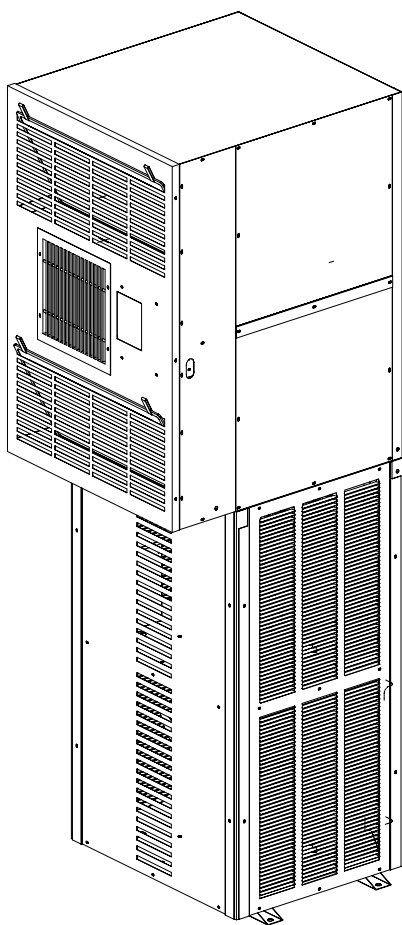


TELECOM AIR CONDITIONERS INSTALLATION INSTRUCTIONS

ENGLISH

- Please read this instruction sheet completely before installing the product.
- When the power cord is to be replaced, replacement work shall be performed by authorized personnel only.
- Installation work must be performed in accordance with national wiring standards by authorized personnel only.

3.0TR SINGLE PHASE: LX-0356QC
3.5TR SINGLE PHASE: LX-0456QC



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1. The following should be always observed for safety

- The supplied unit requires 3 phase supply to operate, so please make sure to have authorised connection by the supply authority before connecting to the system.
- Be sure to read "THE FOLLOWING SHOULD BE ALWAYS OBSERVED FOR SAFETY" before installing the air conditioner.
- Be sure to observe the cautions specified here as they include important items related to safety.
- The indications and meanings are as follows.



WARNING

Could lead to death, serious injury, etc.



CAUTION

Could lead to serious injury in particular environments when operated incorrectly.

- After reading this manual, be sure to keep it together with the owner's manual in an accessible place.



WARNING

Do not install it yourself (customer).

- Incomplete installation could cause injury due to fire, electric shock, the unit falling or a leakage of water. Consult the dealer from whom you purchased the unit or authorised installer.

Install the unit securely in a place which can bear the weight of the unit.

- When installed in an insufficient strong place, the unit could fall causing injured.

Use the specified wires to connect the indoor and the outdoor units securely and attach the wires firmly to the terminal board connecting sections so the stress of the wires is not applied to the sections.

- Incomplete connecting and fixing could cause fire.

Check that the refrigerant gas do not leak after installation is completed.

Perform the installation securely referring to the installation manual.

- Incomplete installation could cause a personal injury due to fire, electric shock, the unit falling or a leakage of water.

Perform electrical work according to the installation manual and be sure to use an exclusive circuit.

- If the capacity of the power circuit is insufficient or there is incomplete electrical work, it could result in a fire or an electric shock.

Attach the electrical part cover to the indoor unit and the service panel to the outdoor unit securely.

- If the electrical part cover if the indoor unit and/or the service panel if the outdoor unit are not attached securely, it could result in a fire or electric shock due to dust, water, etc.

Be sure to use the part provided or specified parts for the installation work.

- The use of defective parts could cause an injury or leakage of water due to a fire, electric shock, the unit falling, etc.

Be sure the installation area does not deteriorate with age.

- If the base collapses, the air conditioner could fall with it, causing property damage, product failure and personal injury.

Be cautious when unpacking and installing the product.

- Sharp edges could cause injury. Be especially careful of the case edges and the fins on condenser and evaporator.

Do not modify or extend the power cable.

- There is risk of fire or electric shock.

Always install a dedicated circuit and breaker.

- Improper wiring or installation may cause fire or electric shock.

Use the correctly rated circuit breaker.

- There is risk of fire or electric shock.

Always ground the product.

- There is risk of fire or electric shock.

Do not use a defective or under rated circuit breaker. Use this appliance on a dedicated circuit.

- There is risk of fire or electric shock.

**CAUTION****Perform the drainage/piping work securely according to the installation manual.**

- If there is a defect in the drainage/piping work, water could drop from the unit and household goods could be wet and damaged.

Do not install the unit in a place where an inflammable gas leaks.

- If gas leaks and accumulates in the area surrounding the unit, it could cause an explosion.

Always check for refrigerant R-22 leakage after installing or repair of product.

- Low refrigerant R-22 levels may cause malfunctioning of product.

Use two or more people to lift and transport the product.

- Avoid personal injury.

Do not install the product where the noise or hot air coming from the outdoor unit could harm your neighbors.

- It may cause problem to your neighbors.

Keep the level of your airconditioner as mentioned in manual to avoid vibration or water leakage.**Do not install the product where it will be exposed to sea wind (Salt spray) directly.**

- It may cause corrosion on product. Corrosion, particularly on the condenser and evaporator fins, could cause product malfunction or inefficient operation.

2. PRODUCT SPECIFICATION

2.1 PRODUCT DESCRIPTION:

Airconditioner is composed of evaporator unit and condensing unit. Evaporator unit is positioned on top of condensing unit and connected with interconnection pipes. Condenser section consists of compressor, propeller fan, fan motor and condenser coil. And Evaporator section consists of evaporator coil, centrifugal blower, blower motor and logical controller. Airconditioner is equipped with dual independent Airconditioning cycle for reliability measures.

2.2 INSPECTION:

1. Check the damage after unit is unloaded, report promptly to the carrier, any damage found to unit. Do not drop the unit.
2. Open the Packing carefully to check the unit in upright position.
3. Check the unit dents, paint damage, tube pinch offs, tube parts touching with sheet metals, mechanical components and electrical wires connections.
4. Condensing unit is precharged with R-22 gas from factory. Ensure gas in condensing unit before installation.

2.3 TECHNICAL SPECIFICATIONS

DESCRIPTION		UNITS	LX-0356QC	LX-0456QC
NOMINAL COOLING CAPACITY		TR	3.0	3.5
TOTAL COOLING CAPACITY		BTU/HR	18600 X 2	21000 X 2
		KCAL/HR	4650 X 2	5250 X 2
SENSIBLE COOLING CAPACITY		KCAL/HR	4185 X 2	4725 X 2
LATENT COOLING CAPACITY		KCAL/HR	465 X 2	525 X 2
AIRFLOW		CFM	825 X 2	960 X 2
NO OF REFRIGERANT CIRCUITS		NOS	2	2
COMPRESSOR	TYPE		Rotary	Rotary
	QTY	NOS	2	2
	MAKE		Hitachi	Hitachi
	MODEL		SH315CV-C7HU	SH315CV-C7HU
EVAPORATOR	FACE AREA	Sq.M	0.223	0.223
	QTY	NOS	2	2
	FIN DENSITY/ROWS	FPI/No	14/2	14/3
CONDENSER	MATERIAL OF TUBE/FIN		Cu/Al-Precoat	Cu/Al-Precoat
	FACE AREA	Sq.M	0.272	0.272
	QTY	NOS	2	2
	FIN DENSITY/ROWS	FPI/No	14/3	14/3
INDOOR MOTOR	MATERIAL OF TUBE/FIN		Cu/Al-Precoat	Cu/Al-Precoat
	TYPE		INDUCTION MOTOR	INDUCTION MOTOR
	QUANTITY	NOS	2	2
	POWER SUPPLY		230V-1PH-50Hz	230V-1PH-50Hz
	SPEED	RPM	960	1100
OUTDOOR MOTOR	SHAFT DIAMETER	mm	17	17
	CLASS OF INSULATION		B CLASS	B CLASS
	TYPE		INDUCTION MOTOR	INDUCTION MOTOR
	QUANTITY	NOS	2	2
	POWER SUPPLY		230V-1PH-50Hz	230V-1PH-50Hz
BLOWER	SHAFT DIAMETER	mm	12.7	12.7
	CLASS OF INSULATION		B CLASS	B CLASS
	FAN SPEED	RPM	880	880
	TYPE		CENTRIFUGAL, FORWARD CURVE, DIDW	CENTRIFUGAL, FORWARD CURVE, DIDW
	QTY	NOS	2	2
FAN	TYPE		PROPELLER -AXIAL	PROPELLER -AXIAL
	FAN MATERIAL		Plastic	Plastic
CONNECTIONS	QTY	NOS	2	2
	CONDENSATE DRAIN SIZE	mm	19	19
	GAS OUTLET SIZE OD (nos)	mm	12.7x2	12.7x2
OVERALL DIMENSION-INDOOR	LIQUID INLET SIZE, OD (nos)	mm	9.52x2	9.52x2
	(A)WIDTH	mm	665	665
	(B)DEPTH	mm	762	762
	©HEIGHT	mm	938	938
WEIGHT-INDOOR	WEIGHT GROSS	KGS	90	92
	WEIGHT NET	KGS	85	87
OVERALL DIMENSION-OUTDOOR	WIDTH	mm	665	665
	DEPTH	mm	550	550
	HEIGHT	mm	1080	1080
WEIGHT-OUTDOOR	WEIGHT GROSS	KGS	110	110
	WEIGHT NET	KGS	105	105

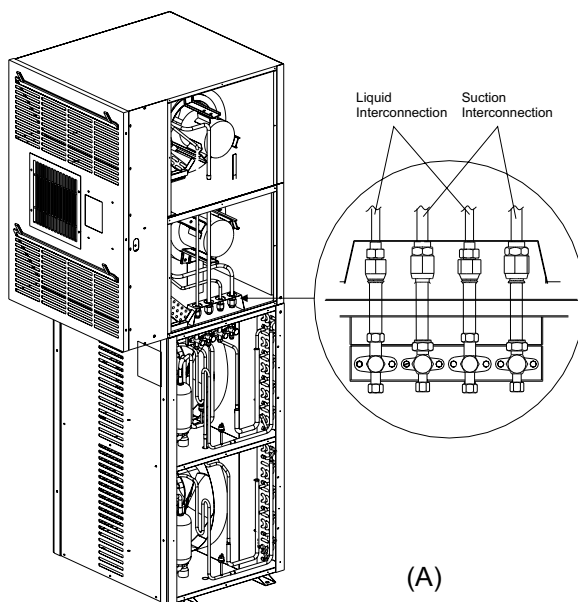
3. INSTALLATION STANDARD

3.1 PRE-CHECK:

1. Remove the packing wooden base from indoor & outdoor unit.
2. Place the outdoor unit over mounting base (Concrete or I –beam) and place antivibration pad and mount as per installation instructions.
3. Positioned the Indoor unit over Top of condensing unit and bolted indoor with outdoor after fixing indoor to shelter cut-out portion.
4. Check there should not be any dents, dust in interconnecting piping.
5. Prepare inter connection pipe to connect indoor unit with outdoor unit as per following.

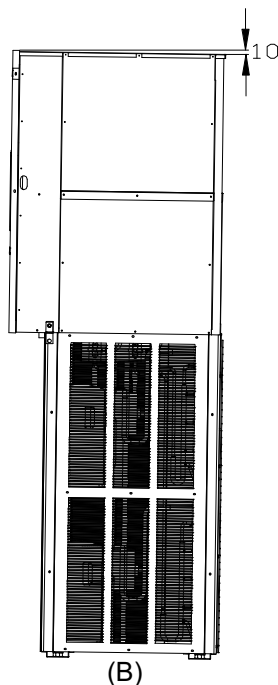
FLARED TYPE INTERCONNECTING PIPING	SIZE X QTY.
SUCTION LINE INTERCONNECTING PIPING	1/2 inch X 2
LIQUID LINE INTER CONNECTING PIPING	3/8 inch X 2

6. Wrap Teflon tape in direction of thread to the connectors & service valve before placing flared tubing.
7. Align the centre of the pipings (2 suctions & 2 liquids) and sufficiently tighten the flare nut with fingers.
8. Finally tighten the flare nut with torque wrench until the wrench clicks (40~80kgf). When tightening the flare nut with torque wrench, ensure the direction of tightening follows the arrow of wrench.



3.2. Levelling of Airconditioner

After placing the unit on Channel/concrete structure maintain the levelling of unit towards rear side with 10mm slope so as to ensure free flow drainage. Water seepage problem may happen due to improper levelling of unit.

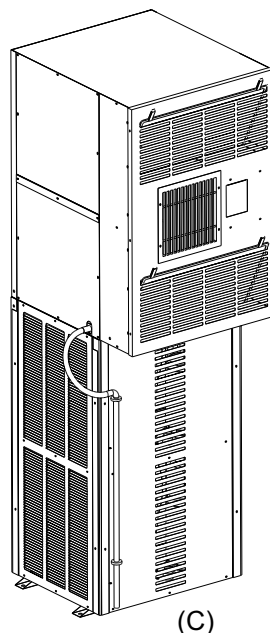


3.3. Shelter Cutout sealing

Angle flanges (4 nos) to be fixed with shelter wall after installation. These flanges are to be fixed with shelter wall after installation so as to prevent any leakage in shelter. after fixing the flanges; apply silicon sealant on edges of flanges to make complete leak free cut-out. These are not the part of unit accessories.

3.4. Condensate Drain pipe

1. Air conditioner is provided with one flexible drain pipe, which shall be connected to metal Drain pipe of unit & should be routed through gap between shelter wall and condensing unit (see fig. C).
2. Do Not leave drain pipe open, your airconditioner may suck condensate water and cause splitting of water inside the shelter.



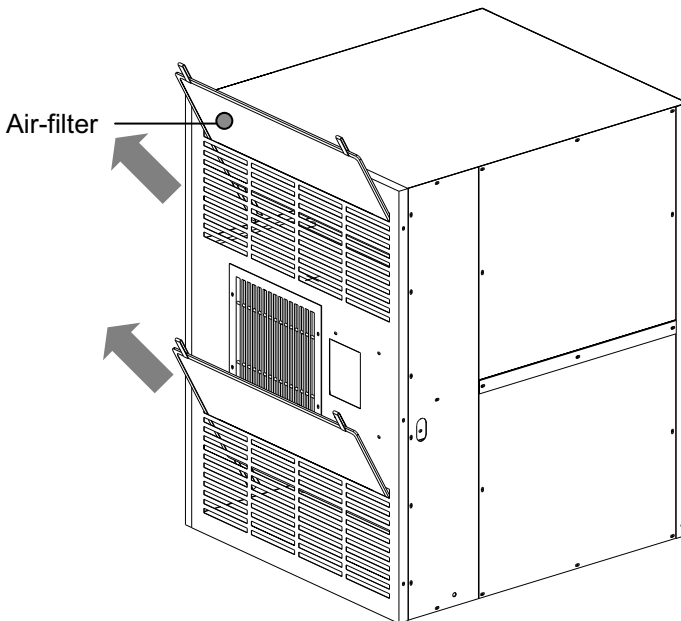
3.5. Air purging of inter connection & Indoor unit

The air which contains moisture remaining in the refrigeration cycle may cause malfunction of compressor.

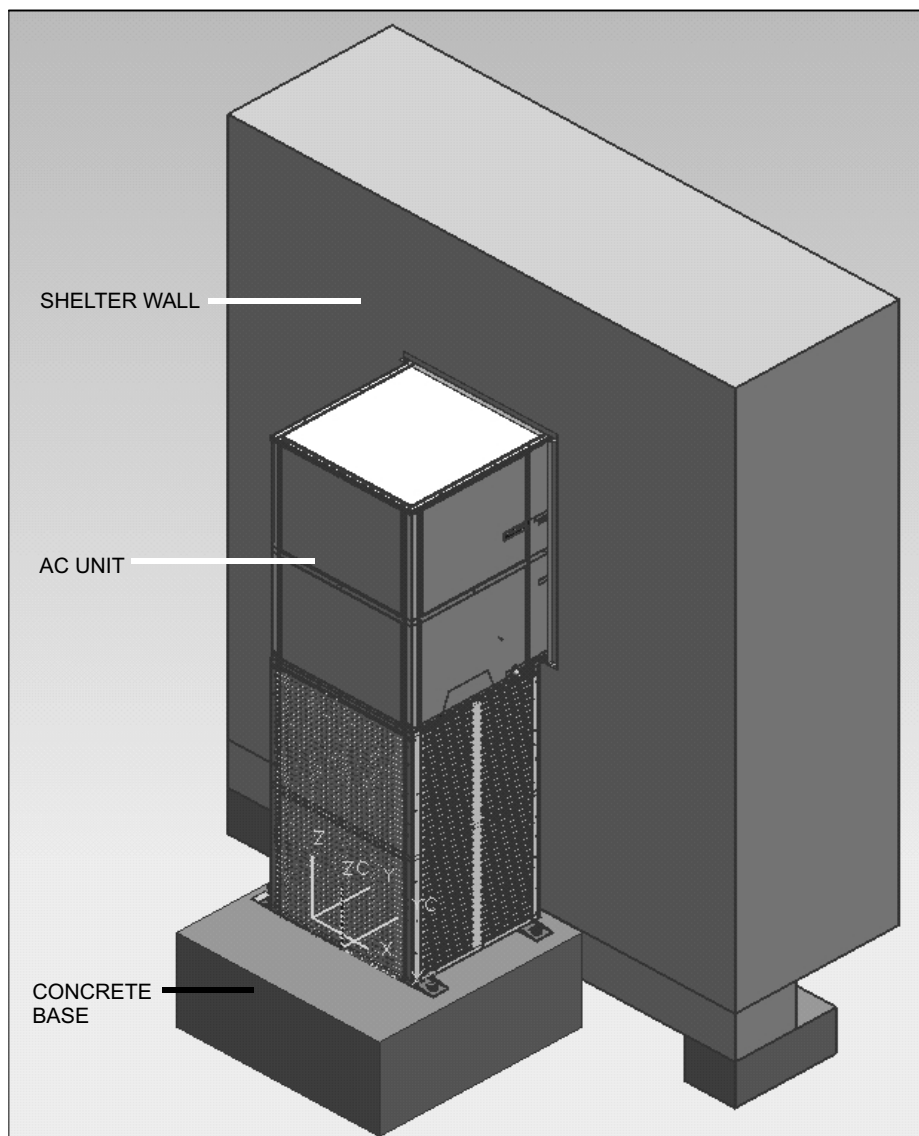
1. Confirm the both liquid valves & gas valves are set to closed position.
2. After connecting the piping, check the joints for gas leakage with gas leak detector.
3. Remove the service port nut, and connect the gauge manifold and vacuum pump to the service port by charge hose.
4. Vacuum the indoor unit & connecting pipes until the pressure in them lowers to below 76 cmHg.
5. Remove the valve stem nuts. and fully open the stems of service valves with hexagon wrench. & Tight the flare nuts of indoor & outdoor unit.
6. Purge the gas qty-80grams in each circuit to remove moist air contents.
7. Disconnect the charge hose and fit the nut to the service port.
(Tightening torque:1.8kg.m)

3.6. Filter Cleaning

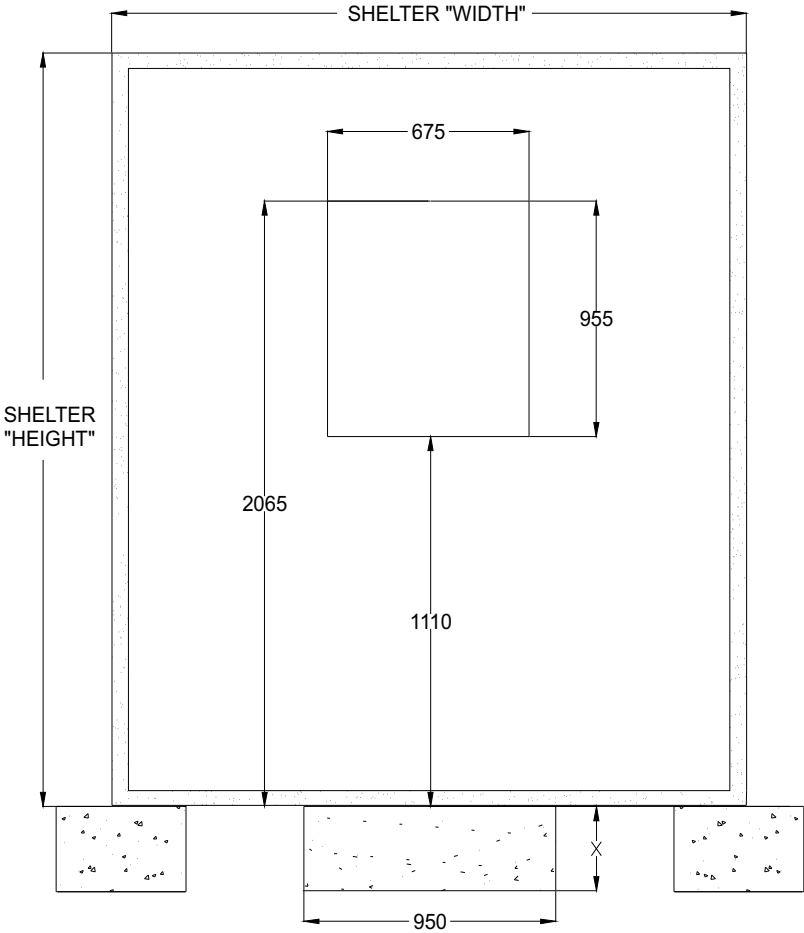
The Airconditioner is equipped with fine air filter (2 nos.). The Air filter are at front of unit shall be checked and cleaned every month or more often if necessary.



3.7. INSTALLATION DRAWING - CASE 1 : CONCRETE BASEMOUNTING

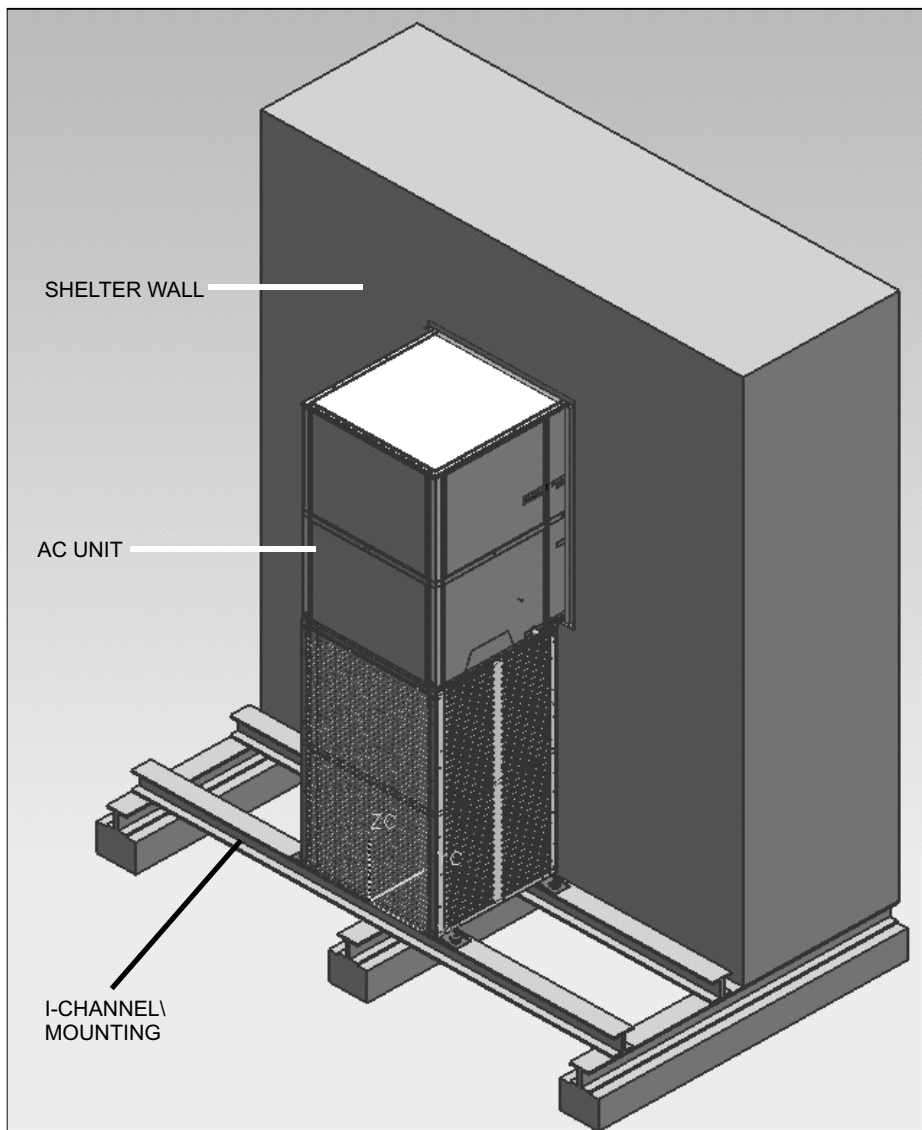


SHELTER CUT-OUT SIZE: 675mm (WIDTH) X 955mm (HEIGHT)

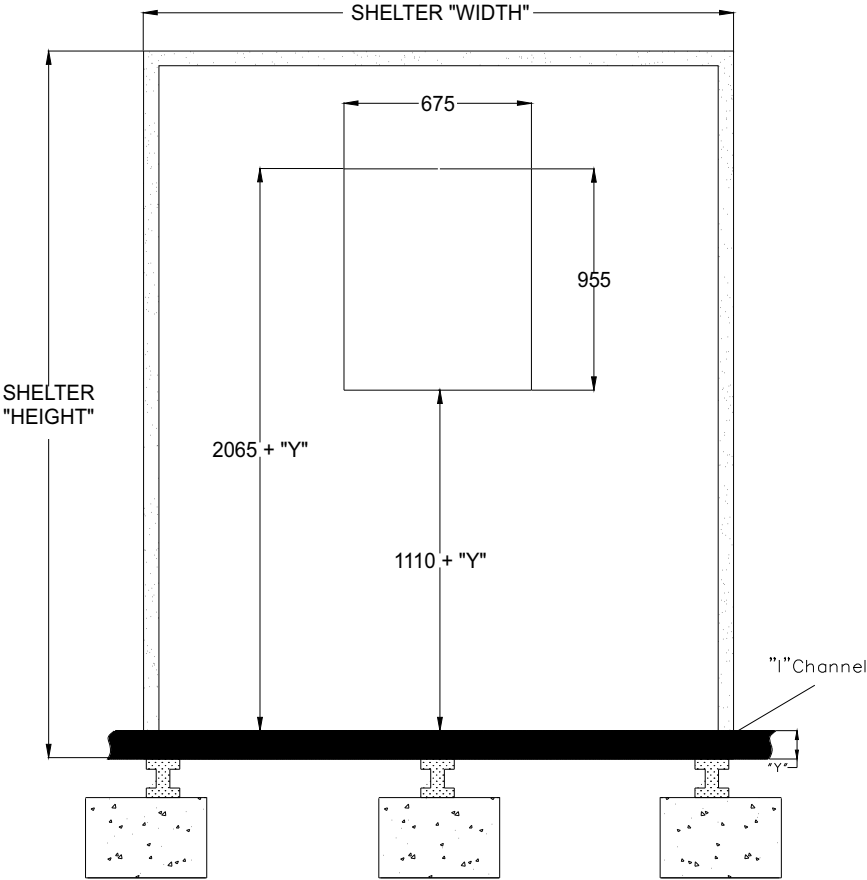


NOTE:
Concrete top should be in level of shelter base. All measurement have been taken from concrete top (levels with shelter base) in mm.

INSTALLATION DRAWING - CASE 2 : CHANNEL BASE MOUNTING



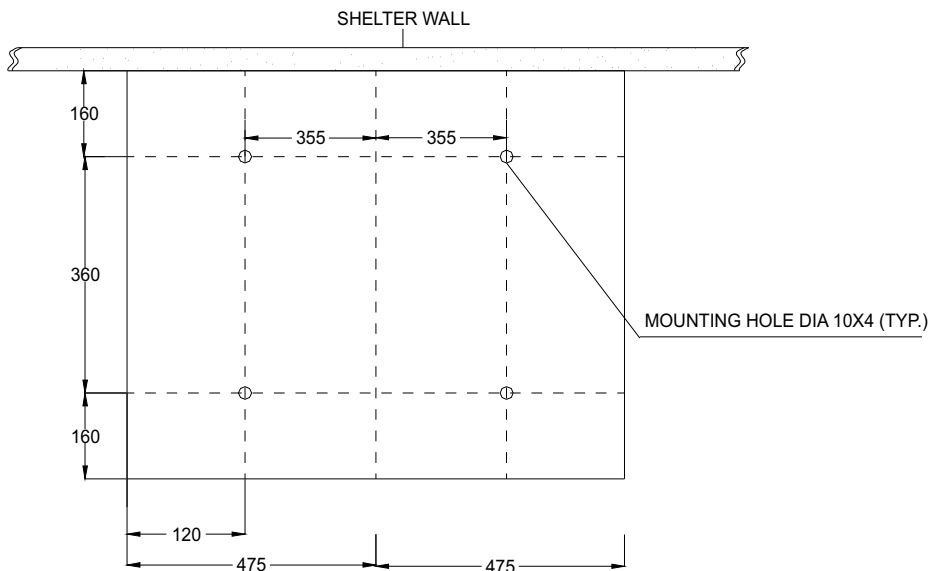
SHELTER CUT-OUT SIZE: 675mm (WIDTH) X 955mm (HEIGHT)



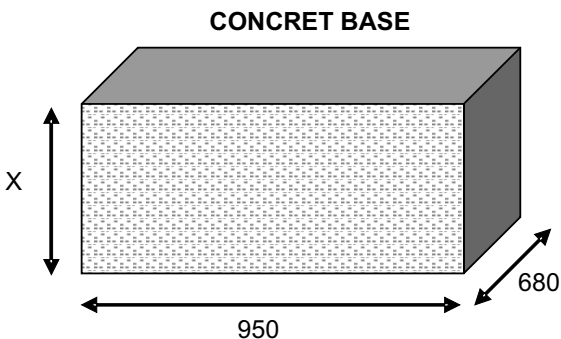
NOTE:

Shelter should be based on I beam and unit base should be mounted on cross beam as shown in diagram.

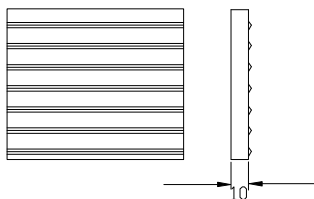
3.8. INSTALLATION DRAWING : FOUNDATION



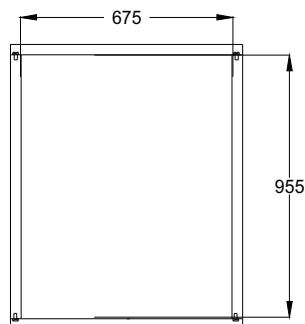
NOTE : IN CASE OF USING FOUNDATION BOLT (OPTIONAL) CUTOUT HEIGHT SHALL BE INCREASED AS PER HEIGHT OF FOUNDATION BOLT.



ANTI VIBRATION PAD (AV PAD-4 NOS)



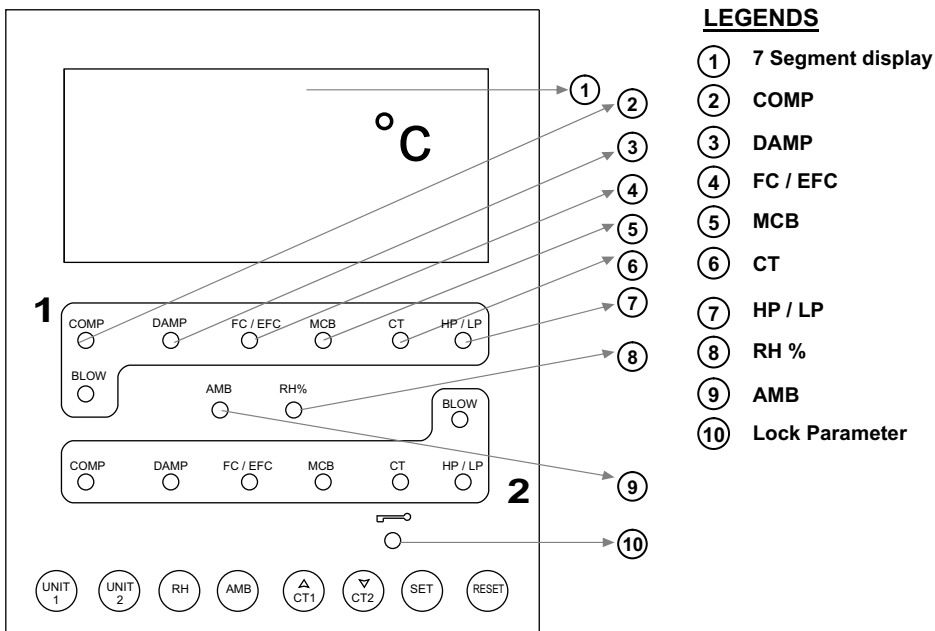
NOTE : ALWAYS PLACE AV PAD (4 NOS) AT BOTTOM OF BASE MOUNTING CHANNEL



NOTE : REAR VIEW OF L FLANGE FITTED TO SHELTER WALL.

4. CONTROLLER

4.1. DISPLAY & INDICATORS



LED indications and status		
LED	LED Status	Description
FC	ON	Free Cooling in Progress
	OFF	Free/Emergency Cooling is not in Progress
	Flashing	Emergency Cooling is in Progress
DAMPER	ON	Damper Actuator in motion
	OFF	Damper Actuator Stopped
BLOWER	ON/OFF	BLOWER is ON/OFF
	Flashing	BLOWER in time delay
COMP	ON/OFF	COMPRESSOR is ON/OFF
	Flashing	COMPRESSOR in time delay
	Flashing (in prog. and set mode)	Represents the respective units
MCB	ON	MCB FAULT
CT	Flashing	CT FAULT (UL/OL/CP)
HP/LP	ON	HP FAULT
	Flashing	LP FAULT
AMB PROBE	ON	Ambient Temperature Probe Fail
RH PROBE	ON(Red)	RH Probe fail (RH>99%)
	Flashing	RH Probe fail (RH<10%)

KEY PAD

Key Functions	
Key	Description
	Key to view compressor1 current and up key.
	Key to view compressor2 current and down key.
	Key to view Ambient Temperature.
	Key to view Shelter Humidity (%RH).
	To save parameters and to enter set mode.
	To reset any pending faults in the controller.
	To switch ON or switch OFF UNIT1.
	To switch ON or switch OFF UNIT2.

4.2. CONTROLLER: Pre-Start up Instructions

- Check the transit damage to controller before carrying out power supply connection to controller in AC.
- Connect the proper Power Supply to air conditioner as per specification.
- Place the ambient and humidity sensor in correct position. Room Sensor to be fix on specified location to sense correct room temperature.
- If Power Key is Pressed for 4 Secs the Unit will toggle between ON / OFF Status.
- If Power Supply of Units is not connected properly, then controller will give MCB error.
 - ➔ Check For Proper connection from Supply to the controller input terminal.
 - ➔ If MCB error still exists then Reverse Phase and Neutral Of the Supply.

4.3 Operations

S.N.	Parameters	Description	Range	Factory set
1	P1	Unit Selection - 1 & 2	0 → 2	0
2	P2	Max. Allowable High Temp. Limit	XX → 50°C	42°C
3	P3	Min. Allowable Low Temp. Limit	0° → XX °C	14°C
4	P4	Diff. Setting of Set Pt. 1 & 2	1° → 20°C	2°C
5	P5	Probe Calibration	-10° → +10°C	0°C
6	P6	Restart Time Delay bet. Comp. 1 & 2	0 → 20 Min	3 Min
7	t2	Start 2nd Comp in case 1st Comp. cannot achieve the lower Set point	0 → 30 Min	0
8	t3	Set Min. Off time between the two Comp.	0 → 15 Secs	5 Sec
9	t4	Avoid Overloading of either Comp.	0 → 12 Hrs	12 Hrs
10	Ad	Set Power on time delay for High Temp. Alarm	0 → 20 Min	20 Min
11	C0	Set Low Current Limit for Comp. 1	1 → C2 A	1A
12	C1	Set low Current Limit for Comp. 2	1 → C3 A	1A
13	C2	Set High Current Limit for Comp.1	C0 → 20 A	10A
14	C3	Set High Current Limit for Comp. 2	C1 → 20 A	10A
15	C4 & C5	Set Time Delay for Current Alarms	0 → 30 Min	1 Min
16	L1	Free Cooling Enable/Disable for Unit 1	0 → 1	0
17	L3	Free Cooling Set point	10° → XX °C	16°C
18	L4	Set Differential for Damper	1° → 4°C	2°C
19	L5	Set Humidity Limit to allow Free Cooling	10% → 99%	70%
20	L6	Set Differential for Humidity	3% → 10%	5%
21	D0	Enable/Disable HP Fault for Unit 1	0 → 1	1
22	D1	Enable/Disable HP Faut for Unit 2	1 → 1	1
23	D2	Enable/Disable LP Fault for Unit 1	2 → 1	1
24	D3	Enable/Disable LP Fault for Unit 2	3 → 1	1
25	LP	Keypad Lock	0 → 1	1
26	E1	Relay Status on Probe Failure	0 → 2	0
27	PA	Password Change	0 → 99	48
28	FS	Default Restore Settings	0 → 1	0
29	EP	End Programming	Exit Programming Mode	

Thermostatic operation

Duty compressor & condenser fan cut-OFF	Set-1°C
Duty compressor & condenser fan cut-IN	Set + Differential °C
Standby compressor & condenser fan cut-OFF	Set °C
Standby compressor & condenser fan cut-IN	Set + Differential °C

Note:

- If both the compressors are OFF due to Thermostatic operation, duty blower will continue to run.
- The compressor & condenser fan will switch OFF simultaneously.

Switch ON sequencing:

Duty blower ON	55 ± 5 sec
Duty Condenser fan ON	Programable
Duty compressor ON	Programable
Standby blower ON	55 ± 5 sec
Standby Condenser fan ON	Programable
Standby compressor ON	Programable

4.4. LCD Operation Menu

1. Set Point			Function : To set the cutout point of the controller.
Press & hold set key for 4 seconds and release.			Display will show 0 and flash. Press Up/Down keys to enter password. User can go into set mode by entering correct password.
Set point 1			Comp1LED will flash along with respective setpoint1 for compressor 1. The setpoint1 range can now be changed by using the UP/DOWN keys. After achieving the desired range, press the set key and you will see "----" which confirms that the set point has been stored in memory.
Min.	Max.	Fac.	
0°C	50°C	20°C	
Set Point 2			
Min.	Max.	Fac.	
0°C	50°C	24°C	
			Comp2 LED will flash along with respective setpoint 2 for compressor 2. In the similar manner use UP/DOWN key to set the desired range and press set key to confirm the settings.

1

2. Parameter Setting			Function : To set the other parameters of the controller.
Hold up & down keys simultaneously for 4 seconds.			Display will show 0 & flash. To enter programming mode enter correct password by using Up/Down keys and press set key. Once user enters correct password display will show P2 and flash. To go to other parameters, use up / down keys. If user enters incorrect password, controller will come out of programming mode and will display temperature.
			
			

2

3. P1 parameter			Function : Unit selection parameter of Controller .
To change P1 parameter, Press set key when display shows P1.			Use UP/DOWN key to set desired range. When P1 is set to 0 Both Cooling units are selected. 1 Cooling Unit 1 is selected. 2 Cooling Unit 2 is selected
Example : Setting this parameter at 1 will select Unit1 only,unit2 will be off. Setting this parameter to 0 will allow to function both the units simeoutanously			
Min.	Max.	Fac.	
0	2	0	

3

4. P2 parameter			Function : To set maximum allowable high temperature limit.
To change P2 parameter, Press set key when display shows P2 .			Use UP/DOWN key to set desired range. Once set at a particular range, this will not allow both set points to go above this range and below P3 setting.
Example : Setting this parameter at 35°C will not allow both set points to go above 35 °C. Also if the temperature reaches 35 °C, the display will show Ht (High Temperature), indicating that the temperature has reached or gone above the range in this parameter.			
Min.	Max.	Fac.	
XX°C	50°C	42°C	
Ht XX°C--Largest set point			

4

5. P3 Parameter			Function : To set minimum allowable low temperature limit.		
To change P3 parameter, press set key when display shows P3 .			Use UP/DOWN key to set desired range. Once set at a particular range, this will not allow both set points to go below this range and above P2 setting.		
Min.	Max.	Fac.	Example : Setting this parameter at 10°C will not allow both set points to go below 10°C. Also if the temperature reaches 10°C, the display will show Lt (Low Temperature), indicating that the temperature has reached or gone below the range in this parameter. P3 will not go above value of L3 Parameter.		
0°C	XX°C	14°C			
Lt					
XX°C--Smallest set point.					

5

6. P4 Parameter			Function : To set the differential of set point 1 and set point 2 .		
To change P4 parameter, press set key when display shows P4. Differential 1			Once in this mode, comp1 LED and differential of setpoint 1 will flash. Use UP/DOWN keys to set desired range. Once desired range is achieved, press set key and you will see !---", this confirms differential for set point 1 has been stored.		
Min.	Max.	Fac.	Immediately after up key is pressed comp2 LED flashes alongwith the differential for setpoint 2. Use UP/DOWN keys to set desired range. Once range is achieved, press set key. This confirms differential for setpoint 2.		
1°C	20°C	2°C			
Differential 2					
Min.	Max.	Fac.	Example: If setpoint 1 is set at 10°C, and differential for setpoint 1 is set at 2°C, then when the system reaches 10°C, the relay for compressor1 will cutout and since the differential is 2°C, the relay will cutin (restart) at 12°C(10+2).		
1°C	20°C	2°C			

6

7. P5 Parameter			Function : To set probe calibration for shelter temperature sensor.		
To change P5 parameter, press set key when display shows P5			Use UP/DOWN keys to set desired range. In time it may be possible that the display may be offset by a degree or so. To compensate for this error, you may need to add or minus the degrees required to achieve the correct temperature. Setting range is from - 10°C to +10°C .		
Min.	Max.	Fac.	Example : The temperature on the display is 28°C, whereas the actual temperature is 30°C. You will need to set the P5 mode to 2, which means that once out of the programming mode, the display will show temperature 30°C (28°C+2°C).		
-10°C	10°C	0°C			

7

8. P6 parameter			Func.: Set time delay between relay restart time for comp1 and comp2.		
To change P6 parameter, press set key when display shows P6. Time delay 1			Comp1 LED along with time delay for comp1 will flash. Use UP/DOWN keys to set desired range. Once desired range is achieved, press set key and you will see !---" which confirms time delay for set point 1 has been stored in memory.		
Min.	Max.	Fac.	After pressing UP key comp2 LED flashes alongwith the delay for comp2. Use UP/DOWN keys to set desired, range. Once desired range is achieved, press set key and you will see !---" which confirms time delay for set point 2 has been stored in memory.		
0 Min	20 Min	3 Min			
Time delay 2					
Min.	Max.	Fac.	To prevent both compressors from switching on together, there is an internal 10 second time delay between simultaneous startups to prevent an electrical surge.		
0 Min	20 Min	3 Min			

8

9. t2 parameter			Function : To start second comp. incase comp 1 cannot achieve the lower setpoint.		
To change t2 parameter, press set key when display shows t2 .			This function is used to switch on the second compressor incase the heat load cannot be met with one compressor functioning. <u>Example :</u> If setpoint 1 is 23 and setpoint 2 is 25 and if t2 para is set to 9 minutes, if the second comp. cuts out at 25, if comp. 1 is not able to acheive 23 for a period of 9 minutes, then after 9 minutes, second compressor will also come on and both compressors will cutout at the lower setpoint. If t2 is set less than P6, then P6 para will override t2 parameter. If set to 0, this feature will not activate.		
Min.	Max.	Fac.			
0 Min	30 Min	0 Min			

9

10. t3 parameter			Function : To set minimum off time between two compressor.		
To change t3 parameter, press set key when display shows t3.			This mode is used to set the time delay between the switching off of both compressors so that they do not switch off simultaneously. <u>Example :</u> If this mode is set to 3 seconds the second compressor will switch off after a minimum of 3 seconds from the first compressor switching off. If set to 0, this feature will not activate.		
Min.	Max.	Fac.			
0 Sec	15 Sec	5 Sec			

10

11. t4 parameter			Function : To avoid overloading of either compressor.		
To change t4 parameter, press set key when display shows t4 .			This function is used to avoid overloading of any one compressor working at a stretch over a period of time. <u>Example :</u> If this parameter is set at 2 hours, the setpoint, differential & time delay of both compressors will interchange after 2 hours The interchange will occur every 2 hours. Time calculation will start at power on. This helps by not overworking any one compressor for long hours and increases compressor life.If for any reason the t4 and setpoints have been changed,the time calculation will start from the last change in any of these parameters.		
Min.	Max.	Fac.			
0 Hr	12Hrs	12Hrs			

11

12. Ad parameter			Function: To set power on time delay for High temp alarm .		
To change the Ad parameter, press the set key when display shows Ad .			Use UP/DOWN keys to set desired range. This parameter sets a time delay on power on for the High temperature Alarm. Example: If this parameter is set to 5 Min, once the unit is powered on the high temperature alarm will not activate for 5 minutes even if there is a fault. This is very useful to eliminate the nuisance alarm when a unit is switched on and the ambient is above the max set limit. in P2.After 5mins if the temperature is above P2 parameter then Display will show !Ht" and Alarm3 relay will Activate.		
Min	Max	Fac.			
0 Min	20Min	20 Min			

12

13. C0 parameter			Function : To set low current limit for compressor1.
To change C0 parameter press set key when display shows C0.			Use UP/DOWN keys to set desired range. This parameter is used to switch off the compressor incase it draws lower than the set current.
Min.	Max.	Fac.	Example: If this parameter is set at 1A, the controller will trip comp1 if it draws less than 1A.Controller will restart the compressor after the set time delay. If after 3 retries within 1 hour, current drawn is still less than 1A, the controller will trip the compressor on fault and activate the respective alarm relay. Also display will flash !UI". Once fault is rectified user has to press reset key for 4 seconds to restart the Compressor.
1	C2	1	
Unit : Amp			

13

14. C1 parameter	Function : To set low current limit for compressor2.		
To change C1 parameter press set key when display shows C1.	Use UP/DOWN keys to set desired range. This parameter is used to switch off the compressor incase it draws lower than the set current.		
Min.	Max.	Fac.	Example: If this parameter is set at 1A, the controller will trip comp2 if it draws less than 1A. Controller will restart the compressor after the set time delay. If after 3 retries within 1 hour, current drawn is still less than 1A, the controller will trip the compressor on fault and activate the respective alarm relay. Also display will flash !UI". Once fault is rectified user has to press reset key for 4 seconds to restart the Compressor.
1	C3	1	
Unit : Amp			

14

15. C2 parameter			Function : To set high current limit for compressor1.
To change C2 parameter press set key when display shows C2.			Use UP/DOWN keys to set desired range. This parameter is used to switch off the compressor1 incase it draws higher than the set current.
Min.	Max.	Fac.	Example: If this parameter is set at 10A, the controller will trip comp1 if it draws more than 10A.Controller will restart the compressor after the set timedelay. If after 3 retries within 1 hour, current drawn is still more than 10A, the controller will trip the compressor on fault and activate the respective alarm relay. Also display will flash !OL". Once fault is rectified user has to press reset key for 4 seconds to restart the Compressor.
C0			

15

16. C3 parameter	Function : To set high current limit for compressor2.	
To change C3 parameter press set key when display shows C3.	desired range. This parameter is used to switch off the compressor2 incase it draws higher than the set current.	
Min.	Max.	Fac.
C1		
Example: If this parameter is set at 10A, the controller will trip comp2 if it draws more than 10A. Controller will restart the compressor after the set timedelay.If after 3 retries within 1 hour, current drawn is still more than 10A, the controller will trip the compressor on fault and activate the respective alarm relay. Also display will flash !OL". Once fault is rectified user has to press reset key for 4 seconds to restart the Compressor.		

16

17.C4 & C5 parameter			Function: To set time delay for current alarms.
To change these parameter, press the set key when display shows C4/C5			Use UP/DOWN keys to set desired range. This parameter sets a time delay on compressor start up before Overload ,Underload .
Min	Max	Fac.	Example: If this parameter is set to 1 Min, once the compressor is on will ignore Overload, Underload for 1min.If the fault persists even after 1min then controller will sense Overload,Underload faults as described in C0 ,C1, C2& C3 parameters. C4- Delay for Comp1 Alarms C5- Delay for Comp2 Alarms
0 Min	30Min	1Min	

17

18. L1 parameter			Function : Free cooling Enable/Disable for Unit1
To change L1 parameter, press set key when display shows L1 .			Use UP/DOWN key to set desired range. When L1 is set to 0 Free cooling for is disabled. 1 Free cooling for is enabled.
Min.	Max.	Fac.	Example : .Setting this parameter at 1 will enable the Free cooling for unit-damper,motor and compressor will work according to conditions of Shelter, Ambient temperature and shelter Humidity
0	1	0	

18

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20.L3 parameter			Function : Free cooling setpoint.
To change L3 parameter, press set key when display shows L3 .			Use UP/DOWN key to set desired range. Example : If this parameter is set to 15°C then controller will work in free cooling mode if the ambient temperature is below 15°C .But if the ambient temperature is >= 15°C the controller will switch into dual cooling mode. In this both dampers and compressors will work. Controller will switch over to Compressor mode if ambient temperature > smaller set point- 2°CIn this mode both the dampers will be fully closed.
Min.	Max.	Fac.	
10°C	XX°C	16°C	

20

21. L4 parameter	Function : To set the differential for damper.						
To change L4 parameter, Press set key when display shows L4 .	Use UP/DOWN key to set desired range. <u>Example</u> : If L4 is set to 2°C then in Free/Dual cooling mode controller will open the dampers when shelter temperature reaches or goes above the smallest set pt + 2°C and will close the dampers at smallest set point.						
<table><tr><td>Min.</td><td>Max.</td><td>Fac.</td></tr><tr><td>1°C</td><td>4°C</td><td>2°C</td></tr></table>	Min.	Max.	Fac.	1°C	4°C	2°C	
Min.	Max.	Fac.					
1°C	4°C	2°C					

21

22.L5 parameter			Function :To set Humidity limit to allow free cooling.
To change L5 parameter, Press set key when display shows L5 .			Use UP/DOWN key to set desired range. If L5 is set to 50% and if shelter RH reaches or goes above 50% then the controller will close the dampers in steps. This will depend on L6 parameter. Example : If L6 is 5%, then at 55% shelter RH, Controller will close the damper by 1 position; at 60%RH it will close by 2 positions and so on. Like this damper will get fully closed at 80%RH and both the compressors will come on to lower shelter RH irrespective of shelter temperature. Both compressors will be off at 75 % RH or set points
Min.	Max.	Fac.	
10%	99%	70%	

22

23.L6 parameter	Function :To set differential for Humidity.	
To change L6 parameter, press set key when display shows L6 .	Use UP/DOWN key to set desired range. <u>Example</u> : As explained for L5 parameter.	
Min.	Max.	Fac.
3%	10%	5%

23

24.d0 parameter			Function :To enable/disable HP fault input for Unit1.
To change d0 parameter, press set key when display shows d0 .			Use UP/DOWN key to set desired range. Example : If d0 is set to 1 HP1 fault input is enabled. 0 HP1 fault inputs is disabled. Setting this parameter to 0 will ignore Hp1 fault for compressor1. If this parameter is set to 1 then controller will detect HP1 trip and incase of 3 HP1 trips in 1 hour or less time controller will trip the compressor1 on fault and activate the respective alarm relay. Also display will flash HP. After attending the fault user has to press RST key for 4 seconds to restart compressor.
Min.	Max.	Fac.	
0	1	1	

24

25.d1 parameter	Function :To enable/disable HP fault input for Unit2.	
To change d1 parameter, press set key when display shows d1 .	Use UP/DOWN key to set desired range. Example : If d1 is set to 1 HP2 fault input is enabled. 0 HP2 fault input is disabled. Setting this parameter to 0 will ignore HP2 fault for compressor2. If this parameter is set to 1 then controller will detect HP2 trip and incase of 3 HP2 trips in 1 hour or less time controller will trip the compressor2 on fault and activate the respective alarm relay. Also display will flash HP. After attending the fault user has to press RST key for 4 seconds to restart compressor.	
Min.	Max.	Fac.
0	1	1

25

26.d2 parameter	Function :To enable/disable LP fault input for Unit1.	
To change d2 parameter, press set key when display shows d2 .	Use UP/DOWN key to set desired range. Example : If d2 is set to 1 LP1 fault input is enabled. 0 LP1 fault input is disabled. Setting this parameter to 0 will ignore LP1 fault for compressor1. If this parameter is set to 1 then controller will detect LP1 trip and incase of 3 LP1 trips in 1 hour or less time controller will trip the compressor1 on fault and activate the respective alarm relay. Also display will flash LP. After attending the fault user has to press RST key for 4 seconds to restart compressor.	
Min.	Max.	Fac.
0	1	1

26

27.d3 parameter			Function :To enable/disable LP fault input for Unit2.
To change d3 parameter, press set key when display shows d3 .			Use UP/DOWN key to set desired range. Example : If d3 is set to 1 LP2 fault input is enabled. 0 LP2 fault input is disabled. Setting this parameter to 0 will ignore LP2 fault for compressor2. If this parameter is set to 1 then controller will detect LP2 trip and incase of 3 LP2 trips in 1 hour or less time controller will trip the compressor2 on fault and activate the respective alarm relay. Also display will flash LP. After attending the fault user has to press RST key for 4 seconds to restart compressor.
Min.	Max.	Fac.	
0	1		

27

28. LP parameter			Function : To lock keypad.
To change LP parameter, press set key when display shows LP .			desired range. This parameter can lock the keypad so that tampering is not possible by bystanders.
Min.	Max.	Fac.	0= Keypad unlocked. 1= Keypad locked.
0	1	1	
			
			When locked all parameters can only be viewed, but not modified.

28

29. E1 parameter			Function : Relay status on probe failure.
To change E1 parameter, press set key when display shows E1 .			Use UP/DOWN keys to set desired range. When set to 0 both the relays will stay on with initial start-up delay of 2 minutes.
Min.	Max.	Fac.	When set to 1 both compressor performs a duty cycle of 10 minutes ON and 4 minutes OFF. When set to 2 both relays will stay OFF.
0	2	0	

29

30. PA Parameter	Function : To change password .	
To change the PA parameter, press the set key when display shows PA .	Use UP/DOWN keys to change password.	
Min.	Max.	Fac.
0	99	48
User can not enter into program mode, set mode if correct password is not entered.		

30

31. FS Parameter			Function : To restore the default settings of the controller.
To change the FS parameter, press the set key when display shows FS.			When set to 1 all parameters are programmed to factory values. Useful to debug setting related problems.
Min.	Max.	Fac.	
0	1	0	

31

32. EP Parameter	Function : To end programming.
To end programming press set key.	Once the set key is pressed, the controller goes into the normal mode and displays the temperature and all settings are recorded.

32

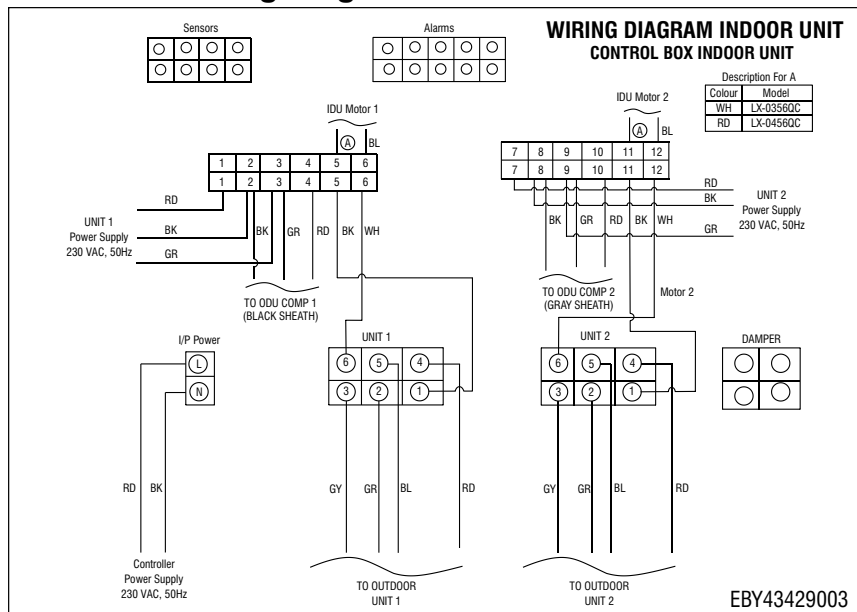
5. TROUBLE SHOOTING

5.1 Symptoms & Problems

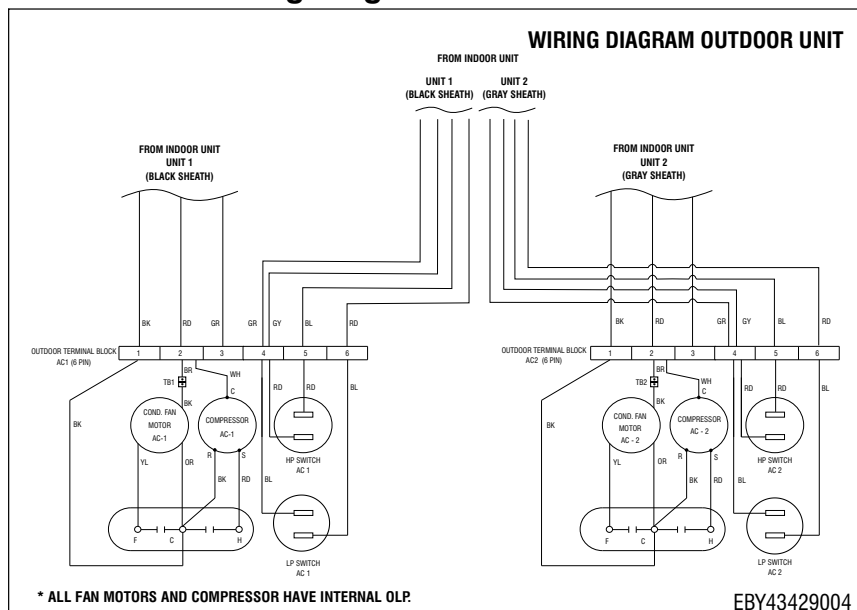
CLASS	PROBLEM	CAUSE	REMEDY
MECHANICAL	Unit not cooling	Dirty Evaporator coil/dirty filter	clean coil/filter
		capillary choked	replace capillary
		condenser coil blockage	clean condenser coil
		gas leakage	rectify the leak/charge R-22
		condenser fan not working	check fan/rectify/replace motor, fan
		evaporator blower not working	check blower/rectify/replace motor, blower
		loose connection/electrical wiring	tightening of wires/correct wiring as per electrical diagram
		air leakage in AC1&AC2 or air bypassing in between	block air leakage of each section, prevent air gaps between ac1 & ac2 compartments
		evaporator compartment insulation weak	properly insulate the compartment with PE Foam-15mm
	Unit Noisy	blower reverse direction	correct the rotation by interchanging motor direction snap socket connection
		blower /fan loose	tight the blower/fan properly
		motor loose on mountings	tight the motor on mountings
		compressor mountings loose	properly tight compressor mounting
		motor shaft jamming	replace bearings/improve lubrication/replace motor
		loose panels	tight the panels properly
		blower alignment	align the blower in centre of housing with equal gaps
		hissing noise due to improper R-22 charge	Charge the Refrigerant as per Quality label
ELECTRICAL	unit do not operate	compressor internal part damage	replace compressor
		Improper power supply	rectify power supply to the unit
		compressor faulty	replace compressor
		motor indoor/outdoor faulty	replace motor
		loose wiring	tight wires
		wrong wiring	do proper wiring as per circuit diagram
		Neutral fail	check neutral and rectify
		fuse burnt	replace the fuse

6. ELECTRICAL WIRING DIAGRAM

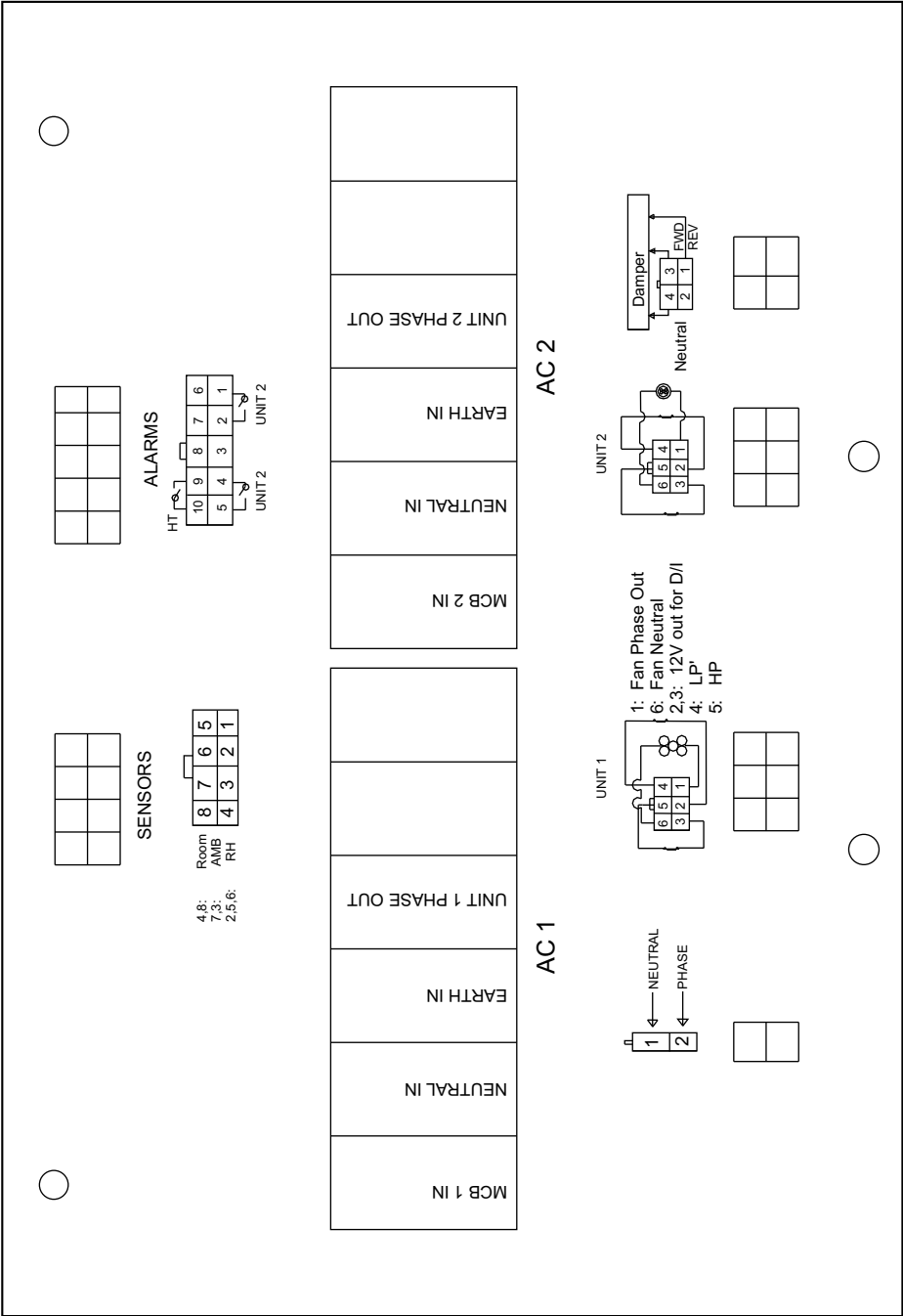
6.1. Indoor Wiring Diagram



6.2. Outdoor Wiring Diagram

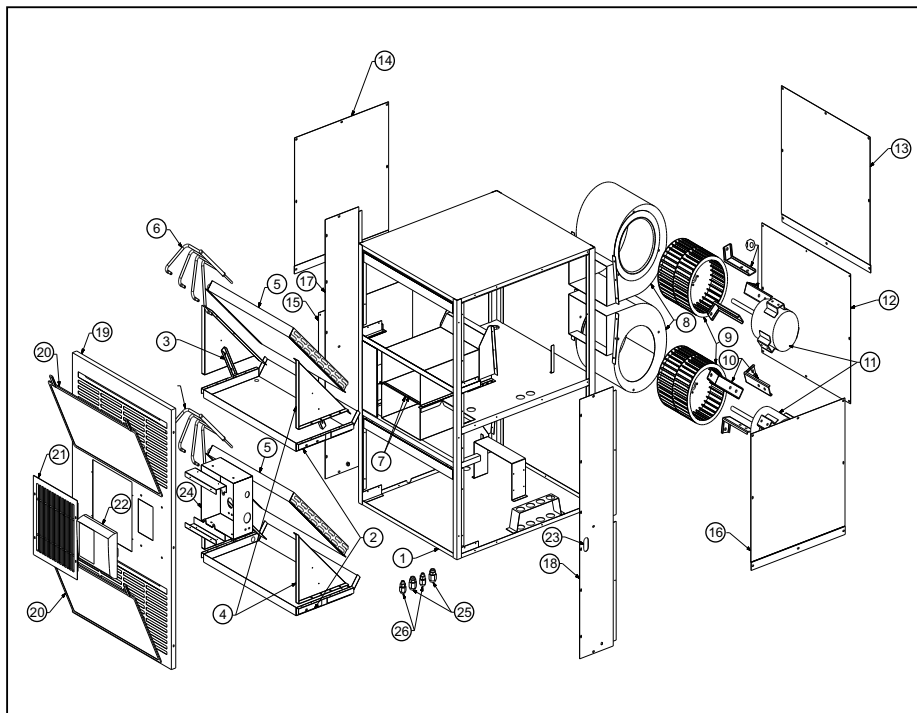


6.3 Controller Connection Diagram



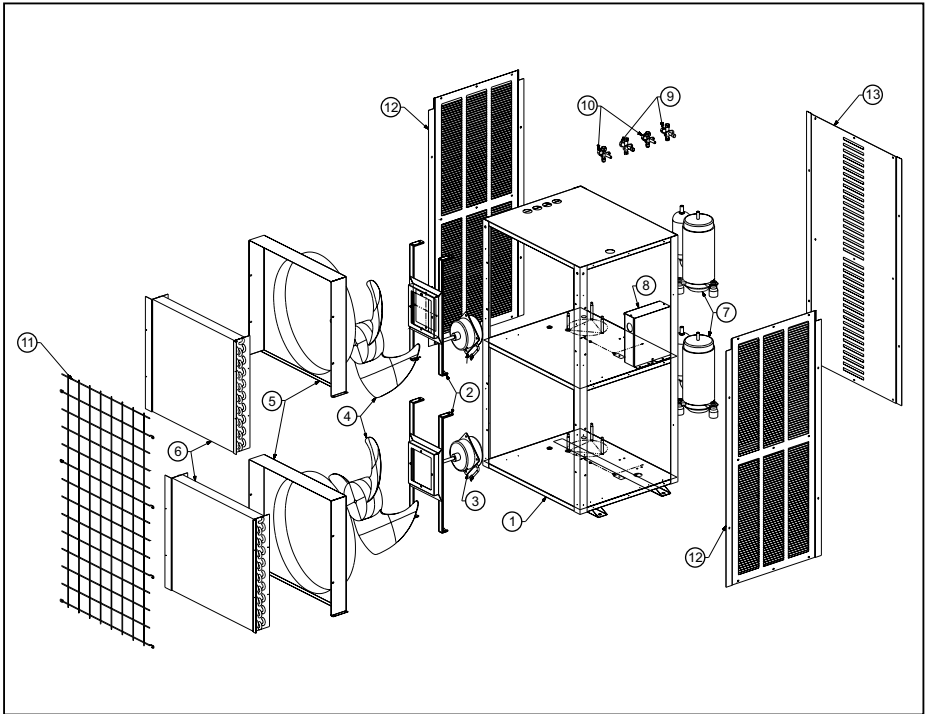
7. EXPLODED VIEW

7.1 Indoor Unit



EXPLODED VIEW

7.2 Outdoor Unit



7.3 Part List

INDOOR UNIT (Model:LX-0356QC/LX-0456QC)				
S.No.	Item	Part no.	Unit	Qty
1	Structure assy-IDU	AJF72915802	Nos	1
2	Drain pan top / bottom	MGB61841502/MGB61841504	Nos	2
3	Guide filter	MEA61864302	Nos	2
4	Coil support right/left	MJH61861802/MJH61861902	Nos	2
5	Evaporator coil 3Tr/3.5Tr	ADL72916901/ADL72918501	Nos	2
6	Header Eva out	MJU61894301	Nos	2
7	Supply duct	MEK61844202	Nos	1
8	Blower housing	3661A20027C/D	Nos	2
9	Blower	ADP33243201/02	Nos	2
10	Mount motor	ABA33322602	Nos	6
11	Indoor motor 3Tr/3.5Tr	EAU37399301/EAU60711001	Nos	2
12	Rear panel bottom	MGC61859702	Nos	1
13	Rear panel top	MGC61859602	Nos	1
14	Panel side top	MGC61859802	Nos	2
15	Panel side bottom left	MGC61859902	Nos	1
16	Panel side bottom right	MGC61860002	Nos	1
17	Panel side big Left	MGC61859502	Nos	1
18	Panel side big right	MGC61859504	Nos	1
19	Front panel	MGC61860102	Nos	1
20	Air filter	MDJ55003009	Nos	2
21	Supply air grill	MDX38348001	Nos	1
22	Controller	ABQ34163003	Nos	1
23	Wire Grommet	MBF42399101	Nos	1
24	Control box indoor	MBU61843306	Nos	1
25	Valve-1/2 inch	3A00375E	Nos	2
26	Valve-3/8 inch	3A00375A	Nos	2

7.3 Part List

OUTDOOR UNIT (Model:LX-0356QC/LX-0456QC)				
S.No.	Item	Part no.	Unit	Qty
1	Structure Assy-ODU	ABW72910602	Nos	1
2	Mount motor	MAZ61914402	Nos	2
3	Outdoor motor	4681A20066B	Nos	2
4	Profan	1A00195B	Nos	2
5	Shroud	MHN61841602	Nos	2
6	Condenser Coil	ACG72918201	Nos	2
7	Compressor	MCB60532401	Nos	2
8	Control box outdoor	MBN61864202	Nos	1
9	Service valve-1/2 inch	5220A20053A	Nos	2
10	Service vale-3/8 inch	MJX61846501	Nos	2
11	Rear Grille	MDX61848302	Nos	1
12	Side panel	MGC61859202	Nos	2
13	Rear Panel	MGC61859102	Nos	1

