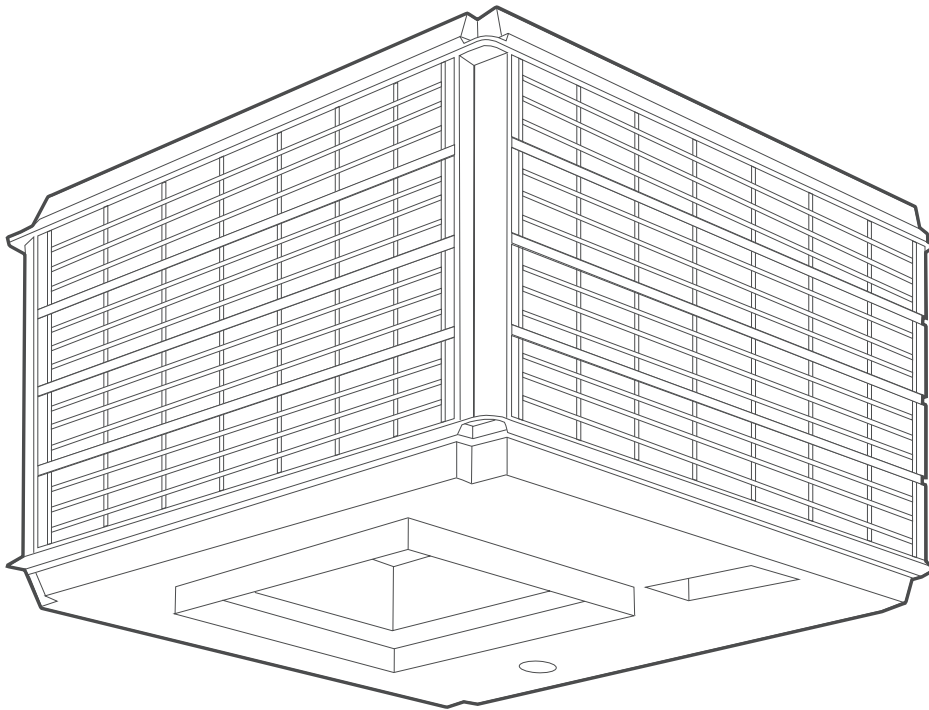




INSTALLATION MANUAL

EA Evaporative Cooler



(English) (EA)

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WARNING! Failure to install and commission the product in compliance with these instructions, or failure to do the job properly and competently, may void the customer's warranty. Further, it could expose the Installer and/or the Retailer to serious liability.

SAFETY INSTRUCTIONS

WARNING - TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK OR INJURY TO OTHER PERSONS, OBSERVE THE FOLLOWING:

1. Use this unit only in the manner intended by the manufacturer. If you have questions, contact the manufacturer.
2. Before servicing or cleaning the unit, switch power off at service panel and lock the service disconnecting means to prevent power from being switched on accidentally. When the service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag to the service panel.
3. Installation work and electrical wiring must be done by qualified person(s) in accordance with all applicable codes and standards, including fire-rated construction.
4. When cutting or drilling into walls or ceilings, do not damage electrical wiring and other hidden utilities.
5. Ducted fans must always be vented to the outdoors.
6. Do not use this fan with any solid-state speed control device.
7. New hose sets supplied with the appliance are to be used. Old hose sets (from previous installations) shall not be used.
8. If the supply cord is damaged, it must be replaced by the Manufacturer, its Service Agent or similarly qualified persons in order to avoid a hazard.

Employer and Employee Responsibilities

The installation and maintenance of evaporative coolers at height has the potential to create Occupational Health and Safety issues for those involved. Installers are advised to ensure they are familiar with the relevant State and Federal legislation, such as Acts, Regulations, approved Codes of Practice and Australian Standards, which offer practical guidance on these health and safety issues. Compliance with these regulations will require appropriate work practices, equipment, training and qualifications of workers.

Seeley International provides the following information as a guide to contractors and employees to assist in minimising risk whilst working at height.

Installer and Maintenance Contractors – Risk Assessment

A risk assessment of all hazardous tasks is required under legislation. A risk assessment is an essential element that should be conducted before the commencement of work, to identify and eliminate the risk of falls or to minimise these risks by implementing control measures. There is no need for this to be a complicated process, it is just a matter of looking at the job to be done and considering what action(s) are necessary so the person doing the job does not injure themselves.

This should be considered in terms of:

- What are the chances of an incident happening?
- What could the possible consequence be?
- What can you do to reduce, or better still, completely eliminate the risk?

Some points to consider:

- What is the best and safest access to the roof and working areas?
- If a worker is alone, who knows they are there and if they get into difficulty, how can they summon help? (Call someone on the ground? Mobile phone? etc.).
- What condition is the roof in? Should the trusses, underside or surface be checked?
- Does the worker have appropriate foot wear? (Flat sole jogger type is advisable).
- Are all power cables / extension leads safe and appropriately rated?
- Are all ladders, tools and equipment in a suitable and good condition?
- Where ladders are to be used, is there a firm, stable base for them to stand on? Can they be tied or secured in some way at the top? Is the top of the ladder clear of electricity supply cables?
- Is there a roof anchor to attach a harness and lanyard to? If so, instruction should be issued for the use of an approved harness or only suitably trained people used.
- Are all tools and materials being used, prevented from slipping and falling onto a person at ground level? Is the area below the work area suitably protected to prevent persons walking in this area?
- Does the work schedule take into account weather conditions, allowing for work to be suspended in high winds, thunder storms/lightning or other types of weather giving wet, slippery surfaces?
- Is there an on-going safety check system of harnesses, ropes, ladders and access/lifting equipment and where they exist on roofs, anchor points before the commencement of work?
- Is there a system which prevents employees from working on roofs if they are unwell or under the influence of drugs or alcohol?
- Are there any special conditions to consider? (Eg: excessive roof pitch, limited ground area, fragile roof, electrical power lines, etc)

Other Important Requirements

- Never force parts to fit because all parts are designed to fit together easily without undue force.
- Never drill holes in the tank of the cooler.
- Check the proposed cooler location, to ensure that it is structurally capable of supporting the weight of the cooler, or provide an adequate alternate load bearing structure.
- Ensure the installation complies with all local and national regulations with regards to electrical, plumbing and bushfire construction requirements.

FOR AUSTRALIAN BUSHFIRE ZONES

WARNING: This cooler is NOT APPROVED for installation in any bushfire zoned area/property (BAL-12.5 to BAL-FZ).

INSTALLATION SUMMARY

Please read this manual properly and carefully, your failure to do so could result in injury to you or damage to the cooler and property.

Disconnect electrical power at the fuse or circuit breaker box before you begin installing or servicing the cooler. Turn off the isolating switch located inside the cooler before you begin installing or servicing the cooler.

Installation of the cooler must conform to local electrical and water supply and environmental codes, rules and regulations and to applicable National Standards.

Note! It is a requirement of Seeley International that all units be wired by a dedicated circuit to the distribution board, with a separate fuse or circuit breaker and incorporate a separate disconnection switch in accordance with the local wiring rules.

Wear rubber soled shoes when working on the roof of your building.

Do not install or service the cooler during rain, high wind or severe weather conditions.

Keep children a safe distance from your working area. Children should be instructed not to enter the cooler cabinet under any circumstances, nor to climb onto the roof area where you may be working.

If you work with power tools, wear protective eyewear and gloves.

Always ensure that electrical power cords are safe to use with such equipment.

Do not take risks in raising the cooler to the roof for installing. Use safe equipment and never try to raise the cooler alone, always have assistance. Failure to take such precautions could result in damage to the cooler and the building or to yourself.

Never drain the cooler onto the roof. Connect a hose from the drain fitting to a drain or gutter. Water residue could stain the roof or cause you to slip.

- Check correct unit supplied (2 speed/variable, size, discharge direction, etc).
- Remove external packaging.
- Remove the filter pads (side panel) to check parts supplied and locate Installation Instructions and Owner's Operating Instructions.
- Locate duct transition pieces and mounting frame (large down discharge units).
- Locate control kit (some packed in separate carton).
- Assemble transition pieces and locate into base of air conditioner (down discharge units only).
- Confirm location of unit (on roof) that corresponds with plan.
- Make a hole in roof between two rafters at the point where unit is required.
- Install and secure ductwork dropper or bend on which unit will be mounted.
- Replace roofing material and seal around the duct.
- Position and secure unit onto ductwork, ensure it is level and install support frame .

- Connect electrical supply and control system in accordance with instructions and regulations.
- Following installation of ductwork complete the operating adjustments.
- Commission and test the installation and complete the Installation Checklist (see rear page).
- Leave site clean and tidy.

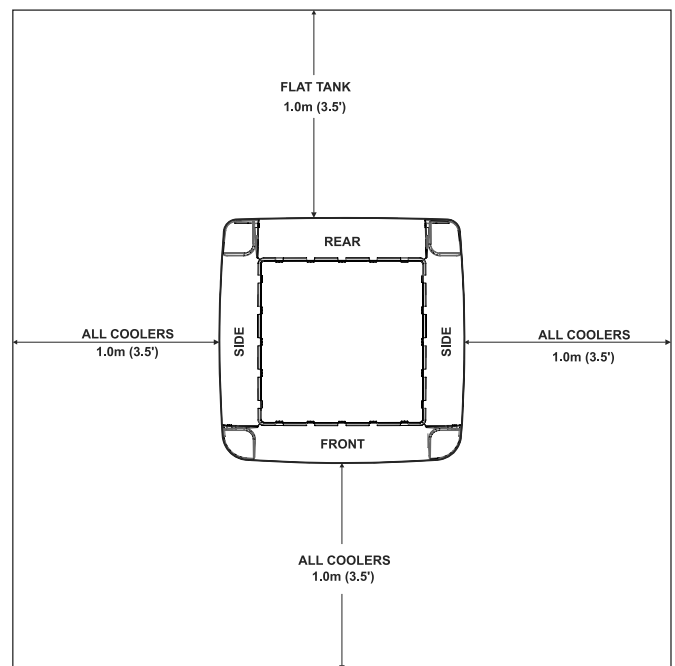
ACCESS FOR SERVICING AND MAINTENANCE

The cooler should be installed in a position that allows adequate access for installation, and future maintenance and servicing activities. This should comply with installation guidelines and any local, State and National regulations.

Consider the following for installation location:-

- Which has clear access to and around the cooler
- Which is clear of fixtures in line with below clearances
- Which is clear of fall edges (> 3m or 10' away)
- Which is structurally capable of supporting the weight of the cooler and service technicians

Required clearances around the cooler for future maintenance and servicing are shown below.



ILL2884-A

Extra service or warranty charges may apply for the cost of any equipment or additional labour involved in accessing the cooler if these guidelines are not met.

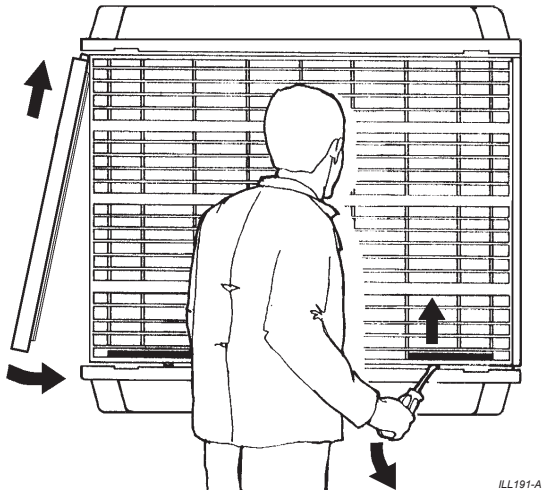
INSTALLATION DETAILS

REMOVE AND REPLACE FILTER PAD FRAMES

Each frame is clipped into the cooler and is removable by use of a medium screwdriver.

Insert the screwdriver into the slots at the base of the frame and lever downwards. The frame is now free to be slid down and out of the cooler cabinet.

To replace the frame ensure that it is the right way up, ie. with the water channel upwards. Fit the frame in at the top of the cabinet and then at the bottom.



The frame should clip into the cooler where the screwdriver was used. If it will not go fully back into place use the screwdriver again and insert it between the bottom of the frame and the tank wall at the centre, and lever upwards, until the frame locks into place (reverse of removal).

PRECAUTIONS - ALL INSTALLATIONS

Note! Lifting and installing the cooler is made easier by removing the filter pad frames first. They can be replaced at the very end of the installation procedure.

You can slide the cooler from one place to another if you wish, but lifting and carrying is better. It is recommended that at least 2 people carry the cooler whenever it needs to be moved.

Do not drop the cooler. Always handle with care.

For lifting or pulling purposes when using ropes or slings, always apply the ropes around the full cabinet or the blower housing and never tie them to any of the four posts.

Never force parts to fit because all parts are designed to fit together easily without undue force.

LOCATION AND ORIENTATION

Check the proposed cooler location first, to ensure that it is structurally capable of supporting the weight of the cooler.

Plastic coolers are lighter than their metal-made counterparts but they need adequate support. The operating weight of the largest cooler in our range is about 110 kg.

Always locate the cooler where it will receive a plentiful supply of fresh air and not in a recess where it may be starved for air or where the air is polluted.

Always be sure that the cooler is level after installation.

Allow for adequate access around the cooler for maintenance. Provision must be made for access to electricity, water supplies and drains.

It is essential that water cannot enter the building as a result of inadequate sealing (caulking or flashing) of the mounting stand, ductwork system and service pipes (electricity, water).

Never drill any holes in the primary base surface of the bottom reservoir of the cooler nor in the side walls of the tank. Special instructions are provided later which show where holes may be drilled for mounting and for water and electricity entry. (See Electrical and Water connections).

Preparing The Dropper - Down Discharge Cooler

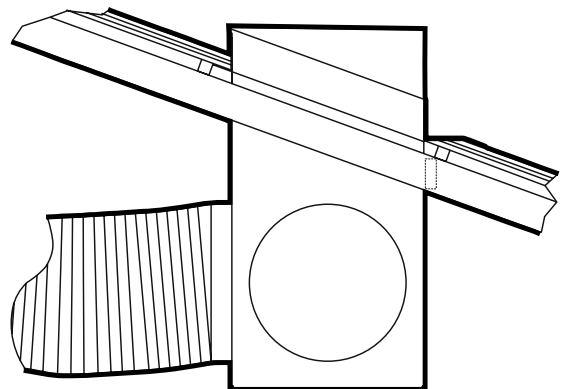
Install the dropper and securely fix it to the roof structure on 3 sides. This may require the addition of extra structural timber.

Important! The dropper must never sit directly on ceiling joists or beams, as this may cause noise or vibration issues, and possible ceiling damage.

Ensure the top of the dropper is level and square in all directions (use a spirit level). This helps with levelling the cooler.

The installer must ensure the dropper is suitable, and is secured adequately for wind conditions at the site. Additional restraints may be required if the cooler is more than 200mm (8") higher than the roof timbers, or design wind velocity at the site exceeds 43m/s (141fps).

In exposed or very high wind areas use 16 screws, minimum shank diameter 5.2mm (7/32") to secure the dropper. In areas subject to hurricanes/windstorms or where the cooler is located more than 8m (26') above the ground seek advice from a structural engineer.

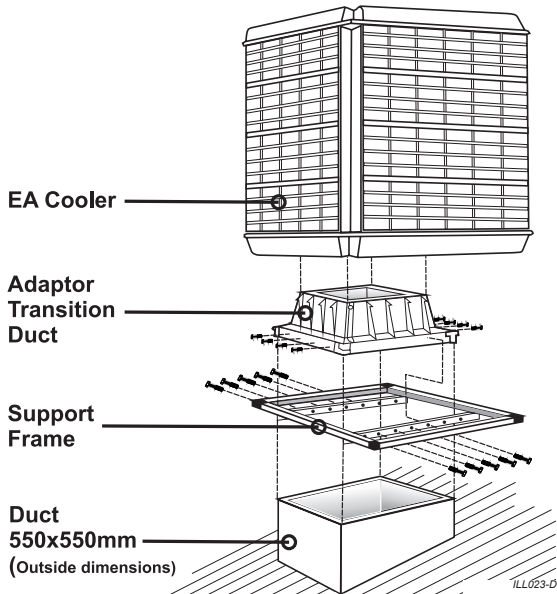


The dropper may now be flashed to the roof. Make sure there is no chance of water entering the roof space.

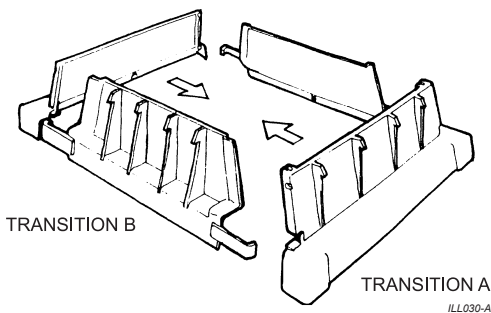
LOCATION AND ORIENTATION

MOUNTING THE COOLER - DOWN DISCHARGE

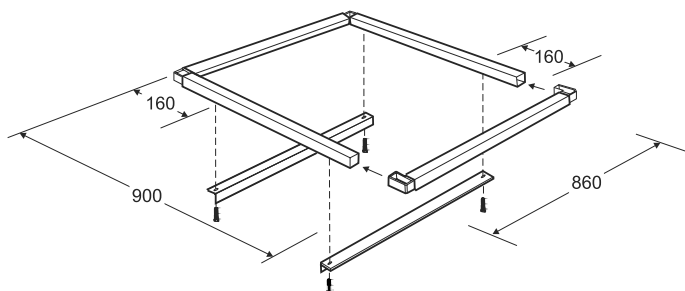
For down discharge coolers it is permissible for the cooler to be supported entirely by the ductwork, provided the ductwork is capable of supporting the cooler.



Use the plastic transition assembly supplied (outlet size 550mm x 550mm), but you must also fit the additional Support Frame supplied.

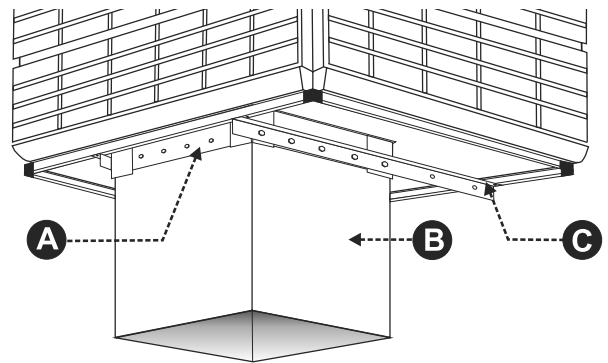


The Support Frame cross members locate on the outer flanges of the plastic transition assembly. The Support Frame is designed to provide support at the outer perimeter of the tank, to avoid sagging under the weight of the water used during operation. The frame will need to be assembled by knocking in the black plastic end joiner pieces into the square tube frame ends using a hammer. The inside cross members are then screwed to the square tube support frame, as shown below.



591186 Support Frame Assembly (Assembled dimensions shown)

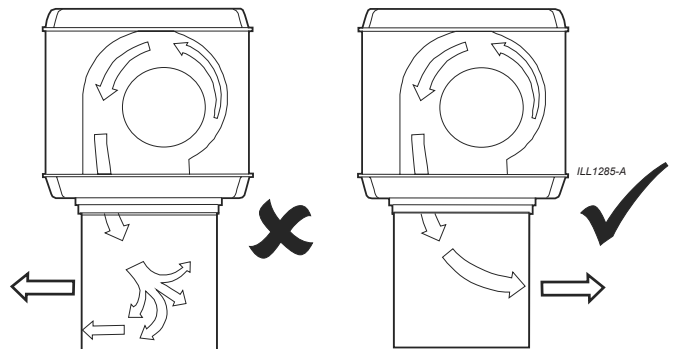
ILL028-A



LEGEND

- A - Transition
- B - Duct 550 * 550 (Outside Dimensions)
- C - Support Frame

Place the cooler as shown. Make sure the blower is facing in the correct direction to enable unobstructed air flow into the ducting.



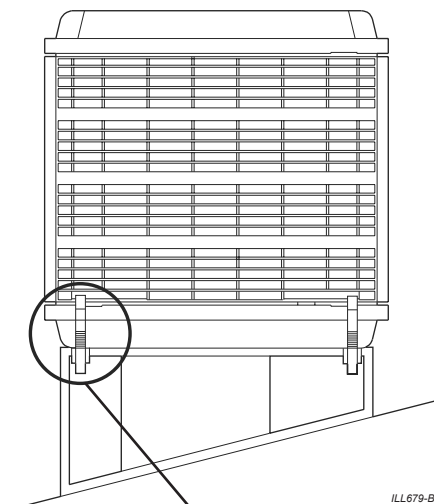
ILL031-A

Shows a down discharge cooler being used on a sloping roof.

For the larger models a purpose built support frame must be used.

Seal thoroughly at all roof penetrations.

The cooler can be fastened to the mounting frame with optional Anchor and Strap Tank Supports (P/No 915906).



ILL679-B

Optional Anchor and Strap, Tank Support is shown (not supplied with cooler)

LOCATION AND ORIENTATION cont.

MOUNTING THE COOLER SIDE AND TOP DISCHARGE

A mounting frame is required to be supplied by the installer. Always allow adequate space to remove cooling pads for cleaning. Always provide safety hand rails where necessary. Always be sure that the cooler is level after fitting onto the duct.

It is necessary to securely mount the cooler onto the roof or wall so that the cooler is rigid and level.

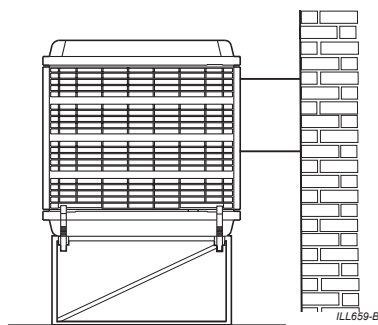
Side and top discharge coolers require a purpose built mounting frame, either to support the cooler from below or to support it from the wall. Always ensure that the mounting frame for a side discharge cooler gives support to the cooler across the centre of the underside of the cooler as well as around the perimeter. The cooler can be fastened to the mounting frame with optional Anchor and Strap Tank Supports (P/No 915906).

Side discharge coolers are factory fitted with a canvas flexible connection. Connect the canvas outlet to the fixed ductwork in accordance with current practice and seal properly all round.

SIDE DISCHARGE

Shows a side discharge cooler being used where the air duct penetrates directly through a wall.

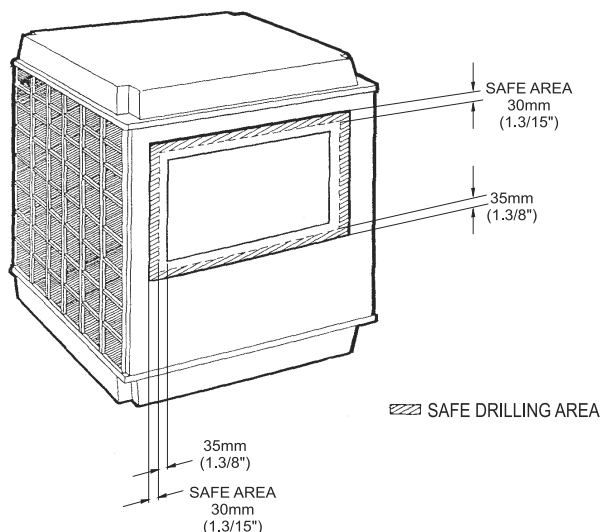
The cooler may be located on a stand at ground level or on a raised platform, and the wall construction may be of any type.



All side discharge coolers require a special frame to support the cooler from below (or from the wall) if the cooler is not mounted at ground level.

Duct Connections

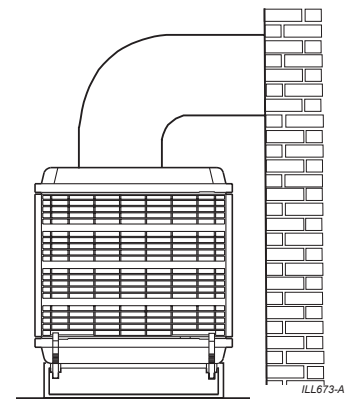
Side discharge coolers can be connected directly to the ductwork by screwing through the duct flange into the side wall of the cooler. Seal the duct to the cooler all round with suitable compound. The illustration below shows the safe area for drilling and screwing. Use a sealing compound to achieve an air tight connection.



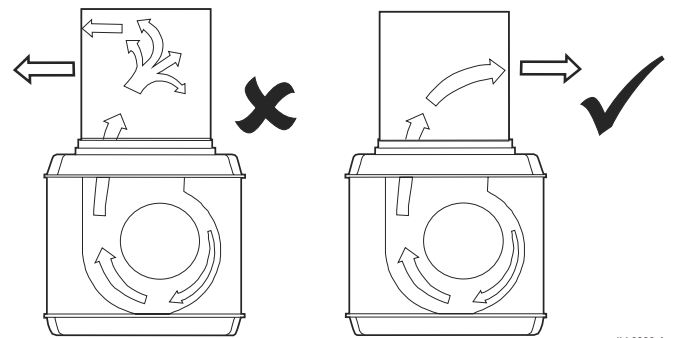
TOP DISCHARGE

Shows a top discharge cooler being used where neither side or down would be suitable.

The cooler should be mounted on a stand and located where plenty of fresh air is available. Allow sufficient clearance between the cooler and the building for future pad removal and maintenance. The external ductwork should be thermally insulated.



Place the cooler as shown. Make sure the blower is facing in the correct direction to enable unobstructed air flow into the ducting.

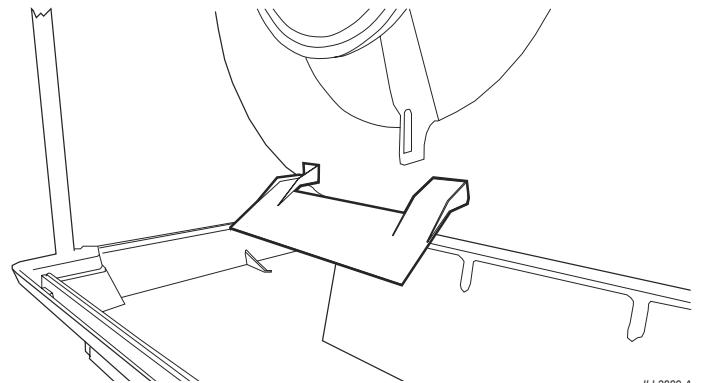


VORTEX BAFFLES

Always seal carefully around the wall penetration to prevent ingress of water and wind.

Two black plastic baffles are supplied* and must be fitted to the blower housing. The baffles simply clip into each side of the blower housing, low down, into two holes provided, by pushing them in with the hands. Insert them in such a way that they slope downwards.

*The larger top discharge units do not have baffles.



WATER CONNECTION

A permanent water supply is required to be connected to the float valve which is factory fitted inside the cooler.

Water Requirements

Installation of the Cooler water supply must conform to local plumbing rules, regulations and standards:

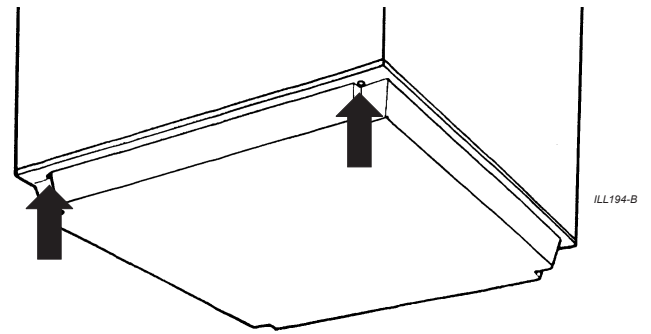
AS/NZS 3500.1

The following specifications for water supply are required:

- **Water Connections** : 1/2" BSP
- **Water Supply** : 800 kPa (115 psi) **MAXIMUM**
- **Water Supply** : 100 kPa (15 psi) **MINIMUM**
- **Water Supply Temperature** : 40°C **MAXIMUM**

Important! If the water pressure exceeds this maximum specification then a pressure reducing valve is required and must be supplied and fitted by the installer.

The float valve controls the level of water in the tank automatically.



OPTIONAL DRILLING POINTS FOR ELECTRICAL AND WATER SUPPLY ENTRY INDICATED BY A RECESS IN ALL FOUR CORNERS

Install a manual water shut-off valve external to, and in the vicinity of the cooler. This allows the water supply line from the valve to the float valve to be drained before winter to avoid freezing and splitting of the line, and to isolate the water supply whenever work needs to be done on the cooler. Do not fit the shut-off valve directly onto the nipple.

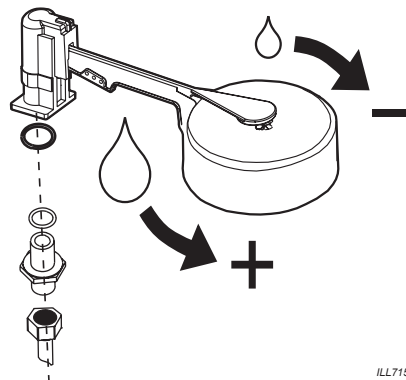
Note! The float valve has a plastic threaded nipple for connecting to the water supply line. DO NOT over tighten the water supply fittings to the nipple as you may damage the plastic thread.

Always ensure that the copper pipe connection to the float valve does not place sideways strain onto the float valve. Run the pipe straight into the valve.

Drain water from the overflow/bleed outlet must be carried away through a pipe to a suitable discharge point on the building or property. (According to Local Regulation)

FLOAT VALVE

The float valve is factory fitted. Adjustment of the water level is accomplished by rotating the large plastic float in the end of the float arm.



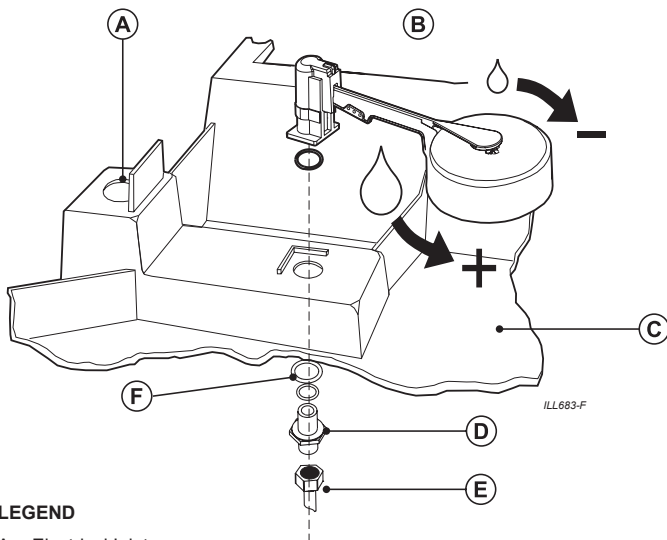
The helical flange on the perimeter of the float determines the level at which the valve will shut off the water supply.

WATER LEVEL

Rotate the large float clockwise until it reaches the limit of its travel without coming off the arm.

Turn on the water supply and allow the tank to fill with water. The float valve will eventually stop the water from entering the cooler. Wait for this to happen and observe the water level.

Rotate the float around anti-clockwise a small amount to let



LEGEND

- A - Electrical Inlet
- B - Duct
- C - Tank
- D - 1/2" B.S.P
- E - Water Inlet 13mm Compression Fitting
- F - Washer Used on Side Discharge Oly

The water connection point for down discharge coolers is located on the underside of the tank at the point where the float valve nipple protrudes from the bottom.

For side discharge coolers the water line must be fed through a hole drilled in the blank front panel. Some side discharge coolers may have the hole already factory drilled.

For top discharge units the water line is fed up through a hole drilled in any corner of the tank adjacent to the position of the vertical corner posts.

For 13mm copper pipe drill a 16mm hole.

WATER CONNECTION cont.

more water in and observe the level. Continue the procedure until the water level remains at about 15mm below the top lip of the bleed-off tray.

It is advisable to check the water level again after the float valve seal has "bedded" in. After the unit has been sitting for a period of time with pressure on the float valve, drain and refill the tank. A small amount of movement in the float arm can make a difference in the amount of water in the tank.

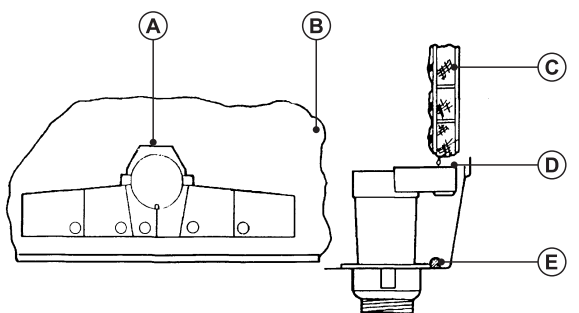
The water level should never be adjusted with the cooler and pump running because the water in the pads will run back into the tank and might overflow.

BLEED-OFF FITTING

A special plastic 'bleed-off' fitting is supplied with every cooler. This fitting has a three fold function. It acts as an overflow, a drain and a bleed-off.

The bleed-off fitting comprises a small tray which collects water from under one of the filter pads and drains this small quantity of water.

A large hole (50mm diameter) is pre-drilled in the base of the tank. The fitting should be installed at this position.



LEGEND

A/D -	Bleed Funnel	C -	Cooling Pad
B -	Tank/Reservoir	E -	Locating Lug

ILL682-C

Make sure that it is correctly located in relation to filter pad frame and that the large 'O'ring is on before placing it into the hole. The nut must be screwed up tightly underneath the cooler.

The drain pipe must be in accordance with Local Regulations.

Once the bleed-off fitting is correctly installed it will act as an overflow if the water level reaches an unsafe height and it will act as a bleed-off to allow a small amount of water to drain off continuously so as to limit the build up of salts in the water.

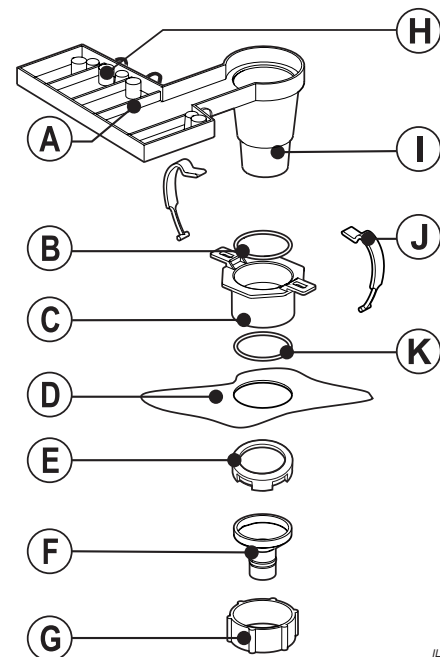
By unclipping the 2 plastic spring clips the tray can be lifted away from the bottom hexagonal nut and this will let the water drain away completely. Do not lose the O-ring fitted to the bleed-tray funnel.

BLEED-OFF

All EA series Air Coolers are equipped with a bleed-off function which will reduce the level of salt build up in the tank. The continuous bleeding of a small amount of water to drain ensures that fresh water is allowed in, to dilute the salty water in the tank. To set the bleed-off proceed as follows:

1. Remove the pad frame adjacent to the bleed-off assembly.
2. The bleed rate required will vary according to water quality, but should be set to the minimum rate as set out in the table below.

MODEL	BLEED TRAY PLUGS FITTED
EA 90	0
EA 120, EAQ 120	1
EA 140	1
EA 145	1
EA 150	1



ILL692-H

LEGEND

A -	Ribs	F -	Drain Adaptor
B -	O'Ring	G -	Lock Nut
C -	Threaded Bush	H -	Removable Plugs
D -	Tank (Reservoir)	I -	Bleed Tray
E -	Nut	J -	Spring Clip
		K -	O'Ring

IMPORTANT!

In poor quality water areas where salt and mineral contents are high, adjust the bleed rate by inserting one or more extra plugs than specified in the table (more plugs in equals more water bleed off).

Note! Bleed adjustment cannot be precise because operating conditions vary continually.

With all plugs inserted, bleed is maximum. If you decide that the amount of bleed is too much, then remove plug/s from the bleed tray one at a time until the desired amount is achieved.

With all the plugs removed a minimum amount of bleed will still occur as determined by the manufacturer.

ELECTRICAL CONNECTIONS

The 2 control options available with EA units are as follows:

1. Two Speed Single Phase Control.
2. Variable Speed Control.

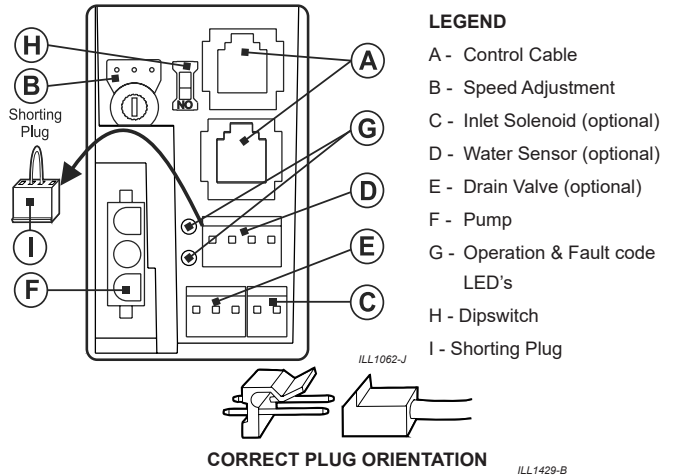
Note! It is a requirement of Seeley International that all units be wired by a dedicated circuit to the distribution board, with a separate fuse or circuit breaker and incorporate a separate all-pole disconnection switch in accordance with the local and national wiring rules.

Note! For installations where two or more units are connected to one controller, the connections must be such that no loop currents can flow between windings of the motors, e.g. low speed windings must not be connected together while the motors are running at high speed. Please refer to the manufacturer if a wiring diagram is required.

For additional safety ALL Rooftop Coolers are fitted with Slow Blow fuses (Two Speed Coolers) or Circuit Breaker (Variable Speed Coolers).

Should a fuse need to be replaced ONLY use the fuse assembly numbers shown in the table (see below).

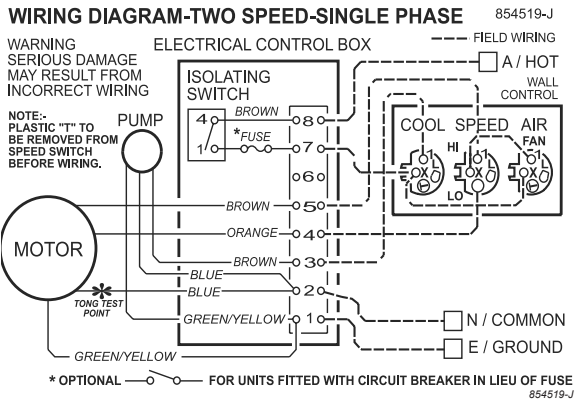
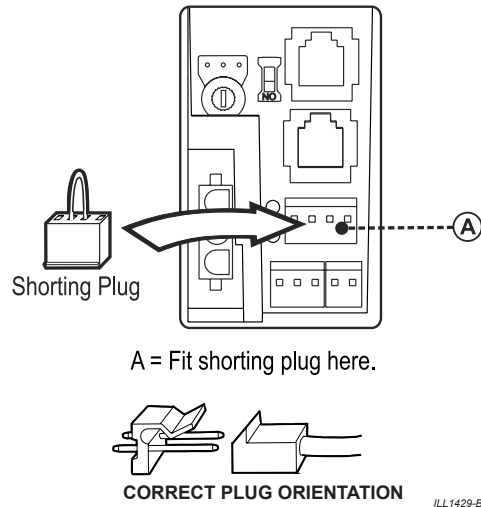
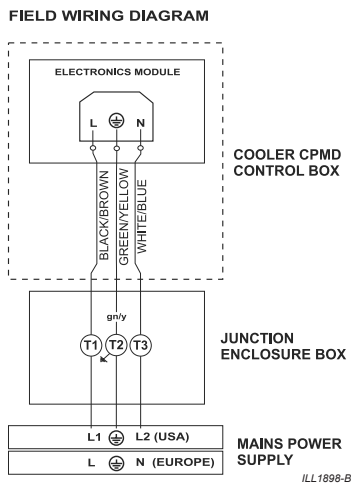
WARNING! If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.



The Shorting Plug is pre-fitted to Variable Speed coolers utilising a Bleed Funnel.

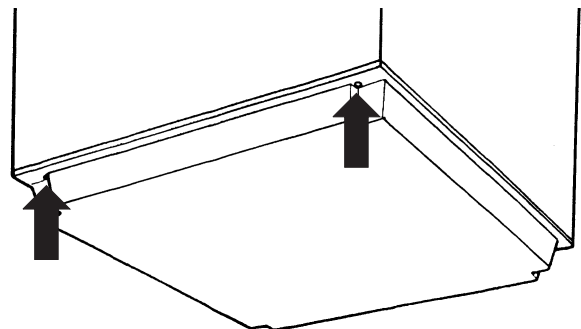
For Bleed Funnel units the supplied Shorting Plug must be fitted to the CPMD electronics module (before the power is turned on). (Item "A", below)

Failure to fit the Shorting Plug will result in the pump not operating.



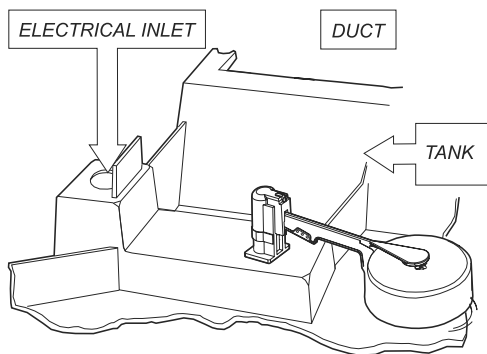
Model	Motor	Fuse	Fuse Assy
EA 90	560 W	5 amp	831824
EA 120	750 W	8 amp	831831
EA 140	1100 W	8 amp	831831
EA 145	1100 W	8 amp	831831
EA 150	1500 W	10 amp	831848

Electrical connections for power and wall controls should be routed through the access points as shown below.



OPTIONAL DRILLING POINTS FOR ELECTRICAL AND WATER SUPPLY ENTRY INDICATED BY A RECESS IN ALL FOUR CORNERS

ELECTRICAL CONNECTIONS

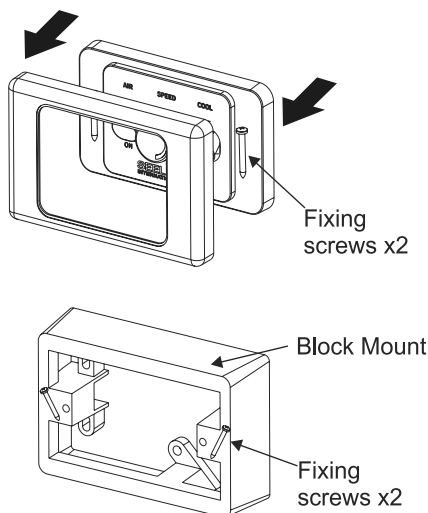


ILL2887-A

Cables exiting the cooler shall be protected by suitable conduit and glands.

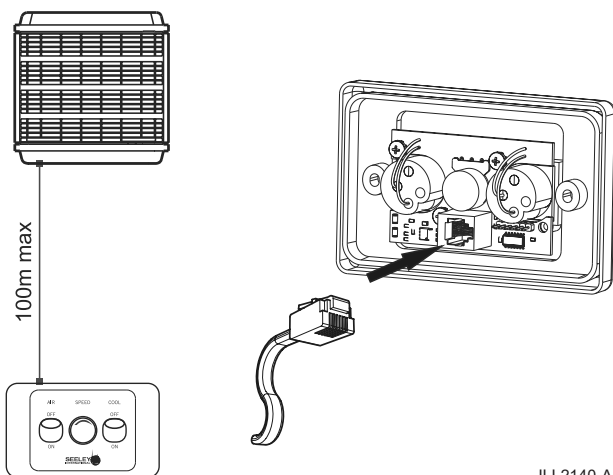
WALL CONTROL (VARIABLE SPEED COOLERS)

The controller can be mounted to Gyprock or solid walls such as bricks. It is recommended that the controller is mounted at least 1.5m from the floor and can be recessed or surface mounted with the supplied optional surface mounting bracket.



ILL2140-A

Fixing screws are located in the MagIQtouch switch plate controller as shown or wall surface mounting bracket as shown.



ILL2140-A

Plug the communication cable into the back of the wall control.

FAULT CODES INDICATED BY LED's ON THE COOLER ELECTRONICS MODULE

Fault Code 01 (1 Red Flash) = Communication Failure.

- Ensure wall control cable is fitted correctly.
- Check the wall control cable is in good condition.

OPERATING ADJUSTMENTS cont.

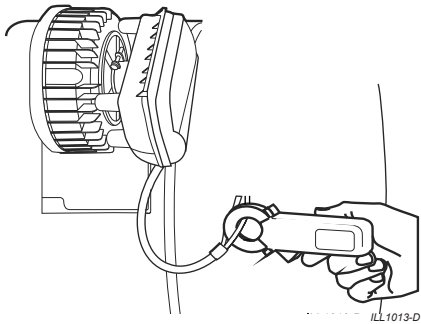
MOTOR POWER (AMPS)

The motor pulley and belt tension need to be adjusted to ensure that the motor is running at its rated capacity. Before setting motor current please ensure that:

1. All ducting and registers are in place.
2. Windows and doors in rooms to be cooled are open sufficiently.
3. Any exhaust fans in the building are turned on.
4. Any other coolers installed in the building are turned off.
5. All pad frames except the one on the motor side are in place.

Set the cooler running at highest speed, but without the pump running.

Allow 10 minutes for the motor to reach operating temperature. Measure the motor current in amps using a 'Tong Tester'. This must be done by a qualified electrician.



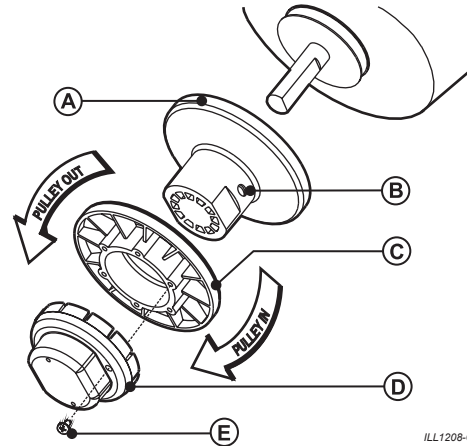
Check the measured amps with the motor nameplate rating. If the measured amps are less than the nameplate amps, the adjustable pulley should be altered to make the motor drive the blower faster and thereby deliver the full cooler capability to your installation. The measured amps should be equal to or close to, but never more than, the nameplate amps. See heading 'Pulley (Sheave) Adjustment' following.

If the measured amps are greater than the nameplate amps the blower must be slowed down by adjusting the same pulley in the opposite manner.

Replace all covers when the adjustments are complete.

PULLEY SHEAVE ADJUSTMENT

Pulley adjustment is made with the cooler switched off. Never attempt this adjustment with the cooler operating. To adjust the pulley the locking cap must be removed. Remove securing screw and cap from the pulley. The adjustable sheave of the pulley is now free to be adjusted by rotating it on it's thread. Remove the drive belt.



LEGEND

- | | |
|-----------------------|--------------------------------|
| A - Fixed Sheave | D - Locking Cap |
| B - Grub Screw | E - Locking cap securing screw |
| C - Adjustable Sheave | |

To increase the blower speed and therefore increase the amps, the two halves of the pulley must be closer together, i.e. turn the adjustable sheave clockwise.

To decrease the blower speed and therefore decrease the motor amps, the two halves of the pulley must be further apart, i.e. turn the adjustable sheave anti-clockwise.

When an adjustment is made, replace the locking cap (secure with screw) and the belt then check the amps. Smaller adjustments should be made each time you approach the desired setting. See heading 'Belt Tension'.

BELT TENSION

Note! This adjustment must be done immediately after the motor current adjustments have been completed.

Note! Adjusting belt tension is not the correct way to alter motor current. The current can only be altered by adjusting the Motor Pulley.

Belt tension is important because if it is too tight you will get excessive belt and bearing wear. If it is too loose you will get belt slip with accompanying noise and loss of cooler performance.

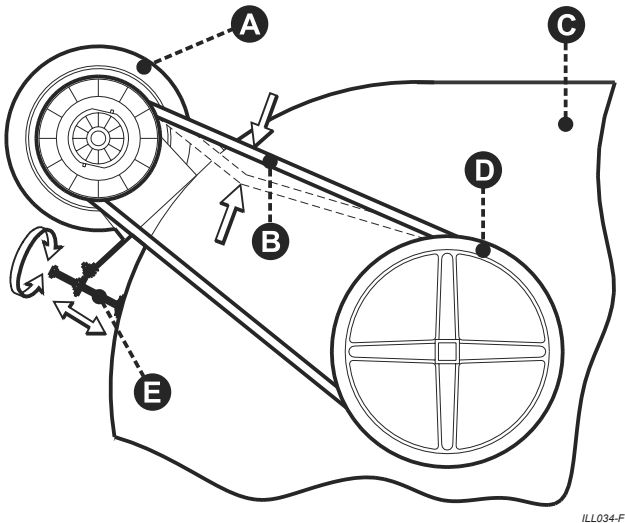
The belt tension should be adjusted so that the maximum deflection is 15mm-20mm when a reasonable force (approx. 1.5kg) is applied.

There are two adjusting bolts for adjusting belt tension. These are located on the motor mounting plate. To make the adjustment, loosen off the nuts on the two adjusting bolts on the motor mounting plate and tighten or slacken the belt tension. When the adjustment is correct, tighten the locking nuts again.

OPERATING ADJUSTMENTS cont.

It is important to check the motor current rating again after making any Belt Tension adjustments. This may require a further adjustment to the motor pulley, which may have been slipping giving an incorrect reading.

Correct belt tension ensures the belt will not slip. Check the temperature of the belt after running for 30 - 60 seconds following each adjustment. If the belt is warm or hot to touch, then the belt is slipping. Continue tightening until the belt runs cool.



LEGEND

- A - Motor
- B - 15-20mm (5/8" - 13/16") with moderate finger pressure
- C - Blower housing
- D - Pulley
- E - Belt tension adjust bolts

MOTOR LOW SPEED - FOR VARIABLE SPEED COOLERS ONLY

This adjustment is not always necessary. Variable speed coolers are factory set and will usually function correctly across a wide speed range without any further adjustment. However, sometimes it is necessary to adjust the speed control.

After the motor power has been set to full load, observe the speed variation of the cooler when the indoor variable speed control is moved between maximum and minimum speeds. There should be an easily recognisable difference. If there is a very small difference, proceed as follows:

Set the indoor controller to minimum speed. Locate the small potentiometer "Item B" underneath the rubber splash cover on the CPMD controller.

To adjust the low speed, turn the potentiometer screw with a small insulated screwdriver. With only the blower running, NOT the pump, turn the potentiometer anti-clockwise until the blower slows down to a speed at which the belt is making approximately one (1) revolution per second or the motor is revolving at minimum of 600 rpm (measured with a tachometer).

CAUTION! Speeds below 600 rpm may cause the motor to overheat.

Replace the splash cover.

TROUBLE SHOOTING

Symptom	Cause	Action
Inadequate cooling	Under-sized cooler.	Replace with larger cooler.
	Under-sized ducts.	Carry out cooling load design to determine correct size unit, ducting and outlets required.
	Clogged or dirty cooling pads.	Clean or replace pads.
	Dry pads or lack of water while cooler is operating.	Check water distribution system for possible obstruction in hoses. Check pump.
	Insufficient air discharge openings or inadequate exhaust from building, causing high humidity and discomfort.	Make sure there is adequate provision for exhausting stale air from building (open windows and doors).
	Excessive resistance from poorly located backdraft damper.	Remove backdraft damper and substitute manual slide damper.
	Excessive ambient humidity (see also item above re inadequate exhaust).	On days during summer when ambient humidity is high the cooler will not reduce the temperature as much as on drier days. There is no remedy except to shut off the pump.
Noisy cooler	Fan out of balance due to dirt, etc.	Clean the fan.
	Air distribution system creating too much back pressure, or changes of direction too sudden, or grilles too small.	Have contractor re-evaluate his design; use bends instead of elbows; change grille sizes.
Pump fails to operate.	Pump circuit breaker tripped.	Check pump for faults. Replace if necessary.
	Pump motor failure.	Replace pump.
Fan fails to start.	Main power circuit breaker tripped or fuse blown.	Check cause of overload. Reset circuit breaker or replace fuse. Adjust motor amp setting if necessary.
	Fan motor burned out.	Replace motor.
	Low system voltage.	Consult with power supply authority.
	Check fault condition via the tri-colour LED on cooler electronics module. (Variable Speed Cooler)	Replace controller.
Pump runs but no water circulation or Pump runs but pads lack water	Insufficient water in tank.	Adjust float level.
	Water hoses blocked.	Check and clean out blockage.
	Pump strainer blocked.	Clean pump strainer.
Continuous overflow of water.	Float valve adjustment not correct.	Adjust float valve.
	Heavy pad deposits.	Clean or replace pads.
Water entering cooler outlet.	Loose water hose connections.	Tighten connections.
	Water hose broken.	Replace cracked or broken hoses.
	Cover not fitted on float valve.	Install correct cover on float valve to prevent spray.
	Pads not fitted correctly into pad frames.	Make sure pads properly installed.
	Water level too low, causing pump to create fountain that is being sucked into air stream.	Increase water level.
	Incorrect or damaged pads fitted.	Replace with new pads.
Unpleasant odour.	New cooler pads.	Drain pan, refill, run pump for a while.
	Cooler located near source of unpleasant odour.	Remove source of odour or relocate cooler.
	Algae in tank water.	Drain pan, clean thoroughly with strong cleansing agent, refill, change pads.
	Pads remain wet after shut down.	Run fan on "vent" for 10 minutes after cooling cycle to dry pads out.
	Heavy pad deposits.	Clean or replace pads.

COMMISSIONING COMPLETION CHECKLIST

COOLER

- SECURE - The cooler is secure and level on the dropper using all fixings supplied.
- SEALED - The dropper and all penetrations are correctly flashed and sealed.

PLUMBING

- FLUSHED - The water pipes were flushed of any foreign materials before connection to cooler was made.
- NO EXTERNAL LEAKS - The water is connected with no leaks at fittings.
- NO INTERNAL LEAKS - Check all internal water hoses are securely fitted to water distribution spreaders and other internal fittings.
- SECURE - Water pipes are correctly saddled as per plumbing regulations.
- OWNER INSTRUCTIONS - The owner has been instructed on how to isolate the water to the system in case of emergency.

BLEED FUNNEL

- INSTALLED - The bleed funnel is installed correctly, as detailed in this installation manual.
- DISCHARGE - The drain water does not discharge onto the roof surface.
- WATER LEVEL - Water level has been set correctly, as detailed in this installation manual.
- TESTED - Drain the tank. Check the drain fittings and pipes, making sure there are no leaks.

POWER

- REGULATIONS - The power supply adheres to all local and national regulations and is wired back to the distribution board on its own separate circuit.
- CHECK CABLES - Cables have been correctly connected to the control boxes:
 - Power supply
 - Motor cables
 - Control cable
 - Drain valve (optional)
 - Solenoid cable (optional)
 - Pump cable
 - Probe cable (optional)
- OWNER INSTRUCTIONS - The owner has been instructed how they can electrically isolate the unit at the meter box in case of an emergency.

DUCTWORK

- NO LEAKS - All ducts are hung correctly and there are no air leaks.
- QUIET - Check that the cooler runs quietly and with an even distribution of air to all outlets.
- AIRBALANCE – The air balance for all outlets has been adjusted to the customer's satisfaction.

FINAL TEST

- Once you are satisfied that the cooler is installed and commissioned correctly, run the cooler and ensure that everything is working as it should.

CUSTOMER HANDOVER

- Principles of Ducted Evaporative Cooling explained.
- How far the windows need to be opened.
- How to turn the cooler on.
- How to drain the cooler.
- How to turn the power and water off.
- Maintenance requirements.
- The customer has been given the Owner's Manuals & Warranty Card.

CLEAN-UP

- All the installation rubbish has been removed and, if applicable, any property damage repaired. Your aim should be to have the customer not even be aware that you have been on site.

FINAL CHECK

- With all side panels in place and the unit running for a short period in cooling mode, ensure all pads have even water saturation and there are no visible water leaks

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Cooler Installation Manuals**

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Manual de la Instalación del
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