

OSA 124

Single Phase Split System Outdoor Unit

Installation & Maintenance

GENERAL

OSA 124 - A general designation for outdoor unit
 OSA 124C - Outdoor unit, cooling only version
 OSA 124R - Outdoor unit, reverse cycle version

This OSA 124 Outdoor Unit must be installed in accordance with all national and local safety codes.

INSTALLATION

Positioning

Refer to dimension diagram below for minimum clearances. Position the unit so that prevailing winds do not blow onto the exhaust to slow the fan, and one unit does not exhaust toward the inlet of another unit.

Mount either free standing or on a wall using the optional mounting brackets available.

Free Standing :

Fasten the unit down to a firm flat horizontal base using the four holes provided in the mounting rails.

When the unit is being installed on a roof it is recommended that the unit is installed on a substantial structure with vibration isolating springs beneath the unit. These springs are not supplied with the unit.

Wall Mounting Option:

Complete wall mounting instructions are supplied with the optional wall mounting kit.

Drain

Install the unit with a positive fall to the rear to ensure condensate and/or rain water drains away freely through the drain holes provided. For a totally drip free installation mount the unit in a separate drain tray.

OPTIONAL FAN SPEED CONTROLLER

Fit a head pressure fan speed controller where cooling is required in below 20°C ambient conditions for long periods of time. An electronic HP Fan Speed Controller (4 amp) is available from **temperzone**.

REFRIGERATION PIPING

General

The OSA 124 is shipped with a refrigerant charge sufficient for a 10 m line length. The matched indoor unit is shipped with a holding charge of nitrogen. OSA 124 units have one flare and one brazed pipe connection.

Recommended Pipe Sizes

Suction pipe : 19 mm OD
 Liquid pipe : 10 mm OD

Line Lengths

For line lengths in excess of 35 m, contact the manufacturer's nearest sales office for additional details on piping requirements.

Height Separation Limits

Reverse Cycle Systems

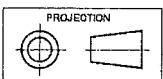
Outdoor Unit above Indoor Unit : 12 m
 Outdoor Unit below Indoor Unit : 12 m

Cooling Only Systems

Outdoor Unit above Indoor Unit : 18 m
 Outdoor Unit below Indoor Unit : 12 m

Dimensions (mm)

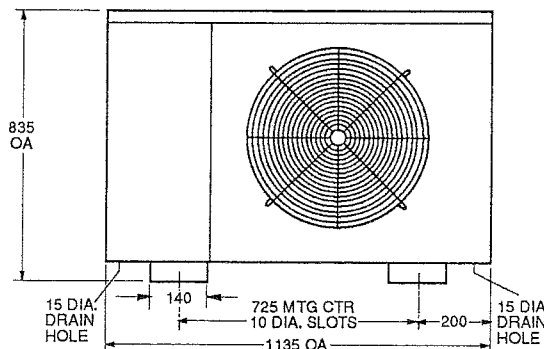
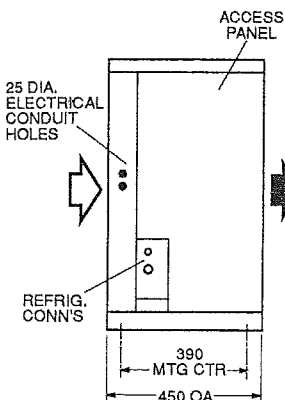
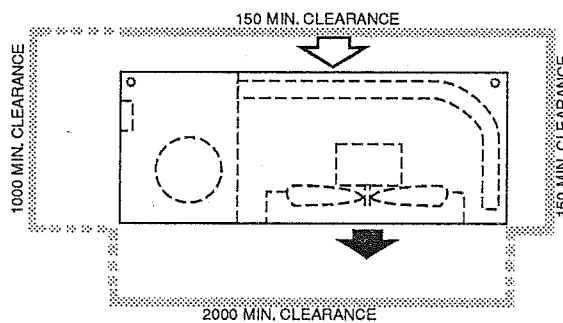
OSA 124



Not to Scale

Net Weight

OSA 124C 97 kg
 OSA 124R 101 kg



Piping Design

Design pipework to prevent drainage of liquid refrigerant into the compressor during the off cycle, and to ensure oil return to the compressor.

Vertical Risers

The gas riser should be trapped every 5 m to ensure oil return to the compressor. The trap to be a 'swan neck' curve in the pipe, with no change in the pipe size.

Piping

1. Use clean sealed refrigeration grade piping.
2. Cut pipe with a pipe cutter ONLY.
3. Insulate the gas line and seal all insulation joints.
4. Bi-flow filter dryers may be fitted in the liquid line.
5. Include a process point in the interconnecting pipework.
6. Ensure open pipe ends are sealed until the final connection is made.
7. Immediately before removing brazed pipe connection's seal, reduce holding charge between connection points and service valves to atmospheric pressure.

Warning: Failure to do so may cause injury.

Charging

The unit is supplied with 3.2 kg of refrigerant HCFC-22 (R22) which is sufficient for up to 10 m of pipework between the indoor and outdoor units. Add 35 g of HCFC-22 per metre above 10 m.

Procedure:

1. Evacuate Indoor Unit and interconnecting pipework to a pressure of 500 microns and hold for 15 mins.
2. Add refrigerant, if needed, via the Schraeder connection on the smaller of the Outdoor Unit's two service valves.
3. Open the service valve at the Outdoor Unit to allow refrigerant to flow throughout the system.
4. Leak check all brazed and fitted joints.

IMPORTANT :

Step 8 of the 'Start Up Procedure' requires you to check that the superheat on the suction line (where it enters the Outdoor Unit) is between 3°C - 5°C with an indoor air temperature in the range 21° - 27°C and outdoor air temperature in the range 24° - 35°C. Alter charge up or down to establish correct superheat.

WARNING:

This unit is designed for use ONLY with the refrigerant HCFC-22. The use of other refrigerants is NOT authorised or approved by the manufacturer and may cause operational problems such as poor performance and efficiency, loss of capacity, degradation of materials and refrigerant leaks. **The use of flammable or explosive materials as a refrigerant creates the additional risks of fire and explosion which may result in property damage, personal injury or death.**

Oil Charge

For line lengths in excess of 25 m, Suniso 4GS oil (or similar) should be added to the refrigerant at the rate of 1/2 fluid ounce per metre (13 ml/m) of suction piping.

CRANKCASE HEATER

For line lengths in excess of 35 m, fit a compressor crankcase heater to prevent liquid refrigerant condensing in the 'off' cycle.

ELECTRICAL REQUIREMENTS

Electrical work must be done by a qualified electrician. The outdoor unit must be wired directly from a distribution board by means of a circuit breaker or H.R.C. fuse, and a mains isolator provided - preferably close to the Outdoor Unit.

Note: DO NOT USE REWIRABLE FUSES.

OSA 124R only - It is recommended electricians run two spare wires between Outdoor Unit and Indoor Unit in case one, or both, of the following options becomes a requirement. **Note:** Leave the wires unconnected until required.

Option 1 - Indoor Fan Off During De-Ice

Option 2 - Electric Boost Heat.

Refer indoor unit's wiring diagram.

If electric heat is to be installed then it is recommended it be powered by a separate 25 A fused supply line sourced via a two pole isolator on the Outdoor Unit.

Standard units are suitable for use with thermostats with either manual Heat/Cool selection or automatic changeover subject to the contact ratings of the thermostats.

Refer to separate pamphlet for approved thermostats, or contact the manufacturer's nearest sales office.

If a compressor crankcase heater is fitted, then a 24 hour power supply to the crankcase heaters is required, otherwise the warranty is void.

SYSTEM CHECK TESTS

1. Leave the remote switch in the off position and close the mains isolating switch.
A four hour delay period is required to allow the crankcase heater (if fitted) to drive any liquid refrigerant out of the compressor oil.
2. Check that all fan motors are free running.
3. Check that the thermostat is correctly wired to the unit and is set at the desired temperature.
4. Check that the air filters, if any, have been correctly installed.
5. Check any supply air diffuser dampers are open.

START UP PROCEDURE

1. Switch on the unit.
Note: If crankcase heater fitted, switch on the unit after the four hour delay period has expired.
2. Check the supply voltage.
3. Measure the current draw on the compressor motor and on each fan motor. Check all readings against the specified values - particularly the indoor fan amps if the unit is installed in a free blow application.
4. Fit gauges and measure the suction and discharge pressures.
5. Test the operation of the high pressure safety control by switching off the outdoor unit's fan.

6. Test the operation of the reversing valve by running the unit in both the heating and cooling mode (OSA 124R only).
7. Check that the air flow over the outdoor unit's coil is adequate and that the fan is running smoothly.
8. Check the superheat - refer charging procedure.
9. Check the supply air flow at each outlet.

MAINTENANCE

Weekly For First Four Weeks

1. Check indoor unit air filters (if fitted) and vacuum or wash clean as necessary.
2. Check condensate drain for free drainage.
3. Check compressor compartment for oil stains indicating refrigerant leaks.
4. Check tightness of electrical connections.

Six Monthly

1. Check the tightness of all fan and motor mountings.
2. Check tightness of electrical connections.
3. Check that fan motors are free running.
4. Check suction and discharge operating pressures.
5. Replace indoor unit air filters (if fitted).
6. Check condensate drain for free drainage.

Yearly

1. Check for correct operation of all electrical equipment, i.e. H.P. and L.P. safety controls, anti-rapid cycle timer, compressor contactor and de-ice control (OSA 124R only).
2. Check all refrigerant piping for chafing and vibration.
3. Check the operation of electric heaters if fitted.
4. Check air supply at all diffusers.
5. Check for excessive noise and vibration and correct as necessary.
6. Check for insulation and duct damage and repair as necessary.
7. Remove lint and dust accumulation from outdoor coil fins.
8. Touch up all outdoor unit paintwork damage to prevent corrosion.

This pamphlet replaces the previous issue no. 1577 dated 08/98. Height sep's, wiring revisions B & C, crankcase heater.

NOTE

The manufacturer reserves the right to change specifications at any time without notice or obligation. Certified dimensions available on request.

Pipe Length Capacity Loss

On Cooling Cycle Due to Pressure Drop

Note : Loss percentages are approximations only, due to piping variations. No allowance made for vertical piping.

Pipe Size (mm)		Equivalent Line Pipe Length (m)					Additional Pipe Length to allow per Bend		
Liquid	Suction	5	10	15	20	30	Suction Pipe Size OD	19 mm	22 mm
10	19	1.6 %	3.2 %	4.7 %	-	-	Large 90°Radius	0.43 m	0.46 m
10	22	0.8 %	1.6 %	2.4 %	3.2 %	4.7 %	Standard 90°Elbow	0.61 m	0.70 m

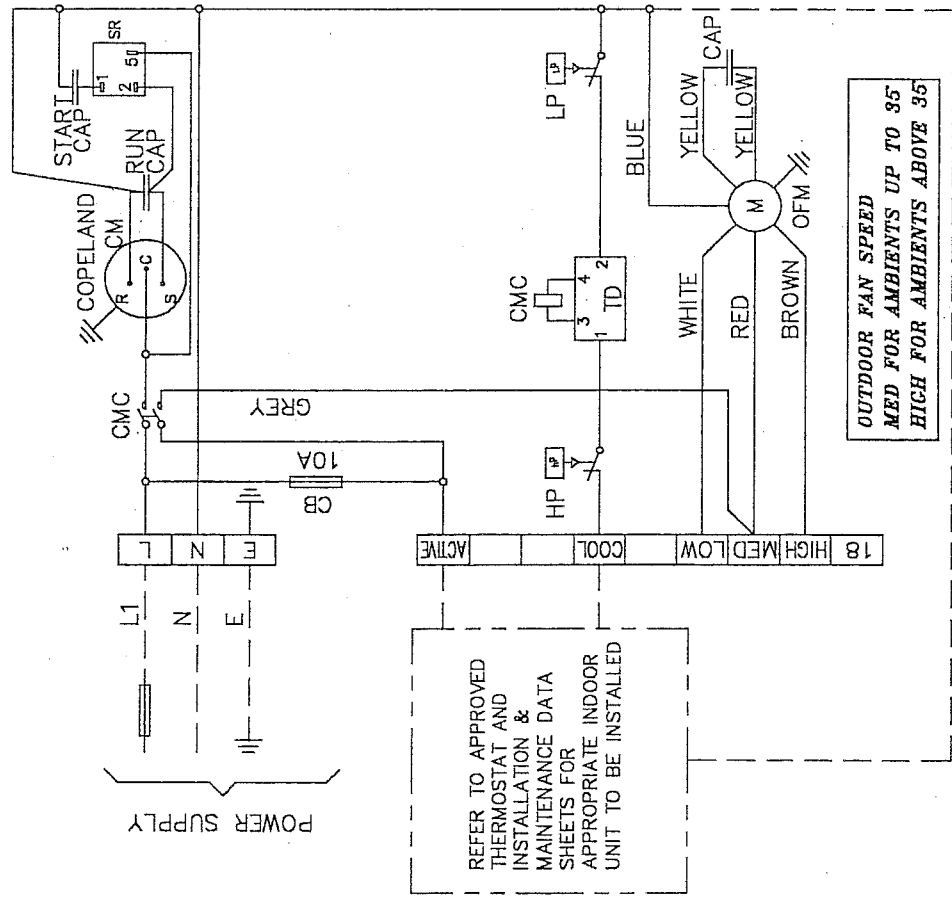
OUTDOOR UNIT :- OSA 124 C
 WITH INDOOR UNIT
 CAPACITIES -NOMINAL/ ASI861.1(A)
 COOLING - kW
 ELECTRICAL INPUT kW
 COOLING - kW
 E.E.R./C.O.P. (COOLING) 10.2/3.0/10.3/3.0/11.5/3.4
 ELECTRICAL

ISD 125	GME 402	ISK 125
12.3	12.1	12.3
4.1	4.0	3.6
10.2/3.0	10.3/3.0	11.5/3.4

SUPPLY REQUIRED 1PH 200-252V ~ 50Hz INCLUDING VOLTAGE FLUCTUATION LIMITS
 COMPRESSOR (1PH) RUN AMPS RATED CONDITIONS A 16 16 15
 COMPRESSOR (1PH) STARTING AMPS A 27 27 27
 COMPRESSOR CAPACITOR RUN MFD 60 60 60
 COMPRESSOR CAPACITOR START MFD 189/227/189/227/189/227
 INDOOR FAN MOTOR (1PH) FULL LOAD AMPS A 5.7 0.7 X2 1.0
 INDOOR FAN MOTOR CAPACITOR MFD 15 15 3.5 6.0
 OUTDOOR FAN MOTOR (1PH) FULL LOAD AMPS A 1.1 1.1 1.1
 OUTDOOR FAN MOTOR CAPACITOR MFD 5 5 5 5
 RUNNING AMPS (TOTAL) 20 18.5 16.5
 RECOMMENDED EXTERNAL FUSE SIZE A 32 32 32
 RECOMMENDED EXTERNAL FUSE SIZE WITH OPTIONAL ELECTRIC HEAT !! REFER NOTE BELOW
 WEIGHT - NETT OSA 124 C. 108 kg
 REFRIGERANT - HCFC (R22)
 UNIT PRECHARGED (10 METRE LINE LENGTH) 3.2kg
 BASE CHARGE UNIT 2.85 kg PLUS 35 grams PER METRE LINE LENGTH
 BASED ON Ø9.5 mm OD LIQUID LINE & Ø19 mm OD GAS LINE

ABB	DESCRIPTION
CAP	CAPACITOR
CM	COMPRESSOR MOTOR
CMC	COMPRESSOR CONTACTOR
HP	HI PRESSURE CONTROL
LP	LOW PRESSURE CONTROL
OFM	OUTDOOR FAN MOTOR
SR	START RELAY
TD	TIME DELAY 6 MINS
PTCR	START ASSIST THERMISTER

OPTIONAL ELECTRIC BOOST HEAT
RECOMMEND HEATING RUNS OFF OWN SUPPLY FUSE
VIA 2 POLE ISOLATOR ON OUTDOOR UNIT
CABLE SIZE MORE ECONOMIC

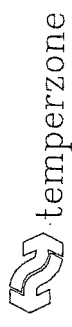


ISSUE	MODIFICATION	EC/N	DATE	APRVD	DRG SIZE	No.	DESCRIPTION
B	START CAP MF WAS ERROR TERM AUX DELETED	626	04-05-99	CM			
A	ISK DATA MODIFIED	560	11-08-98	D.J.H.			

Title
OSA 124 C
WIRING SCHEMATIC

Programmed by
 PLOTTED
 04-05-99
 ©temperzone ltd
 1999

Drawn D.J.H.	Date 17-06-98	Revision No.
Scale	APRVD	011-867-001
		B



OUTDOOR UNIT :- OSA 124 R
 WITH INDOOR UNIT
 CAPACITIES - NOMINAL / AS1861.1(A)

COOLING -	kW	12.3	12.1	12.3	ISK 125
HEATING - REVERSE CYCLE	kW	12.5	12.2	12.3	
ELECTRICAL INPUT					
COOLING -	kW	4.2	4.0	3.6	
HEATING - REVERSE CYCLE	kW	3.5	3.4	3.3	
E.E.R./C.O.P. (COOLING)	kW	10/2.93	10.3/3.0	11.5/3.4	

SUPPLY REQUIRED 1PH 200-252V ~ 50Hz INCLUDING VOLTAGE FLUCTUATION LIMITS

COMPRESSOR (1PH) RUN AMPS RATED CONDITIONS	A	16	16	15
COMPRESSOR (1PH) STARTING AMPS	A	27	27	27
COMPRESSOR CAPACITOR RUN	MFD	60	60	60
COMPRESSOR CAPACITOR START	MFD	189/227/189	227/189/227	
INDOOR FAN MOTOR (1PH) FULL LOAD AMPS	A	5.7	0.7 X2	1.0
INDOOR FAN MOTOR CAPACITOR	MFD	15	3.5	6.0
OUTDOOR FAN MOTOR (1PH) FULL LOAD AMPS	A	1.1	1.1	1.1
OUTDOOR FAN MOTOR CAPACITOR	MFD	5	5	5
RUNNING AMPS (TOTAL)	A	20	18.5	16.5
RECOMMENDED EXTERNAL FUSE SIZE	A	32	32	32

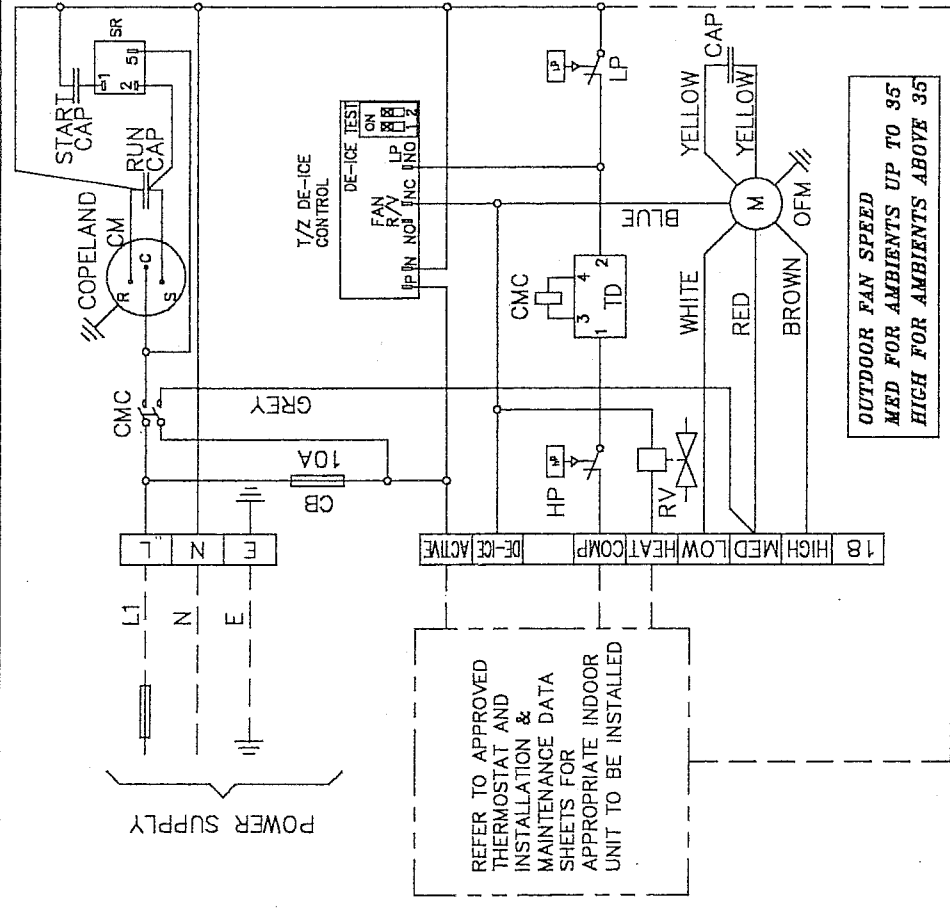
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ABB	DESCRIPTION
CAP	CAPACITOR
CM	COMPRESSOR MOTOR
CMC	COMPRESSOR CONTACTOR
HP	HI PRESSURE CONTROL
LP	LOW PRESSURE CONTROL
OFM	OUTDOOR FAN MOTOR
RV	REVERSING VALVE
SR	START RELAY
TD	TIME DELAY 6 MINS
PTCR	START ASSIST THERMISTER

OSA 124 R
 WIRING SCHEMATIC

temperzone

Drawn D.J.H. Date 17-06-98 Drawing No. 011-866-001 Revision C
 Scale AS/YSB C/S



REFER TO APPROVED THERMOSTAT AND INSTALLATION & MAINTENANCE DATA SHEETS FOR APPROPRIATE INDOOR UNIT TO BE INSTALLED

CHECK WIRING BEFORE SWITCHING ON, INCORRECT CONNECTION WILL DAMAGE MOTORS

CLIENT WIRING ---
 Interconnections between units by client. Double insulated multi-core cable.

ISSUE	MODIFICATION	EC/N	DATE	APRVD	DRG SIZE	No.	DESCRIPTION
C	START CAP IMF WAS ERROR TERM AUX DELETED	626	14-05-99	CM			
B	CIRCUIT BREAKER WAS 16A	02-10-98	D.J.H.				
A	ISK DATA MODIFIED	560	13-06-98	D.J.H.			

Programmed by

PLOTTED 04-05-99
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