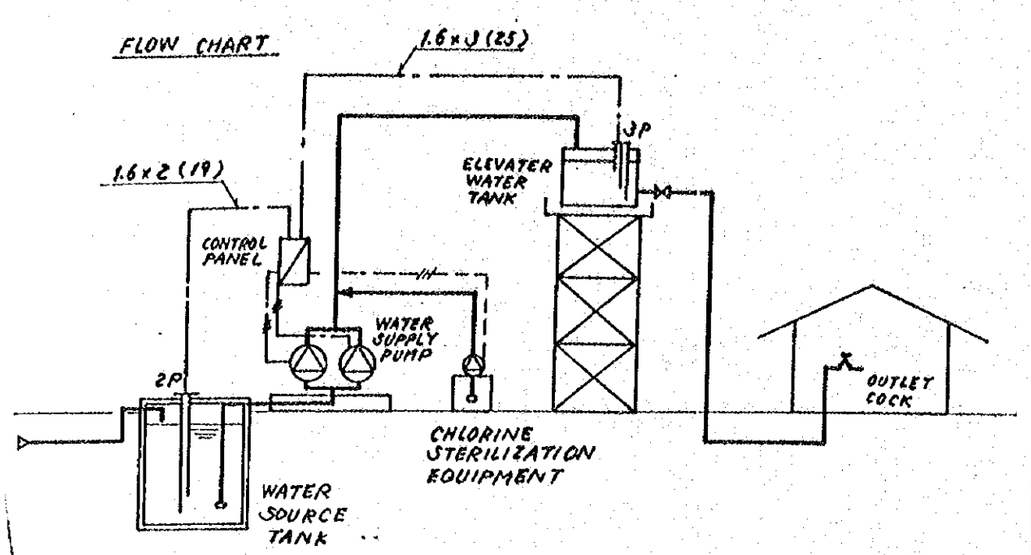
Equipment List

Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
Water source tank	1	-	-	-	
Water source tank	1	-	-	-	
River pump	1	7-I	0.69	7.5	
Filter	1	9	5.0	3.7	
Tankless pump direct supply method	1	5-I	0.54	3.7	
Chlorine sterilization equipment	1	8	0.06	0.06	
Relevant items for automatic control equipment	1	-	0.3	-	
Sub-Total:					
Erection fee	1				
Total			6.59	14.96	

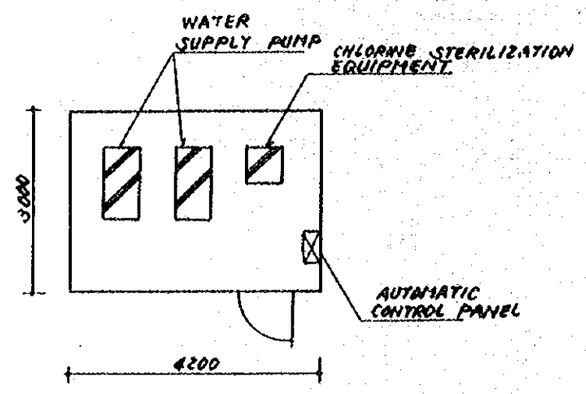
Building area	Water supply pump + River pump	30.04M²	Foundation		
Gross weight		6.59t		800x500x200Hx2 1,100x800x200Hx1	
Electric capacity		14.96kW		600x600x200Hx1 1,400x600x200Hx2 1,600x1,600x500Hx1 800x500x200Hx1	

A1	Water supply plant – Water supply equipment and Water treatment equipment	23/34	Equipment List by Group Code	13/24	Group Code	W - II - ⓐ - H

FLOW CHART



SPACE ARRANGEMENT



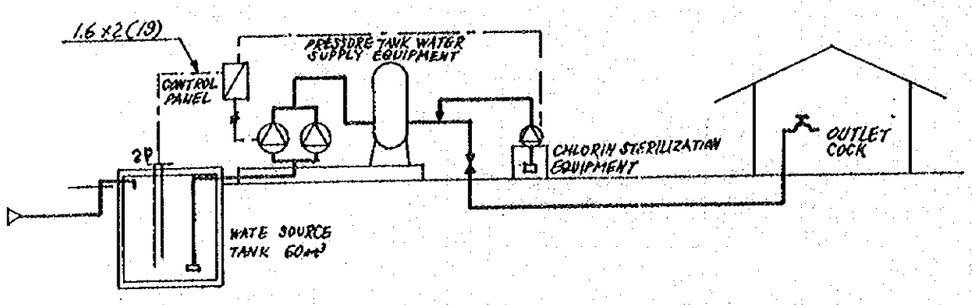
Equipment List

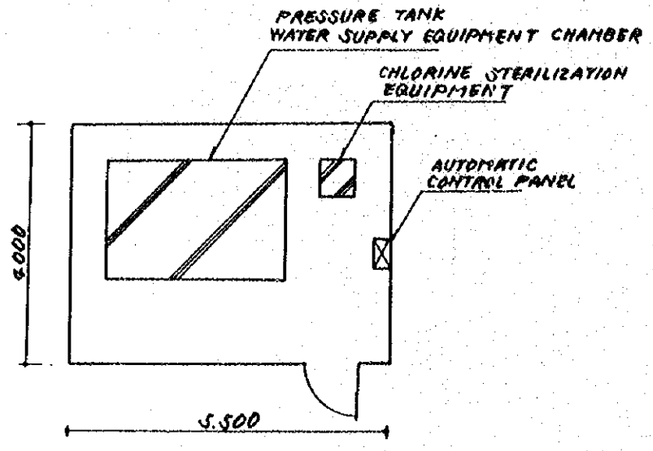
Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
Water source tank	1	-	-	-	
Water supply pump	1	1-II	0.57	5.5	
Elevated water tank	1	2-II	5.48	-	
Chlorine sterilization equipment	1	8	0.06	0.06	
Relevant items for automatic control equipment	1		0.15		
Sub-Total:					
Erection fee	1				
Total			6.26	5.56	

Building area	Pump Chamber	12.6 M^2	Foundation	1,200x600x200Hx2 600x600x200Hx1	
Gross weight		6.26t			
Electric capacity		5.56kW			

A1	Water supply plant – Water supply equipment and Water treatment equipment	24/34	Equipment List by Group Code	14/24	Group Code	W - II- ⓐ - P

FLOW CHART





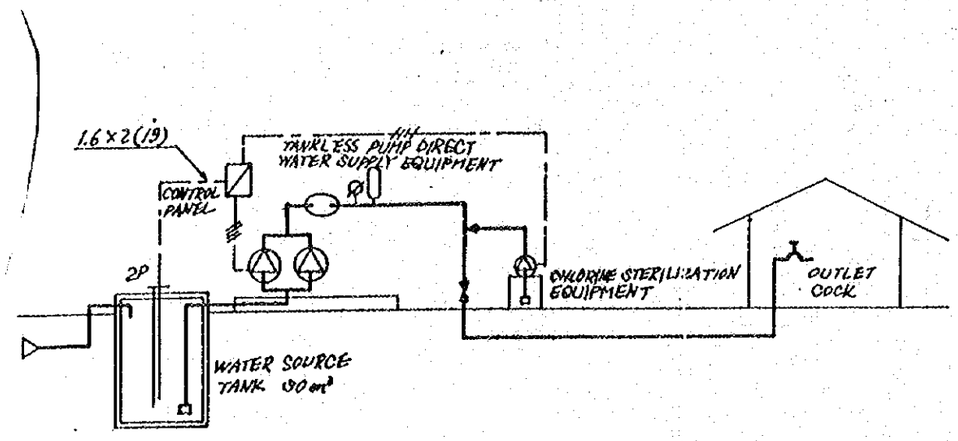
Equipment List

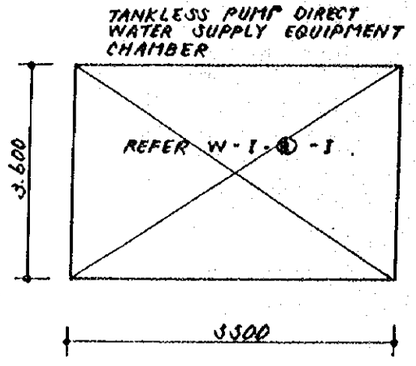
Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
Water source tank	1	-	-	-	
Pressure tank water supply equipment	1	4-II	2.51	11	
Chlorine sterilization equipment	1	8	0.06	0.06	
Relevant items for automatic control equipment	1		0.15	-	
Sub-Total:					
Erection fee	1				
Total			2.72	16.06	

Building area	Pressure tank water supply equipment chamber	22 M^2	Foundation	3,000x2,000x200Hx1 600x600x200Hx1	
Gross weight		2.72t			
Electric capacity		11.06kW			

A1	Water supply plant – Water supply equipment and Water treatment equipment	25/34	Equipment List by Group Code	15/24	Group Code	W - II- ⓐ - T

FLOW CHART





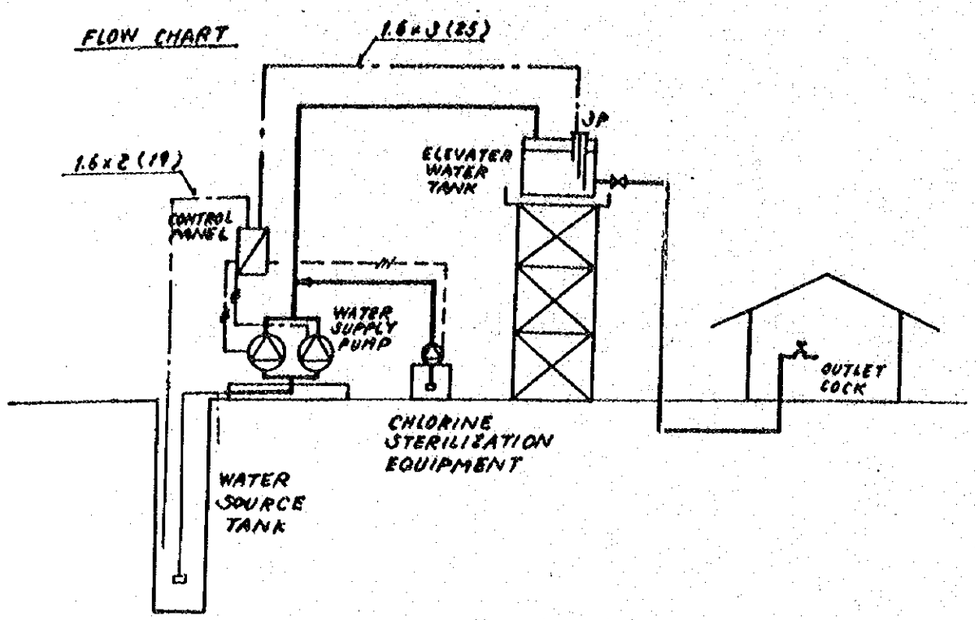
Building area	Tankless pump chamber	19.8 M²	Foundation	800x500x200Hx2 1,100x800x200Hx1	
Gross weight		0.77t		600x600x200Hx1	
Electric capacity		5.56kW			

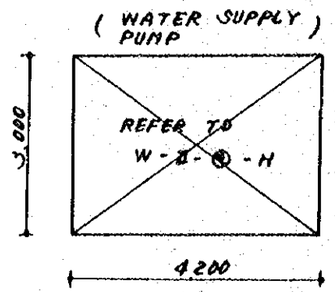
Equipment List

Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
Water source tank	1	-	-	-	
Tankless pump direct water supply equipment	1	5-II	0.56	5.5	
Chlorine sterilization equipment	1	8	0.06	0.06	
Relevant items for automatic control equipment	1		0.15	-	
Sub-Total;					
Erection fee					
Total			0.77	5.56	

A1	Water supply plant – Water supply equipment and Water treatment equipment	26/34	Equipment List by Group Code	16/24	Group Code	W - II- ⓑ - H

FLOW CHART





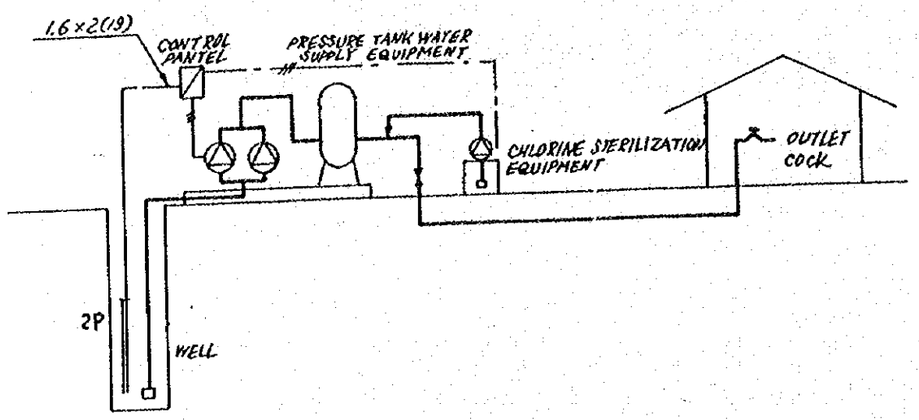
Equipment List

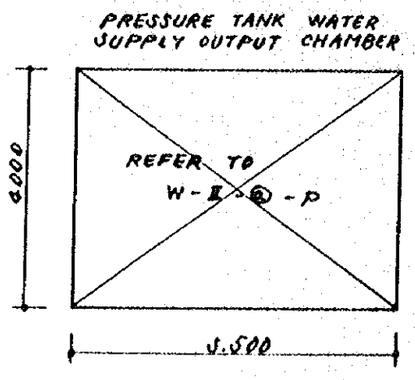
Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
Water supply pump	1	1-II	0.57	5.5	
Elevated water tank	1	2-II	5.48	-	
Chlorine sterilization equipment	1	8-C	0.06	0.06	
Relevant items for automatic control equipment	1	-	0.15	-	
Sub-Total:					
Erection fee	1				
Total			6.26	5.56	

Building area	Pump chamber	12.6 M^2	Foundation	1,200x600x200Hx2 600x600x200Hx1	
Gross weight		6.26t			
Electric capacity		5.56kW			

A1	Water supply plant – Water supply equipment and Water treatment equipment	27/34	Equipment List by Group Code	17/24	Group Code	W - II- (b) - P

FLOW CHART



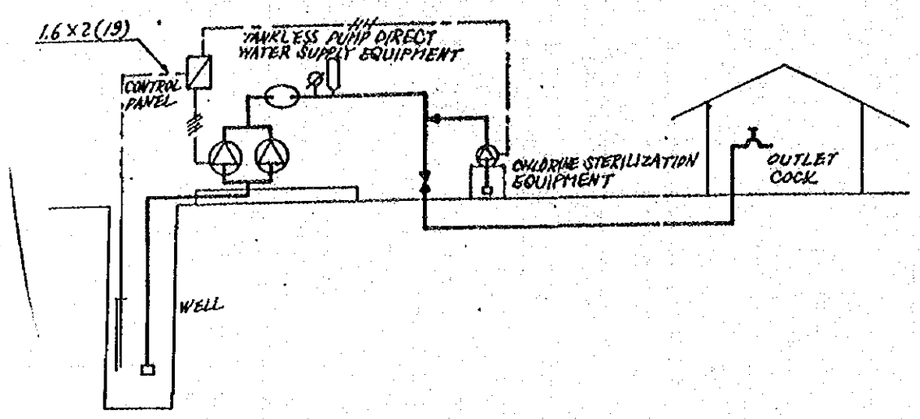


Building area	Pressure tank water supply equipment	22 M^2	Foundation	3,000x2,000x200Hx1 600x600x200Hx1	
Gross weight		2.72t			
Electric capacity		11.06kW			

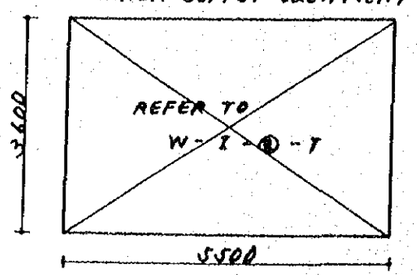
Equipment List

Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
Pressure tank water supply equipment	1	4-II	2.51	11	
Chlorine sterilization equipment	1	8	0.06	0.06	
Relevant items for automatic control equipment	1	-	0.15	-	
Sub-Total:					
Erection fee	1				
Total			2.72	11.00	

A1.	Water supply plant – Water supply equipment and Water treatment equipment	28/34	Equipment List by Group Code	18/24	Group Code	W - II- (b) - T



TANKLESS PUMP DIRECT WATER SUPPLY EQUIPMENT



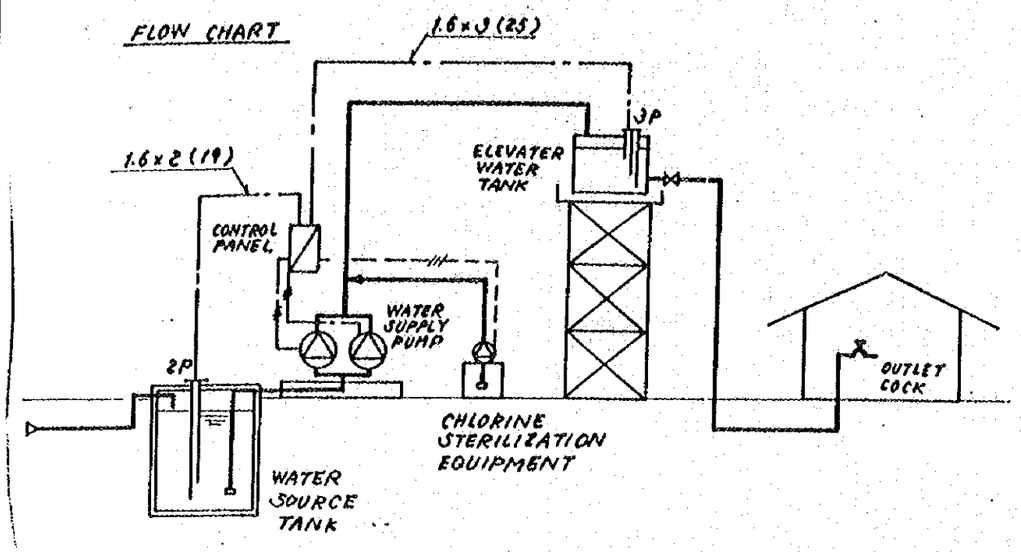
Equipment List

Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
Tankless pump direct water supply equipment	1	5-II	0.56	5.5	
Chlorine sterilization equipment	1	8	0.06	0.06	
Relevant items for automatic control equipment	1	-	0.15	-	
Sub-Total:					
Erection fee	1				
Total			0.77	5.56	

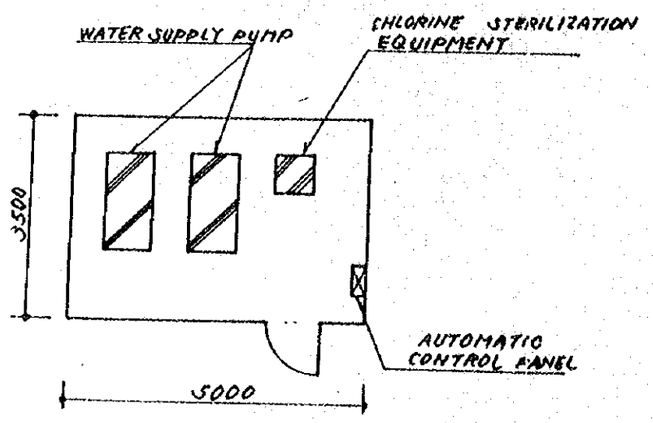
Building area	Tankless pump	19.8 M^2	Foundation	800x500x200Hx2 1,100x800x200Hx1	
Gross weight		0.77t		600x600x200Hx1	
Electric capacity		5.56kW			

A1	Water supply plant – Water supply equipment and Water treatment equipment	29/34	Equipment List by Group Code	19/24	Group Code	W – IV – II

FLOW CHART



SPACE ARRANGEMENT



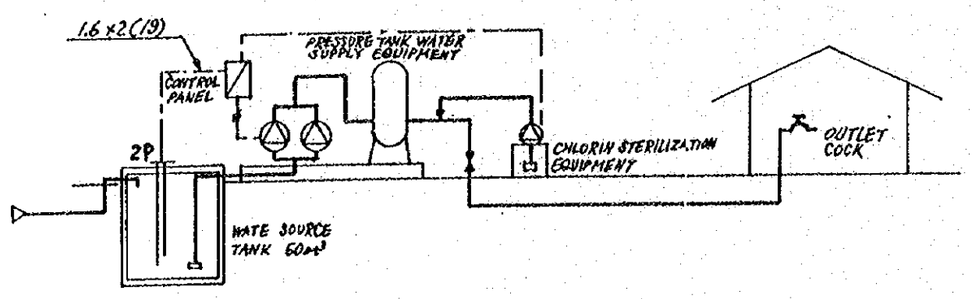
Equipment List

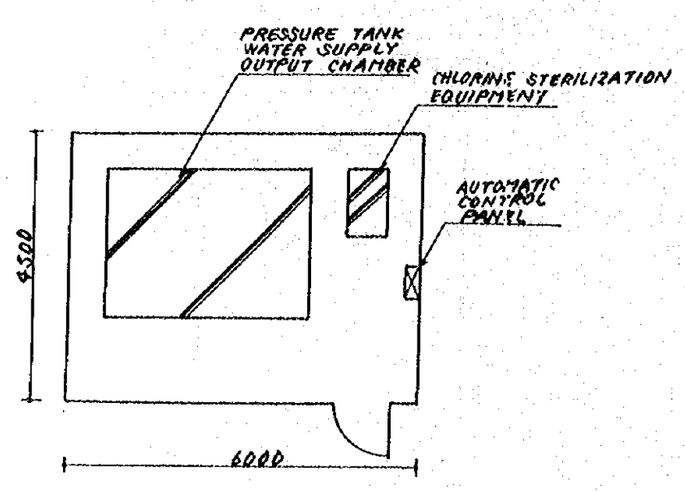
Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
Water source tank	1	–	–	–	
Water supply pump	1	1-IV	1.2	15	
Elevated water tank	1	2-IV	6.3	–	
Chlorine sterilization equipment	1	8	0.06	0.06	
Relevant items for automatic control equipment	1	–	0.23	–	
Sub-Total:					
Erection fee	1				
Total			7.79	15.06	

Building area	Pump chamber	17.5 M^2	Foundation	1,600x800x200Hx2 600x600x200Hx1	
Gross weight		7.79t			
Electric capacity		15.06kW			

A1	Water supply plant – Water supply equipment and Water treatment equipment	30/34	Equipment List by Group Code	20/24	Group Code	W - IV - P

FLOW CHART





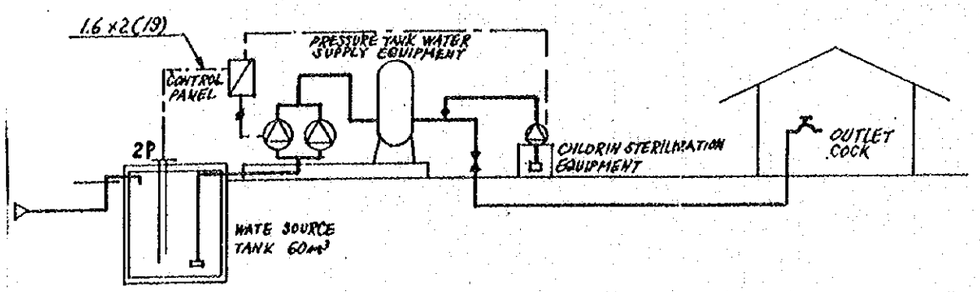
Equipment List

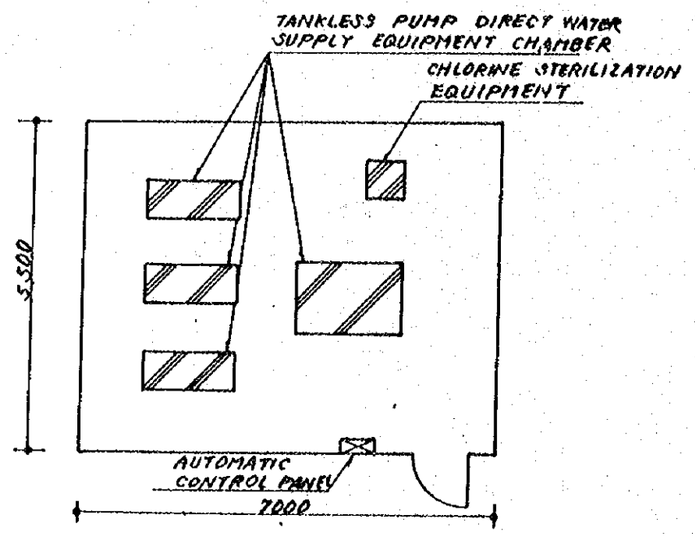
Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
Water source tank	1	-	-	-	
Pressure tank water supply equipment	1	4-IV	4,96	22	
Chlorine sterilization equipment	1	8	0.06	0.06	
Relevant items for automatic control equipment	1	-	0.23	-	
Sub-Total:					
Erection fee	1				
Total			5.25	22.06	

Building area	Pressure tank water supply equipment chamber	27 M^2	Foundation	3,500x2,500x200Hx1 600x600x200Hx1	
Gross weight		5.25t			
Electric capacity		22.06kW			

A1	Water supply plant -- Water supply equipment and Water treatment equipment	31/34	Equipment List by Group Code	21/24	Group Code	W - IV - T

FLOW CHART





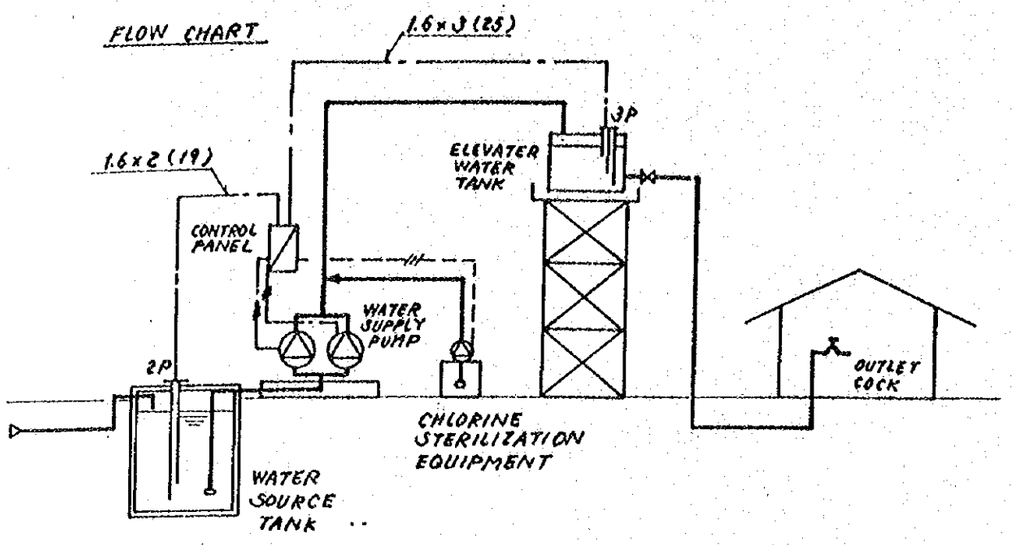
Equipment List

Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
Water source tank	1	-	-	-	
Tankless pump direct water supply equipment	1	5-IV	4.27	22	
Chlorine sterilization equipment	1	8	0.06	0.06	
Relevant items for automatic control equipment	1	-	0.23	"	
Sub-Total:					
Erection fee	1	-			
Total			4.56	22.06	

Building area	Pump chamber	38.5 M^2	Foundation	1,500x600x200Hx3 1,800x1,100x200Hx1	
Gross weight		4.56t		600x600x200Hx1	
Electric capacity		22.06kW			

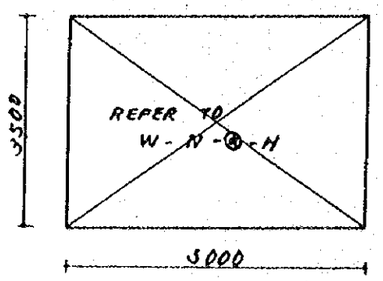
A1	Water supply plant – Water supply equipment and Water treatment equipment	32/34	Equipment List by Group Code	22/24	Group Code	W - V - H

FLOW CHART



SPACE ARRANGEMENT

(WATER SUPPLY PUMP)



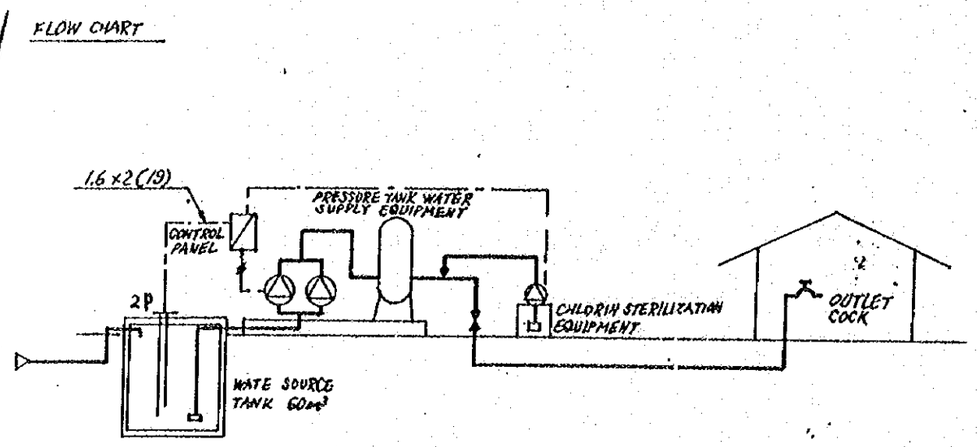
Building area	Pressure tank water supply equipment	17.5 M^2	Foundation	1,600x800x200Hx2 600x600x200Hx1	
Gross weight		10.1t			
Electric capacity		18.56kW			

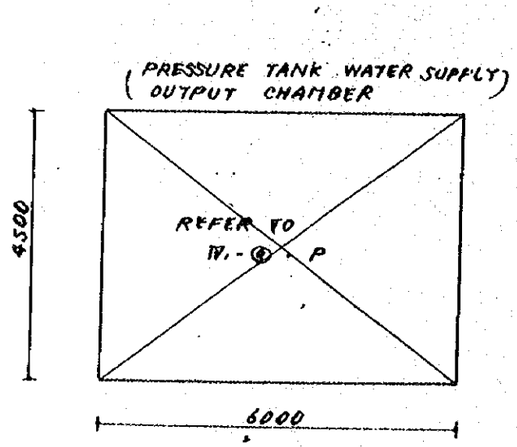
Equipment List

Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
Water source tank	1	-	-	-	
Water supply pump	1	1-V	1.24	18.5	
Elevated water tank	1	2-V	8.57	-	
Chlorine sterilization equipment	1	8	0.06	0.06	
Relevant items for automatic control equipment	1	-	0.23	-	
Sub-Total:					
Erection fee	1				
Total			10.1	18.56	

A1	Water supply plant – Water supply equipment and Water treatment equipment	33/34	Equipment List by Group Code	23/24	Group Code	W - V - P

FLOW CHART





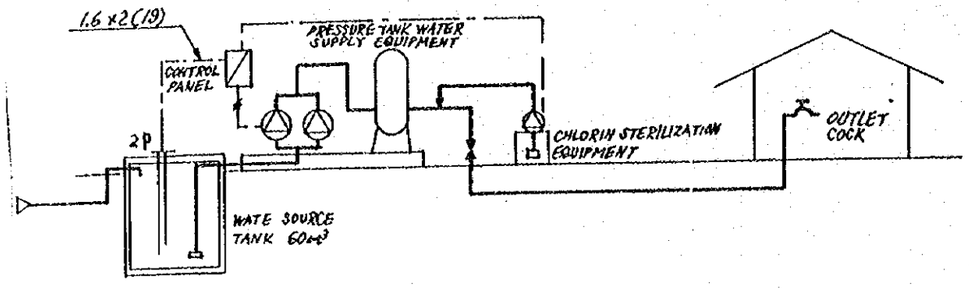
Building area	Pressure tank water supply equipment chamber	27 M²	Foundation	3,500x2,500x200Hx1 600x600x200Hx1	
Gross weight		6.38t			
Electric capacity		30.06kW			

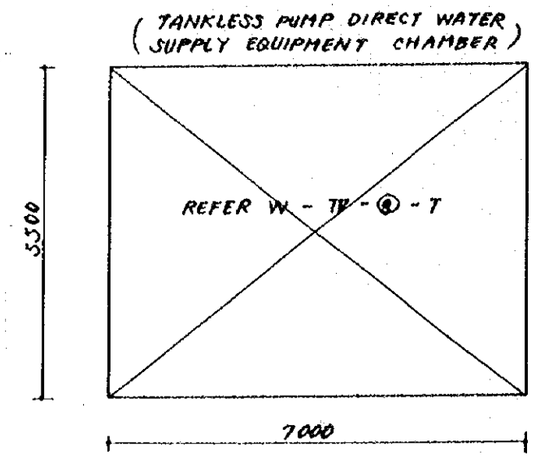
Equipment List

Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
Water source tank	1	-	-	-	
Pressure tank water supply equipment	1	4-V	6.09	30	
Chlorine sterilization equipment	1	8	0.06	0.06	
Relevant items for automatic control equipment	1	-	0.23	-	
Sub-Total:					
Erection fee	1				
Total			6.38	30.06	

A1	Water supply plant – Water supply equipment and Water treatment equipment	34/34	Equipment List by Group Code	24/24	Group Code	W - V - T

FLOW CHART





Building area	Pump chamber	38.5 M²	Foundation	1,500x600x200Hx3 1,800x1,100x200Hx1	
Gross weight		4.86t		600x600x200Hx1	
Electric capacity		30.06kW			

Equipment List

Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
Water source tank	1	-	-	-	
Tankless pump direct water supply equipment	1	5-V	4.57	30	
Chlorine sterilization equipment	1	8	0.06	0.06	
Relevant items for automatic control equipment	1	-	0.23	-	
Sub-Total:					
Erection fee					
Total			4,96	30.06	

5-2 Water supply-outside water piping (A2)

A2	WATER SUPPLY -- OUTSIDE WATER PIPING	1/9

NAME OF HOSPITAL	MATERIAL OF PIPES	SIZE (B)	LENGTH (m)	REMARKS
Tondano	Galvanized iron pipes	3 "	100	
	"	2 1/2 "	80	
	"	2 "	120	
	"	1 3/4 "	130	
	"	1 "	300	
	"	3/4 "	200	
Gorontalo	Galvanized iron pipes	4 "	50	
	"	3 "	30	
	"	2 1/2 "	120	
	"	2 "	60	
	"	1 3/4 "	200	
	"	1 "	140	
	"	3/4 "	220	

NAME OF HOSPITAL	MATERIAL OF PIPES	SIZE (B)	LENGTH (m)	REMARKS
Ujung Pandang	Galvanized iron pipes	6 "	200	
	"	4 "	50	
	"	3 "	160	
	"	2 1/2 "	150	
	"	2 "	460	
	"	1 3/4 "	600	
	"	1 "	700	
	"	3/4 "	800	
Pare - Pare	Galvanized iron pipes	3 "	150	
	"	2 1/2 "	70	
	"	2 "	150	
	"	1 3/4 "	340	
	"	1 "	300	
	"	3/4 "	550	
	Galvanized iron pipes	3 "	30	

NAME OF HOSPITAL	MATERIAL OF PIPES	SIZE (B)	LENGTH (m)	REMARKS
Palopo	Galvanized iron pipes	3 "	80	
	"	2 1/2 "	70	
	"	2 "	310	
	"	1 3/4 "	160	
	"	1 "	60	
	"	3/4 "	220	
Soppeng	Galvanized iron pipes	3 "	110	
	"	2 1/2 "	60	
	"	2 "	190	
	"	1 3/4 "	60	
	"	1 "	70	
	"	3/4 "	200	

NAME OF HOSPITAL	MATERIAL OF PIPES	SIZE (B)	LENGTH (m)	REMARKS
Tenriawaru	Galvanized iron pipes	2 1/2 "	330	
	"	2 "	360	
	"	1 3/4 "	240	
	"	1 "	230	
	"	3/4 "	300	
Elim Rantepao	Galvanized iron pipes	3 "	200	
	"	2 1/2 "	40	
	"	2 "	120	
	"	1 3/4	170	
	"	1 "	140	
	"	3/4 "	300	

NAME OF HOSPITAL	MATERIAL OF PIPES	SIZE (B)	LENGTH (m)	REMARKS
Bantaeng	Galvanized iron pipes	3 "	100	
	"	2 1/2 "	20	
	"	2 "	140	
	"	1 3/4 "	100	
	"	1 "	50	
	"	3/4 "	230	
Medan				
				to be estimated by PAM

NAME OF HOSPITAL	MATERIAL OF PIPES	SIZE (B)	LENGTH (m)	REMARKS
Pematang Siantar	Galvanized iron pipes	4 "	470	
	"	3 "	250	
	"	2 1/2 "	150	
	"	2 "	600	
	"	1 3/4 "	1,200	
	"	1 "	1,650	
	"	3/4 "	1,000	
Tartung	Galvanized iron pipes	4 "	180	
	"	3 "	120	
	"	2 1/2 "	200	
	"	2 "	510	
	"	1 3/4 "	700	
	"	1 "	1,000	
	"	3/4 "	700	
	Galvanized iron pipes	4 "	3,000	outside of site

NAME OF HOSPITAL	MATERIAL OF PIPES	SIZE (B)	LENGTH (m)	REMARKS
Kisaran	Galvanized iron pipes	3 "	10	
	"	2 "	1,000	
	"	1 "	540	
	"	3/4 "	300	
Rantau Prapat	Galvanized iron pipes	3 "	10	
	"	2 1/2 "	240	
	"	2	400	
	"	1 3/4 "	200	
	"	1 "	320	
	"	3/4 "	250	

NAME OF HOSPITAL	MATERIAL OF PIPES	SIZE (B)	LENGTH (m)	REMARKS
Tebing Tinggi	Galvanized iron pipes	3 "	160	
	"	2 1/2 "	80	
	"	2 "	180	
	"	1 3/4 "	120	
	"	1 "	130	
	"	3/4 "	200	
Tanjung Balai	Galvanized iron pipes	3 "	70	
	"	2 1/2 "	50	
	"	2 "	210	
	"	1 3/4 "	230	
	"	1 "	370	
	"	3/4 "	300	
	Vinyl pipes	3 "	-	outside of site

A2

WATER SUPPLY -- OUTSIDE WATER PIPING | 9/9

NAME OF HOSPITAL	MATERIAL OF PIPES	SIZE (B)	LENGTH (m)	REMARKS
Rorsea	Galvanized iron pipes	3 "	10	
	"	2 1/2 "	20	
	"	2 "	130	
	"	1 3/4 "	130	
	"	1 "	40	
	"	3/4 "	180	
	Galvanized iron pipes	3 "	500	outside of site

5-3 Kitchen (B)

° List of kitchen appliances

Name of appliance	Gunung Werang Vjung Pandang Medan	Other hospitals
Kitchen tables	o 1)	o 2)
Rice cookers	o 3)	x
Fryers	o 1)	x
Tilting pans	o 1)	x
Refrigerators	o 1)	o 1)
Sink appliances	o	o
Working tables	o	o
Racks	o	o
Automatic dishwasher	o 3)	x
Serving wagons	o	o
Flatware and other fixtures	o	o
Disinfectors	o 3)	o 2)

1) Operates on electric power

2) Operates on kerosene

3) Operates on steam

	KITCHEN	1/23	EQUIPMENT LIST	1/17

NAME	Cooking Table (Kerosene)

TECHNICAL DATA

Body Frame : Steel angle L 5 × 50 × 50 m/m

Top Plate : Cast iron t = 12 m/m

Apron : Stainless steel SUS 430, t = 1.2 m/m

Legs : Stainless steel angle SUS 430, L 3 × 40 × 40

Adjust Ball : Cast iron crome plated.

Burner : Kerosene burner, vaporized type, 120,000 Kcal per each burner, with vaporizing heater.

Vaporizing Heater: 1p/100v/0.6 kw per each burner. This heater shall be operated about 5 ∿ 6 minutes before burner ignitioned for vaporrize kerosene, and stopped automatically after burner ignitioned.

Burner Ring : ϕ 320 m/m, cast iron

Spare Parts :

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
I-0,I,III	4 burner model Dim. 1,800 × 750 × 850 m/m	0.4	2.4
I-II	3 ourner model Dim. 1,400 × 750 × 850 m/m	0.32	2.0
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

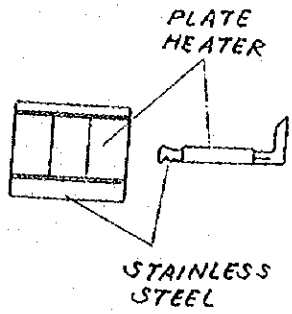
DR	KITCHEN	2/23	EQUIPMENT LIST	2/17

NAME	Cooking Table (Electric)

TECHNICAL DATA

Body Exterior : Stainless Steel SUS. 430, t = 1.0 m/m
Top Plate : Plate Heater, 3p/220v/15kw.
Switch : 3-step Switch. (High, Middle, Low.)
Thermostat : High cut thermostat.
Under Cabinet : Open Cabinet type w/ shelf.
Adjustable Leg: Cast Iron, Crome Plated.

Spare Parts : 1 Pilot Lump
1 Switch Knob



ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
2 - IV,V	Dim. 900 × 970 × 850 m/m	0.3	15
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

	KITCHEN	3/23	EQUIPMENT LIST	3/17

NAME	Rice Cooker (Steam operated.)

TECHNICAL DATA

Body : Body shall be constructed of 9 m/m thickness steel plate and 1.2 m/m thickness steel plate exterior with glass wool insulation between double wall. Inside the body, unit shall have shelfwith pipe roller which can be easily to put in or taken out cooking pan. The unit has cast-iron legs at lower part and legs are fitted to the floor with anchor bolt.

Door : Door shall be constructed of 9 m/m thickness steel plate and 0.8 m/m stainless steel exterior. Door shall be opened or closed by rods installed radially by operating handle.

Control System : It shall be operated on pressure switch and steam supply and drain velves are open and closed. Steaming timer is controled by a timer. Control box is provided with pressure gauge, thermostat, timer, switches, and indicating lump.

Max.Steam Pressure: 0.9 kg/cm^2

Standard Accessory: Cooking Pan.

15 pcs for Model RCS-5, 21 pcs for RCS-8.

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
2-IV	75 kgs cap. Dim. × × m/m Steam consumption: 64 kg/Hr	1.2	0.1
3-V	kgs cap. Dim. 1,400 × 1,150 × 1,920 m/m Steam consumption: 108 kg/Hr	1.6	0.1
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

[illegible]	KITCHEN	4/23	EQUIPMENT LIST	4/17

[illegible]NAME	Fryer (Electric.)

TECHNICAL DATA

[illegible]ody : Stainless Steel SUS. 430, t = 1.0 m/m
[illegible]op Plate : Stainless Steel SUS. 430, t = 1.2 m/m
[illegible]il Basin : Stainless Steel SUS. 430, t = 1.2 m/m with oil cock.
[illegible]eater : 3p-220v-9kw
[illegible]hermostat : Robertshow 300°C
[illegible]asket : 2 (two) baskets.
[illegible]il Drain Board: Stainless Steel SUS. 430, t = 0.8 m/m
[illegible]imension : 450 × 970 × 850 m/m

[illegible]pare Parts : Thermostat 1 (one)
Pilot Lamp 1 (one)

[illegible]TEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
[illegible]-IV,V	As above.	0.3	9.0
REMARKS			

[illegible]eight; Top - Gross shipping weight
Bottom - Net weight

KITCHEN	5/23	EQUIPMENT LIST	5/17

NAME	Tilting - Braising Pan

TECHNICAL DATA

Pan : Stainless Steel SUS. 430, 1.2 m/m
Dim. 1,000 × 650 × 180 (Depth) m/m, Cap. 100 liter

Leg : Stainless Pipe SUS. 304, ϕ 50 m/m

Heater : 3p-220v-15kw

Thermostat : Robertshow 300°C

Overall Dim. : 1,450 × 920 × 850 m/m

Spare Parts : 1 Pilot Lump
1 Thermostat

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
6 - IV,V	As above	0.42	15
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

KITCHEN	6/23	EQUIPMENT LIST	6/17

NAME	Refrigerator (Reach-in type)

TECHNICAL DATA

Exterior : Stainless Steel SUS. 430, t = 0.7 #4 polish finishing.
Interior : Stainless Steel SUS. 304, t = 0.7 2B polish finishing.
Door : Stainless Steel SUS. 430, t = 0.7 m/m with lock.
Inner Shelf : ϕ 6 m/m wire, polyethlene coated.
Insulation : Expanded polyulethane.
Cooling System: Fin Tube Type
Compressor : Closed Type.
Defrost : Heater defrost, timer reset system.
Electricity : 1p 100v

Spare Parts : ---

ITEM NO.	SPECIFICATION		WEIGHT (T)	ELECTRIC CAPACITY (KW)
	Cap.	Dim (m/m)		
6 - 0	412 Liter.	625 × 800 × 1,800	0.26	0.3
6 - I	504	750 × 800 × 1,800	0.3	0.4
6 - II	887	1,210 × 800 × 1,800	0.45	0.4
6 - III	1,062	1,460 × 800 × 1,800	0.52	0.4
6 - IV	1,346	1,795 × 800 × 1,800	0.6	0.4
6 - V	1,611	2,170 × 800 × 1,800	0.7	0.5
REMARKS				

Weight; Top - Gross shipping weight
Bottom - Net weight

	KITCHEN	7/23	EQUIPMENT LIST	7/17

NAME	Single Bowl Sink

TECHNICAL DATA

Sink Bowl : Stainless Steel SUS. 430, t = 1.2 m/m, 350 m/m depth.
Apron : Stainless Steel SUS. 430, t = 1.0 m/m, Front & both sides.
Leg : Stainless Steel SUS. 430, L 3 × 40 × 40 m/m
Under Shelf : Stainless Steel SUS. 430 Channel.
Adjustable leg: Stainless Steel SUS. 304.
Drainage : 50 A (2 inche) with over flow.

Spare Parts : ---

Note: *** All sink shall have back splash gurd which placed wall side.

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
0,I,II	Dim. 750 × 750 × 850 m/m	0.1	0
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

KITCHEN	8/23	EQUIPMENT LIST	8/17

NAME	Double Bowl Sink

TECHNICAL DATA

Sink Bowl : Stainless Steel SUS. 430, t = 1.2 m/m, 350 m/m depth.
Apron : Stainless Steel SUS. 430, t = 1.0 m/m, Front & both sides.
Leg : Stainless Steel SUS. 430, L 3 × 40 × 40 Angle
Under Shelf : Stainless Steel SUS. 430 Channel.
Adjustable Leg: Stainless Steel SUS. 304.
Drain : 50 A (2 inches) with over flow.

Spare Parts : ---

Note: *** All sink shall have back splash gurd which placed wall side.

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
- 0 ∿ V	Dim. 1,500 × 750 × 850 m/m	0.16	
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

	KITCHEN	9/23	EQUIPMENT LIST	9/17

NAME	Triple Bowl Sink

TECHNICAL DATA

Sink Bowl : Stainless Steel SUS. 430, t = 1.2 m/m, 350 m/m depth.
Apron : Stainless Steel SUS. 430, t = 1.0 m/m, Front & both side.
Leg : Stainless Steel SUS. 430, L 3 × 40 × 40 Angle.
Under shelf : Stainless Steel SUS. 430 Channel.
Adjustable Leg: Stainless Steel SUS. 304.
Drain : 50 A (2 inches)

Spare Parts : ---

Note: *** All sink shall have back splash gurd which placed wall side.

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
9 - 0 ∿ V	Dim. 2,250 × 750 × 850 m/m	0.3	0
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

B	KITCHEN	10/23	EQUIPMENT LIST	10/17

NAME	Work Table

TECHNICAL DATA

Top Plate	: Stainless Steel	SUS. 430, t = 1.2 m/m
Leg	: Stainless Steel Angle	SUS. 430, L 3 × 40 × 40
Under Shelf	: Stainless Steel Channel	SUS. 430, t = 1.0 m/m
Adjustable Leg	: Stainless Steel	SUS. 304.

Spare Parts : ---

Note: All work table, include mobile table, shall have splash back gurd which placed wall side.

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
0 - 0 ∿ V	Dim. 1,500 × 750 × 850 m/m	0.18	0
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

	KITCHEN	11/23	EQUIPMENT LIST	11/17

NAME	Mobile Table

TECHNICAL DATA

Top Plate : Stainless Steel SUS. 430, t = 1.2 m/m

Leg : Stainless Steel SUS. 430 Angle L 3 × 40 × 40

Under Shelf: Stainless Steel SUS. 430 Channel t = 1.0 m/m

Caster : 4 Swivel Caster ϕ 125 m/m (5 inches)

* 2 of them, with stopper.

Spare Parts: ---

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
- 1 ~ V	Dim. 1,500 × 750 × 850 m/m	0.18	0
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

	KITCHEN	12/23	EQUIPMENT LIST	12/17

NAME	Pot & Pan Rack (4 shelves), Assembly Type

TECHNICAL DATA

Shelf : Stainless Steel SUS. 430, t = 1.0 m/m, Dynafomed.

Leg : Stainless Steel Pipe SUS. 430, ϕ 32 with Adjust ball.

Spare Parts: ---

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
- 0 ∿ V	Dim. 1,500 × 600 × 1,800 m/m	0.13	0
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

KITCHEN	13/23	EQUIPMENT LIST	13/17

NAME	Dish Washing Machine (Steam)

TECHNICAL DATA

2 tank, conveyor type dish washing machine, 760 m/m loading section, 1,015 m/m pre washing section, 1,015 m/m power washing section and 1,830 m/m drying and unloading section, total overall length 4,650 m/m.

Chamber & Exterior	: Stainless steel SUS. 304, t = 1.5 m/m
Body & Frame	: Steel channel.
Adjust Ball	: Stainless steel SUS. 304.
Pump Motor	: Pre-wash 0.75 kw, power wash 0.75 kw
Conveyor Driving Motor	: 0.4 kw.
Control System	: Assembled in water-protected stainless steel enclosure.
Electricity	: 3p 220V
Max.Steam Pressure	: 2 kg/cm^2
Standard Accessory	: Detergent dispenser, steam booster & rinse injecter, and 3 washing basket.
Spare Parts	: 1 magnet switch, 2 pilot lump, 1 thermo-meter, 2 push button switch.

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
3 - IV,V	As above. Steam consumption: 85 kg/Hr	1.2	1.9

REMARKS

Steam pressure : 2 kg/cm^2.

Steam consumption: 85 kg/Hr.

Weight; Top - Gross shipping weight
Bottom - Net weight

B	KITCHEN	14/23	EQUIPMENT LIST	14/17

NAME	Sterilizing Sink (Boiled type, Steam)

TECHNICAL DATA

Structure : Bottom of stainless steel sink, inner-housing shall be equiped steam coiling element for the boiled sterilising operation.

Sink Bowl : Stainless steel SUS. 430, t = 1.2 m/m

Apron : Stainless steel SUS. 430, 1.0 m/m

Legs : Stainless steel angle SUS. 430, L 3 × 40 × 40 m/m

Steam Coil : Cooper tube ϕ 9.0 m/m

Basket : Stainless steel wire SUS. 304, 2 pcs.

Max. Steam Pressure: 2 kg/cm^2

Spare Parts : ---

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
4 - IV, V	Dim. 1,500 × 750 × 850 m/m Steam consumption: 45 kg/Hr.	0.17	0

REMARKS Steam consumption: 45 kgs/Hr.
Steam pressure : 2 kgs/cm^2.

Weight: Top - Gross shipping weight
Bottom - Net weight

B	KITCHEN	15/23	EQUIPMENT LIST	15/17

NAME	Sterilising Sink (Kerosene heated)

TECHNICAL DATA

Structure : Unit shall have kerosene burner for boiled sterilising.
Sink Bowl : Stainless steel SUS. 430, t = 1.2 m/m with cover.
Apron : Stainless steel SUS. 430, t = 1.0 m/m.
Legs : Stainless steel SUS. 430, angle L 3 × 40 × 40 m/m
Adjustable leg: Stainless steel SUS. 304.
Basket : Stainless steel wire SUS. 304. 1 pc.
Electricity : 1p 100v

Spare Parts : ---

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
15 - I∿III	Dim. 750 × 750 × 850 m/m Kerosene consumption: 0.5 ∿ 3 ℓ/Hr	0.13	0.1
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

KITCHEN	16/23	EQUIPMENT LIST	16/17

NAME	Dish Wagon (24 trays cap)

TECHNICAL DATA

Structure : Unit shall be assembled by 6 wire shelves, 2 posts, 1 dolly, 1 top plate and 2 acryl side boards.

Shelves : Steel wire ϕ 4.5 m/m, crome plated.

Post : "

Dolly : Alminum plate t = 2.5 m/m, 4 caster, 4 corner bumper.

Top plate : Alminum plate t = 2.5 m/m 1.5 m/m.

Spare Parts: 2 shutter.

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
[illegible] - 0W	Dim. 1,220 × 830 × 1,650 m/m	0.2	0

REMARKS

Weight; Top - Gross shipping weight
Bottom - Net weight

	KITCHEN	17/23	EQUIPMENT LIST	17/17

NAME	Oil (Kerosene) Injector

TECHNICAL DATA

Structure : Tank shall be constructed by steel plate of thickness 2.3 m/m and fixed on a frame which constructed by steel angle. Tank shall be rust-proof painted finish, and installed at such aplace out side of kitchen where the piping distance is the shortest.

Basement : Concrete basement shall be provided, by construction contractor, and support the tank frame with anchor bolt.

Piping : ϕ 8 m/m copper tube is adopted for piping.

Gear pump : A gear pump for injection of oil (kerosene) to the tank is provided additionaly.

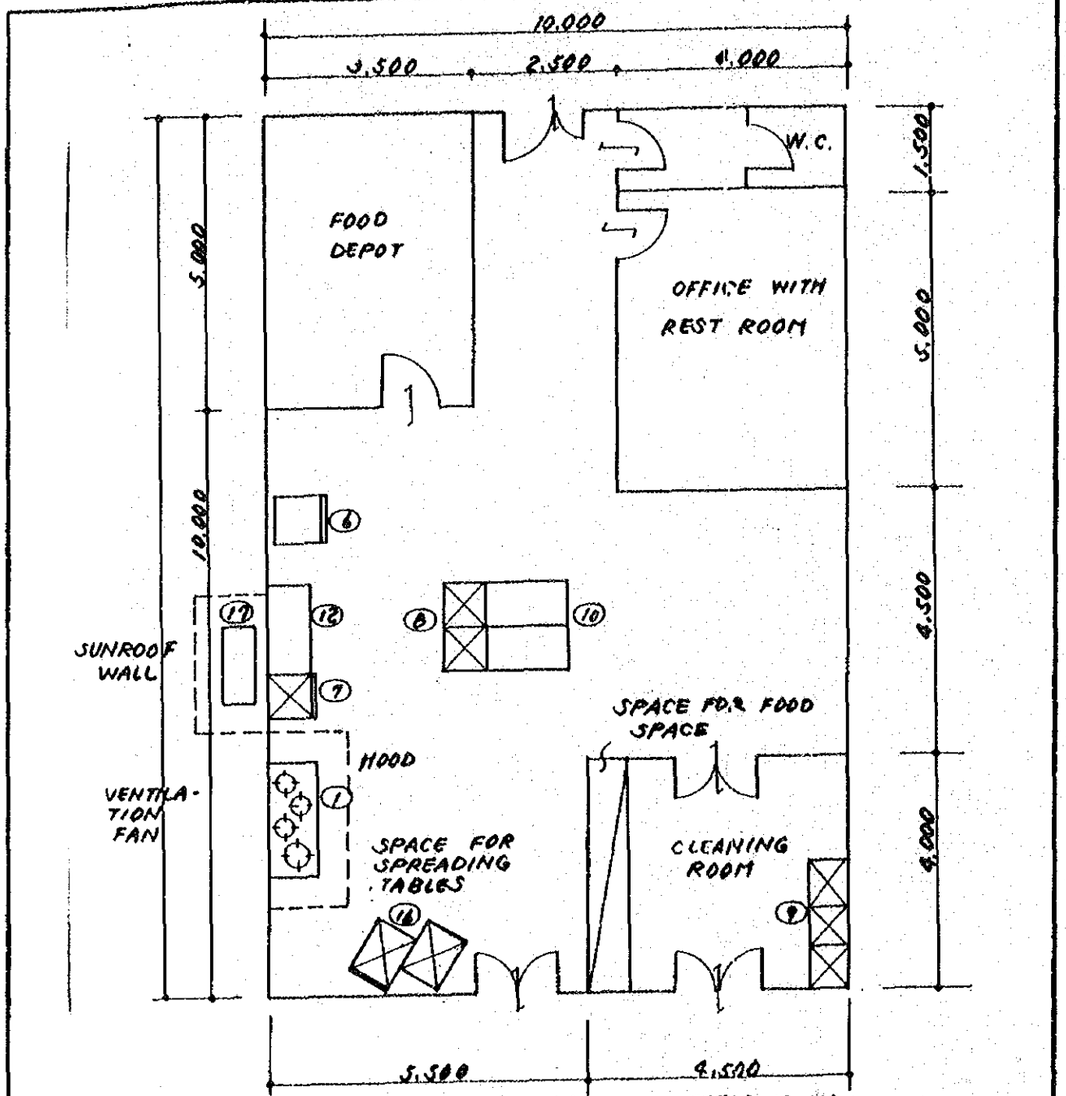
Electricity: 1p 100v

Spare Parts: ---

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
17 - OvII	Tank storage cap. 200 litre.	0.23	0.1
17 - III	Tank storage cap. 400 litre.	0.3	0.1
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

B	KITCHEN	18/23 Equipment List by Group Code	1/6	Group Code	K-0

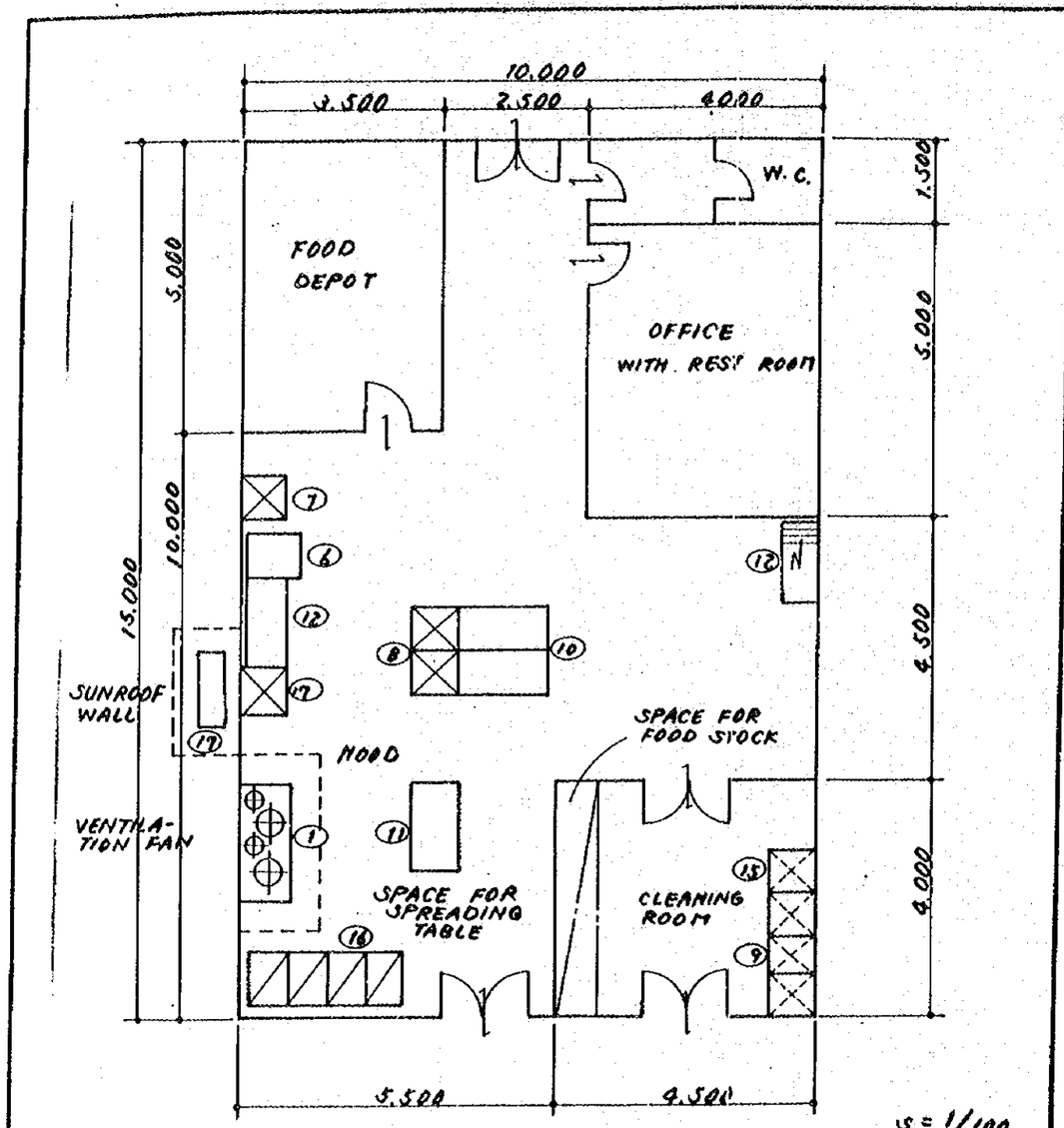


Building area	15,000 x 10,000	150 M^2	Founda-tion	Max. 3 1/Hr x 4	12 1/Hr
Gross weight		2.3			
Electric capacity	1ϕ - 100V	0.6 kW			

Equipment List

Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
1. Cooking table	1	1-0,I, III	0.4	0.2	
6. Refrigerator	1	6-0	0.26	0.3	
7. Single Bowl sink	1	7-0 II	0.1		
8. Double Bowl sink	1	8-0 V	0.16		
9. Triple Bowl sink	1	9-0 V	0.3		
10. Work table	2	10-0 V	0.18x2		
12. Rack	1	12-0 V	0.13		
16. Dish wagon	2	16-0 V	0.2 x2		
17. Oil Injector	1	17-0 II	0.23	0.1	
Erection fee					
Total			2.34	0.6	

B	KITCHEN	19/23	Equipment List by Group Code	2/6	Group Code	K-I

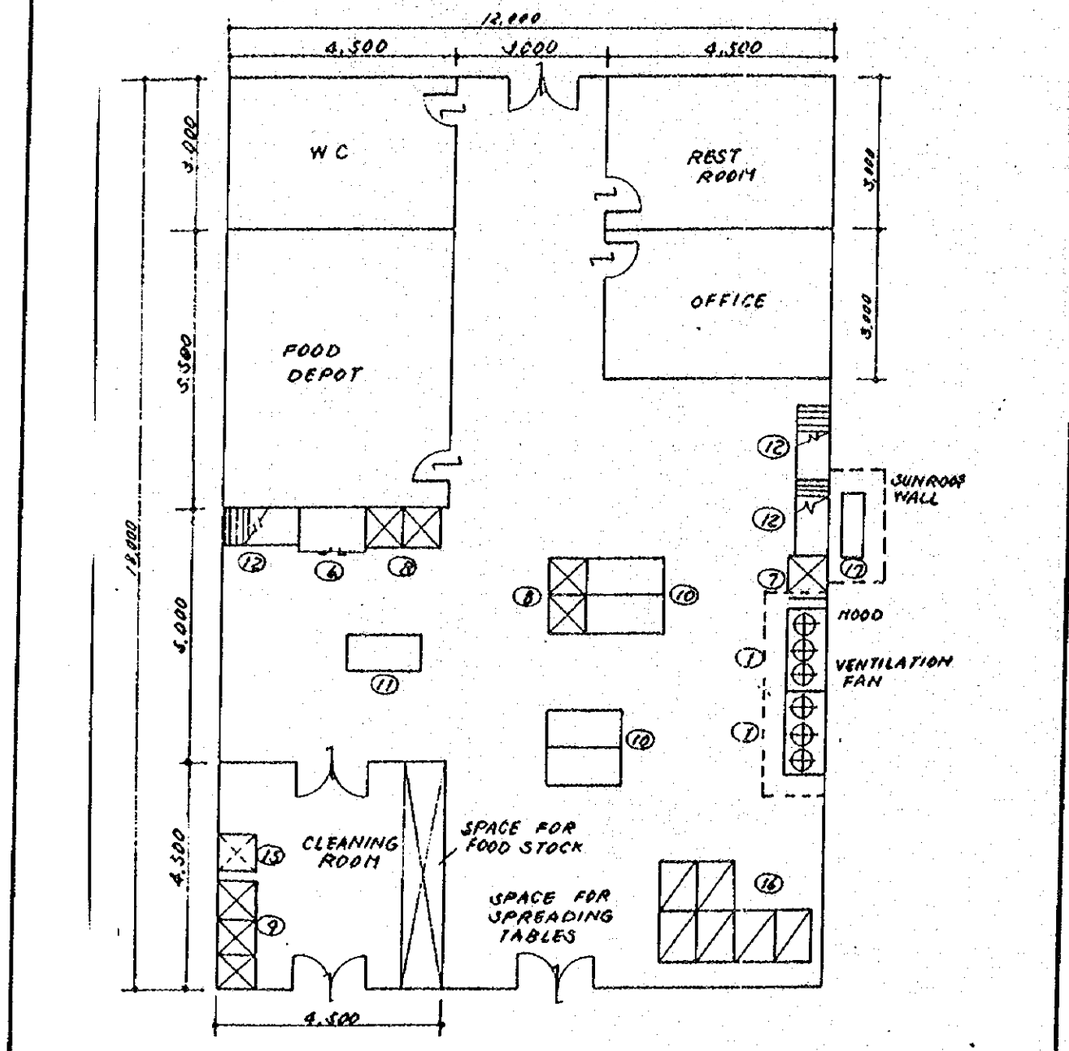


Building area	15,000 x 10,000	150 M^2	Founda-tion	Max. 3 1/Hr x 5	15 1/Hr
Gross weight		3.3 t			
Electric capacity	1φ - 100V	0.8			

Equipment List

Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
1. Cooking table	1	1-0, I, III	0.4	0.2	
6. Refrigerator	1	6-I	0.3	0.4	
7. Single Bowl sink	2	7-0 II	0.1x2		
8. double Bowl sink	1	8-0 V	0.16		
9. Triple Bowl sink	1	9-0 V	0.3		
10. Work table	2	10-0 V	0.18x2		
11. Mobile table	1	11-I V	0.18		
12. Rack	2	12-0 V	0.13x2		
15. Sterilizing sink	1	15-I III	0.13	0.1	
16. Dish wagon	4	16-0 V	0.2x4		
17. Oil injector	1	17-0 II	0.23	0.1	
Erection fee					
Total			3.32	0.8	

B	KITCHEN	20/23	Equipment List by Group Code	3/6	Group Code	K-II

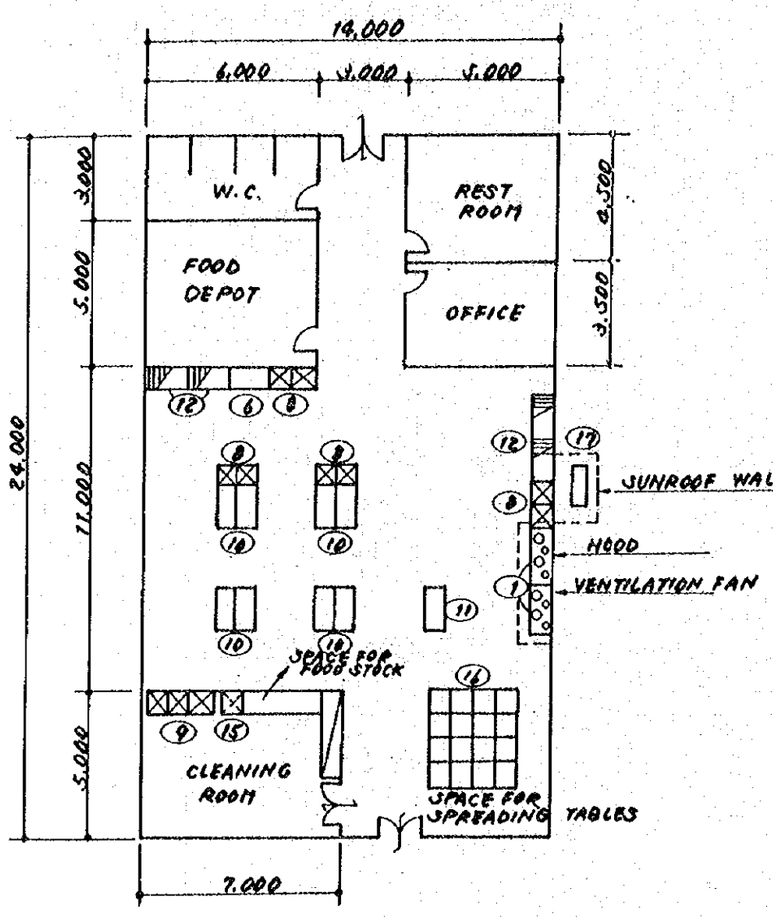


Building area	12,000 x 18,000	216 M^2	Foundation	Max 3 l/Hr x 7	21 l/Hr
Gross weight		4.7 t			
Electric capacity	1 ϕ - 100V	0.8 kW			

Equipment List

Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
1.Cooking table	2	I-II	0.32x2	0.2	
6. Refrigerator	1	6-II	0.45	0.4	
7. Single bowl sink	1	7-0 II	0.1		
8. Double bowl sink	2	8-0 V	0.16x2		
9. Triple bowl sink	1	9-0 V	0.3		
10.Work table	4	10-0 V	0.18x4		
11.Mobil table	1	11-1 V	0.18		
12.Rack	3	12-0 V	0.13x3		
15.Sterilizing sink	1	15-I IV	0.13	0.1	
16.Dish wagon	6	16-0 V	0.2x6		
17.Oil Injector	1	17-0 II	0.23	0.1	
Erection fee					
Total			4.66	0.8	

B	KITCHEN	21/23	Equipment List by Group Code	4/6	Group Code	K-III



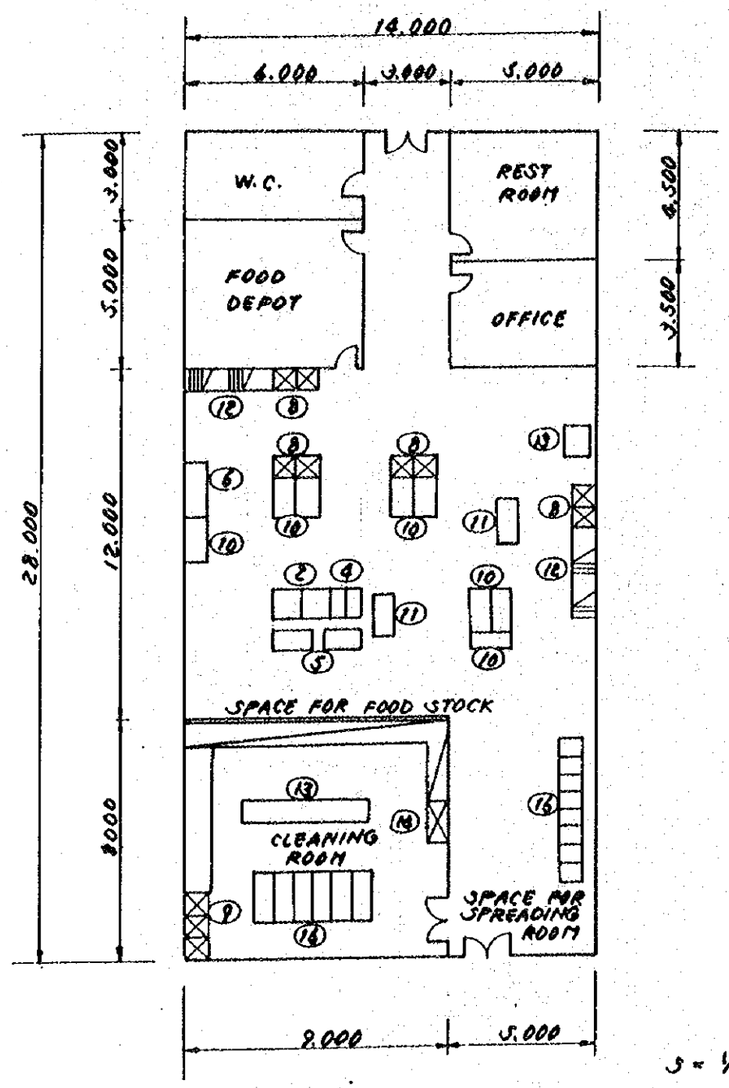
S: 1/200

Building area	14,000 x 24,000	336 M^2	Founda-tion	Max. 3 l/Hr x 9	27 l/Hr
Gross weight		8.0 t			
Electric capacity	1 ϕ - 100V	0.8 kW			

Equipment List

Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
1.Cooking table	2	1-0,I, III	0.4x2	0.2	
6.Refrigerator	1	6-III	0.32	0.4	
8.Double Bowl sink	4	8-0 V	0.16x4		
9.Triple Bowl sink	1	9-0 III	0.3		
10.Work table	8	10-0 V	0.18x8		
11.Mobile table	1	11-I V	0.18		
12.Rack	4	12-I V	0.13x4		
15.Sterilizing Sink	1	15-I III	0.13	0.1	
16.Dish Wagon	16	16-0 V	0.2x16		
17.Oil Injector	1	17- III	0.3	0.1	
Erection fee					
Total			8.03	0.8	

B	KITCHEN	22/23	Equipment List by Group Code	5/6	Group Code	K-IV

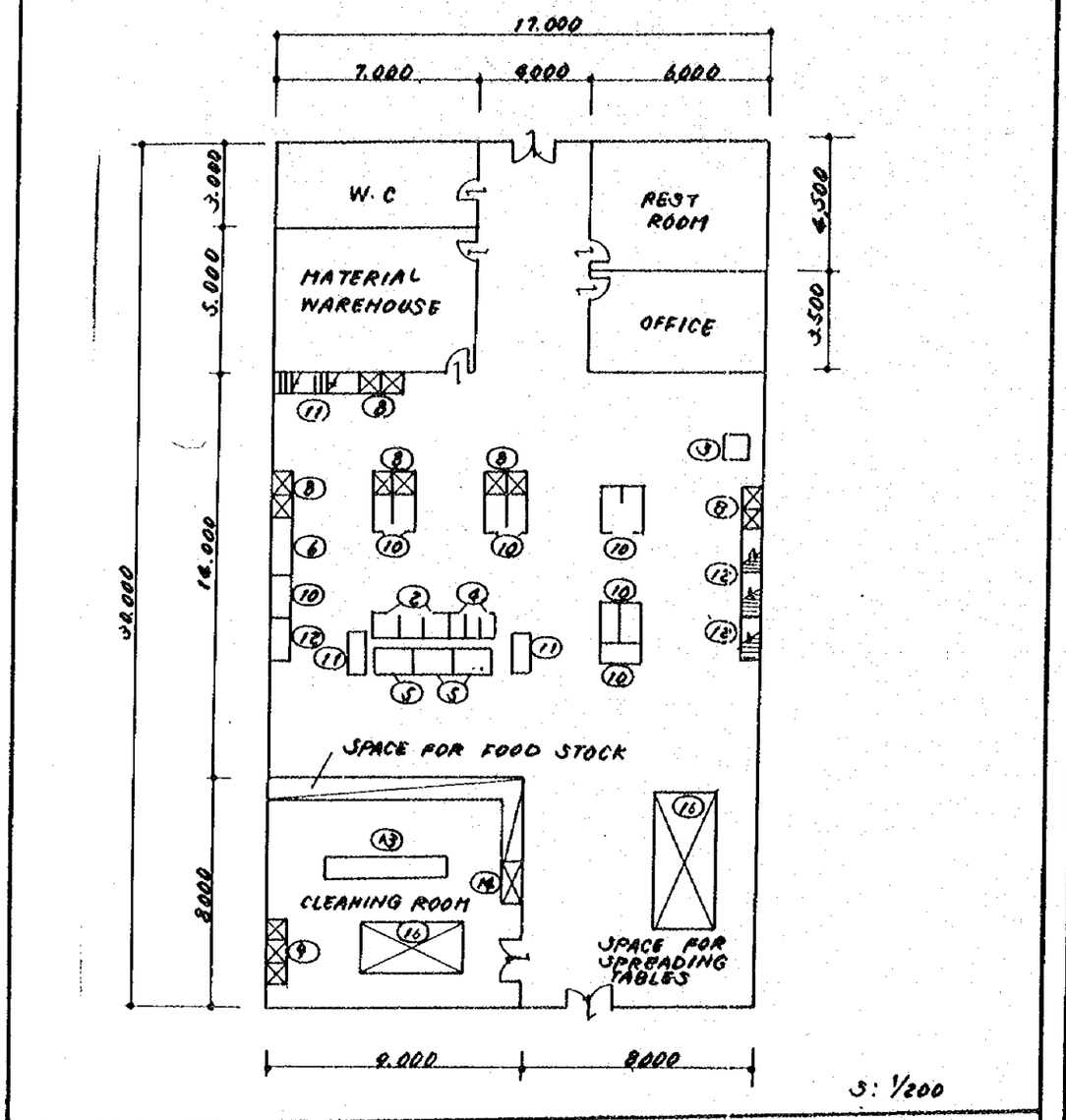


Building area	14,000 x 28,000	392 M^2	Foundation		
Gross weight		12.5 t			
Electric capacity	1 ϕ - 100V 3 ϕ - 220V	0.5 kW 79.9			

Equipment List

Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
2.Cocking table	2	2-IV,V	0.3x2	2/220/3	0
3.Rice cooker	1	3-IV	1.2	1/100/0	.1
4.Fryer	2	4-IV,V	0.3x2	3/220/1	8
5.Tilting pan	2	5-IV,V	0.42x2	3/220/3	0
6.Refrigerator	1	6-IV	0.6	1/100/0	.4
8.Double Bowl Sink	4	8-0 V	0.16x4		
9.Triple Bowl sink	1	9-0 V	0.3		
10. Work table	8	10-0 V	0.18x8		
11. Mobil table	2	11-I V	0.18x2		
12.Rack	4	12-0 V	0.13x4		
13.Dish washing machine	1	13-IV, V	1.2	3/220/1	.9
14.Sterilizing Sink	1	14-IV, V	0.17		
16.Dish Wagon	20	16-0 V	0.2x20		
Erection fee					
Total			12.47	1/100/0 3/220/7	.5 9.9

B	KITCHEN	23/23	Equipment List by Group Code	6/6	Group Code	K-V



Building area	17,000 x 30,000	510 M^2	Founda-tion		
Gross weight		16.8 t			
Electric capacity	1 ϕ - 100V 3 ϕ - 220V	0.6 kW 118.9			

Equipment List

Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
2.Cooking table	3	2-IV,V	0.3x3	3/220/4.5	
3.Rice cooker	1	3-V	1.6	1/100/0.1	
4.Fryer	3	4-IV,V	0.3x3	3/220/27	
5.Tilting pan	3	5-IV,V	0.42x3	3/220/45	
6.Refrigerator	1	6-V	0.7	1/100/0.5	
8.Double Bowl sink	5	8-0 V	0.16x5		
9.Triple Bowl sink	1	9-0 V	0.3		
10.Work table	10	10 0 V	0.18x10		
11.Mobile table	2	11-1 V	0.18x2		
12.Rack	6	12-0 V	0.13x6		
13.Dish washing machine	1	13-IV, V	1.2	3/220/1.9	
14.Sterilizing sink	1	14-IV, V	0.17		
16.Dish wagon	30	16-0 V	0.2x30		
Erection fee					
Total			16.77t	1/100/0.6 3/220/118.9	

5-4 Laundry Facility

° List of laundry appliances

Appliance	Gunung Wenang Ujung Pandang Medan	Other hospitals
Washers	o	o
Dehydrators	o	o
Driers	- o 1)	x
Sheet rollers	o 1)	x
Electric irons	o	o
Treadle sewing machines	o	o
Working tables and other appliances	o	o
Disinfectors	o	o

1) Operates on steam

° Appliance selection criteria

Laundry quantity/day = 1kg/bed, day

Working time = 5 hours/day

Laundry quantity per hour=0.2 kg/bed, hour

The above estimation is based on the assumption that the sheets and pillowcases for patients are replaced every other day.

C	LAUNDRY	1/24	EQUIPMENT LIST	1/19

NAME	Laundry Washer

TECHNICAL DATA

Type : Side Loading.
Dry Weight Capacity: 10 ∿ 20 kg/load.
Cylinder : Size = 660 ϕ × 760 mm.
: Material = SUS-304 t = 1.0
: R.P.M. = 32 rpm.
Tub : Size = 750 ϕ × 900 mm.
: Material = SUS-304 t = 0.8
Electricity : 220/380-v, 50-Hz, 3-Phase.
Motor : 0.75 kw, 4-p.
Speed Reduction : Worm gear 1:20
Operation : Automatic timer, magnetic reverse cylinder. Power transmitted from drive motor, through speed reducer, to the main cylinder sheave by V-belts.
Accessories : Water level tube, Thermometer, Automatic button, Inching button, Timer, Soap inlet, Indicator lamp, Door limit switch, Buzzer, Water inlet valve and Drain cock.

Spare Parts : Quantity-2 Laundry timer. Quantity-2 V-belt, A-31.
2 Magnetic switch. 1 Push button switch.
2 Micro switch.
1 Thermometer.
1 Water level tube.
2 Water level tube packing.
4 Fuse.
4 Pilot lamp bulb.
2 V-belt, A-81.

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
1 - 1	Dimension : 1,290(W) × 950(D) × 1,205(H)mm. Machine Weight : 270 kg. Water Inlet : 1 1/4 B. Drain Valve : 2 B Water Consumption: 0.6 m^3/Hr. Approx. shipping weight ..... " loading weight ..... " measurement	 400 kg 450 kg 70cft	0.75 kw
REMARKS	Foundation: Ballast = 300 mm. Concrete = 200 mm.		

Weight; Top - Gross shipping weight
Bottom - Net weight

NAME	Laundry Washer

TECHNICAL DATA

Type : Side Loading.
Dry Weight Capacity: 20 ∿ 30 kg/load.
Cylinder : Size = 720 ϕ × 820 mm.
: Material = SUS-304 t = 1.0
: R.P.M. = 30 rpm.
Tub : Size = 820 ϕ × 1,000 mm.
Material = SUS-304 t = 1.0
Electricity : 220/380-V, 50-Hz, 3-Phase.
Motor : 0.75 kw, 4-P.
Speed Reduction : Worm gear 1:20
Operation : Automatic timer, magnetic reverse cylinder.
Power transmitted from drive motor, through speed reducer, to the main cylinder sheave by V-belts.
Accessories : Water level tube, Thermometer, Automatic buttons, Inching buttons, Laundry timer, Soap inlet, Indicator lamp, Door limit switch, Buzzer, Foot operated drain valve and Water inlet valve.

Spare Parts :

Quantity-2	Reversing timer.	Quantity-1	Water level tube.
2	Laundry timer.	2	V-belt, A-62.
2	Magnetic switch.	2	V-belt, B-62.
2	Thermal relay.	2	Drain valve.
1	Limit switch.	1	Thermometer.
1	Push button switch.		
4	Pilot lamp bulb.		
4	Fuse.		
2	Water level packing.		

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
2 - II,III	Dimension : 1,495(W) × 985(D) × 1,185(H)mm. Machine Weight : 450 kg. Water Inlet : 1 1/4 B Drain Valve : 100 ϕ mm. Water Consumption: 1.0 m^3/Hr. Approx. shipping weight ..... " loading weight ..... " measurement	600 kg 720 kg 110cft	0.75 kw
REMARKS	Foundation: Ballast = 300 mm. Concrete = 200 mm. Drain Pit : 500(W) × 500(D) × 500(H) mm.		

Weight; Top - Gross shipping weight
Bottom - Net weight

C	LAUNDRY	3/24	EQUIPMENT LIST	3/19

NAME	Laundry Washer

TECHNICAL DATA

Type : Side Loading.
Dry Weight Capacity : 35 ∿ 45 kg/load.
Cylinder : Size = 805 ϕ × 1,020 mm.
: Material = SUS-304 t = 1.0
: R.P.M. = 25 rpm.
Tub : Size = 910 ϕ × 1,220 mm.
: Material = SUS-304 t = 1.2
Electricity : 220/380-v, 50-Hz, 3-Phase.
Motor : 1.5 kw, 4-P.
Speed Reduction : Worm gear 1:20
Operation : Automatic timer, magnetic reverse cylinder.
Power transmitted from drive motor, through speed reducer, to the main cylinder sheave by V-belts.
Accessories : Water level tube, Thermometer, Automatic buttons, Inching buttons, Laundry timer, Soap inlet, Indicator lamp, Door limit switch, Buzzer, Foot operated drain valve and Water inlet valve.

Spare Parts :

Quantity-2	Reversing timer.	Quantity-1	Water level tube.
2	Laundry timer.	2	V-belt, A-65
2	Magnetic switch.	2	V-belt, B-64
2	Thermal relay.	2	Drain valve.
1	Limit switch.	1	Thermometer.
1	Push button switch.		
4	Pilot lamp bulb.		
4	Fuse.		
2	Water level tube packing		

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
1 - IV,V	Dimension : 1,720(W) × 1,075(D) × 1,280(H)mm. Machine Weight : 550 kg. Water Inlet : 1 1/4 B Steam Inlet : 3/4 B Drain Valve : 100 ϕ mm. Water Consumption: 1.5 m /Hr. Steam Pressure : 5 ∿ 6 kg/cm² Steam Consumption: 60 kg/Hr. Approx. shipping weight ..... 750 kg " loading weight ..... 960 kg " measurement 150cft		1.5 kw
REMARKS	Foundation: Ballast = 300 mm. Concrete = 200 mm. Drain Pit : 500(W) × 500(D) × 500(H) mm.		

Weight; Top - Gross shipping weight
Bottom - Net weight

C	LAUNDRY	4/24	EQUIPMENT LIST	4/19

NAME	Laundry Extractor.

TECHNICAL DATA

Type : Centrifugal.
Dry Weight Capacity : 10 ∿ 16 kg/load.
Basket : Size = 558 ϕ × 250 mm.
: Material = SUS-304 t = 1.6
: R.P.M. = 1,650 rpm.
Outer Shell : Material = SS-41
G-Force : 850 G.
Electricity : 220/380-V, 50-Hz, 3-Phase.
Motor : 1.5 kw, 4-P. (High torque motor)
Control : Magnetic starter switch box with timer and buzzer.
Power transmitted by V-belts and hand operated disc brake.
Accessories : Cover limit switch, Timer, Buzzer, Push buttons, Indicator lamp.

Spare Parts : Quantity-2 Disc brake pad.
2 Bearing, 6308ZZ.
2 Bearing, 6309ZZ.
2 V-belt.
1 Magnetic switch.
2 Push button switch.
3 Pilot lamp bulb.
3 Pilot lamp globe.
2 Timer.

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
4 - 1	Dimension : 990(W) × 1,195(D) × 610(H) mm. Machine Weight: 320 kg. Drain : 70 ϕ mm. Approx. shipping weight ..... 450 kg " loading weight ..... 360 kg " measurement 50cft		1.5 kw
REMARKS	Foundation: Ballast = 300 mm. Concrete = 200 mm. Drain Pit : 200(W) × 500(H) mm.		

Weight : Top - Gross shipping weight
Bottom - Net weight

C	LAUNDRY	5/24	EQUIPMENT LIST	5/19

NAME	Laundry Extractor

TECHNICAL DATA

Type : Centrifugal.
Dry Weight Capacity: 20 ∿ 25 kg/load.
Basket : Size = 658 ϕ × 295 mm.
: Material = SUS-304
: R.P.M. = 1,400 rpm.
Outer Shell : Material = SS-41
G-Force : 750 G.
Electricity : 220/380-V, 50-Hz, 3-Phase.
Motor : 1.5 kw, 4-P (High torque motor)
Control : Magnetic starter switch box with timer and buzzer.
Power transmitted by V-belts and hand operated disc brake.
Accessories : Cover limit switch, Timer, Buzzer, Push buttons, Indicator lamp.

Spare Parts : Quantity-2 Disc brake pad.
2 Bearing, 6309ZZ.
2 Bearing, 6310ZZ.
2 V-belt.
1 Magnetic switch.
2 Push button switch.
3 Pilot lamp bulb.
3 Pilot lamp globe.
2 Timer.

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
S - II,III	Dimension : 1,065(W) × 1,305(D) × 670(H) mm. Machine Weight: 420 kg. Drain : 70 ϕ mm. Approx. shipping weight ..... 550 kg " loading weight ..... 480 kg " measurement 70cft		1.5 kw
REMARKS	Foundation: Ballast = 300 mm. Concrete = 200 mm. Drain Pit : 200(W) × 500(H) mm.		

Weight; Top - Gross shipping weight
Bottom - Net weight

C	LAUNDRY	6/24	EQUIPMENT LIST	6/19

NAME	Laundry Extractor

TECHNICAL DATA

Type : Centrifugal.
Dry Weight Capacity: 35 ∿ 42 kg/load.
Basket : Size = 838 ϕ × 340 mm.
: Material = SUS-304
: R.P.M. = 1,150 rpm.
Outer Shell : Material = SS-41.
G-Force : 620 G.
Electricity : 220/380-V, 50-Hz, 3-Phase.
Motor : 3.7 kw, 4-P. (High torque motor)
Control : Magnetic starter switch box with timer and buzzer.
Power transmitted by V-belts and hand operated disc brake.
Accessories : Cover limit switch, Timer, Buzzer, Push buttons, Indicator lamp.
Spare Parts : Quantity-2 Disc brake pad.
2 Bearing, 6311ZZ.
2 Bearing, 6312ZZ.
2 V-belt.
1 Magnetic switch.
2 Push button switch.
3 Pilot lamp bulb.
3 Pilot lamp globe.
2 Timer.

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
- IV,V	Dimension : 1,310(W) × 1,645(D) × 790(H) mm. Machine Weight: 860 kg. Drain : 100 ϕ mm.		3.7 kw
	Approx. shipping weight ..... " loading weight ..... " measurement	1.000kg 960kg 105 cft	
REMARKS	Foundation: Ballast = 300 mm. Concrete = 200 mm. Drain Pit : 200(W) × 500(H) mm.		

Weight; Top - Gross shipping weight
Bottom - Net weight

C	LAUNDRY	7/24	EQUIPMENT LIST	7/19

NAME	Drying Tumbler

TECHNICAL DATA

Type : Steam.
Dry Weight Capacity: 20 kg/load.
Cylinder : Size = 930 ϕ × 750 mm.
: Material = SS-41 (Galvanized)
: R.P.M. = 35 rpm.
Outer Shell : Material = SS-41.
Electricity : 220/380-V, 50-Hz, 3-Phase.
Motor : Drive = 0.4 kw, 4-P.
: Fan = 0.2 kw, 4-P.
Heater Radiation : 16 m^2
Fan Capacity : Air volume = 20 ∿ 26 m^3/min.
: Static air pressure = 25 ∿ 35 mmAq.
Operation : Clock type timer and reversing cylinder. Power transmitted by V-belts.
Accessories : Thermometer, Steam pressure gauge, Switch, Timer, Pilot lamp, Air control lever, Lint screen and Steam trap.

Spare Parts : Quantity-2 Magnetic switch.
1 Thermal relay.
2 Reversing timer.
2 Timer.
4 Fuse.
4 Pilot lamp bulb.
2 V-belt, A-64.
4 V-belt, A-61.

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
7 - IV,V	Dimension : 970(W) × 1,180(D) × 1,810(H) mm. Machine Weight : 310 kg. Steam Inlet : 1 B " Outlet : 3/4 B " Pressure : 5 ∿ 6 kg/cm^2 " Consumption: 40 kg/Hr. Duct Size : 200 ϕ mm. Approx. shipping weight ..... " loading weight ..... " measurement	 450 kg 340 kg 130cft	0.6 kw
REMARKS	Foundation: Ballast = 300 mm. Concrete = 200 mm. Ducting material include in the piping materials.		

Weight; Top - Gross shipping weight
Bottom - Net weight

C	LAUNDRY	8/24	EQUIPMENT LIST	8/19

NAME	Flatwork Ironer

TECHNICAL DATA

Type : Steam heated, Calender type.
Roll Speed : 1.7 ∿ 5.9 m/min.
Roll Size : Heating roll = 400 ϕ × 2,000 mm.
: Pressure roll = 160 ϕ × 2,000 mm.
Electricity : 220/380-V, 50-Hz, 3-Phase.
Motor : 0.4 kw.
Operation : Turn back type.
Accessories : Front table, Safety finger guard, Endless belt, Padding, Cover, Steam pressure gauge, Ammeter, Push buttons, Pilot lamp, Roll pressure pedal, Speed reducer, Variable speed handle and steam trap.

Spare Parts : Quantity-1 Rotaly joint.
2 Padding.
2 Steam hose.
2 V-belt.
5 Guide tape.
4 Fuse.
4 Pilot lamp bulb.

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
8 - IV	Dimension : 2,700(W) × 1,250(D) × 1,050(H) mm. Machine Weight : 650 kg. Steam Inlet : 1 B " Outlet : 1/2 B " Pressure : 5 ∿ 6 kg/cm² " Consumption: 60 ∿ 85 kg/Hr. Approx. shipping weight ..... " loading weight ..... " measurement	 1,000kg 650kg 200 cft	0.4 kw
REMARKS	Foundation: Ballast = 300 mm. Concrete = 200 mm.		

Weight; Top - Gross shipping weight
Bottom - Net weight

C	LAUNDRY	9/24	EQUIPMENT LIST	9/19

NAME	Flatwork Ironer

TECHNICAL DATA

Type	: Steam heated, Calender type.
Roll Speed	: 2.2 ∿ 7.7 m/min.
Roll Size	: Heating roll = 280 ϕ × 2,700 mm.
	: Pressure roll = 150 ϕ × 2,700 mm.
Electricity	: 220/380-V, 50-Hz, 3-Phase.
Motor	: 0.4 kw.
Operation	: Turn back type.
Accessories	: Front table, Safety finger guard plate, Endless belt, Padding, Cover, Steam pressure gauge, Ammeter, Push buttons, Pilot lamp, Roll pressure pedal, Speed reducer, Variable speed handle and steam trap.
Spare Parts	: Quantity-1 Rotary joint.
	2 Padding.
	2 Steam hose.
	2 V-belt.
	5 Guide tape.
	4 Fuse.
	4 Pilot lamp bulb.

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
9 - V	Dimension : 4,000(W) × 1,000(D) × 1,500(H) mm.		0.4 kw
	Machine Weight : 800 kg.		
	Steam Inlet : 3/4 B.		
	" Outlet : 1/2 B.		
	" Pressure : 5 ∿ 6 kg/cm^2		
	" Consumption: 70 ∿ 100 kg/Hr.		
	Approx. shipping weight	1,900kg	
	" loading weight	800kg	
	" measurement	320 cft	
REMARKS	Foundation: Ballast = 300 mm. Concrete = 200 mm.		

Weight; Top - Gross shipping weight
Bottom - Net weight

C	LAUNDRY	10/24	EQUIPMENT LIST	10/19

NAME	Ironing Board

TECHNICAL DATA

Table : Perforated wooden top.

Legs : Adjustable steel pipe.

Accessories : Padding and Rack.

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
10 - 1 ∿ V	Dimension: 1,510(W) × 920(D) × 640 - 760(H) mm.		
	Approx. shipping weight	52 kg	
	" loading weight	37 kg	
	" measurement	10cft	
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

C	LAUNDRY	11/24	EQUIPMENT LIST	11/19

NAME	Hand Iron

TECHNICAL DATA

Type : Electric.
Use : Finishing for flat materials.
Heater : 550/800/1,350 w, Three-steps-changeover switch.
Sole Plate Finish : Hark chrome.
Electricity : 220/380-V, 50-Hz, 3-Phase.

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
11 - I ∿ V	Sole Plate Size: 150(W) × 220(L) mm. Net Weight : 6 kg. Approx. shipping weight ..... " loading weight ..... " measurement	 7 kg 6 kg 1cft	1.35 kw
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

C	LAUNDRY	12/24	EQUIPMENT LIST	12/19

NAME	Sewing Machine

TECHNICAL DATA

Type : One needle, lockstitch.

Accessories : Table, Stand, Bobbin, Oiler, Hinge, Hemming presser foot, Screw driver, Both ended spanner and Needles.

Spare Parts : Quantity-1 Spool assy.
1 Bobbin assy.
1 Thread winder assy.
1 Leather belt assy.
1 Needle bar assy.

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
12 - I ∿ V	Dimension: 1,140(W) × 450(D) × 970(H) mm Weight : 35 kg. Approx. shipping weight ..... " loading weight ..... " measurement	50 kg 35 kg 10cft	
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

C	LAUNDRY	13/24	EQUIPMENT LIST	13/19

NAME	Work Table

TECHNICAL DATA

Table : Wood coated with melamine resin.

Frame : Made of steel pipe and adjustable legs.

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
C - L - V	Dimension: 1,350(W) × 750(D) × 690 - 820 (H) mm. Weight : 16 kg. Approx. shipping weight ..... 30 kg " loading weight ..... 16 kg " measurement 10cft		
REMARKS			

Weight: Top - Gross shipping weight
Bottom - Net weight

C	LAUNDRY	14/24	EQUIPMENT LIST	14/19

NAME	Shelf

TECHNICAL DATA

Material : Resin coated steel plate.

Number of Shelf Plate: 4, Adjustable.

Accessories : 4 swivel rubber casters.

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
4 - 1 ~ V	Dimension: 1,140(W) × 460(D) × 1,870(H) mm. Weight : 22 kg. Approx. shipping weight ..... " loading weight ..... " measurement	40 kg 22 kg 10cft	
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

C	LAUNDRY	15/24	EQUIPMENT LIST	15/19

NAME	Disinfection Tub

TECHNICAL DATA

Tub : Compartment = 2.
: Depth = 400 mm.
: Material = SUS-304

Accessories : Drain cooks and Adjustable legs.

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
15 - 1 ∿ V	Dimension; 1,800(W) × 1,200(D) × 800(H) mm. Weight : 60 kg. Approx. shipping weight ..... " loading weight ..... " measurement	 170 kg 450 kg 85cft	
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

C	LAUNDRY	16/24	EQUIPMENT LIST	16/19

NAME	Sink Tub

TECHNICAL DATA

Tub : Compartment = 2.
: Depth = 400 mm.
: Material = SUS-304

Accessories : Rack, Overflow, Plug and Adjustable legs.

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
6 - I ~ V	Dimension: 1,800(W) × 600(D) × 800(H) mm Weight : 45 kg. Approx. shipping weight ..... 110 kg " loading weight ..... 300 kg " measurement 45cft		
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

C	LAUNDRY	17/24	EQUIPMENT LIST	17/19

NAME	Sprayer

TECHNICAL DATA

HANDY TYPE.

Capacity : 1 litter.

Material : Brass.

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
7 - I ∿ V	Dimension: 91 ϕ × 295(H) mm. Weight : 1 kg. Approx. shipping weight ..... 2 kg " loading weight ..... 3 kg " measurement 2cft		
ITEMS			

Weight: Top - Gross shipping weight
Bottom - Net weight

C	LAUNDRY	18/24	EQUIPMENT LIST	18/19

NAME	Canvas Truck

TECHNICAL DATA

Material : Steel pipe frame and canvas cloth.

Capacity : 383 litter.

Accessories : 2 swivel and 2 stationary rubber casters.

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
18 - I ∿ V	Dimension: 880(W) × 690(D) × 750(H) mm. Weight : 14 kg. Approx. shipping weight ..... 20 kg " loading weight ..... 50 kg " measurement 20cft		
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

NAME	Scale

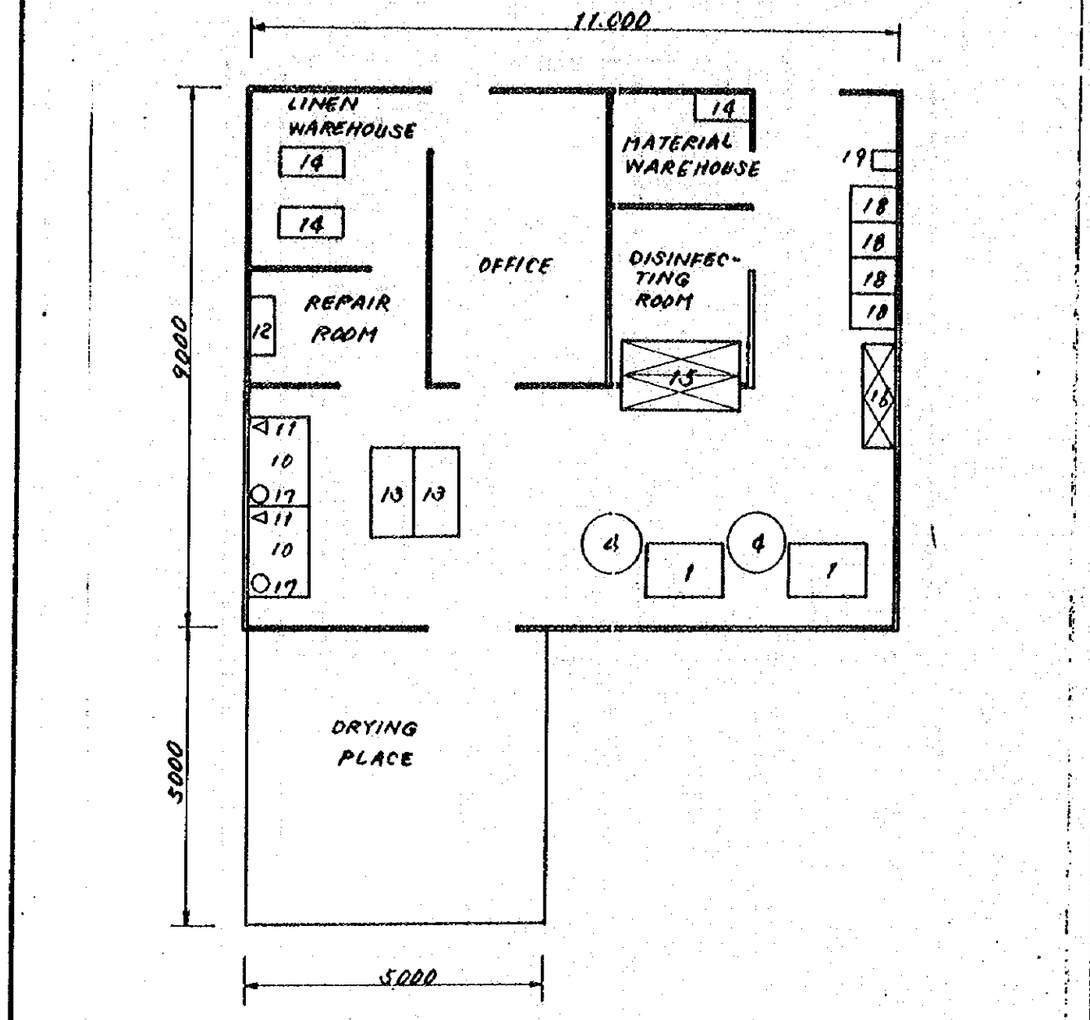
TECHNICAL DATA

Model	: A-100
Type	: Dial type.
Graduation	: 200 g.
Capacity	: 100 kg.
Plate Size	: 255(W) × 370(D) × 170(H) mm.
Dial Size	: 280 ϕ mm.
Accessories	: Adjust screw and Wheel.

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
19 - I ∿ V	Dimension: 300(W) × 450(D) × 1,305(H) mm Weight : 40 kg. Approx. shipping weight ..... " loading weight ..... " measurement	55 kg 150 kg 10cft	
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

C	Laundry	20/24	Equipment List by Group Code	1/5	Group Code	L - I

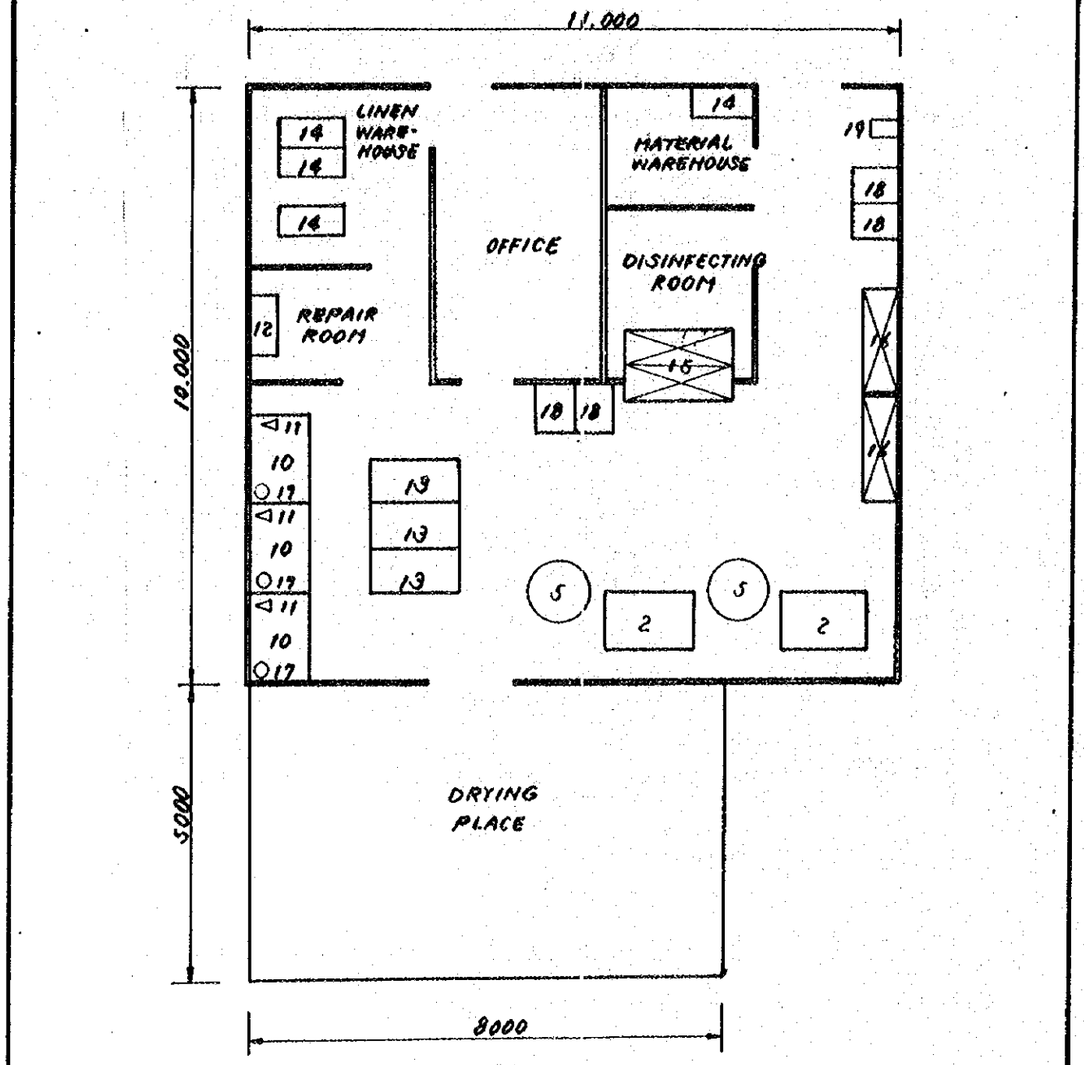


Building area	9 x 11	99.0 m^2	Foundation	(18.01 m^3)	636
Gross weight		3.6 t	Draying place		25.0 m^2
Electric capacity	220 V 50 Hz 3 phase		Water consumption		1.2m^3/h

Equipment List

Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
Laundry washer	2	1-I	0.8	1.5	140
Laundry extractor	2	4-I	0.9	3.0	100
Ironing Board	2	10-I∿V	0.1		20
Hand Iron	2	11-I∿V	0.02	2.7	2
Sowing Machine	1	12-I∿V	0.05		10
Work table	2	13-I∿V	0.06		20
Shelf	3	14-I∿V	0.12		30
Disinfection Tub	1	15-I∿V	0.17		85
Sink Tub	1	16-I∿V	0.11		45
Sprayer	2	17-I∿V	0		4
Canvas Track	4	18-I∿V	0.08		80
Scale	1	19-I∿V	0.06		10
Piping Insulating Materials	1 set		1.0		60
Solvents	1 set		0.1		30
Packaging and Exportation Cost	1 set				
Shipping Costs	1 set				
Sub Total			3.57		
Erection Fee	1 set				
Total			3.57	7.2	636

C	Raundry	21/24	Equipment List by Group Code	2/5	Group Code	L - II

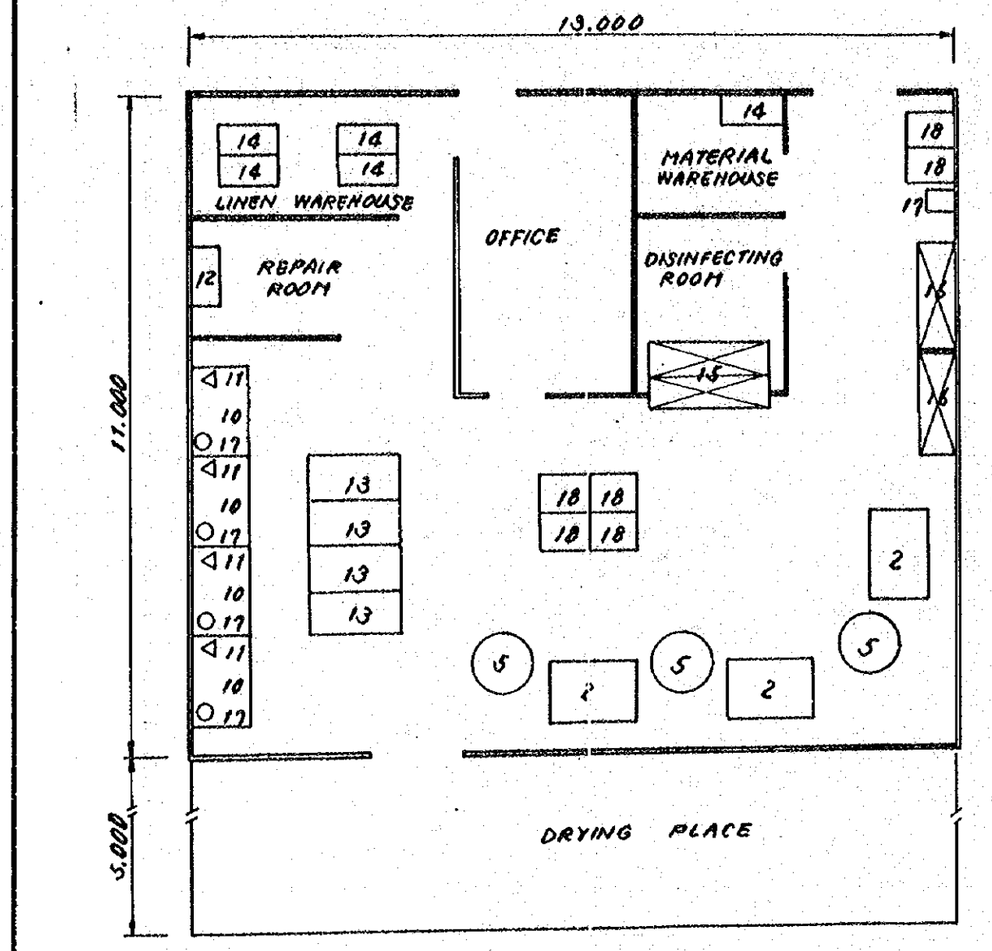


Building area	10 x 11	110.0 m^2	Founda-tion	(24.18 m^3)	854
Gross weight		4.4 t	Dreying place		40.0 m^2
Electric capacity	220 V 50 Hz 3 phase	8.55 kW	Water con-sumption		2.0m^3/h

Equipment List

Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
Laundry washer	2	2-L III	1.2	1.5	220
Laundry extractor	2	5-L III	1.1	3.0	140
Ironing Board	3	10-I∿V	0.15		30
Hand Iron	3	11-I∿V	0.02	4.05	3
Sowing Machine	1	12-I∿V	0.05		10
Work table	3	13-I∿V	0.09		30
Shelf	4	14-I∿V	0.16		40
Disinfection Tub	1	15-I∿V	0.17		85
Sink Tub	2	16-I∿V	0.22		90
Sprayer	3	17-I∿V	0		6
Canvas Track	4	18-I∿V	0.08		80
Scale	1	19-I∿V	0.06		10
Piping Insulating Material	1 set		1.0		60
Solvents	1 set		0.1		50
Packaging and Exportation Cost	1 set				
Shipping Cost	1 set				
Sub Total			4.4		
Erection Fee	1 set				
Total			4.4	8.55	854

C	Raundry	22/24	Equipment List by Group Code	3/5	Group Code	L - III

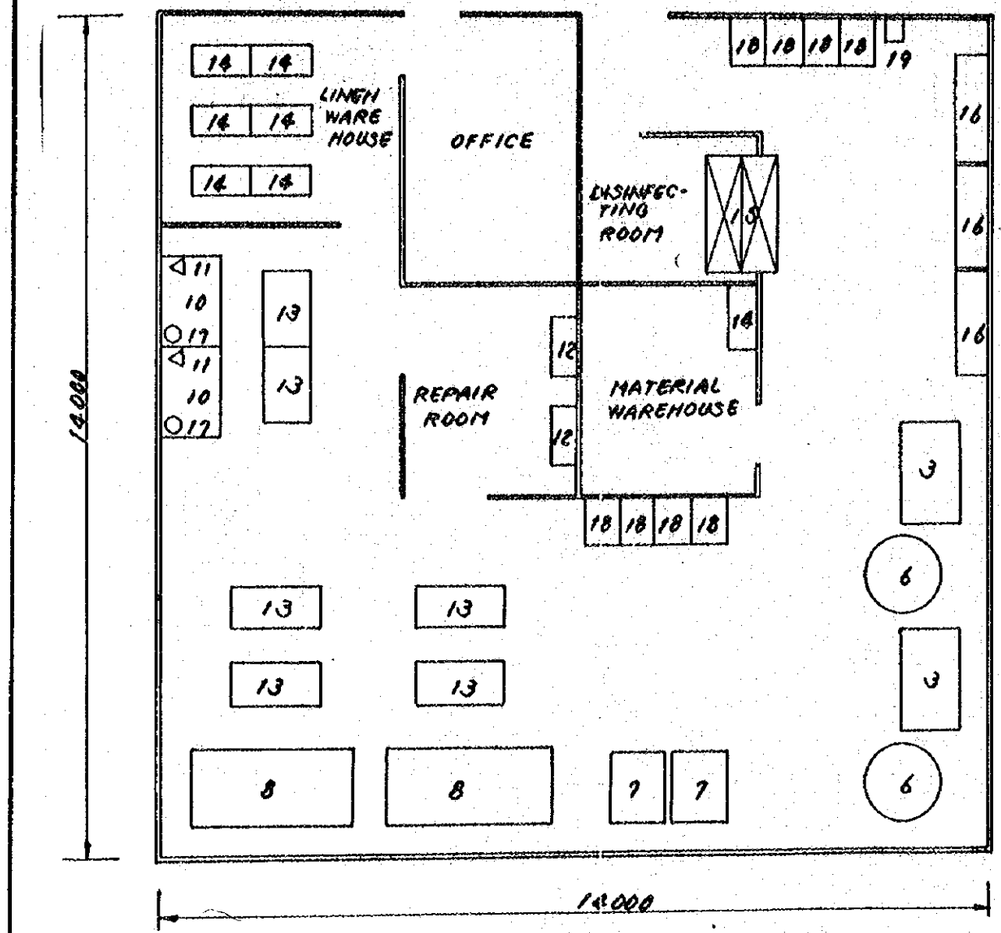


Building area	11 x 13	143.0 m²	Founda-tion	(32.76 m³)	1,157
Gross weight		5.7 t	Draying place		65.0 m²
Electric capacity	220 V 50 Hz 3 phase	12.15 kW	Water con-sumption		3.0m³/h

Equipment List

Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
Laundry washer	3	2-ILIII	1.8	2.25	330
Laundry extractor	3	5-ILIII	1.65	4.5	210
Ironing Board	4	10-IWV	0.21		40
Hand Iron	4	11-IWV	0.03	5.4	4
Sowing Machine	1	12-IWV	0.05		10
Work table	4	13-IWV	0.12		40
Shelf	5	14-IWV	0.2		50
Disinfection Tub	1	15-IWV	0.17		85
Sink Tub	2	16-IWV	0.22		90
Sprayer	4	17-IWV	0		8
Canvas Track	6	18-IWV	0.12		120
Scale	1	19-IWV	0.06		10
Piping Insulating Materials	1 set		1.0		80
Solvents	1 set		0.1		80
Packaging and Exportation Cost	1 set				
Shipping Costs	1 set				
Sub Total			5.73		
Erection Fee	1 set				
Total			5.73	12.15	1,157

C	Raundry	23/24	Equipment List by Group Code	4/5	Group Code	L - IV

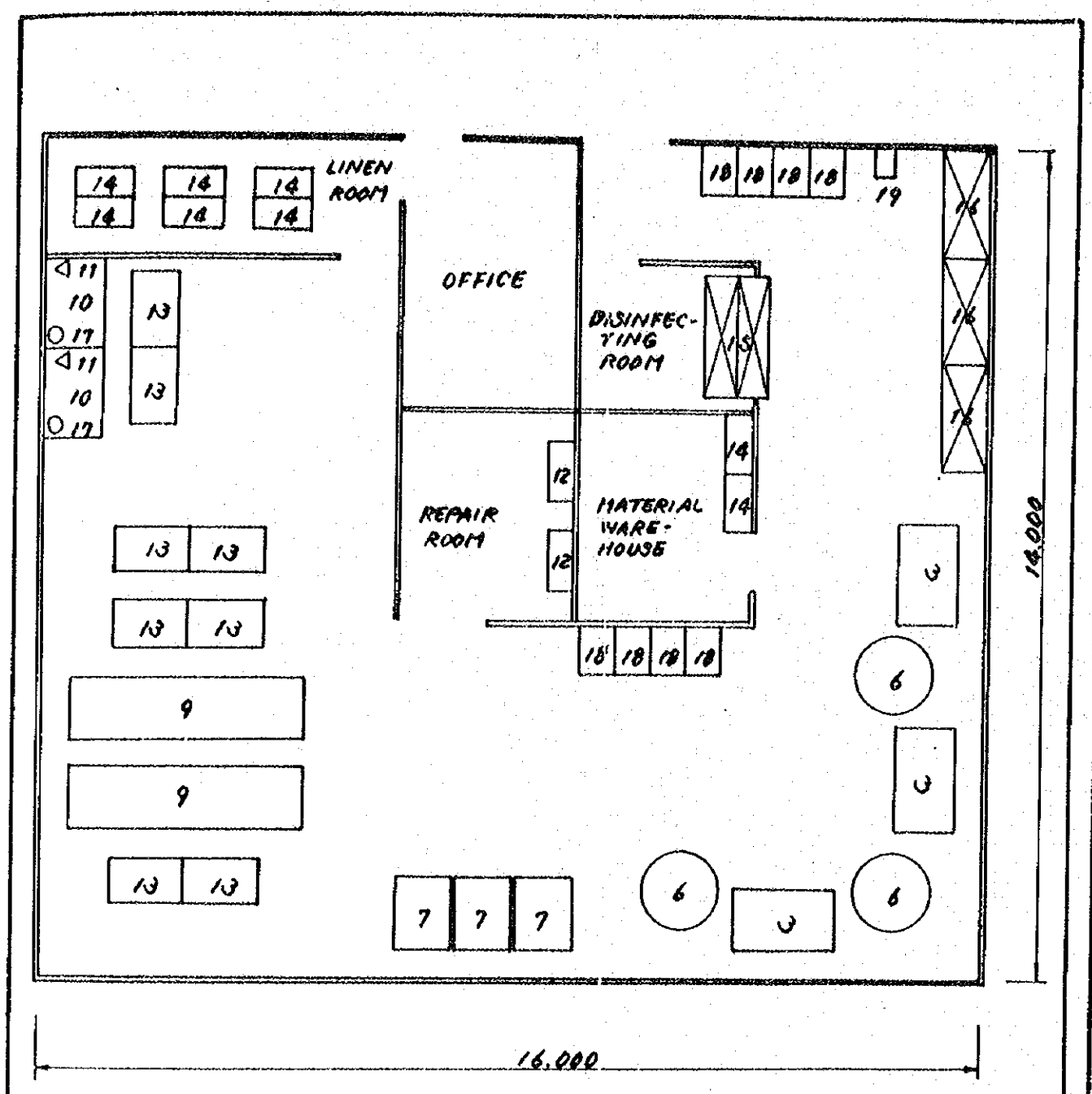


Building area	14 x 14	196.0 m^2	Foundation	(55.39 m^3)	1,966
Gross weight		8.9 t		5 ∿ 6 kg/cm^2	370 kg/h
Electric capacity	220 V 50 Hz 3 phase	15.1 kW	Water consumption		3.0 m^3/h

Equipment List

Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
Laundry washer	2	3-IV.V	1.5	3.0	300
Laundry extractor	2	6-IV.V	2.0	7.4	210
Dryer	2	7-IV.V	0.9	1.2	260
Sheet Roller	2	8-IV	2.0	0.8	400
Ironing Board	2	10-IVV	0.1		20
Hand Iron	2	11-IVV	0.02	2.7	2
Sowing Machine	2	12-IVV	0.1		20
Work table	6	13-IVV	0.18		60
Shelf	7	14-IVV	0.28		70
Disinfection Tub	1	15-IVV	0.17		85
Sink Tub	3	16-IVV	0.33		135
Sprayer	2	17-IVV	0		4
Canvas Track	8	18-IVV	0.16		160
Scale	1	19-IVV	0.06		10
Piping Insulating Materials	1 set		1.0		130
Solvents	1 set		0.1		100
Packaging and Exportation Costs	1 set				
Shipping Costs	1 set				
Sub Total			8.9		
Erection Fee	1 set				
Total			8.9	15.1	1,966

C	Raundry	24/24	Equipment List by Group Code	5/5	Group Code	L - V



Building area	14 x 16	224.0 m^2	Founda-tion	(75.92 m^3)	2,701
Gross weight		13.0 t		5 ∿ 6 kg/cm^2	500 kg/h
Electric capacity	220 V 50 Hz 3 phase	20.9 kW	Water con-sumption		4.5m^3/h

Equipment List

Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
Laundry washer	3	3-IV.V	2.25	4.5	450
Laundry extractor	3	6-IV.V	3.0	11.1	315
Dryer	3	7-IV.V	1.35	1.8	390
Sheet Roller	2	9-V	3.8	0.8	640
Ironing Board	2	10-I∿V	0.1		20
Hand Iron	2	11-I∿V	0.02	2.7	2
Sowing Machine	2	12-I∿V	0.1		20
Work table	8	13-I∿V	0.24		80
Shelf	8	14-I∿V	0.32		80
Disinfection Tub	1	15-I∿V	0.17		85
Sink Tub	3	16-I∿V	0.33		135
Sprayer	2	17-I∿V	0		4
Canvas Track	8	18-I∿V	0.16		160
Scale	1	19-I∿V	0.06		10
Piping Insulating Materials	1 set		1.0		160
Solvents	1 set		0.1		150
Packaging and Exportation Costs	1 set				
Shipping Costs	1 set				
Sub Total			13.0		
Erection Fee	1 set				
Total			13.0	20.9	2,701

5-5 Solid disposal facility

° Appliance selection criteria

Waste quantity per day = 3 kg/bed, day (classes A and B)

= 2 kg/bed, day (classes C, D^+ and D)

Working time = 3 hours/day

Disposed waste quantity per hour

= 1 kg/bed, hour (classes A and B)

= $\frac{2}{3}$ kg/bed, hour (classes C, D^+ and D)

Mean calorific value ≒ 2,000 Kcal/kg

Weight per volume ≒ 400 kg/m^3

Necessary auxiliary fuel ≒ 1,000 kcal/kg

The above estimation is based on the assumption that the waste is considerably watery.

D	Solid Disposal Equipment	1/6	EQUIPMENT LIST	1/2

NAME	Incinerator with supplementary burner

TECHNICAL DATA

° Structure : This equipment consists of an incinerator combined with an oil burner. The burner is electrically ignited at a temperature below the preset minimum temperature point. The furnace temperature will rise with the incineration of wastes alone. When it reaches the preset maximum temperature, an electromagnetic valve will automatically be opened to spray water into the furnace so as to prevent further uildup of the furnace temperature. The furnace has a primary combustion chamber in the center with secondary and tertiary combustion chambers in the rear. A blower is provided outside of the front charge door. This blower, together with an air discharge nozzle, will supply air to mix with combustion gas.

° Fuel : Heavy oil A (solar oil)

° Oil tank : 170 liters

° Max. temp. control : Furnace temperature is sensed by a thermocouple and water is automatically sprayed into the furnace with the electromagnetic valve.

° Water pipe: 1/2"

° Spare : Thermocouple (with compensation lead) 3 sets

Spray nozzle (with pipe) 3 "

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
-I.II-(a)	Disposal capacity : 150 kg/Hr Area of fire grate : 1.08 m^2 Capacity of primary combustion chamber : 1.71 m^3 Air feed fan : 1 ϕ, 100V, 0.4 kw Pilot burner : " 0.15 kw Fuel oil consumption: 13.2 ℓ/Hr Flue tube : 400 ϕ × 6.4 m	7.0	0.55
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

D	Solid Disposal Equipment	1/6	EQUIPMENT LIST	1/2

NAME	Incinerator with supplementary burner

TECHNICAL DATA

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
I-III ∿ V	Disposal capacity : 300 kg/Hr Area of fire grate : 1.76 m^2 Capacity of primary combustion chamber : 3.78 m^3 Air feed fan : 3 ϕ, 220V, 1.5 kw Pilot burner : " 0.2 kw Fuel oil consumption: 24.6 ℓ/Hr Flue tube : 550 ϕ × 7.8 m	14.5	1.7
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

D	Soild Disposal Equipment	2/6	EQUIPMENT LIST	2/2

NAME	Self-burning type incinerator

TECHNICAL DATA

° Structure : This incinerator has an "Air-Clone" in the center of the furnace. The Air-Clone contains a cyclone (made of stainless steel). Air is supplied by a blower to an air header located in the front so that air will be fed to the Air-Clone and fire hole ring. Air which has been supplied to the Air-Clone is then discharged through its multiple small air holes to mix with combustion gas.

° Max. temp. control : A thermocouple senses furnace temperature and activates an electro-magnetic valve so that it will automatically spray water into the furnace.

° Water pipe: 1/2"

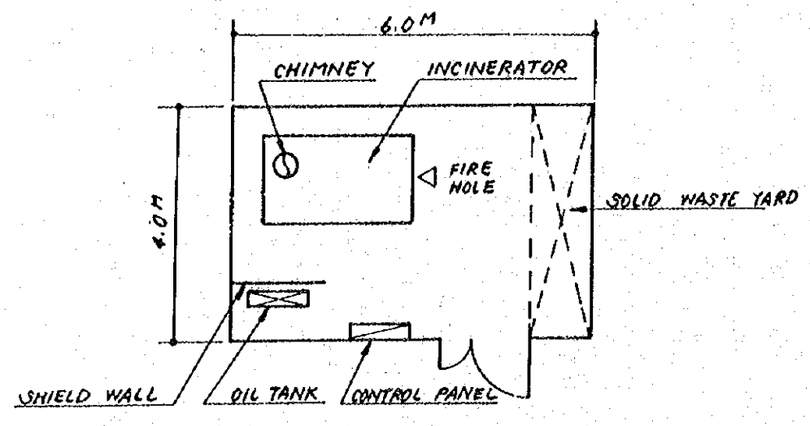
° Spare : Thermocouple (with compensation lead) 3 sets

Spray nozzle (with pipe) 3 "

ITEM NO.	SPECIFICATION	WEIGHT. (T)	ELECTRIC CAPACITY (KW)
I.II-(b)	Disposal capacity : 135 kg/Hr Area of fire grate: 1.12 m^2 Capacity of combustion chamber : 1.35 m^3 Blower : 3 ϕ, 220V, 0.8 kw Flue tube : 350 ϕ × 5.1 m	5.5	0.8
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

D	Solid Disposal Equipment	3/6	Equipment List by Group Code	1/4	Group Code	D-I.II- ⓐ



Note: One unit of oil tank with a capacity of 340 liters shall be installed.

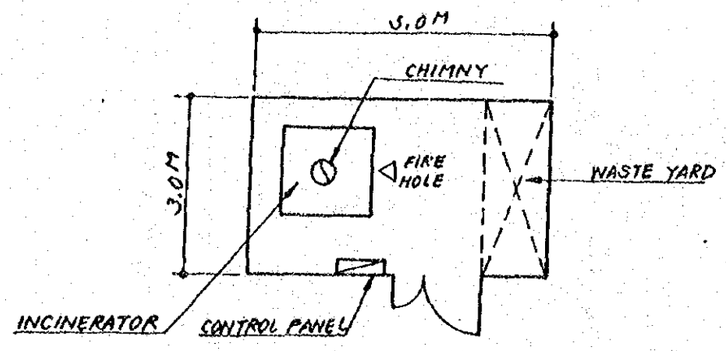
Building area	6.5 × 8.5	55.25 m²	Foundation	3 × 4 × 2	24 m²
Gross weight		29.0 t			
Electric capacity		3.4 kw			

*Weight is shipping weight.

Equipment List

Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
Incinerator	2 set	1-III ~V	29.0	3.4	
Installation & Adjustment	1 set				
Supervision	1 set				
Total			29.0	3.4	

b	Solid Disposal Equipment	4/6	Equipment List by Group Code	2/4	Group Code	D-I.II- (b) (Complete with auxiliary burner)



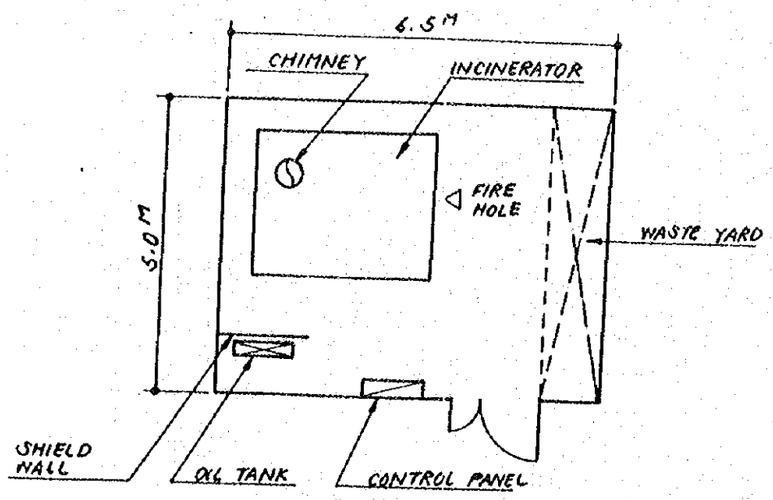
Building area	4 × 6	24 m²	Foundation	2 × 3.5	7 m²
Gross weight		7 t			
Electric capacity		0.55 kw			

Equipment List

Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
Incinerator	1 set	1-I.II - a	7.0	0.55	
Installation & Adjustment	1 set				
Supervision	1 set				
Total			7.0	0.55	

* Weight is shipping weight

D	Solid Disposal Equipment	5/6	Equipment List by Group Code	3/4	Group Code	D-III,IV (with auxiliary burner)



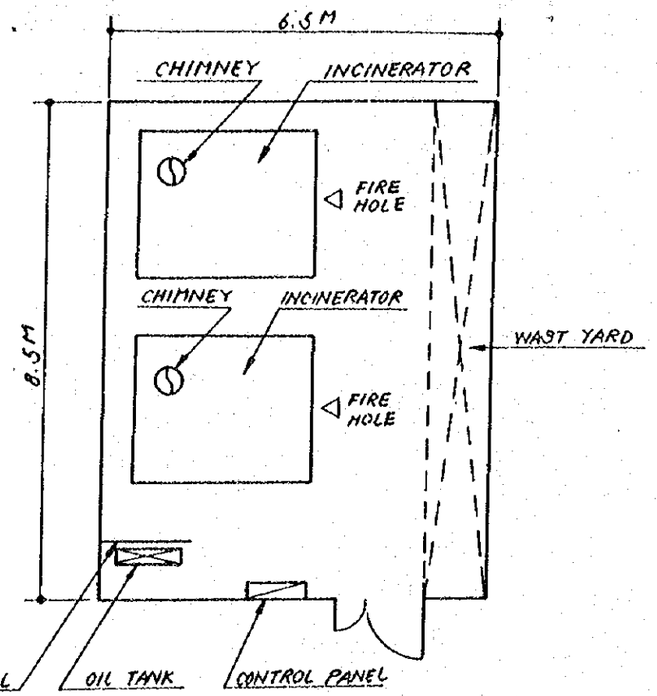
Equipment List

Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
Incinerator	1 set	1-I.II - b	5.5	0.8	
Installation & Adjustment	1 set				
Supervision	1 set				
Total			5.5	0.8	

Building area	3 × 5	15 m^2	Foundation	2 × 2.5	5 m^2
Gross weight		5.5 t			
Electric capacity		0.8 kw			

*Weight is shipping weight.

D	Solid Disposal Equipment	3/6	Equipment List by Group Code	4/4	Group Code	D-V



Equipment List

Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
Incinerator	1 set	I~III∿V	14.5	1.7	
Installation & Adjustment	1 set				
Supervision	1 set				
Total			14.5	1.7	

Building area	5 × 6.5	32.5 m^2	Foundation	3 × 4	12 m^2
Gross weight		14.5 t			
Electric capacity		1.7 kw			

*Weight is shipping weight.

5-6 Boiler - boiler plant

1) Steam consumption

Facility	Appliance	Necessary steam pressure (kg/cm^2)	Steam consumption (kg/hour)	
			Gunung Wenang Ujung Pandang	Medan
Kitchen	Rice cooker, dishwasher and disinfector	1 or less	40	50
Laundry	Washer, drier and sheet roller	5 ∿ 6	400	600
Disinfecting room	Autoclave and supersonic washer	3 ∿ 4	200	300
Inspection room	Distiller	3 ∿ 4	70	70
Medicine room	Distiller	3 ∿ 4	70	70
Total			780 Kg/Hr	1,090 Kg/Hr

Appliance selection criteria

Boiler capacity = $\frac{\text{Steam consumption} \times 1.5}{2} \times 3(\text{cans})$

(where one can is for stand-by use)

Boiler steam pressure = 7 kg/cm^2

Main oil tank capacity

= (Oil consumption per week) x 2 (cans)

Oil service tank capacity

= (Oil consumption in two weeks) x 1(can)

Used oil : Heavy oil A (Solar)

Pipe arranging method: No water recirculating pipe

E1	Boiler-Boiler Plant	1/13	EQUIPMENT LIST	1/11

NAME	Steam Boiler

TECHNICAL DATA

Type : Spiral smoke tube and straight stay tube type
Max. pressure : 10 kg/cm^2
Working pressure : 7 kg/cm^2
Fuel : Heavy oil A (Solar oil)
Operation control method : H-L-Off or On-Off, full automatic operation
Power supply : 3 φ, 220V
Motor control panel: To be treated for heat resistance

Boiler plant consists of:

Boiler proper	1 unit	1 set of spare parts (2 years requirement)
Oil burner	1 "	
Full automatic combustion device	1 set	
Automatic water regulator	1 "	
Control panel	1 "	
Water pump (multistage)	2 units	
Water injector	1 "	
Flow meter	1 "	
Common base	1 "	
Piping	1 set	
Electric work (after panel)	1 "	
Boiler insulation	1 "	
Painting cost	1 "	
Adjustment	1 "	

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
1-IV	Equivalent evaporation (rated capacity) 900 kg/Hr	4.5	10.0
	Oil consumption (rated capacity) 56 ℓ/Hr	5.5	
1-V	Equivalent evaporation (rated capacity) 1,200 kg/Hr	5.0	11.0
	Oil consumption 72 ℓ/Hr	6.6	
REMARKS	Product weight: 3.9t for 1-IV, 4.3t for 1-V		

Weight; Top - Gross shipping weight
Bottom - Net weight

EI	Boiler-Boiler Plant	2/13	EQUIPMENT LIST	2/11

NAME	Main oil tank

TECHNICAL DATA

Type : Round type, steel plate, welding
Rust preventive treatment on exterior
(Protective material to be installed locally)

System : Buried underground

Accessories:

Oil filling inlet	1 set
Oil check valve	1 "
Metering port	1 "
Leak check pipe and inspection cover	1 "
Manhole	2 "
Air vent fitting	1 "
Clamping band, etc.	1 "
Electric oil gauge (level meter, alarm, gear pump control)	1 "

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
- IV	Capacity : 5000 ℓ Dimensions : 1,400 ϕ × 3,900 L (overall length) Accessories: manhole 2 pcs, oil gauge, etc. 1 set	1.8 6.3 t	-
- V	Same as above	1.8 6.3 t	-
EMARKS	Product weight: 1.27t for 2-IV, 1.27t for 2-V Cost of protective material is included in equipment work cost.		

eight; Top - Gross shipping weight
Bottom - Net weight

E1	Boiler-Boiler Plant	3/13	EQUIPMENT LIST	3/11

NAME	Oil service tank

TECHNICAL DATA

Type : Square type, steel plate welding construction

Accessories : To be provided with connecting ports for oil supply, oil return, oil feed, oil drain, overflow, air vent pipe, etc. as well as float switch, and level gauge mounting seats.

Oil gauge 1 set

Manhole 1 "

With frame, 1,000 m

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
3 - IV	Capacity : 500 ℓ Dimensions: 700 × 700 × 1,000 m Frame : 1,000 m	0.27 0.73	-
3 - V	Capacity : 600 ℓ Dimensions: 800 × 800 × 1,000 m Frame : 1,000 m	0.3 0.86	-
REMARKS	Product weight: 0.23t for 3-IV, 0.26t for 3-V		

Weight; Top - Gross shipping weight
Bottom - Net weight

NAME	Oil gear pump

TECHNICAL DATA

Type : Direct drive, gear pump

Accessories: Shaft coupling protective cover 1 set
Flange (with bolts) 1 "
Anchor bolt, etc. 1 "

Motor : Heatproof treatment, 3 ϕ, 220V

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
4 - IV	15 ϕ × 10 ℓ/min × 0.4 kw Dimensions: 500 W × 700 L × 400 m	0.05 0.05	0.4
4 - V	Same as above	0.05 0.05	0.4
REMARKS	Product weight: 0.044t for 4-IV, 0.044t for 4-V		

Weight; Top - Gross shipping weight
Bottom - Net weight

E1	Boiler-Boiler Plant	5/13	EQUIPMENT LIST	5/11

NAME	Raw water pump

TECHNICAL DATA

Type : Multistage centrifugal pump

Accessories:

Stop valve	1
Check valve	1
Pressure gauge	1
Priming funnel	1
Purge valve Drain valve	1
Shaft coupling protective cover	1
Flange (with bolts)	1
Anchor bolt, etc.	1

Motor : To be treated for heat resistance 3 ϕ, 220V

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
5 - IV	40 ϕ × 160 ℓ × 20 m × 1.5 kw Dimensions: 300 W × 860 L × 380 m	0.13 0.12	1.5
5 - V	Same as above	0.13 0.12	1.5
REMARKS	Product weight: 0.115t for 5-IV, 0.115t for 5-V		

Weight; Top - Gross shipping weight
Bottom - Net weight

51	Boiler-Boiler Plant	6/13	EQUIPMENT LIST	6/11

NAME	Filtration equipment

TECHNICAL DATA

Criteria : Raw water quality turbidity 8 degrees
Quality of treated water " below 2 degrees
Filtration speed LV ≒ 6 m/H
Backwash speed LV = over 25 m/H

Equipment components: Flow meter, single operation valve, filter porper, filter proper, filter medium, pressure gauge, etc.

Spare parts (for 2 years supply): filter medium 300 ℓ (6 - VI) 350 ℓ (6 - V)
Sheet packing 1 pc
Gauge pipe 2 pcs

Operation method : Manual changeover operation

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
- IV	Flow rate : 1 ∿ 2 m^3/H Filter medium : 300 ℓ Dia. of main pipe : 40 A Equipment dimensions: 650 ϕ × 1.524 m	1.1 1.3	-
- V	Flow rate : 2 ∿ 4 m^3/H Filter medium : 350 ℓ Dia. of main pipe : 40 A Equipment dimensions: 750 ϕ × 1.524 m	1.3 1.8	-
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

E1	Boiler-Boiler Plant	7/13	EQUIPMENT LIST	7/11

NAME	Water softener

TECHNICAL DATA

Criteria : Raw water quality hardness 5°dH (89.25ppm as $CaCO_3$)
Quality of treated water " below 0.1°dH
Flow rate LV = over 5 m/H

Equipment components: Water softener, flow meter, single control valve, ion exchange resin, pressure gauge, etc.

Spare parts (2 years supply) : Ion exchange resin 300 ℓ (7 - VI), 350 ℓ (7 - V)
Sheet packing 1 pc
Gauge pipe 2 pcs

Operation method : Manual changeover operation

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
7 - IV	Flow rate : 4 ∿ 10 m^3/H, 120 m^3/cycle Ion exchange resin : 300 ℓ Dia. of main pipe : 40 A Equipment dimensions: 650 ϕ × 1.524 m	0.88 1.2	-
7 - V	Flow rate : 4 ∿ 10 m^3/H, 140 m^3/cycle Ion exchange resin : 350 ℓ Dia. of main pipe : 40 A Equipment dimensions: 750 ϕ × 1,524 m	1.3 1.8	-
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

E1	Boiler-Boiler Plant	8/13	EQUIPMENT LIST	8/11

NAME	Softened water tank

TECHNICAL DATA

Type : Square type, steel plate welding construction

Interior - epoxy resin coating

Exterior - rust preventive treatment

Accessories: To be provided with connecting ports for feed water, drain water, overflow, air vent pipe, etc. as well as electrode mounting seat

Manhole 600 × 600, frame 500H

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
8 - IV	Capacity : 1,800 ℓ Dimensions : 1,300 × 1,300 × 1,500 m Frame : 500 m Accessories: Manhole and others	0.99 2.6	-
8 - V	Capacity : 2,400 ℓ Dimensions : 1,500 × 1,500 × 1,500 m Frame : 500 m Accessories: Manhole and others	1.09 3.3	-
REMARKS	Product weight: 0.75t for 8-IV, 0.91t for 8-V		

Weight; Top - Gross shipping weight
Bottom - Net weight

	Boiler-Boiler Plant	9/13	EQUIPMENT LIST	9/11

NAME	Boiler chemical treatment equipment

TECHNICAL DATA

riteria	: Chemicals	Compound boiler chemicals	
	Quality of feed water	Soft water	
	Injection point	Intake side of feed pump	
quipment components	: Chemical injection pump (3 units),		
	Chemical solution tank (1 unit),		
	check valve, grade hose, etc.		
pare parts 2 years supply)	: Compound boiler chemicals	500 kg/2 years (9 - IV)	
		600 kg/2 years (9 - V)	
	Diaphragm bellows	2 pcs	
	Pump head	1 pc	
peration method	: Automatic operation (in link motion with boiler feed pump)		
otor	: To be treated for heat resistance		

M NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KE)
IV	Rate of chemical injection: 8 ∿ 125 cc/min Discharge pressure : 7 kg/cm²G Tank capacity : 100 ℓ (tank made of hard PVC)	0.05	0.09
	Motor : 3 φ × 220V × 500mZ	0.08	
V	Same as above	0.05	0.09
		0.08	
RKS			

ght; Top - Gross shipping weight
Bottom - Net weight

21	Boiler-Boiler Plant	10/13	EQUIPMENT LIST	10/11

NAME	Steam header

TECHNICAL DATA

Type : Made of steel pipe

Steam pressure less than 10 kg/cm^2G

Accessories: Trap connecting port

Frame 1,000H

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
11 - IV	Dimensions: 200 ϕ × 2,500 L Frame : 1,000H	0.43 0.4	-
11 - V	Same as above	0.43 0.4	-
REMARKS	Product weight: 0.37t for 11-IV, 0.37t for 11-V		

Weight; Top - Gross shipping weight
Bottom - Net weight

1	Boiler-Boiler Plant	11/13	EQUIPMENT LIST	11/11

NAME	Pipes and flue

TECHNICAL DATA

Classification	Material	Application Point	Insulation	Paint
Steam pipe	Galvanized iron pipe (black)	Exposed, interior	Rock wool + cotton finish	Filler + ready mixed paint
		Concealed	" + aluminum glass cloth	--
		In pit	" + water-proof hemp cloth	--
		Exposed, exterior	" + galva-nized iron sheet	Anti-corrosive paint + ready mixed paint
Water pipe	Vinyl lining iron pipe	Exposed, interior	Form polystyrene + cotton cloth	Filler + ready mixed paint
		Concealed	" + vinyl tape	--

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
2-IV	Piping	4.0	
	Insulation	0.3	
	Painting	0.1	
	Flue	2.0	
	Electricity	2.0	
2-V	Piping	5.0	
	Insulation	0.3	
	Painting	0.1	
	Flue	2.2	
	Electricity	2.0	
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

E1	Boiler-Boiler Plant	11/13	EQUIPMENT LIST	11/11

NAME	Pipes and flue

TECHNICAL DATA

Classification	Material	Application Point	Insulation	Paint
Water pipe		In pit	Foam polystrene + waterproof hemp cloth	Filler + ready mixed paint
		Exposed, exterior	Foam polystrene + galvanized iron sheet	Anti-corrosive paint + ready mixed paint
Drainage pipe	Galvanized iron pipe (for water supply)	Exposed, interior	Foam polystyrene + cotton cloth	Filler + ready mixed paint
		In pit	Foam polystyrene + vinly tape	--
		Highly humid place	Foam polystyrene + galvanized iron sheet	Filler + ready mixed paint
Pil pipe	Galvernized iron pipe (black)	Exposed, interior	--	Filler + ready mixed paint
		In pit	--	Filler + ready mixed paint
		Buried portion	Wound with jute	--

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)

REMARKS

Weight; Top - Gross shipping weight
Bottom - Net weight

E1	Boiler-Boiler Plant	11/13	EQUIPMENT LIST	11/11

NAME	Pipes and flue

TECHNICAL DATA

Flue	Steel plate construction (4.5 mm)	--	75mm Rock wool + galvernized iron sheet	Filler + Heatproof paint

Rock wool specification: Specific gravity 32kg/m^3; thickness 1/2 - 1" = 25 mm; 1-1/2-3" = 30mm; over 4" = 40mm

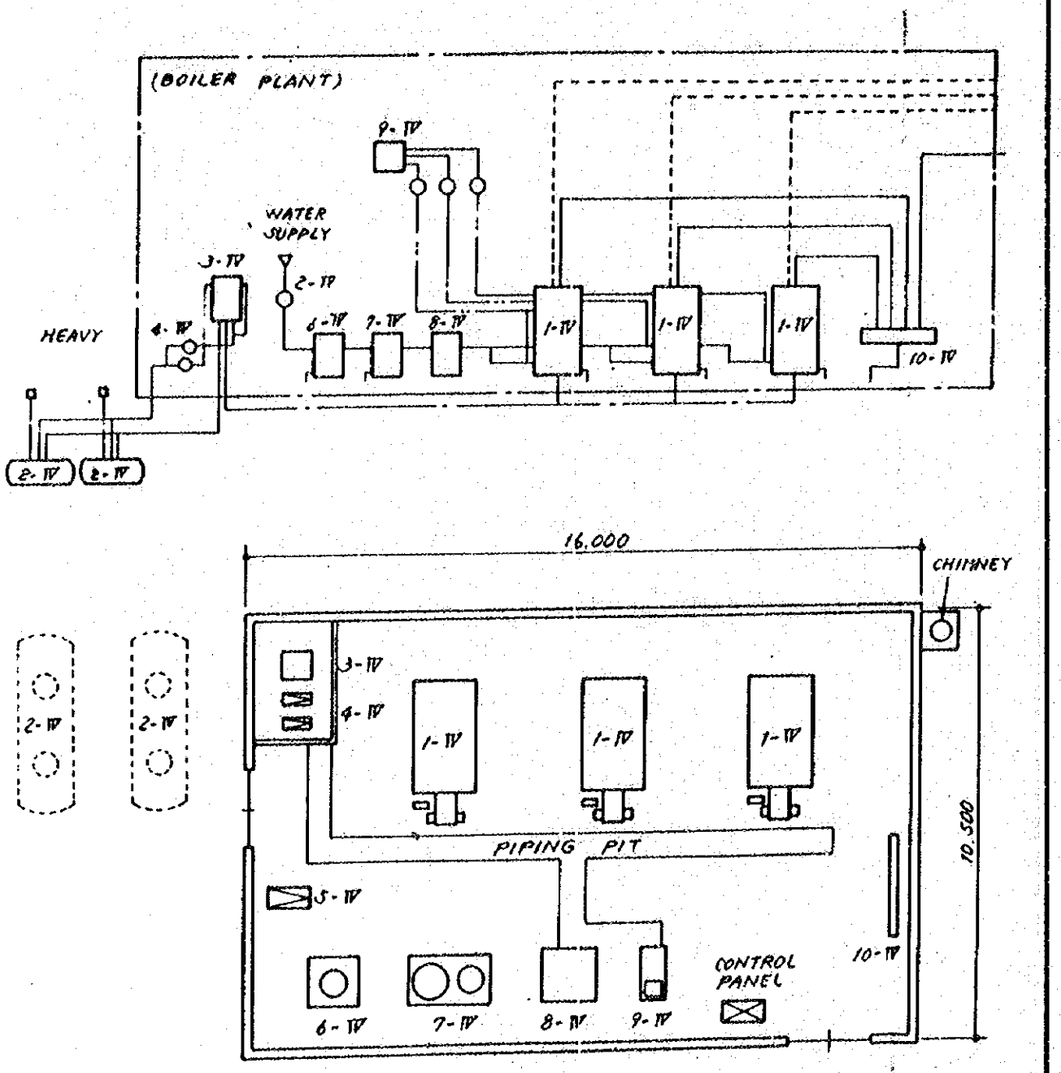
Foam polystyrene specification: Thickness 20mm

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)

REMARKS

Weight; Top - Gross shipping weight
Bottom - Net weight

E1	Boiler-Boiler Plant	12/13 Equipment List by Group Code	1/2	Group Code	B - IV



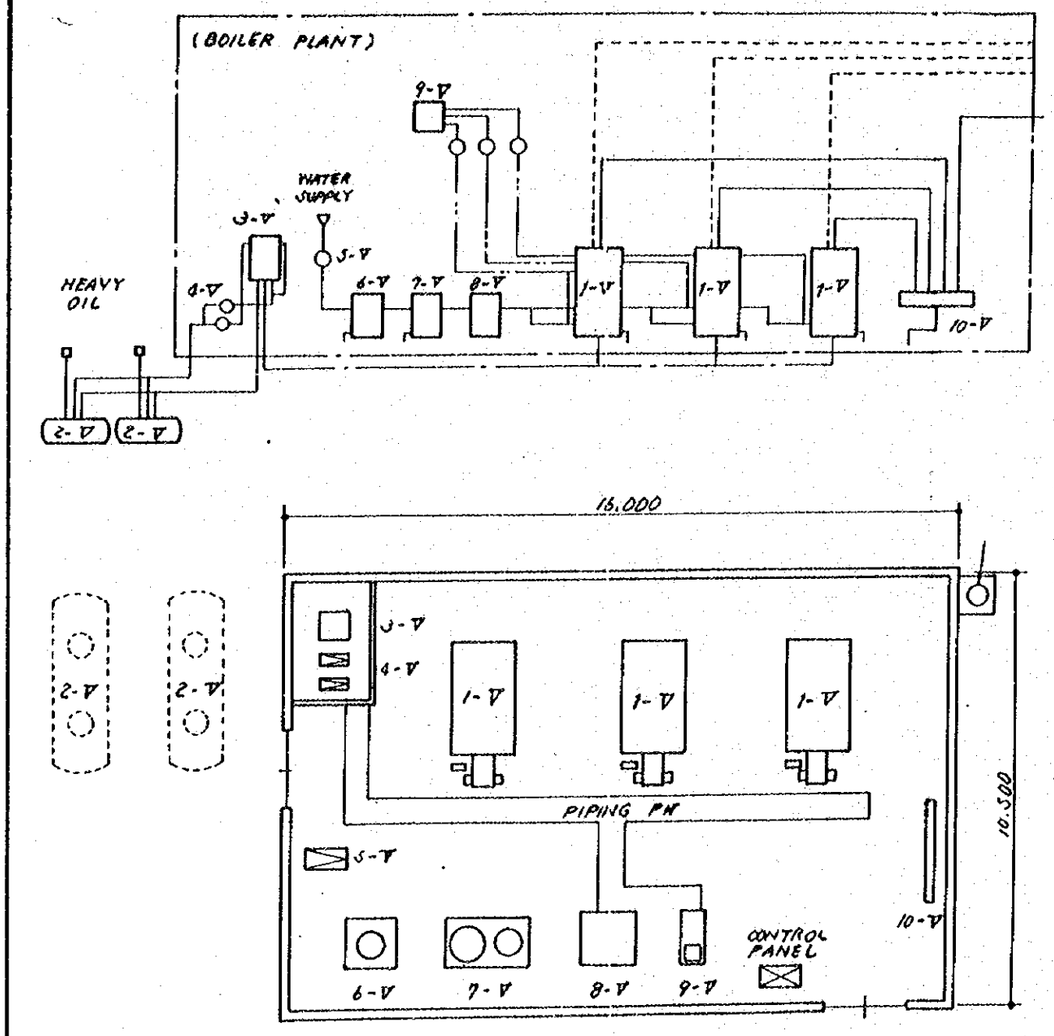
Building area	16m × 10.5m × 3.5m	168 M²	Foundation		
Gross weight		29.5t			
Electric capacity		kw 21.1			

Equipment List

Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
1.Equipment					
Steam boiler	3	1-IV	4.5×3	10.0×2	6,500
Main oil	2	2- "	1.8×2		1,680
Service oil tank	1	3- "	0.27		
Oil gear pump	2	4- "	0.05×2	0.4×1	75
Raw water pump	1	5- "	0.13	1.5	
Filtration equipment	1	6- "	1.1		
Water softener	1	7- "	0.88		
Softened water tank	1	8- "	0.99		
Chemical treatment equipment	1	9- "	0.05	0.09×2	
Steam header	1	10- "	0.43		
Sub total			21.05	22.1	
2.Material					
Pipes & flue	1		6.4		
Electric equipment	1		2.0		(Incl. automatic control)
Sub total			8.4		
3.Installation					
Delivery & installation	1				
Pipes & flue	1				
Electric equipment	1				(Incl. automatic control)
Sub total					
4.Adjustment	1				
5.Supervision	1				
Total	1		29.45	22.1	

Calculated on assumption that the term of works is 100 days.

E1	Boiler-Boiler Plant	13/13	Equipment List by Group Code	2/2	Group Code	B - V



Building area	16m × 10.5m × 3.5m	168 M²	Foundation		
Gross weight		32.9t			
Electric capacity		kw 24.1			

Equipment List

Name of Equipment	Q'ty	Specification			
		Code	Weight	Power	Others
1.Equipment					
Steam boiler	3	1-V	5.0×2	4.0×2	7,200
Main oil tank	2	2-"	1.8×2		1.680
Service oil tank	1	3-"	0.3		
Oil gear pump	2	4-"	$0.05^{\times}_{2}$	0.4×1	75
Raw water pump	1	5-"	0.13	1.5	
Filtration equipment	1	6-"	1.3		
Water softener	1	7-"	1.3		
Softened water tank	1	8-"	1.09		
Chemical treatment equipment	1	9-"	0.05	$0.09^{\times}_{2}$	
Steam header	1	10-"	0.43		
Sub total			23.30	24.1	
2.Material					
Pipes & flue	1		7.6		
Electric equipment	1		2.0		(Incl. automatic control)
Sub total	1		9.6		
FOB Yokohama	1		32.90		
3.Installation					
Delivery & installation	1				
Pipes & flue	1				
Electric equipment	1				(Incl. automatic control)
Sub total	1				
4.Adjustment	1				
5.Supervision	1				
Total	1		32.90	24.1	

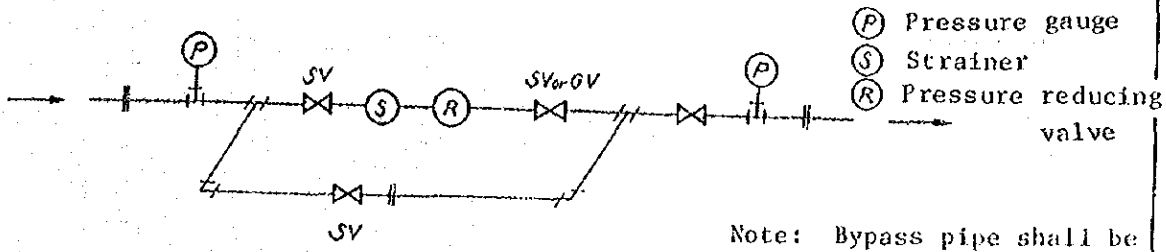
Calculated on assumption that the term of works is 100 days.

5-7 Boiler-outside stem piping (E2)

E2	Boiler-Outside Steam Piping	1/5	EQUIPMENT LIST	1/2

NAME	Pressure reducing valve

TECHNICAL DATA



Note: Bypass pipe shall be 1/2 of diameter of primary side pipe.

Valve Size Table

Name of equipment	Gunung Wenang	Ujung Pandang	Medan	Remarks
Kitchen	3/4 × 1/2	3/4 × 1/2	3/4 × 3/8	
Laundry	1 1/4 × 1/2	1 1/4 × 1/2	1 1/2 × 1 1/2	
Central Supply Room Autoclave	3/4 × 3/4	3/4 × 3/4	1 × 1	
" " " Ultrasonic washing machine	3/4 × 3/8	3/4 × 3/8	3/4 × 3/8	
Pharmacy	3/4 × 3/4	3/4 × 3/4	3/4 × 3/4	
Laboratory	3/4 × 3/4	3/4 × 3/4	3/4 × 3/4	

(Flange dia.) x (Piping dia.)

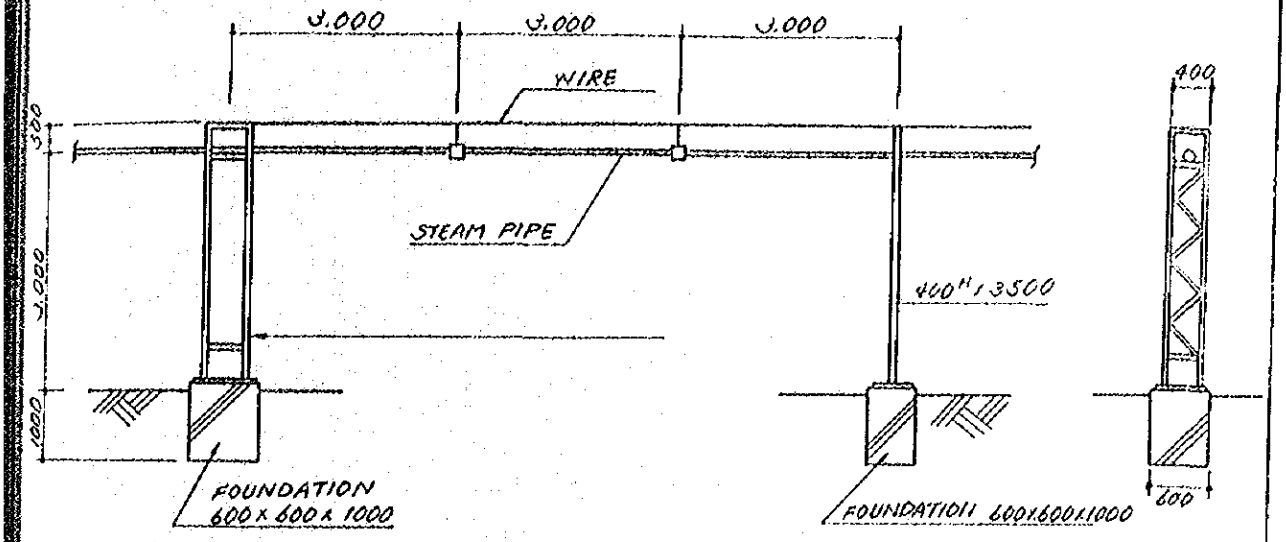
ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

E2	Boiler-Outside Steam Piping	2/5	EQUIPMENT LIST	2/2

NAME	Steam pipe support stand

TECHNICAL DATA

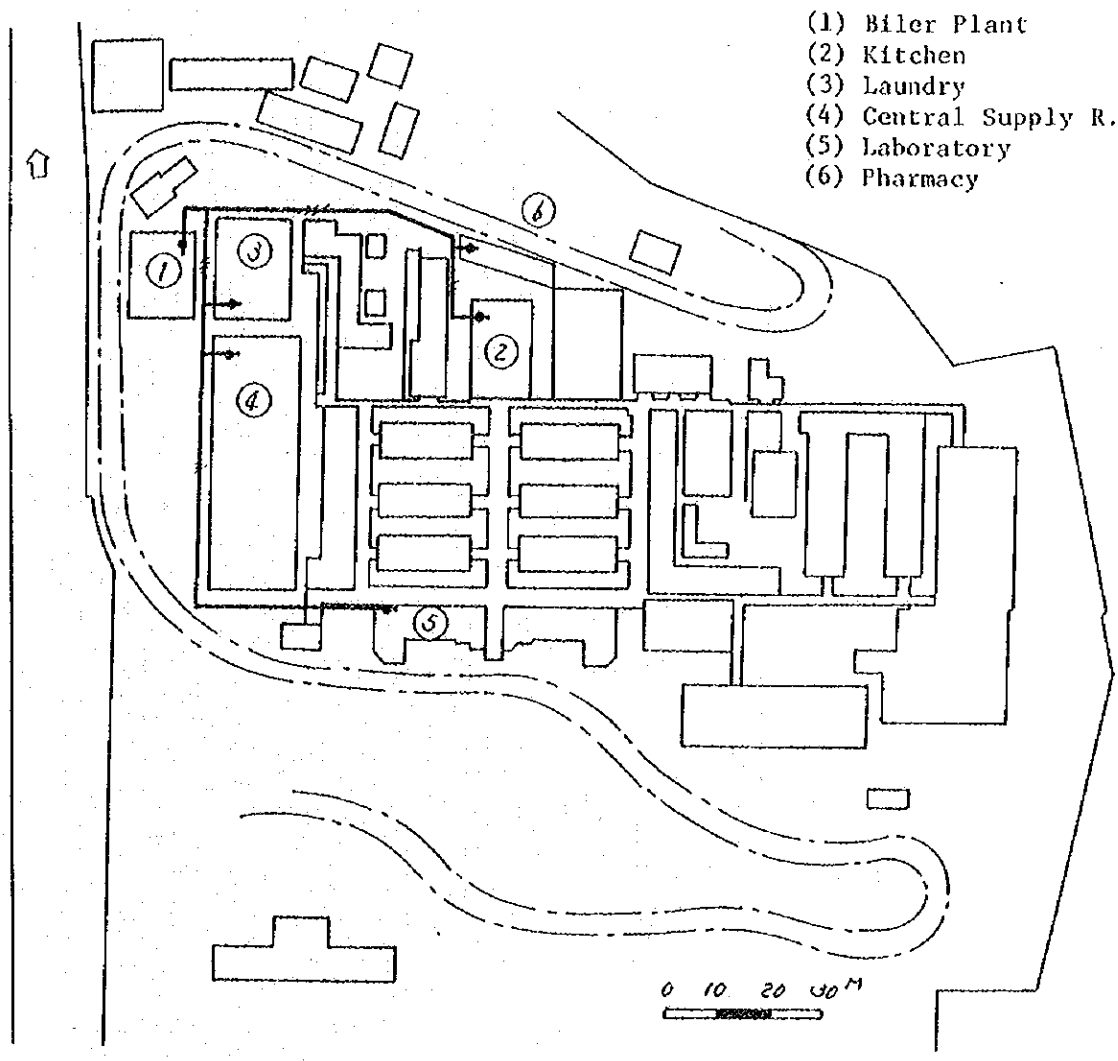


Name of Support Stand	Gunung Wenang	Ujung Pandang	Medan	Remarks
4-leg support stand	10	15	20	130 kg
2-leg support stand	15	25	30	70 kg

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
REMARKS			

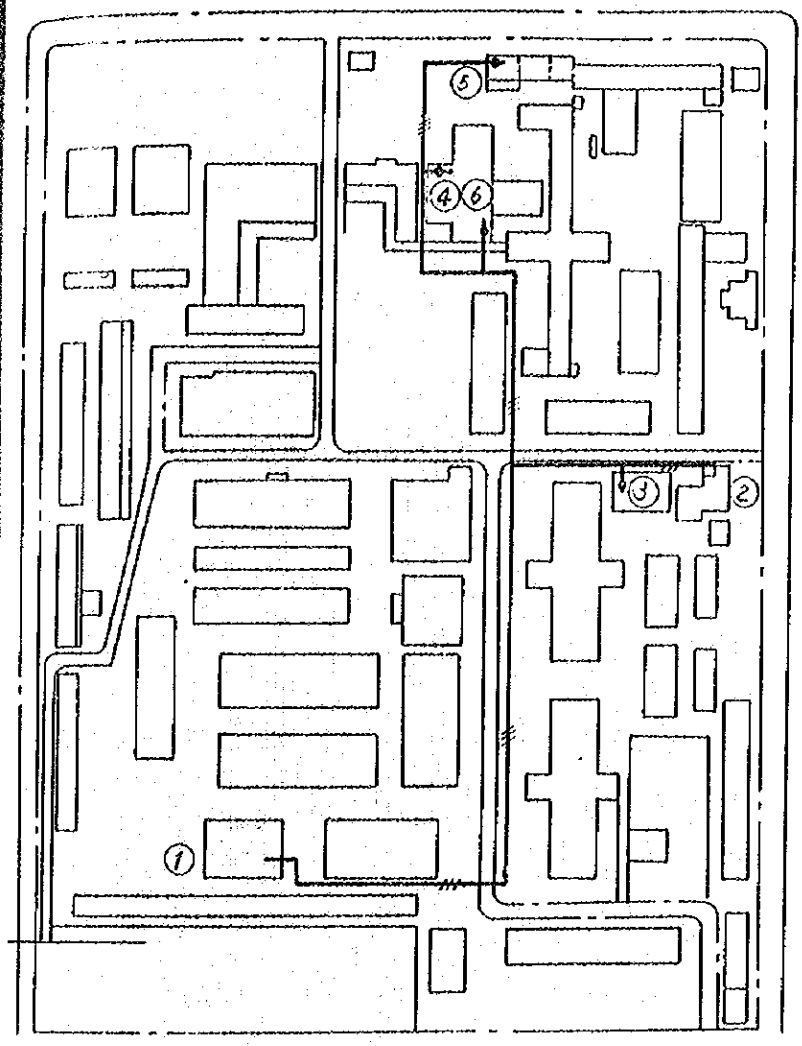
Weight; Top - Gross shipping weight
Bottom - Net weight

12	Boiler-Outside Steam Piping	3/5	Name of Hospital	Gunung Wenang	1/3



Item	Specification	Q,ty	Remarks
team pipe	15 A	5 m	Expansion bend to be installed at:
	20	5	32 A 10 m pitch
	25	10	40 15
	32	180	50 20
	40	20	65 25
	50	25	
	65	15	
essure re-ing valve		1 set	3/4 × 1/2 1 3/4 × 3/4 3 1 1/4 × 1/2 1 3/4 × 3/8 1
pport stand		1 set	Angle support (3500H) to be installed at 9m pitch.
arks: Total shipping weight 6.0t			

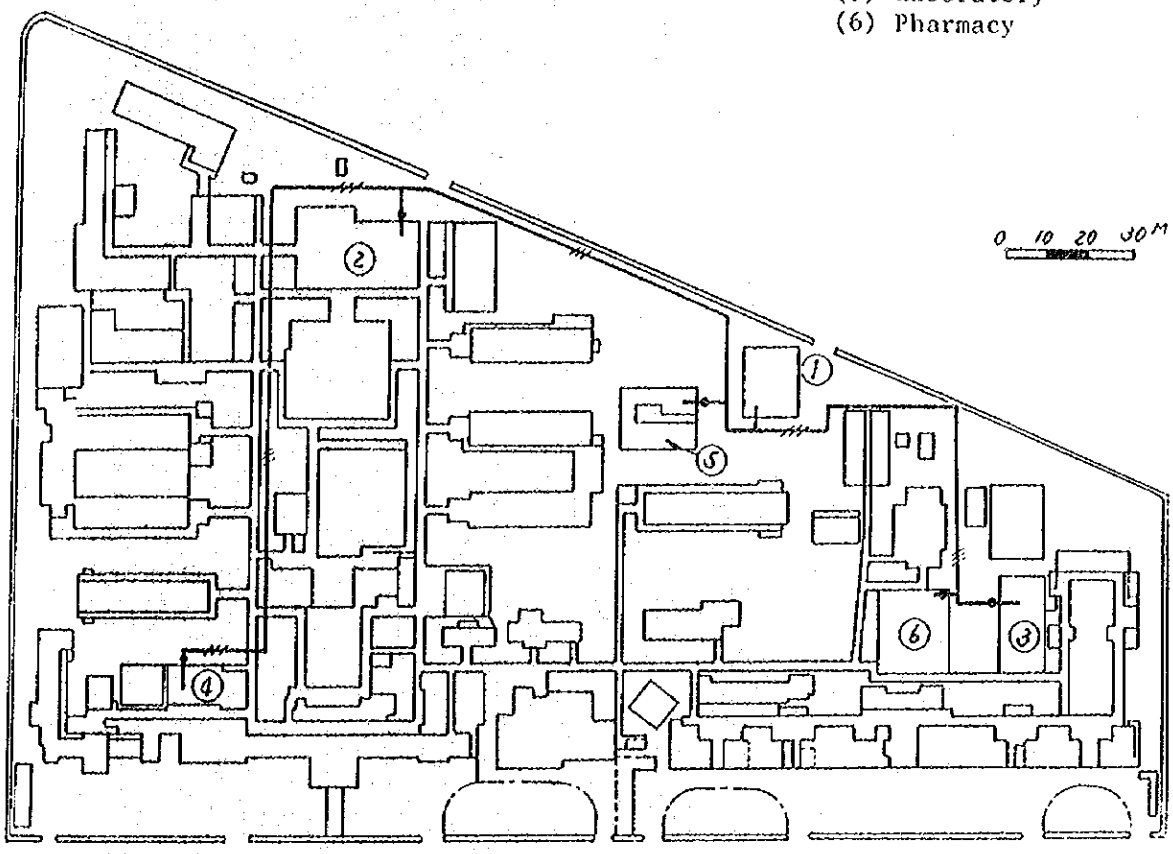
22	Boiler-Outside Steam Piping	4/5	Name of Hospital	Ujung Pandang	2/3



Item	Specification	Q,ty	Remarks
team pipe	15 A	5 m	Expansion bend to be installed at:
	20	5	32 A 10 m pitch
	25	10	40 15
	32	85	50 20
	40	95	65 25
	50	30	
	65	165	
ressure re- ing valve		1 set	3/4 × 1/2 1 3/4 × 3/4 3 1 1/4 × 1/2 1 3/4 × 3/8 1
pport stand		1 set	Angle support (3500H) to be installed at 9m pitch.
arks: Total shipping weight 8.5t			

E2	Boiler-Outside Steam Piping	5/5	Name of Hospital	Medan	3/3

(1) Boiler Plant
(2) Kitchen
(3) Laundry
(4) Central Supply Room
(5) Laboratory
(6) Pharmacy



Item	Specification	Q,ty	Remarks
Steam pipe	15 A	5 m	Expansion bend to be installed at:
	20	5	32 A 10 m pitch
	25	10	40 15
	32	25	50 20
	40	320	65 25
	50	20	80 30
	65	120	
	80	10	
Pressure reducing valve		1 set	3/4 × 3/8 2 1 × 1 1 1 1/2 × 1 1/2 1 3/4 × 3/4 2
Support stand		1 set	Angle support (3500H) to be installed at 9m pitch.
Remarks: Total shipping weight 10t			

5-8 Cooling facility

° Appliance selection criteria

Name of room		Floor space (M^2)	Unit heat load (Kcal/Hr.M^2)	Heat load (Kcal/Hr)
Operating room		30	180	5,400
X-ray apparatus room		36	150	5,400
Cobalt-60 bomb room		36	150	5,400
Inspecting room	Bacilloscopy room	30	180	5,400
	Disinfecting room	20	250	5,000
	Measuring equipment room	20	180	3,600
	General inspecting room	30	180	5,400
Delivery room		30	180	5,400
I C U		30	180	5,400

Based on the above result of computation, the cooling capacity is standardized at 5,400 Kcal/hour.

F	Air-Conditioning Unit	1/2	EQUIPMENT LIST	1/1

NAME	Window-type Air-conditioning Unit

TECHNICAL DATA

° Construction: This unit shall consist of a regrigerator, air-cooled radiator, and air conditioner (air filter, evaporator and fan) assembled in a package. The unit shall be so constructed that it will perform its functions when power is supplied. It shall be equipped with a mechanism to control the volume of air as well as an automatic temperature control.

ITEM NO.	SPECIFICATION	WEIGHT (T)	ELECTRIC CAPACITY (KW)
(common)	Cooling capacity more than 5,400 Kcal/Hr Power supply 1 ϕ or 3 ϕ 220V Compressor 2.2 kw Fan 0.2 kw	$\frac{0.15}{0.1}$	2.4
REMARKS			

Weight; Top - Gross shipping weight
Bottom - Net weight

F	Air-Conditioning Unit	2/2	Equipment List by Group Code

Group Code	Name of Hospital	No. of Units to be Installed							Total Electric Capacity kw	Total Weight (Shipping t	Remarks
		Operation Room	X-Ray Room	Cobalt Room	Laboratory	Delivery Room	ICU Room	Total			
C - (1)	Common to D Class	0	0	0	1	0	0	1	2.4	0.15	
C - (2)	Common to D^+ Class	1	1	0	1	0	0	3	7.2	0.45	
C - (3)	Common to C Class	1	1	0	2	0	0	4	9.6	0.6	
C - (4)	Pematang Siantar	2	1	0	3	1	1	8	19.2	1.2	
C - (5)	Gunung Wenang	4	1	0	3	1	1	10	24.0	1.5	
C - (6)	Ujung Pandang	3	2	0	4	1	1	11	26.4	1.65	
C - (7)	Medan	3	2	1	4	1	1	12	28.8	1.8	

5-9 Water facilities-Running cost

WATER SUPPLY FACILITIES RUNNING COST	1/6	GROUP NUMBER	0

ITEM	CALUCULATION OF ANNUAL CONSUMPTION	UNIT PRICE	RUNNING COST (10^3RP/year)
Water	50 beds x 0.3M^3/beds/day x 365 days/year = 5,475M^3/year	50 RP/M^3	274
Oil (incinerator)	-	25 RP/ℓ	-
Kerosene (Kitchen)	3ℓ/Hr. x 4 x Hr./days x 0.4 x 365 days/year = 7,008	30 RP/ℓ	210
Total			485

WATER SUPPLY FACILITIES RUNNING COST	2/6	GROUP NUMBER	I

ITEM	CALUCULATION OF ANNUAL CONSUMPTION	UNIT PRICE	RUNNING COST (10^3RP/year)
Water	100 beds x 0.3M^3/bed, days x 365 days/year = 10,950 M3/year	50 RP/M^3	548
Oil (incine-rator)	13.2 ℓ/Hr. x 1 Hr./day x 365 days/year = 4,818 ℓ/year	25 RP/ℓ	120
Kerosene (Kitchen)	3 ℓ/Hr. x 5 x 4 Hr/days x 0.6 x 365 days/year = 13,140 ℓ/year	30 RP/ℓ	394
Total			1,062

WATER SUPPLY FACILITIES RUNNING COST	3/6	GROUP NUMBER	I

ITEM	CALUCULATION OF ANNUAL CONSUMPTION	UNIT PRICE	RUNNING COST (10^3RP/year)
Water	200 beds x 0.3M^3/beds, days x 365 days/year = 54,900M^3/year	50 RP/M^3	1,095
Oil (incine-rator)	13.2 ℓ/Hr. x 1 Hr./day x 365 days/year = 4,818 ℓ/year	25 RP/ℓ	120
Kerosene (Kitchen)	3ℓ/Hr. x 7 x 4 Hr./days x 0.6 x 365 days/year = 18,396ℓ/year	30 RP/ℓ	552
Total			1,767

WATER SUPPLY FACILITIES RUNNING COST	4/6	GROUP NUMBER	III

ITEM	CALUCULATION OF ANNUAL CONSUMPTION	UNIT PRICE	RUNNING COST (10^3RP/year)
Water	300 beds x 0.5M^3/beds,days x 365 days/year = 54,750M^3/year	50 RP/M^3	2,738
Oil (incinerator)	24.6ℓ/Hr. x 1 Hr./day x 365 days/year = 8,979 ℓ/year	25 RP/ℓ	224
Kerosene (Kitchen)	3 ℓ/Hr. x 9 x 4 Hr./days x 0.6 x 365 days/year = 23,652 ℓ/year	30 RP/ℓ	710
Total			3,672

WATER SUPPLY FACILITIES RUNNING COST	5/6	GROUP NUMBER	IV

ITEM	CALUCULATION OF ANNUAL CONSUMPTION	UNIT PRICE	RUNNING COST (10^3RP/year)
Water	400 beds x 0.5M^3/beds,day x 365 days/year = 73,000M^3/year	50 RP/M^3	3,650
Oil (incinerator)	(Incinerator) 24.6ℓ/Hr. x 1 Hrs/day x 365 days/year = 8,979ℓ/year (Boiler) 56ℓ/Hr. x 2 cans x 8 Hr./days x 0.7 x 365 days/year = 228,928ℓ/year (Total) 8,979 + 228,928 = 237,907 ℓ/year	25 RP/ℓ	5,948
Kerosene (Kitchen)	-	30 RP/ℓ	-
Total			9,598

WATER SUPPLY FACILITIES RUNNING COST	6/6	GROUP NUMBER	V

ITEM	CALUCULATION OF ANNUAL CONSUMPTION	UNIT PRICE	RUNNING COST (10^3RP/year)
Water	600 beds x 0.5M^3/bed,day x 365 days/year = 109,500M^3/year	50 RP/M^3	5,475
Oil (Incinerator)	(Incinerator) 49.2ℓ/Hr. x 1 Hr./day x 365 days/year = 17,958ℓ/year (Boiler) 72ℓ/Hr. x 2 can x 8 Hr./day x 0.7 x 365 days/year = 294,336ℓ/year (Total) 17,958 + 294,336 = 312,294 ℓ/year	25 RP/ℓ	7,807
Kerosene (Kitchen)	-	30 RP/ℓ	-
Total			13,282

6 ALTERNATIVE PLAN

6-1 Cost Estimate of Project

1) Cost Estime of Project

(foreign exchange)

(unit: 1 Million yen)

Medical equipment		1,593
Laboratory equipment		141
Electrical facilities and workshop		1,118
Water supply facilities and others		409
Sub-total		3,261
Freight and Insurance	x 0.06	196
Trainning	x 0.05	163
Contingency	x 0.05	163
Sub-total		522
Total		3,783

(Local currency)

(unit: 1 million Rp)

Electric wire construction	1,385
Share for transformer	314
Water supply facilities and others	184
Building	423
Total	2,306

Cost for custom's clearance, inland transportation, part of equipment installation, etc. are not estimated.

2) Cost for Each Hospital by Sector

Unit: thousand yen

		Medical equipment	Laboratory equipment	Electricity facilities and work shop	Water supply facilities and others	Total
North Sulawesi	Gunung Wenang	192,372	22,095	174,305	92,600	486,372
	Tondano	71,452	6,587	23,542	800	102,381
	Ketamubagu	71,452	6,587	17,507	800	96,346
	Gorontalo	71,452	6,587	18,290	5,700	102,029
	Kendage	44,369	1,651	17,122	600	63,742
	Sub-total	456,097	43,507	250,766	100,500	850,870
South Sulawesi	Ujung Pandang	203,775	22,095	145,881	106,800	478,551
	Pare-pare	71,452	6,299	25,209	4,600	107,560
	Palopo	46,320	1,651	18,086	4,400	70,457
	Soppeng	40,461	1,577	93,837	8,400	144,275
	Tenriawaru	46,385	1,651	95,334	8,200	151,570
	Elim Rantepao	43,332	1,651	19,510	4,400	68,893
	Bantaeng	39,310	1,651	91,052	4,000	136,013
	Sub-total	491,035	36,575	488,909	140,800	1,157,319
	Medan	239,456	25,495	171,189	126,300	562,440
	Pematang Siantar	112,924	16,304	93,370	20,600	243,198
	Tarutung	71,452	6,353	33,987	5,500	117,292
	Kisaran	71,452	6,470	22,174	4,600	104,696
	Rantau Prapat	44,369	1,335	22,222	9,700	77,626
	Tebing Tinggi	38,404	1,351	18,795	800	59,350
	Tanjung Balai	36,070	1,577	16,727	200	54,574
	Porsea	31,123	1,651	0	0	32,774
	Sub-total	645,250	60,536	378,464	167,700	1,251,950
	Total	1,592,382	140,618	1,118,139	409,000	3,260,139

) Cost for each hospital by sector (Local currency)

(Unit: 1 thousand R_p)

	Electric wire construction	Share for transformer	Water supply facilities and others	Building	Total
Gunung Wenang	160,000	33,507	0	91,295	204,802
Tondano	40,000	15,409	1,900	6,445	63,754
Kotamobagu	30,000	15,310	0	6,445	51,755
Goroutalo	55,800	15,409	2,000	8,142	81,351
Kendage	38,500	11,235	0	4,918	54,653
Sub-total	324,300	90,870	3,900	117,245	536,315
Ujung Pandang	128,000	33,507	37,000	86,320	284,827
Pare-Pare	50,000	15,409	7,200	6,898	79,507
Palopo	44,700	11,235	6,300	2,146	64,381
Soppeng	30,000	11,235	5,900	8,684	55,819
Tenriawaru	34,000	11,235	2,900	10,109	58,244
Elim Rantepao	22,400	11,235	6,400	2,146	42,181
Bantaeng	37,600	11,235	1,200	8,684	58,719
Sub-total	346,700	105,091	66,900	124,987	643,678
Medan	289,300	34,222	53,100	106,272	482,678
Pemantang Siantar	99,500	18,890	11,200	54,396	183,986
Tarutung	137,300	15,409	26,500	7,358	186,567
Kisaran	62,400	15,409	7,600	7,358	92,767
Pantau Prapat	45,200	11,235	7,300	2,980	66,715
Tebing Tinggi	42,300	11,235	1,900	998	56,433
Tanjung Balai	37,100	11,235	5,200	768	54,303
Porsea	0	0	0	0	0
Sub-total	713,100	117,635	112,300	180,130	1,123,665
Total	1,384,000	313,596	183,600	422,362	2,303,658

6-2 Medical Equipment

A. Operating Theater

Name of Hospital / Item No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14														
Ujung Pandang	2		2	2	2	2	2	2	1	6	6	4	4	2														
Medan	2		2	2	2	2	2	2	1	6	6	4	4	2														
Gunung Wenang	2		2	2	2	2	2	2	1	6	6	4	4	2														
Pematang Siantar		2	2	2	1	1	2	2	1	5	5	4	4	2														
Tondano		1	1	1	1	1	1	1		4	4	3	3	1														
Kotamobagu		1	1	1	1	1	1	1		4	4	3	3	1														
Gorontalo		1	1	1	1	1	1	1		4	4	3	3	1														
Pare-Pare		1	1	1	1	1	1	1		4	4	3	3	1														
Tartung		1	1	1	1	1	1	1		4	4	3	3	1														
Kisaran		1	1	1	1	1	1	1		4	4	3	3	1														
Liun Kendage		1	1	1	1			1		3	3	2	2	1														
Watampone		1	1	1	1			1		3	3	2	2	1														
Soppeng		1	1	1	1			1		3	3	2	2	1														
Palopo		1	1	1	1			1		3	3	2	2	1														
Tebing Tinggi		1	1	1	1			1		3	3	2	2	1														
Rantan Prapat		1	1	1	1			1		3	3	2	2	1														
Elim Rantepao		1	1	1	1			1		2	2	1	1	1														
Bantaeng		1	1	1	1			1		2	2	1	1	1														
Porsea		1	1	1	1			1		2	2	1	1	1														
Tanjung Balai		1	1	1	1			1		2	2	1	1	1														

	1	2	3	4	5	6	7	8
Ujung Pandang		2	2	2	3	6	3	1
Medan		2	2	2	3	6	3	1
Gunung Wenang		2	2	2	3	6	3	1
Pematang Siantar		2	2	2	2	4	2	1
Tondano		1			1	2	1	1
Kotamobagu		1			1	2	1	1
Gorontalo		1			1	2	1	1
Pare-Pare		1			1	2	1	1
Tartung		1			1	2	1	1
Kisaran		1			1	2	1	1
Liun Kendage		1				2	1	
Watampone		1				2	1	
Soppeng		1					1	
Palopo		1				2	1	
Tebing Tinggi		1					1	
Rantan Prapat		1				2	1	
Elim Rantepao		1					1	
Bantaeng		1					1	
Porsea		1					1	
Tanjung Balai		1					1	

C. ICU and Recovery Room

Name of Hospital / Item No.	1	2	3	4	5	6	7	8	9	10	11	12	13
Ujung Pandang	1	1	2	1	1	2	2	2	10	1	1	4	1
Medan	1	1	2	1	1	2	2	2	10	1	1	4	1
Cumung Wenang	1	1	2	1	1	2	2	2	10	1	1	4	1
Pemacang Mantar	1		2	1	1	2	2	2	10	1	1	2	1
Tondano	1		1	1	1	1	1	1	5	1	1	2	1
Kotamobagu	1		1	1	1	1	1	1	5	1	1	2	1
Gorontalo	1		1	1	1	1	1	1	5	1	1	2	1
Pare-Pare	1		1	1	1	1	1	1	5	1	1	2	1
Tarlung	1		1	1	1	1	1	1	5	1	1	2	1
Kisaran	1		1	1	2	1	1	1	5	1	1	2	1
Lian Kendage			1			1	1	1	3	1	1	1	1
Watampone			1			1	1	1	3	1	1	1	1
Soppeng			1			1	1	1	3	1			
Palopo			1			1	1	1	3	1	1	1	1
Tebing Tinggi			1			1	1	1	3	1			
Kantor Prapat			1			1	1	1	3	1	1	1	1
Ellin Kantoppo			1			1	1	1	2	1	1	1	1
Bontaeng			1			1	1	1	2				
Poso			1			1	1	1	2				
Tanjung Balai			1			1	1	1	2				

B. Surgical Equipment

Name of Hospital	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Ujung Pandang	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			3		2	100
Medan	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3		2	100
Gunung Wenang	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			3		2	100
Pematang Siantar	1	1	1			1	1		1	1		1		1	1	1	1	1	1	1			3		1	50
Tondano	1	1	1			1						1		1	1	1	1						2		1	50
Kotamobagu	1	1	1			1						1		1	1	1	1						2		1	50
Gorontalo	1	1	1			1						1		1	1	1	1						2		1	50
Pare-Pare	1	1	1			1						1		1	1	1	1						2		1	50
Tartung	1	1	1			1						1		1	1	1	1						2		1	50
Kisaran	1	1	1			1						1		1	1	1	1						2		1	50
Liun Kendage		1										1		1	1	1	1						1		1	
Watampone		1										1		1	1	1	1						1		1	
Soppeng		1										1					1							1	1	
Palopo		1										1		1	1	1	1						1		1	
Tebing Tinggi		1										1					1							1	1	
Rantau Prapat		1										1		1	1	1	1						1		1	
Elim Rantepao		1										1		1	1	1	1						1		1	
Bantaeng		1										1					1							1	1	
Porsea		1										1					1							1	1	
Tanjung Balai		1										1					1							1	1	

B. Central Supply

Demand Supply	Item No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Ujung Pandang			5	2	1	1	1	1	10	30	7	50	10	15	4	1	1	2	3
Medan			10	3	1	1	1	1	10	50	7	50	10	15	4	1	1	1	3
Gunung Wenang			5	2	1	1	1	1	10	30	7	50	10	15	4	1	1	1	3
Pematang Siantar		3	2				1		4	20	5	50	5	15	3	1		1	1
Tondano		2	2				1		4	10	3	30	3	10	3	1		1	1
Kotamobagu		2	2				1		4	10	3	30	3	10	3	1		1	1
Gorontalo		2	2				1		4	10	3	30	3	10	3	1		1	1
Pare-Pare		2	2				1		4	10	3	30	3	10	3	1		1	1
Tarlung		2	2				1		4	10	3	30	3	10	3	1		1	1
Kisaran		2	2				1		4	10	3	30	3	10	3	1		1	1
Lhok Kendage		1	1						2	5	2	15	2	5	3	1		1	1
Watampone		1	1						2	5	2	15	2	5	3	1		1	1
Soppeng		1	1						2	5	2	15	1	5	3	1		1	1
Palopo		1	1						2	5	2	15	2	5	3	1		1	1
Tebing Tinggi		1	1						2	5	2	15	1	5	3	1		1	1
Ranzan Prapat		1	1						2	5	2	15	2	5	3	1		1	1
Ellim Rantepao		1	1						2	5	2	15	2	5	3	1		1	1
Bontang		1	1						2	5	2	15	1	5	3	1		1	1
Poreso		1	1						2	5	2	15	1	5	3	1		1	1
Lampung Bakal		1	1						2	5	2	15	1	5	3	1		1	1

F. Injection Syringes and Needles

Uplink Pandang	600	600	600	300	200	100	10	10	25	25	25	100	300	50	25										
Medan	600	600	600	300	200	100	10	10	25	25	25	100	300	50	25										
Gunung Wenang	600	600	600	300	200	100	10	10	25	25	25	100	300	50	25										
Pematang Siantar	300	300	300	100	100	100	10	10	25	25	25	80	300	50	25										
Tondano	300	300	300	50	50	50	5	5	10	10	10	50	200	30	10										
Kotamobagu	300	300	300	50	50	50	5	5	10	10	10	50	200	30	10										
Gorontalo	300	300	300	50	50	50	5	5	10	10	10	50	200	30	10										
Pare-Pare	300	300	300	50	50	50	5	5	10	10	10	50	200	30	10										
Tartung	300	300	300	50	50	50	5	5	10	10	10	50	200	30	10										
Kisaran	300	300	300	50	50	50	5	5	10	10	10	50	200	30	10										
Lhun Kendage	180	180	180	25	25	25	5	5	10	10	10	50	200	20	10										
Watampone	180	180	180	25	25	25	5	5	10	10	10	50	200	20	10										
Soppeng	180	180	180	25	25	25	5	5	10	10	10	50	200	20	10										
Palopo	180	180	180	25	25	25	5	5	10	10	10	50	200	20	10										
Tebing Tinggi	180	180	180	25	25	25	5	5	10	10	10	50	200	20	10										
Rantau Prapat	180	180	180	25	25	25	5	5	10	10	10	50	200	20	10										
Ujung Pandang	180	180	180	25	25	25	5	5	10	10	10	50	200	20	10										
Bantaeng	180	180	180	25	25	25	5	5	10	10	10	50	200	20	10										
Poreso	180	180	180	25	25	25	5	5	10	10	10	50	200	20	10										
Tanjung Balai	180	180	180	25	25	25	5	5	10	10	10	50	200	20	10										

6. Outpatient Clinic

Name of Hospital	Item No.	1	2	3	4	5	6
Ujung Pandang		20	5	3	10	3	1
Medan		20	5	3	10	3	1
Gunung Wenang		20	5	3	10	3	1
Pematang Siantar		10	3	2	5	2	1
Tondano		5	2	1	3	2	1
Kotamobagu		5	2	1	3	2	1
Gorontalo		5	2	1	3	2	1
Pare-Pare		5	2	1	3	2	1
Tarteng		5	2	1	3	2	1
Kisaran		5	2	1	3	1	1
Lium Kendage		3	1	1	2	1	1
Watampone		3	1	1	2	1	
Soppeng		3	1	1	2	1	1
Palopo		3	1	1	2	1	
Tebing Tinggi		3	1	1	2	1	
Rantan Prapat		3	1	1	2	1	1
Elim Rantepao		3	1	1	2	1	
Bantaeng		3	1	1	2	1	
Persen		3	1	1	2	1	
Tanjung Redeb		3	1	1	2	1	

II. Obstetrics & Cynecology

Name of Hospital	Item No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Ujung Pandang		2	2	2	1	2	2	2			2	2	1	1	1	2	1	3	2
Medan		2	2	2	1	2	2	2			2	2	1	1	1	2	1	3	2
Gunung Wenang		2	2	2	1	2	2	2			2	2	1	1	1	2	1	3	2
Pematang Siantar		1	1	1	1	1	1	1			1	1	1	1	1	2	1	2	1
Tondano		1	1	1	1	1	1	1			1	1	1	1	1	1	1	2	1
Kotamobagu		1	1	1	1	1	1	1			1	1	1	1	1	1	1	2	1
Gorontalo		1	1	1	1	1	1	1			1	1	1	1	1	1	1	2	1
Pare-Pare		1	1	1	1	1	1	1			1	1	1	1	1	1	1	2	1
Tartung		1	1	1	1	1	1	1			1	1	1	1	1	1	1	2	1
Kisaran		1	1	1	1	1	1	1			1	1	1	1	1	1	1	2	1
Liun Kendage		1	1	1	1	1	1	1			1		1	1	1	1	1	1	1
Watampone		1	1	1	1	1	1				1		1	1		1	1		
Soppeng		1	1	1	1	1	1	1			1		1	1	1	1	1	1	1
Palopo		1	1	1	1	1	1				1		1	1		1	1		
Tebing Tinggi		1	1	1	1	1	1				1		1	1		1	1		
Rantau Prapat		1	1	1	1	1	1	1			1		1	1	1	1	1	1	1
Klim Rantepao		1	1	1	1	1	1				1		1	1		1	1		
Bantaeng		1	1	1		1	1				1		1	1		1	1		
Porsea		1	1	1		1	1				1		1	1		1	1		
Tanjung Balai		1	1	1		1	1				1		1	1		1	1		

I. ENT

Name of Hospital \ Item No.	1	2	3	4	5
Ujung Pandang	1	1		1	1
Medan	1	1	1	1	1
Gunung Wenang	1	1		1	1
Pematang Siantar	1	1		1	1
Tondano					
Kotamobagu					
Gorontalo					
Pare-Pare					
Tartung					
Kisaran					
Liun Kendage					
Watampone					
Soppeng					
Palopo					
Tebing Tinggi					
Rantau Prapat					
Elim Rantepao					
Bantaeng					
Porsea					
Tanjung Balai					

J. Ophtalmology

Name of Hospital \ Item No.	1	2	3	4	5	6	7	8	9	10	11	12	13
Ujung Pandang	1	20	1	1	1	1	1	1	1	1	1		1
Medan		20	1	1	1	1	1	1	1	1	1	1	1
Gunung Wenang		20	1	1	1	1	1	1	1	1	1		1
Pematang Siantar	1	20	1	1	1	1	1	1	1	1	1		1
Tondano													
Kotamobagu													
Gorontalo													
Pare-Pare													
Tartung													
Kisaran													
Liun Kendage													
Watampone													
Soppeng													
Palopo													
Tebing Tinggi													
Rantau Prapat													
Elim Rantepao													
Bantaeng													
Porsea													
Tanjung Balai													

K. Pediatrics

Name of Hospital \ Item No.	1	2	3	4	5	6	7	8
Ujung Pandang	3		200	5	1	30	1	1
Medan	3		200	5	1	30	1	1
Gunung Wenang	3		200	5	1	30	1	1
Pematang Siantar	2		150	4	1	30	1	1
Tondano	1		100	3	1	20	1	1
Kotamobagu	1		100	3	1	20	1	1
Gorontalo	1		100	3	1	20	1	1
Pare-Pare	1		100	3	1	20	1	1
Tartung	1		100	3	1	20	1	1
Kisaran	1		100	3	1	20	1	1
Liun Kendage	1		50	2		20		
Watampone	1		50	2		20		
Soppeng	1		50	2		20		
Palopo	1		50	2		20		
Tebing Tinggi	1		50	2		20		
Rantan Prapat	1		50	2		20		
Elim Rantepao	1		50	2		10		
Bantaeng	1		50	2		10		
Porsea	1		50	2		10		
Tanjung Balai	1		50	2		10		

Name of Hospital	Item No.	1	2	3	4
Ujung Pandang	1.	1	1	10	10
Medan		1	1	10	10
Gunung Wenang		1	1	10	10
Pematang Siantar		1	1	10	10
Tondano					
Kotamobagu					
Gorontalo					
Pare-Pare					
Tartung					
Kisaran					
Ulun Kendage					
Ratampone					
Soppeng					
Palopo					
Tebing Tinggi					
Rantau Prapat					
Elim Rantepao					
Bantaeng					
Persea					
Tanjung Pinang					

N. Internal Medicine

Name of Hospital	Item No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Ujung Pandang			1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	
Medan		1	1	1	1	1	1	1	1	1	1		1	1	1	2	1	1	1
Gunung Wenang		1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1
Pematang Siantar						1		1	1	1	1		1	1	1	1	1	1	1
Tondano								1						1	1	1	1	1	
Ketambagu								1						1	1	1	1	1	
Gorontalo								1						1	1	1	1	1	
Pare-Pare								1						1	1	1	1	1	
Tartung								1						1	1	1	1	1	
Kisaran								1						1	1	1	1	1	
Lian Kendage														1					
Watampone														1					
Soppeng														1					
Palopo														1					
Tebing Tinggi														1					
Rantau Prapat														1					
Elim Rantepao														1					
Bantaeng																			
Poreso																			
Tanjung Pinang																			

N. Physiotherapy

Name of Hospital																		
Ujung Pandang	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	1		
Medan	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	1		
Gunung Wenang	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	1	1	
Pematang Siantar	1	1	1	1	1	1	1	1										
Tondano	1	1	1	1	1	2	1	1										
Kotamobagu	1	1	1	1	1	1	1	3										
Gorontalo	1	1	1	1	1	1	1	1										
Pare-Pare	1	1	1	1	1	1	1	1										
Tartung	1	1	1	1	1	1	1	1										
Kisaran	1	1	1	1	1	1	1	1										
Ujung Kendari	1	1																
Watampone	1	1																
Soppeng	1	1																
Palopo	1	1																
Tebing Tinggi	1	1																
Rantau Prapat	1	1																
Ellm Rantepao	1	1																
Bantaeng	1	2																
Purwa	1	1																
Tanjung Balai	1	1																

0. Dental Instrument & Dental X-ray

Name of Hospital	1	2	3	4	5	6	7	8
Ujong Pandang	2	2	2		1	1		
Medan	2	2	2		1	1		
Gunung Wenang	1	1	1		1	1	1	1
Pematang Siantar	1	1	1		1			
Tondano	1	1	1		1		1	1
Kotamobagu	1	1	1		1		1	1
Gorontalo	1	1	1		1		1	1
Pare-Pare	1	1	1		1		1	1
Tartung	1	1	1		1		1	1
Kisaran	1	1	1		1		1	1
Liun Kendage			1					
Watampone	1	1	1					
Soppeng			1					
Palopo	1	1	1					
Tebing Tinggi			1					
Rantau Prapat			1					
Elim Rantepao	1	1	1					
Bantaeng	1	1	1					
Porsea	1	1	1					
Tanjung Balai		1	1					

P. X-ray Apparatus, Processing Apparatus and Co 60

Ujung Pandang	1					1																		
Medan	1					1		1		1														
Gunung Wenang	1							1																
Pematang Siantar		1				1		1																
Tondano								1																
Kotamobagu			1					1																
Gorontalo			1																					
Pare-Pare			1					1																
Tartung			1																					
Kisaran			1																					
Liun Kendage				1				1																
Watampone				1				1																
Soppeng				1				1																
Palopo				1				1																
Tebing Tinggi				1				1																
Rantau Prapat				1				1																
Elim Rantepao					1			1																
Bantaeng					1			1																
Porsea								1																
Tanjung Balai					1			1																

Q. Nursing

Name of Hospital	1	2	3	4	5	6	7	8	9	10-1	10-2	10-3	11
Ujung Pandang	500	2	5	3	5	5	5	5	10	20	10	5	20
Medan	500	2	5	3	5	5	5	5	20	30	15	7	30
Gunung Wenang	500	2	5	3	5	5	5	5	10	20	10	5	20
Pematang Siantar	300	2	5	2	3	4	5	5	7	10	5	3	10
Tondano	100	1	2	1	2	3	2	2	5	8	4	2	8
Kotamobagu	100	1	2	1	2	3	2	2	5	8	4	2	8
Gorontalo	100	1	2	1	2	3	2	2	5	8	4	2	8
Pare-Pare	100	1	2	1	2	3	2	2	5	8	4	2	8
Tartung	100	1	2	1	2	3	2	2	5	8	4	2	8
Kisaran	100	1	2	1	2	3	2	2	5	8	4	2	8
Liun Kendage	100	1	1	1	1	2	1	1	3	5	2	1	5
Watampone	100	1	1	1	1	2	1	1	3	5	2	1	5
Soppeng	100	1	1	1	1	2	1	1	3	5	2	1	5
Palopo	100	1	1	1	1	2	1	1	3	5	2	1	5
Tebing Tinggi	100	1	1	1	1	2	1	1	3	5	2	1	5
Rantau Prapat	100	1	1	1	1	2	1	1	3	5	2	1	5
Elim Rantepao	100	1	1	1	1	1	1	1	2	3	1		3
Bantaeng	100	1	1	1	1	1	1	1	2	3	1		3
Porsea	100	2	1	1	1	1	1	1	2	3	1		3
Tanjung Balai	100	1	1	1	1	1	1	1	2	3	1		3

R. Pharmacy

	1	2	3	4	5	6	7	8	9	10
Ujung Pandang	1	1	1			1	1			10
Medan	1	1	1			1	1			10
Gunung Wenang	1	1	1			1	1			10
Pematang Siantar				1	1	1	1			5
Tondano				1	1	1				4
Kotamobagu				1	1	1				4
Gorontalo				1	1	1				4
Pare-Pare				1	1	1				4
Tartung				1	1	1				4
Kisaran				1	1	1				4
Liun Kendage				1	1	1		1	1	3
Watampone				1	1	1		1	1	3
Soppeng				1	1	1		1	1	3
Palopo				1	1	1		1	1	3
Tebing Tinggi				1	1	1		1	1	3
Rantau Prapat				1	1	1		1	1	3
Elim Rantepao				1	1	1		1	1	3
Bantaeng				1	1	1		1	1	3
Porsea				1	1	1		1	1	3
Tanjung Balai				1	1	1		1	1	3

5. Medical Electronics

Name of Hospital / Item No.	1	2	3	4
Ujung Pandang	1	1	1	1
Medan	1	1	1	1
Gunung Wenang	1	1	1	1
Pematang Siantar				
Tondano				
Kotamobagu				
Gorontalo				
Pare-Pare				
Tarutung				
Kisaran				
Lhok Kendage				
Kotampone				
Soppeng				
Palopo				
Tobing Tinggi				
Rantau Prapat				
Elim Rantepao				
Bontaeng				
Poreen				
Tanjung Balai				

T. Medical Education

Name of Hospital \ Item No.	1	2	3	4	5	6	7	8																
Ujung Pandang																								
Medan																								
Gunung Wenang																								
Pematang Siantar																								
Tondano																								
Kotamobagu																								
Gorontalo																								
Pare-Pare																								
Tartung																								
Kisaran																								
Liun Kendage																								
Watampone																								
Soppeng																								
Palopo																								
Tebing Tinggi																								
Rantau Prapat																								
Elim Rantepao																								
Bantaeng																								
Porsea																								
Tanjung Balai																								

U. Miscellaneous

Name of Hospital	Item No.	1	2
Ujung Pandang		2	
Medan		2	
Gunung Wenang		2	
Pematang Siantar		1	
Tondano		1	
Kotamobagu		1	
Gorontalo		1	
Pare-Pare		1	
Tartung		1	
Kisaran		1	
Ujun Kendare		1	
Kotampone		1	
Seppeng		1	
Palopo		1	
Tebing Tinggi		1	
Rantau Prapat		1	
Elim Rantepao		1	
Bantaeng		1	
Poposo		1	
Kandung Pahat		1	

7) Breakdown of Laboratory Equipment

1. Clinical Chemistry

Item	Description	A.B	C	D
Spectrophotometer	Visible wave length range only. Grating colorimeter-wavelength up to 340 ~ 700nm, tungsten lamp Round-type cubett, slit: less than 20nm, meter; (OD)E & 5%	1	1	1
Multipurpose semi-automatic analyzer	To be supplied to all D class hospitals *Semiautomated machine constitutes of filter type colorimeter, incubator, digital recorder, printer and timer (small type). Simple measuring instrument requiring no special reagent.			
Contrifuge	With 20 tubes, for A.B class, 8 tubes for C class & 4 tubes for D class	1	1	1
Electrophoresis apparatus	For cellurose acetate. Plastic electrophoresis box (cover glass), platinum electrode, pipet (graduated in 0.001m , constant voltage 100mA, 300V Dyeing vat, 24 x 24 x 4.5 cm poncew-3R dye, buffer	1		
Dencitometer for protein fractionation	For cellurose acetate. For oxide membrane, equipment with printer & digital printer.	1		
Water bath	Simple type, temperature range: room temp. to 70°C, Temperature accuracy ±0.2°C, 0.5kw, jet-flow circulaing type.	1	1	1

Item	Description	A.B.	C	D
Direct vision	Sensitivity: 1mg~0.5mg. Weighting capacity 200g. sensitivity 0.5 1mg, projected scale of measuring range 0~1g, with revolving door, digital display.	1	1	
Digital balance	Sensitivity 50mg. Balance weights: 0.1, 0.25, 0.5, 1, 2, 5, 10, 20, 50g.	1	1	
pH meter	Glass electrode, comparison, calibration electrode pH scale graduated in 0 to 14pH, graduation width 1/10pH.	1	1	
Chloride meter	(Only one Japanese supplier available)	1		
Flamie photometer	Propane gas .... digital display, without Compressor ..... for measurement of serum Na, K.			
Desiccator	For desiccatant. Separate type, inside dia. 45 60cm, made of glass, with suction parts. (suction cock)	2	2	1
Rotary pump	Vacuum pump (small, rotary), displacement approx. 100~200 ℓ/min, pressure up to 10^{-4}, 0.4~0.6 kw.	1		
Dry oven (large)		1		
Dilutor	Syringe type volume variable type, up to 0.2~5ml.	1		

2. Microbiology Equipment (including serology)

Item	Description	A.B	C	D
Incubator	37°C Large Approx. 100x50x100cm Exterior painted steep plate - 1.5 kw 3 stage Small Approx. 60x50x50cm Interior stainless steel, ±0.5°C, 1.0kw 2 stage Glass inner door, Bimetal thermostat.	2	1	
Dry oven	50 60°C. Approx. 70x50x60cm, bimetal thermostat, 1.0 1.5kw stainless steel, 2-stage partition.	1	1	
Sterilizer (dry air)	Approx. 60x40x40cm or 70x50x60cm. Exterior asbestos, steel plate, up to 300°C, 2 stages with shelf boards and base (legs), gas or electrcity (1.5~2.2kw)	1	1	
Autoclave	Inside 35x60cm dia. (content) with safety device approx. 1.5 2.0kw, either round or square type may be supplied.	2	1	
Platinum wire loop		10		
Glass plate for VDRL	6 holes, 1 sheet.	10	5	5
Plastic plate for HB antigen	For examination of HB entigen. (Note) Depends on availability of import and storage of reagents --------- However, supply should be considered because each hospital requires examination of HB antigen.	10		

Item	Description	A,B	C	D
Rotator shaker	For VDRL. For syphilis examination.	1	1	1
Blood typing view box	For Rh. Approx. 15x15x30cm, flourescent lamp, frosted glass, 100W	1	1	
Shimmel bush type sterilizer (table)	Electric. Approx. 20x20x30cm, 500w	1		
Alcohol lamp		5	5	5
Glass capillary tube	For Ht. Heparin coated.	100x200	100x100	100x50
Water aspirater	Plastic. Plastic with rubber hose, directly connected with tap.	3	3	3
Dry oven (small, electric)	30x30x30cm 0.5 ∿ 1.0kw	1		
Dark field condenser	Absorbance factor approx. 75∿90%		1	1
Automatic blood cell count	Determination of white and red cells with dilutor dilution cups - 1,000	1		

3. Hematology & Urinalysis Equipment

Item	Description	A.B	C	D
Microscope	Binocular discussion. Objective: 40x, 20x, 100x, ocular: 10x, 4-13ns tube kehler illumination apparatus with transformer: revolver 4 holes, with complicated mechanical stage	2		
Microscope	Monocular. Objective: 20x, 40x, 90x, ocular: 10x, single lens tube, with complicated mechanical stage, without light source, mirror	8	4	2
Microscope	Phase contrust. Phase ring, objective lens: 40x, 20x turret condenser 4 holes	1		
Capillary centrifuge for hematocrit	Accessories (SC-01, CC-01, CT-01). Capillary centrifuge for Ht (3 suppliers)	1	1	1
Spectrophotometer	Exclusively for Hb. Filter 540nm, filter interference, round-type cubet tungsten lamp 3~6V	1	1	
Hemocytometer:	Burker-Turk type	5	3	2
Hemocytometer	Fuchs-Rosenthal type	1	1	1
Stand for red cell sedimentation rate test	For 10 tubes (with pipet)	10	5	5

Item	Description	A,B	C	D
Prothrombin meter		1		
Refractometer (for serum protein)	15°C standard, for urine specific gravity and for serum protein scale, handy type	1	1	1
Water bath (37°C)	10x10x30m, small size, with 37°C jet flow agitator	1	1	
Calculater		5	2	2
White cell calculater	Periheral to bone marrow. 12 key, manual, small size	3	2	
Melanjeul washer	Rubber product	3	2	2
Melanjeul	Hb	20	10	10
Melanjeul	White blood cell	20	10	10
Melanjeul	Red blood cell	20	10	10

Item	Description	A,B	C	D
Refrigerator	200 lit capacity, with freezer. Content 0~8°C	3	2	1
Distillater	Refer to Medical equipment Q. 1, 2, 3	1 except P.S.		
Distillater	2 ℓ/h kerosene, Table type, 1 ℓ/h, 2 ℓ/h, inside copper or stainless steel, outside asbestos or steel plate, glass cooling tube	1	1	1
Timer		2	1	1
Stop watch		2	1	1
Test tube stand	For medium scale test 2 x 10, 18mm- ordinary glass	20	15	10
Test tube stand	For small scale, 4 x 10, hard glass	40	15	10
Test tube stand	For small scale, 2 x 10, hard glass	20		
Basket for test tubes	Square type 21cm, stainless steel	20	10	10

Item	Description	A,B	C	D
Pipet washer	20~25cm dia x 50cm, outer tube glass, inner tube plastics, siphon type	4	2	2
Washing brush	Large	10		
Washing brush	Medium	20		
Washing brush	Small	10		
Thermometer for test	Mercury. 100°C Graduated in 1/10°C scale, length 20 30 cm	2	2	2
Thermometer for test	Mercury. 300°C Graduated in 1°C scale, length 20~30cm	2	3	3
Thermometer for test	Alcohol. Graduated in 1/10°C scale, length 20~30cm			

Glassware, reagent, other consumptions

Item		Quantity
Glassware measuring pipet	1.0 mℓ	50
	2.0	50
	5.0	5
	10.0	5
Vol pipet	1.0	5
	2.0	5
	3.0	5
	5.0	5
Ostward pipet	0.1	10
	0.2	10
	0.5	10
Komagome pipet	5.0	25
Pipet for sedimentation		50
Measuring flask (flat bottom)	20 mℓ	3
	50	3
	100	3
	1000	3
	3000	2
Measuring cylinder (with stopper)	50	3
	100	3
	500	3
	1000	3
Triangle colben	5000	2
	3000	2
	1000	3
	500	8
	300	8
Reagent bottle (tinted)	500	15
	300	25
	100	25
	1000	10
(white)	500	15
	300	25
	100	25
	1000	10

Item		Quantity
Petridish (for culture)	(except D class)	150
Dropping bottle	20 mℓ	3
Suction bottle	500 mℓ	2
Spitz glass	15 mℓ	100
Test tube (small)	ϕ15 mℓ	1500
Test tube (8x15) (small)	ϕ 8 mℓ	2500
Test tube (medium)	ϕ30 mℓ	250
Cover glass	18 x 18 mm	15
Cover glass (for blood cell count)	24 x 22 mm	50
Objective glass	(100 pcs)	100
Buchner funnel (130mm dia.)		1
Pestle		2
Flushing bottle, 500mℓ(Polyethylene)		2
Reagent		
Standard solution Hb		10
Standard solution sugar 25 mℓ		5
Standard solution protein 3 x 4		5
Standard solution BUN 3 x 10		5
Standard solution U-A 3 x 10		5
Standard solution pure cholesterol 3 x 10		5
Na, K, C 100m		Each *3
pH, 2 kinds		Each 2
Blood sugar (OTB kit)		5 kits
Uric acid *		5 kits
BUN		5 kits
Amylase		2 kits
GOT, GPT		3 kits
AL-P *		3 kits
LDH *		3 kits
Triglyceride *		3 kits
r-GTP *		3 kits
Cholesterol		5 kits
Anti-CRP serum		5 kits

Item		Quantity
TOYO filter paper No. 6		5 pcs
Sodium bicarbonate		250 g
Potassium cyanide		13 g
Potassium ferricyanide		13 g
Pooled serum		5 boxes
Ordinary agar medium	(except D class)	300g x 5
Heart infusion	"	300g x 3
Bile	"	10g x10
Selenite	"	300g x 1
SS agar	"	240g x 1
Drigulski	"	300g x 1
MacConkey	"	300g x 1
TSI	"	300g x 1
LIM	"	60g x 1
SIM	"	300g x 1
Gelatine	"	100g x 3
Vibrio agar	"	300g x 3
TCBS agar	"	300g x 3
Mannit table salt	"	300g x 1
Thiamartin	"	100g x 1
CW agar	"	300g x 1
Dedoxycholate	"	300g x 1
BGLB	"	1
Sabraud	"	1

	C Class Hospitals						D Class Hospitals									
Centrifuge	0	0	0	0	0	0	0	0	-1	0	0	0	0	-1	0	0
Drying oven	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Microscope (monocle)	0	0	0	0	-2	-1	0	0	-1	0	0	0	-1	0	0	0
Microscope (phase)	0	0	0	-1	0	0										
Speotrophotometer	0	0	0	0	0	0	0	0	-1	0	0	0	-1	-1	-1	0
Flamie photometer	-1	-1	-1	-1	-1	-1	-1									

Note: Minus figure indicates that the quantity should be reduced from the standard quantity when supplying the equipment. Hospitals with minus figures have either unused or newly procured equipment. The standard quantity will be supplied to hospitals with 0.

Item	Description	Q'ty
Package type refrigerating room	1.5kw, 6.6m^2, stainless steel exterior, prefabricated refrigerating room with air curtain, 3-stage shelf interior, $\pm$1°C	0
Atomic absorption photometer	Wave length range 190 900mm, digital display, with accesaries. With lamp, and acetylene bombe	1 (only for Medan)
Mountury refrigerator	For two bodies.	1
Autopsy table	With faucet, sink and dissecting stand.	0
Autopsy apparatus	Various types of scalpels and forceps, electric saw, striker, pincette, scissors, etc.	1

6-4 Electrical Facilities and Workshop

1) Modified items

(1) Basic installation of generators is made in the following hospitals.

a) Gunung Wenang, Ujung Pandang, Medan (Two 175 KVA generators operating on a parallel, synchronizing basis)

b) Siantar (One 250 KVA generator)

Watampone, Soppeng, Bantaeng, (Two 150 KVA generators operating alternately)

(a) and (b) are for emergency use, while (c) is for constant use.

(2) For the following hospitals basically, the installation of generators is cancelled and only the distribution boards are installed.
(a) 1. Other hospitals than those listed in (a), (b) and (c). Those are twelve hospitals except porsea hospital.

(3) As for the external wiring construction, the allowable range of wiring distance variation involved in a slight change, which has been specified to be within 30% of the distance presented in the drawing, is reduced to 10%. Therefore the Indonesian party is required to give priority to the positions presented in the drawing in deciding the cable, path, location of poles, load distribution and cost distribution.

(4) As for the workrooms, some items are cancelled and others added as described below.

a) Woodworks No change is made.

b) Machinery works
The hoist is cancelled and coating tools (except the foundation process tool) are added.

(c) Electric works

Tools are limited to those used for stringing, and other tools and materials are cancelled.

(5) Maintenance is limited to the hospitals where generators are installed.

(6) As for the service cable wire distributed from the external cables and connected to the X-ray apparatus, only the materials are added.

The specifications are described in the following.

a) Number of hospitals subject to change

Nineteen hospitals except Porsea hospital

b) Cable quality

CV 600V four-core cable (in conformity with JIS 3605-75)

c) Necessary cable length

The cable length is enough for falling at the branch from the external stringing cable on the hearest poles f-XO and f-Xn, and for rising in the X-ray apparatus ward for supply to each section illustrated in the external wiring diagram. Thus the cable length exceeds the effective length shown in the appended table titled "lead-in wire of X-ray apparatus",

d) Highest limit of size

The cable size does not exceed 150 mm^2, and if larger capacity is necessary, two or more cables are used.

e) Selection of size

The cable size is decided to coincide with that shown in the external wiring diagram.

f) Terminal treating materials

With an indoor cable and an outdoor cable forming a pair, materials are provided the number of pairs, according to the number of lead-in cables and their sizes. The number

of materials exceeds the number shown in the appended table titled "lead-in wire of X-ray apparatus".

g) Handling of terminal treatment materials
Basically, an illustrated instruction manual written both in English and Indonesian will be presented.
However, if the construction coinsides with the external wiring construction, technical instructions will be involved in those given by the contractor of the external wiring construction.

h) Comments on cable handling

(I) When a cable is inserted in a guard conduit, the inner diameter of the conduit is twice the finished outer diameter of the cable.

(II) The radius of curvature of the conduit is not less than seven times the finished outer diameter of the cable.

(III) A guard conduit is attached to the cable falling from the pole, from the ground to the height of 2.5 m.

(IV) The cable is burried in the ground at the depth of 600 m or more, and a guard board is attached at the top of the laying, if a load may be applied.

(V) When conduits etc. are made of metal, they are grounded using a grounding conductor with less than 100Ω resistance.

2) Cost for electric facilities and workshop

Notes: *1 through *3 denote costs varied in the negotiation with the Indonesian government dated September 6 through 13, 1978.

*1 Generators are changed to two 175 KVA generators adopting parallel, synchronizing, manual operating method.

*2 Specifications for the workrooms, machines and electricity are changed.

*3 Specifications for the lead-in cable of X-ray apparatus are added.

*6 The cost is eliminated as the item is cancelled.

	A generator	Only a distribution board	External wiring construction	Workshop	Maintenance	Lead-in Cable material for X-ray apparatus	Total
Gunung Wenung	*1 81,500	-	71,140	*2 14,700	5,500	1,465	174,305
Tondano	0	4,000	18,631	405	0	506	23,542
Kotamobagu	0	4,000	12,883	405	0	219	17,507
Gorontalo	0	4,000	13,597	405	0	288	18,290
Lir Kondags	0	3,400	12,875	405	0	442	17,122
Sub-Total	81,500	15,400	129,126	16,320	5,500	2,920	250,766
Jung pandang	*1 81,500	-	43,160	*2 14,700	5,500	1,021	145,881
Watam pono	71,950	-	16,957	405	5,500	522	95,334
Kupping	71,950	-	15,363	405	5,500	619	93,837
Parepare	0	4,000	20,362	405	0	442	25,209
Lir Rantepao	0	3,700	15,014	405	0	391	19,510
Malepo	0	3,700	13,648	405	0	333	18,086
Martaeng	71,950	-	12,909	405	5,500	288	91,052
Sub-Total	297,350	11,400	137,413	17,130	22,000	3,616	488,909

	A generator	Only a distribution board	External wiring construction	Workroom	Maintenance	Lead-in Cable material for X-ray apparatus	Total
Medan	*1 81,500	-	66,995	*2 14,700	5,500	*3 2,494	171,189
Tartung	0	4,000	27,968	405	0	1,614	33,987
Porsea	0	0	0	0	0	0	0
Sianter	53,950	-	32,186	405	5,500	1,329	93,370
T. Tinggi	0	3,400	14,891	405	0	99	18,795
Tarjun Bali	0	3,400	12,631	405	0	291	16,727
Kisaran	0	4,000	17,523	405	0	246	22,174
Tantan Prapat	0	3,700	17,726	405	0	391	22,222
Sub-total	135,450	18,500	189,920	17,130	11,000	6,664	378,464
Total	*1 514,300	45,300	456,459	*2 50,580	38,500	*3 13,000	1,118,139

3) List of modified items

Note: "Cancellation" herein means cancellation in this phase due to a budgetary deficit, on the assumption that it will be carried in and installed in the future if the lectric power supply is not improved in quantity till in the future.

	Cancellation of generator installation	Installation of distribution board alone	Reduction of surplus in the main cable wiring distance	Change of workroom tool specification	Cancellation of inspection and maintenance works	Change of number and capacity of generators	Addition of lead-in cable of X-ray apparatus	Remarks
Gunung Wenang			o	o		o	o	
Tondano	o	o	o	o	o		o	
Kotamobaju	o	o	o	o	o		o	
Gorontalo	o	o	o	o	o		o	
Limkendage	o	o	o	o	o		o	
Ujung Pandag			o	o		o	o	
Watam pane			o	o			o	
Sopping			o	o			o	

	Cancellation of generator installation	Installation of distribution board alone	Reduction of surplus in the main cable wiring distance	Change of workroom tool specification	Cancellation of inspection and maintenance works	Change of number and capacity of generators	Addition of lead-in cable of X-ray apparatus	Remarks
Pare Pare	○	○	○	○	○		○	
Elim Rantpao	○	○	○	○	○		○	PLN should be improved not to stop in the daytime
Palopo	○	○	○	○	○		○	PLN should be improved not to stop in the daytime
Bantaeng			○	○			○	
Medan			○	○		○	○	
Tantung	○	○	○	○	○		○	
Porsea	Suspension	"	"	"	"	"	"	Electric power supply from Asahan should be examined.
Sianter			○	○			○	
[illegible]	○	○	○	○	○		○	

	Tunjun Bali	Kisaran	Rantanprofit
Cancellation of generator installation	o	o	o
Installation of distribution board alone	o	o	o
Reduction of surplus in the main cable wiring distance	o	o	o
Change of workroom tool specification	o	o	o
Cancellation of inspection and maintenance works	o	o	o
Change of number and capacity of generators			
Addition of lead-in cable of X-ray apparatus	o	o	o
Remarks			PLN is connected to the power distributing cable after it is completed.

A) Special Specification of Independent power plant facilities works

Special Specifications of Independent Power Plant Facilities Works

1. RS Gunung Werang

2. Matters to Apply

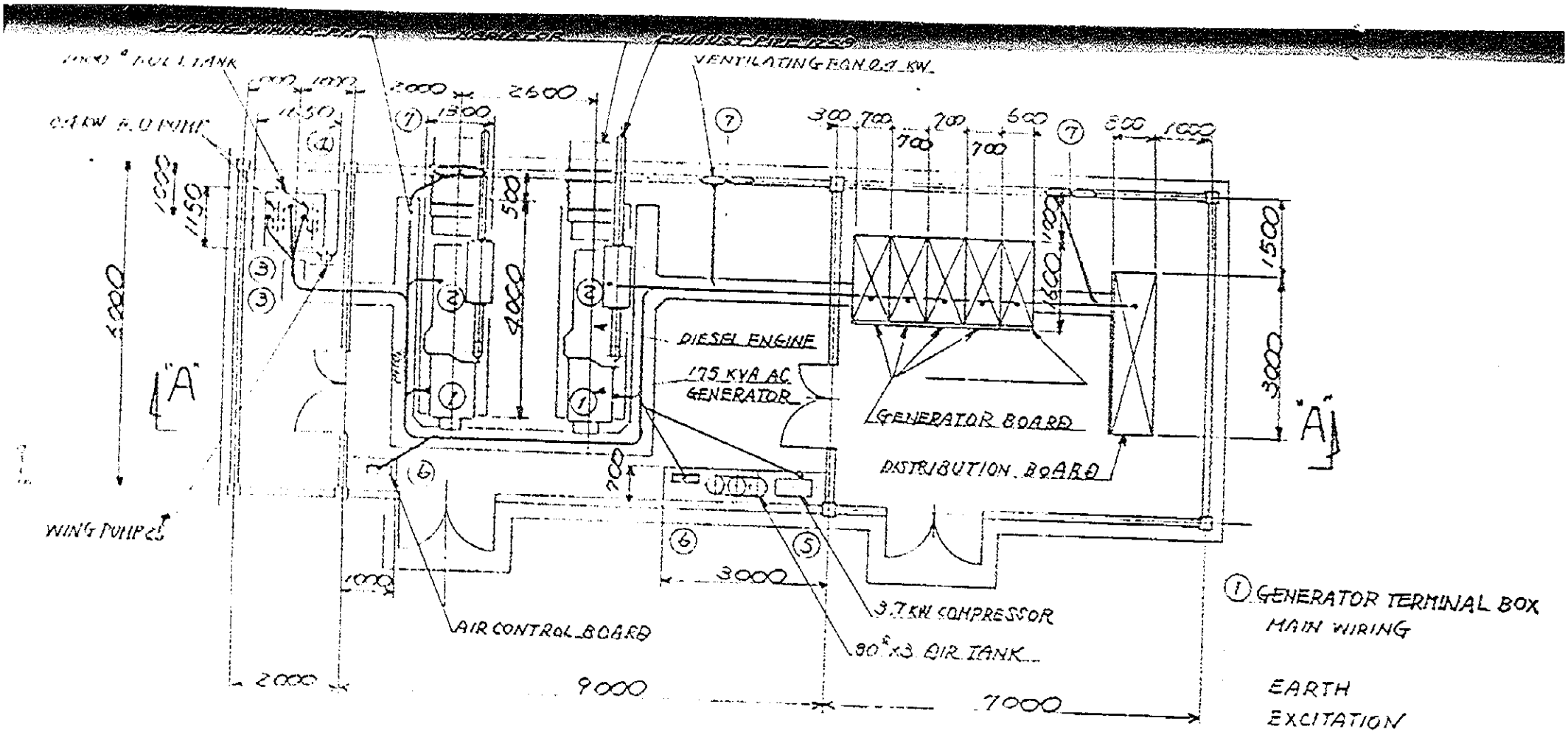
Matters which are not mentioned in this specifications and drawing should be according to the common specifications of Independent Power Plant Facilities Works.

3. Specifications of Independent Power Plant Facilities

Parallel Operation of Synchronism Indicator

AC Generator	Type	Horizontal Synchronous AC Generator
	Rated Output	175 KVA x 2
	Rated Voltage	127/220 V and 220/380V
	Number of phase and frequency	3-phase 4-line system 50Hz
	R. P. M.	Below 1500 r.p.m.
	Power-factor	Above 80%
	Class of Insulation	Above Kind B
	Rated Time	Continuous Rating
	Starting Time	Within 40 seconds
	Excitation System	Brushless System
	Type	Single-acting 4-cycle diesel Engine
	Rated Output	225 HP x 2

Prime mover	Starting Time	Within 40 seconds
	Starting System	Pneumatic System
	R. P. M.	Below 1500 r.p.m.
	Rated Time	More than 72 hours
	Cooling system	Engine driven
	Air Compressor	3-phase 220/380V 3.7KW
	Air Tank	150 l. with pressure switch
	Inflation Tank	100 l.
Fuel	Kind	A Heavy Oil
	Fuel Tank	1000 l.
	Fuel Pump	3-phase 220/380V 0.4KW
Type of Board		Closed type
Control System		Hand Push Button System
Elevation		150 m
Heat Insulation Plate		Ceiling and Wall of Gne Generator Room
Ventilating Fan		3-phase 220/380V 0.75 with automatic shutter
Synchronism System	Type	Manual operation



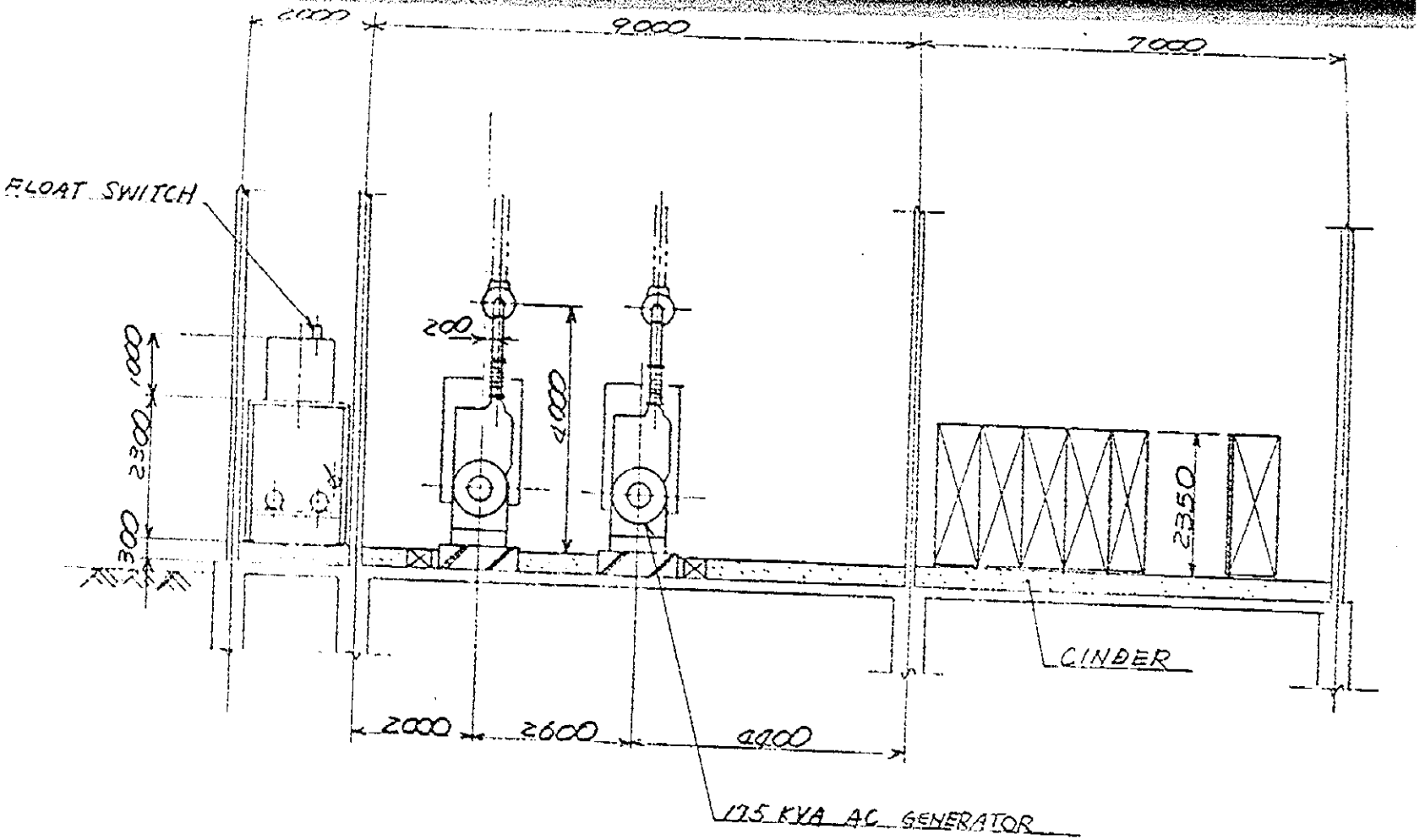
LAY OUT OF 175 KVA GENERATOR ROOM SCALE 1/100

① GENERATOR TERMINAL BOX
MAIN WIRING

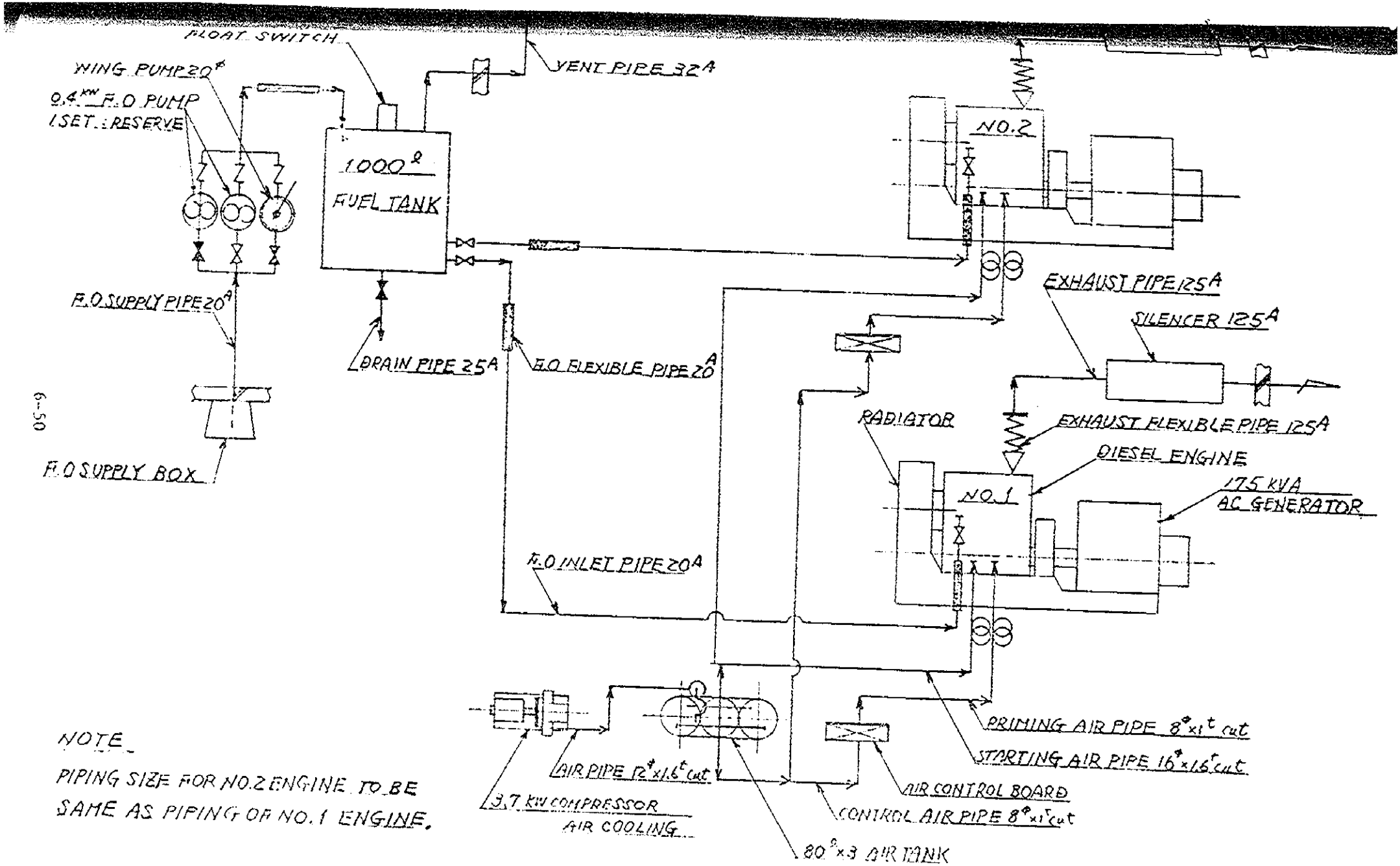
EARTH

EXCITATION

② ENGINE TERMINAL BOX
③ FUEL PUMP
④ FLOAT SWITCH
⑤ COMPRESSOR
⑥ AIR CONTROL BORD
⑦ VENTILATION FAN

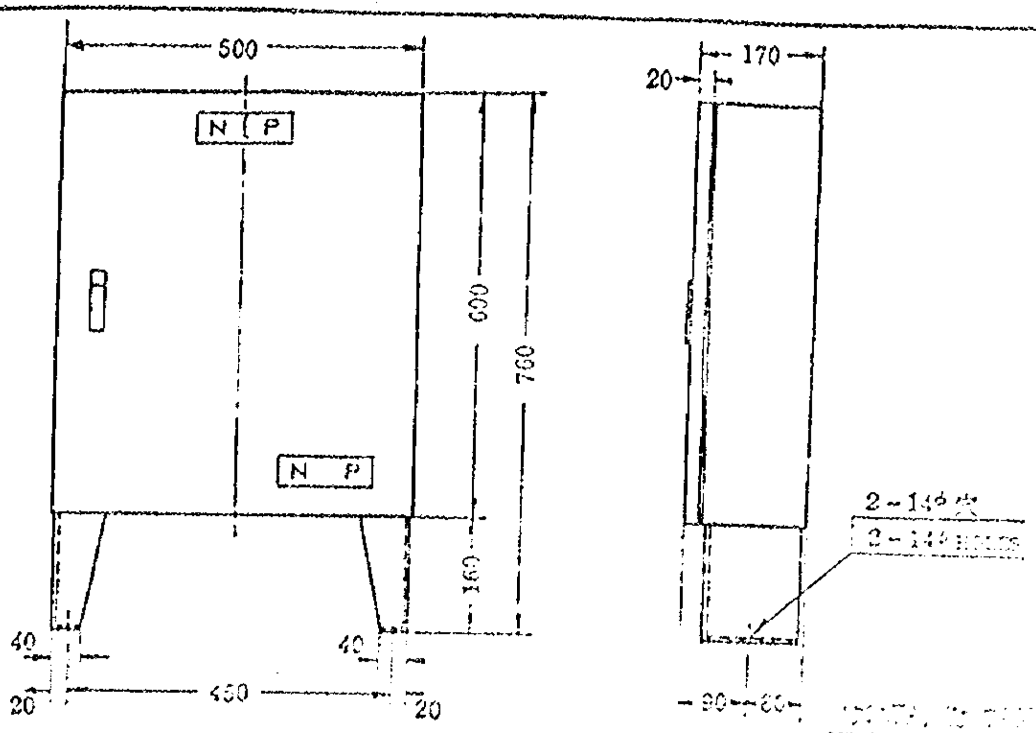

FLOAT SWITCH
2300
300
200
4000
2350
CINDER
2000
2600
4900
125 KVA AC GENERATOR

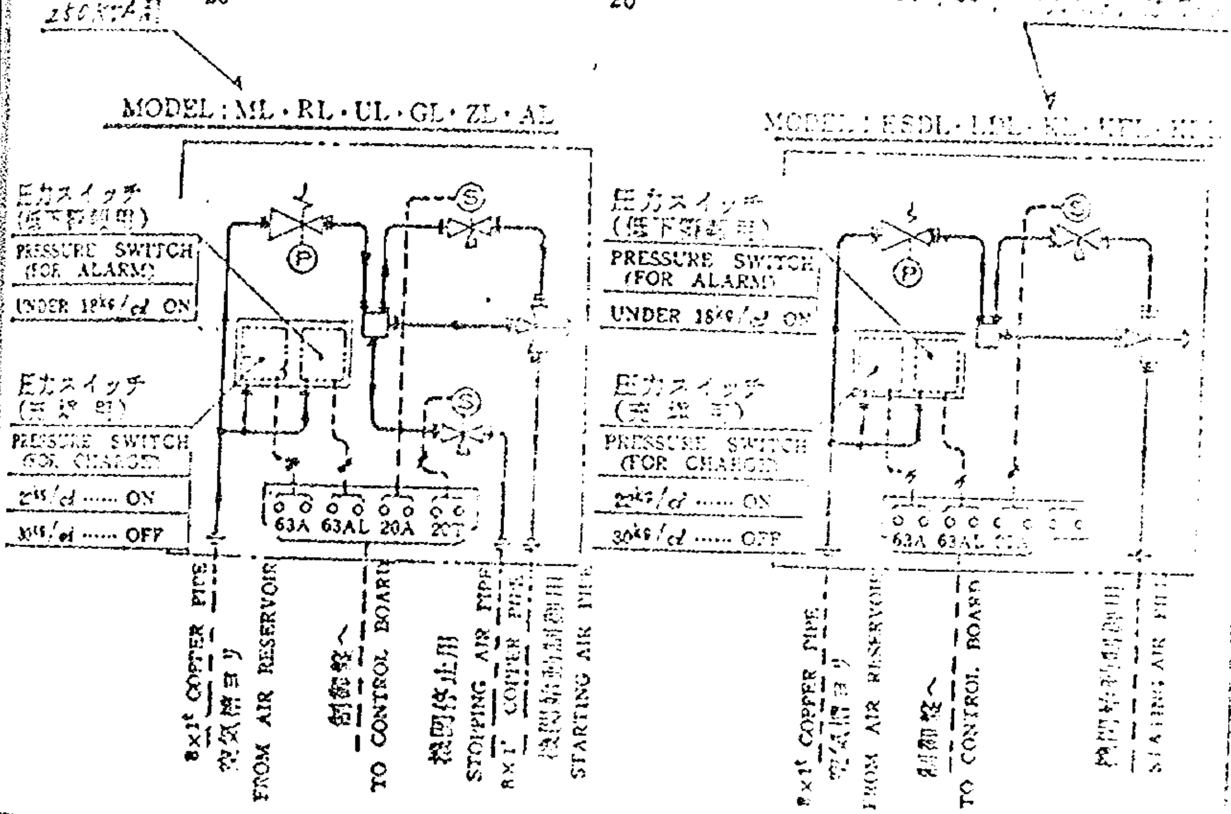
"A" ~ "A" SECTION



NOTE

PIPING SIZE FOR NO.2 ENGINE TO BE SAME AS PIPING OF NO.1 ENGINE.





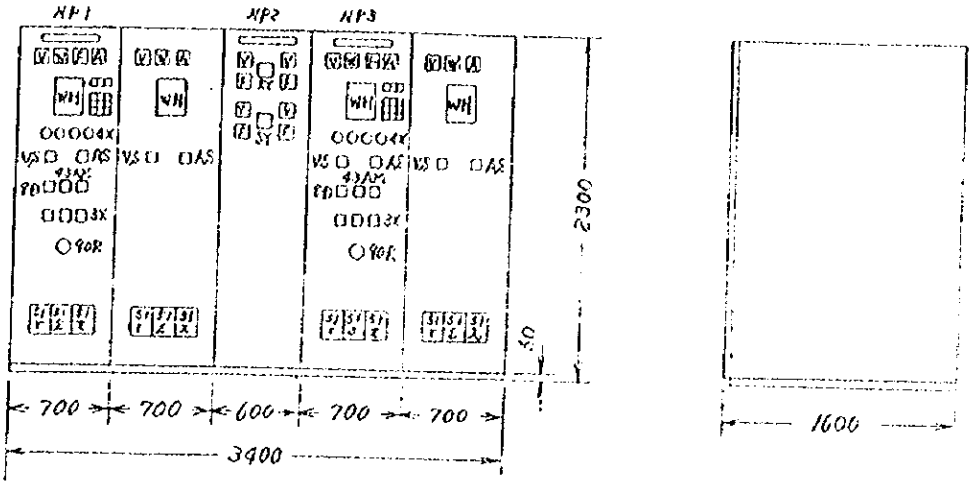
	凡例 INTRODUCTORY REMARKS
	PRESSURE REGULATOR
	MAGNETIC VALVE
	HAND VALVE
	圧力計（二次圧検出用） PRESSURE GAUGE

備考

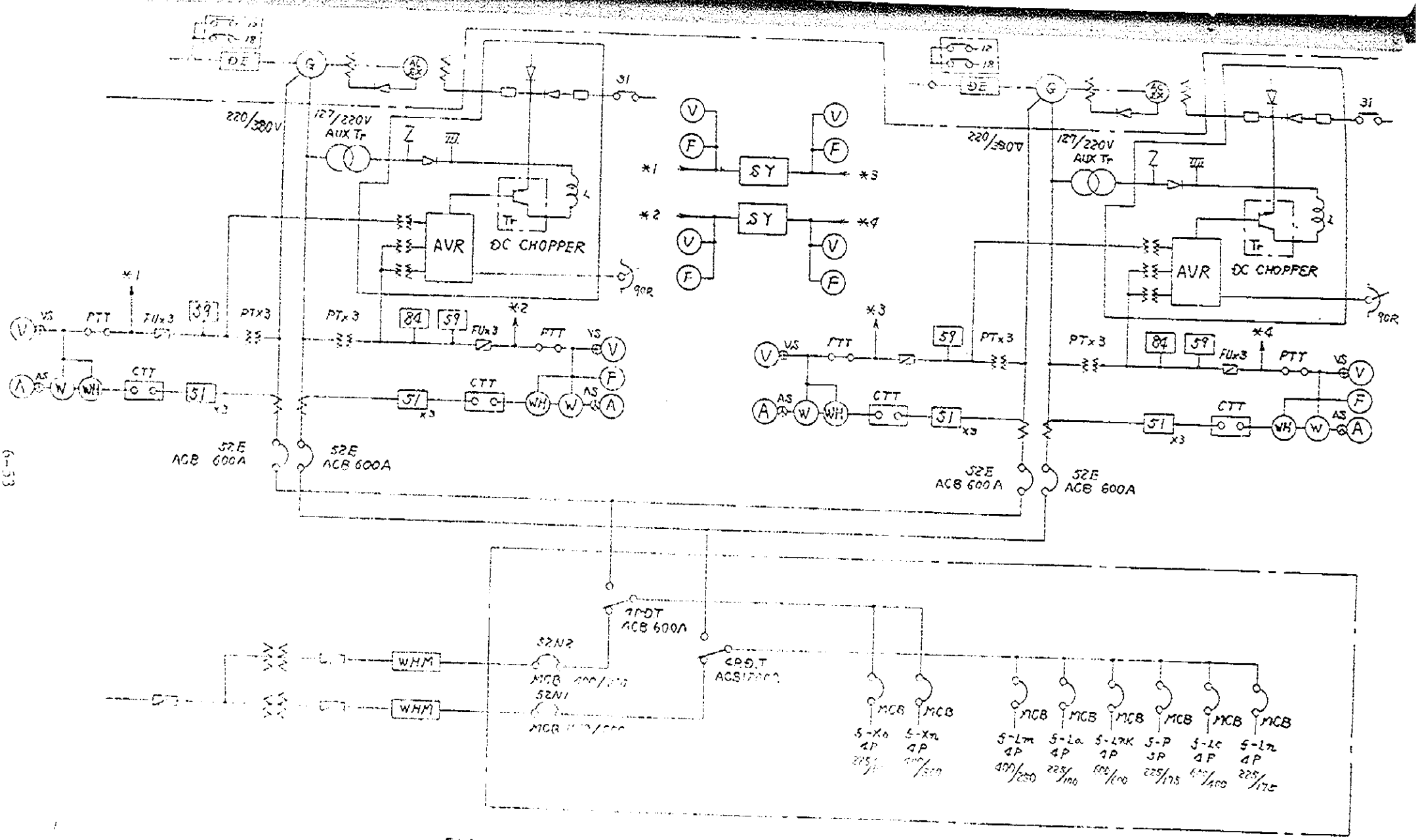
1. [illegible]

REMARK

1. THE MAGNET VALVE OPEN WHEN [illegible]



Symbol	Description
NP 1	Name plate 1 「No.1 Generator Panel」
NP 2	〃 2 「Synchronizing Panel」
NP 3	〃 3 「No.2 Generator Panel」
A	AC ammeter
W	Indicating Watt Meter
F	Frequency Meter
V	AC voltmeter
WH	Electric Energy Meter
43AM	Control Switch (Automatic - Manual)
88	〃 (Control Power Source)
90 R	Voltage adjust
51r (S.t)	Overcurrent Relay
3X	Push Button Switch (Lamp Test)
3X	〃 (Trouble Return)
3X	〃 (Alarm Stop)
SY	Synchronizing Meter



FLOW SHEET OF 175 KVA X 2 WIRING

Special Specifications of Independent

Power Plant Facilities Works

1. To Ujung Pandang

2. Matters to Apply

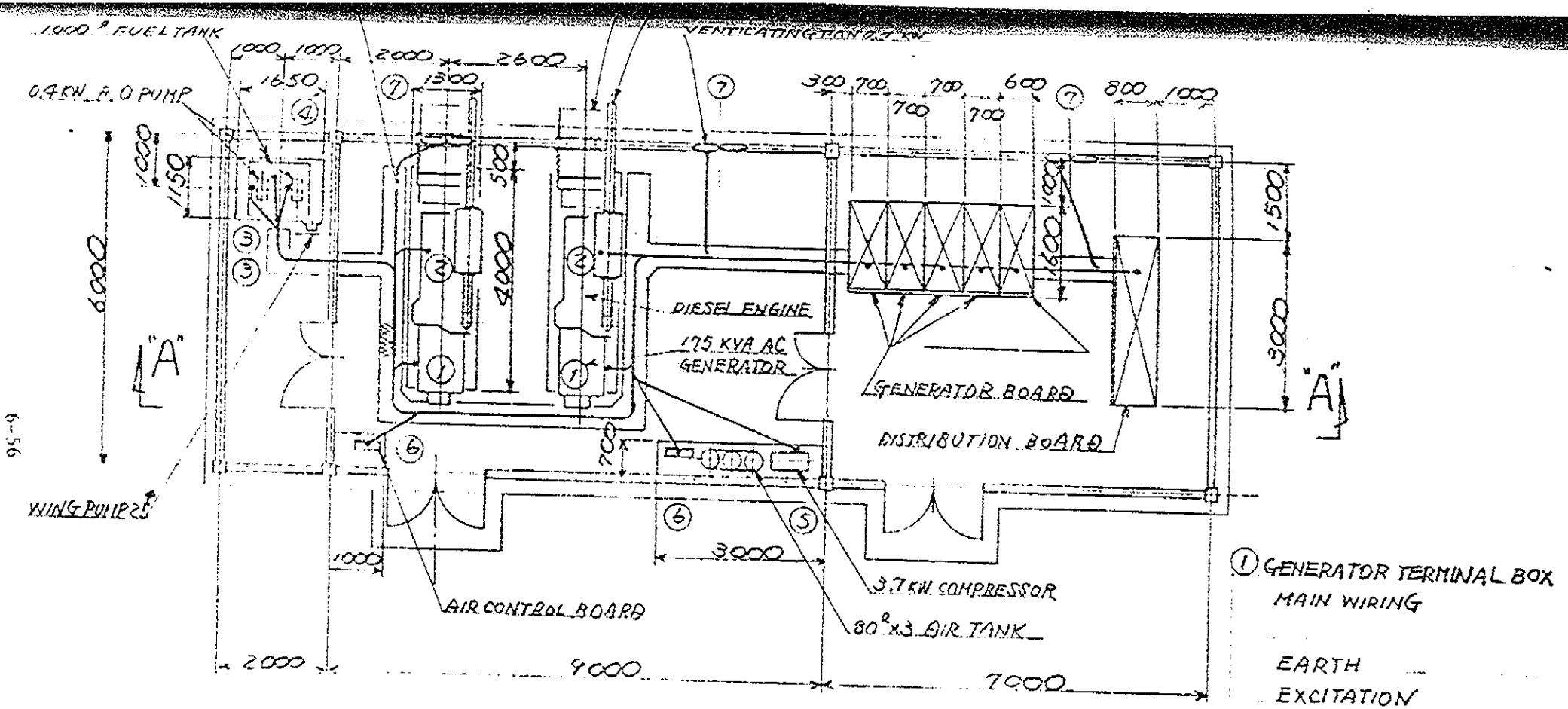
Matters which are not mentioned in this specifications and drawing should be according to the common specifications of Independent Power Plant Facilities Works.

3. Specifications of Independent Power Plant Facilities

Parallel Operation of Synchronism Indicator

AC Generator	Type	Horizontal Synchronous AC Generator
	Rated Output	175 KVA x 2
	Rated Voltage	127/220 V and 220/380V
	Number of phase and frequency	3-phase 4-line system 50Hz
	R. P. M.	Below 1500 r.p.m.
	Power-factor	Above 80%
	Class of Insulation	Above Kind B
	Rated Time	Continuous Rating
	Starting Time	Within 40 seconds
	Excitation System	Brushless System
	Type	Single-acting 4-cycle Diesel Engine
	Rated Output	225 HP x 2

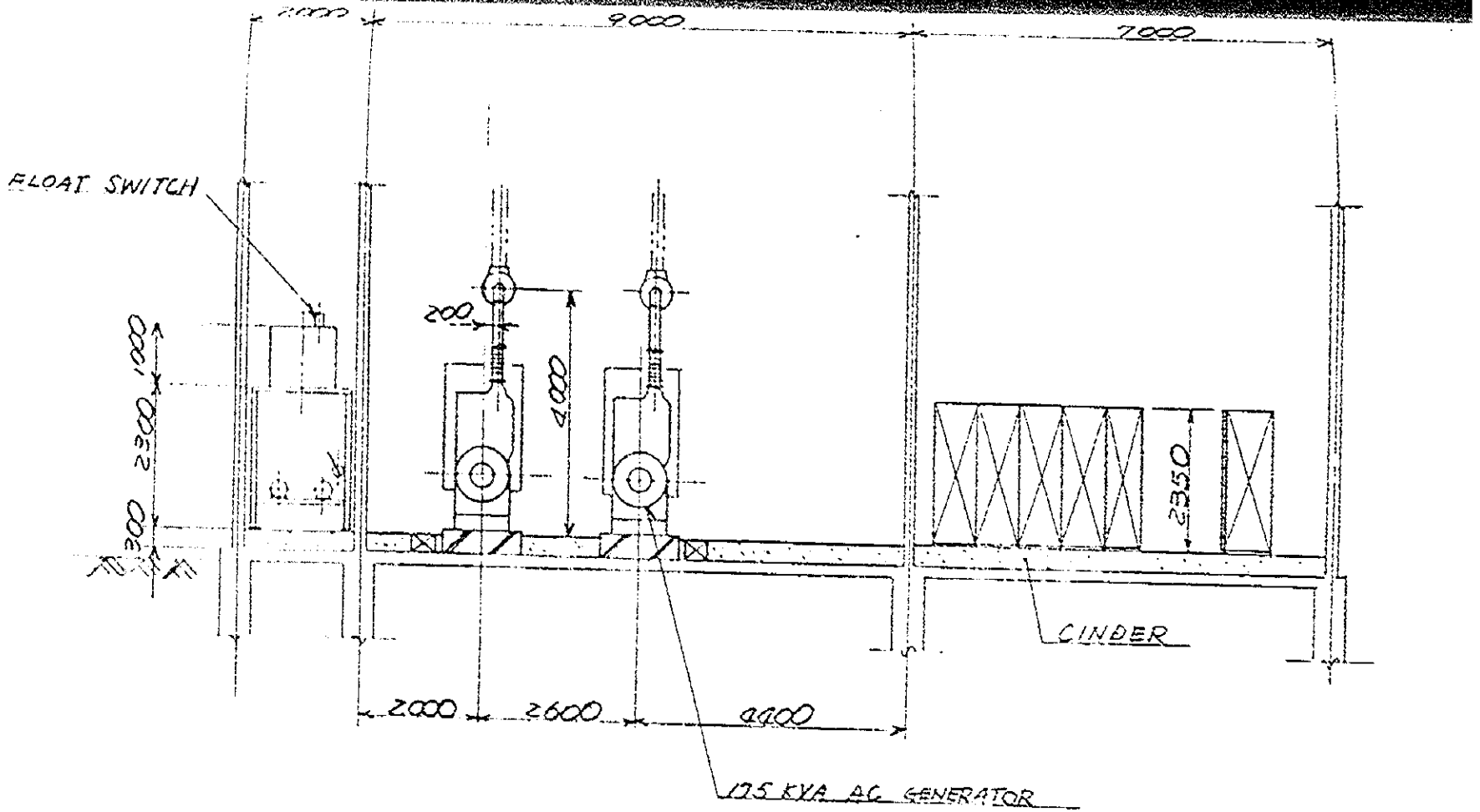
Prime mover	Starting Time	Within 40 seconds
	Starting System	Pneumatic System
	R. P. M.	Below 1500 r.p.m.
	Rated Time	More than 72 hours
	Cooling system	Engine driven
	Air Compressor	3-phase 220/380V 3.7KW
	Air Tank	150 l. with pressure switch
	Inflation Tank	100 l.
Fuel	Kind	A Heavy Oil
	Fuel Tank	1000 l.
	Fuel Pump	3-phase 220/380V 0.4KW
Type of Board		Closed type
Control System		Hand Push Button System
Elevation		150 m
Heat Insulation Plate		Ceiling and Wall of Generator Room
Ventilating Fan		3-phase 220/380V 0.75 with automatic shutter hood
Synchronism System	Type	Manual operation



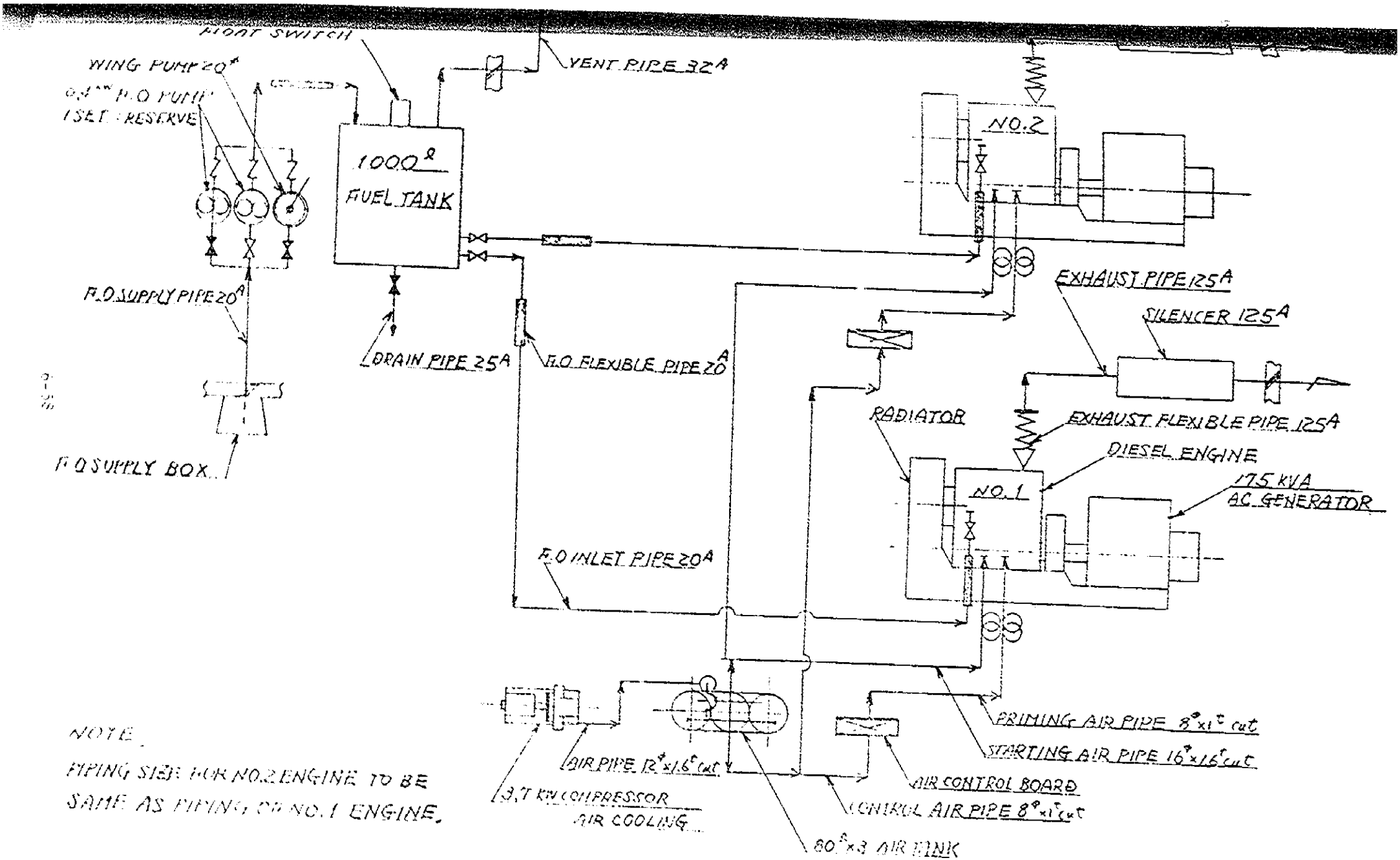
LAY OUT OF 175 KVA GENERATOR ROOM SCALE 1/100

① GENERATOR TERMINAL BOX
MAIN WIRING
EARTH
EXCITATION

② ENGINE TERMINAL BOX
③ FUEL PUMP
④ FLOAT SWITCH
⑤ COMPRESSOR
⑥ AIR CONTROL BORD
⑦ VENTILATION FAN

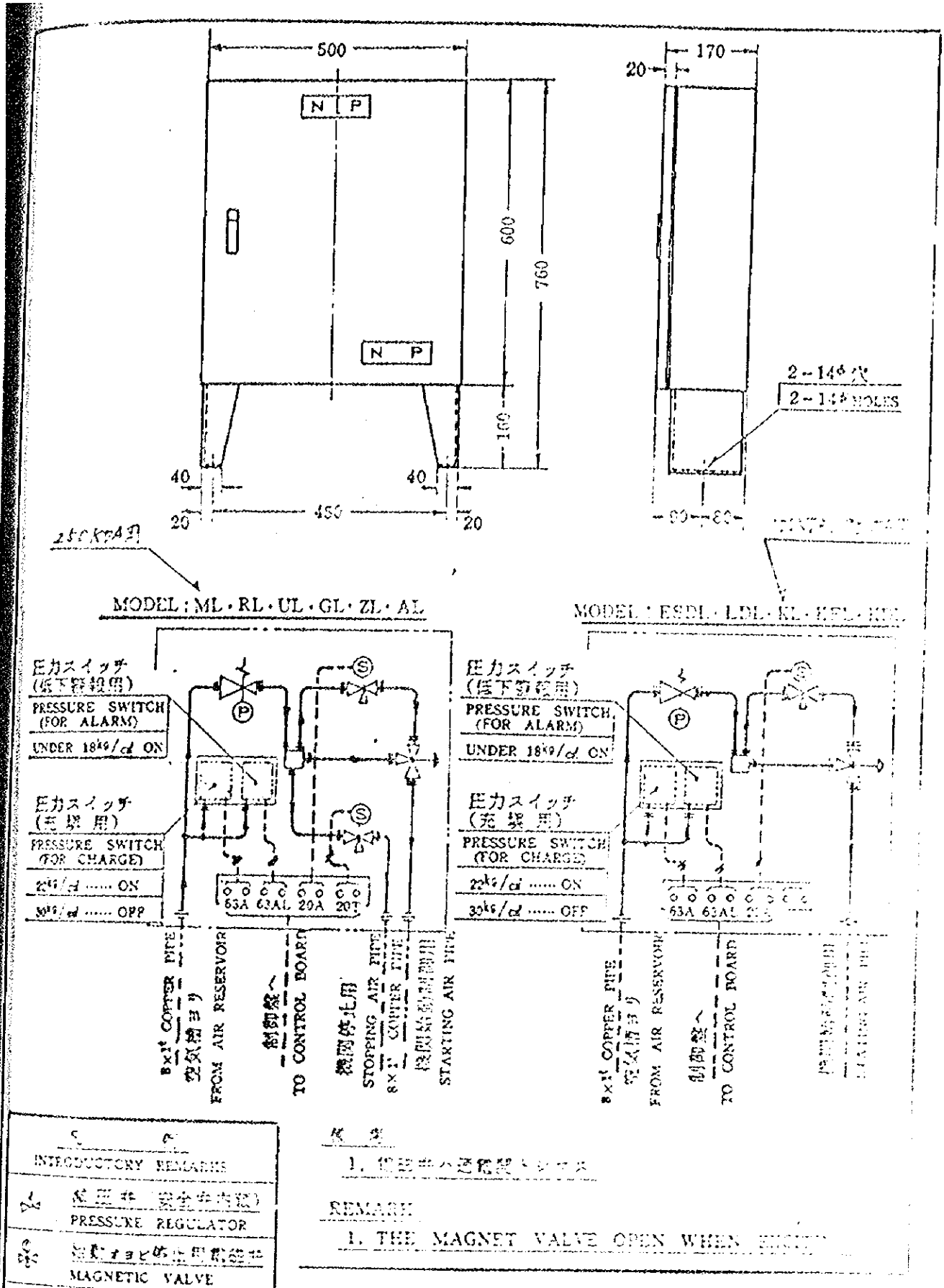

FLOAT SWITCH
200
2350
CINDER
2000
2600
4900
105 KVA AC GENERATOR

"A" ~ "A" SECTION



NOTE.

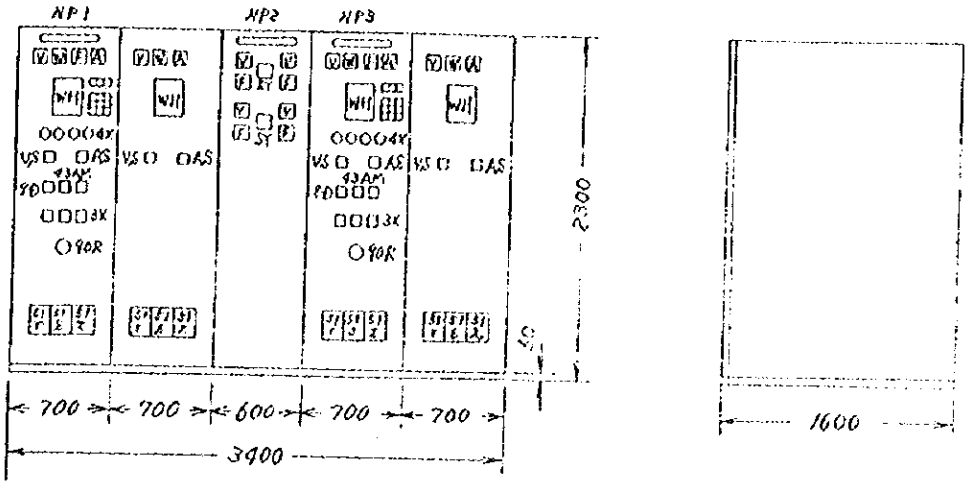
PIPING SIZE FOR NO.2 ENGINE TO BE SAME AS PIPING OF NO.1 ENGINE.



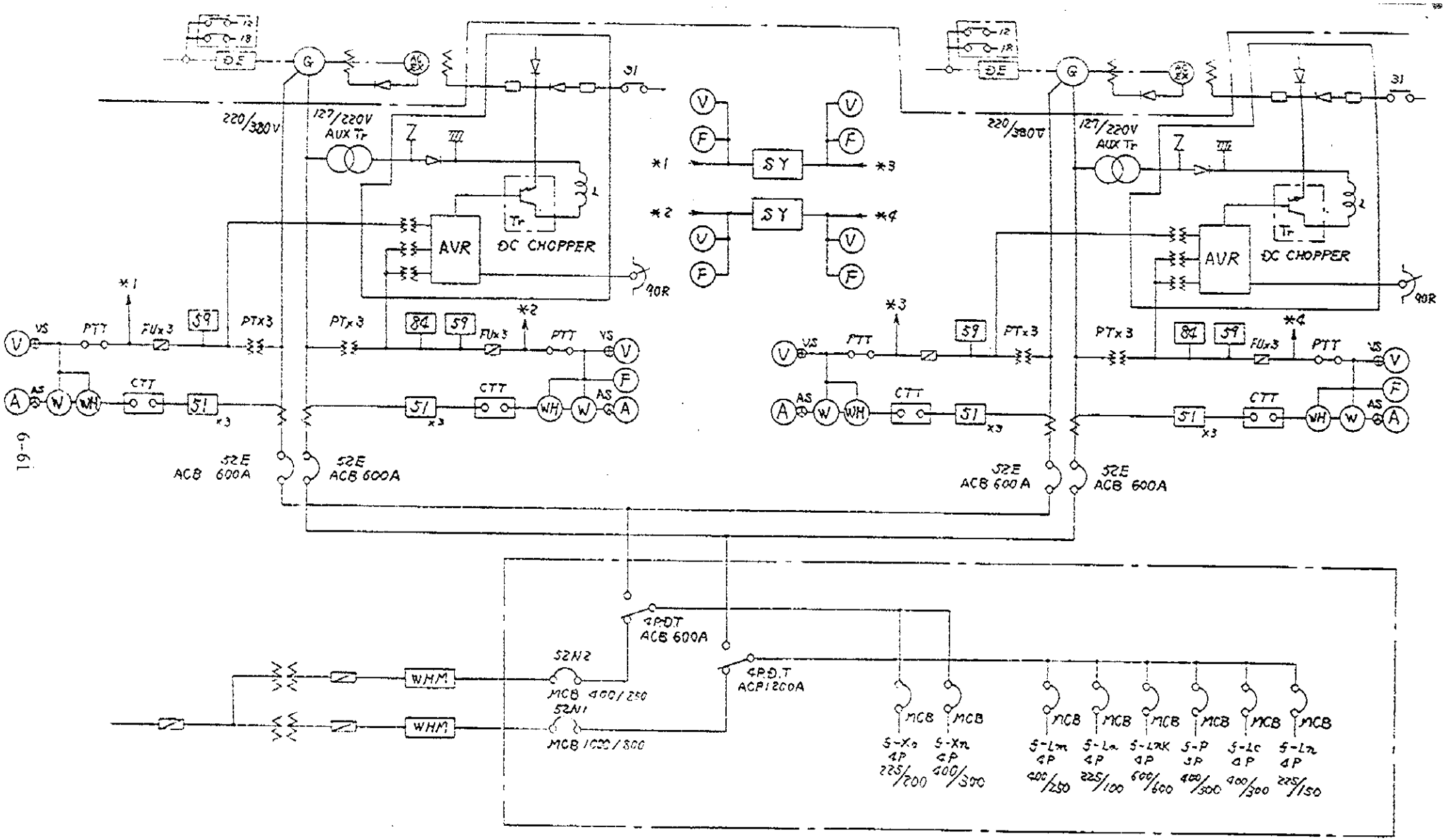
	INTRODUCTORY REMARKS
	PRESSURE REGULATOR
	MAGNETIC VALVE
	HAND VALVE
	PRESSURE GAUGE

REMARK

1. THE MAGNET VALVE OPEN WHEN



Symbol	Description
NP 1	Name plate 1 「No 1 Generator Panel」
NP 2	〃 2 「Synchronizing Panel」
NP 3	〃 3 「No 2 Generator Panel」
A	AC ammeter
W	Indicating Watt Meter
F	Frequency Meter
V	AC voltmeter
WH	Electric Energy Meter
93AM	Control Switch (Automatic - Manual)
88	〃 (Control Power Source)
90 R	Voltage adjust
51r (S.t)	Overcurrent Relay
3X	Push Button Switch (Lamp Test)
3X	〃 (Trouble Return)
3X	〃 (Alarm Stop)
SY	Synchronizing Meter



FLOW SHEET OF 175KVA×2 WIRING

Special Specifications of Independent

, Power Plant Facilities Works

1. [illegible] Medan

2. [illegible]tters to Apply

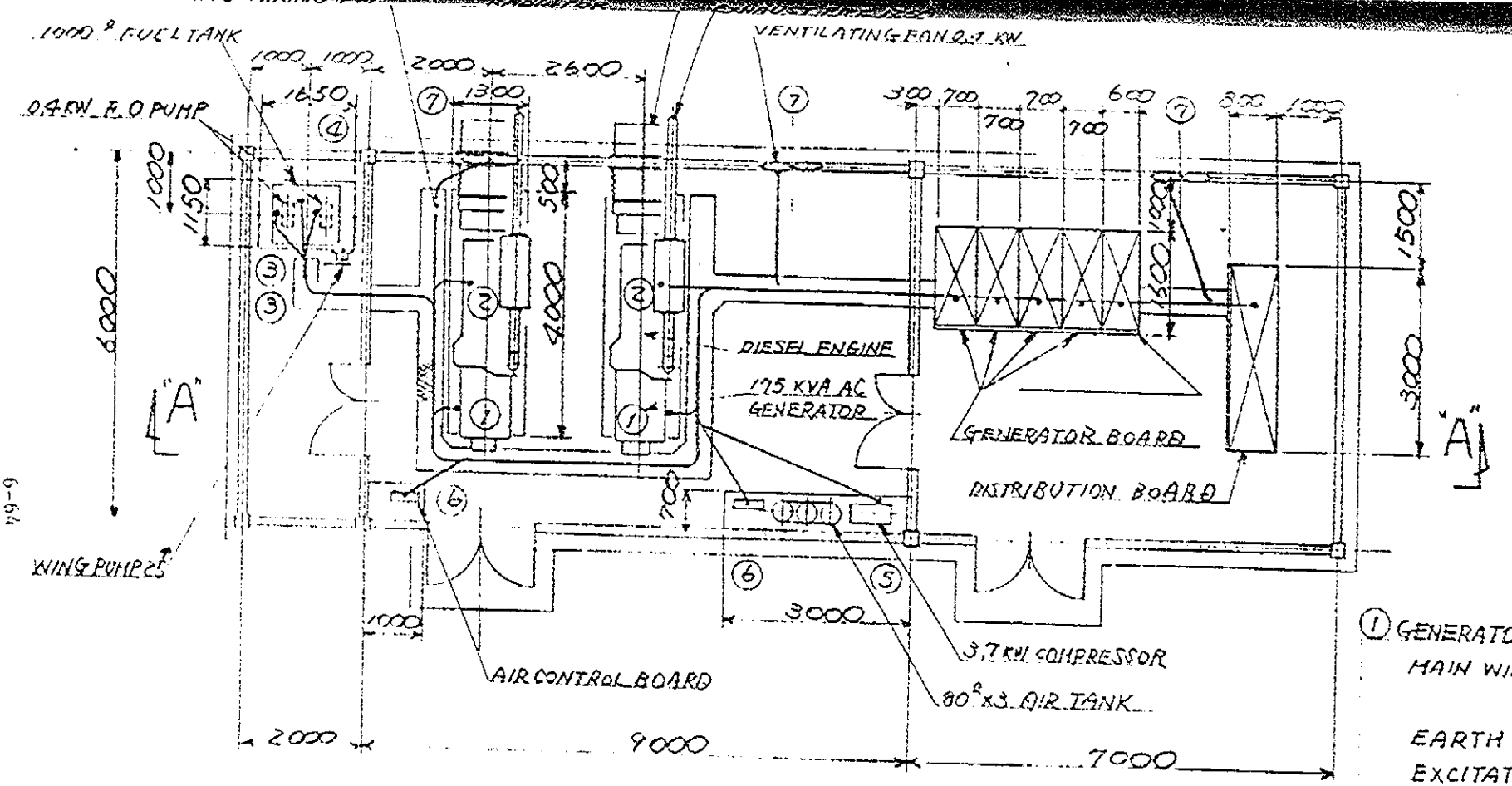
[illegible]tters which are not mentioned in this specifications and drawing should [illegible] according to the common specifications of Independent Power Plant [illegible]cilities Works.

3. [illegible]ecifications of Independent Power Plant Faciliti[illegible]

Parallel Operation of Synchronism Indicator

AC Generator	Type	Horizontal Synchronous AC Generator
	Rated Output	175 KVA x [illegible]
	Rated Voltage	127/220 V and 220/380 [illegible]
	Number of phase and frequency	3-phase [illegible] system 50Hz
	R. P. M.	Below 1500 r.p.m.
	Power-factor	Above 80%
	Class of Insulation	Above Kind B
	Rated Time	Continuous Rating
	Starting Time	[illegible]
	Excitation System	[illegible]
	Type	[illegible]
	Rated Output	[illegible]

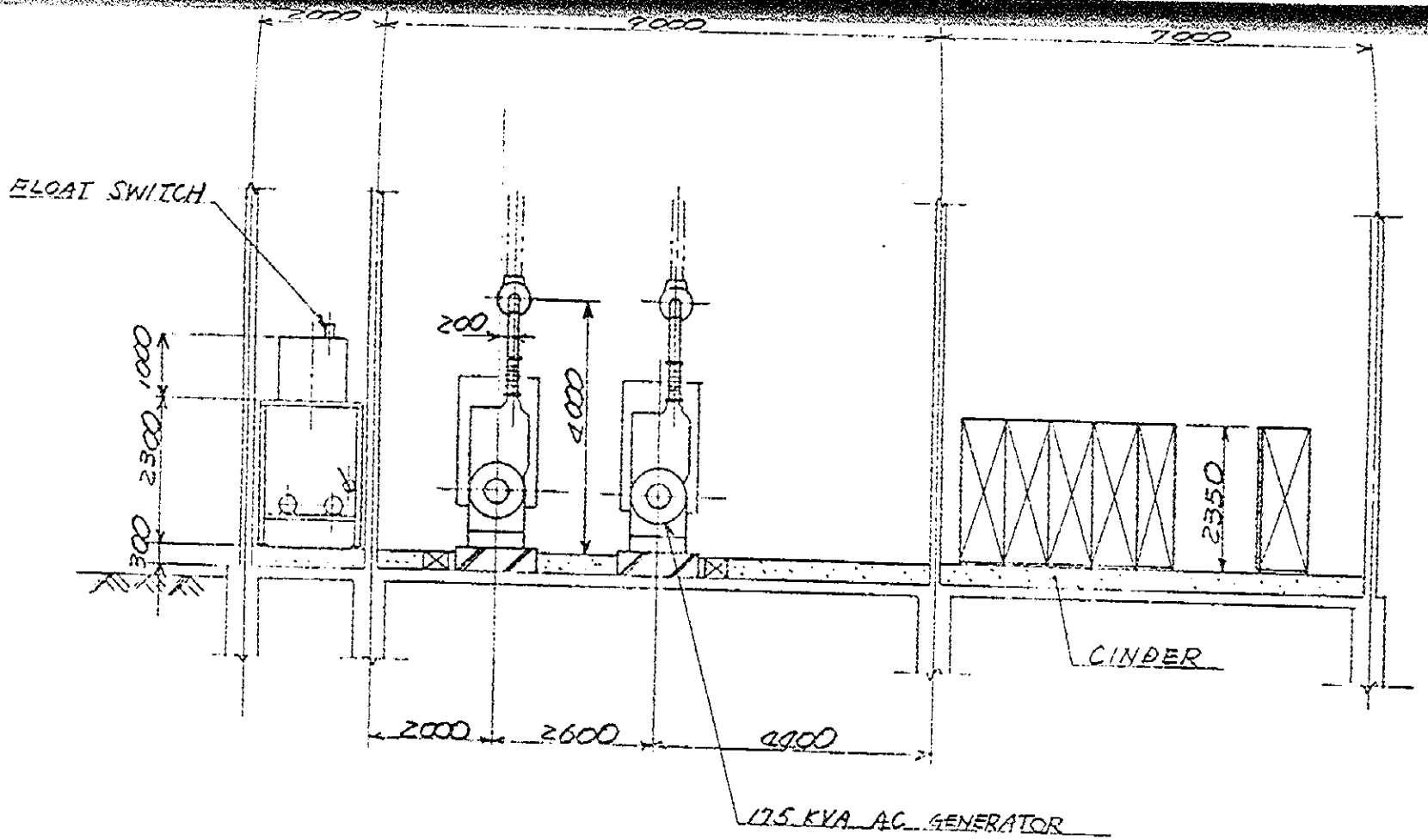
Prime mover	Starting Time	Within 40 seconds
	Starting System	Pneumatic System
	R. P. M.	Below 1500 r.p.m.
	Rated Time	More than 72 hours
	Cooling system	Engine driven
	Air Compressor	3-phase 220/380V 3.7Kw
	Air Tank	150 l. with pressure switch
	Inflation Tank	100 l.
Fuel	Kind	A Heavy Oil
	Fuel Tank	1000 l.
	Fuel Pump	3-phase 220/380V 0.4Kw
Type of Board		Closed type
Control System		Hand Push Button System
Elevation		150 m
Heat Insulation Plate		Ceiling and wall of Generator Room
Ventilating Fan		3-phase 220/380V 0.7Kw With automatic shutter hood
Synchronism System	Type	Manual operation



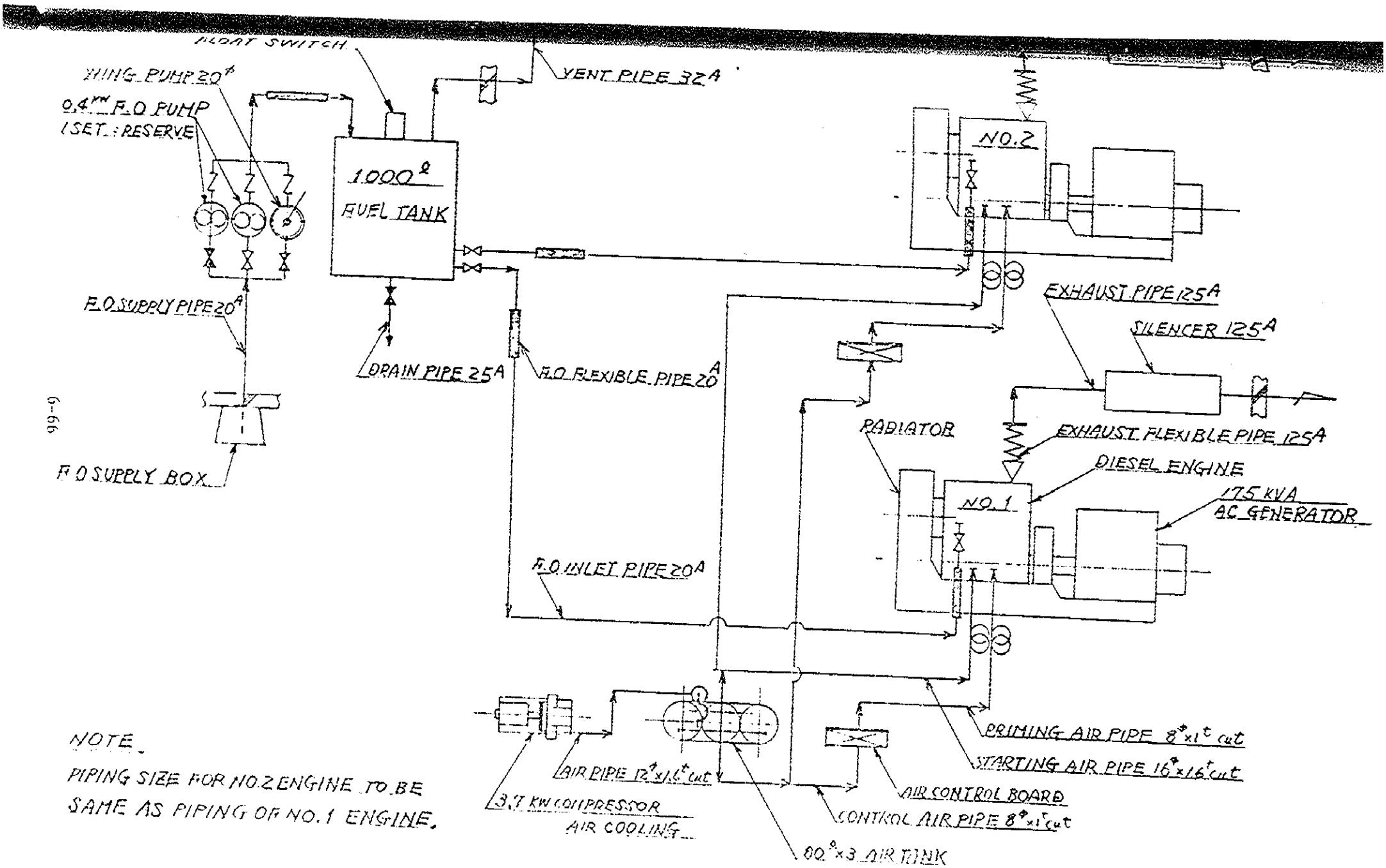
LAY OUT OF 175 KVA GENERATOR ROOM SCALE 1/100

① GENERATOR TERMINAL BOX
MAIN WIRING
EARTH
EXCITATION

② ENGINE TERMINAL BOX
③ FUEL PUMP
④ FLOAT SWITCH
⑤ COMPRESSOR
⑥ AIR CONTROL BORD
⑦ VENTILATION FAN


2000
8000
7000
FLOAT SWITCH
200
1000
2300
300
4000
2350
CINDER
2000
2600
4900
125 KVA AC GENERATOR

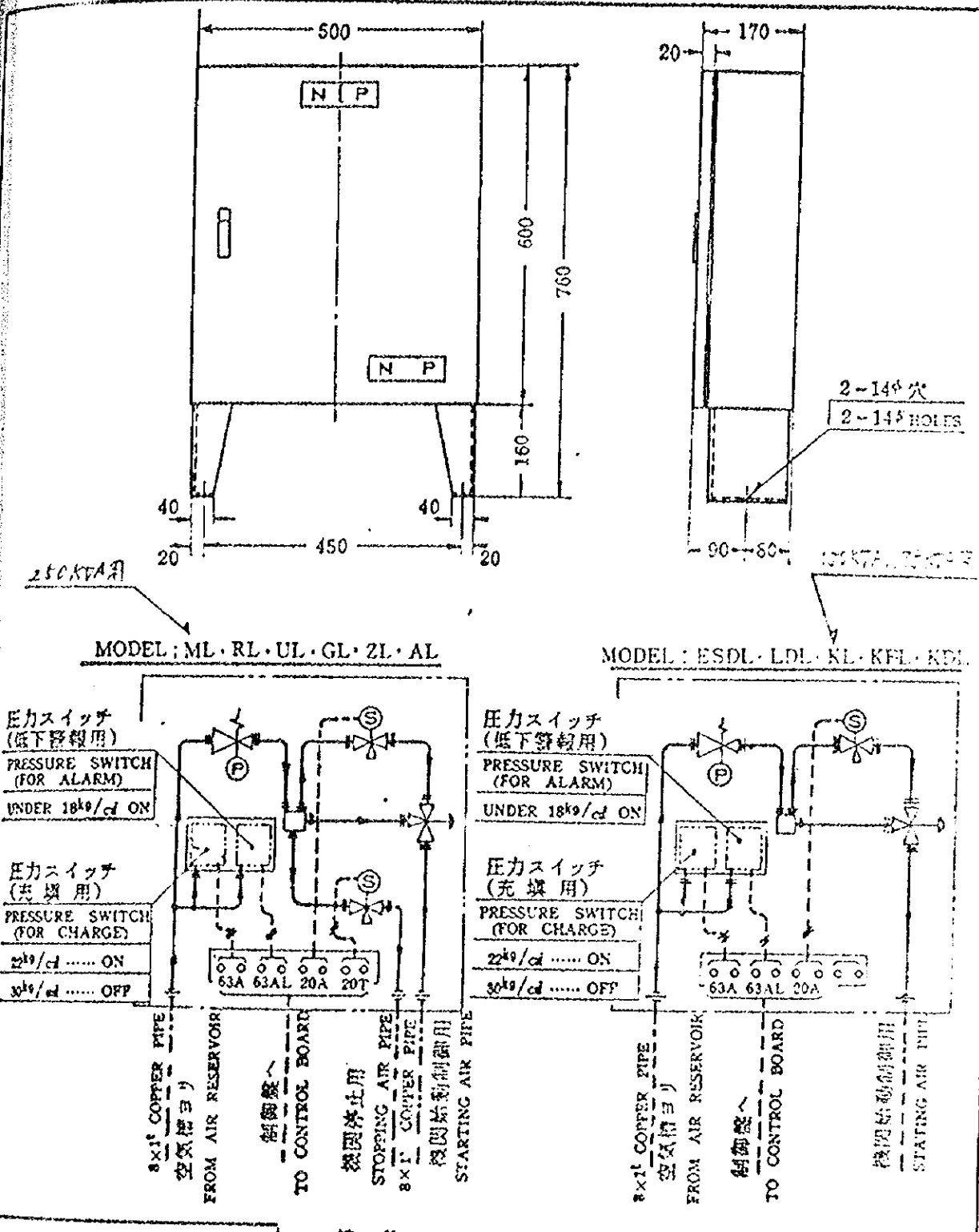
"A"~"A" SECTION



99-9

NOTE.

PIPING SIZE FOR NO.2 ENGINE TO BE SAME AS PIPING OF NO.1 ENGINE.



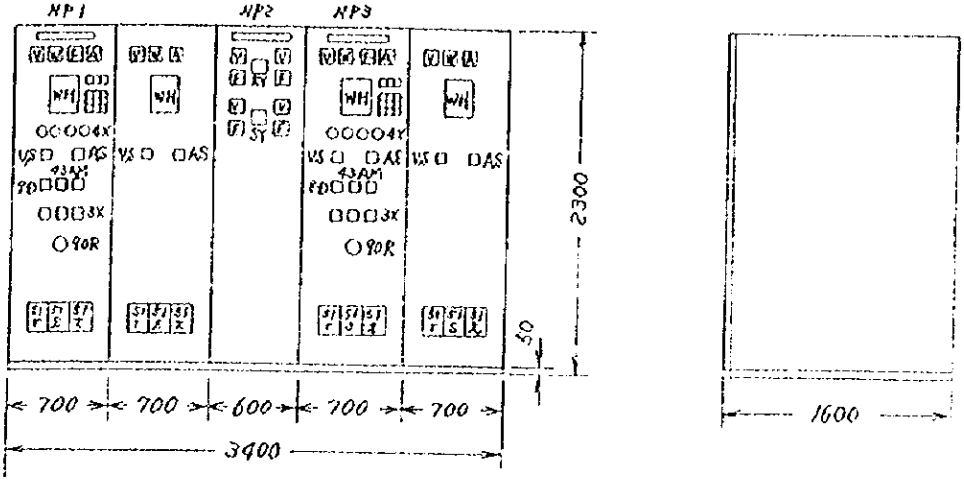
凡例 INTRODUCTORY REMARKS	
	減圧弁（安全弁付） PRESSURE REGULATOR
	始動オヨビ停止用電磁弁 MAGNETIC VALVE
	始動用押釦式手動弁 HAND VALVE
Ⓟ	圧力計（二次圧検出用） PRESSURE GAUGE

備考

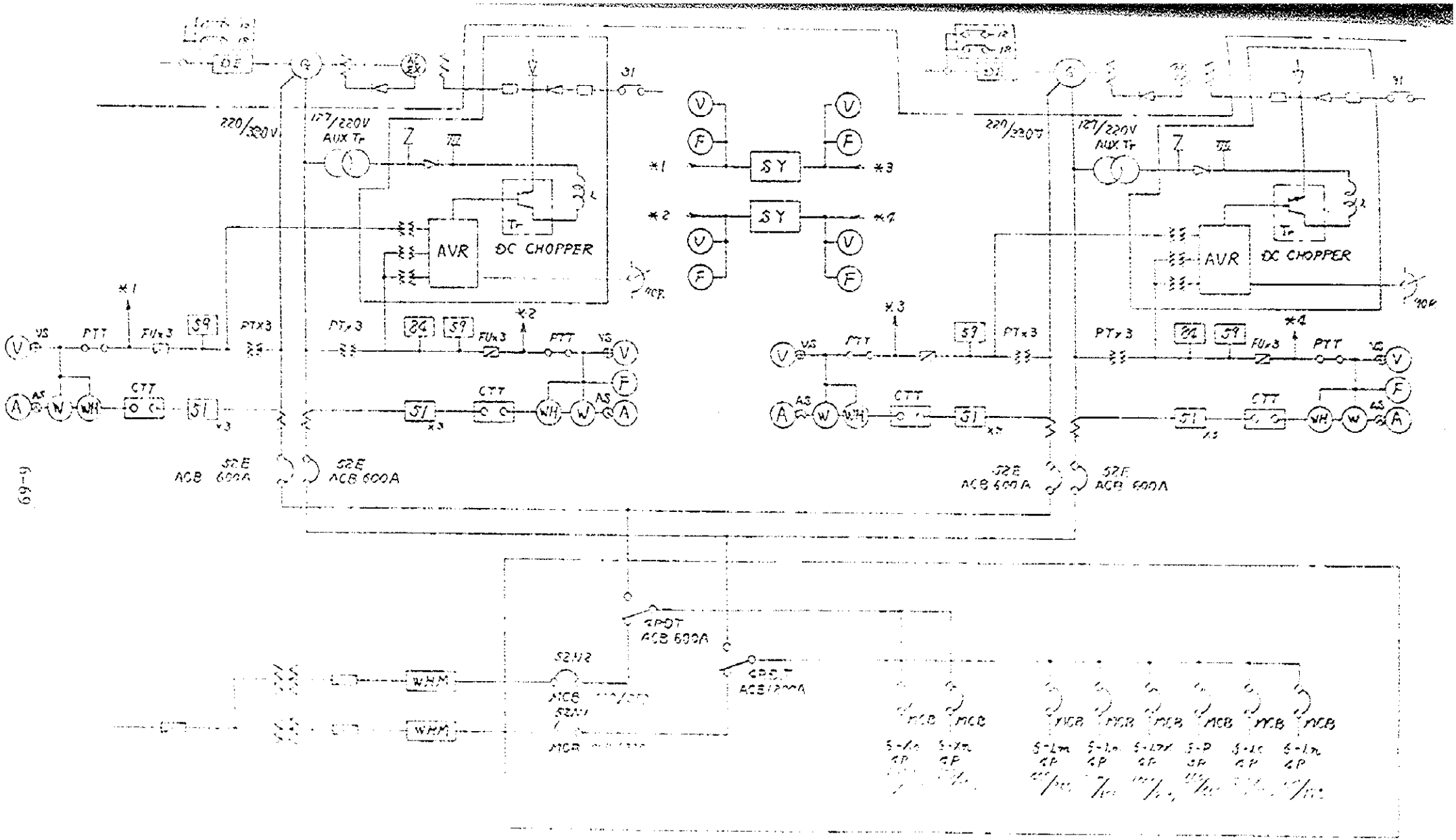
1. 電磁弁ハ通電時ニアキマス

REMARK

1. THE MAGNET VALVE OPEN WHEN EXCITING

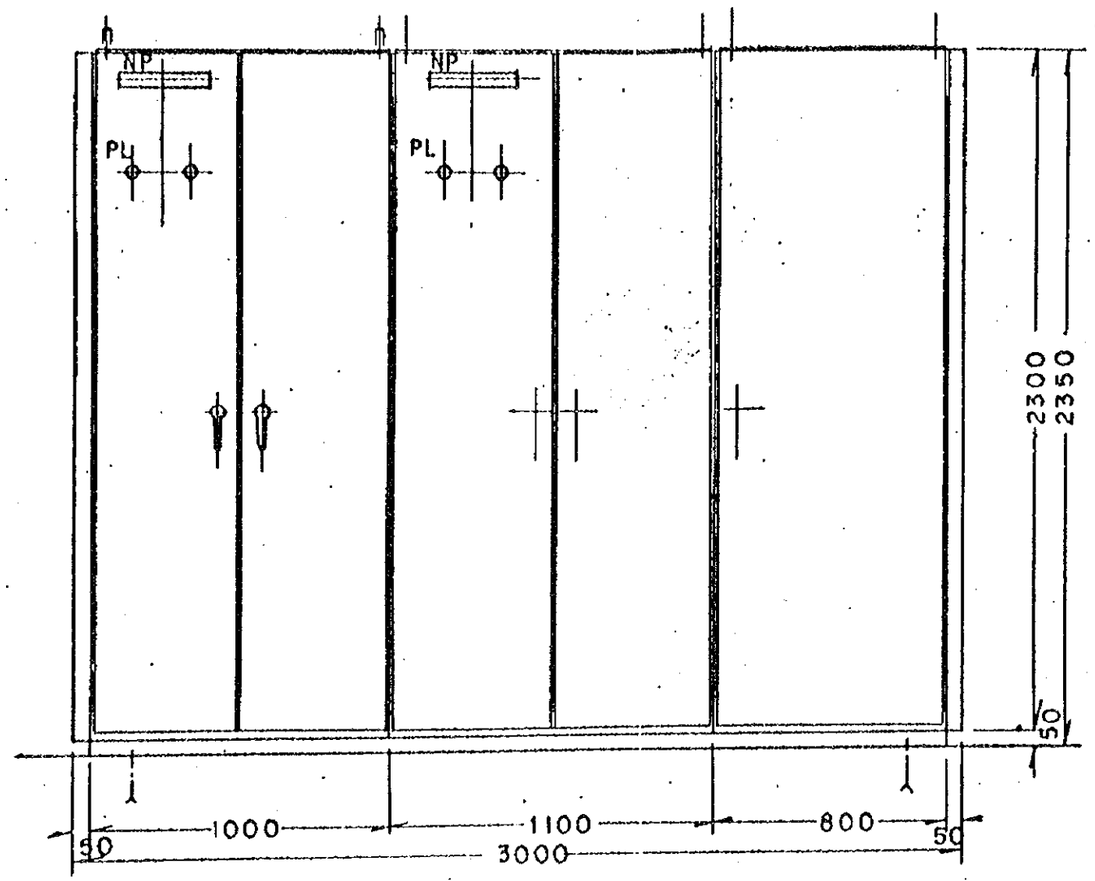


Symbol	Description
NP 1	Name plate. 1 「No.1 Generator Panel」
NP 2	〃 2 「Synchronizing Panel」
NP 3	〃 3 「No.2 Generator Panel」
A	AC ammeter
W	Indicating Watt Meter
F	Frequency Meter
V	AC voltmeter
WH	Electric Energy Meter
43AM	Control Switch (Automatic - Manual)
8D	〃 (Control Power Source)
90 R	Voltage adjust
51r (S.t)	Overcurrent Relay
3X	Push Button Switch (Lamp Test)
3X	〃 (Trouble Return)
3X	〃 (Alarm Stop)
SY	Synchronizing Meter

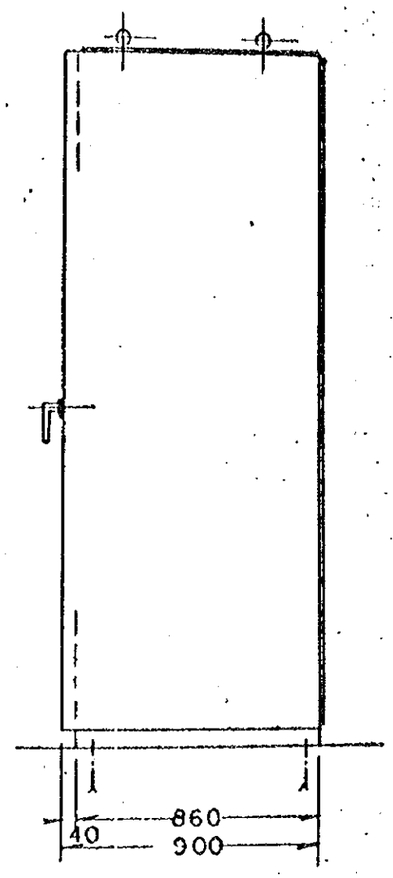


FLOW SHEET OF 175 KVA X 2 PLANT

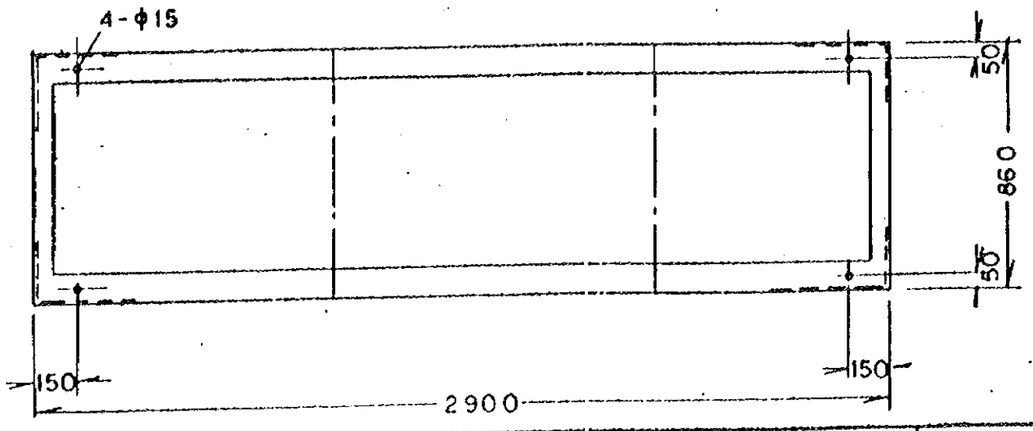
FRONT VIEW



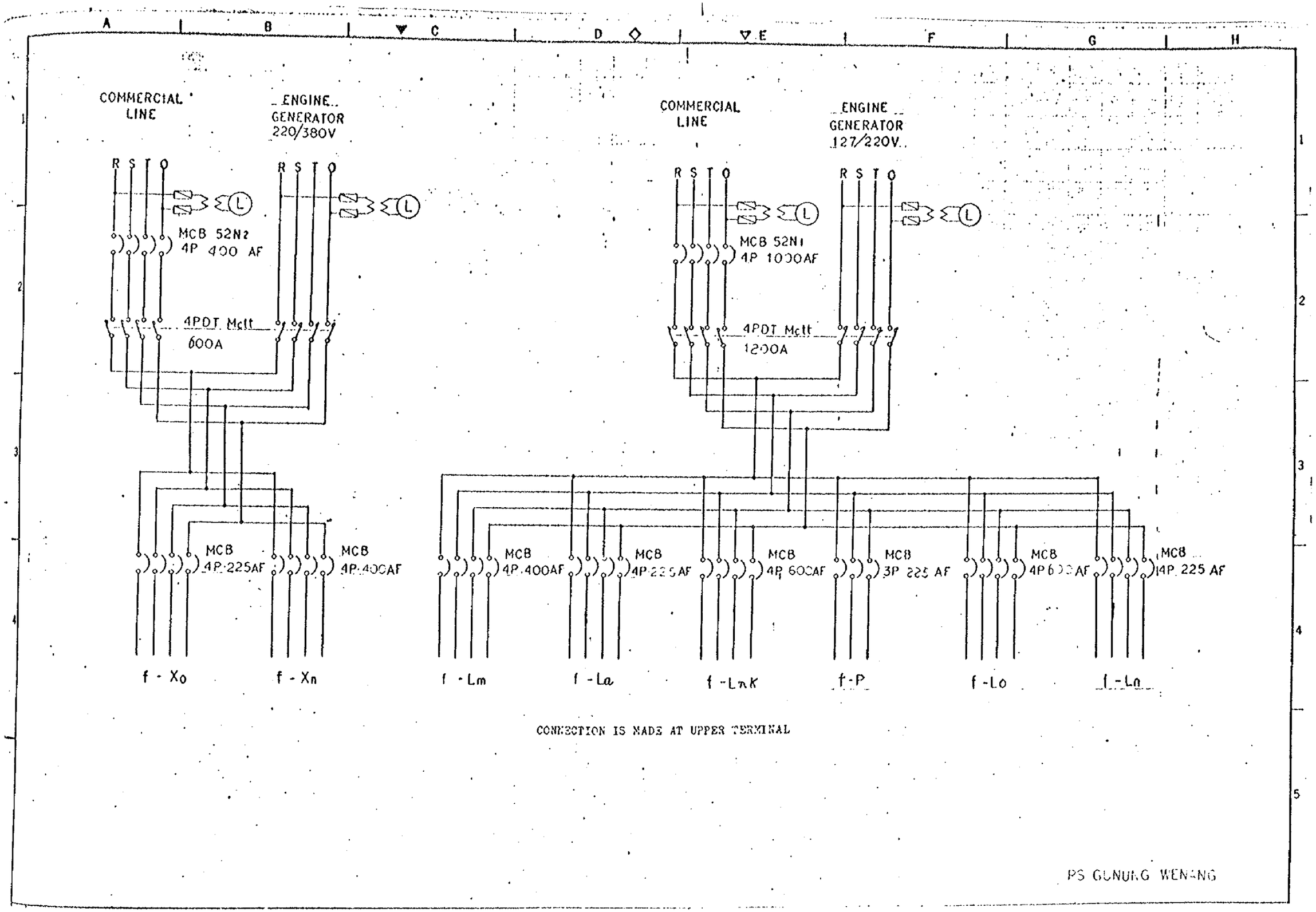
SIDE VIEW



FOUNDATION PLAN



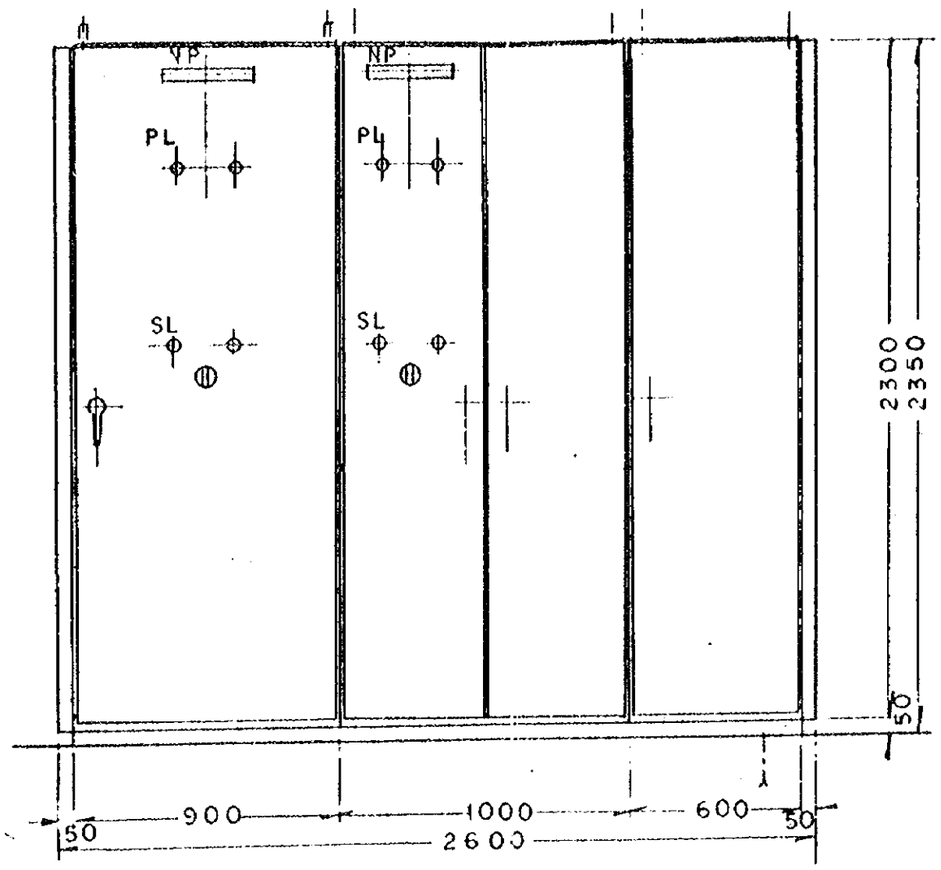
RS GUNUNG WENANG



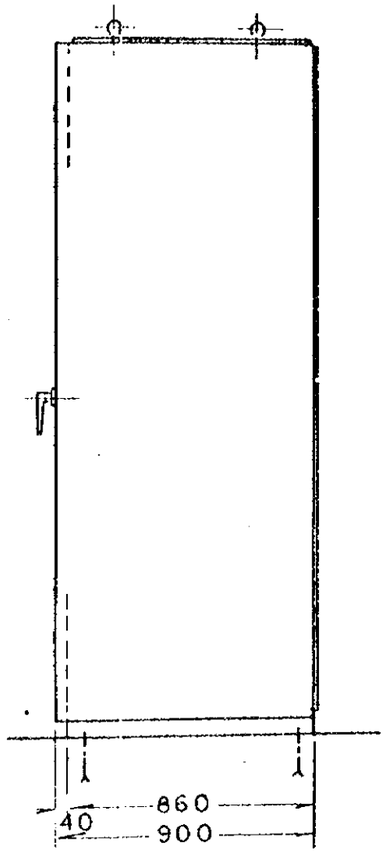
CONNECTION IS MADE AT UPPER TERMINAL

PS GUNUNG WENANG

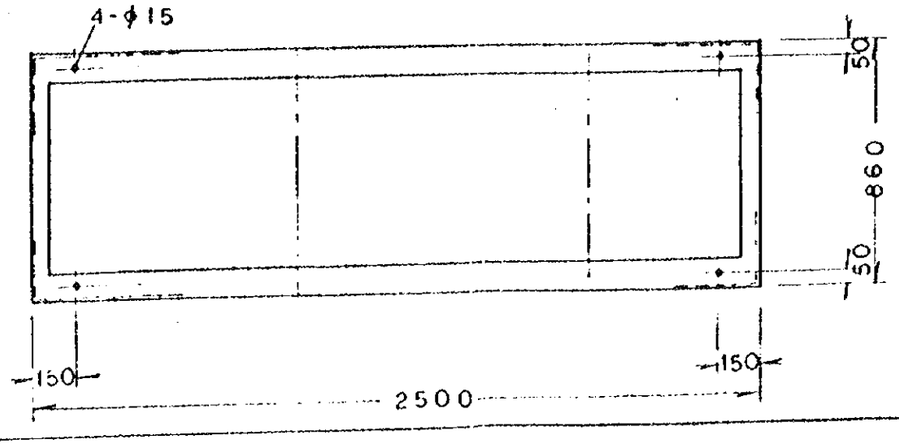
FRONT VIEW



SIDE VIEW

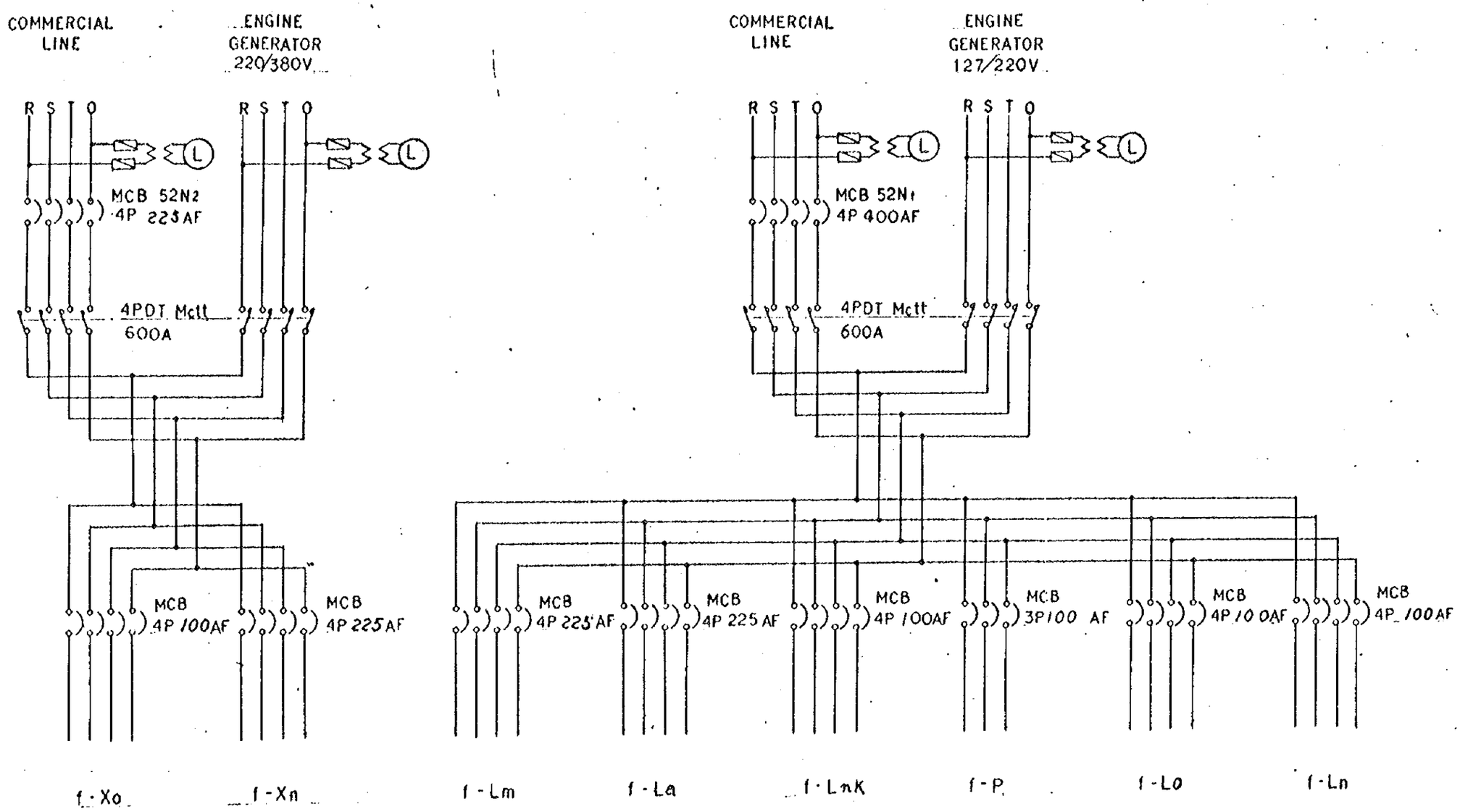


FOUNDATION PLAN



RS TONDANO

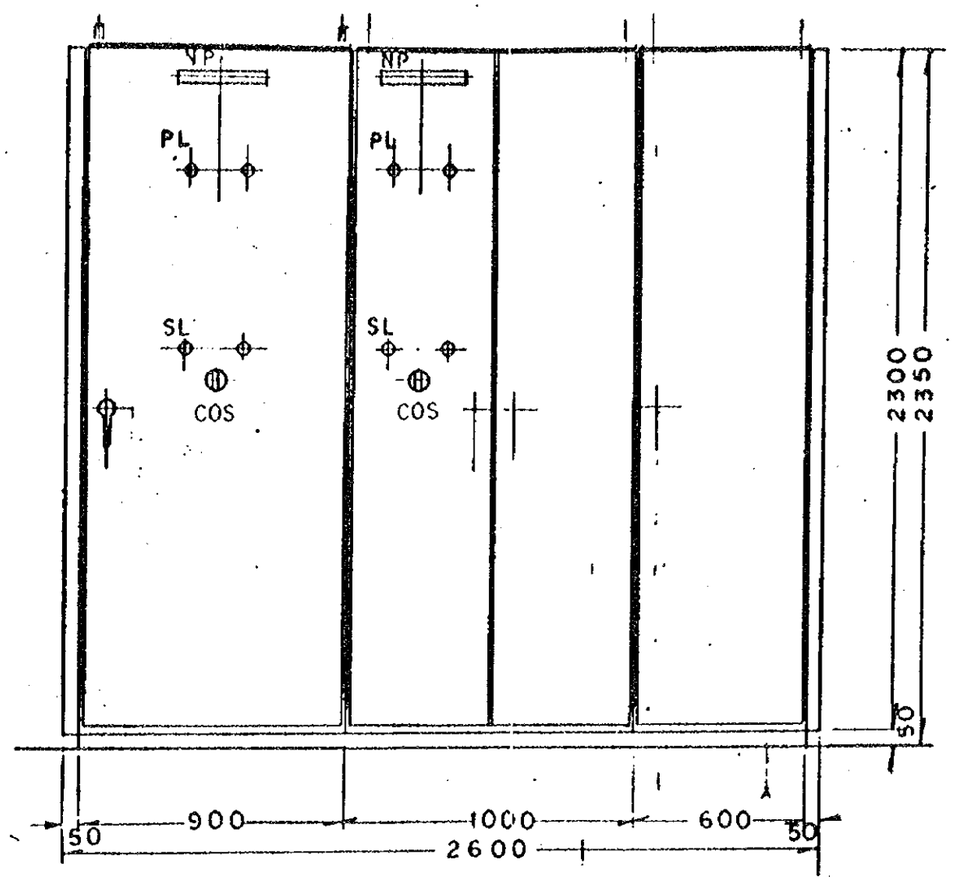
6-72



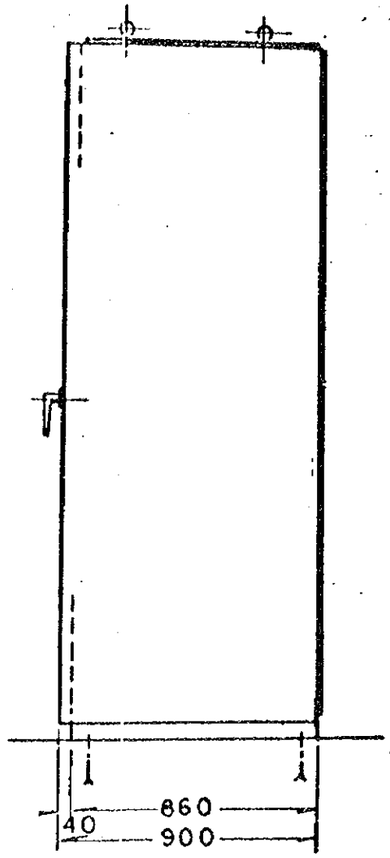
CONNECTION IS MADE AT UPPER TERMINAL

RS TONDANO

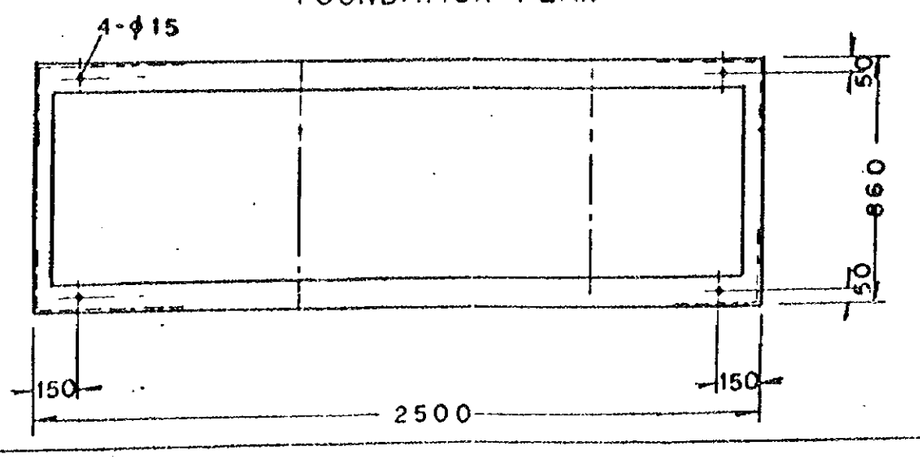
FRONT VIEW



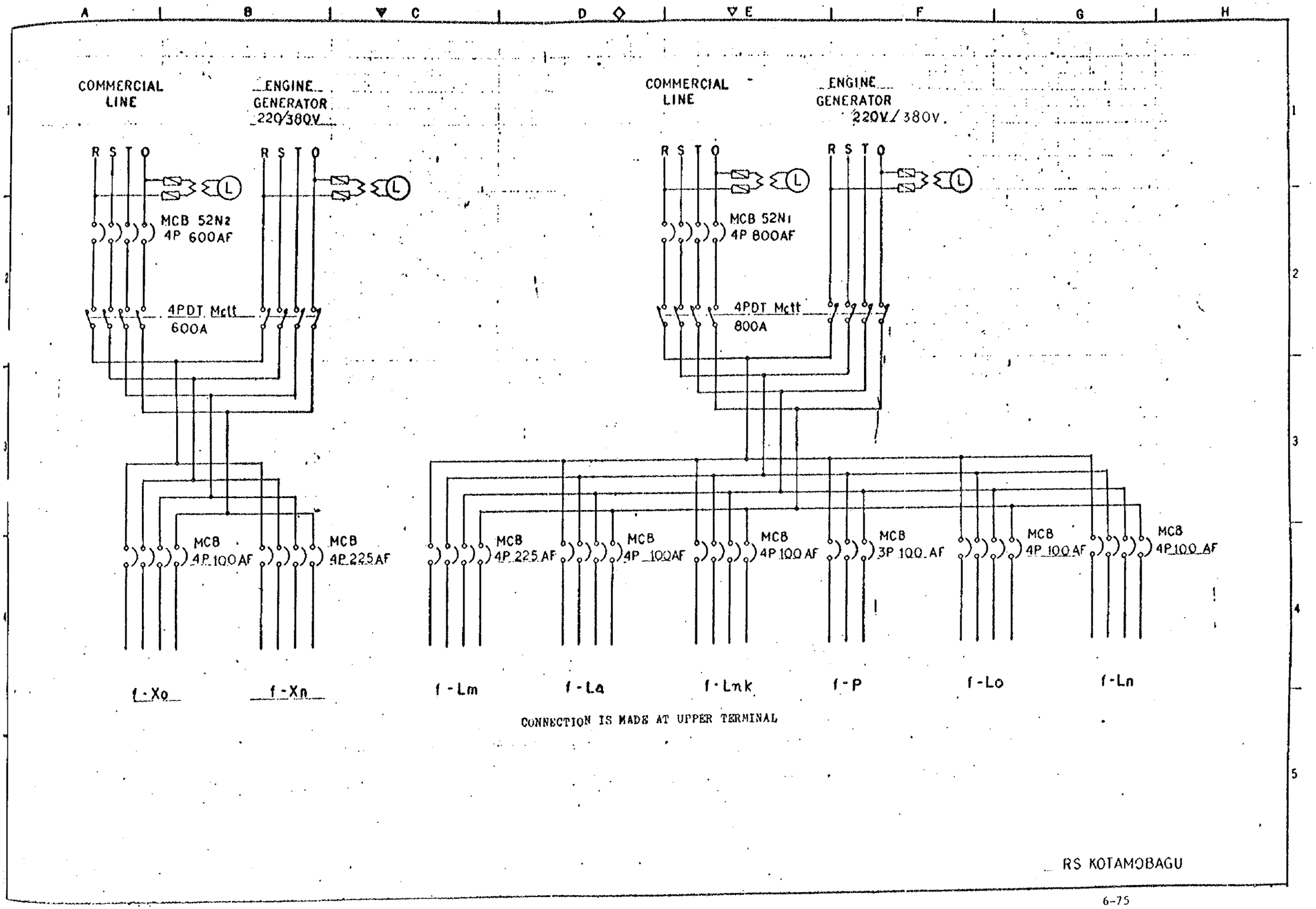
SIDE VIEW



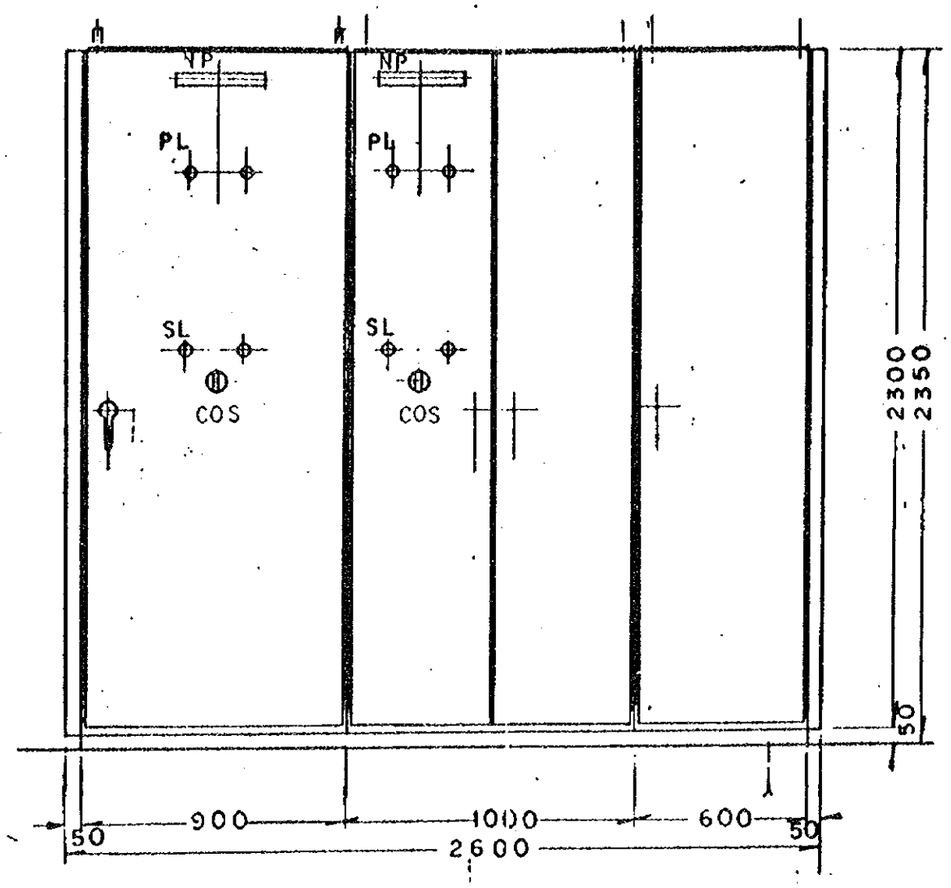
FOUNDATION PLAN



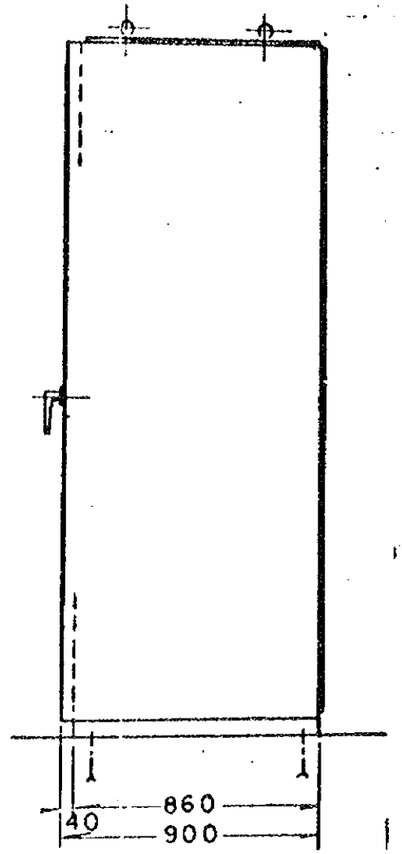
RS KOTAMOBAGU


COMMERCIAL LINE
ENGINE GENERATOR 220/380V
R S T O
L
MCB 52N2 4P 600AF
4PDT Mctt 600A
MCB 4P 100AF
MCB 4P 225AF
f-Xo
f-Xn
COMMERCIAL LINE
ENGINE GENERATOR 220V/380V.
MCB 52N1 4P 800AF
4PDT Mctt 800A
MCB 4P 225 AF
MCB 4P 100AF
MCB 4P 100 AF
MCB 3P 100 AF
MCB 4P 100 AF
MCB 4P 100 AF
f-Lm
f-La
f-Lnk
f-P
f-Lo
f-Ln
CONNECTION IS MADE AT UPPER TERMINAL
RS KOTAMOBAGU

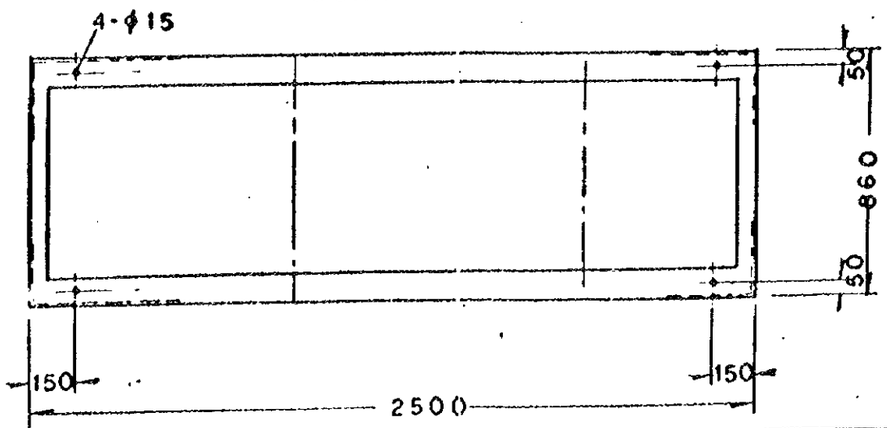
FRONT VIEW



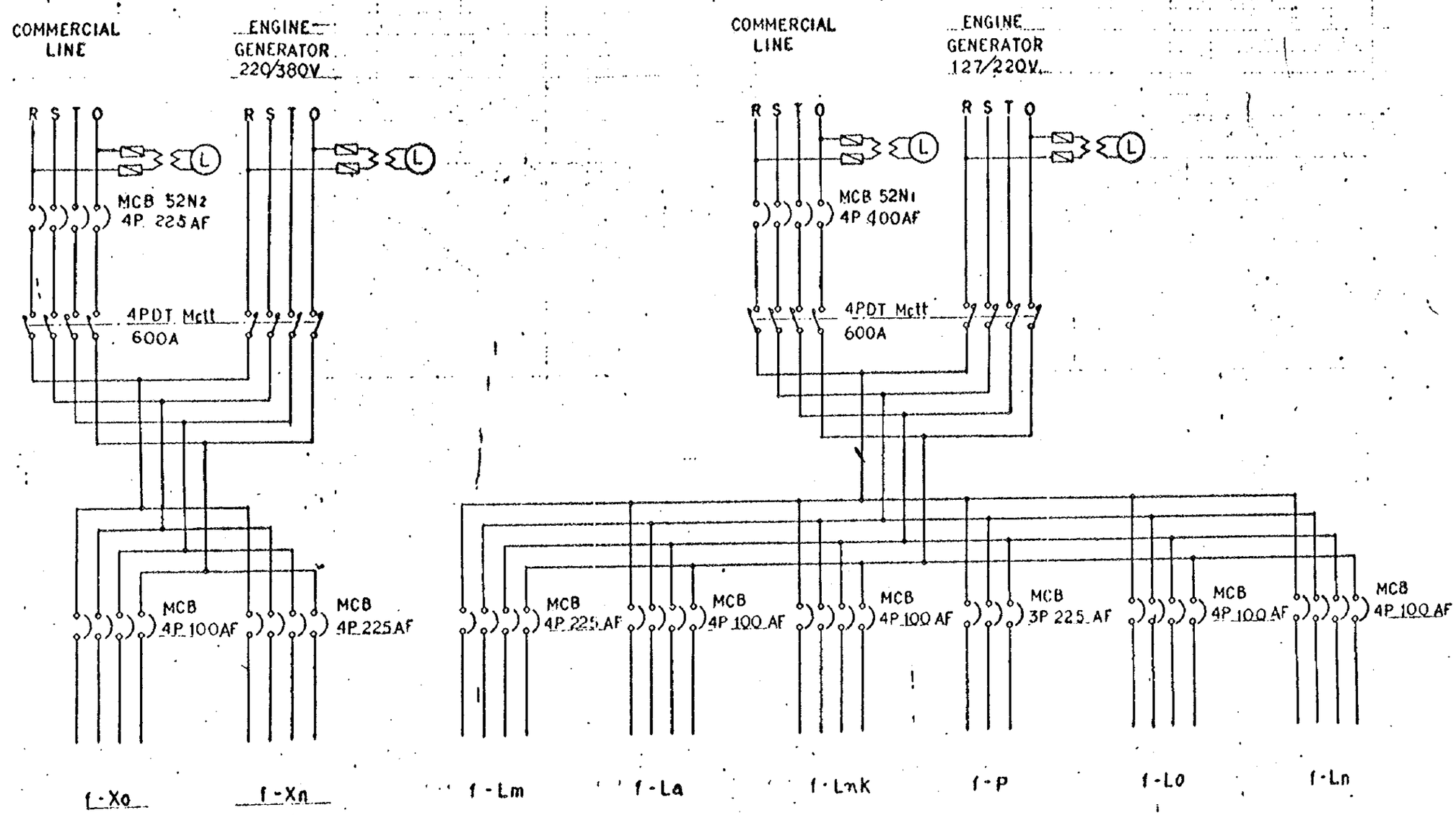
SIDE VIEW



FOUNDATION PLAN



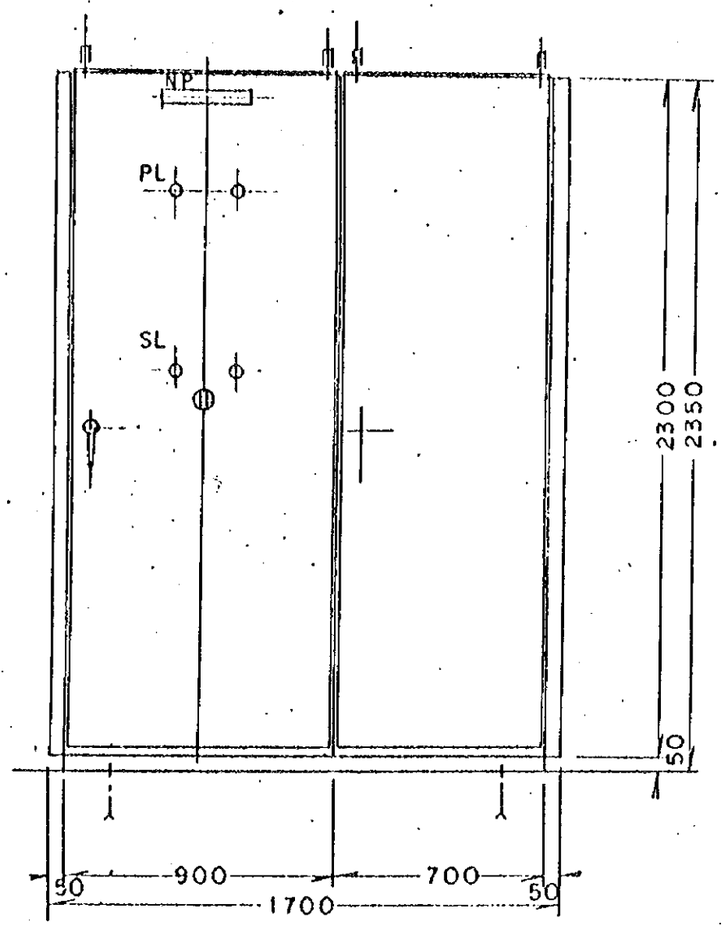
RS GORANTALO



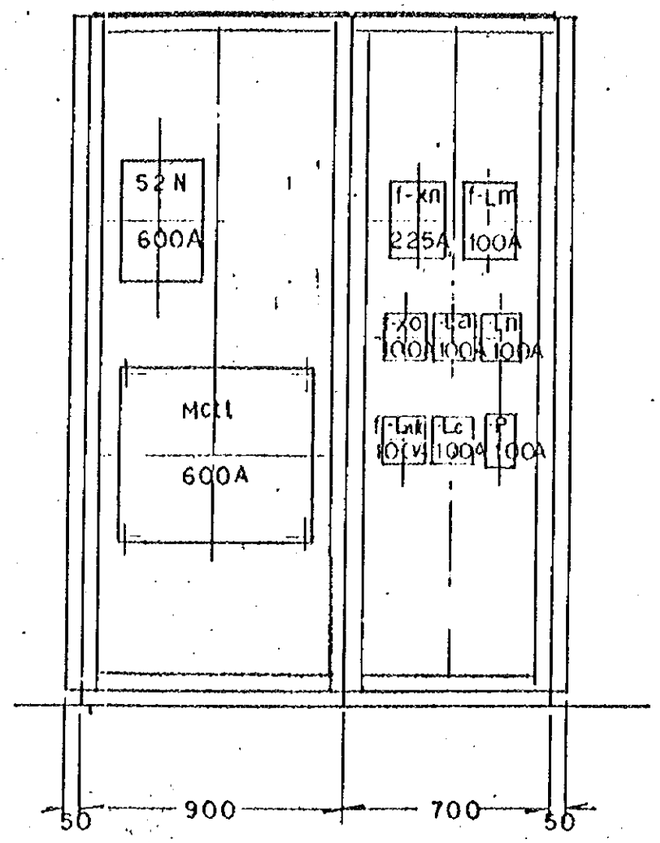
CONNECTION IS MADE AT UPPER TERMINAL

RS GORANTALO

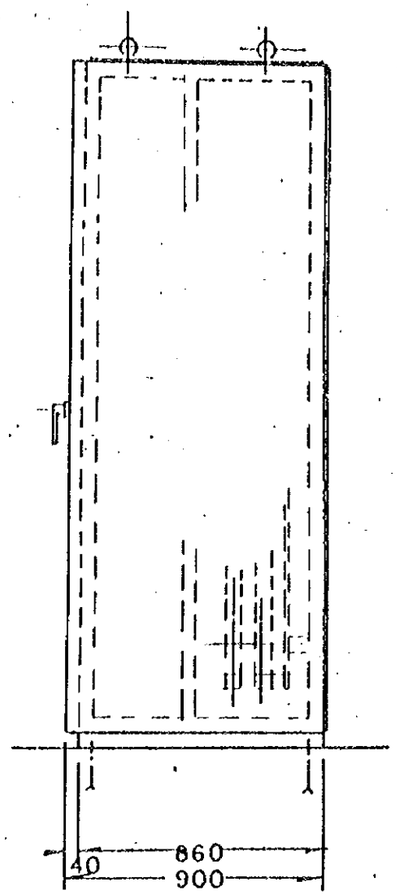
FRONT VIEW



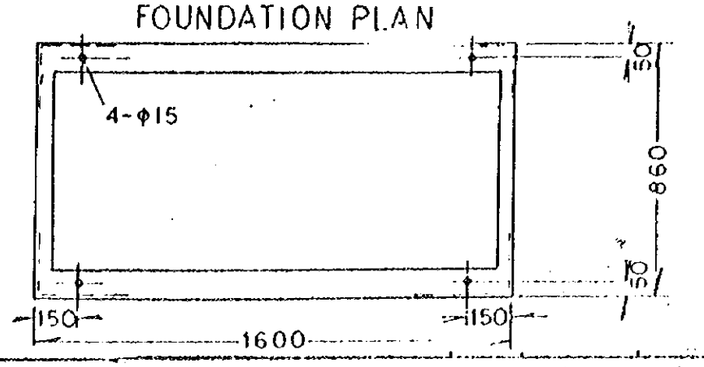
INSIDE FRONT VIEW



SIDE VIEW

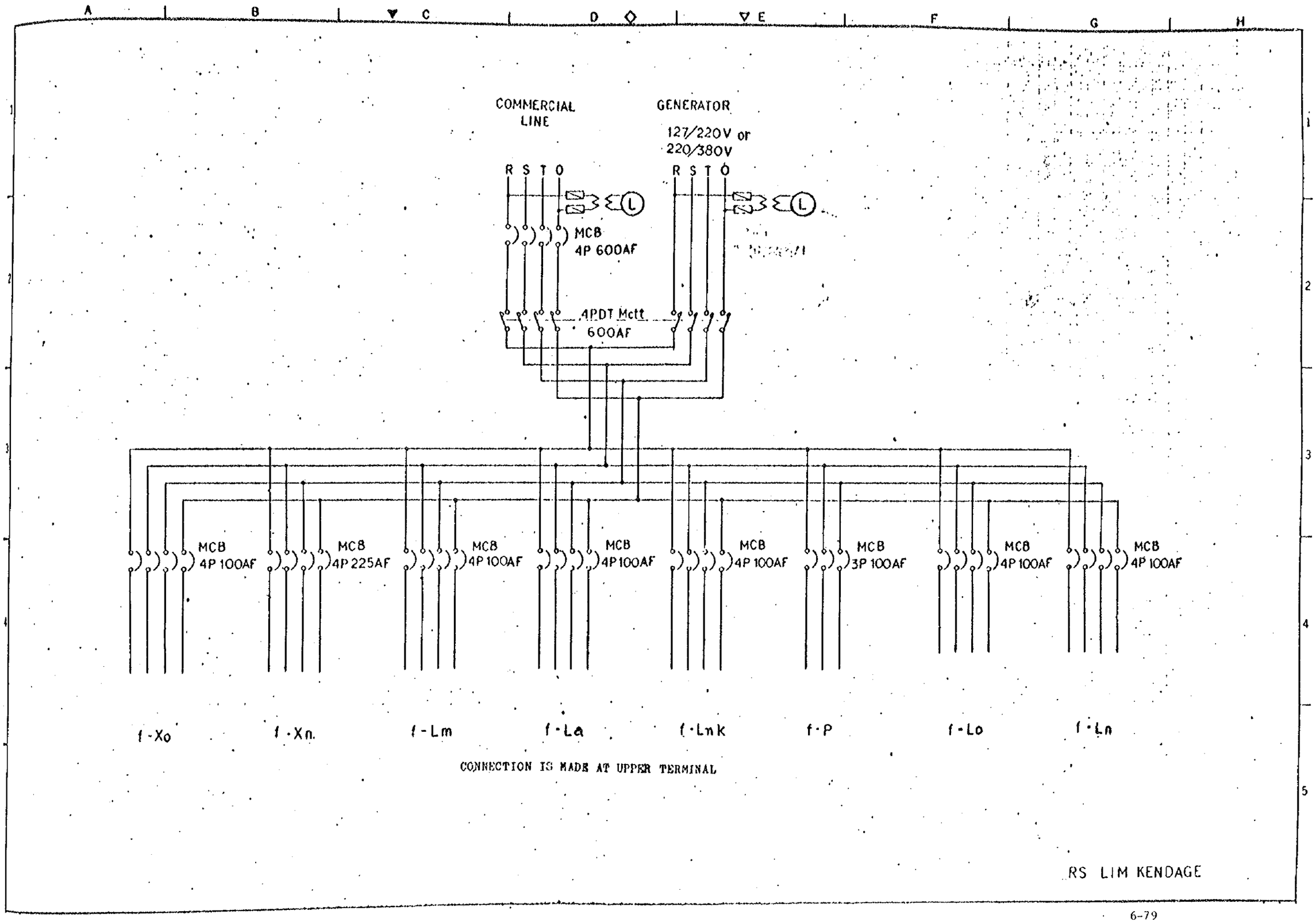


FOUNDATION PLAN



CONNECTION IS MADE AT UPPER TERMINAL

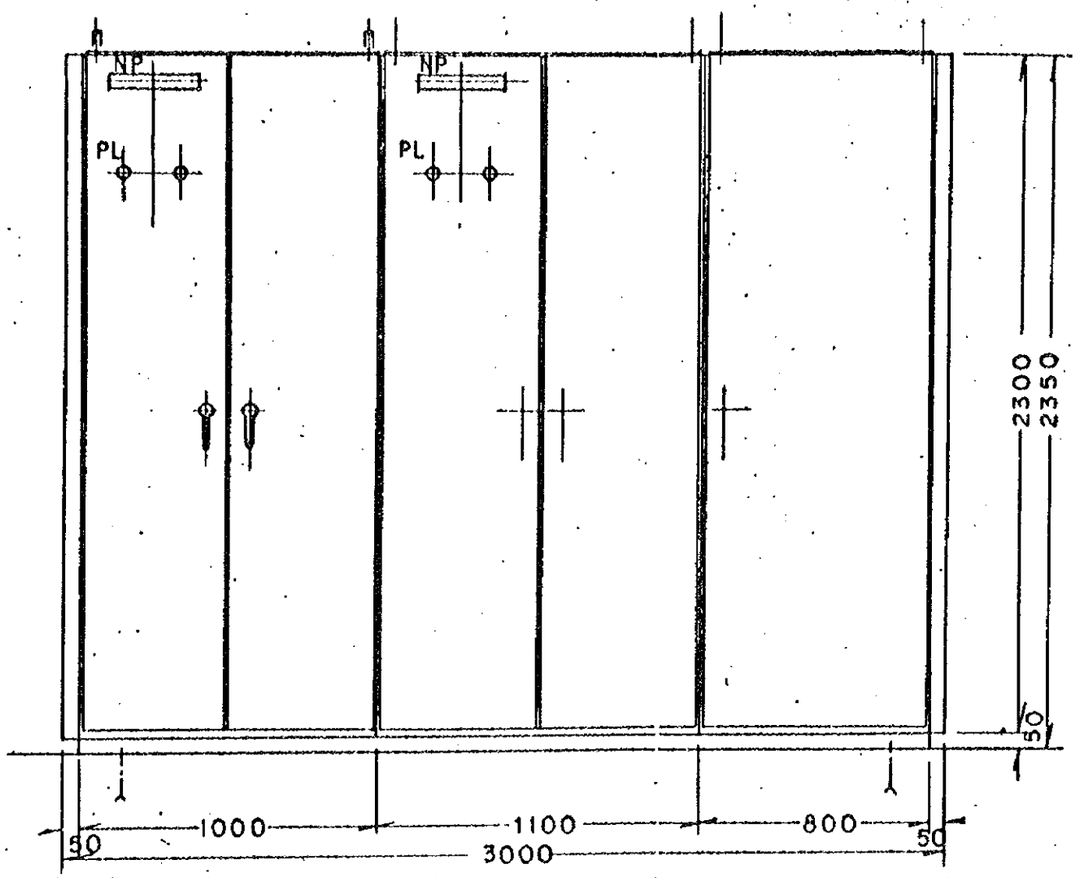
RS LIM KEN DAGE



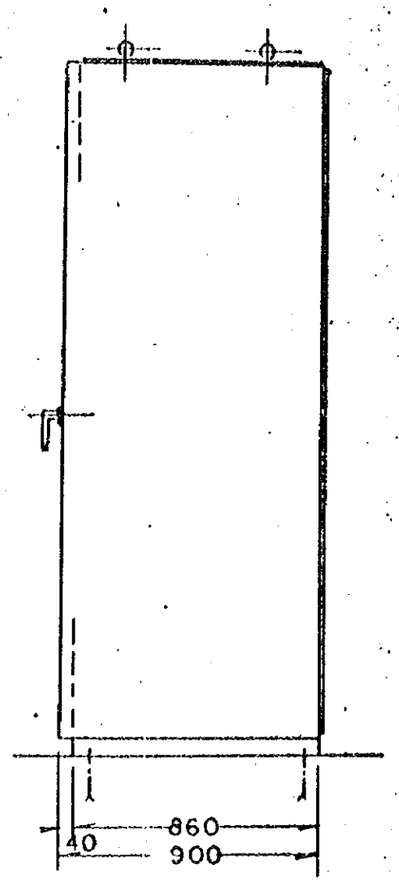
CONNECTION IS MADE AT UPPER TERMINAL

RS LIM KENDAGE

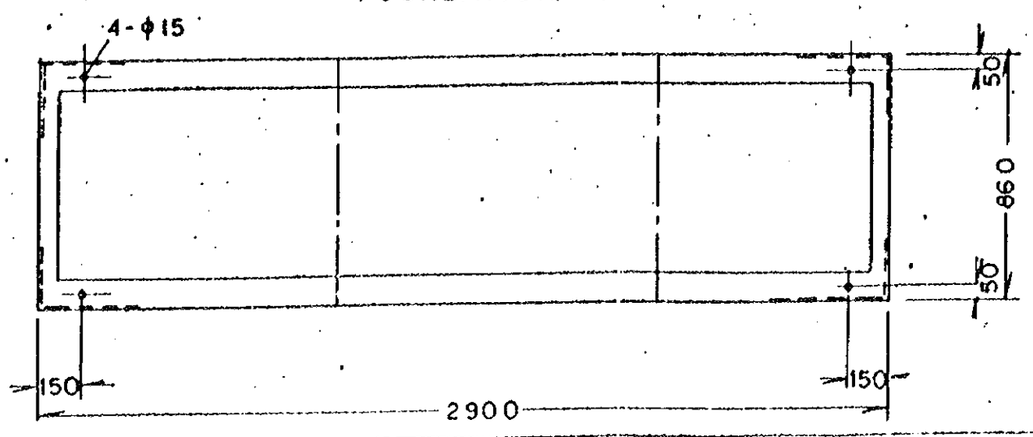
FRONT VIEW



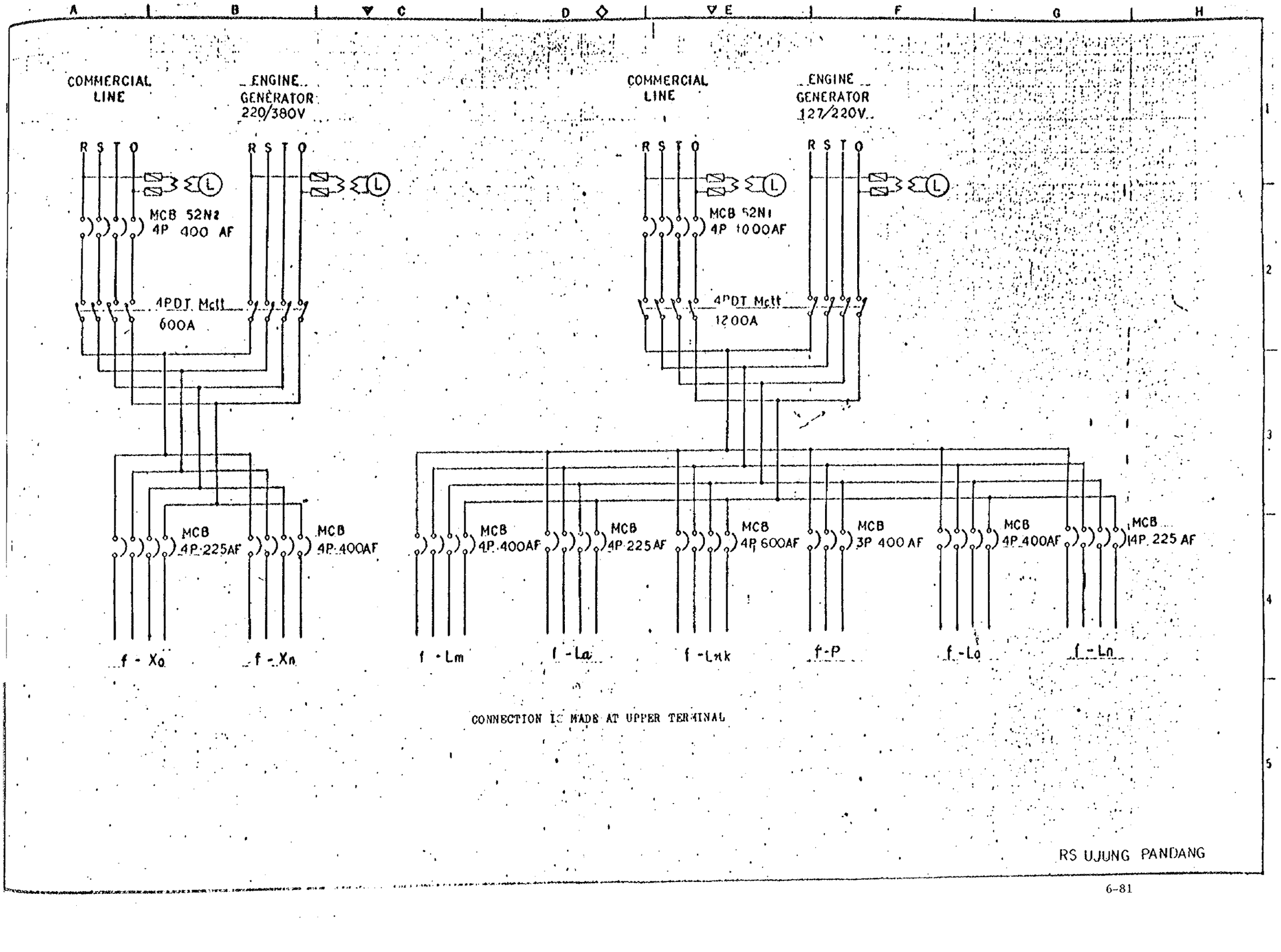
SIDE VIEW



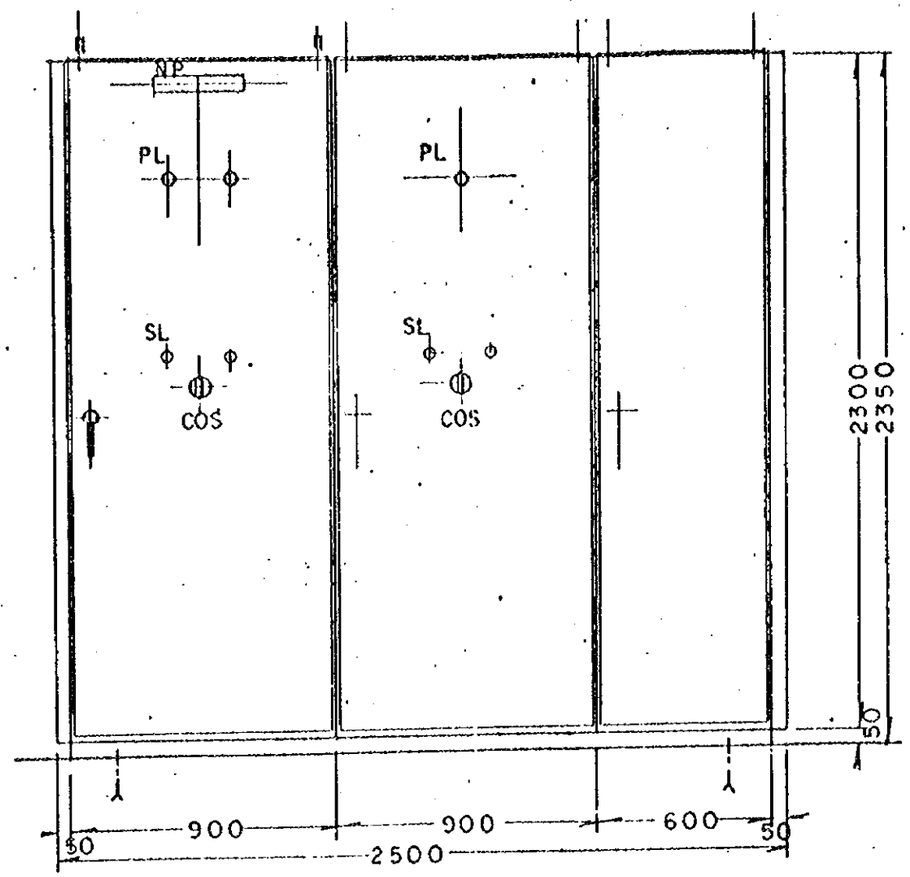
FOUNDATION PLAN



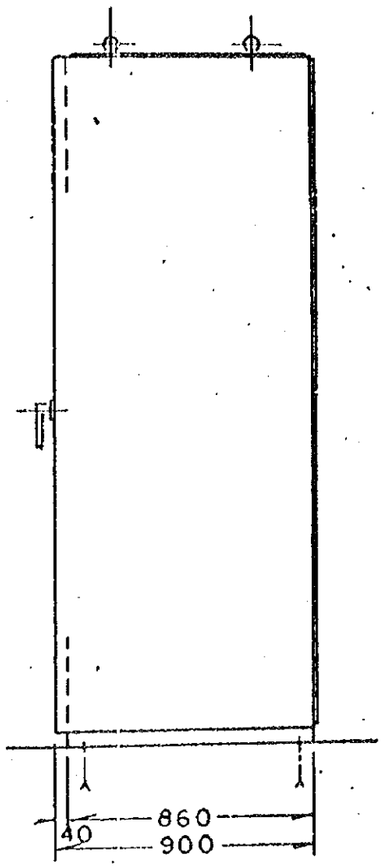
RS UJUNG PANDANG


COMMERCIAL LINE
ENGINE GENERATOR 220/380V
R S T O
MCB 52N2 4P 400 AF
4PDT Mclt 600A
MCB 4P 225AF
MCB 4P 400AF
f - Xo
f - Xn
COMMERCIAL LINE
ENGINE GENERATOR 127/220V
R S T O
MCB 52N1 4P 1000AF
4PDT Mclt 1200A
MCB 4P 400AF
MCB 4P 225 AF
MCB 4P 600AF
MCB 3P 400 AF
MCB 4P 400AF
MCB 4P 225 AF
f - Lm
f - La
f - Lnk
f-P
f - Lo
f - Ln
CONNECTION IS MADE AT UPPER TERMINAL
RS UJUNG PANDANG

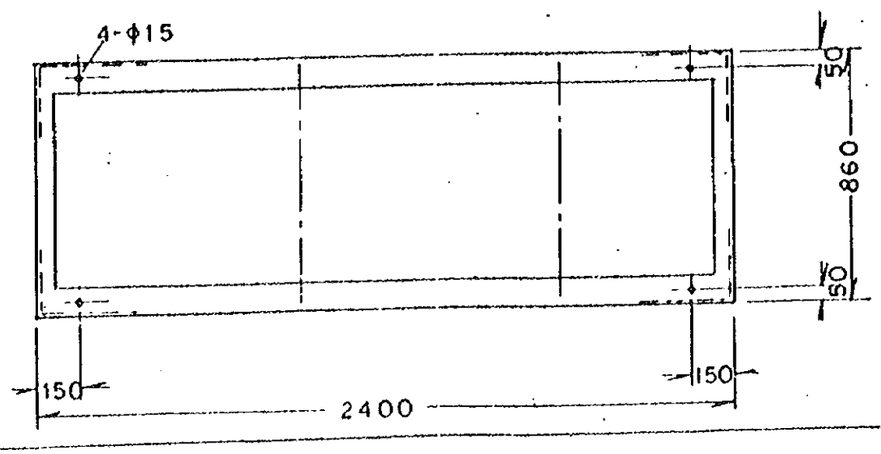
FRONT VIEW



SIDE VIEW

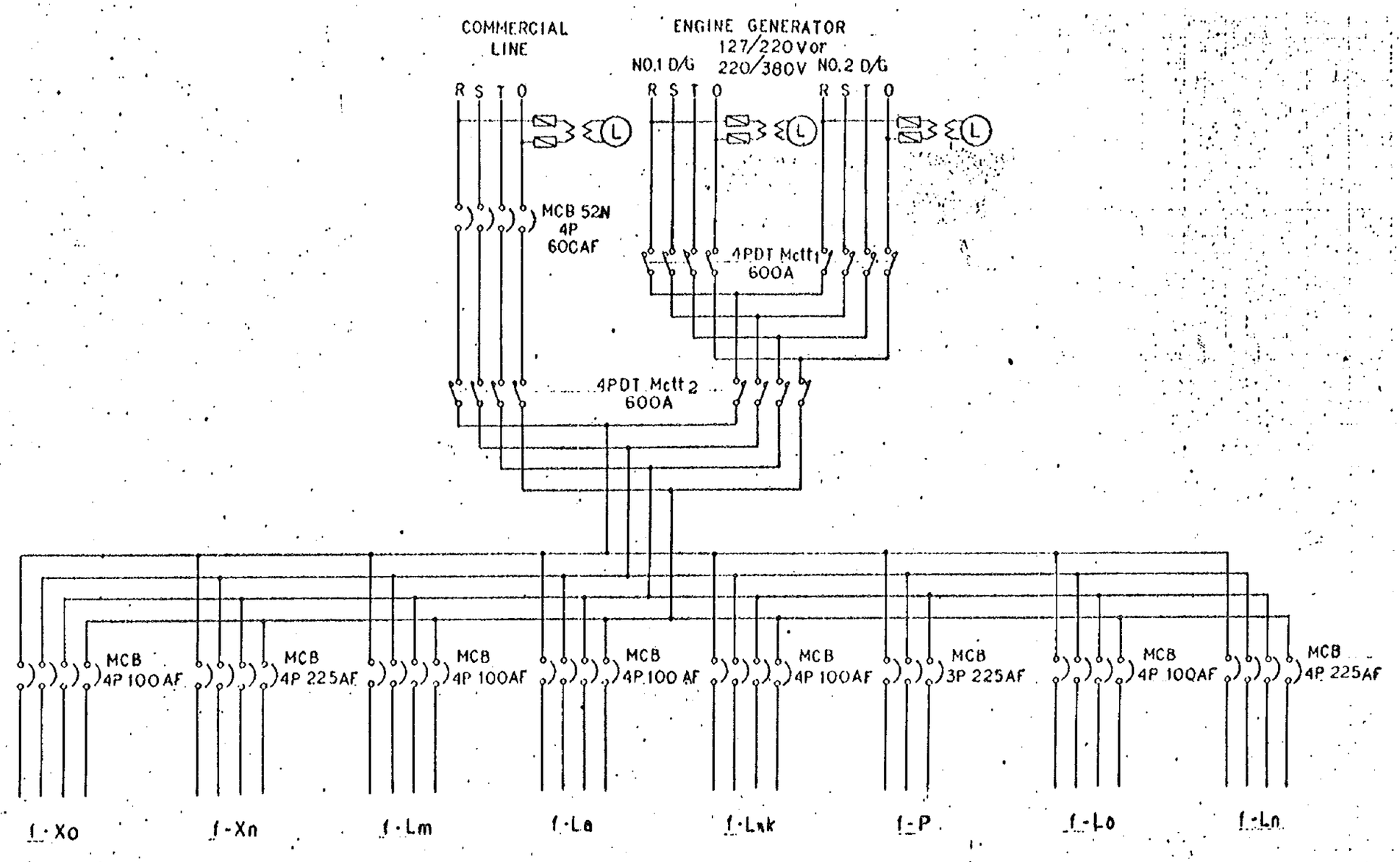


FOUNDATION PLAN



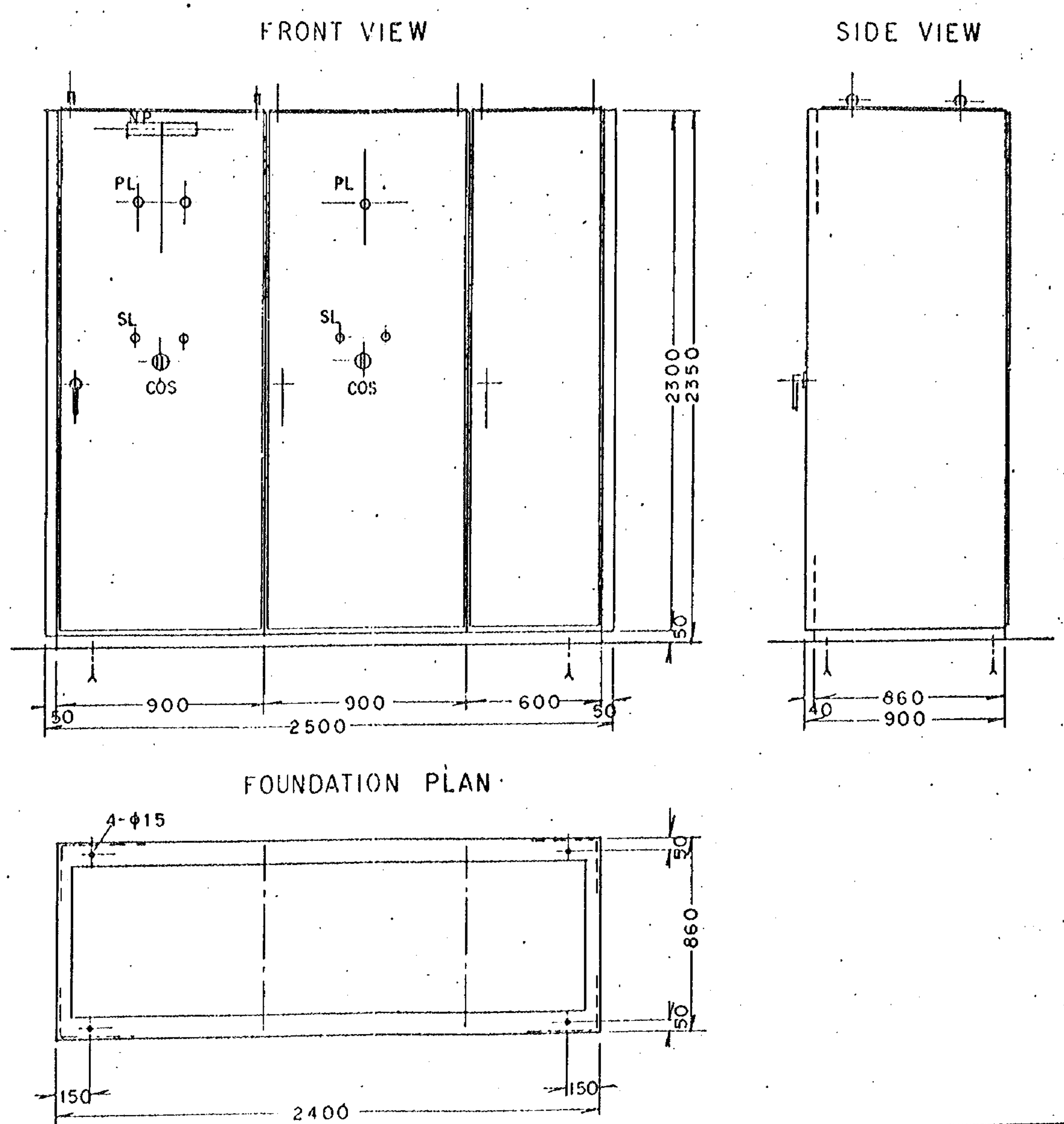
RS WATAMPONE

6-82

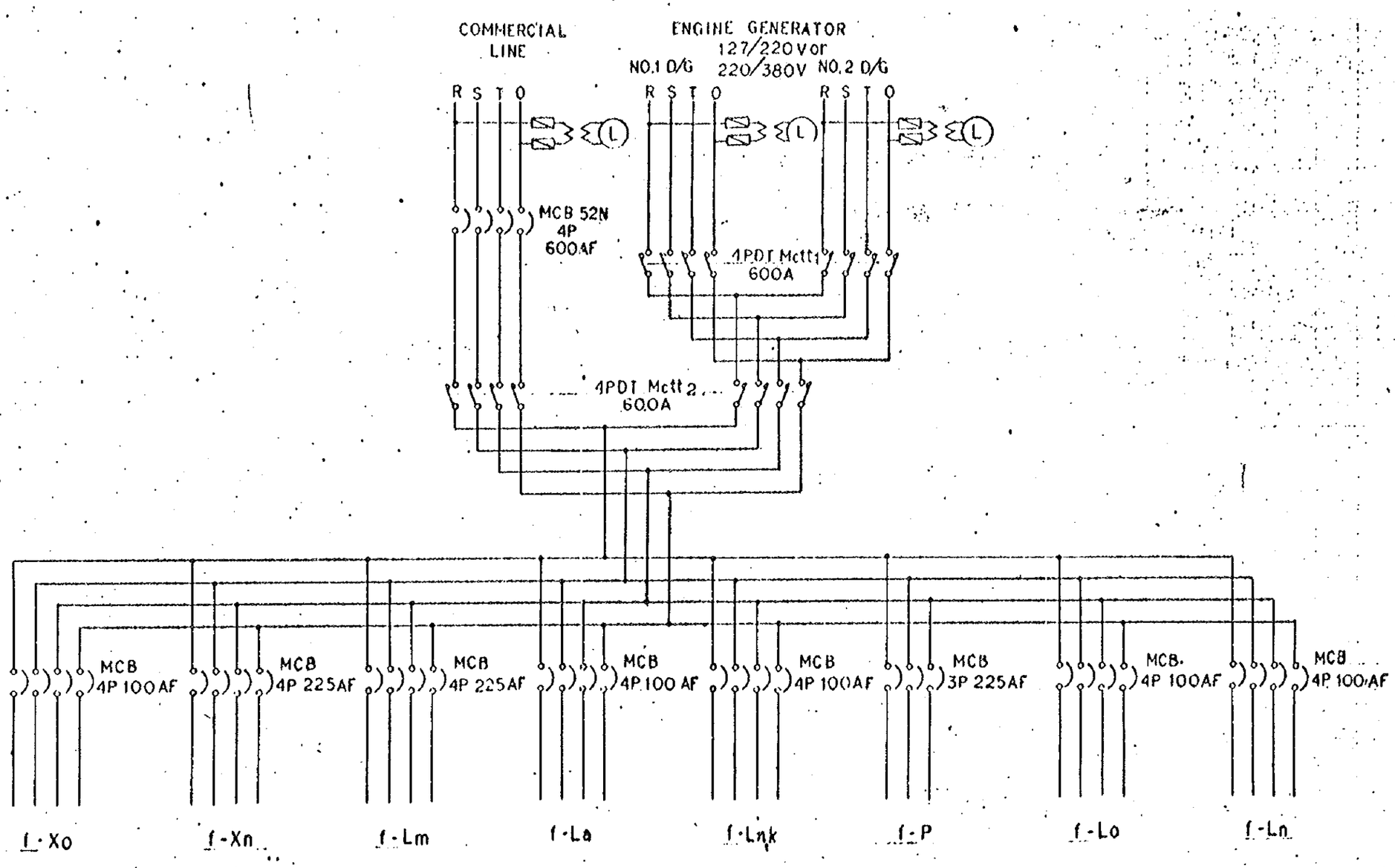


CONNECTION IS MADE AT UPPER TERMINAL

RS WATAMPONE


FRONT VIEW
SIDE VIEW
NP
PL
PL
SL
SL
COS
COS
2300
2350
50
900
900
600
50
50
2500
860
40
900
FOUNDATION PLAN
4-φ15
50
860
50
150
150
2400

RS SOPPENG



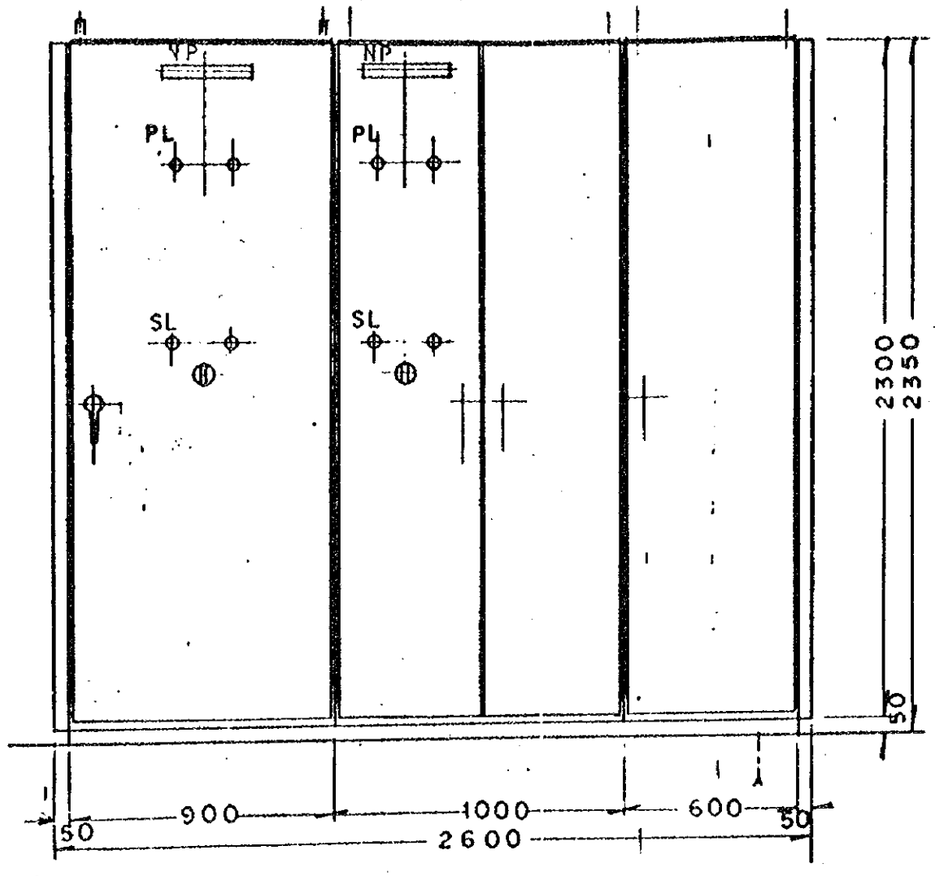
CONNECTION IS MADE AT UPPER TERMINAL

RS SOPPENG

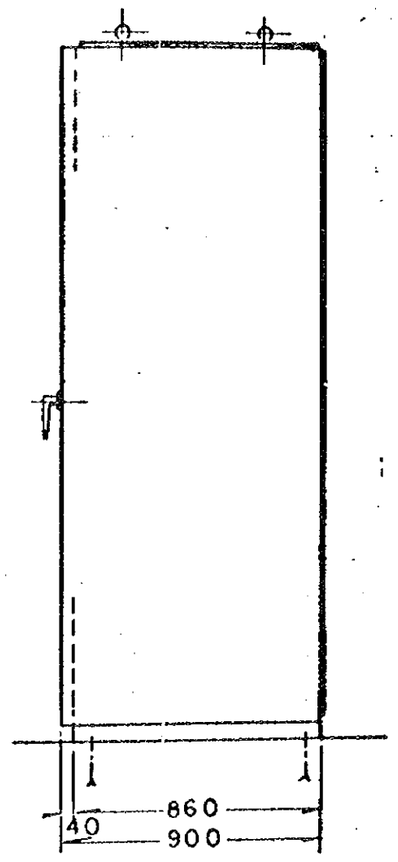
A B C D E F G H

1 2 3 4 5

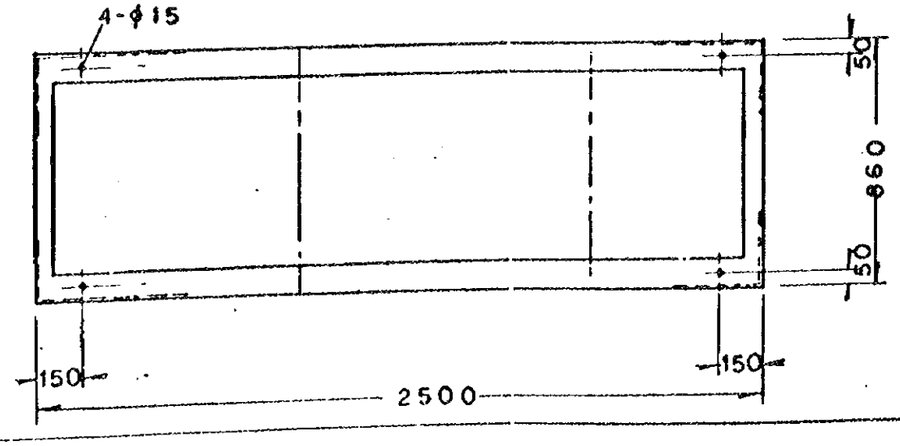
FRONT VIEW



SIDE VIEW

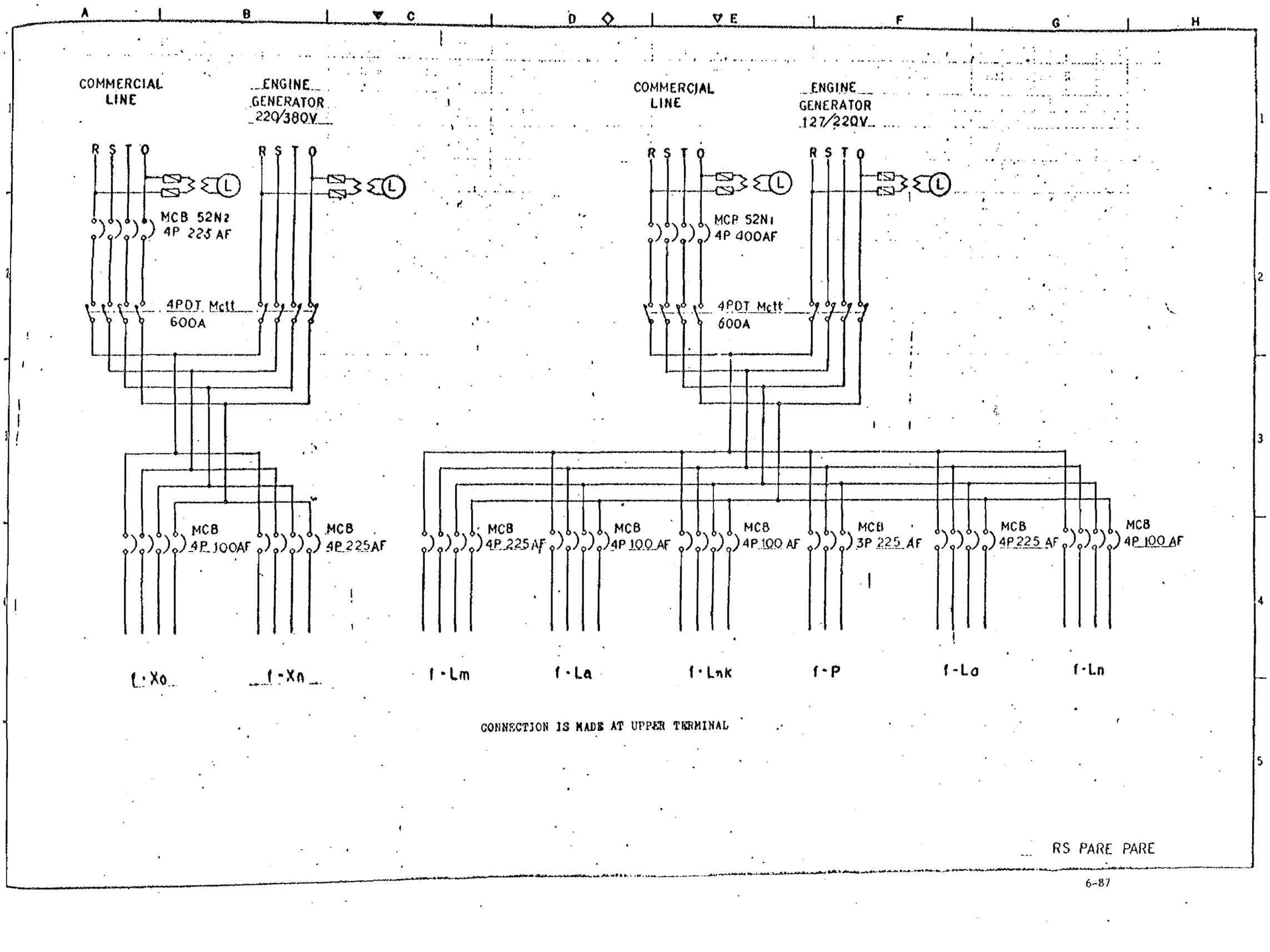


FOUNDATION PLAN



RS PARE PARE

6-86



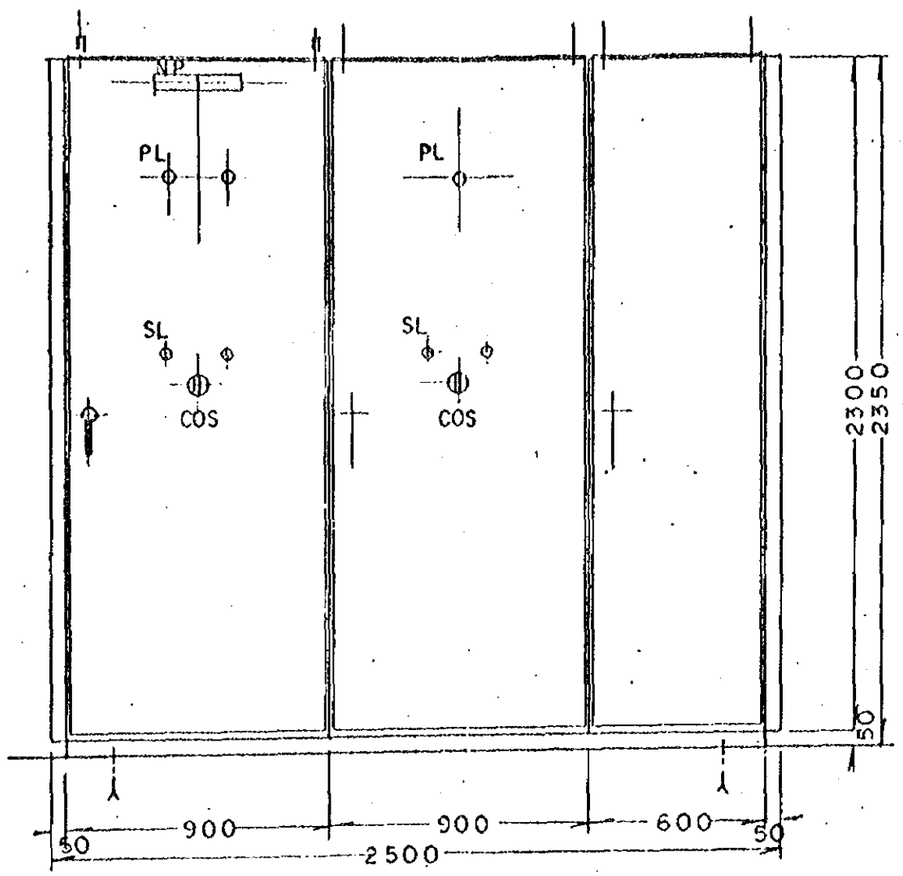
CONNECTION IS MADE AT UPPER TERMINAL

RS PARE PARE

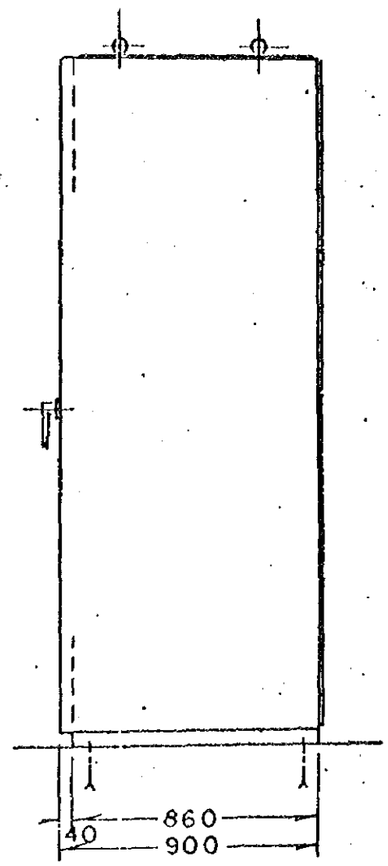
A B C D E F G H

1 2 3 4 5

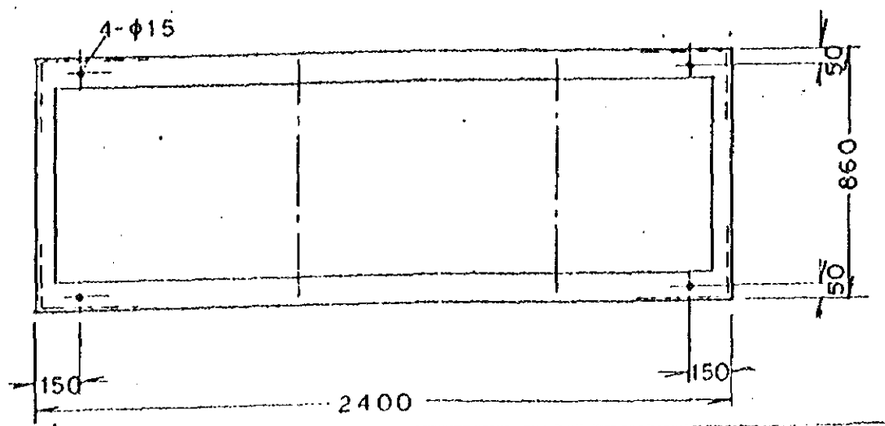
FRONT VIEW



SIDE VIEW

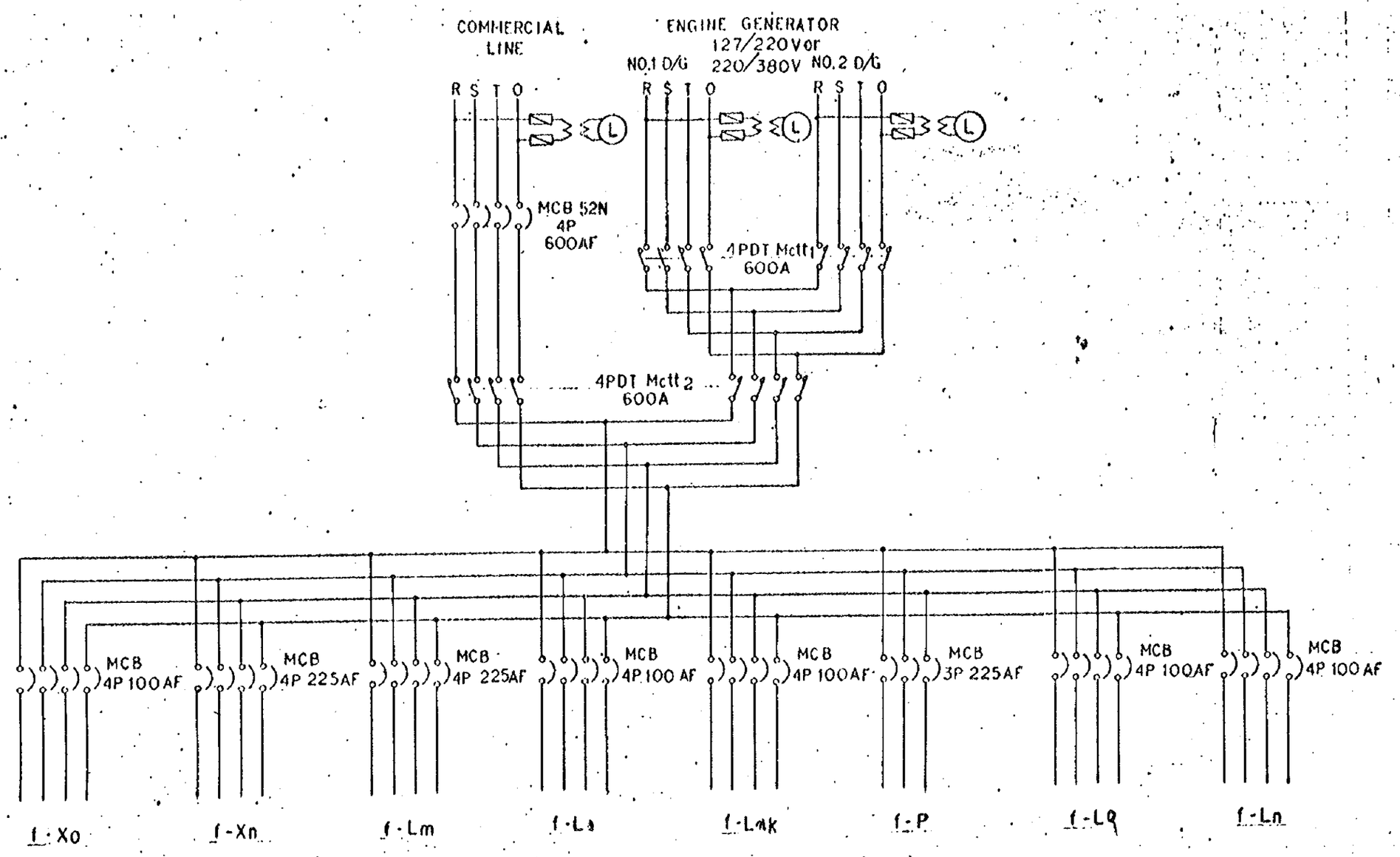


FOUNDATION PLAN



RS ELIM RANTEP40

6-88



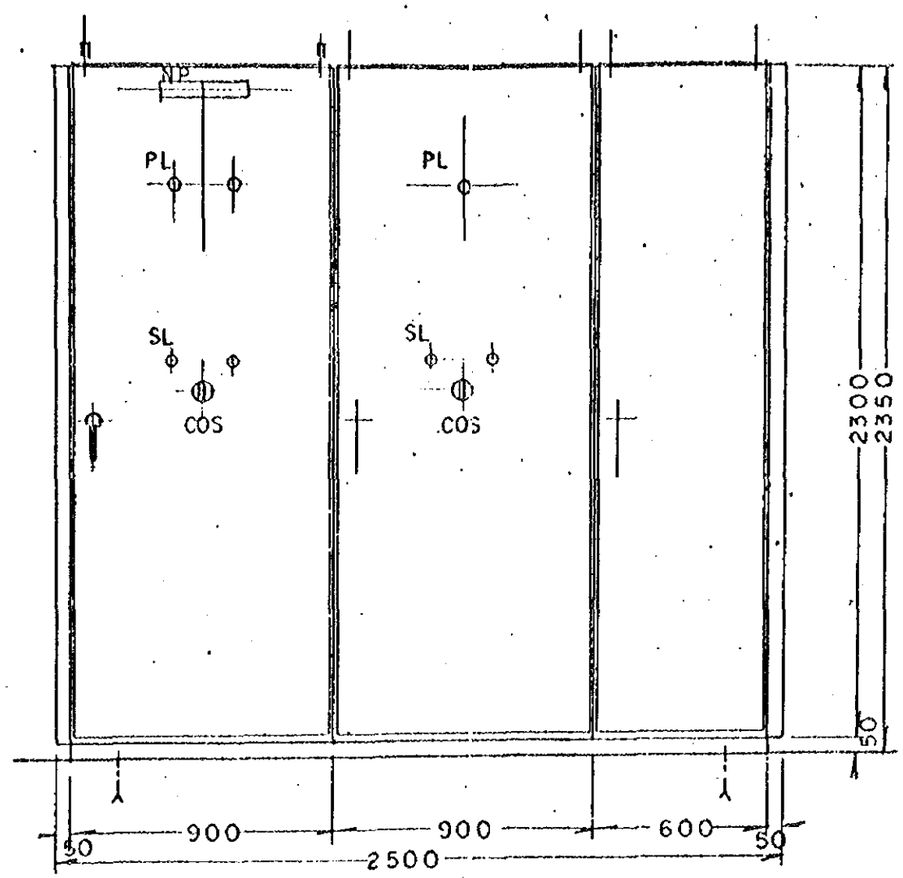
CONNECTION IS MADE AT UPPER TERMINAL

RS ELIM RANTEPAO

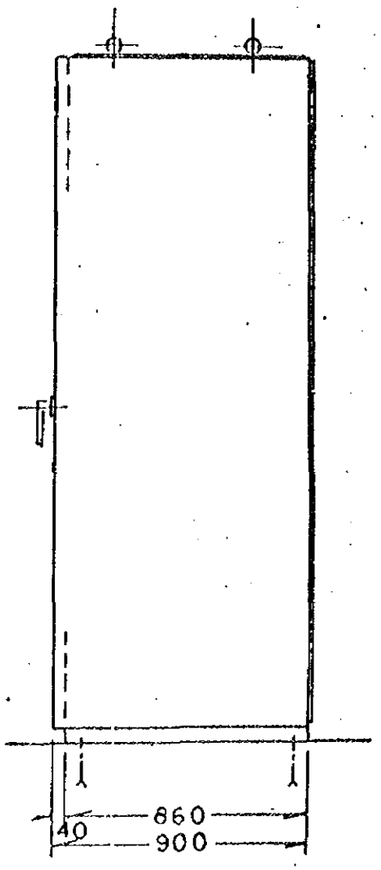
A B C D E F G H

1 2 3 4 5

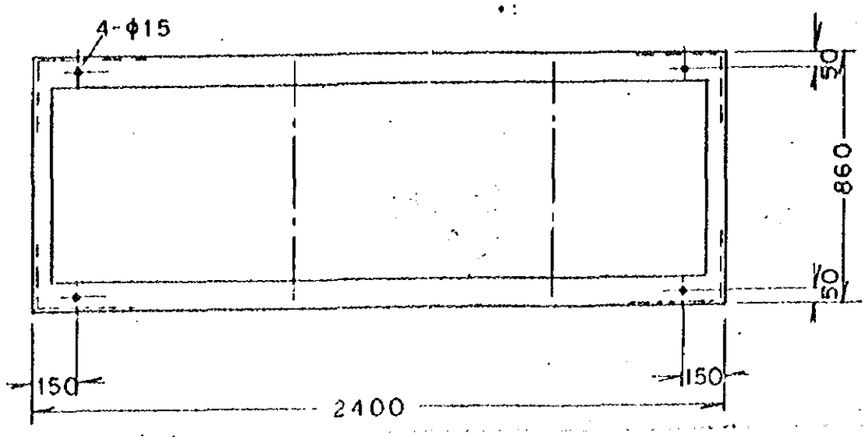
FRONT VIEW



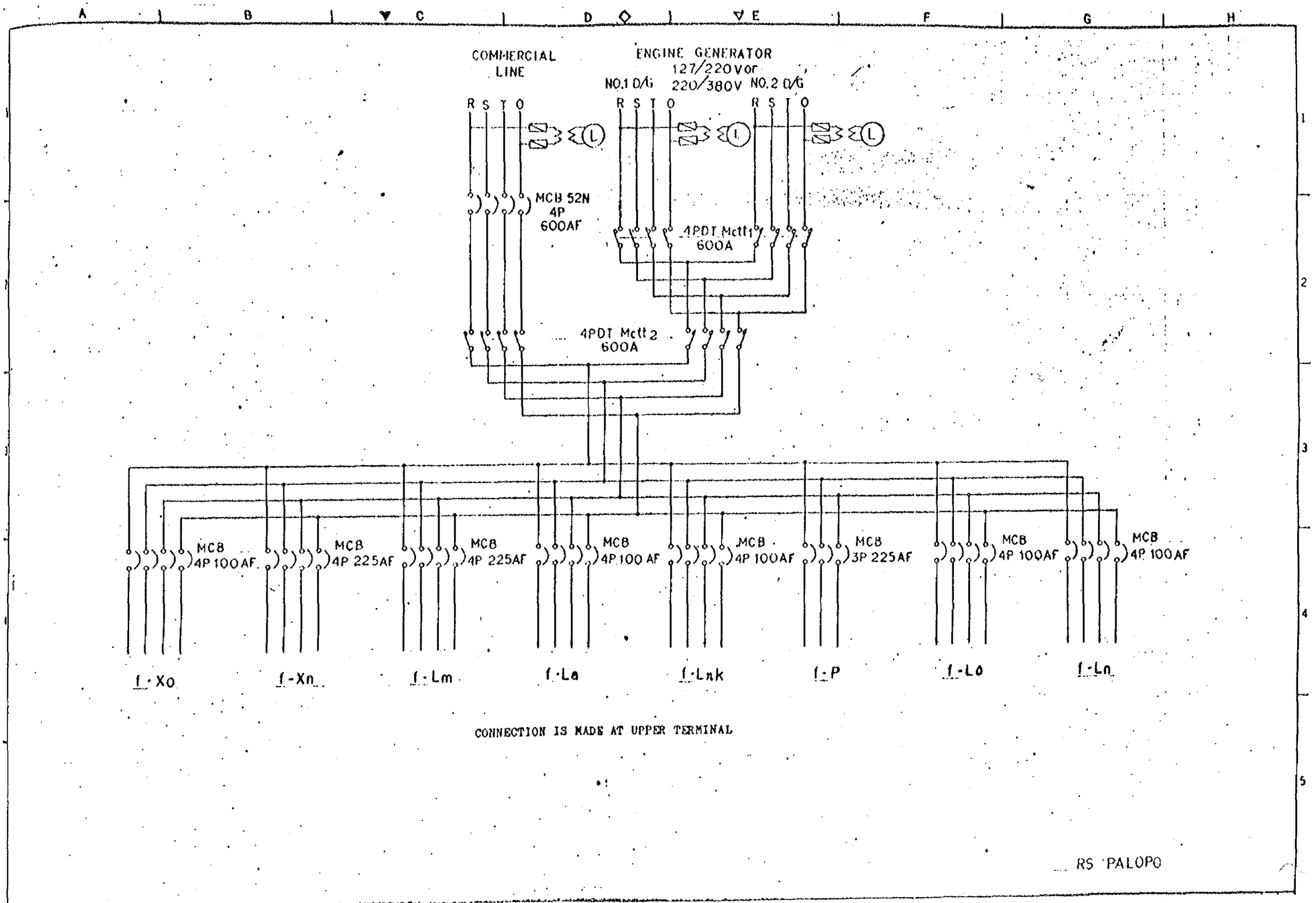
SIDE VIEW



FOUNDATION PLAN



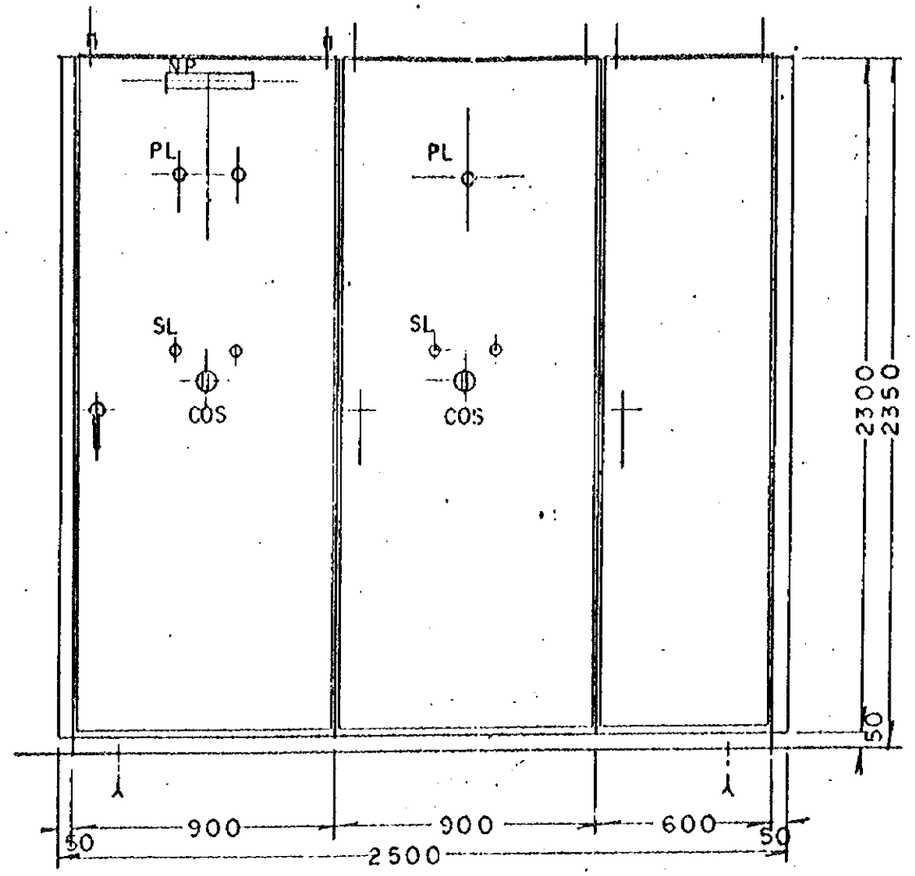
RS PALOPO



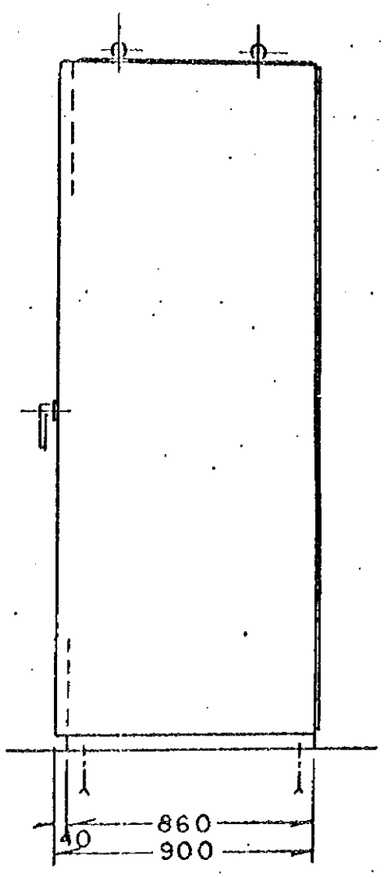
CONNECTION IS MADE AT UPPER TERMINAL

RS PALOPO

FRONT VIEW



SIDE VIEW



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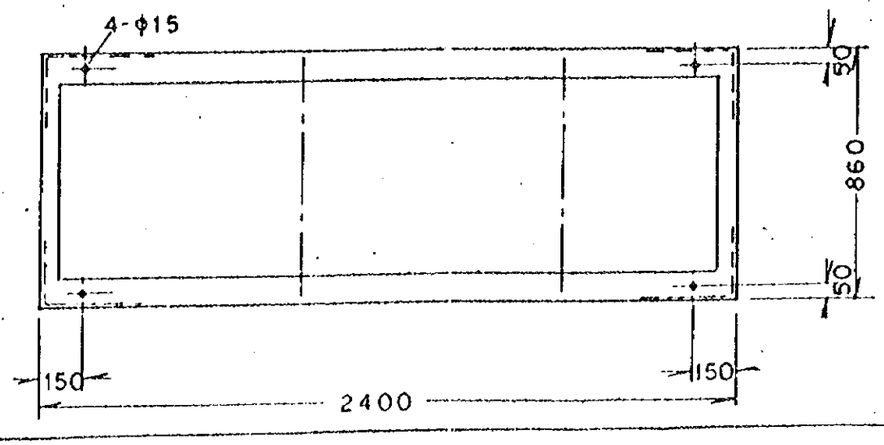

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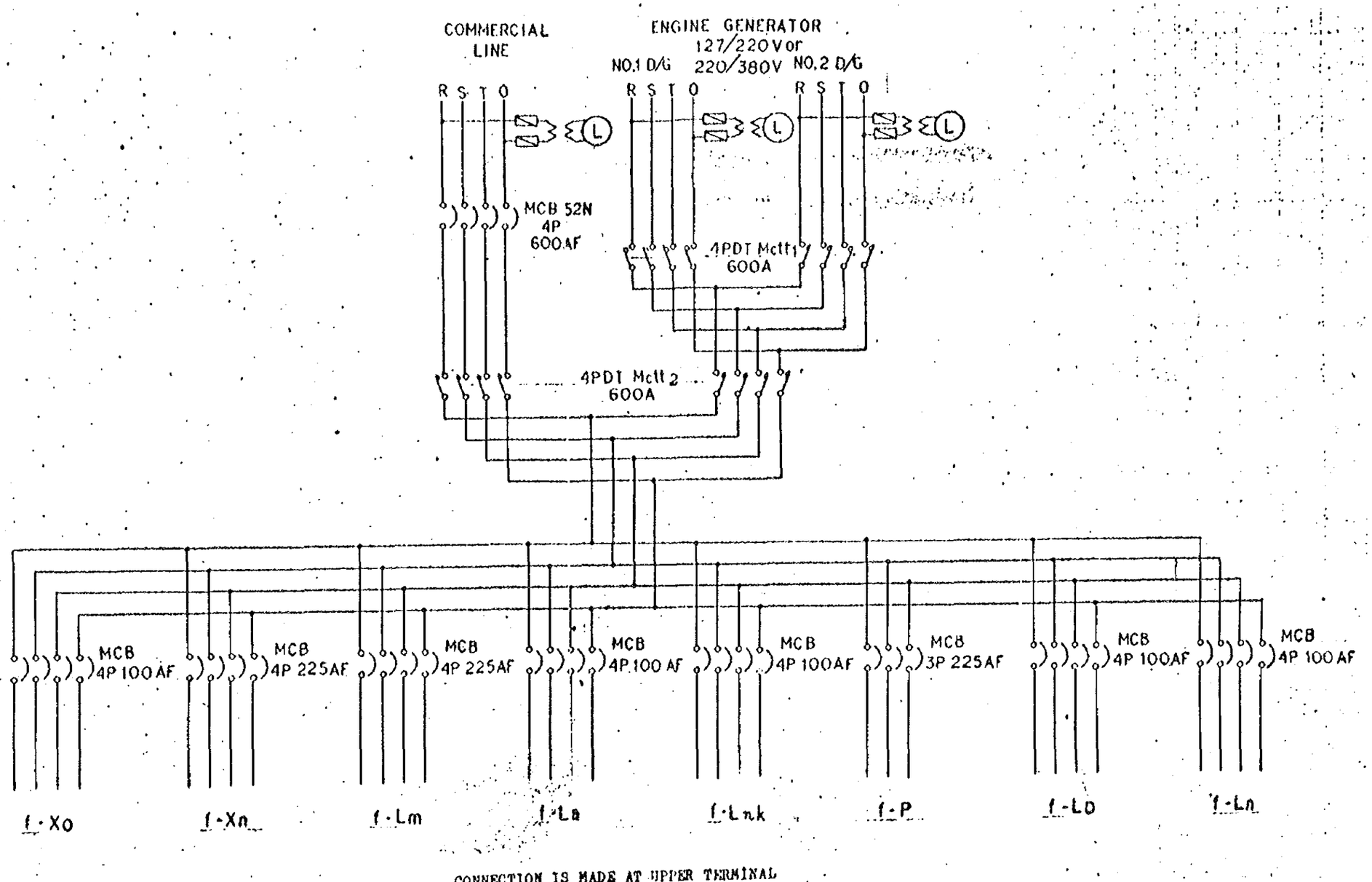
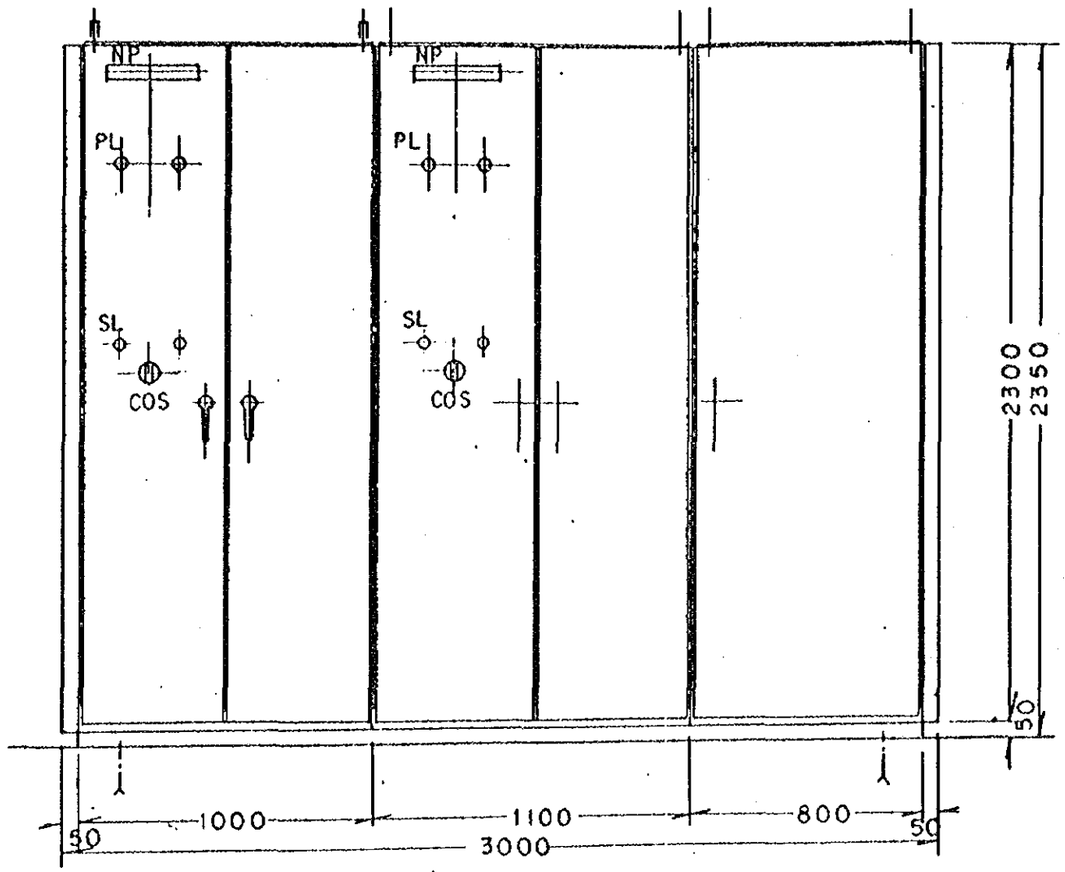


CONNECTION IS MADE AT UPPER TERMINAL

RS BANTAENG

FRONT VIEW



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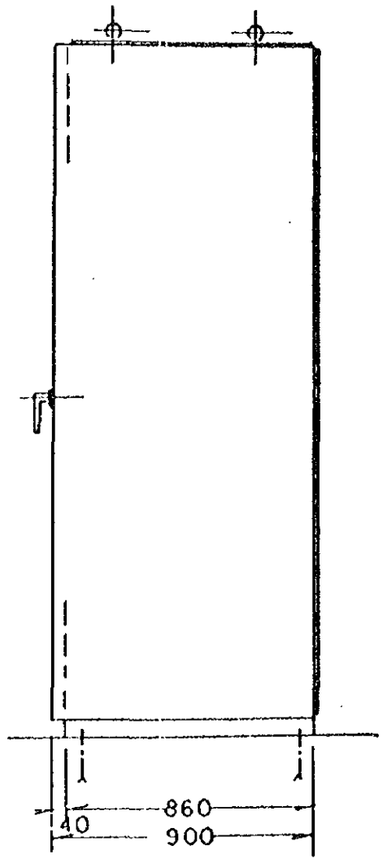

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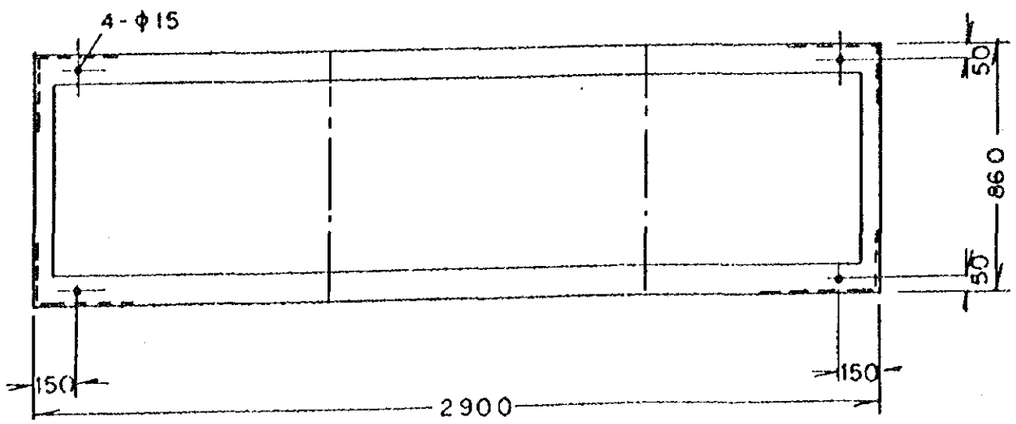

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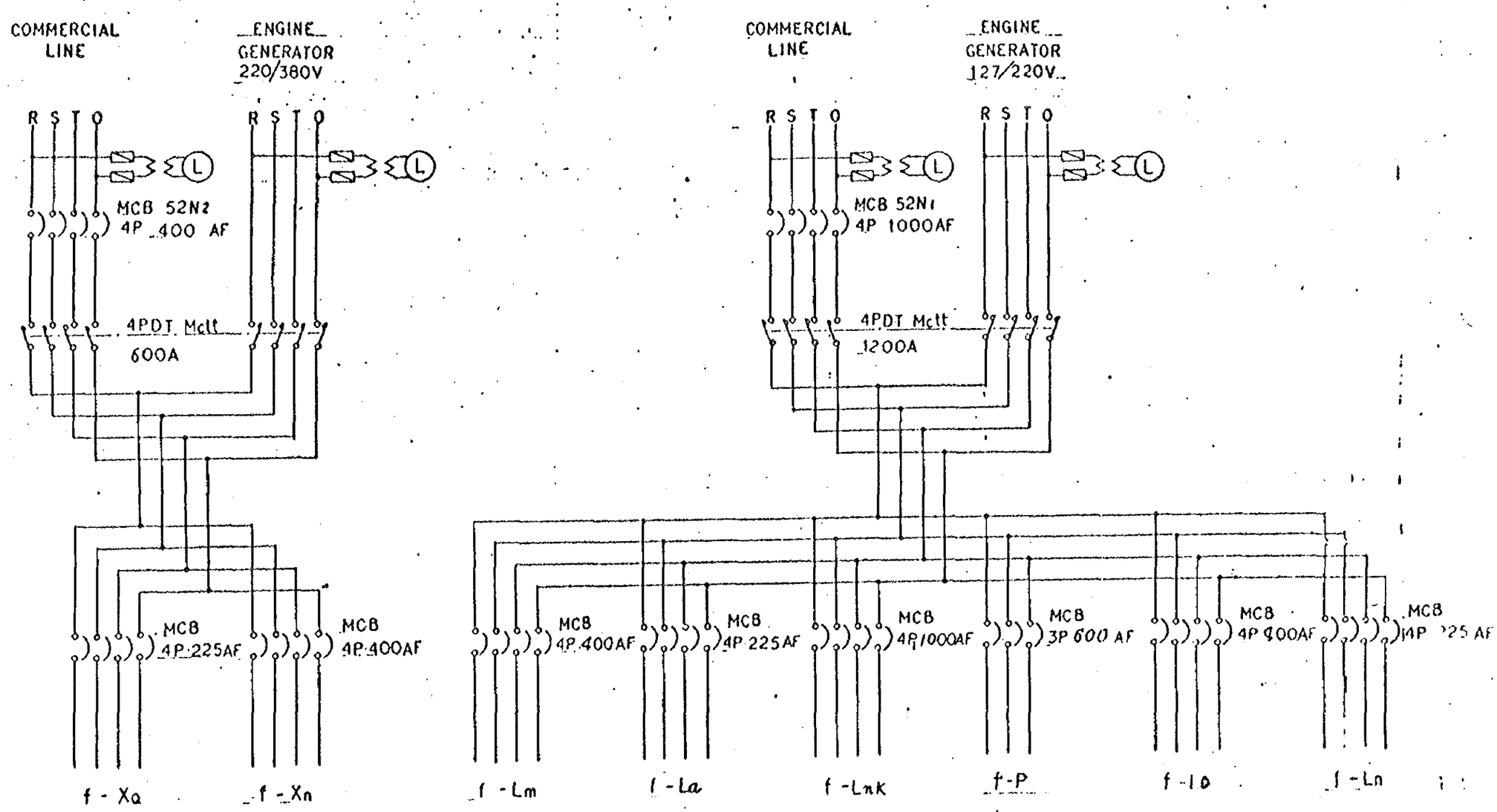
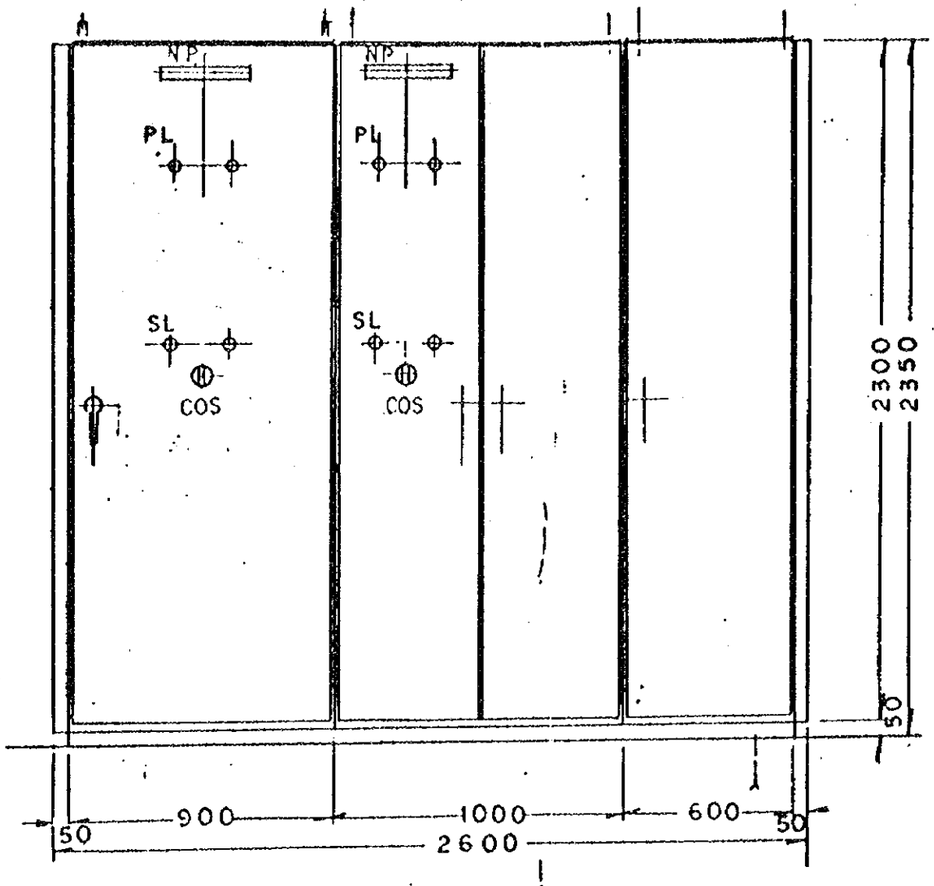


CONNECTION IS MADE AT UPPER TERMINAL

PS PELDAN

FRONT VIEW



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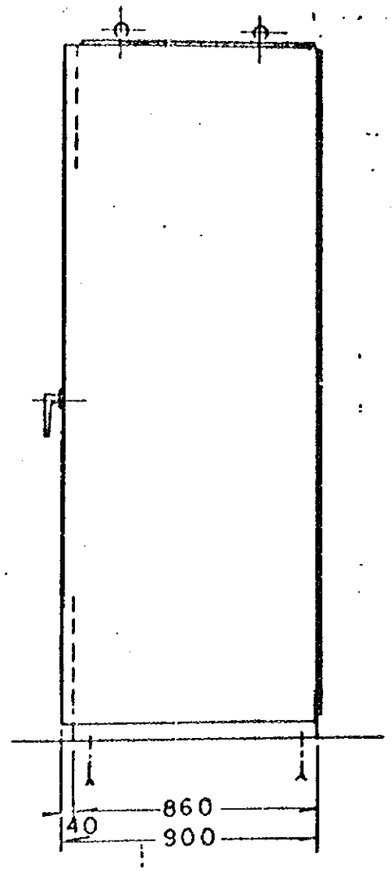

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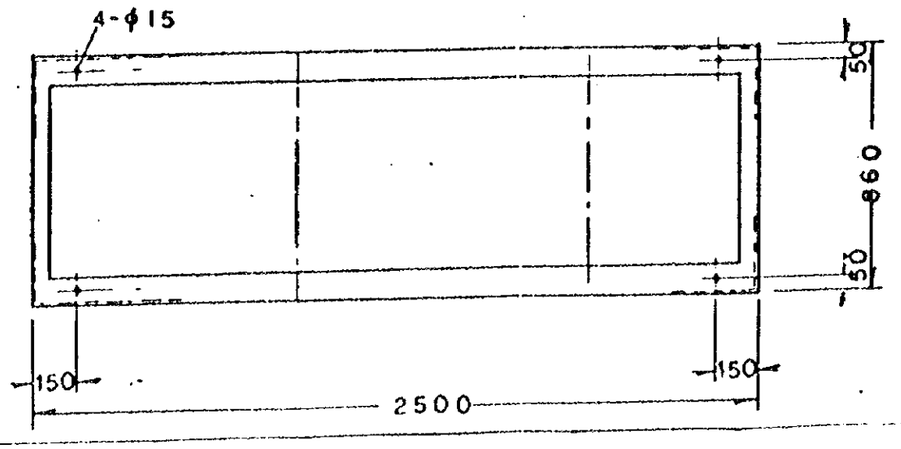
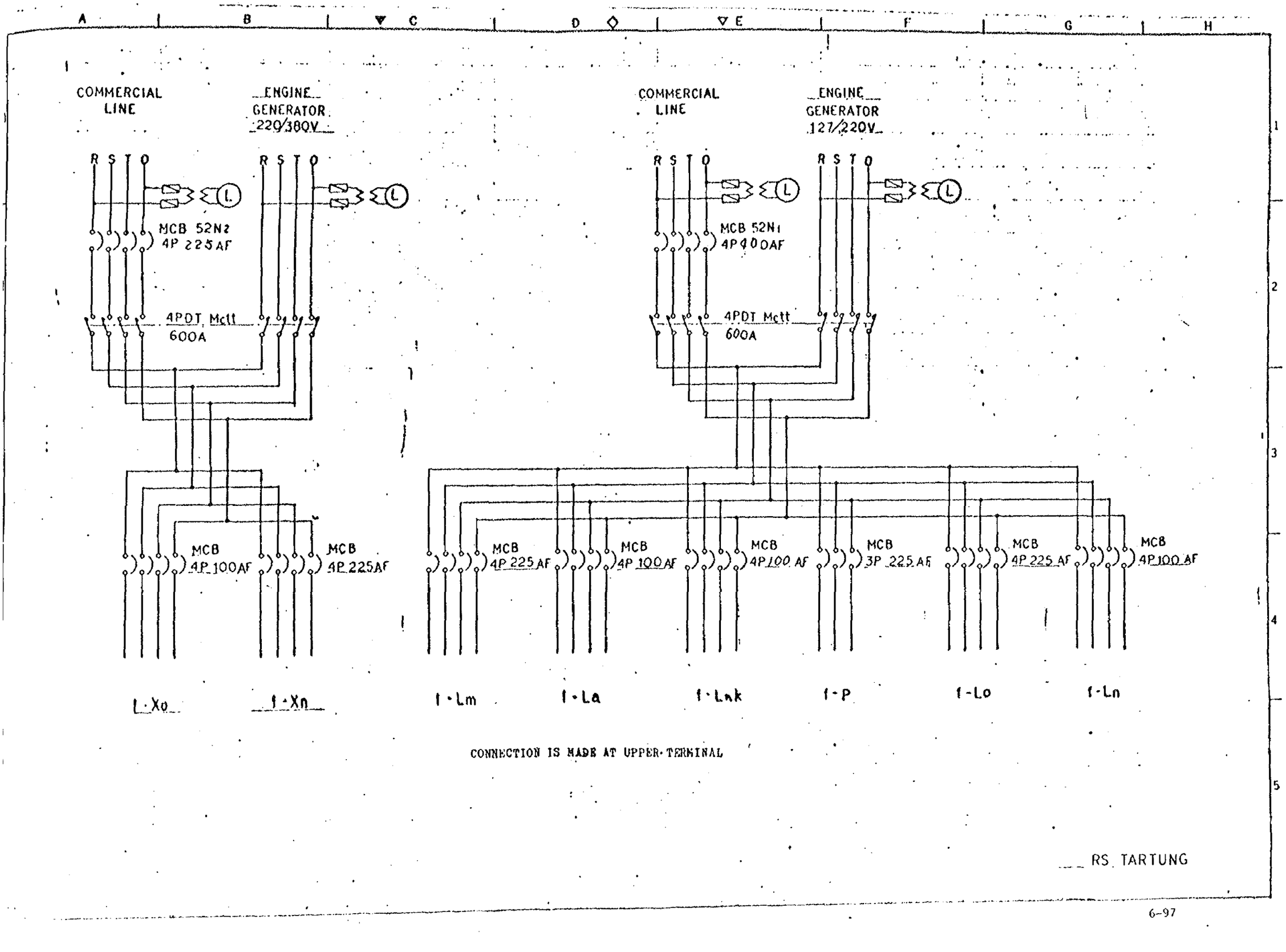


RS TARTUNG

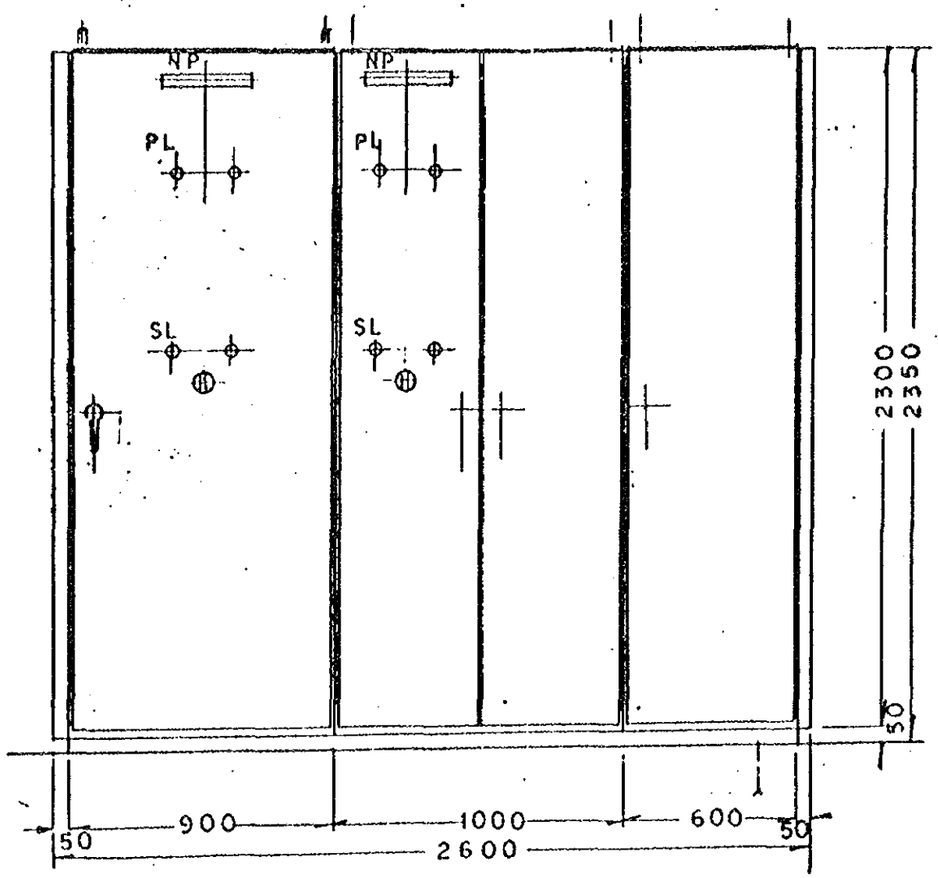
6-96



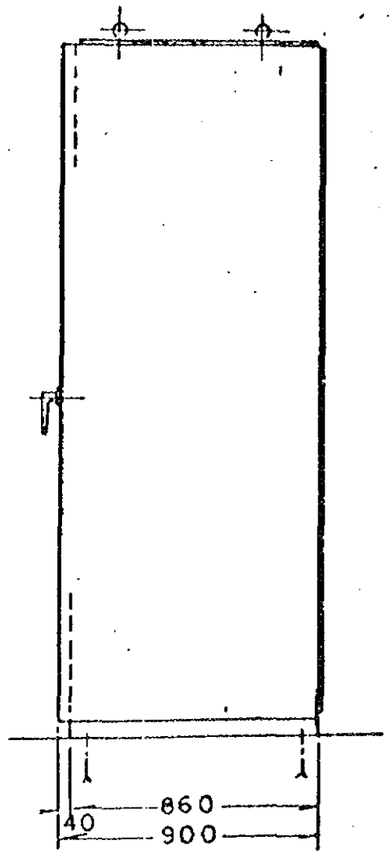
CONNECTION IS MADE AT UPPER TERMINAL

RS TARTUNG

FRONT VIEW



SIDE VIEW



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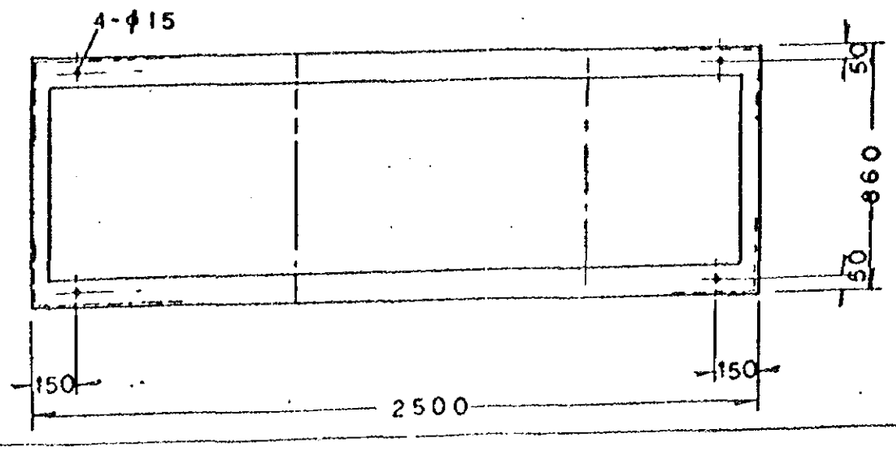

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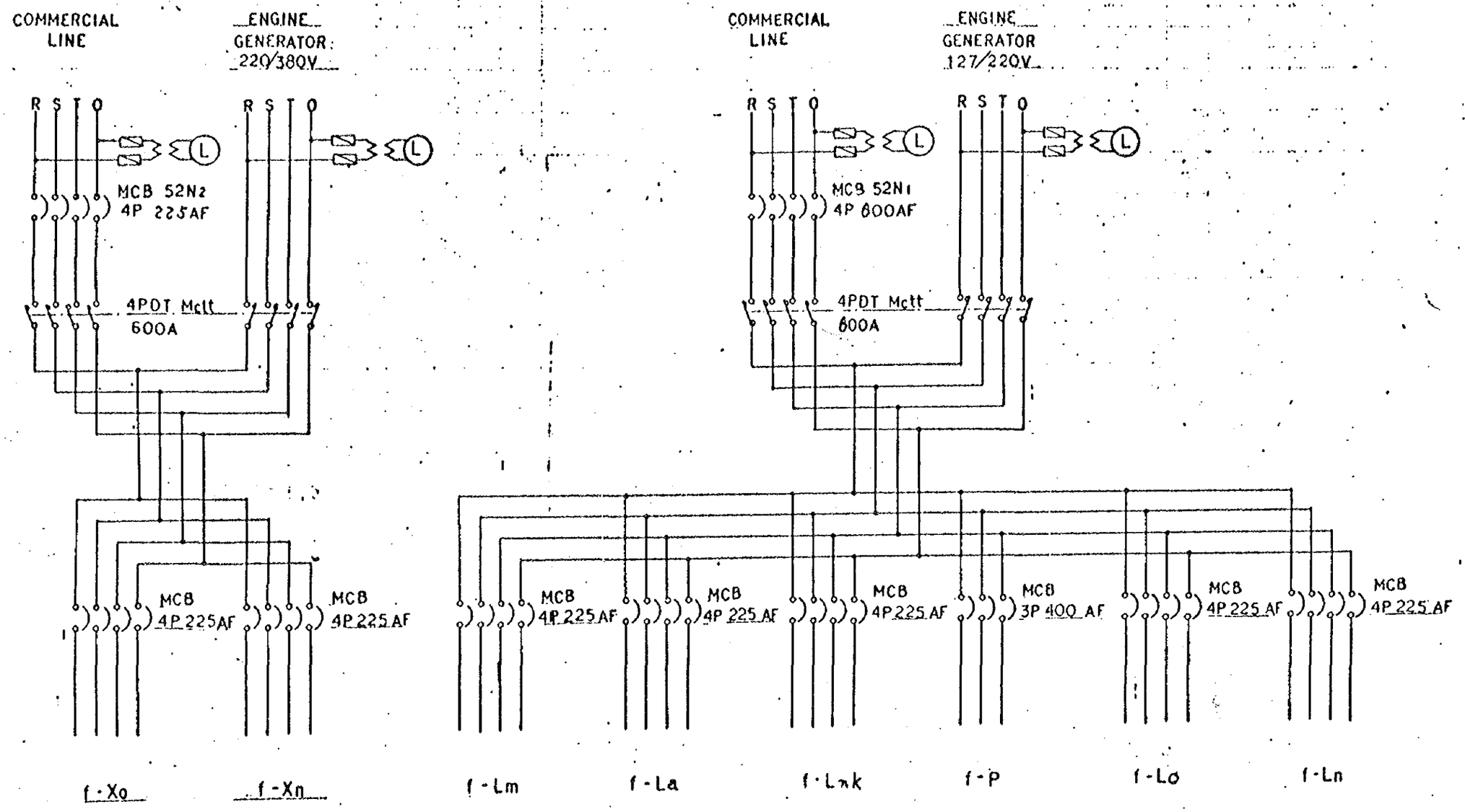
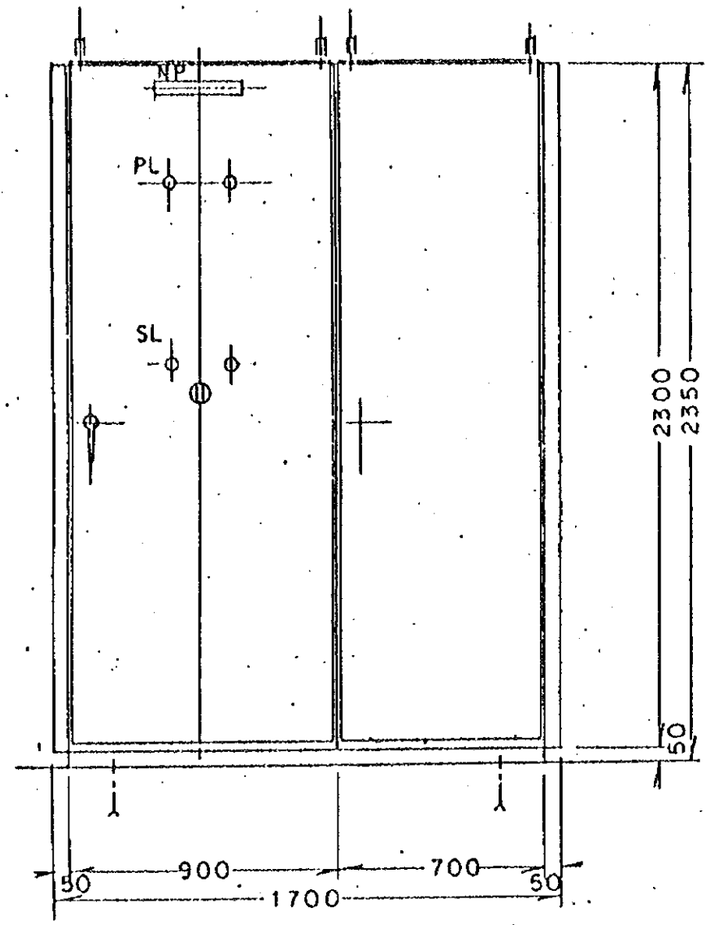


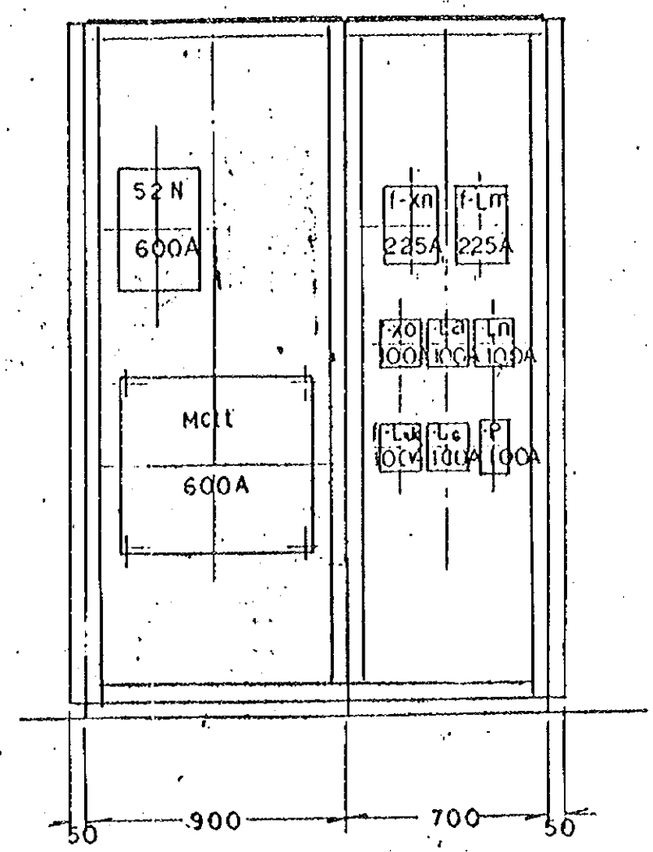
CONNECTION IS MADE AT UPPER TERMINAL

RS PEMATANG SIANTAR

FRONT VIEW



INSIDE FRONT VIEW



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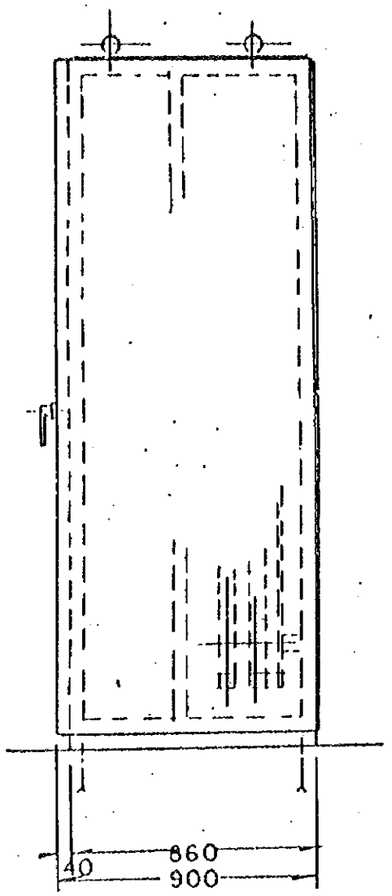

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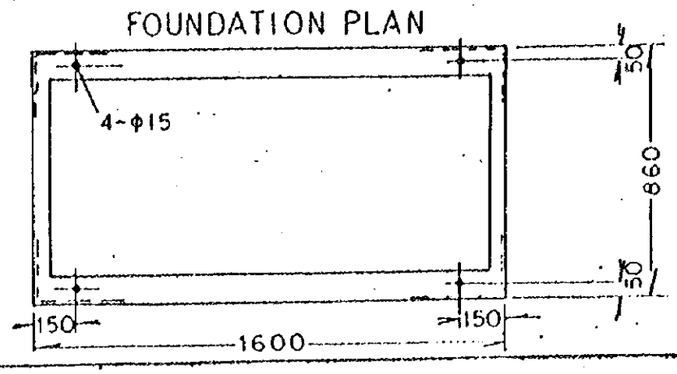

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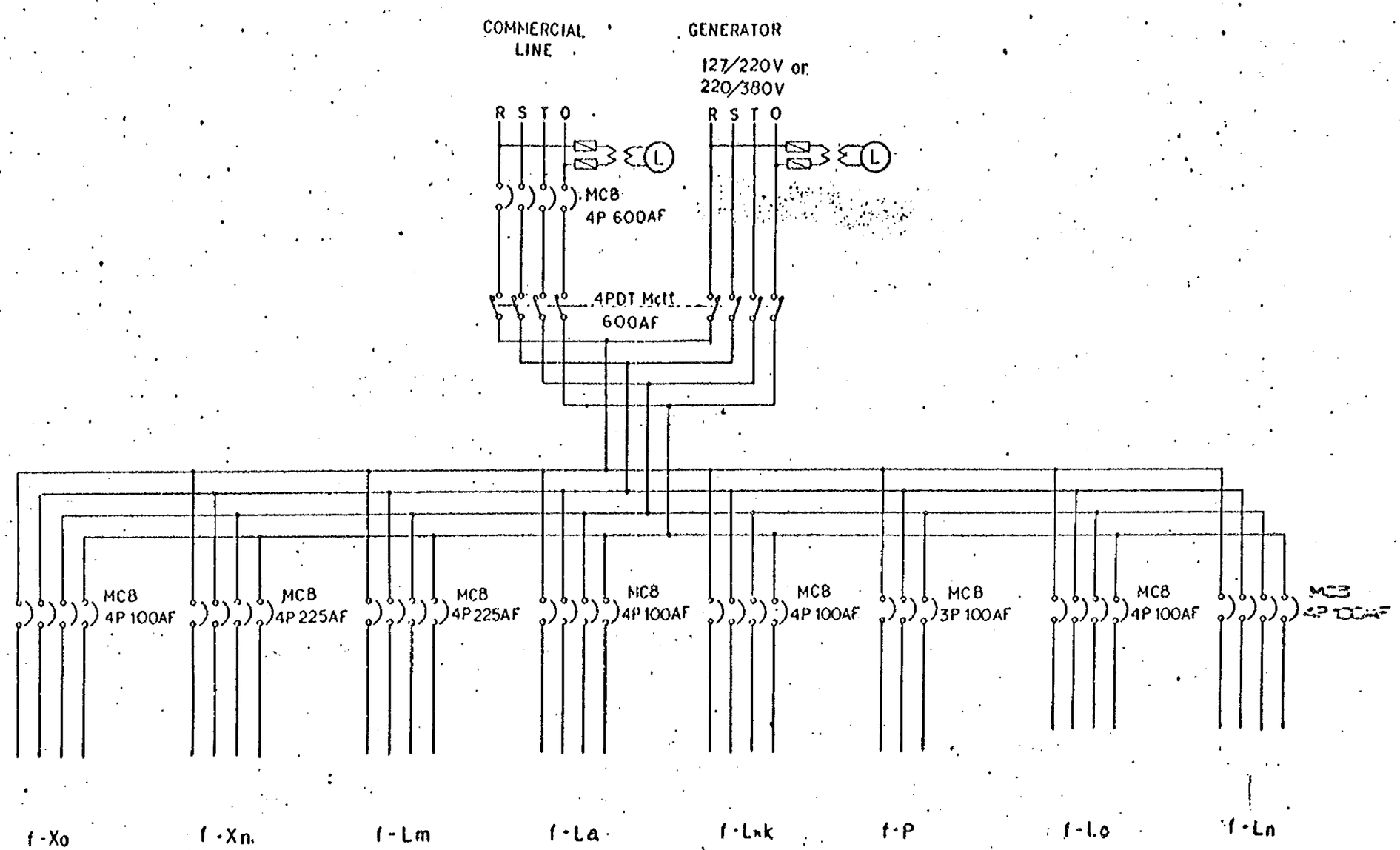
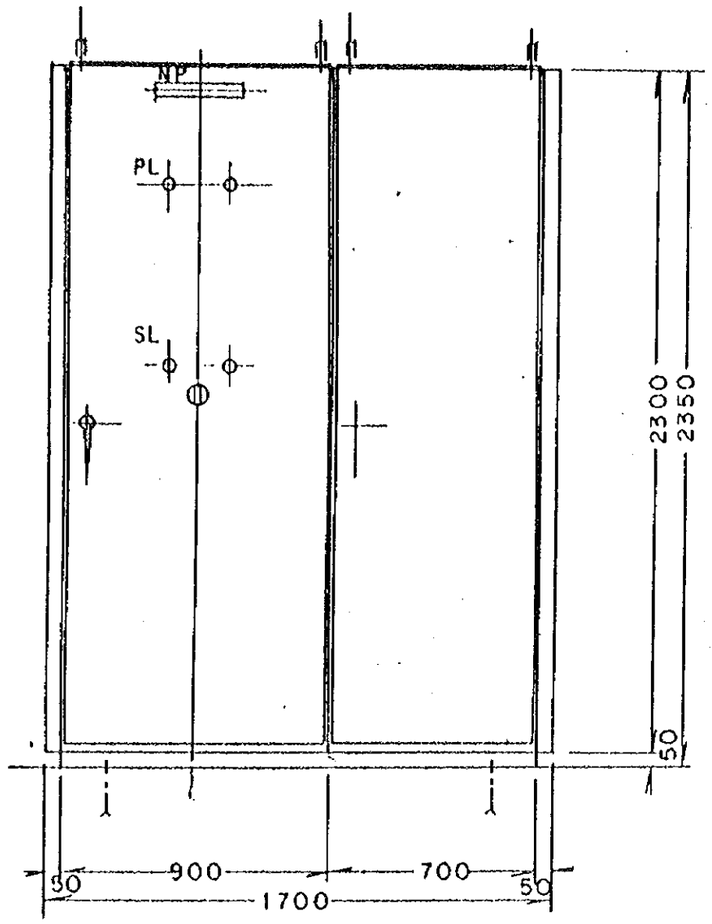


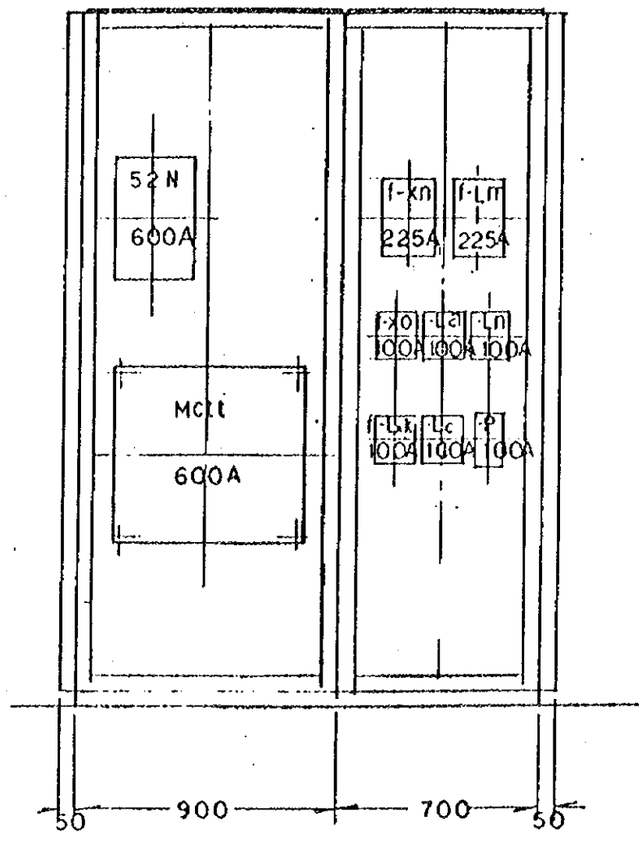
CONNECTION IS MADE AT UPPER TERMINAL

RS TEB[illegible]G TINGGI

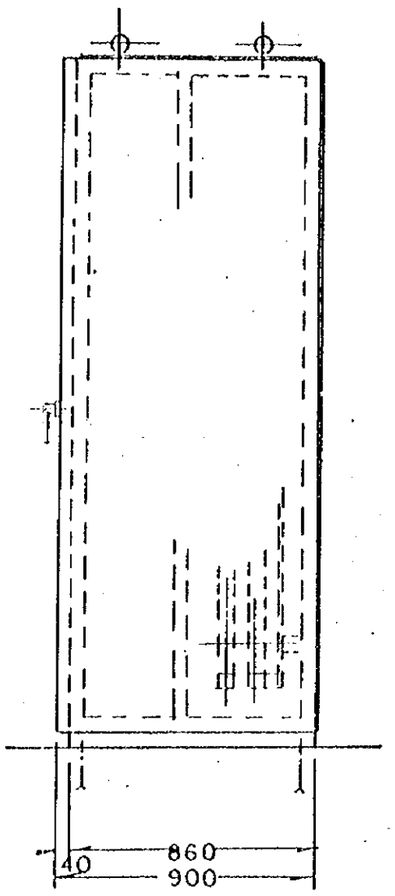
FRONT VIEW



INSIDE FRONT VIEW



SIDE VIEW



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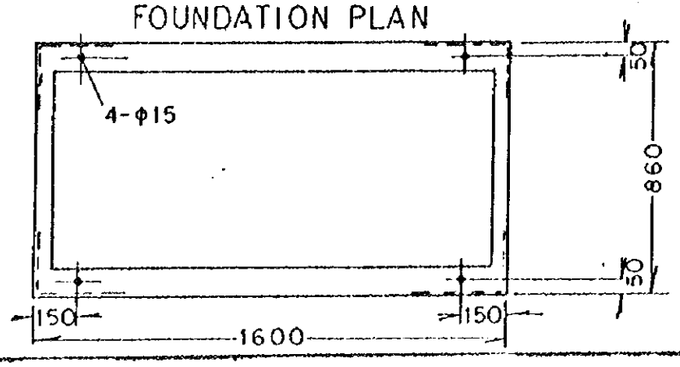


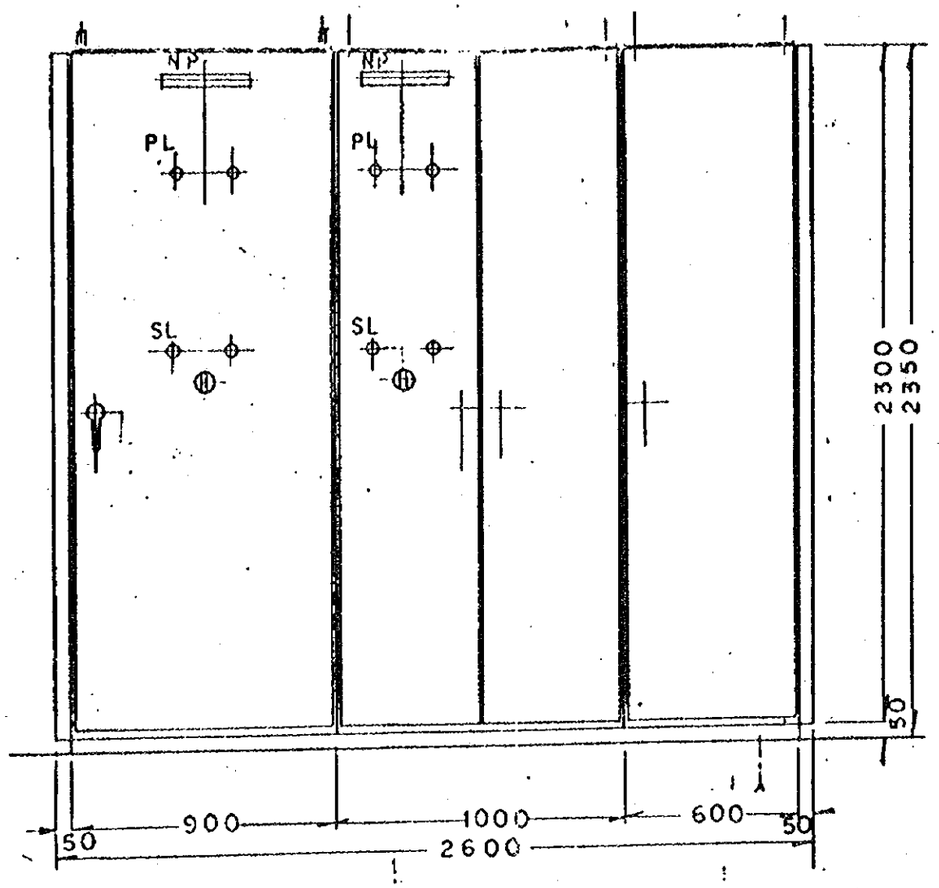
CONNECTION IS MADE AT UPPER TERMINAL

RS TANJUNG BALI

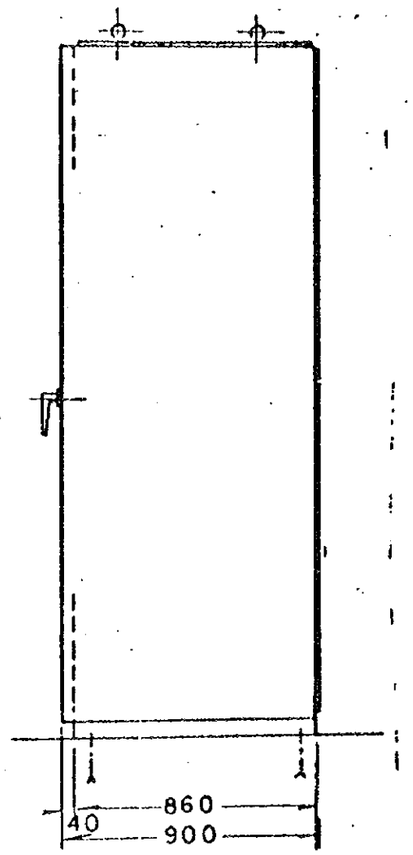
CONNECTION IS MADE AT UPPER TERMINAL

RS. TANJUNG BALI

FRONT VIEW



SIDE VIEW



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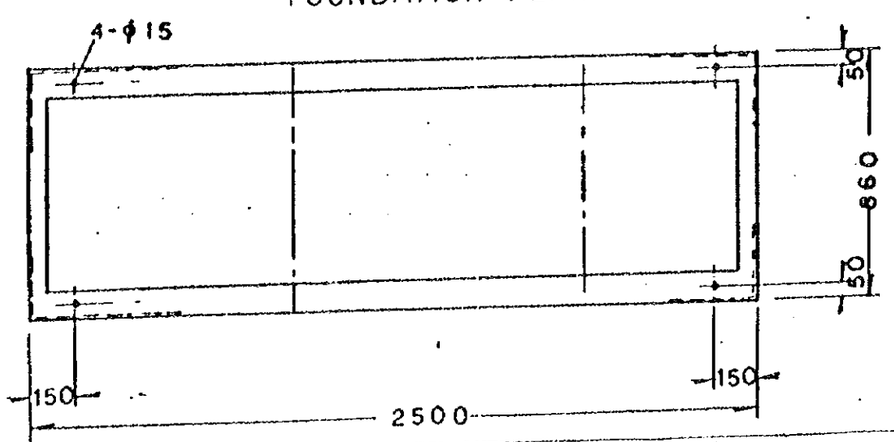
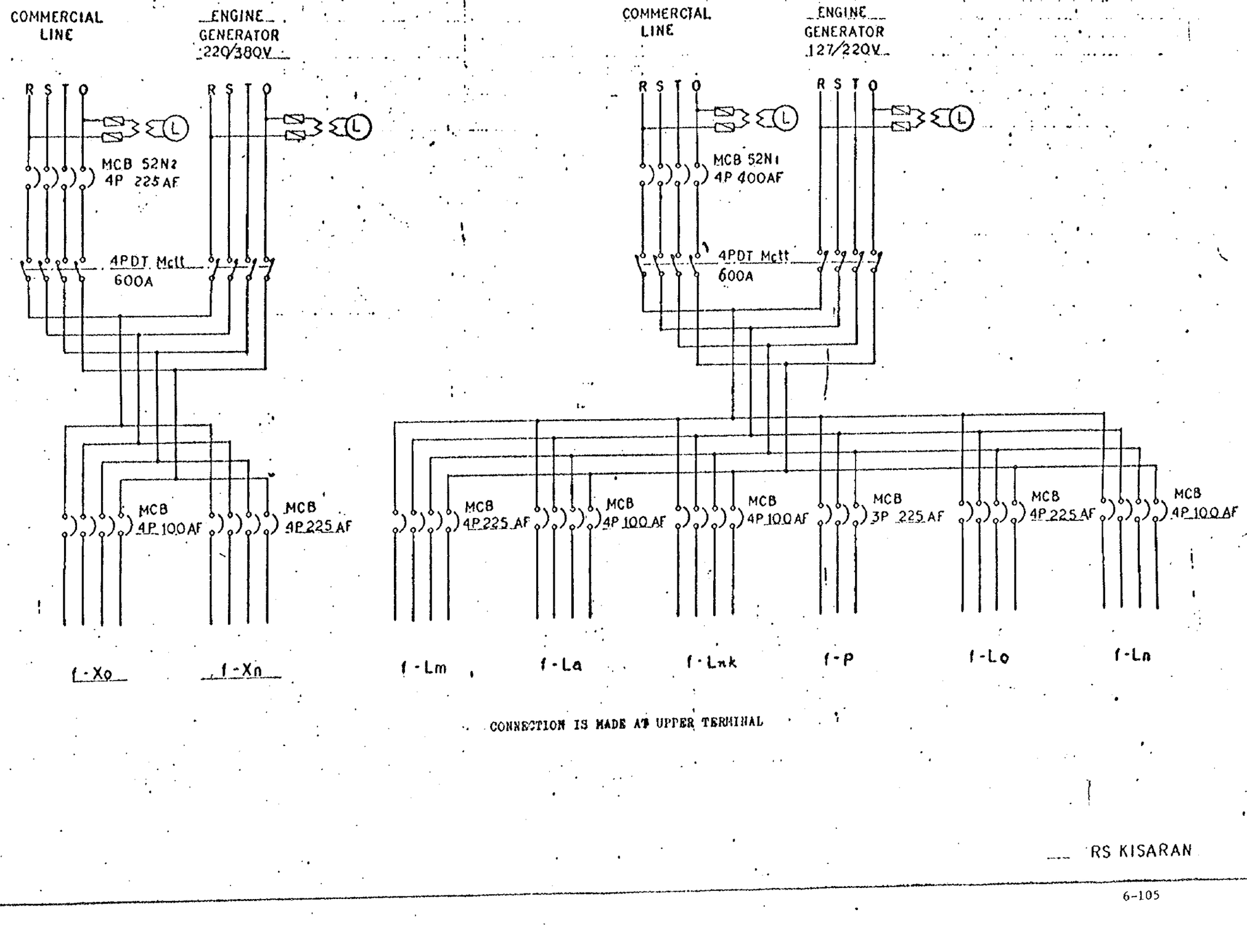
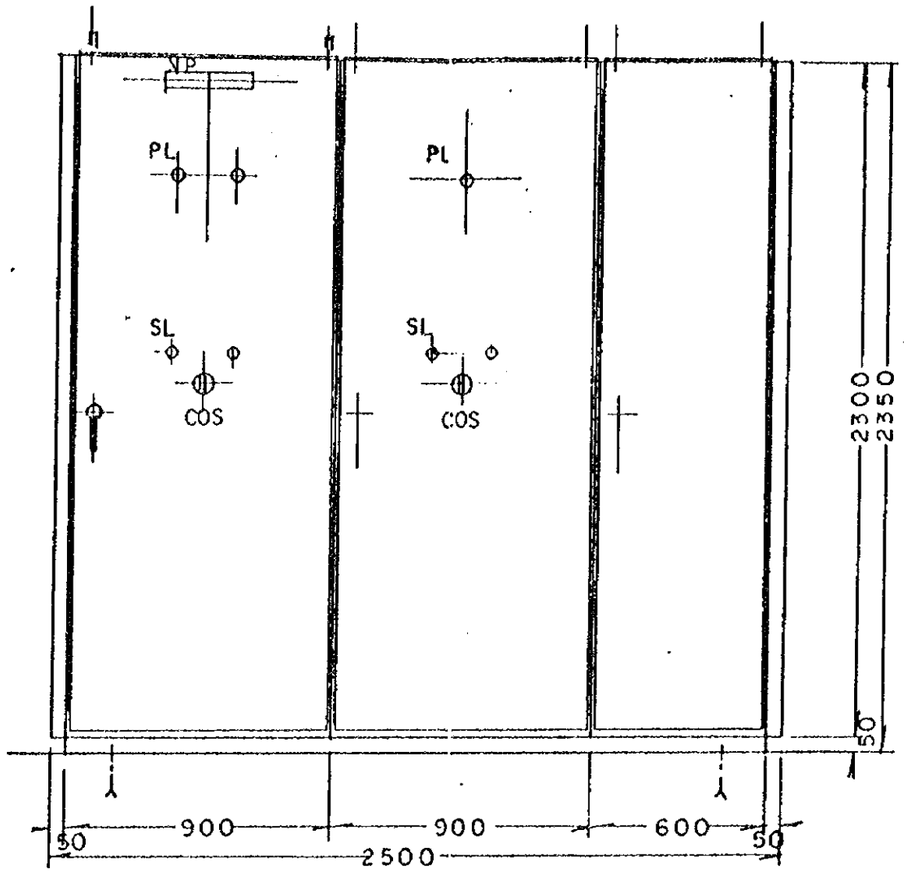


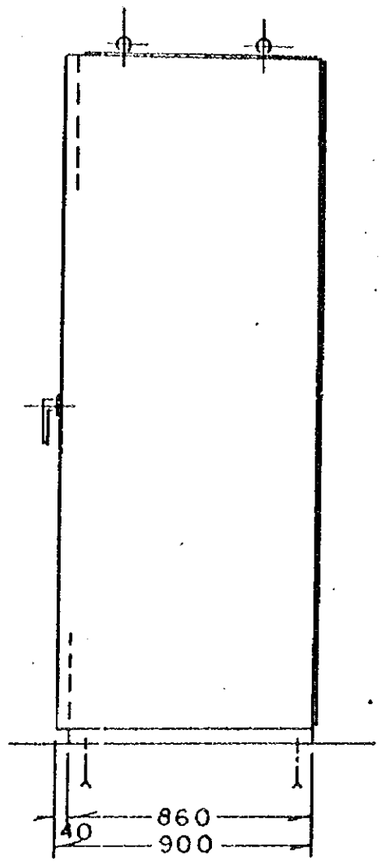
RS KISARAN


COMMERCIAL LINE
ENGINE GENERATOR 220/380V
R S T O
MCB 52N2 4P 225AF
4PDT Mctt 600A
MCB 4P 100AF
MCB 4P 225AF
f-Xo
f-Xn
COMMERCIAL LINE
ENGINE GENERATOR 127/220V
R S T O
MCB 52N1 4P 400AF
4PDT Mctt 600A
MCB 4P 225AF
MCB 4P 100AF
MCB 4P 100AF
MCB 3P 225AF
MCB 4P 225AF
MCB 4P 100AF
f-Lm
f-La
f-Lnk
f-P
f-Lo
f-Ln
CONNECTION IS MADE AT UPPER TERMINAL
RS KISARAN

FRONT VIEW



SIDE VIEW



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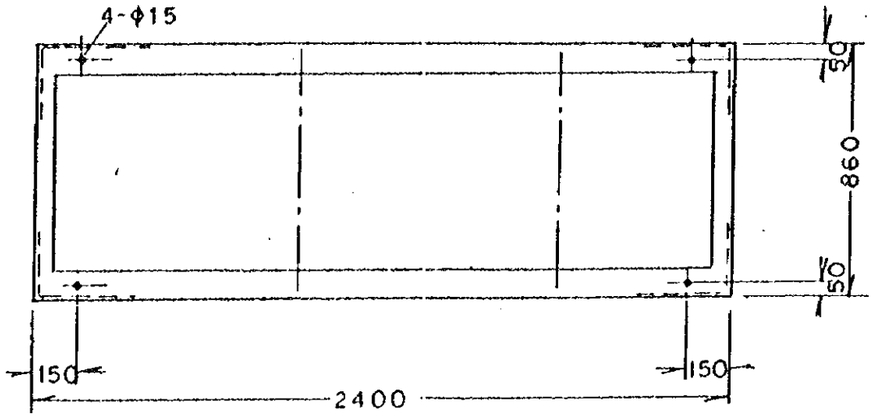
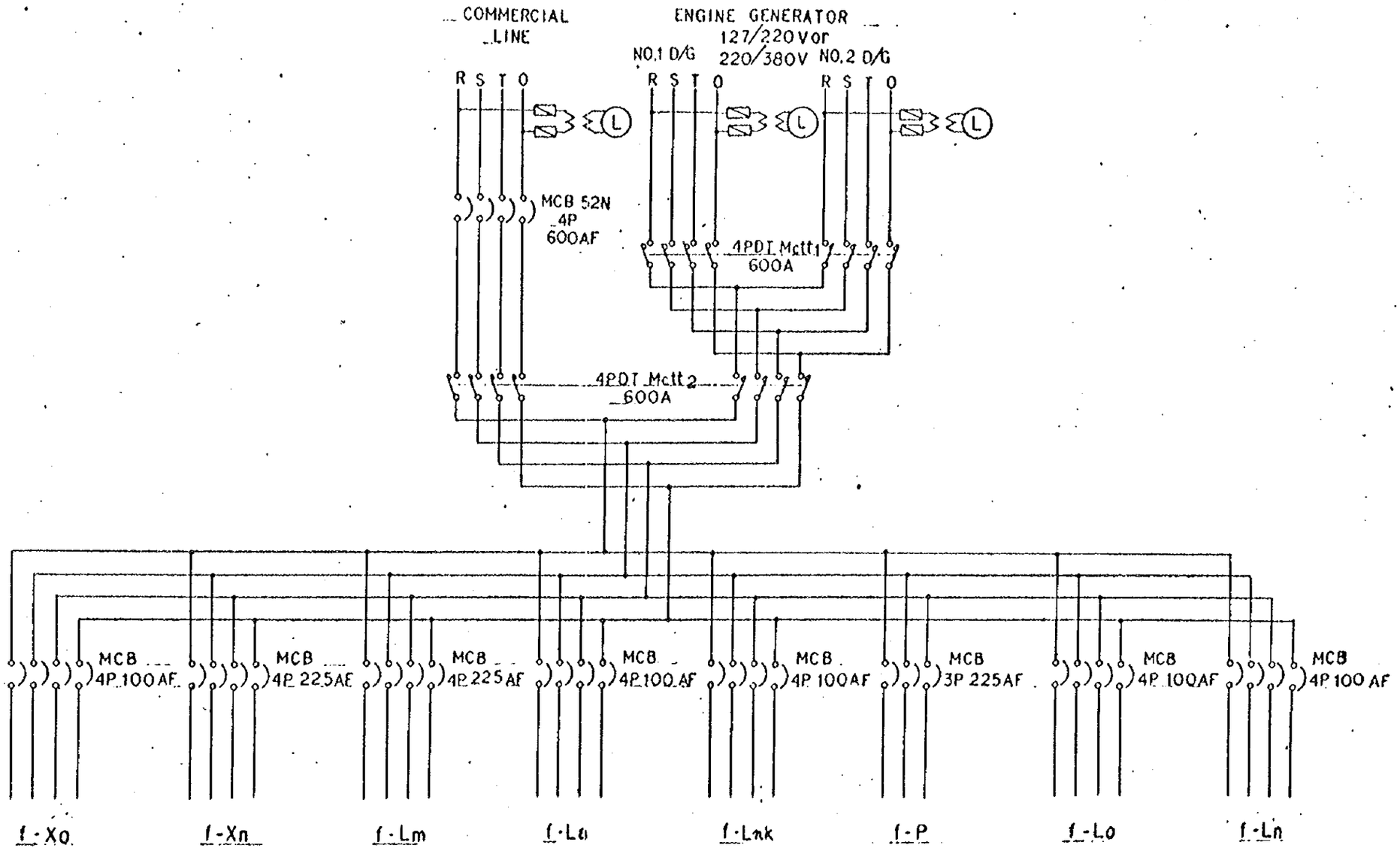


RS RANTAN PRAPATO



CONNECTION IS MADE AT UPPER TERMINAL

RS RANTAN PRAPAT

	Cable 600V CV (mm^2)						Cable End Connection Head					
	14-4C	22-4C	38-4C	60-4C	100-4C	150-4C	14-4C	22-4C	38-4C	60-4C	100-4C	150-4C
Gunung Wenang					41	150					2	2
Tondano		80				44		2				1
Kotamobagu	34			50			1			1		
Gorontalo	43				41		1				1	
Lim Kendaga		40				44		1				1
Sub-total	77	120		50	82	238	2	3		1	3	4
Ujung pandang	70				65	67	1				2	2
Watam pono		40			81			1			1	
Sopping		47			97			1			1	
Parepare		40				44		1				1
Elim Rantpao	60				57		1				1	
Palopo	50				48		1				1	
Bantaeng	43				41		1				1	
Sub-total	223	127			389	111	4	3			7	3
Medan			100		162	168			1		2	2
Tartung		74	60			157		1	1			2
Porsea		47			48			1			1	
Sianter					48	126					1	2
T. Tinggi	90						2					
Tanzun Bali			40		32				1			1
Kisaran		32			32			1				1
Rantanprapnt	60				57		1					1
Sub-total	150 m	153 m	200 m		379 m	451 m	3	3	3		7	
Total	450	400	200 m	50 m	850 m	800 m	9	9	9	1	17	13

1) Work shop

		Nomenclature	Specification	Description	Q'ty	Remarks
1-315	8	Hoist (General type)	Elimination	"	"	
	10	Baby compressor	System	Automatic unloader	1	50Hz
			Power source	3 ϕ 200~220V 1.5KW		
			Air pressure	7kg/cm^2		
			Air Capacity	65ℓ:175ℓ/min		
			Rotational frequency	950 r.p.m.		
			Installation dimentions	885x366x1040mm 115 mg		
	11	Spray Gun	System	Horizontal spray and Syphon type	3	Hose 100m Hose
			Air pressure	3.5kg/cm^2		
			Air consumption capacity	175 ℓ/min		
	12	Horizontal Cap.	Capacity	400 cc	3	
	13	Air Transformer	Air Pressure	P. 3~8 kg/cm^2 S. 1~7 kg/cm^2	3	
	14	Hand Lifter	Capacity	1500 Kg	1	
			Installation	1210 x 460mm		
			(stroke)	180 ~ 230mm		

Electric Work Shop

		Nomenclature	Specification	Description
4-311	11	Tools	Winder	3000 kg
			Fasthemer	250 kg
			"	500 kg
			"	1000 kg
			"	1500 kg
			Auxiliary wire gripper	3 #
			"	4 #
			"	5 #

Omit tools No. 11 at P. 4-311 ~ 4-313
except above.

5 Water supply Facilities and Other Facilities

Changes in the water supply facilities and other facilities

1) Water supply facility

The water supply method is changed from the elevated tank method to the direct pump feed system with no tank.

2) Kitchen facility

Classes C, D^+ and D are cancelled.

The dishwasher and racks are cancelled and the number of serving wagons is reduced to half the initial value.

In the hospital where the dishwasher is cancelled, a triple sink is added instead.

3) Laundry facility

Classes C, D^+ and D are cancelled.

4) Waste disposal facility

All is cancelled.

5) All facilities in the Porsea hospital are cancelled.

Total cost of water supply facilities
and other facilities

Name of hospital	Class	Loan in yen (10^3 yen)	Basic cost (10^3 R_p)
Gunung Wenang	B	92,600	0
Tondano	C	800	1,900
Kotamobagu	C	800	0
Gorontalo	C	5,700	2,000
Liun Kendage	D^+	600	0
Ujung Pandang	A	106,800	37,100
Pare Pare	C	4,600	7,200
Palopo	D^+	4,400	6,300
Soppeng	D^+	8,400	5,900
Tenriawaru	D^+	8,200	2,900
Elim Rantepao	D^+	4,400	6,400
Bantaeng	D	4,000	1,200
Medan	A	126,300	53,100
Pematang Sianter	B	20,600	11,200
Tartung	C	5,500	26,500
Kisaran	C	4,600	7,600
Rantau Prapat	D^+	9,700	7,300
Tebing Tinggi	D^+	800	1,900
Tanjung Balai	D	200	5,200
Porsea	D	0	0
Total		409,000	183,600

WATER SUPPLY FACILITIES AND OTHERS	1/20	NAME OF HOSPITAL	Gunung Wenang	CLASS	B

ITEM	GROUP MARK	SPACE OF BUILDING (M^2)	WEIGHT (T)	PRICE		REMARKS
				FORETGN EXCHANGE (10^3yen)	LOCAL CURRENCY (10^3RP)	
A1. Water supply equipment Water treatment equipment	-	-	-	-	-	
A2. Outside water pipes	-	-	-	-	-	
B. Kitchen	K - IV	392	9.1	14,000	-	
C. Laundry	L - IV	196	8.9	17,900	-	
D. Solid disposal	-	-	-	-	-	
E1. Boiler plant	B - IV	168	29.5	51,000	-	
E2. Outside steam pipes		-	6.0	7,500	-	
F. Air cooler	C - (5)	-	1.7	2,200	-	
Total			55.2	92,600	-	

WATER SUPPLY FACILITIES AND OTHERS	2/20	NAME OF HOSPITAL	Tondano	CLASS	C

ITEM	GROUP MARK	SPACE OF BUILDING (M^2)	WEIGHT (T)	PRICE		REMARKS
				FOREIGN EXCHANGE (10^3yen)	LOCAL CURRENCY (10^3RP)	
A1. Water supply equipment Water treatment equipment	-	-	-	-	-	
A2. Outside water pipes	-	-	-	-	1,900	
B. Kitchen	-	-	-	-	-	
C. Laundry	-	-	-	-	-	
D. Solid disposal	-	-	-	-	-	
E1. Boiler plant	-	-	-	-	-	
E2. Outside steam pipes	-	-	-	-	-	
F. Air cooler	C - ③	-	0.6	800	-	
Total			0.6	800	1,900	

WATER SUPPLY FACILITIES AND OTHERS	3/20	NAME OF HOSPITAL	Kotamobagu	CLASS	C

ITEM	GROUP MARK	SPACE OF BUILDING (M^2)	WEIGHT (T)	PRICE		REMARKS
				FOREIGN EXCHANGE (10^3yen)	LOCAL CURRENCY (10^3RP)	
A1. Water supply equipment Water treatment equipment	-	-	-	-	-	
A2. Outside water pipes	-	-	-	-	-	
B. Kitchen	-	-	-	-	-	
C. Laundry	-	-	-	-	-	
D. Solid disposal	-	-	-	-	-	
E1. Boiler plant	-	-	-	-	-	
E2. Outside steam pipes	-	-	-	-	-	
F. Air cooler	C - (3)	-	0.6	800	-	
Total			0.6	800	-	

WATER SUPPLY FACILITIES AND OTHERS	4/20	NAME OF HOSPITAL	Gorontalo	CLASS	C

ITEM	GROUP MARK	SPACE OF BUILDING (M2)	WEIGHT (T)	PRICE FOREIGN EXCHANGE (10^3yen)	PRICE LOCAL CURRENCY (10^3RP)	REMARKS
A1. Water supply equipment Water treatment equipment	W-II-ⓑ-T	19.8	0.8	4,900	-	include chlorine sterilization equipment for O.C.
A2. Outside water pipes		-	-	-	2,000	
B. Kitchen	-	-	-	-	-	
C. Laundry	-	-	-	-	-	
D. Solid disposal	-	-	-	-	-	
E1. Boiler plant	-	-	-	-	-	
E2. Outside steam pipes	-	-	-	-	-	
F. Air cooler	C - ③	-	0.6	800	-	
Total			1.4	5,700	2,000	

WATER SUPPLY FACILITIES AND OTHERS	5/20	NAME OF HOSPITAL	Liun Kendage	CLASS	D+

ITEM	GROUP MARK	SPACE OF BUILDING (M^2)	WEIGHT (T)	PRICE		REMARKS
				FOREIGN EXCHANGE (10^3yen)	LOCAL CURRENCY (10^3RP)	
A1. Water supply equipment Water treatment equipment	-	-	-	-	-	
A2. Outside water pipes	-	-	-	-	-	
B. Kitchen	-	-	-	-	-	
C. Laundry	-	-	-	-	-	
D. Solid disposal	-	-	-	-	-	
E1. Boiler plant	-	-	-	-	-	
E2. Outside steam pipes	-	-	-	-	-	
F. Air cooler	C - ②	-	0.5	600	-	
Total			0.5	600	-	

WATER SUPPLY FACILITIES AND OTHERS	6/20	NAME OF HOSPITAL	Ujung Pandang	CLASS	A

ITEM	GROUP MARK	SPACE OF BUILDING (M^2)	WEIGHT (T)	PRICE		REMARKS
				FOREIGN EXCHANGE (10^3yen)	LOCAL CURRENCY (10^3RP)	
A1. Water supply equipment Water treatment equipment	W - IV - T	38.5	4.6	9,700	30,000	
A2. Outside water pipes		-	-	-	7,100	
B. Kitchen	K - IV	392	9.1	14,000	-	
C. Laundry	L - IV	196	8.9	17,900	-	
D. Solid disposal	-	-	-	-	-	
E1. Boiler plant	B - IV	168	29.5	51,000	-	
E2. Outside steam pipes		-	8.5	12,000	-	
F. Air cooler	C - ⑥	-	1.7	2,200	-	
Total			62.3	106,800	37,100	

WATER SUPPLY FACILITIES AND OTHERS	7/20	NAME OF HOSPITAL	Pare-Pare	CLASS	C

ITEM	GROUP MARK	SPACE OF BUILDING (M^2)	WEIGHT (T)	PRICE		REMARKS
				FOREIGN EXCHANGE (10^3yen)	LOCAL CURRENCY (10^3RP)	
A1. Water supply equipment Water treatment equipment	W-1-ⓐ-T	19.8	0.8	3,800	4,500	include piping for outside of the site
A2. Outside water pipes		-	-	-	2,700	
B. Kitchen	-	-	-	-	-	
C. Laundry	-	-	-	-	-	
D. Solid disposal	-	-	-	-	-	
E1. Boiler plant	-	-	-	-	-	
E2. Outside steam pipes	-	-	-	-	-	
F. Air cooler	C - ③	-	0.6	800	-	
Total			1.4	4,600	7,200	

WATER SUPPLY FACILITIES AND OTHERS	8/20	NAME OF HOSPITAL	Palopo	CLASS	D+

ITEM	GROUP MARK	SPACE OF BUILDING (M^2)	WEIGHT (T)	PRICE		REMARKS
				FOREIGN EXCHANGE (10^3yen)	LOCAL CURRENCY (10^3RP)	
A1. Water supply equipment Water treatment equipment	W-I-ⓐ-T	19.8	0.8	3,800	4,500	
A2. Outside water pipes		-	-	-	1,800	
B. Kitchen	-	-	-	-	-	
C. Laundry	-	-	-	-	-	
D. Solid disposal	-	-	-	-	-	
E1. Boiler plant	-	-	-	-	-	
E2. Outside steam pipes	-	-	-	-	-	
F. Air cooler	C - ②	-	0.5	600	-	
Total			1.3	4,400	6,300	

WATER SUPPLY FACILITIES AND OTHERS	9/20	NAME OF HOSPITAL	Soppeng	CLASS	D^+

ITEM	GROUP MARK	SPACE OF BUILDING (M^2)	WEIGHT (T)	PRICE		REMARKS
				FOREIGN EXCHANGE (10^3 yen)	LOCAL CURRENCY (10^3 RP)	
A1. Water supply equipment Water treatment equipment	W-I-ⓐ-T	19.8	0.8 11.5	3,800 4,000	4,500	bottom Water Tank Lorry
A2. Outside water pipes		-	-	-	1,400	
B. Kitchen	-	-	-	-	-	
C. Laundry	-	-	-	-	-	
D. Solid disposal	-	-	-	-	-	
E1. Boiler plant	-	-	-	-	-	
E2. Outside steam pipes	-	-	-	-	-	
F. Air cooler	C - ②	-	0.5	600	-	
Total			12.8	8,400	5,900	

WATER SUPPLY FACILITIES AND OTHERS	10/20	NAME OF HOSPITAL	Terriawaru	CLASS	D^+

ITEM	GROUP MARK	SPACE OF BUILDING (M^2)	WEIGHT (T)	PRICE		REMARKS
				FOREIGN EXCHANGE (10^3yen)	LOCAL CURRENCY (10^3RP)	
A1. Water supply equipment Water treatment equipment	W-I ⓐ ⓑ -T	19.8 19.8	0.8 0.8	3,800 3,800		use PAM and Well for PAM, use the existing water tank
A2. Outside water pipes		-	-	-	2,900	
B. Kitchen	-	-	-	-	-	
C. Laundry	-	-	-	-	-	
D. Solid disposal	-	-	-	-	-	
E1. Boiler plant	-	-	-	-	-	
E2. Outside steam pipes	-	-	-	-	-	
F. Air cooler	C - ②	-	0.5	600	-	
Total			2.1	8,200	2,900	

WATER SUPPLY FACILITIES AND OTHERS	11/20	NAME OF HOSPITAL	Elim Rantepao	CLASS	D^+

ITEM	GROUP MARK	SPACE OF BUILDING (M^2)	WEIGHT (T)	PRICE		REMARKS
				FOREIGN EXCHANGE (10^3yen)	LOCAL CURRENCY (10^3RP)	
A1. Water supply equipment Water treatment equipment	W-I-ⓐ-T	19.8	0.8	3,800	4,500	
A2. Outside water pipes		-	-	-	1,900	
B. Kitchen	-	-	-	-	-	
C. Laundry	-	-	-	-	-	
D. Solid disposal	-	-	-	-	-	
E1. Boiler plant	-	-	-	-	-	
E2. Outside steam pipes	-	-	-	-	-	
F. Air cooler	C - ②	-	0.5	600	-	
Total			1.3	4,400	6,400	

WATER SUPPLY FACILITIES AND OTHERS	12/20	NAME OF HOSPITAL	Bantaeng	CLASS	D

ITEM	GROUP MARK	SPACE OF BUILDING (M^2)	WEIGHT (T)	PRICE FOREIGN EXCHANGE (10^3yen)	PRICE LOCAL CURRENCY (10^3RP)	REMARKS
A1. Water supply equipment Water treatment equipment	W-I-ⓑ-T	19.8	0.8	3,800	-	
A2. Outside water pipes		-	-	-	1,200	
B. Kitchen	-	-	-	-	-	
C. Laundry	-	-	-	-	-	
D. Solid disposal	-	-	-	-	-	
E1. Boiler plant	-	-	-	-	-	
E2. Outside steam pipes	-	-	-	-	-	
F. Air cooler	C - ①	-	0.2	200	-	
Total			1.0	4,000	1,200	

WATER SUPPLY FACILITIES AND OTHERS	13/20	NAME OF HOSPITAL	Medan	CLASS	A

ITEM	GROUP MARK	SPACE OF BUILDING (M^2)	WEIGHT (T)	PRICE		REMARKS
				FOREIGN EXCHANGE (10^3yen)	LOCAL CURRENCY (10^3RP)	
A1. Water supply equipment Water treatment equipment	W - V - T	38.5	4.9	10,800	45,000	
A2. Outside water pipes		-	-	-	8,100	
B. Kitchen	K - V	510	12.1	20,000	-	
C. Laundry	L - V	224	13.0	23.600	-	
D. Solid disposal	-	-	-	-	-	
E1. Boiler plant	B - V	168	32.9	55,000	-	
E2. Outside steam pipes		-	10.0	14,500	-	
F. Air cooler	C - ⑦	-	1.8	2,400	-	
Total			74.7	126,300	53,100	

WATER SUPPLY FACILITIES AND OTHERS	14/20	NAME OF HOSPITAL	Pematang Siantar	CLASS	B

ITEM	GROUP MARK	SPACE OF BUILDING (M^2)	WEIGHT (T)	PRICE		REMARKS
				FOREIGN EXCHANGE (10^3yen)	LOCAL CURRENCY (10^3RP)	
A1. Water supply equipment Water treatment equipment	-	-	-	-	-	
A2. Outside water pipes		-	-	-	11,200	
B. Kitchen	K - III	336	5.9	8,000	-	
C. Laundry	L - III	143	5.7	11,000	-	
D. Solid disposal	-	-	-	-	-	
E1. Boiler plant	-	-	-	-	-	
E2. Outside steam pipes	-	-	-	-	-	
F. Air cooler	C - (4)	-	1.2	1,600	-	
Total			12.8	20,600	11,200	

WATER SUPPLY FACILITIES AND OTHERS	15/20	NAME OF HOSPITAL	Tartung	CLASS	C

ITEM	GROUP MARK	SPACE OF BUILDING (M²)	WEIGHT (T)	PRICE		REMARKS
				FOREIGN EXCHANGE (10^3yen)	LOCAL CURRENCY (10^3RP)	
A1. Water supply equipment Water treatment equipment	W-II-ⓐ-T	19.8	0.8	4,700	-	use the existing water tank
A2. Outside water pipes		-	-	-	26,500	include piping for outside of site
B. Kitchen	-	-	-	-	-	
C. Laundry	-	-	-	-	-	
D. Solid disposal	-	-	-	-	-	
E1. Boiler plant	-	-	-	-	-	
E2. Outside steam pipes	-	-	-	-	-	
F. Air cooler	C - ③	-	0.6	800	-	
Total			1.4	5,500	26,500	

WATER SUPPLY FACILITIES AND OTHERS	16/20	NAME OF HOSPITAL	Kisaran	CLASS	C

ITEM	GROUP MARK	SPACE OF BUILDING (M^2)	WEIGHT (T)	PRICE		REMARKS
				FOREIGN EXCHANGE (10^3ven)	LOCAL CURRENCY (10^3RP)	
A1. Water supply equipment Water treatment equipment	W-I-ⓐ-T	19.8	0.8	3,800	4,500	
A2. Outside water pipes		-	-	-	3,100	
B. Kitchen	-	-	-	-	-	
C. Laundry	-	-	-	-	-	
D. Solid disposal	-	-	-	-	-	
E1. Boiler plant	-	-	-	-	-	
E2. Outside steam pipes	-	-	-	-	-	
F. Air cooler	C - ③	-	0.6	800	-	
Total			1.4	4,600	7,600	

WATER SUPPLY FACILITIES AND OTHERS	17/20	NAME OF HOSPITAL	Rantau Prapat	CLASS	D^+

ITEM	GROUP MARK	SPACE OF BUILDING (M^2)	WEIGHT (T)	PRICE FOREIGN EXCHANGE (10^3yen)	PRICE LOCAL CURRENCY (10^3RP)	REMARKS
A1. Water supply equipment Water treatment equipment	W-I-ⓒ-T	28.8	1.2 11.5	5,100 4,000	4,500	bottom Water Tank Lorry
A2. Outside water pipes		-	-	-	2,800	
B. Kitchen	-	-	-	-	-	
C. Laundry	-	-	-	-	-	
D. Solid disposal	-	-	-	-	-	
E1. Boiler plant	-	-	-	-	-	
E2. Outside steam pipes	-	-	-	-	-	
F. Air cooler	C - ②	-	0.5	600	-	
Total			13.2	9,700	7,300	

WATER SUPPLY FACILITIES AND OTHERS	18/20	NAME OF HOSPITAL	Tebing Tinggi	CLASS	D+

ITEM	GROUP MARK	SPACE OF BUILDING (M^2)	WEIGHT (T)	PRICE		REMARKS
				FOREIGN EXCHANGE (10^3yen)	LOCAL CURRENCY (10^3RP)	
A1. Water supply equipment Water treatment equipment		3	0.1	200	-	only chlorine sterilization equipment
A2. Outside water pipes		-	-	-	1,900	
B. Kitchen	-	-	-	-	-	
C. Laundry	-	-	-	-	-	
D. Solid disposal	-	-	-	-	-	
E1. Boiler plant	-	-	-	-	-	
E2. Outside steam pipes	-	-	-	-	-	
F. Air cooler	C - (2)	-	0.5	600	-	
Total			0.6	800	1,900	

WATER SUPPLY FACILITIES AND OTHERS	19/20	NAME OF HOSPITAL	Tanjung Balai	CLASS	D

ITEM	GROUP MARK	SPACE OF BUILDING (M^2)	WEIGHT (T)	PRICE		REMARKS
				FOREIGN EXCHANGE (10^3 yen)	LOCAL CURRENCY (10^3RP)	
A1. Water supply equipment Water treatment equipment	-	-	-	-	-	
A2. Outside water pipes		-	-	-	5,200	include piping for outside of the site
B. Kitchen	-	-	-	-	-	
C. Laundry	-	-	-	-	-	
D. Solid disposal	-	-	-	-	-	
E1. Boiler plant	-	-	-	-	-	
E2. Outside steam pipes	-	-	-	-	-	
F. Air cooler	C - ①	-	0.2	200	-	
Total			0.2	200	5,200	

WATER SUPPLY FACILITIES AND OTHERS	20/20	NAME OF HOSPITAL	Porsea	CLASS	D

ITEM	GROUP MARK	SPACE OF BUILDING (M^2)	WEIGHT (T)	PRICE		REMARKS
				FOREIGN EXCHANGE (10^3yen)	LOCAL CURRENCY (10^3RP)	
A1. Water supply equipment Water treatment equipment	-	-	-	-	-	
A2. Outside water pipes	-	-	-	-	-	
B. Kitchen	-	-	-	-	-	
C. Laundry	-	-	-	-	-	
D. Solid disposal	-	-	-	-	-	
E1. Boiler plant	-	-	-	-	-	
E2. Outside steam pipes	-	-	-	-	-	
F. Air cooler	C - (1)	-	-	-	-	
Total			-	-	-	

6-6 The others

1) To change the cost of Freight and Insurance from 10 percent to 6 percent of the cost of equipment and facilities.

2) To change the cost of contingency from 10 percent to 5 percent of the cost of equipment and facilities.