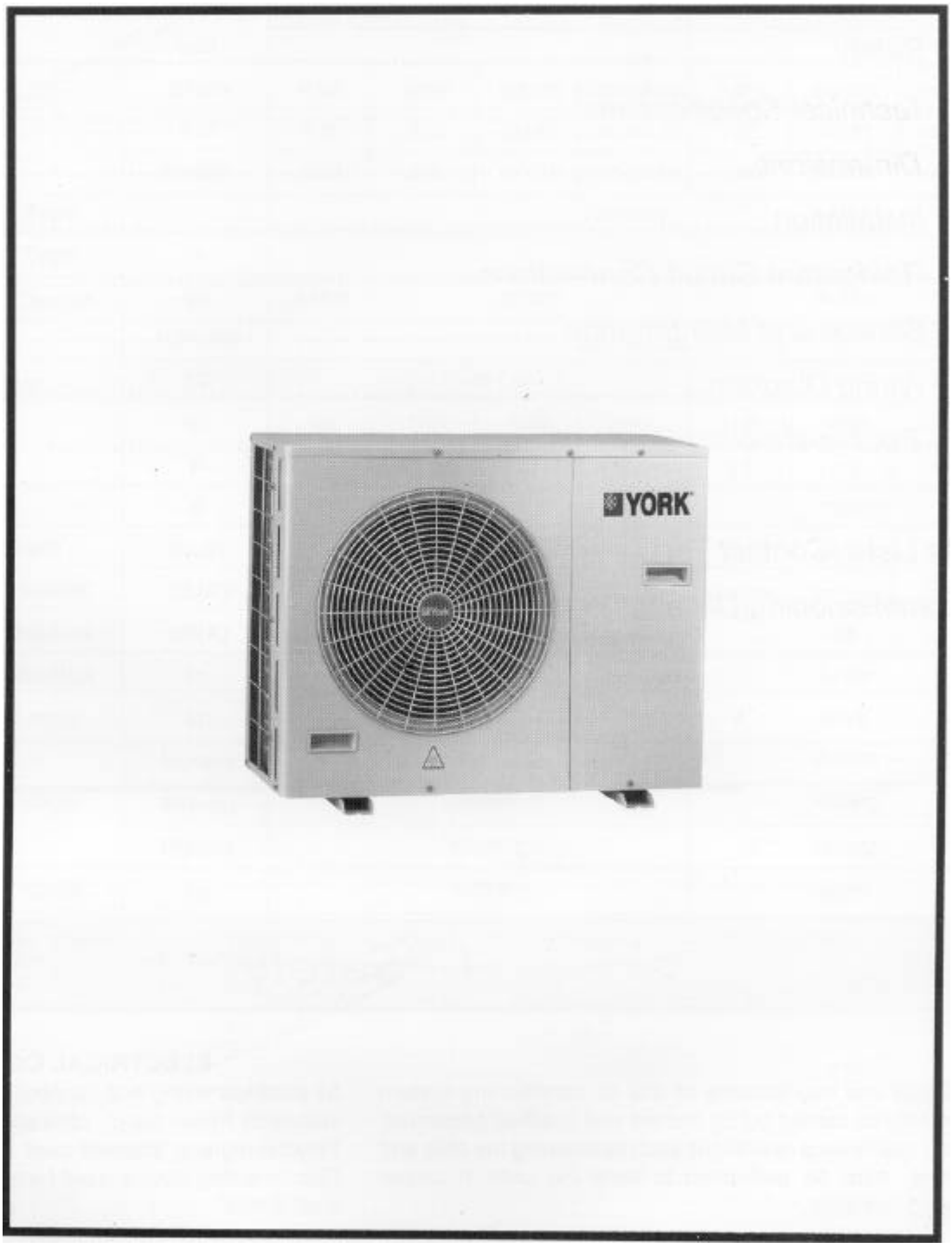
MULTISPLIT

Condensing unit

Installation Operation Maintenance Manual

Cooling Only Systems

Models MMC 21S23U15 and MMC 25S24U15



YORK®

035T70078-000

List of Contents

1 - Safety

Installation and maintenance of this air conditioning system should only be carried out by trained and qualified personnel. Regular maintenace operations such as cleaning the coils and air filters must be performed to keep the units in proper operating condition.

CAUTION

Before undertaking any work on the unit, make sure that the power supplly has been disconnected.

ELECTRICAL CONNECTIONS

All electrical wiring and connections must comply with local standards.Power supply cord used must not be lighter than Polychloroprene sheated cord (245 IEC 57 or H05RN-F). Disconnecting device must have a contact separation of at least 3 mm.

GENERAL PRECAUTIONS

Check that the power supply available agrees with nameplate voltage.Use adequate line protection.The unit must be grounded.

2 - Technical Specifications

Models		Indoor unit	3 x MHC09N				4 x MHC09N		
			A	B1/B2	B1+B2	A+B1+B2	A1/A2/B1/B2	A1+A2/B1+B2	A1+A2+B1+B2
		Outdoor unit	MCC21S23U15				MCC25S24U15		
Capacities		Btu/h	8,500	9,300	2x6,500	8,500+2x6,400	9,300	2x6,500	4x6,400
		kW	2.39	2.72	2x1.87	2.49+2x1.74	2.72	2x1.87	4x1.74
		kcal/h	2060	2340	2x1610	2,140+2x1500	2340	2x1610	4x1610
Compressor	Type	-	2xRotary						
Refrigerant	Type	-	R22						
	Charge	gr.	A:1000	B:1060			2x1060		
Power Supply		V/Ph/Hz	220-240/1/50						
Max. Outdoor Temperature		°C	47				47		
Power Consumtion		W	760	1140	1230	1940	1140	1230	2450
Running Current		A	3.3	5.1	5.5	8.5	5.1	5.5	10.9
Starting Current		A	36				38		
Indoor Air Flow (High speed)		mc/h	3 x 380				4 x 380		
Noise Level (2.5m)	Indoor	dB(A)	31/34/36	31/34/36	34/37/39	36/39/41	34/37/39	34/37/39	34/37/39
	Outdoor	dB(A)	56				57		
Piping Diameter	Suction	in.	3x 3/8"				4x 3/8"		
	Liquid	in.	3x1/4"				4x1/4"		
Dimensions	ID/OD	H(mm)	290/696				290/696		
		W(mm)	799/850				799/850		
		D(mm)	181/287				181/287		
Weights	ID/OD	kg	3x8/69				4x8/71		

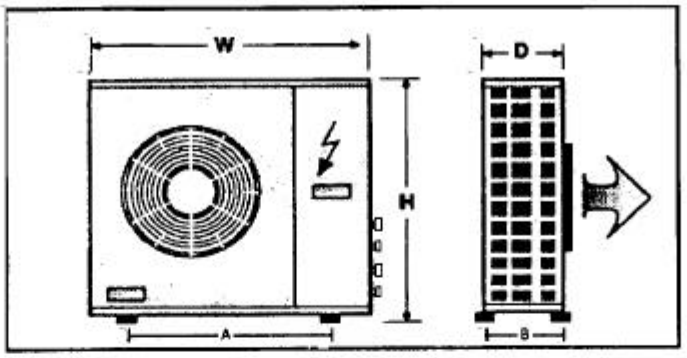
Cooling Capacity is based on : 27°C DB/19°C WB Indoor Air Temp. - 35°C Outdoor Air Temp. - Piping length : 7.5m
For multiple indoor units, indoor noise refers to all units in the same room

3 - Dimensions

Overall dimensions

Outdoor units MMC 21and 25

	MMC
	21 and 25
A	550
B	315

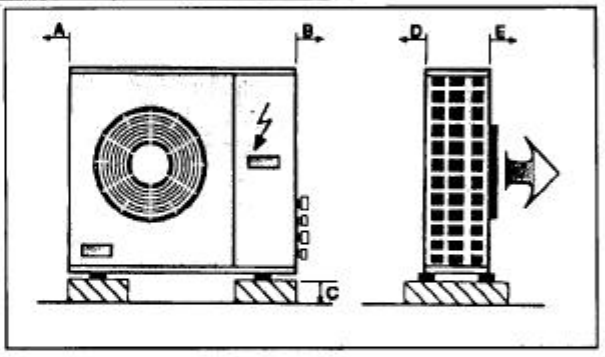


Unit dimensions are shown in the Technical Specification table on page 3.

4 - Installation

Unit installation entails:

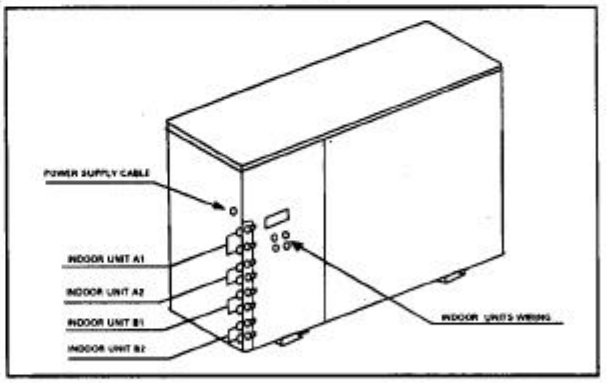
- unit mounting
- refrigerant piping connections
- condensate water drainage connections on heat pump units
- unit wiring connections.



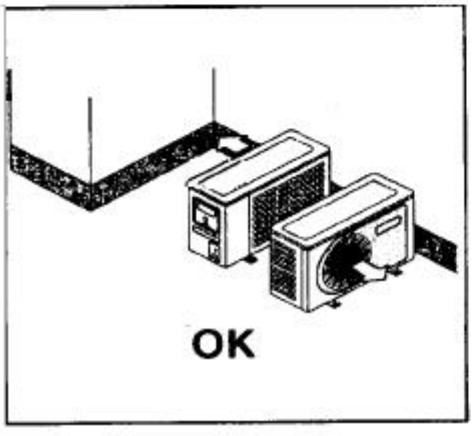
• Outdoor unit clearances

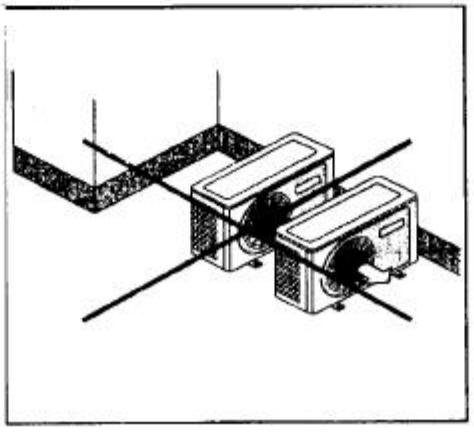
A minimium of clearance is necessary around the units to ensure proper air circulation and easy access for maintenance and service operations.

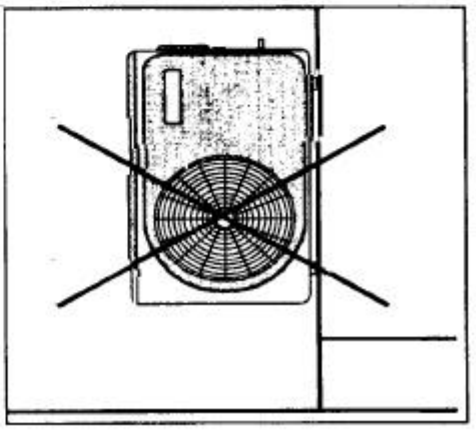
	MMC21and MMC25
A	200
B	400
C	100
D	190
E	600



• Outdoor unit placement







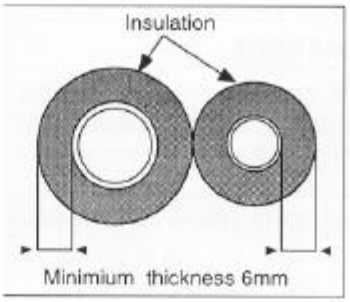
5 - Refrigerant Circuit Connections

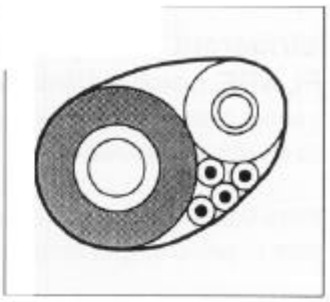
Make piping runs as short as possible and avoid all unnecessary changes in direction or elevation.

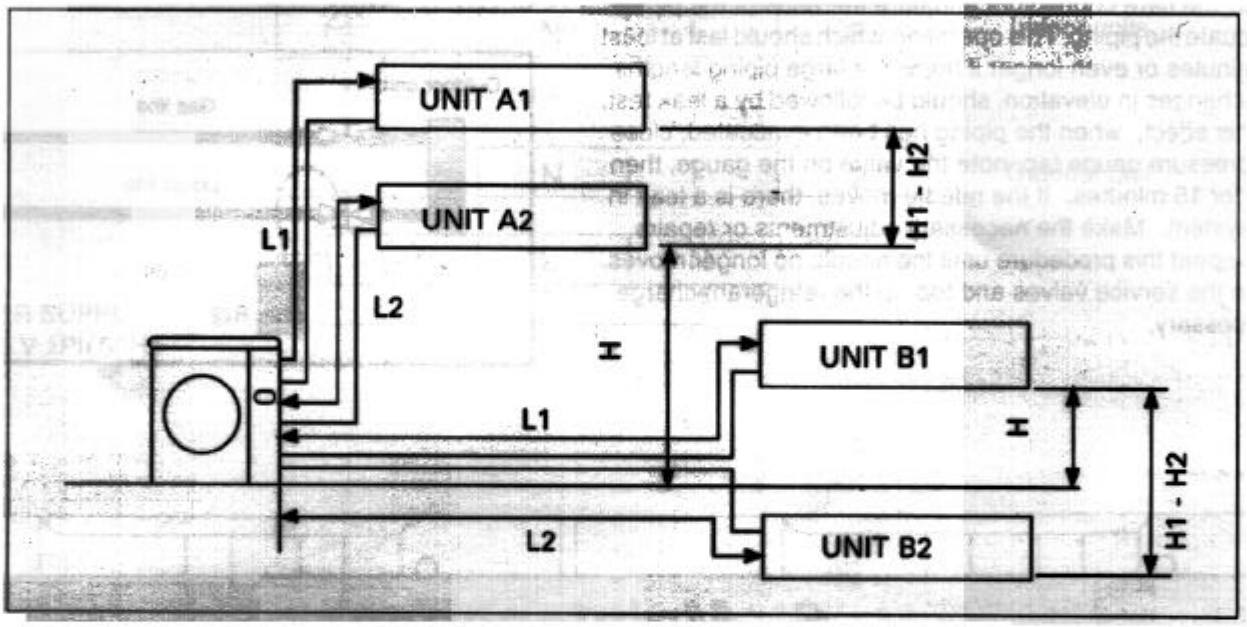
To prevent heat loss, the two lines must be insulated separately.

Fix piping with pipe clamps and check that any eventual pipe vibrations cannot be transmitted to the building structure.

Use refrigeration quality piping only with an operating pressure rating of at least 30 bars. Never use ordinary <<plumbing>> quality piping: you MUST use special de-oxidised, dehydrated, refrigerant quality copper piping.







Permissible Piping Length and Height

Models	Indoor Unit	3xMHC09N			4xMHC09N			
		A	B1	B2	A1	A2	B1	B2
	Outdoor Unit	MMC			MMC			
Max.Permissible piping length		15 m L	20 m L1 + L2		20 m L1 + L2		20 m L1 + L2	
Max. difference piping length		-	8 m L1 - L2		8 m L1 - L2		8 m L1 - L2	
Max. permissible piping head		12 m H	5 m H		5 m H		5 m H	
Max.permissible piping head difference between Unit 1 and 2		-	1 m H1 - H2		1 m H1 - H2		1 m H1 - H2	
Min. permissible piping length		3 m L	3 m L1 , L2		3 m L1 , L2		3 m L1 , L2	

Wire sizes

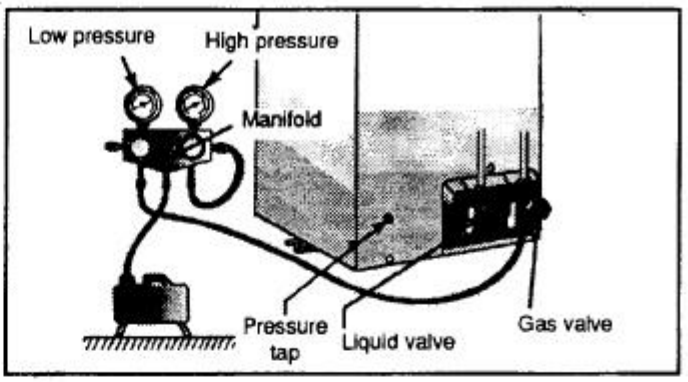
Unit Size		MMC21	MMC25
Power Supply	m^2	3x4	3x4
Interconnections	m^2	3x4x2.5	4x4x2.5

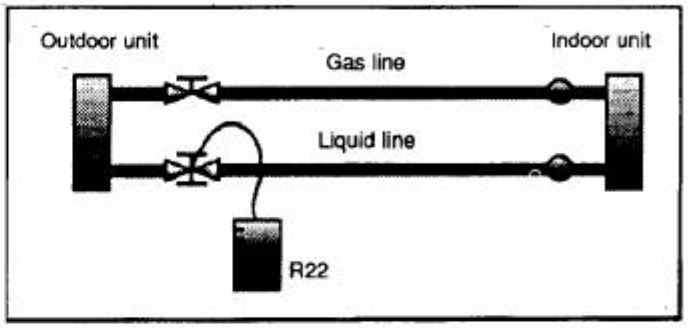
Refrigerant piping connections
(FLARE connections)

To avoid alteration of unit capacities, check that piping lengths and changes in elevation are kept to a strict minimum.

Before connecting the refrigerant lines, follow the procedures below (if pre-charged connection lines are not supplied):

- Select copper pipe diameters according to the size of unit to be installed.
- Install the refrigeration lines, checking that no foreign boodies get inside the piping.
- Install the flare connectors and flare the ends of the pipes.
- Evacuate the piping. This operation,which should last at least 15 minutes or even longer if there are large piping lengths and changes in elevation, should be followed by a leak test. To this effect, when the piping has been evacuated, close the pressure gauge tap, note the value on the gauge, then wait for 15 minutes. If the needle moves, there is a leak in the system. Make the necessary adjustments or repairs and repeat this procedure until the needle no longer moves.
- Open the service valves and top up the refrigerant charge if necessary.





6 - Maintenance

MONTHLY MAINTENANCE

1. Air filters require cleaning every 4 weeks or earlier. In some areas, weekly filter cleans may be required. Media should be replaced annually for most ducted models.
2. Check refrigerant circuit for correct refrigerant charge.
3. Check the condenser coil for any obstructions or excessive dirt and if necessary, hose the coil from the inside of the cabinet, taking care not to damage the aluminium fins. This is NOT a warrantable process. It is the owners responsibility.
4. Check blower wheel (s) for dirt build - up tightness on shaft.
5. Check condensate drain tray for clean water flow. Clean tray if necessary.
6. Check all cabinet panels for correct fitting and alignment.
7. Clean cabinet as required.
8. Check thermostat operation and set point.

ANNUAL MAINTENANCE

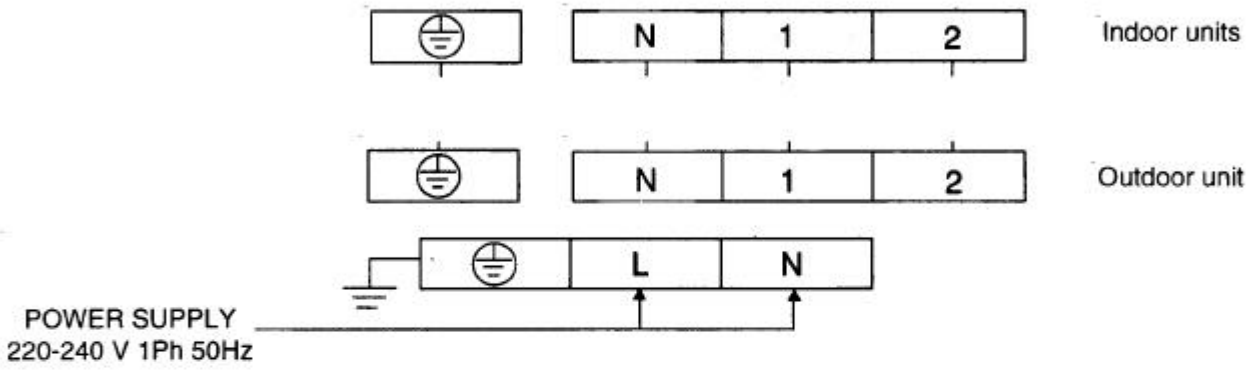
1. Repeat the monthly schedule.
2. Connect service gauges and record the operating pressures and mode.
3. Test the superheat setting by placing a thermocouple at the suction outlet and subtract that temperature from the suction temperature at the compressor. A reading of 4° C to 6° C is acceptable.
4. Check cabinet for any missing paint from chips or abrasions and treat accordingly.
5. Polish cabinet at intervals the same as you would a motor car paint finish.
6. Measure and record the amperage of each motor against nameplate details.
7. Record voltages between phases and phases to earth and neutral.
8. Replace filter media where required.
9. If belt drive evaporator fans, adijust vee-belt.

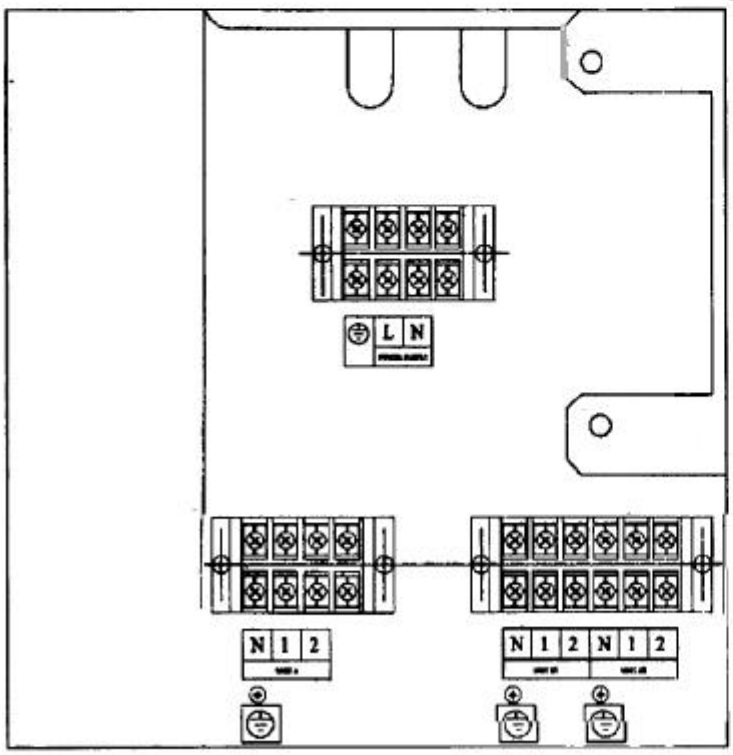
7 - Wiring Diagram

- **Wire Sizes and Fuses**

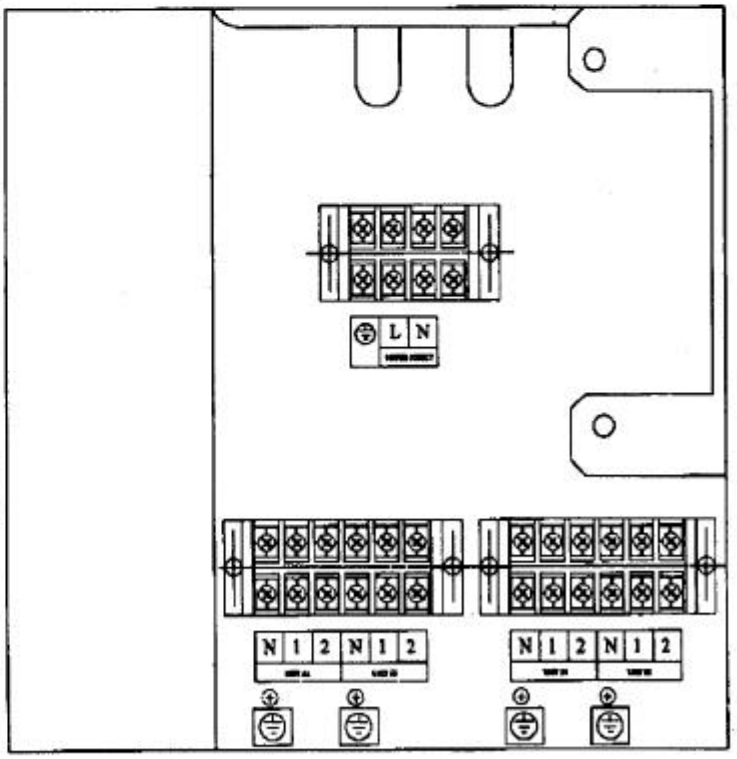
		MMC21	MMC25
Power Supply	mm^2	3x4	3x4
Interconnections	mm^2	3x2.5+GND	3x2.5+GND
Fuses	A	20	20

- **Wiring Diagram**





MMC21 S23 U15



MMC25 S24 U15

8 - Trouble-shooting Guide

Problem	Probable cause and remedy
A. Compressor does not run	1. Control fuse blown. Replace fuse. If new fuse blows immediately, look for electrical grounding in system. 2. Defective lockout relay. Before condemning the relay, turn control switch to " OFF " and then back to the selected setting. This de-energises lockout relay. If the fault condition has been corrected the compressor will start. If compressor fails to start, check continuity through relay. Replace relay if necessary. 3. Pressure control defective. Replace control if defective or out of calibration. The encapsulated type of control cannot be re-calibrated in the field. 4. Open contacts on low pressure switch. Suction pressure below cut out setting. Locate and repair refrigerant leak. Evacuate & re-charge system. 5. Open contacts on High pressure switch. Discharge pressure above cut out setting. Refer to section E. 6. Tripped or defective condenser fan overload. Incorrectly set overload. Set to specification. Motor windings not to spec - replace motor.
B. Compressor short cycles	1. Intermittent contact in electrical circuit, Repair or replace defective electrical control. 2. Overcharge of refrigerant or non-condensable gas in the system (air). High discharge pressure. Purge the entire system. Evacuate and re-charge. Cycling on L.P. control. 3. Lack of refrigerant. Locate & repair leak. Purge, evacuate & re-charge. 4. Voltage fluctuation. Voltage must be within 10% of unit name plate rating. 5. Motor compressor cutting out on overload. Increased current draw due to tight compressor. Replace compressor. Incorrectly set overload. Set overload to specified setting as per wiring diagram. 6. Defective compressor. Condemn and replace compressor only as a last resort and after all other possible sources of trouble are eliminated.
C. Compressor tries to start but only hum	1. Incorrectly wired. Check wiring against diagram. 2. Low line voltage. Check voltage at the unit while compressor is trying to start. Voltage must be within 10% of the unit name plate rating. 3. Compressor windings resistance not to spceification. Check continuity and resistance betweem terminals using an accurate ohmmeter. 4. Compressor seized. Replace compressor.
D. Compressor runs continuously	1. Incorrectly wired. Check wiring against diagram. 2. Low line voltage. Check voltage at the unit while compressor is trying to start. Voltage must be within 10% of the unit name plate rating. 3. Compressor wingings resistance not to spceification. Check continuity and resistance between terminals using an accurate ohmmeter. 4. Compressor seized. Replace compressor.
E. Head pressure too high	1. Excessive heat load. Check for excessive fresh air intake and/or inadequate insulation of conditioned space. If excessive load is permanent, a larger capacity or second unit may be necessary. 2. Shortage of refrigerant. Locate and repair leak, evacuate and re-charge, 3. Dirty condenser. Clean condenser. 4. Compressor inefficient. Check suction pressure and other possible source of trouble before replacing the compressor. 5. Defective room thermostat. If room temperature is satisfactory and unit continues to operate, set the thermostat to lower or warmer setting. If compressor won' t start, replace thermostat.
F. Head pressure too low	1. Overcharge of refrigerant. Purge, evacuate and re-charge with correct amount of refrigerant. 2. Air or non condensable in the system. Purge, evacuate and re-charge. 3. Dirty condenser. Clean fins and blow out with compressed air.
F. Head pressure too low	1. Refrigerant shortage. Locate leak, repair, evacuate and re-charge. 2. Compressor suction or discharge valves inefficient. Replace compressor.
G. Suction pressure too high	1. Excessive load on the evaporator. Check for excessive fresh air intake and/or inadequate insulation of conditioned space. 2. Compressor inefficient. If excessive load is permanent, a larger capacity or second unit may be necessary. Check suction pressure and other possible source of trouble before replacing the compressor.
K. Suction pressure too low	1. Refrigerant shortage. Locate leak, repair, evacuate and re-charge. 2. Partial or complete restriction in refrigerant system. Check for excessively cold or frosted area in liquid line-check tx valve operation and power element.

Simplified Diagram

Notes

DE - COMMISSIONING DISMANTLING & DISPOSAL

This product contains refrigerant under pressure, rotating parts, and electrical connections which may be a danger and cause injury!
All work must only be carried out by competent persons using suitable protective clothing and safety precautions.

Read the Manual

Risk of electric shock

Unit is remotely controlled and may start without warning

1. Isolate all sources of electrical supply to the unit including any control system supplies switched by the unit. Ensure that all points of electrical and gas isolation are secured in the OFF position. The supply cables and gas pipework may then be disconnected and removed. For points of connection refer to unit installation instructions.
2. Remove all refrigerant from each system of the unit into a suitable container using a refrigerant reclaim or recovery unit. This refrigerant may then be re-used, if appropriate, or returned to the manufacturer for disposal. **Under No circumstances should refrigerant be vented to atmosphere.** Where appropriate, drain the refrigerant oil from each system into a suitable container and dispose of according to local laws and regulations governing disposal of oily wastes.
3. Packaged unit can generally be removed in one piece after disconnection as above. Any fixing down bolts should be removed and then unit lifted from position using the points provided and equipment of adequate lifting capacity. Reference MUST be made to the unit installation instructions for unit weight and correct methods of lifting. Note that any residual or spilt refrigerant oil should be mopped up and disposed of as described above.
4. After removal from position the unit parts may be disposed of according to local laws and regulations.

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