

भारत सरकार / GOVERNMENT OF INDIA
रेल मंत्रालय / MINISTRY OF RAILWAYS
(रेलवे बोर्ड / RAILWAY BOARD)

No. 2020/TT-III/73/2

New Delhi, dt. 16 .03.2021

The General Managers
All Indian Railways &
Konkan Railway Corporation Ltd.

**Sub: Operation and Maintenance of Power Packs manned by escorting staff
used for Refrigerated Containers operated by Container Train
Operators (CTOs)**

Movement of Refrigerated Containers (popularly known as reefer containers) is being regularly done on the Indian Railway System. The refrigerated containers require temperature to be regulated throughout its journey as per the requirement of the commodities being transported. This is achieved by diesel operated power packs of capacities ranging from 200 to 500KVA installed in the empty containers which are part of the container train formation. The electric power so produced is transmitted to the individual reefer containers by means of the cable running along the wagons. These power packs are having two DG sets for alternate working along with associated equipment like diesel storage tanks (approx. 2000 to 3000 litres), electrical feeding panels, control panels and operator room etc. For operation, control and maintenance of these Power Packs skilled escorting staff deployed by the CTOs directly or through agencies engaged by them, travel along with the container train, occupying the space in the container housing the generators. This staff remain with the reefer container train during its entire journey for continuous monitoring of various parameters and ensuring proper working of the DG sets and the connecting cables etc. They are also required to coordinate with the running staff in the event of any emergency. No instructions/directions from Railways exist for this arrangement though this arrangement is in operation since more than 2 decades.

2. There have been a few cases of fire in these power packs, one of which resulted in the death of both the escorting staff of the affected powerpack. Issue of instructions by Railway Board for operation and maintenance of such manned power packs was one of the recommendations of the SAG Enquiry Committee which enquired into this accident. CRS has also directed that suitable instructions for such operations of powerpack with escorting staff should be issued. An immediate action was taken to stop the powerpacks fitted in 20 feet single container. As a result, now all powerpack containers in operation are 40 feet or 40 feet equivalent containers. These instructions are being issued in context of the above background.

3. CTOs shall ensure that at least 2 qualified and upto 3 well trained staff escort the Reefer Train having power packs of capacity 200kVA or more. The escorting staff should carry an authority letter and ID card issued by the CTO. The name, designation and phone number of the staff should be clearly visible on the authority letter duly stamped with the seal of CTO.

4. CTOs shall ensure that a hooter with blinking or flasher light is provided in the container housed with DG set, so that in case of fire or emergency the same may be made "ON" to draw immediate attention of the train passing staff enroute for arranging immediate assistance. CTOs shall also ensure that this is implemented within three months.

5. CTOs shall ensure that provision of basic firefighting equipment like fire extinguishers and fire balls are provided with the escorting staff so that they can make use of these equipments to control fire.

6. Following instructions should also be ensured while operating reefer container trains:

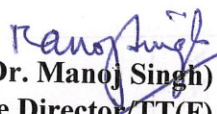
- (i) CTOs shall ensure that only Power Packs in good fettle are despatched from originating point. Thorough checking of power packs at the time of start of trip duly observing periodic maintenance requirements by qualified staff has to be ensured. A certificate shall be issued to the station master of the originating station with copy to escorting staff that all necessary checks have been performed in the proforma at **Annexure-I**. A check sheet for undertaking regular checks before every reefer trip is enclosed at **Annexure -IA**. The instructions at **Annexure-IA** are not exhaustive and CTOs may further elaborate or augment these if required.
- (ii) CTOs shall ensure that only competent container escorting staff are deployed who have been selected based on proper eligibility criteria.
- (iii) All escorting staff shall be given necessary training. There shall be periodic refresher courses for these staff after every 3 years or earlier as decided by CTOs.
- (iv) The escorting staff shall be issued a competency certificate by the authorised official of the CTO after examining the knowledge and competence of the staff with a validity period of 3 years. This certificate shall be in possession of escorting staff.
- (v) The escorting staff should have all the Tools & Plants for their work and safety equipment with them including mobile phone, walkie talkie sets, Red and green Flags, whistle/hooter, Tri-colour torch, safety jacket, safety shoes etc.
- (vi) The safety and working instructions issued by CTOs should be available in the power pack. Instructions are enclosed at **Annexure II, IIA and IIB respectively** for information and usage by all the CTOs. These are indicative and CTOs may further elaborate or augment these as per their requirement.
- (vii) The escorting staff should carry the list of phone numbers of the concerned officials of CTO and his firm. They shall also have the mobile number of the Guard of the train.
- (viii) The escorting staff should carry 2 paired set of walkie-talkie with them during the trip (one for themselves and the other for the Guard of the Reefer train) so that in case of any emergency, the escorting staff can contact the guard over walkie-talkie. Proper handing over/taking over of walkie talkie sets may be ensured by Railways at originating, crew changing stations and at destination station the Guard shall return the walkie-talkie to the escorting staff.
- (ix) In case of any problem enroute, which may endanger the safety of escorting staff, safety of train crew or other travellers, rolling stock or fixed

infrastructure etc. the escorting staff shall take action for immediately informing the Railway staff like Guard, Station Master or the Pointsman etc. and request for the assistance. Their priority should be to get the train stopped. Railway will give necessary instructions to train passing staff to get the train stopped in case of any indication from escorting staff that there is a problem.

- (x) Schematic layouts of some of the different power packs in service are enclosed at **Annexure III** for reference of the Railways.
- (xi) As a next step, CTOs will take action for standardisation of the design and layout of the powerpack containers for future procurement so as to have a good functional and safe layout and design.

5. Zonal Railways are requested to carry out necessary checks at the originating and the terminating stations and some checks during the movement to ensure adherence to the above instructions. Feedback may be given after a period of 3 months to modify and further improve the instructions.

(The Hindi version of this circular will follow)


(Dr. Manoj Singh)
Executive Director/TT(F)
Railway Board

Copy forwarded for information and necessary action to :-

1. The Principal Chief Operations Managers, All Indian Railways
2. The Principal Chief Safety Officers, All Indian Railways
3. Container Corporation of India Ltd. and all CTOs.

Copy to: for information please

OSD/MR, Chairman and CEO, Member (O&BD), PPS to MTRS, Member Infra,
DG/Safety. PED/Safety

Annexure-I

**Details of the reefer train and the escorting staff and documents required to be carried
by escorting staff**

(To be filled by CTO's representative)

Date:.....

To,

The Station Master,

Originating Station Name :.....

Division/Railway:

(copy to escorting staff)

.....

S. N	Description of activity	
1.	Name of the originating station	
2.	Name of the destination station	
3.	Commodity being transported in reefer containers	
4.	Position of the powerpack container from the engine along with the wagon number.	
5.	Names and mobile numbers of the escorting staff for each of the power pack.	
6.	Name and mobile number of the CTO's representative for contacting in case of emergency..	
7.	It is certified that the escorting staff meets laid down conditions for qualifications, experience, medical standards and training	
8.	It is certified that the powerpack containers, electric cabling are fit for reefer trains and regular checks and periodic maintenance are being done.	
9.	It is confirmed that the walkie-talkie set has been handed over to the Guard for communication between escorting staff and Guard.	

Signature of CTOs representative

REGULAR CHECKS (to be done on ground before every Reefer Trip)

Powerpack no:

Place:

Date:.....

S. N	Description of activity	Remarks
1.	Check the following and ensure that i. All the mountings of DG sets are in good condition and there are no signs of cracks. ii. ENGINE MOUNTING BOLTS are properly tightened and CHECK NUTS are provided on each bolt. iii. ALTERNATOR MOUNTING BOLTS are properly tightened and CHECK NUTS are provided on each bolt.	
2.	i. <i>Check all the cables of the main alternator are free from rubbing and end terminations are firm and properly tightened.</i> ii. <i>JAALI is provide on the fan of alternator to prevent entry of foreign objects.</i> iii. <i>Check the connecting cable joints are firm and properly jointed</i>	
3.	i. <i>Check that all the CROSS CHANNELS of the Powerpack container below the DG set area are in sound condition.</i> ii. <i>Provide additional channel between two channels for strengthening the base if the existing channels are bent or excessively rusted/corroded.</i>	
4.	Check all the cables of the BATTERY are free from rubbing and end terminations are firm and properly tightened	
5.	Check the condition of Battery	
6.	Condition of Charging alternator and Charging voltage	
7.	Check the Vent pipes Diesel tank and Breather of Engine.	
8.	i. Check there is no Hot-Plate or heating element or Heat convector is available ii. Check the floor is clean and there is no leakage of lube oil, diesel oil of water	
9.	Megger the alternator for (to be performed on half yearly basis and mark the test date on the assembly itself): i. Main Stator to earth ii. Main Rotor to earth iii. Excitor stator to earth iv. Excitor field to earth v. Resistance of stator (R, Y B) vi. Resistance of Rotor winding,,
10.	Check Fire extinguishers and fire balls and check expiry date	Qty.: Condition:..... ... Expiry date:.....
11.	Check the availability of i. RED & GREEN FLAGS ii. GREEN FLAG	

	iii. Tricolor Torch iv. Safety instructions v. Work instructions v. First Aid Box vi. Trip Book vii.. Authority letter duly signed by CTO	
12.	Check hooter and flasher/ blinking light is in working condition	

It is certified that all the above checks are carried out in our presence.

Signature
(Rep. of CTO)

Signature
(CONTRACTOR of CTO)

.....

Safety instructions to Escorting staff of Reefer Train

1. Ensure to carry details / documents as in Annexure I and also to ensure that the fitness / regular check certificate is issued for the powerpack as per **Annexure-IA**.
2. Always wear the safety shoes whenever on duty.
3. Do not smoke or carry match box or any other inflammable items.
4. Do not get down from train other than the crew changing stations.
5. Keep the Powerpack clean. The Powerpack floor should be free from oil.
6. Do not carry/allow un-authorized material in the Powerpack.
7. Ensure that the list of telephone numbers of Supervisor, CTO's control, ECR (Equipment control Room Incharge) and Manager In-charge of Reefer Section are available in powerpack.
8. Ensure the **RED JHANDI** and **GREEN JHANDI** is available.
9. Do not try to attempt any work enroute on DG sets while running. Attend the fault on DG set, only when train is stopped.
10. Keep the fire extinguishers always accessible.
11. Use fire extinguisher and fire balls in case fire at a safe distance.
12. Do not use water on oil in case of fire.
13. In case of electrical fault on panel, ensure that the MCCB is off.
14. Always keep the area dry near panel.
15. Use **RED JHANDI** or **RED TORCH LAMP** in case of emergency to stop the train.
16. Share your number with the Guard and driver of the train.
17. Come out of the Power pack container in case of uncontrolled fire.
18. Keep reporting details of your trip over phone to your supervisor (Contractor) at least twice a day.
19. In case of any emergency, call the CTOs Managers immediately for help.
20. Use correct tools while doing work.
21. Do not come out from Port until unless you finish your trip.

Working instructions for Reefer train:

A. MAINTENANCE:

1. Check the conditions of locks of incoming power pack or already placed Reefer power pack.
2. Diesel filling in diesel tanks of power packs in coordination with representative of Store & Reefer Department of CTOs.
3. (If due) Carry out periodic/Routine and other related maintenance activities of DG set as per OEM recommendations as detailed in A, B and C maintenance for Existing D.G. Sets.
4. To carry out the preventive and inspective maintenance of Electrical distribution panel, connecting cables, cabin, locking arrangement, diesel tanks and ducting system.
5. To attend all breakdowns of electrical and mechanical nature in Reefer power packs and connecting cables.
6. Check the power pack as per pre-trip checks as per prescribed format. Ensure the last trip complaints are attended.
7. To fill the water in the overhead tanks and plastic cans of the Reefer power packs. Keep 5 liters of engine Lube oil and 5 liters of radiator coolant of engine for the emergency use during enroute.
8. To ensure that all the sub-assemblies of the Power packs are in working order.
9. Maintain the cleanliness of Electrical Panels, DG Sets, Flooring and other components etc of complete Power Pack.
10. Prepare GI wire in lengths of 1500 mm in double folds for clamping of connecting cables. The connecting cables and connectors will have to be clamped with train at least 10 location per wagon.
11. The escorting staff will have to travel on goods train (i.e. BLC Rakes which is running on an average speed of 100 KMPH) with the reefer train from ICDs of Dadri/ Agra/ Kanpur to Mundra port/Pipava port/ Mumbai port/JNPT etc. The Journey will start from container terminals to the Destination Port. The reefer train takes app. around 50-70 hrs. for reaching at the Port Destination from container terminals therefore the escorting staff should keep enough food with them sufficient for at least for 7 days.

B. CABLING & CLAMPING.

1. Removal of connecting cables from reefer power pack and laying one by one on the ground adjacent to wagons. Each cable of specified length should be laid in an order of placement of reefer container from Power pack.
2. After laying all cables in both sides of power pack, these are to be tied and clamped with wagon with GI wires.
3. The contractor has to complete the activity (cable laying and tying) within stipulated time of 2 hrs from the time of placement of power pack capable of feeding supply up to 22 containers and within 3.5 hrs for power pack capable of feeding supply to 44 containers, on the train in any way.
4. Inspect the Container for the physical condition, especially the working of the refrigeration unit, working of Partlograph, length of cable, system Battery, other electrical appliances, connectors, relays electronic cards and plugs etc.
5. Give electric power to the Containers gradually (i.e. switching on the reefer feeder one by one) after loading on the Train and inspect for proper functioning of reefer unit. Repair the cable or plug or connector if any found non- functional.

6. Record temperature from the each reefer container and prepare handing over sheet as per Format. If the set temperature is not showing in the reefer display unit, wait for the temp to attain the set temperature. OR if the container has achieved the set temp. in last 24 hours as per temp record , the handover of the container can be taken if the temp is 3-5 degree more than the set temp.
7. Trip Crew will inspect the whole Train before departure of the Train from ICDs.
8. The Reefer Container should be loaded starting from the last Wagon near the Guard Van / Engine.
9. All the cables should be secured properly and firmly with the help of flexible G.I. Wire and should be inspected by the Concerned Supervisors.

C. ENROUTE:

1. The escorting staff will keep an eye on the individual, ammeter readings connected to Reefer Containers inside the Power Pack and note down the Ammeter readings at every four hourly in the given format. The staff should clearly mention the Container number also on this sheet.
2. The Escorting Staff shall feed the power to the containers alternatively through one of the DG Set installed in the Power packs.
3. They shall try to note the temperature of the reefer containers in the given format at a station where the Crew changing is planned. After discussion with the guard and the work should be finished within the stoppage time.
4. The staff should carry tool kit for carrying out breakdown activities on the route to Port.
5. If any abnormality is observed in any system – DG Set, Reefer Containers etc. it should be informed to Officer/Supervisor In charge, Reefer Section Terminal through telephone. If there is any fault in the reefer Container, this should be informed to the Shipping Lines at Delhi / Mumbai also within 24 Hours. This should be informed to the Supervisor/ Manager In-charge in writing immediately after the Trip and over the telephone during the trip.
6. No staff shall get down in any other wayside Stations to desert the train. The Temperature Recording and any defect rectification shall be done only at the CREW Changing Stations or at the requested station for stopping the train and after telling the Guard of the Train. While rectifying the defect both the persons should get down and one person should rectify the defect and other person should look for the Guard / Drivers Signal for starting of the Train and accordingly advise the staff who is repairing the defect.
7. While getting down / getting up in the Power pack, the footstep should be used provided with Power packs.
8. Monitoring of the reefer container and fault rectification of the three phase supply,
9. DG Sets, Electrical Cables, Panels and any other problems related to Reefer Train should be attended without much delay so that power supply is ensured to Reefer containers.

D. AT PORT:

- i. All the Containers should be handed over to the concerned Shipping Line representative with temperature record at that time of the handing over.
- ii. Any abnormality enroute should be informed to the Shipping Line Representative in writing.
- iii. All the cables should be dismantled, rolled individually, tied with wire and kept in the Power pack. The Power pack should be locked and sealed.

- iv. G.I. Wires used for fastening the cables to BLC wagon should be removed from the wagon and collected disposed off at particular location as advised by port officials.
- v. The copy of the record should be submitted to Supervisor / Officer-Technical.
- vi. All staff should wear PPE at ports till Covid precautions in vogue.

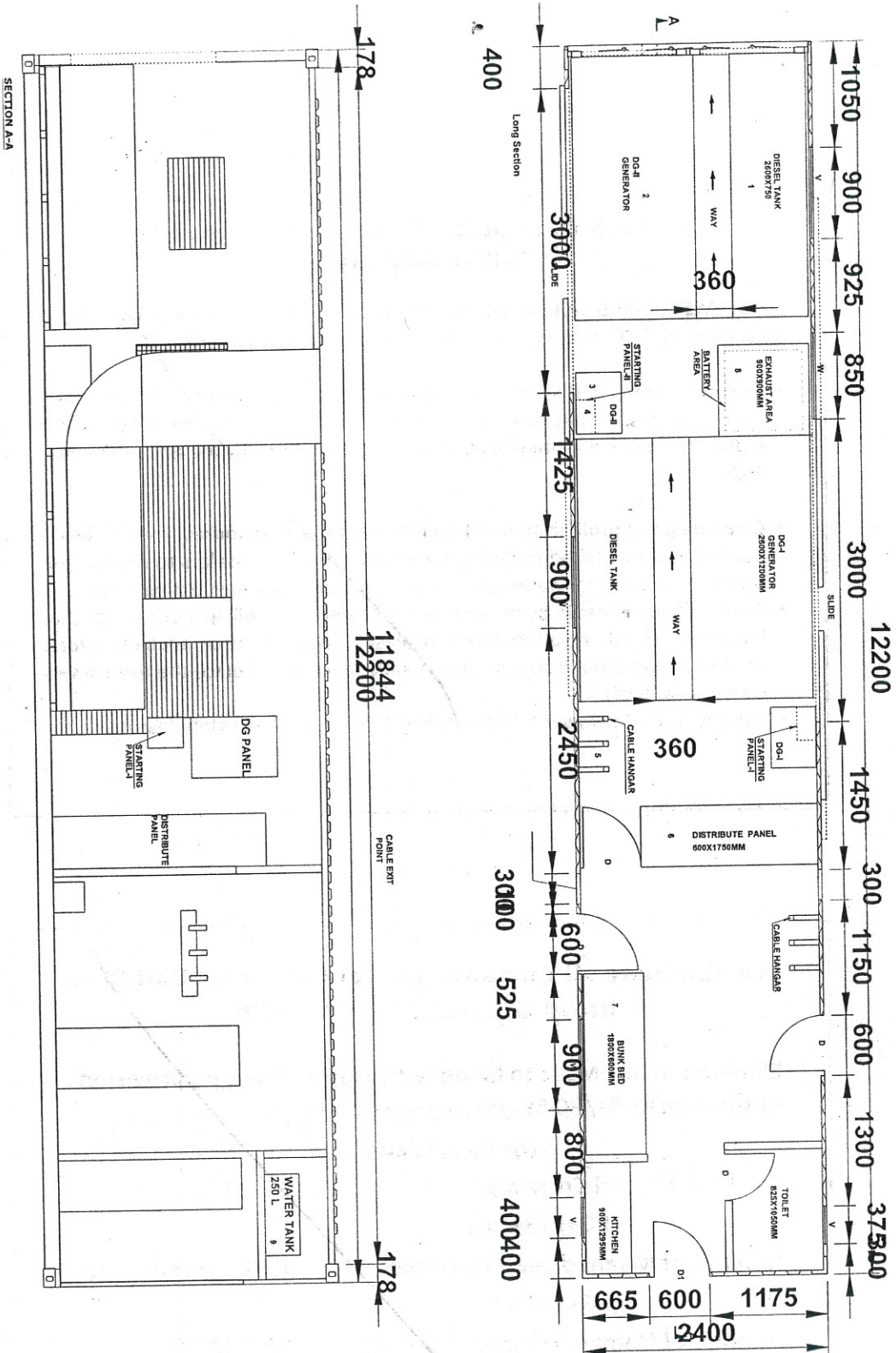
In case of Emergency/ Fault in the Reefers or Power Pack:

1. The escorting staff should contact the Guard on walkie-talkie. The escorting staff should also use the RED JHANDI to the station master of passing station to stop the train **OR** Show the RED LIGHT TORCH LAMP to the station staff.
2. Hooter and blinking light may be activated to catch attention of train passing staff on duty.
3. He can also write memo and throw towards the station staff to stop the train. Try to get his attention by waiving hands etc.
4. The other escorting staff at the same time inform the Driver or the guard of the train on mobile phone (The Guard/Driver and escorting staff should normally share their mobile phone numbers at the crew changing stations).
5. The escorting staff may also additionally contact the CTOs officials for stopping the train.
6. Write message on mobile / mobile phone group of the concerned officials of CTO.

Schematic layouts of some of the commonly used power packs are attached as Annexures III-A, III A1, III B, III B1, IIIC and III-C1.

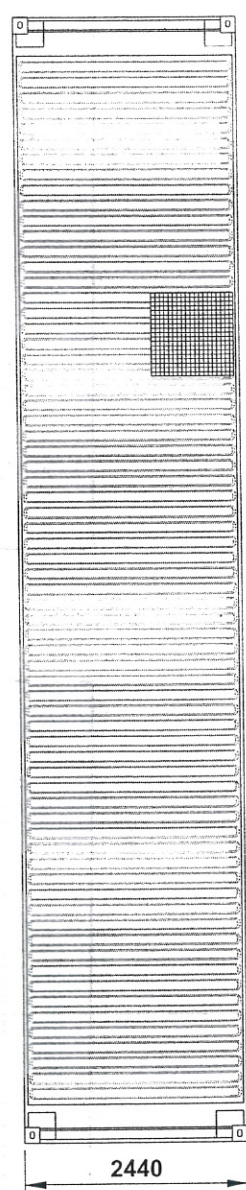
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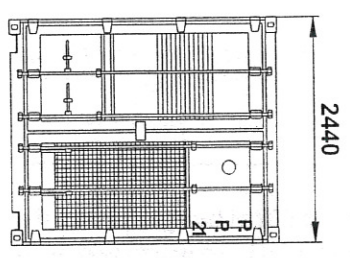


SNO.	EQUIPMENTS	EQUIPMENTS MODEL
01	DIESEL TANK	
02	DC-4 GENERATOR	
03	DC-4 PANEL	
04	STARTING PANEL	
05	CABLE HANGAR	
06	DISTRIIBUTE PANEL	
07	BUNK BED	
08	BATTERY AREA	
09	WATER TANK	

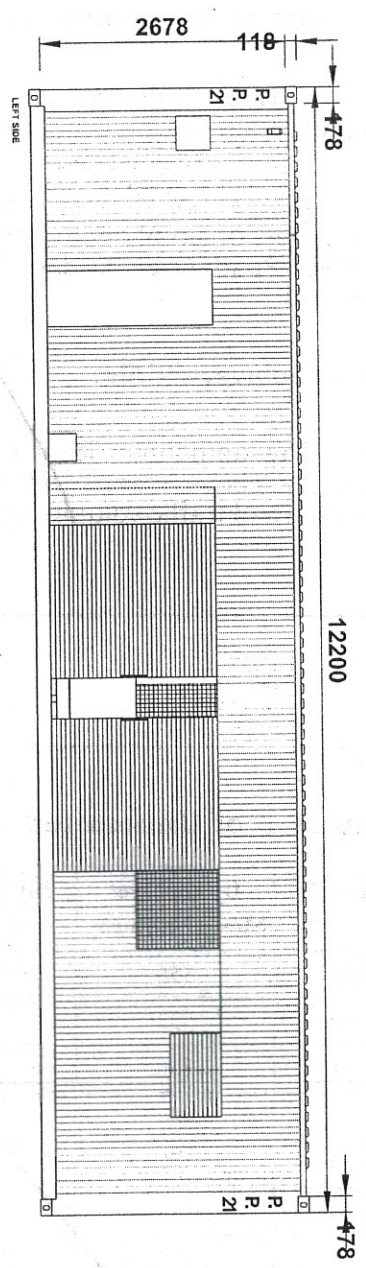
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Checked By: H. BALUJA	
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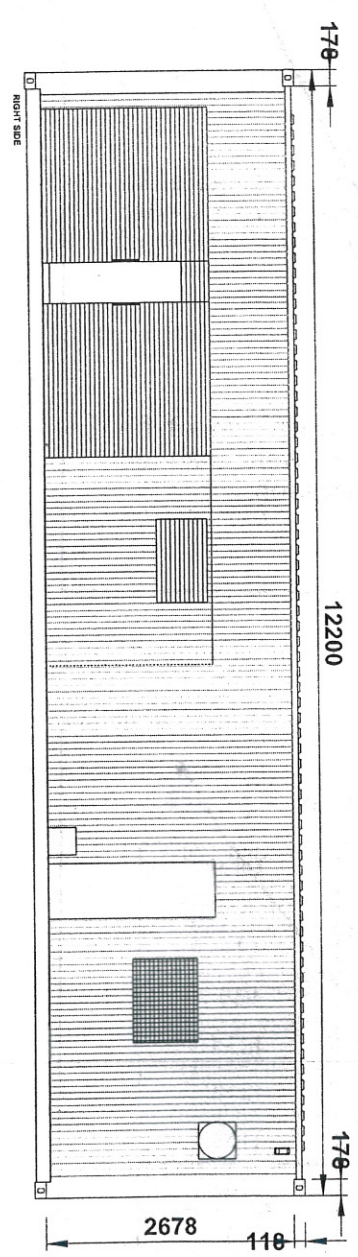
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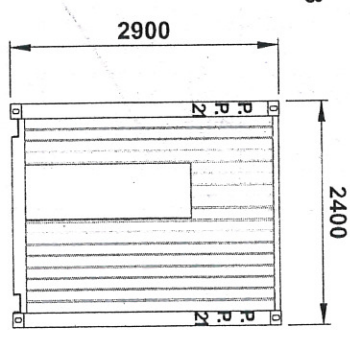
FRONT



LEFT SIDE












RIGHT SIDE

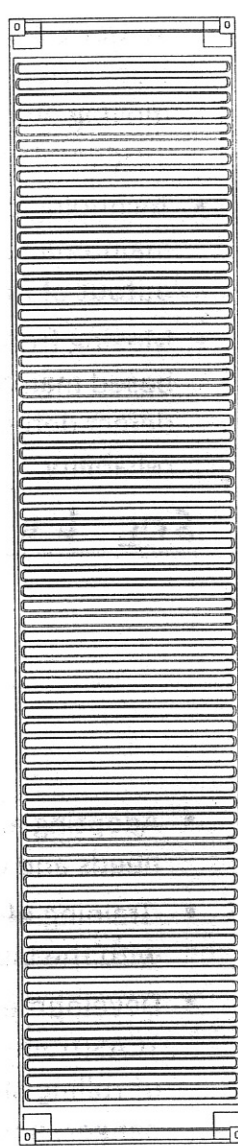


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Checked By	H. BALUJA	THE POWER RACK	THE POWER RACK
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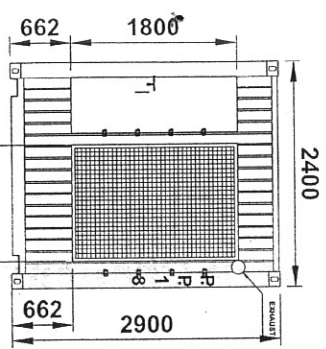


LEGEND		
SNO.	EQUIPMENTS NAME	EQUIPMENTS MODEL
01	STEEL TANK	
02	DO-48 OILBURNER	
03	DO-48 PANEL	
04	STARTING PANEL	
05	CABLE MANAGER	
06	POTTY/VOLTE PANEL	
07	BURN BED	
08	BATTERY AREA	
09	WATER TANK 200L	

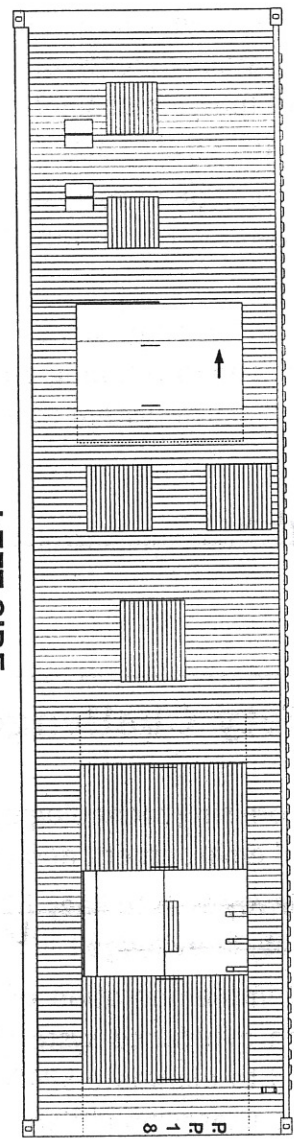
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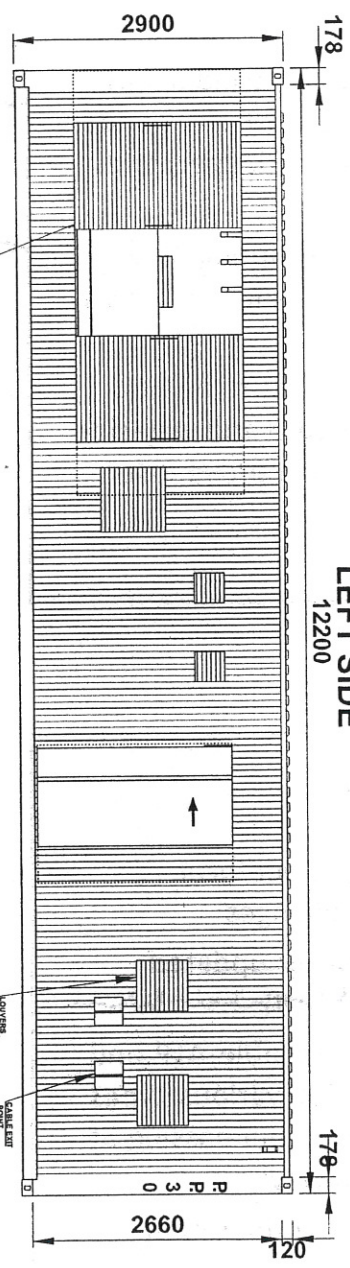
TOP VIEW



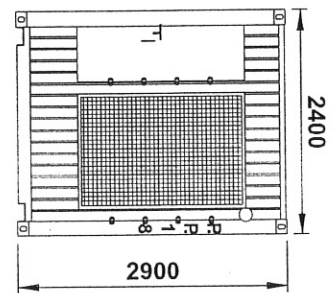
FRONT



LEFT SIDE



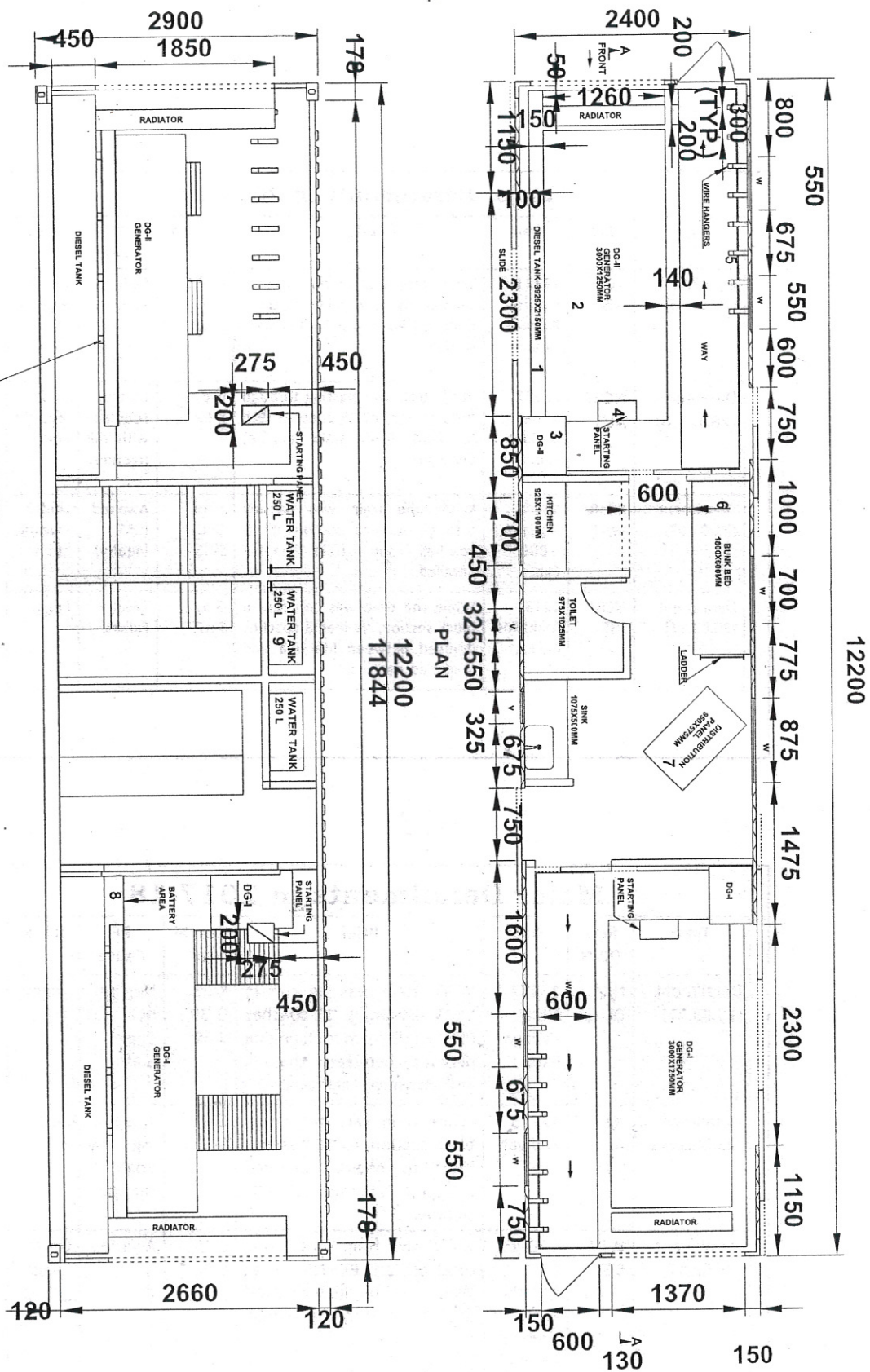
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BACK

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Date: 20.11.2025	Revision No.: 01	Revision Date: 20.11.2025	Revision Description: 1.01
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REVISION DESCRIPTION: 1.01			

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LEGEND	
SNO.	EQUIPMENTS MODEL
01	DIESEL TANK
02	DC-II GENERATOR
03	DC-II PANEL
04	STARTING PANEL
05	WIRE HANGERS
06	BUNK BED
07	DISTRIBUTION PANEL
08	BATTERY AREA
09	WATER TANK 250 L

SECTION A-A

ENGINE MOUNT SEE DRAWING NO.

CONTAINER CORPORATION OF INDIA	
Checked By: H. KALIA	Drawn By: H. KALIA
Approved By: H. KALIA	Reviewed By: H. KALIA
Date: 20.11.2020	Date: 20.11.2020
At: Division of 1st class	At: Division of 1st class
SIGNED: H. KALIA	
DESIGNED: H. KALIA	
DRAWN: H. KALIA	
CHECKED: H. KALIA	
APPROVED: H. KALIA	
DATE: 20.11.2020	
AT: Division of 1st class	