

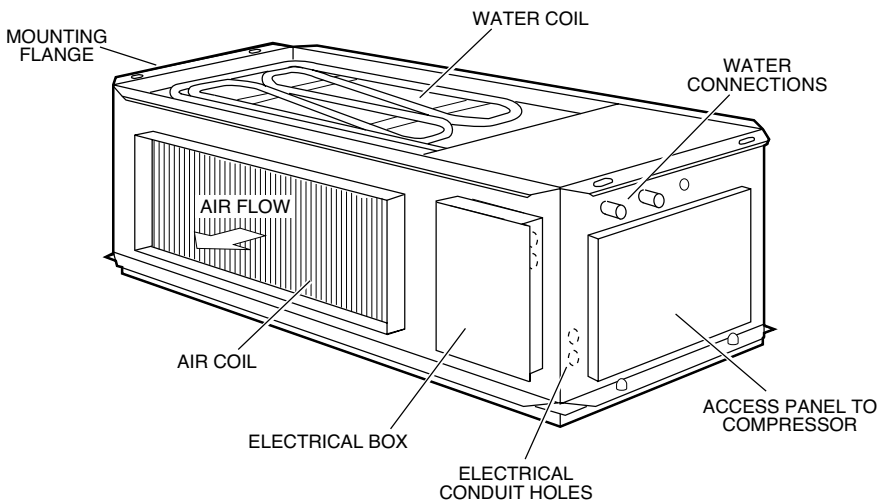
HWP 33, 41, 49, 78

Ducted Water Cooled Packaged Air Conditioner

Installation & Maintenance

Fig. 1

Supply Air Side



GENERAL

- HWP*C** - Cooling only version
- HWP*CE** - Cooling version with electric heat
- HWP*R** - Reverse cycle version
- HWP*RE** - Reverse cycle version with electric heat
- HWP** - A general designation which applies to all versions

These HWP units must be installed in accordance with all national and local safety codes.

OPTIONS

The following items are available as optional extras:

1. High pressure hose c/w fitting 600 mm long.
2. Optional Spring Mounting Kit
3. Condensate Lift-Pump Kit.
4. Filter Box (HWP 78 only) - integrated return air spigot & spare filter.
5. Supply & return air plenums.

FILTER BOX (HWP 78 Option)

The Filter Box is installed by unscrewing the two filter tracks and replacing them with the Filter Box's filter-integrated spigot. The filter may be accessed from either side of this spigot. This return air spigot has a depth of 135 mm.

INSTALLATION

Preliminary Inspection

Check that the pipes of the refrigeration system are not rubbing at any area in the unit.

HWP 31-49 are supplied with a shipping strap holding the compressor. Remove this plastic strap via the access panel on the opposite side to the electrical box. Do not loosen the compressor mounting nuts.

HWP 78 has a compressor that is spring mounted. Remove locknuts from mounting studs and discard. Fit rubber isolating sleeves (supplied) over mounting studs. Remove wooden shipping block from alongside compressor.

Positioning & Mounting

HWP units are designed to be used with simple, short duct layouts. Units should be located as close to the space to be air conditioned as acoustic criteria allows; refer to Fig. 5 for application considerations.

When determining the position of the air conditioner, allow adequate space around the unit to facilitate future servicing and maintenance. Ensure there is enough working space in front of the electrical access panel. Allow adequate clearance for the filter (optional) to be withdrawn to its full length. Alternatively the filter may be lifted out of its track (not with HWP 78 filter box).

It is recommended that the unit be mounted using the spring mounting system, supplied as an optional extra (Fig.3). This system minimises transfer of vibration into the building structure.

Fig. 2

Return Air Side

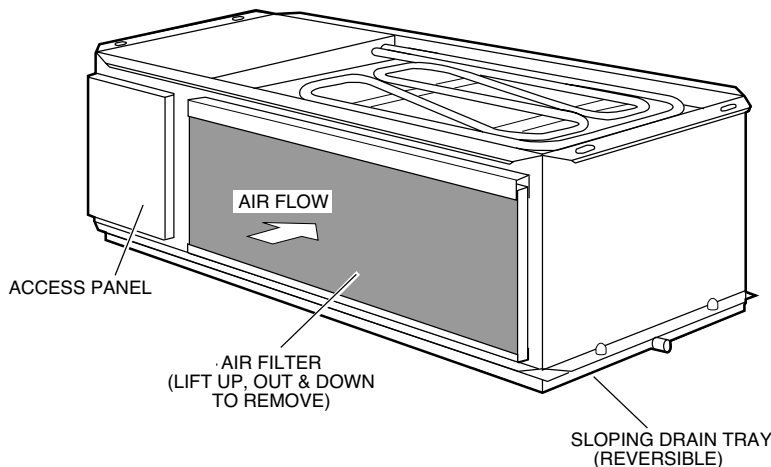


Fig. 3 Spring Mounting

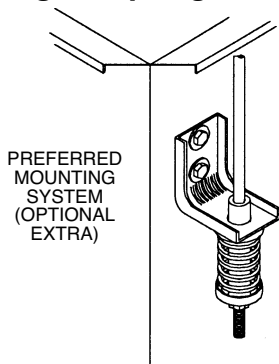
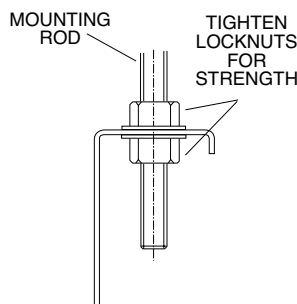


Fig. 4 Solid Mounting



If a more rigid installation can be tolerated, then suspend the unit from four threaded rods using locknuts (not supplied), as shown in Fig. 4.

Mount the unit level as it comes with a sloping drain tray. The preferred placement of the reversible drain tray is for the drain pipe to be at the opposite end to the compressor.

If a condensate lift-pump is fitted, the drain exit can only be at the opposite end to the compressor. The drain line must have a slope of at least 1 in 50 and must not be piped to a level above the drain tray. Where required a condensate lift pump should be used (optional extra).

When finally positioned, tighten the lock nuts on the mounting rods to give a firm installation (see Fig. 4).

Condensate Drain

The condensate drain is **not** to be trapped outside the unit. The drain line must be maintained at least 19 mm ID along its full length. Fit a vent pipe within 500 mm of the unit, 300 mm high and 10 mm ID (minimum); see Fig. 6. Check drain by pouring water into the drain tray and ensuring that it clears. Failure to adhere to these instructions could cause flooding.

Water Supply & Return

The HWP unit's IN and OUT water connections are male pipe threaded (refer Fig. 6). The two optional **temperzone** 600 mm flexible high pressure water hoses have female pipe threaded connections at each end. Maximum water pressure for each hose is 1720 kPa (250 psi). The HWP unit alone, excluding hoses, will withstand 2760 kPa (400 psi).

Poor quality water supply must be pre-filtered and it is essential that adequate water treatment is maintained, particularly where open cooling towers are used.

Note: It is required that the water supply system be fitted with a water flow switch and water pump safety interlock. These items prevent the HWP units from going into fail safe lockout status due to a loss of water flow. Failure to install the above items would require the resetting of all HWP units in the system - either by breaking the power supply to each unit or breaking the thermostat control circuit.

HWP*R units require a minimum water supply temperature of 17°C.

Circuit Balancing Valve

It is recommended that a circuit balancing valve be fitted to both HWP*C and HWP*R versions to maintain water flow at a constant rate. The nominal water flow rates in litres per second (l/s) are as follows:

HWP:	33	41	49	78
Nominal/Minimum	0.16	0.20	0.24	0.39

Water Regulating Valve (HW*C versions only)

If a head pressure controlled water regulating valve is to be used instead of a circuit balancing valve, proceed as follows:

1. Attach your water regulating valve to the HWP unit's water OUT connection. A hole is provided alongside for you to pass your valve's connection tube through to the compressor compartment.
2. Remove the HP switch in the compressor compartment from its connection point and put a Schrader tee joint in its place.
3. Attach your water regulating valve's connection tube and the HP switch to the Schrader tee joint.
4. Adjust the valve's hand control until the outer surface temperature at the middle of the condenser reads 40°C, refrigerant condensing temperature.

Electrical

The air conditioner should be connected to the appropriate power supply for each model, as specified in the wiring diagram, with neutral and adequate earth. The supply to have an accessible switch to allow isolation of the unit. Wire the heating and cooling room thermostat to the electrical terminals adhering to the wiring diagram supplied with the unit. All wiring to the air conditioner must comply with the wiring regulations of the local electrical authority.

Air / Water Flow

Refer to HWP 33-95 Data Sheet pamphlets for detailed information on air handling performance and water flow rates.

Unit Protection

Units are fitted with a high and low pressure lockout protection. These will protect the unit in the event of either water flow failure in cooling mode, fan failure in heating mode, or a loss of refrigerant. Units include a 6 min. anti rapid cycle timer for compressor on/off protection. HWP*R units also have a low refrigerant temp. safety thermostat to protect against icing up of the water within the unit's condenser on heating mode and a pump/flow verification relay to protect individual units from a loss of water flow.

Note: Lockout protection can be reset by switching unit's power supply off and on. Lockout protection will also reset when the thermostat switches, or is switched to the dead zone.

Units supplied with electric heat include both auto (90°C) and manual (120°C) high temp. safety thermostats. If the manual safety t/stat requires resetting, then the auto safety t/stat has failed and needs to be replaced.

Room Thermostat

The thermostat should be set within the recommended operating range of between 19°C and 30°C. The thermostat should not be used as an on-off switch. Refer to **temperzone** for a list of approved thermostats.

MAINTENANCE

Quarterly

1. Remove lint and dust accumulation from heat exchange air coil. (Note: failure to do this may affect efficiency).
2. Check air filters and vacuum or wash clean as necessary.
3. Check condensate drain for free drainage.
4. Check compressor compartment for oil stains indicating refrigerant leaks.
5. Check quality of water supply.

Six Monthly

Replace air filter to maintain adequate air flow and efficiency.

This pamphlet replaces the previous issue no. 2516 dated 06/05. Wiring revision F.

Fig. 5 Application Considerations

Recommendations for Noise Isolation:

1. Avoid installing units, with non-ducted return air, directly above spaces where noise is critical.
2. Use flexible connections between unit and rigid ducting.
3. Use generously sized acoustically lined ducts.
4. If generous duct size is not possible, use turning vanes on bends to reduce air turbulence (regenerated noise).
5. Use 90° bends in ducting to significantly assist in noise reduction.

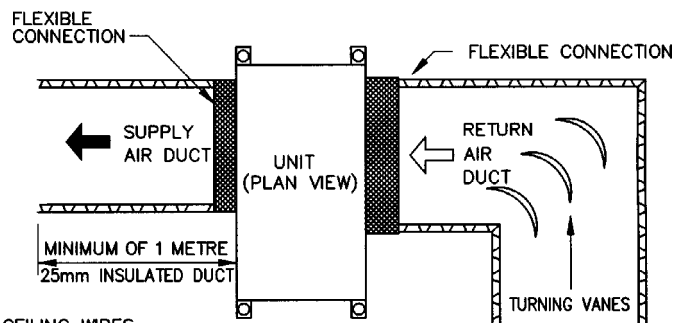
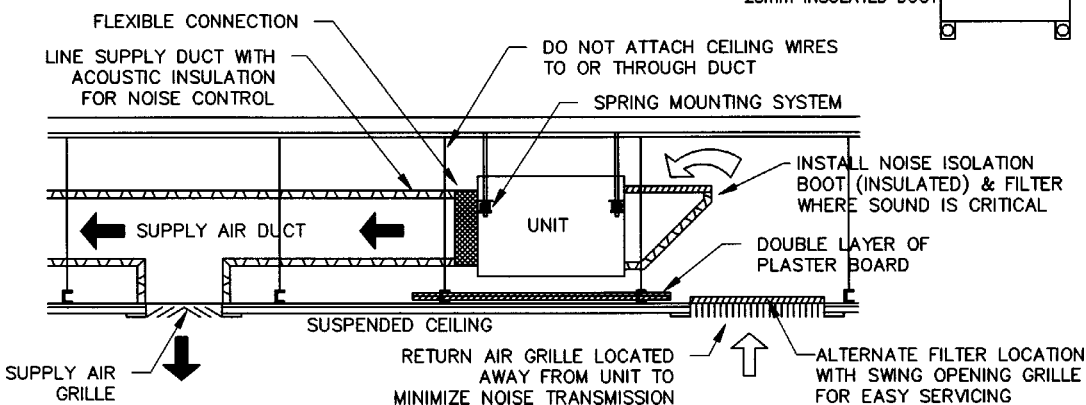
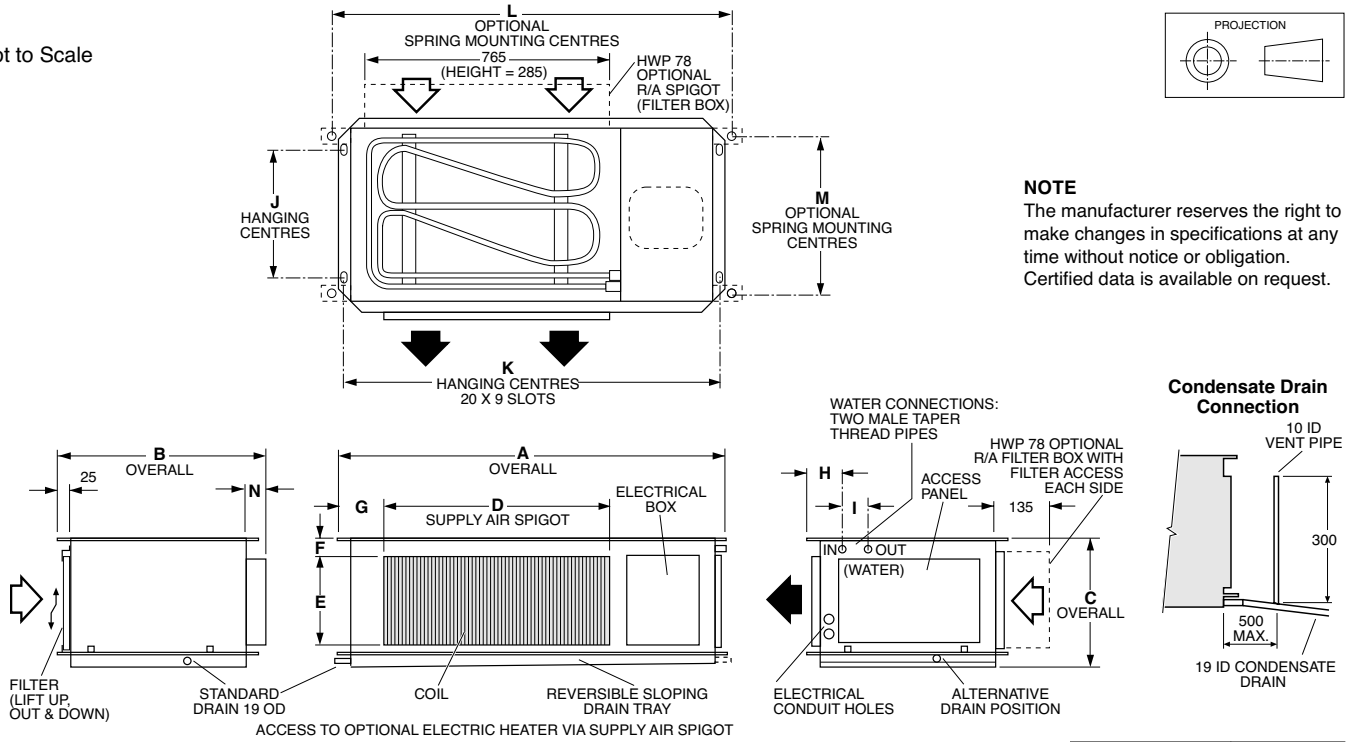


Fig. 6 Dimensions (mm)

HWP 33, 41, 49, 78

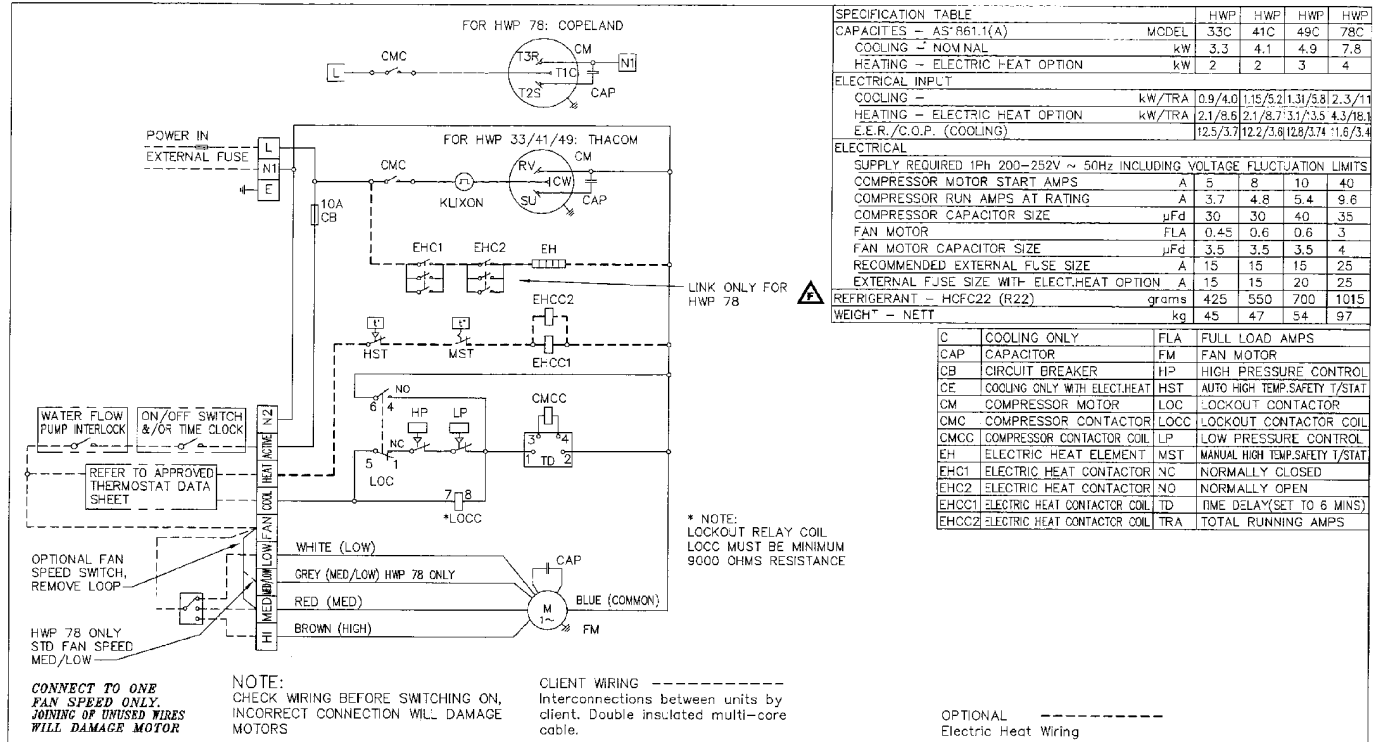
Not to Scale



NOTE
The manufacturer reserves the right to make changes in specifications at any time without notice or obligation. Certified data is available on request.

MODEL	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WATER CONN'S		WEIGHT
															BSP male	kg	
HWP 33	750	485	330	450	205	75	55	135	75	354	724	790	408	25	13 (1/2")	45	
HWP 41	750	485	330	450	205	75	55	135	75	354	724	790	408	25	13 (1/2")	47	
HWP 49	1050	510	330	715	205	75	75	135	75	354	1027	1090	408	50	13 (1/2")	54	
HWP 78	1135	565	395	765	280	55	75	115	75	462	1110	1175	474	40	19 (3/4")	97	

Wiring



SPECIFICATION TABLE		HWP	HWP	HWP	HWP	
CAPACITIES - AS'861.1(A)		MODEL	33C	41C	49C	78C
COOLING - NOMINAL	kW	3.3	4.1	4.9	7.8	
HEATING - ELECTRIC HEAT OPTION	kW	2	2	3	4	
ELECTRICAL INPUT						
COOLING -	kW/TRA	0.9/4.0	1.15/5.2	1.31/5.8	2.3/11	
HEATING - ELECTRIC HEAT OPTION	kW/TRA	2.1/8.6	2.1/8.7	3.1/3.5	4.3/16.1	
E.E.R./C.O.P. (COOLING)		12.5/3.7	12.2/3.6	12.8/3.7	1.6/3.4	
ELECTRICAL						
SUPPLY REQUIRED 1PH	200-252V ~ 50Hz INCLUDING VOLTAGE FLUCTUATION LIMITS					
COMPRESSOR MOTOR START AMPS	A	5	8	10	40	
COMPRESSOR RUN AMPS AT RATING	A	3.7	4.8	5.4	9.6	
COMPRESSOR CAPACITOR SIZE	µFd	30	30	40	35	
FAN MOTOR	FLA	0.45	0.6	0.6	3	
FAN MOTOR CAPACITOR SIZE	µFd	3.5	3.5	3.5	4	
RECOMMENDED EXTERNAL FUSE SIZE	A	15	15	15	25	
EXTERNAL FUSE SIZE WITH ELECT.HEAT OPTION	A	15	15	20	25	
REFRIGERANT - HCFC22 (R22)	grams	425	550	700	1015	
WEIGHT - NETT	kg	45	47	54	97	

C	COOLING ONLY	FLA	FULL LOAD AMPS
CAP	CAPACITOR	FM	FAN MOTOR
CB	CIRCUIT BREAKER	HP	HIGH PRESSURE CONTROL
CE	COOLING ONLY WITH ELECT.HEAT	HST	AUTO HIGH TEMP.SAFETY T/STAT
CM	COMPRESSOR MOTOR	LOC	LOCKOUT CONTACTOR
CMC	COMPRESSOR CONTACTOR	LOCC	LOCKOUT CONTACTOR COIL
CMCC	COMPRESSOR CONTACTOR COIL	LP	LOW PRESSURE CONTROL
EH	ELECTRIC HEAT ELEMENT	MST	MANUAL HIGH TEMP.SAFETY T/STAT
EHC1	ELECTRIC HEAT CONTACTOR	NC	NORMALLY CLOSED
EHC2	ELECTRIC HEAT CONTACTOR	NO	NORMALLY OPEN
EHC1	ELECTRIC HEAT CONTACTOR COIL	TD	TIME DELAY(SET TO 6 MINS)
EHC2	ELECTRIC HEAT CONTACTOR COIL	TRA	TOTAL RUNNING AMPS

ISSUE	MODIFICATION	ECN	DATE	APRVD	DRG SIZE	No.	DESCRIPTION	Mat'l	FINISH	ASSY No.
F	REFRIGERANT 1015 (POL) WAS 975 (MIN OIL)		N1484	17-01-07	ROD					
E	Refrigerant Charge - Ester Oil		1408	11-28-06	B.P.					
D	CMC LINK REMOVED		N830	20-11-01	P.W.-M					
C	WAS 011925001 NOW 308024002		04-31-00	P.W.-M						
B	INDOOR FAN CAP WAS 5mfd NOW 4mfd		07-05-00	661						
A	EXTRA CONTACTOR FOR EL HEAT OPTION		11-03-00	GM						

Programmed by	Title	HWP 33 TO 78 C & CE LOCKOUT & TIME DELAY CONTROL	
PLOTTED	17-01-07	Drawn	P.W.-M
©temperzone ltd 2004	Date	17-01-00	Drawing No.
Scale	2x	308-024-002	Revision
			F

SPECIFICATION TABLE

CAPACITIES - AS1861.1(A)	MODEL	HWP	HWP	HWP	HWP
COOLING - NOMINAL	KW	3.3	4.1	4.9	7.8
HEATING - REVERSE CYCLE	KW	3.5	4.2	5.0	7.8
HEATING - ELECTRIC HEAT OPTION	KW	2	2	3	4
ELECTRICAL INPUT					
COOLING -	kW/TRA	0.9/4.0	1.15/5.2	1.37/5.8	2.3/11
HEATING - REVERSE CYCLE	kW/TRA	0.9/4.0	1.14/5.1	1.34/5.9	2.2/10.4
HEATING - ELECTRIC HEAT OPTION	kW/TRA	2.1/8.6	2.1/8.7	3.1/13.5	4.3/18.1
E.E.R./C.O.P. (COOLING)		12.5/3.7	12.2/3.6	12.8/3.7	11.6/3.4

ELECTRICAL

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

COMPRESSOR MOTOR START AMPS	A	5	8	10	40
COMPRESSOR RUN AMPS AT RATING	A	3.7	4.8	5.4	9.6
COMPRESSOR CAPACITOR SIZE	µF	30	30	40	35
FAN MOTOR	FLA	0.45	0.6	0.6	3
FAN MOTOR CAPACITOR SIZE	µF	3.5	3.5	3.5	4
RECOMMENDED EXTERNAL FUSE SIZE	A	15	15	15	25
EXTERNAL FUSE SIZE WITH ELECT. HEAT OPTION	A	15	15	20	25
REFRIGERANT - HCFC22 (R22)	grams	425	550	700	1015
WEIGHT - NETT	kg	45	47	54	97

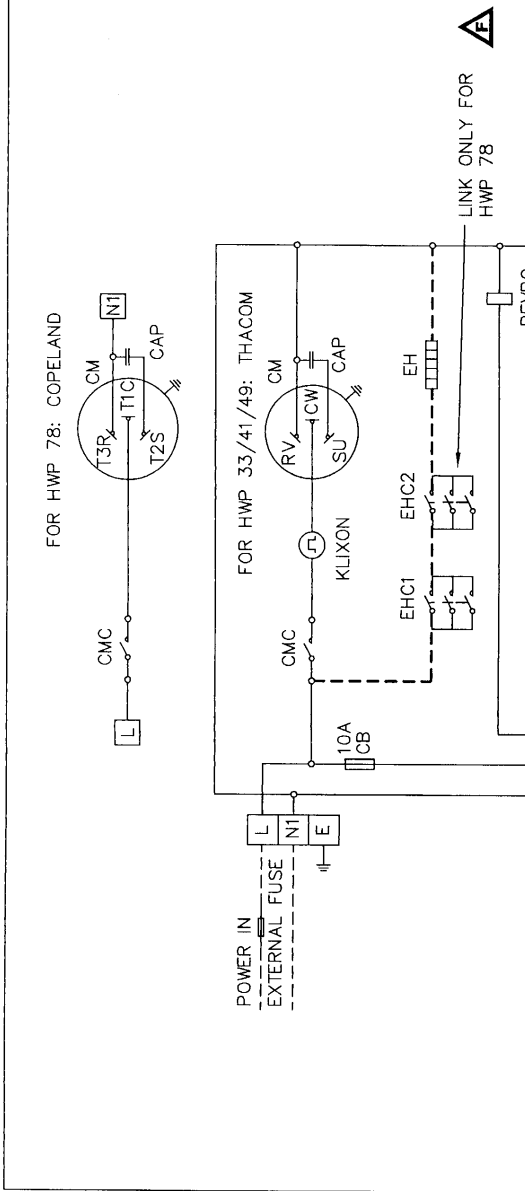
CAP	CAPACITOR	LOC	LOCKOUT CONTACTOR
CB	CIRCUIT BREAKER	LOCC	LOCKOUT CONTACTOR COIL
CM	COMPRESSOR MOTOR	LP	LOW PRESSURE CONTROL
CMC	COMPRESSOR CONTACTOR	LST	LOW SAFETY T/STAT
CMCC	COMPRESSOR CONTACTOR COIL	MST	MANUAL HIGH TEMP SAFETY T/STAT
EH	ELECTRIC HEAT ELEMENT	NC	NORMALLY CLOSED
EHC1	ELECTRIC HEAT CONTACTOR	NO	NORMALLY OPEN
EHC2	ELECTRIC HEAT CONTACTOR	PFVR	PUMP-FLOW VERIFICATION RELAY
EHC11	ELECTRIC HEAT CONTACTOR COIL	PFVRC	PUMP-FLOW VERIFICATION RELAY COIL
EHC22	ELECTRIC HEAT CONTACTOR COIL	R	REVERSE CYCLE
FLA	FULL LOAD AMPS	RCV	REVERSE CYCLE VALVE
FM	FAN MOTOR	RE	REVERSE CYCLE WITH ELECT. HEAT
HP	HIGH PRESSURE CONTROL	TD	TIME DELAY (SET TO 6 MINS)
HST	AUTO HIGH TEMP SAFETY T/STAT	TRA	TOTAL RUNNING AMPS

OPTIONAL Electric Heat Wiring

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

temperzone

Drawn	P.W-M	Date	17-01-00
Scale			
Revision No.	307-024-002		
Revision	F		



LINK ONLY FOR HWP 78

IMPORTANT POWER MUST BE CONNECTED TO PFV FOR COMPRESSOR TO OPERATE

* NOTE: LOCKOUT RELAY COIL LOCC MUST BE MINIMUM 9000 OHMS RESISTANCE

NOTE: CHECK WIRING BEFORE SWITCHING ON, INCORRECT CONNECTION WILL DAMAGE MOTORS

CONNECT TO ONE FAN SPEED ONLY JOINING OF UNUSED WIRES WILL DAMAGE MOTOR

NOTE: RE MODELS ELECTRIC HEAT ENERGIZES WHEN LST BREAKS, COMPRESSOR CIRCUIT STAYS LOCKED OUT TILL TEMPERATURE SATISFIED OR BREAK IN POWER SUPPLY.

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

Programmed by	
Plotted	17-01-07
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ASSY No.	
FINISH	
Mat.l	
DESCRIPTION	
No.	
DRG SIZE	
APRVD	
DATE	
ECN	
MODIFICATION	
ISSUE	
A	EXTRA CONTACTOR FOR EL HEAT OPTION 701 14-03-00 GM
B	INDOOR FAN CAP WAS 5mfd NOW 4mfd 661 17-05-00 GM
C	WAS 011924001 NOW 307024002 04-07-00 P.W-M
D	CMC LINK REMOVED N830 20-11-01 P.W-M
E	Refrigerant Charge - Ester Oil 1408 31-08-06 B.P.
F	REFRIGERANT 1015 (POE) WAS 975 (MIN OIL) N1464 17-01-07 ROD