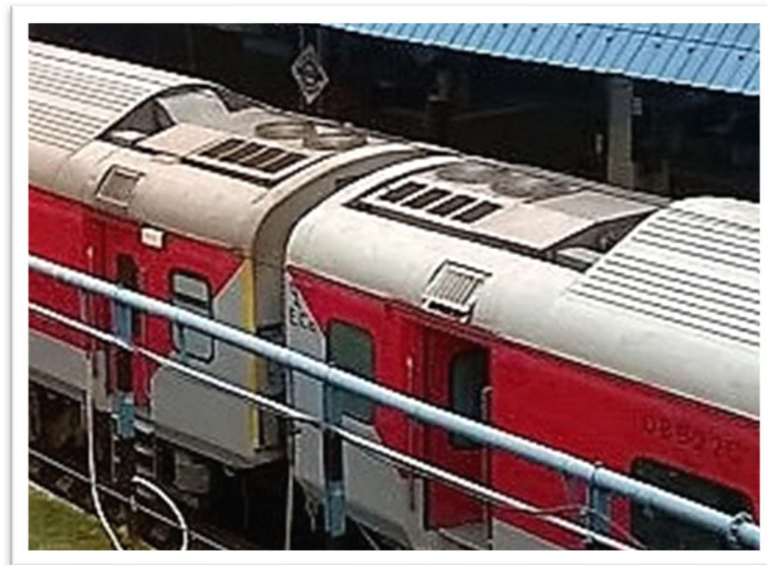


USER MANUAL RMPU LHB COACHES



Sphere Thermal Systems Pvt. Ltd.

Factory Address: - Plot No. B-22 & 23, Ecotech-1 Extension, Greater Noida, Gautam Buddha Nagar UP-201306

Registered Office : 410, 4th Floor, Kirti Mahal Building 19 Rajendra Place New Delhi-110008 India

www.spheretherm.com

connect@spheretherm.com

No Reproduction of this manual is allowed, in whole or in part without written permission from the company. All Rights Reserved. All contents and images published in the manual, unless otherwise indicated, are the property of sphere Thermal System Pvt Ltd. Due care has been taken to avoid errors or misinterpretation. Sphere Thermal System is neither liable nor responsible for consequence of any action taken on the basis of this publication.

All contents applicable as on date of publication. Modifications may take place after that.

Published by Sphere Thermal Systems Pvt. Ltd.

Plot No. B-22 & 23, Ecotech-1 Extension, Greater Noida Gautam Buddha Nagar UP-201306

For restricted circulation only, Not for sale.

1. Warnings

FOR YOUR PERSONAL SAFETY THIS MANUAL MUST BE READ COMPLETELY PRIOR TO COMMENCING WORK ON THE HVAC SYSTEM.

ENSURE THE HVAC POWER SUPPLY PLUGS ARE DISCONNECTED BEFORE WORKING ON THE SYSTEM.

TECHNICAL PERSONNEL WHO HAVE EXPERIENCE IN REFRIGERATION AND ELECTRICAL EQUIPMENT SHOULD MAINTAIN THE AIR-CONDITIONING SYSTEM. IT'S MANDATE THAT THE HVAC SERVICE SHOULD BE HANDLED BY TRAINED/CERTIFIED REFRIGERTION TECHNICIAN ONLY.

Throughout this manual, warnings, cautions, and notes are given. It is important that the significance of each category is thoroughly understood by the personnel using this manual.

Their definitions are as follows:

WARNING:	Indicates a procedure, practice, etc. that, if not strictly observed, could result in personnel injury or loss of life.
CAUTION:	Indicates a procedure, practice, etc. that, if not strictly observed, could result in damage or destruction of equipment
NOTE:	Indicates special details

Revision	Date (dd-mm-yyyy)	Description of Changes
00	22-05-2026	First Issue

TABLE OF CONTENTS

Contents

<i>About this manual.....</i>	<i>3</i>
<i>ABBREVIATION AND DEFINITION.....</i>	<i>6</i>
<i>1. INTRODUCTION.....</i>	<i>7</i>
<i>2. USER SAFETY INFORMATION</i>	<i>7</i>
<i>3. UNIT SPECIFICATION</i>	<i>8</i>
<i>3.1 GENERAL</i>	<i>8</i>
<i>4. GENERAL INSTRUCTION.....</i>	<i>8</i>
<i>3.4 PRE-START CHECKS</i>	<i>9</i>
<i>3.5 WORKING PRINCIPAL SCHEMATIC:</i>	<i>10</i>
<i>4. ELECTRICAL DRAWING</i>	<i>11</i>
<i>5. ROUTINE MAINTENANCE SCHEDULE</i>	<i>14</i>
<i>6. SAFETY DEVICES & PROTECTIONS</i>	<i>14</i>
<i>7. TROUBLESHOOTING GUIDE</i>	<i>15</i>
<i>8. MICROPROCESSOR CONTROLLER (HVAC CONTROLLER)</i>	<i>17</i>
<i>8.1 CONTROLLER MAIN FUNCTIONS.....</i>	<i>17</i>
<i>8.2 IMPORTANT PRE-CHECKS BEFORE CONTROLLER START</i>	<i>17</i>
<i>8.2.1 LHB controllers I/O.....</i>	<i>18</i>
<i>8.3 DATA RECORDING & DOWNLOADING</i>	<i>19</i>
<i>8.3.1 EVENT LOG.....</i>	<i>19</i>
<i>8.3.2 FAULT LOG</i>	<i>19</i>
<i>9. MICROPROCESSOR FAULT TROUBLESHOOTING.....</i>	<i>20</i>
<i>10. LIFTING INSTRUCTION</i>	<i>22</i>
<i>11. TIGHTING INSTRUCTION</i>	<i>23</i>
<i>12. TIGHTENING TORQUE PARAMETERS FOR SS304 FASTNERS</i>	<i>23</i>
<i>13. SPARE PARTS.....</i>	<i>24</i>
<i>14. PROTECT THE ENVIRONMENT FROM E-WASTE.....</i>	<i>28</i>
<i>15. DO's AND DON'Ts</i>	<i>28</i>

ABBREVIATION AND DEFINITION

ABBREVIATION	DEFINATION
AC	<i>Alternating Current</i>
AIP	<i>Analog Input</i>
AVM	<i>Anti-Vibration Mounting</i>
DC	<i>Direct Current</i>
DDU	<i>Driver Desk Unit</i>
DIP	<i>Digital Input</i>
DOP	<i>Digital Output</i>
EMU	<i>Electric Multiple Unit</i>
HP	<i>High Pressure</i>
HVAC	<i>Heating Ventilation & Air-Conditioning</i>
LP	<i>Low Pressure.</i>
MCB	<i>Miniature Circuit Breaker</i>
MPCB	<i>Motor Protection Circuit Breaker</i>
NC	<i>Normally Closed</i>
RDSO	<i>Research Designs and Standards Organization, Lucknow</i>
RMPU	<i>Roof Mounted Packaged Unit.</i>
Unit	<i>Air Conditioning Unit.</i>

1. INTRODUCTION

This booklet contains the installation, operation and service instruction for self-contained air conditioning packaged unit supplied to Indian Railways for LHB EOG coaches. This Roof Mounted Air-Conditioning Unit is based on RDSO Specification No. RDSO SPEC NO. . RDSO/PE/SPEC/AC/0061- 2005 (REV-1)

2. USER SAFETY INFORMATION

- *Disconnect 415 VAC and 110 VDC supply before maintenance.*
- *Only trained/certified HVAC technicians should service the unit.*
- *Use PPE: gloves, helmet, safety glasses, harness for roof work.*
- *Ensure OHE shutdown and safe access during roof maintenance.*



3. UNIT SPECIFICATION

3.1 GENERAL

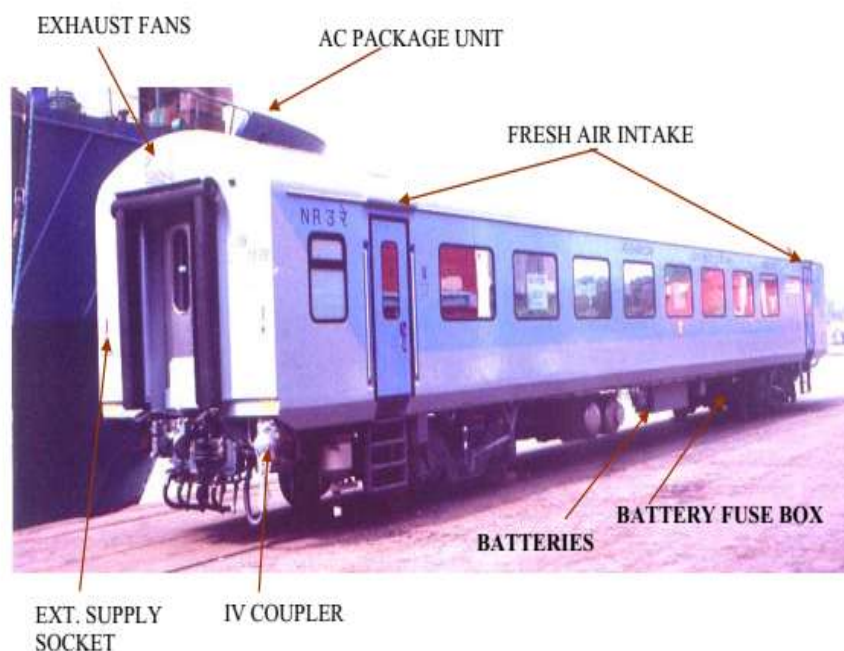
The packaged unit supplied by Sphere Thermal System PVT LTD is Roof mounted type which has the following characteristics.

Parameter	Value
Cooling Capacity	7 TR
Power Supply	415 VAC, 3 Ph, 50 Hz
Control Voltage	110 VDC / 24 VDC
Refrigerant	R-407C, 4.4 Kg per circuit
Compressor	2 Scroll Type Compressors
Supply Air	4000 Cu. M/Hr.
Dimensions	2220 x 2176 x 500 mm
Weight	604 Kg

4. GENERAL INSTRUCTION.

RMPU (Roof Mounted Package Unit) for LHB EOG Coaches is the complete HVAC air-conditioning unit mounted on the roof of an LHB coach used in Indian Railways. In LHB EOG (End-On Generation) coaches, the AC system is mainly provided through two roof-mounted AC package units, one at each end of the coach.

Fitment Position of RMPU (LHB Type) on LHB Coach with Fresh Air Grill.



Air conditioning unit consisting of following

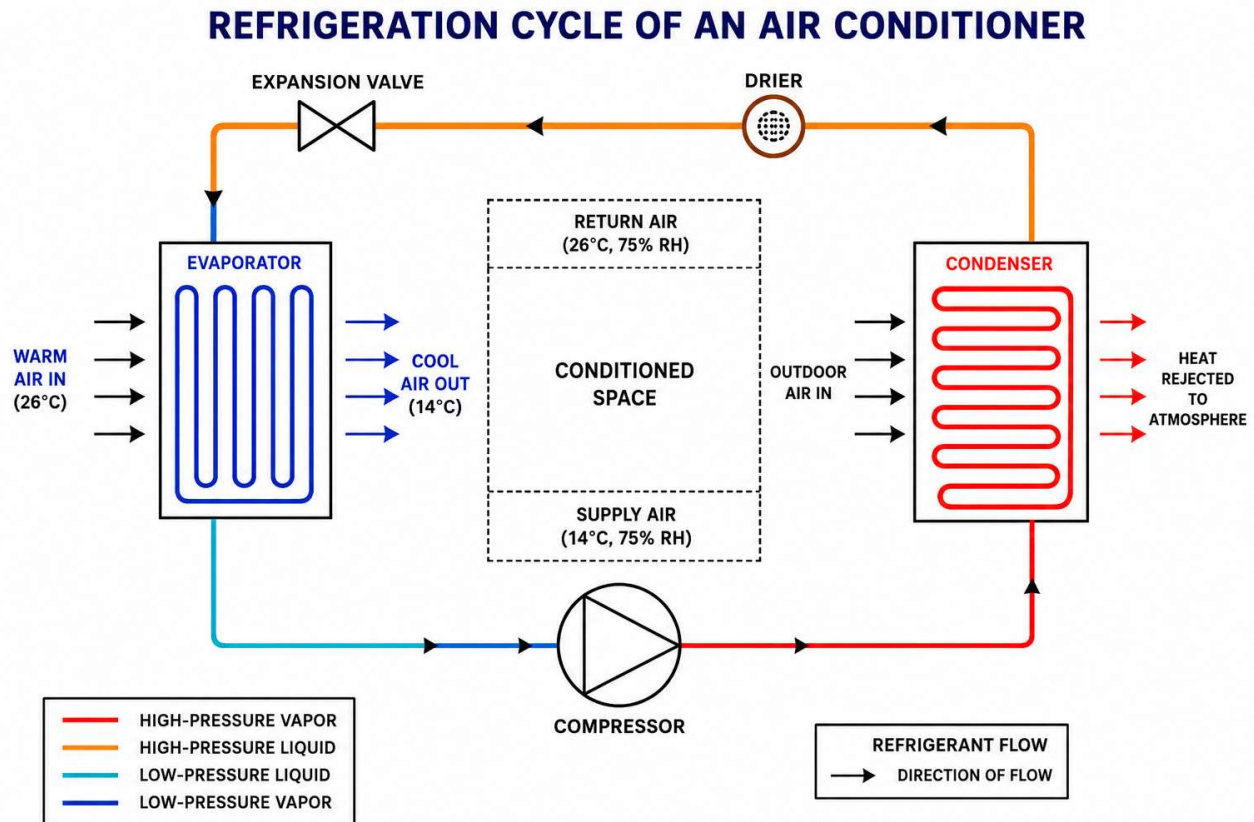
<i>Sr.</i>	<i>Equipment</i>	<i>Quantity</i>	<i>Specification</i>
1.	Compressors	2 Nos.	Scroll type
2.	Blower Motor	1 Nos.	1.5 H.P. 1420 rpm
3.	Condenser Motor	2 Nos.	1.0 H.P. 1400 rpm
4.	Evaporator Coils	2 Nos.	Al fins on cu tubes.
5.	Condenser Coils	2 Nos.	Al fins on cu tubes.
6.	Condenser Fans	2 Nos.	Al hub with FRP blades
7.	Electric Heaters	1No. bank	6.0 KW, Steel.
8.	Electric Cables	Power & Control	E-beam
9.	Refrigerant	4.5 Kgs/circuit	R-407 C
10.	Refrigerant Pipe Lines		Copper
11.	Return Air Filters	2 Nos.	Synthetic fiber
12.	Fresh Air Filters	2 Nos.	Synthetic fiber
13.	Structure/Housing		Steel

The HVAC unit consists of: Air Handling Section – evaporator, blower, filters, fresh air damper. Compressor-Condenser Section – compressors, condenser coils, condenser fans. Controller Section – microprocessor-based automatic control and fault monitoring.

3.4 PRE-START CHECKS

- *Check 110V DC healthy and no earth leakage.*
- *Check 415V AC availability.*
- *Verify HP/LP switches and MPCBs are healthy.*
- *Ensure all connectors and earthing are properly connected.*

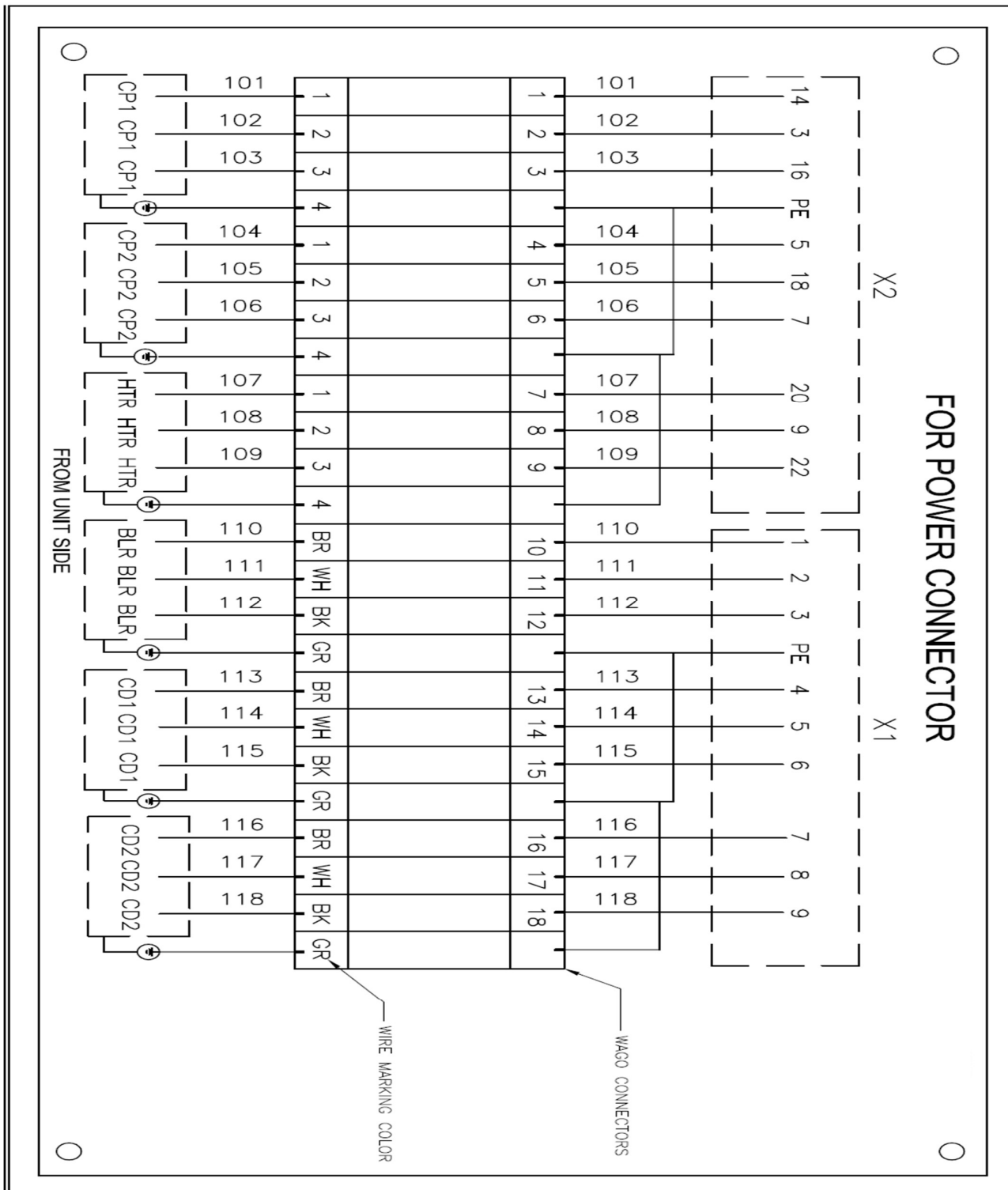
3.5 WORKING PRINCIPAL SCHEMATIC:

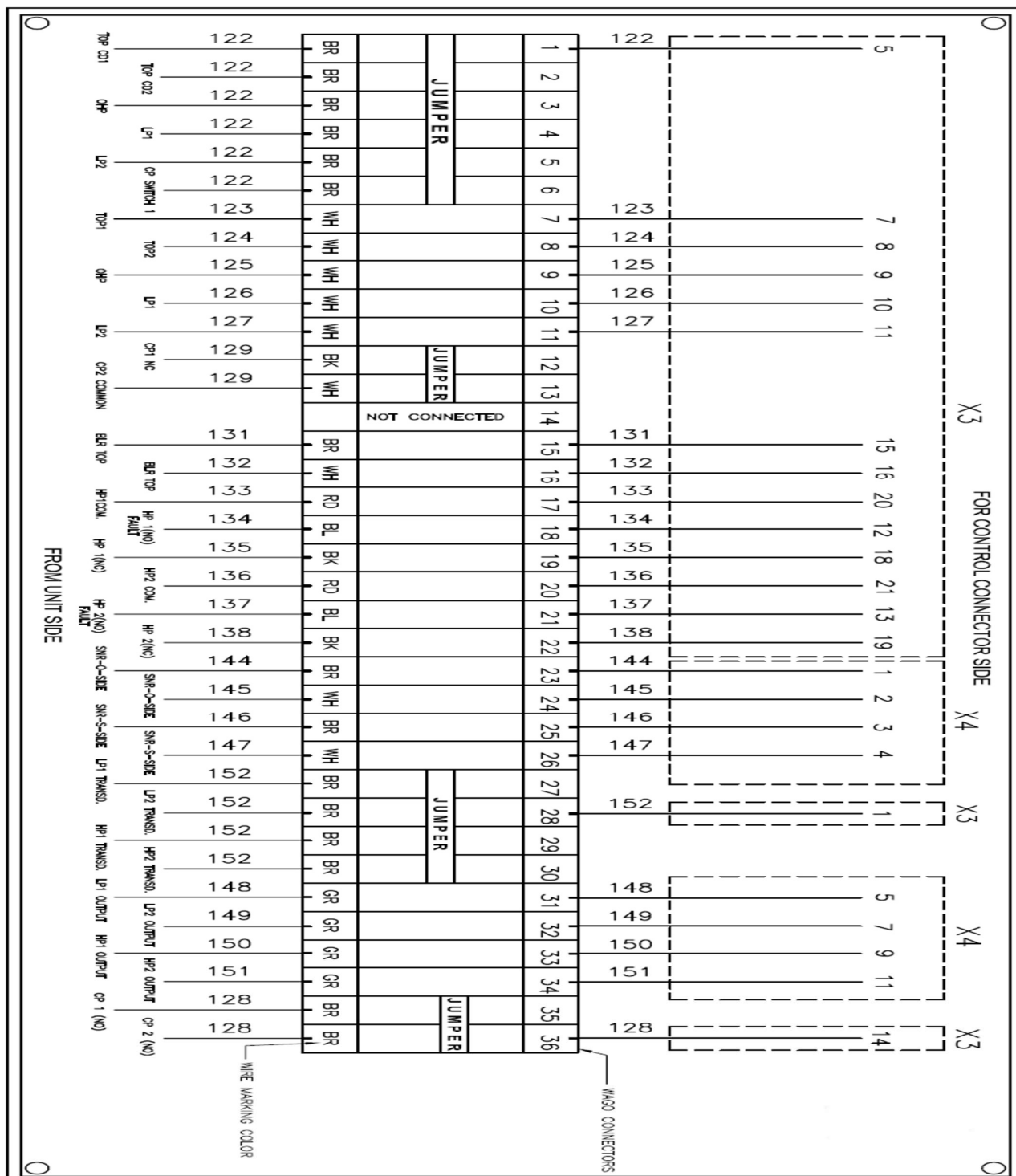


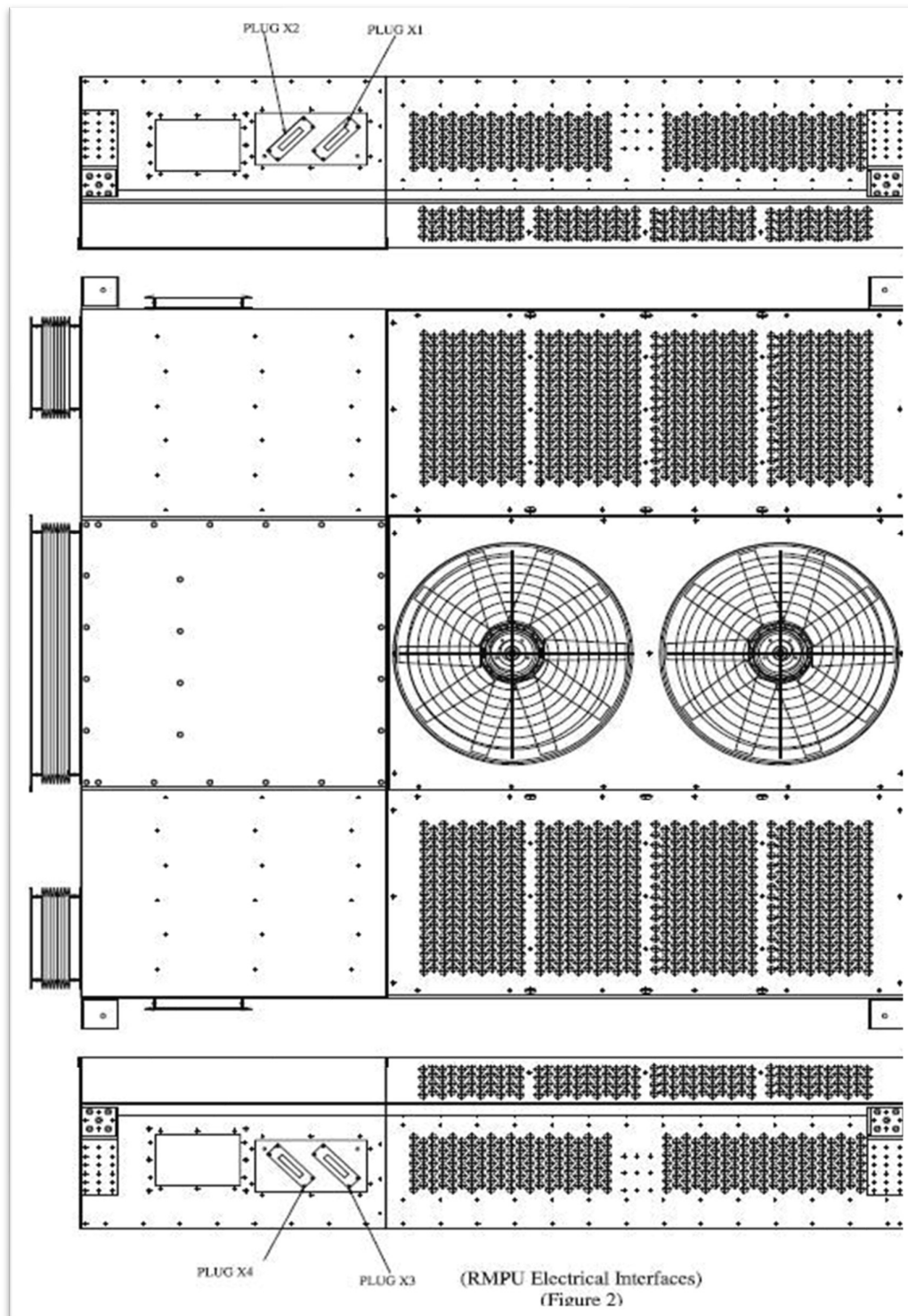
Working Summary

1. **Compressor** compresses refrigerant gas.
2. **Condenser** rejects heat to atmosphere.
3. **Drier** removes moisture and impurities.
4. **Expansion Valve** drops pressure and temperature.
5. **Evaporator** absorbs heat from coach and cools air.
6. Refrigerant returns to compressor and cycle repeats.

4. ELECTRICAL DRAWING







5. ROUTINE MAINTENANCE SCHEDULE

Frequency	Activity	Remarks
<i>Trip/Weekly</i>	<i>Clean fresh & return air filters; visual inspection</i>	<i>Check abnormal sound/vibration</i>
<i>Monthly</i>	<i>Tighten terminals; clean condenser; inspect leakage</i>	<i>Check fan and blower condition</i>
<i>6 Monthly</i>	<i>Insulation resistance; refrigerant inspection</i>	<i>Megger test and motor health</i>
<i>IOH/POH</i>	<i>Major overhaul and replacement</i>	<i>As per railway maintenance plan</i>

6. SAFETY DEVICES & PROTECTIONS

- **High Pressure (HP) protection:**

The compressor should be switched OFF/tripped, if the discharge pressure of compressor rises beyond limit of 425 ± 15 psig. Once the compressor has been switched OFF, it shall not be started before 5 second even it is required. If the compressor tripped three times in one hour, the fault shall be indicated to TCMS through RS485 networking. In case both the compressors of any unit are switched OFF at a time, first compressor shall be started after 30 seconds and other one after 5 seconds from start of first compressor. The provision shall be there to restart the unit in case both the compressors have been tripped three times in one hour.

- **Low Pressure (LP) protection:**

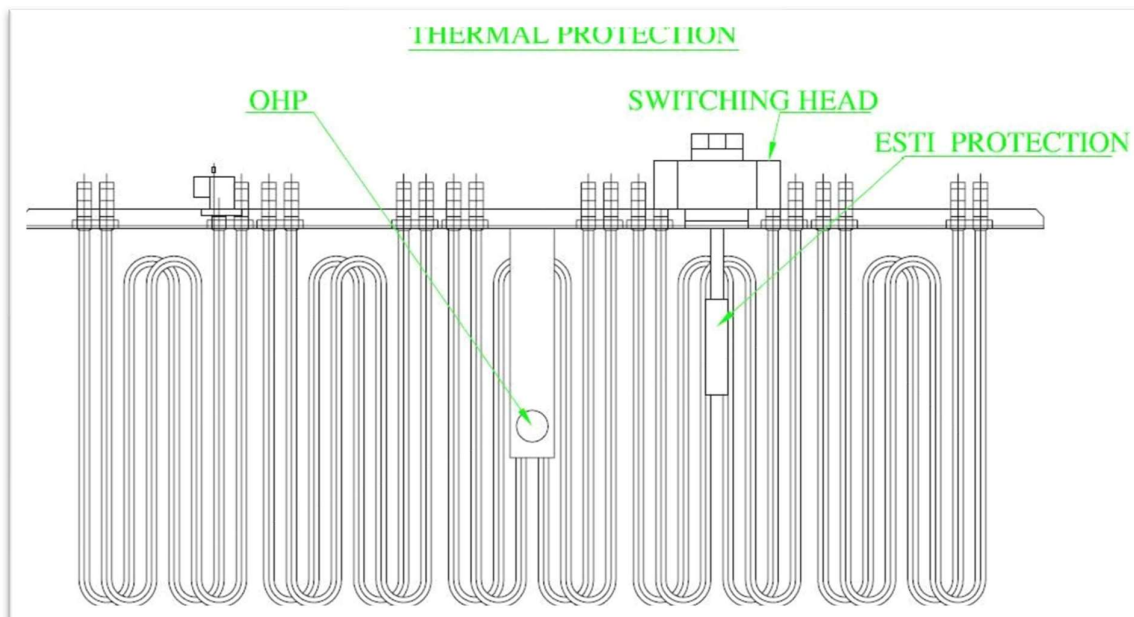
The compressor should be switched off/tripped; if the suction pressure of compressor goes down beyond limit of 35 ± 15 psig. Once the compressor has been switched OFF, it shall not be started before 5 second even it is required. If the compressor tripped three times in one hour, the fault shall be indicated to TCMS through RS485 networking. In case both the compressors of any unit are switched OFF at a time, first compressor shall be started after 30 seconds and other one after 5 seconds from start of first compressor. The provision shall be there to restart the unit in case both the compressors have been tripped three times in one hour.

- **Motor thermal overload protection:**

All motors are provided with thermal protection device. If a motor heats up impermissibly, the thermal protection system switches the motor off via the controller

- **Thermal protection for Heaters:**

The electric heaters are protected in two ways against over temperature. If the supply air temperatures reach an impermissible level, O.H.P. switches the heater off via the control system. If this safety feature fails, the heater is finally switched off by a fusible link (ESTI).



7. TROUBLESHOOTING GUIDE

Problem / Fault	Possible Cause	Corrective Action
No Cooling	HP trip due to high discharge pressure LP trip due to low suction pressure Compressor OFF due to protection logic and temp. setting Insufficient refrigerant charge expansion valve malfunction evaporator icing	Check HP/LP trip status on controller Verify refrigerant suction/discharge pressure Inspect compressor operation Check for refrigerant leakage Inspect expansion valve operation and its sensor is properly fixed on suction line and covered with insulation. Reset fault after rectification
Compressor Not Running	Check 415V AC supply to compressor Check MPCB tripping	Verify 415V AC incoming supply Inspect MPCB condition and reset if tripped Check compressor contactor Verify controller compressor command signal

Problem / Fault	Possible Cause	Corrective Action
	low/high pressure protection active or permanently trip Compressor contactor not working loose terminals wiring	Inspect terminal connections and power wiring continuity from electrical box to compressor
Blower Motor Not Working	Blower motor TOP (thermal overload protection) activated MPCB tripped motor winding fault loose terminal connection blower jammed mechanically controller output failure	Check blower motor current and insulation Inspect motor terminals and wires are properly connected Reset TOP/MPCB Ensure blower runner rotates freely Verify motor supply voltage and controller signal
Condenser Fan Not Working	Fan motor failure motor winding damaged Contactor not getting hold Reverse phase sequence causing wrong rotation loose electrical connection fan blade damaged or obstructed	Verify motor voltage and current Check phase sequence and rotation direction Inspect motor terminals and wiring Remove mechanical obstruction and replace fan if damage Repair/replace faulty fan motor
Low Airflow	Dirty return air filter evaporator coil blockage blower motor running at low speed blower runner damage or not tightened properly duct blockage air leakage	Clean or replace filters Inspect evaporator coil and wire mesh chocking and cleanliness Check power supply 415 VAC Verify blower motor RPM/current Inspect blower assembly and ducting Check for air leakage or obstruction in ducts
HP Trip	Dirty condenser coil reducing heat rejection Condenser fan failure Reverse fan rotation Refrigerant overcharge Blocked condenser airflow	Clean condenser coil thoroughly with the pressurized water Inspect condenser fan motor and airflow direction Verify fan rotation and phase sequence Check refrigerant charge qty as per spec.
LP Trip	Refrigerant gas leakage Evaporator coil blockage Clogged air filters reducing airflow Expansion valve restriction Low ambient condition	Check leakage with soap solution and repair Recharge refrigerant as required Clean evaporator coil, filters and wire mesh Inspect suction pressure and expansion valve condition

Problem / Fault	Possible Cause	Corrective Action
<i>Return Air Sensor Fault</i>	<i>Loose terminal wiring Sensor cable open circuit Damaged sensor incorrect resistance value controller input fault</i>	<i>Check sensor resistance with multimeter Check wiring continuity and connection in connector Replace faulty sensor Verify sensor value in controllers</i>
<i>Supply Air Sensor Fault</i>	<i>Loose terminal wiring Sensor cable open circuit Damaged sensor incorrect resistance value controller input fault</i>	<i>Check sensor resistance with multimeter Check wiring continuity and connection in connector Replace faulty sensor Verify sensor value in controllers</i>
<i>Humidity Sensor Fault</i>	<i>Check Hygrostat wiring Dust and moisture comes over the sensor probes Signal from controller not received</i>	<i>Verify sensor signal and wiring continuity Clean humidity sensor Check controller input Replace faulty sensor</i>
<i>Heater Not Working</i>	<i>Heater MCB trip, heater contactor fault</i>	<i>Check MCB, contactor coil and wiring of Heater</i>
<i>Heater ON but Low Heating</i>	<i>Heater element partially damaged</i>	<i>Check element resistance and replace faulty heater</i>
<i>Heater Overheating</i>	<i>OHP not working</i>	<i>Check OHP and Replace if defective</i>

8. MICROPROCESSOR CONTROLLER (HVAC CONTROLLER)

The HVAC controller is a fully automatic microprocessor-based system used to monitor and control the RMPU. It controls compressors, blower motors, condenser fans, Heaters, humidity and temperature while monitoring safety protections.

8.1 CONTROLLER MAIN FUNCTIONS

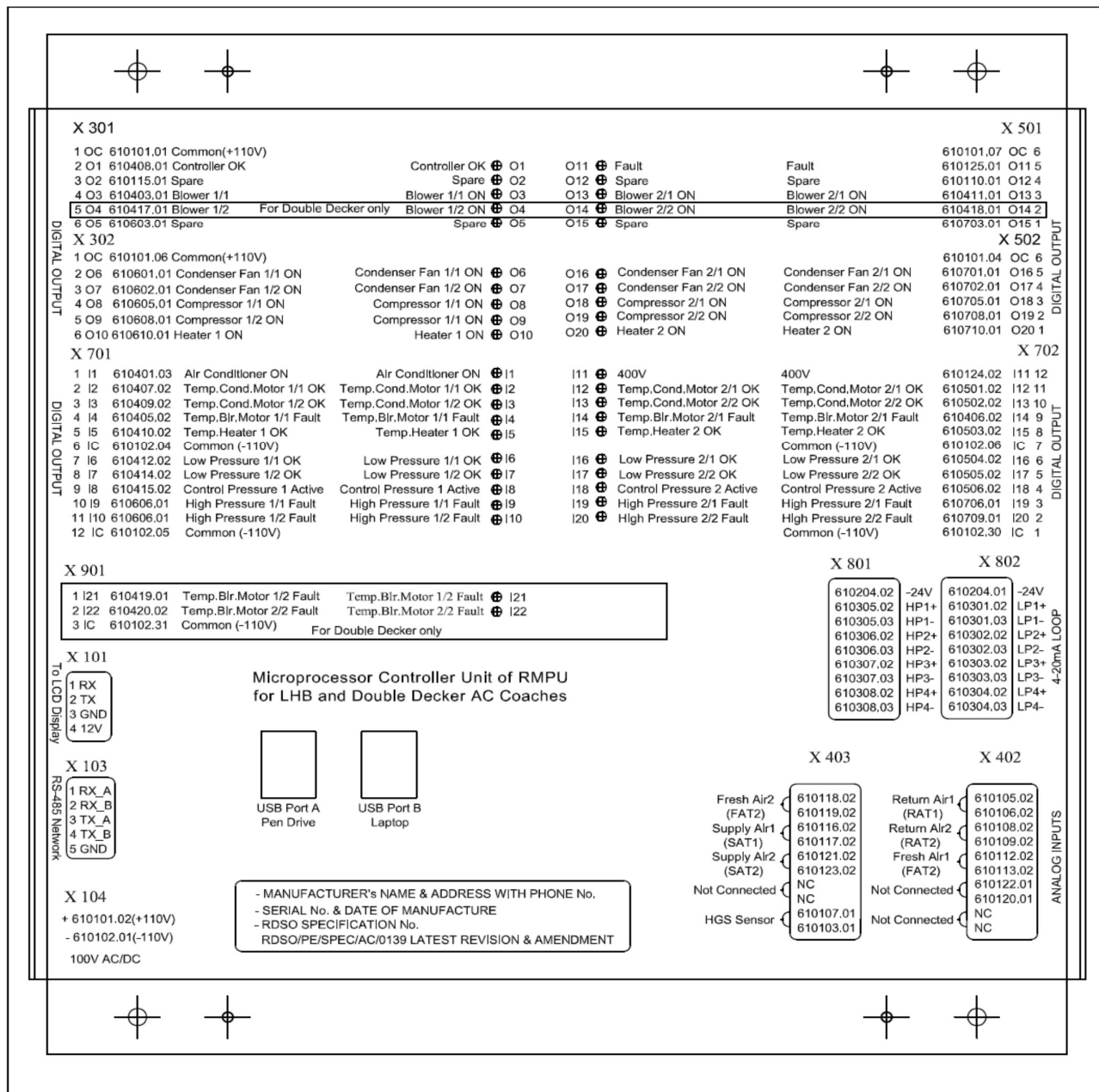
- Automatic temperature and humidity control.
- Monitoring of HP/LP pressure, smoke detection, voltage status and motor protections.
- Fault logging and event recording through USB interface.
- Automatic shutdown during critical faults.

8.2 IMPORTANT PRE-CHECKS BEFORE CONTROLLER START

- Check 110V DC control supply healthy.
- Verify 415V AC power available.

- Ensure compressor, blower and condenser motor MPCBs are healthy.
- Check HP/LP switch status normal.
- Verify all connectors and sensor wiring.

8.2.1 LHB controllers I/O



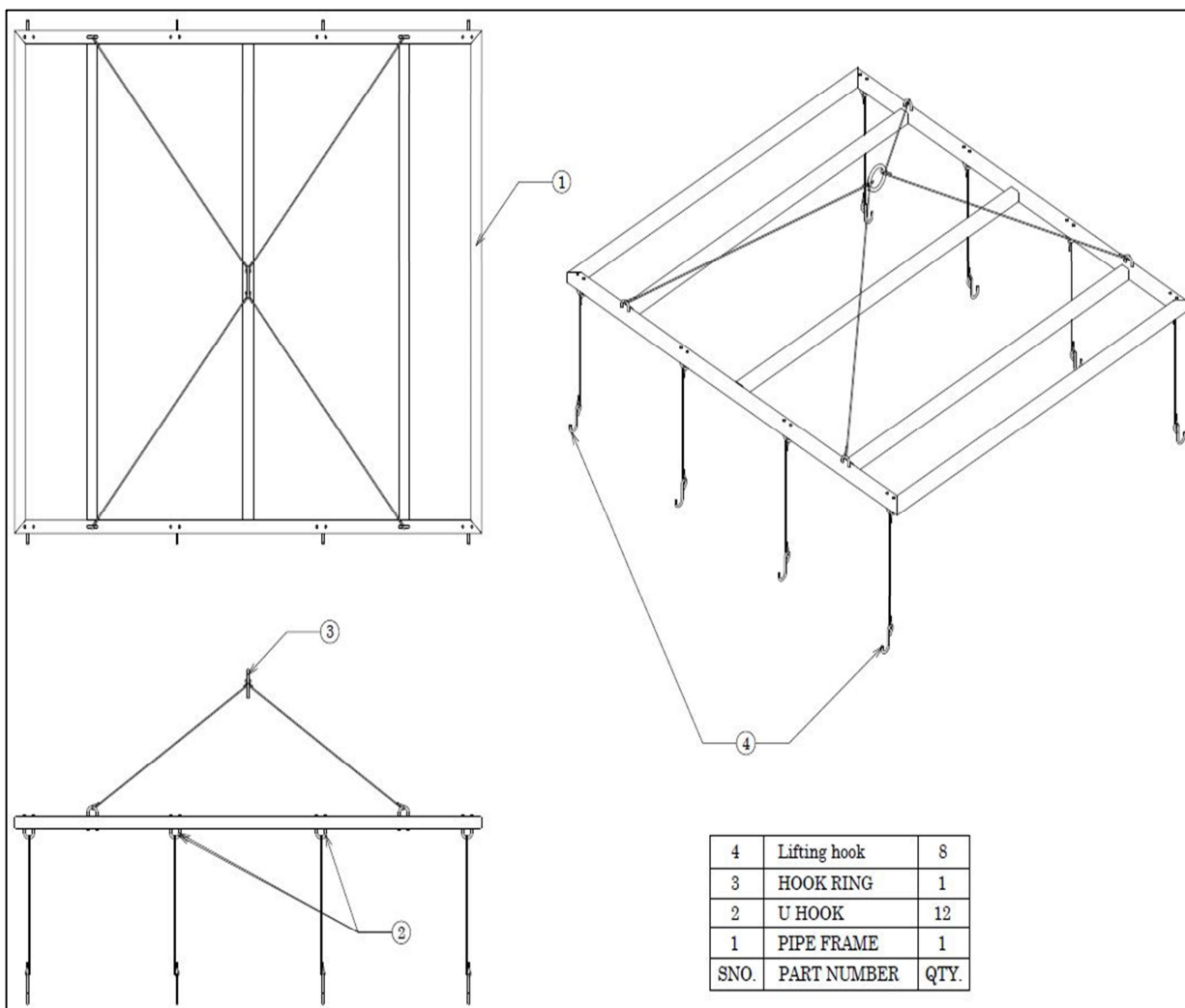
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z		
1	Coach No. :-																											
2	HVAC S.No.:-																											
3	Microprocessor S.No.:-																											
4																												
5	Log Date	Time	Event Type	SP	RT 1	RT 2	ST 1	ST 2	AT 1	AT 2	HU%	Mode	400 V	BLRT 1.1	BLRT 1.2	BLRT 2.1	BLRT 2.2	BLR 1.1	BLR 1.2	BLR 2.1	BLR 2.2	CP 1.1	CP 1.2	CP 2.1	CP 2.2			
6	1 28/09/2018	16:50:20	CP1.2 LP FAULT	25.0	26	26	19	18	24	18	<60%	CO	OK	OK	OK	OK	OK	ON	ON	ON	ON	ON	OFF	ON	OFF			
7	2 28/09/2018	18:30:22	415V NOT AVAILABLE	25.0	26	26	19	18	24	18	<60%	CO	OK	OK	OK	OK	OK	ON	ON	ON	ON	ON	OFF	ON	OFF			
8	3 28/09/2018	16:50:24	CP1.1 HP FAULT	25.0	26	26	19	18	24	18	<60%	CO	OK	OK	OK	OK	OK	ON	ON	ON	ON	OFF	ON	ON	OFF			
9																												
10																												
11																												
12																												
13																												
14																												
15																												
16																												
17																												
18																												
19																												
20																												
21																												
22																												
23																												
24																												
25																												
26																												
27																												

9. MICROPROCESSOR FAULT TROUBLESHOOTING

Controller Fault / Alarm	Indication	Possible Cause	Corrective Action
Controller OFF / No Indication	All LEDs OFF	110V DC supply missing Fuse blown MCB OFF Loose terminal connection Reverse polarity Internal SMPS failure wiring harness damage Check Connectors are plugged properly	Check 110V DC control supply with multimeter Check fuse and MCB condition Verify polarity and terminal tightness Check control wiring continuity Replace faulty controller if required
Controller ON but HVAC Not Running	Display healthy but no operation	No command from DDU/TCMS AIR.CO switch OFF Emergency interlock active wrong operating mode software parameter mismatch compressor lockout timer active	Verify AIR.CO switch status Check communication from DDU/TCMS confirm cooling enable command Verify operating mode and parameter settings Restart system if required
High Pressure (HP) Alarm	HP fault shown	Dirty condenser coil Condenser fan not working Reverse fan rotation Blocked condenser airflow Refrigerant overcharge	Clean condenser coil Check fan motor and airflow direction Inspect refrigerant charge level Verify discharge pressure Reset Controller after work
Low Pressure (LP) Alarm	LP fault shown	Refrigerant leakage Gas shortage Evaporator icing Blocked evaporator airflow Expansion valve choke dirty filters	Perform refrigerant leak testing Check Evaporator coil and filters Check suction pressure and expansion valve Clean airflow path
Return Air Sensor Fault	Temperature abnormal	Check Sensor open circuit/ short circuit Sensor fills with dust & dirt	Measure sensor resistance and compare with standard values Inspect cable continuity

Controller Fault / Alarm	Indication	Possible Cause	Corrective Action
		Check Damaged cable Check moisture ingress controller analog input failure	Tighten connections & Clean sensor Replace faulty sensor
Supply Air Sensor Fault	Wrong supply temperature	Check Sensor open circuit/ short circuit Sensor fills with dust & dirt Check Damaged cable Check moisture ingress	Measure sensor resistance and compare with standard values Inspect cable continuity Tighten connections & Clean or replace faulty sensor
Fresh Air Sensor Fault	Incorrect fresh air reading	Check Sensor open circuit/ short circuit Sensor fills with dust & dirt Check Damaged cable Check moisture ingress controller analog input failure	Measure sensor resistance and compare with standard values Inspect cable continuity Tighten connections & Clean sensor Replace faulty sensor
Humidity Sensor Fault	Humidity control not working	Hygrostat defective loose signal cable Sensor fills with dust & dirt controller analog input failure	Check sensor signal output and wiring continuity. Clean or replace humidity sensor Inspect controller input
Memory/Data Logging Error	Log not stored	USB/memory failure controller storage full corrupted memory, software glitch controller firmware issue	Restart controller & check USB or memory module Clear storage if full Reload firmware if required Replace Controller
Multiple Sensor Failure	HVAC locked	Common wiring harness issue, Sensor supply failure Controller analog input failure Connector loose or short circuit in cable harness	Inspect wiring harness and common power supply check sensor resistance value and compare verify connector condition, repair damaged wiring, replace faulty controller

10. LIFTING INSTRUCTION



The following instructions shall be followed while lifting the Saloon HVAC Unit.

1. 8 hooks should be used to lift the machine.
2. Ensure sufficient strength of rope/belt supporting the hook.
3. Avoid slack lifting members.
4. Ensuring sufficient marching/transit space shall be available
5. Ensure no person shall be positioned underneath the load.

11. TIGHTING INSTRUCTION

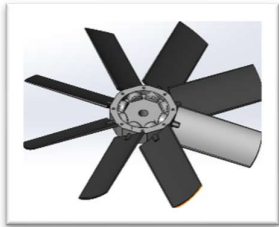
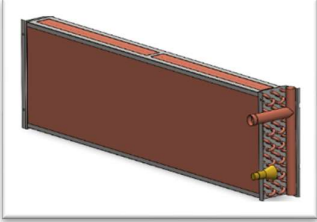
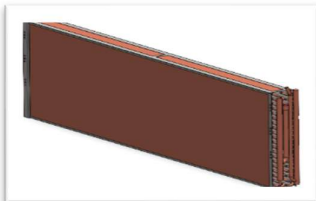
Proper tightening of bolts is important as under torqued bolt will deform and be unable to provide as much fastening force as needed. An over torqued bolt will break.

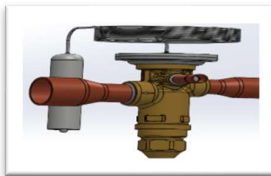
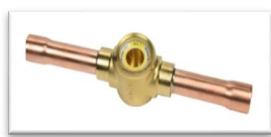
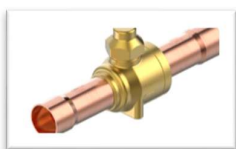
12. TIGHTENING TORQUE PARAMETERS FOR SS304 FASTNERS

S No.	Size	Quality Class	Torque Required (Nm)		Ratchet Wrench Knob Setting
			Dry	Lubricant	
1	M04	A2-70	04±1	NA	3
2	M05	A2-70	07±1	NA	3
3	M06	A2-70	12±1	NA	0
4	M08	A2-70	29±1	26±1	3
5	M10	A2-70	59±1	53±1	3
6	M12	A2-70	99±1	89±1	3

Note: Tightening Torque value for SS A2-70 as per ISO 3506-1.

13. SPARE PARTS

Sr. No.	Name	Part Code	Component Photograph
1	Fixed Speed Compressor	STM00034	
2	Condenser motor	ST012436	
3	Blower motor	ST012403	
4	Condenser fan	ST012377	
5	Evaporator coil	ST012430	
6	Condenser coil	ST012428	

7	Filter drier	STM00036	
8	Expansion valve	STM00035	
9	Mixed air filter	ST012363	
10	High pressure switch (auto)	STE00119	
11	LOW PRES. CUTOUT SWITCH	STE00120	
12	Refrigerant Sight Glass	STM00037	
13	BLOWER RUNNER	ST012367	
14	GBC VALVE	STM00047	

15	HP Transducer	STE00067	
16	LP Transducer	STE00066	
17	AVM Pads	STM00049	
18	RH Sensor	STE00111	
19	Fresh Air Filter	ST012364	
20	Return Air Temp Sensor	STE00088	
21	Supply Air Temp Sensor	STE00088	
22	Fresh Air Sensor	STE00088	

23	Control Pressure Switch	STE00065	
24	Pin Valve ¼"	STE00156	
25	Microprocessor Controller	STE00089	

14. PROTECT THE ENVIRONMENT FROM E-WASTE

This product at the end of its usable life should not be mixed with household domestic waste or any general waste. It must be stored separately and disposed of through an authorized recycler of electrical and electronic appliance waste since it is categorized under Schedule I of E-Waste Management Rules promulgated by the Government of India.

As guided by these rules, this product needs to be disposed of after its useful life in a scientific and



E-WASTE RESPONSIBLE DISPOSAL FOR A BETTER TOMORROW

-  This product at its end of usable life should **not be mixed** with household domestic waste or any general waste.
-  It must be stored separately and disposed of through an **authorized recycler** of electrical and electronic appliance waste.
-  This product is categorized under **Schedule I of E-Waste Management Rules** promulgated by the Government of India.
-  As guided by these rules, this product needs to be disposed of after its useful life in a **scientific and prescribed manner**.

DO NOT MIX WITH HOUSEHOLD OR GENERAL WASTE



HOUSEHOLD / GENERAL WASTE

STORE SEPARATELY AND DISPOSE OF THROUGH AN AUTHORIZED E-WASTE RECYCLER



1. STORE SEPARATELY 2. HAND OVER TO AUTHORIZED RECYCLER 3. ENVIRONMENTALLY SOUND DISPOSAL AND RECYCLING



As a responsible citizen of India, we request your cooperation in helping conserve the environment for future generations.

RECYCLE E-WASTE. PROTECT NATURE. SECURE OUR FUTURE.



prescribed manner. As a responsible citizen of India, we request your cooperation in helping conserve the environment for future generations.

15. DO's AND DON'Ts

DO's:

- *Run and Maintain machine as per instructions given in the User Manual.*
- *Engage only an authorized person to attend to repairs of your machine.*
- *Engage only an authorized person for DE-INSTALLATION.*

DON'Ts:

- *Do not try to repair/dismantle your machine by yourself.*
- *Do not engage any unauthorized person to repair/dismantle your machine or any of its parts.*
- *Do not sell or dispose of your machine or its parts to a local scrap dealer.*
- *Do not dispose of E-Waste in landfills or leave it outside unattended.*
- *Do not put the air conditioner to any other use post its end-of-life*

16. Technical Query & Support

For technical enquiry or technical support, kindly contact or write a mail.

Office

Sphere Thermal System Pvt. Ltd.

Address: Plot No. B-22 & 23, Ecotech-1 Extension, Greater Noida Gautam Buddha Nagar UP-201306

India

connect@spheretherm.com

Email: chandrashekhar.raai@spheretherm.com

Mobile: +91 9147998960

Works

Sphere Thermal System Pvt. Ltd.

Address: Plot No. B-22 & 23, Ecotech-1 Extension, Greater Noida Gautam Buddha Nagar UP-201306

