Whole House Fan
Natural Cooling System

LOWENERGYLIVING
Cool like the breeze...naturally

Installation and Operating Instructions Manual

Please read carefully before commencing the installation

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INTRODUCTION TO THE WHOLE HOUSE FAN NATURAL COOLING SYSTEM

Congratulations on choosing a Whole House Fan Natural Cooling System, the environmentally friendly and money saving alternative to air conditioning.

The cooling system is made up of the following components:

- A quiet, belt driven six bladed fan available in five sizes
- Ceiling shutter to suit
- Motor and control switch
- Roof space exhaust vents

Whole House Fans have been keeping people cool and comfortable since the 1940's.

Sizing the System to Suit the Home

The Whole House Fan brochure lists the maximum output in cubic metres per hour (M3/H) for each Whole House Fan.

Calculate the cubic area of the house (length x width x ceiling height). In a split level or two storey home measure each level.

For optimum cooling results we usually calculate the size of your fan based on 35 – 40 air changes per hour. In hotter areas, 40 to 45 air changes is recommended.

Example:				
Ground Floor	L 12M	x W 10M	X H 2.4M	= 288 M^3
First Floor Area	L 8M	X W 7M	X H 2.4M	= 134 M^3
Total Cubic Area				**422 M^3**

Output required to provide 40 air changes per hour is 422 x 40 = 16,880 M^3

Therefore, the 915mm Whole House Fan with a maximum airflow rate of 17,500M^3/H is suitable.

Choosing the best location

In a single storey home, the fan is best located over a common area such as a hallway.

In double storey or split-level homes, the fan is ideally located over the landing area where doors lead off near the top of the staircase.

In some instances, the shutter for the ideal size fan will not fit in a hallway. It therefore may need to be installed in a high traffic area of the house such as over the kitchen / family room area rather than a less active and more isolated room such as a formal lounge room or bedroom.

If this is not a desirable location a smaller, slightly less effective system may have to be selected.

LOCATION REQUIREMENTS FOR A WHOLE HOUSE FAN NATURAL COOLING SYSTEM

Roof Space with rafters

Check that there is an absolute minimum of 800mm of height (600mm and 760mm fan) 900mm (915, 1070mm Fan), 1000mm (1220 Fan) from the ceiling joists to the rafters. This is to ensure the fan can be passed up into the roof through the ceiling opening cut for the shutter.

It also guards against back pressure where the air hits the roofing material and blows back into the room before it can disperse around the roof space. This reduces the efficiency of the system and causes the ceiling shutter to flutter.

Measure the ceiling area where the shutter will be located to check that the ceiling shutter will fit. Preferred locations are “walk through” areas of the home such as hallways, landings or where open plan areas flow from one to another.

If the cornices are slightly too wide you can cut the cornice to make the shutter fit. Alternatively, the shutter may be “dropped” down to fit over the cornice with beading inserted behind the shutter to seal the gap between the shutter flange and ceiling surface.

Gang Nail Trusses

Check that there is an absolute minimum of 800mm of height (600mm and 760mm fan) 900mm (915, 1070mm Fan), 1000mm (1220 Fan) from the ceiling joists to the rafters. This is to ensure the fan can be passed up into the roof through the ceiling opening cut for the shutter.

It also guards against back pressure where the air hits the roofing material and blows back into the room before it can disperse around the roof space. This reduces the efficiency of the system and causes the ceiling shutter to flutter.

Whole House Fan gang nail truss shutters have a fixed central blade running lengthwise to cover the bottom cord of a truss with the pivoting blades on either side.

The longest dimension of the shutter is therefore always parallel with the direction of the truss. This must be taken into account when selecting the spot for installation of the system. For example, if the trusses are running across a narrow hallway, the shutter will not fit and another location has to be found.

The fan plenum sits over the bottom cord of the truss. Check that the fan will be fit between the webs. The fan may be tilted slightly to make it fit and the high side boxed down to a mounting platform.

If there is limited space the fan can be pushed up into the roof space through the space on either side of the cord (the bottom part of the truss), if the metal fan frame can be temporarily removed from the wooden plenum and the two pushed though separately.

If the home is under construction it may be possible to adjust the truss spacing so a standard ceiling shutter can be used.

Note: It is not usually necessary or recommend to cut roof trusses when installing the fan. If this is seen to be required it is advised you consult with a structural engineer for further advice, before commencing any work.

INSTALLATION INTO A STANDARD RAFTER ROOF

Overview of installation stages:

- Measure and cut out ceiling opening for the shutter. Build fan platform and install fan.
- Install exhaust vents (under-eave or gable end).
- Wire up motor and switch.
- Install ceiling shutter.
- Test cooling system and ceiling shutter operation

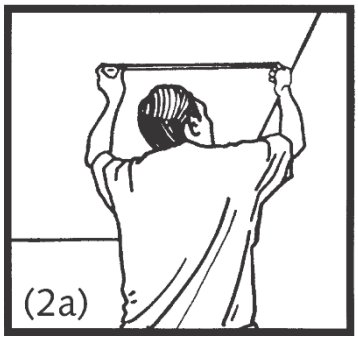
(For installation into gang nail truss roofs see page 6)

(1) After the installation site has been selected, remove the shutter from its carton and check measure its actual install dimensions (These are the dimensions for the ceiling opening). The Internal dimensions are generally 50mm smaller than the overall flange to flange measurements.

(2)

a. Using a ruler and pencil, mark these measurements on the area of ceiling selected. Drill a small hole at each corner of the outline you have marked on the ceiling.

b. Return to the roof space and inspect and check measure the area again before cutting the ceiling or sawing the joist. Check for electrical wiring, water pipes etc and make sure you are well clear.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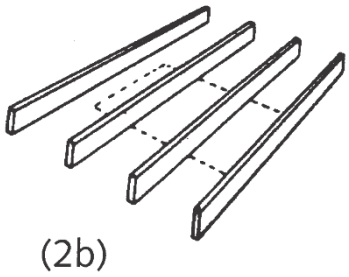
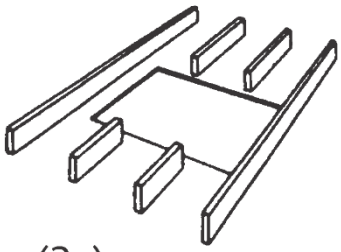

(2b)

(3)

a. Inside the roof space cut the ceiling joist 45mm from the shutter opening. This is to accommodate additional framing to support the joists once they have been cut.

b. Frame the ceiling opening using joist- sized timber equal to existing joists to a minimum height of 100mm above the ceiling material. (Note: Packing may be required if the ceiling joist are only 75mm high)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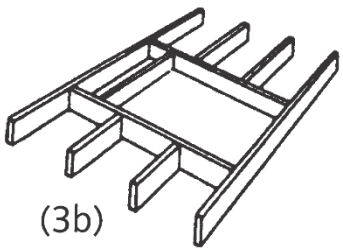
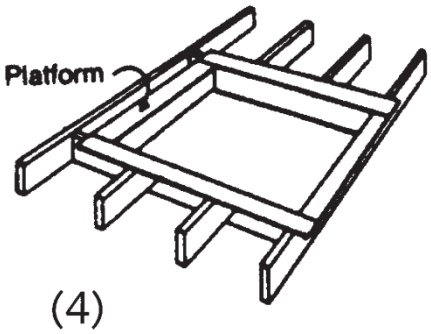

(3b)

(4) Using 100mm x 25mm timber for 600mm, 760mm and 915mm diameter fans or 200mm x 25mm timber for 1070mm or 1220mm fans build a platform to support the fan.

Hint: if there is plenty of height above the fan, build the platform higher for an even quieter installation.

The outside dimensions of your platform should be a minimum of 50mm greater than the outside dimensions of the timber plenum of the fan (check measure the frame of your fan).

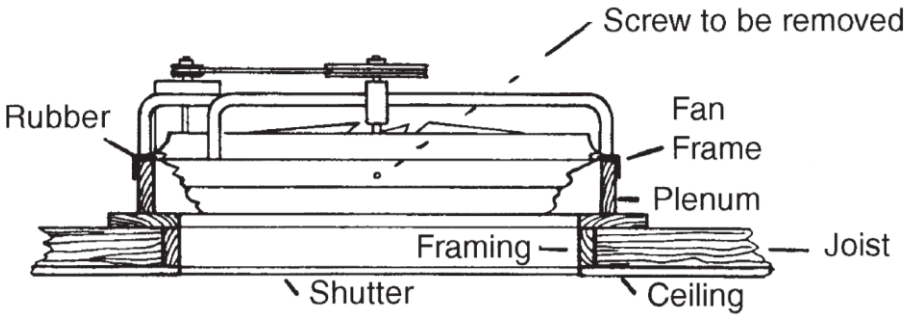
HINT: Paint the platform and plenum timber black so that light from the room will not show the cut timbers when the shutter is open.



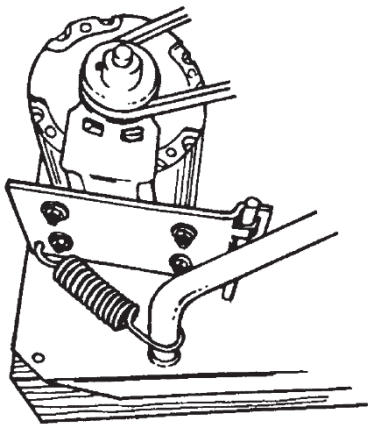
(4)

(5) Push the fan into the roof space via the framed ceiling opening. Centre the fan's timber frame on to the platform and ensure it is level. Toe nail to platform using 50mm nails.

Remove the single screw on either side of the metal fan frame which holds it on to its timber plenum. **Do not replace the two screws you have removed**. The fan will now "float" on its rubber packing to ensure no vibration. Check that the fan frame is itself level on its own plenum.



(6) Fasten the motor to the mounting flap using the bolts provided. Ensure the pulley on the motor and the larger pulley on the fan hub are both level and tightly secured.



(7) Place the belt around the two pulleys. Attach the automatic tensioning spring to the motor mount and fan frame. This will ensure the belt always remains at the correct tension.

(8) Install roof space exhaust vents. Refer to page 8 for further guidance. The eave vents that are supplied with the fan kit are installed under the eaves of the house. The system is now ready for wiring.

GANG NAIL + TRUSS ROOFS USING "NO CUT JOIST" CEILING SHUTTER

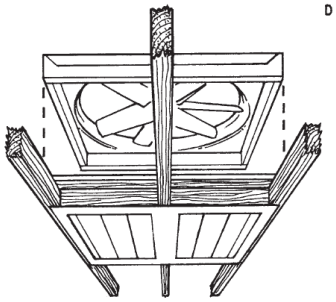
Overview of installation stages:

- Measure and cut out ceiling opening for the shutter. Build fan platform and install fan.
- Install exhaust vents in roof space (under-eave or gable end).
- Wire up motor and switch.
- Install ceiling shutter.
- Test the cooling system and ceiling shutter operation.

(1)

a. After the installation site has been selected. Enter the roof space and pierce the gyprock either side of the truss with a small, sharp screwdriver.

b. Go into the house, measure and mark the ceiling opening dimensions of your size shutter. Drill small holes at each corner of the area marked on the ceiling and double check the shutter position from the roof space before cutting the ceiling opening (1b).



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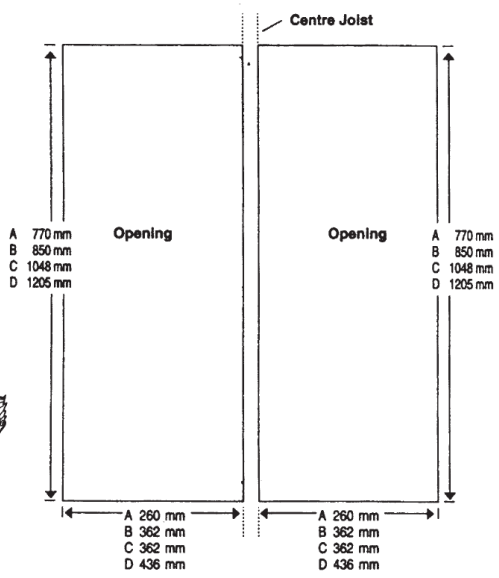
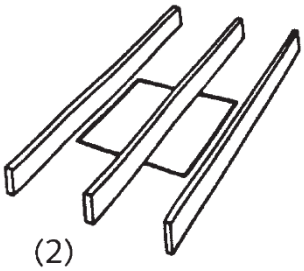


(2) Cut shutter opening on either side of the cord (the bottom part of the truss).



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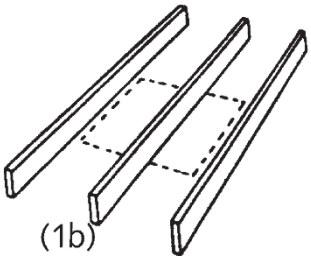


(1b)

(3) This is the point at which the fan must be pushed up into the roof space. Remove the two screws holding the metal fan frame to its wooden plenum. Lift the metal fan frame off its timber plenum and tilt it vertically to push it up through the shutter opening either side of the cord. Then push up the timber plenum.

(4)

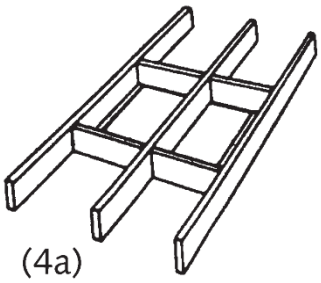
a. Return to the roof space. Frame in the opening using joist size timber equal to the existing cord to suit ceiling opening.

   Using 100mm x 25mm timber for 600mm, 760mm, and 915mm fans or 200mm x 25mm timber for 1070mm or 1220mm fans build a platform to support the fan.

   Hint: if there is plenty of height above the fan, build the platform higher for an even quieter installation.

b. The outside dimensions of your platform should be a minimum of 50mm greater than the outside dimensions of the timber plenum of the fan (check measure the plenum of your fan)

   Hint: Paint the platform and plenum timbers black so that light from the room will not show the cut timbers when the shutter is open.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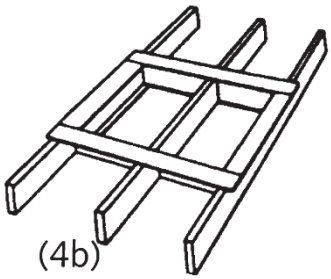
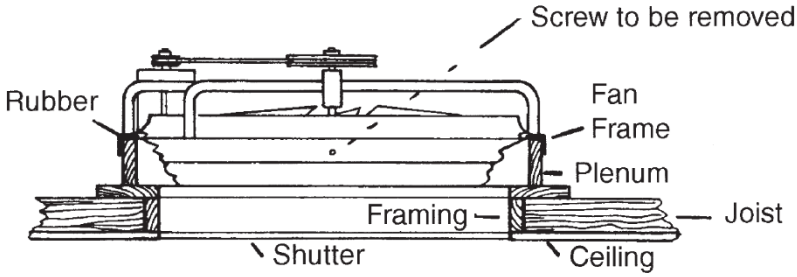
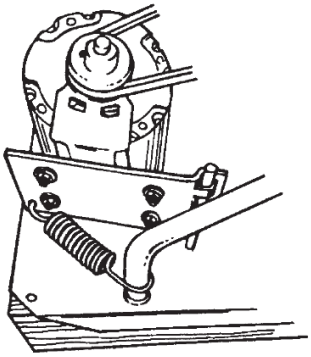

(4b)

(5) Centre the timber plenum which you removed from the fan frame on the platform ensure it is level. Toe nail to the platform using 50mm nails.

Place the fan metal frame on it plenum **but do not replace the two screws you removed** to push it into the roof space. The fan will now "float "on its rubber packing. Check that the metal fan frame is itself level on its own plenum.



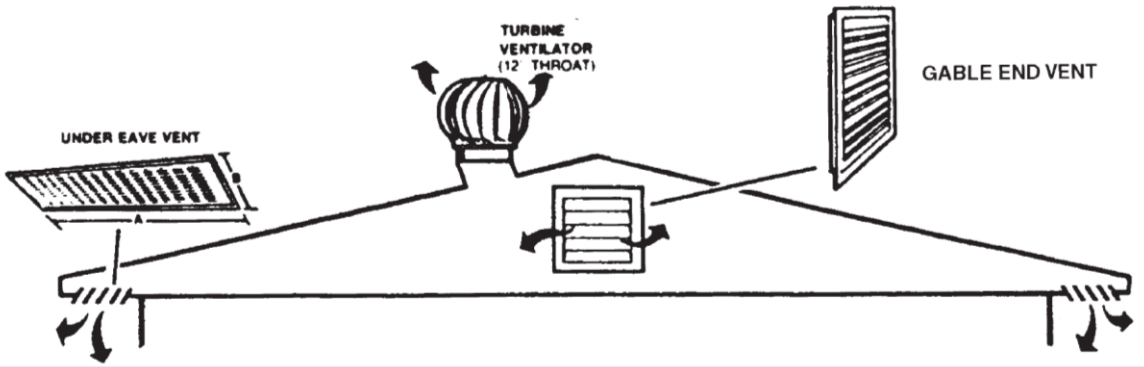


(6) Fasten the motor to the mounting flap using the bolts provided. Ensure the pulley on the motor and the larger pulley on the fan hub are both level and tightly secured.

(7) Place the belt around the two pulleys. Attach the automatic tensioning spring to the motor mount and fan frame. This will ensure the belt always remains at the correct tension.

(8) Install roof space exhaust vents. The eave vents that are supplied with the fan kit are installed under the eaves of the house. The system is now ready for wiring. Refer over page for further guidance.

MINIMUM VENT AREAS FOR THE ROOF SPACE



FAN SIZE	MINIMUM VENT AREA M² sq.Ft.	UNDER EAVE VENT 1200 x 250mm
600mm 24"	0.6M 6 Sq.Ft.	2
760mm 30"	0.92m 10 Sq.Ft.	3
915mm 36"	1.10m 12 Sq.Ft.	4
1070mm 42"	1.50M 16 Sq.Ft.	5
1220mm 48"	1.90M 20 Sq.Ft.	6

The standard under eave vent supplied with the fan kit is made from maintenance free powder-coated steel and is 1200mm long by 250mm wide. Ensure you have installed the correct number of eave vents for your particular fan size.

Because the Natural Cooling System rapidly expels air from the roof space by air pressure not convection eave vents are preferred. Eave vents offer more protection against strong wind pressure entering the roof space compared with gable vent.

Avoid fine insect mesh on eave vents in case of clogging with duct from the roof space which could reduce air flow and cause problems.

If you Natural Cooling System is installed in a central location, position the eave vents evenly around the home. If the system is installed towards one end of the roof space then install more eave vents towards the other end of the roof to ensure good air flow through the roof space.

Gable End Vents

If using gable end vents take into account that **only 60% of the area of a gable end vent represents free air**, the rest is structure. Ensure your gable end vent (s) have deep, weatherproof louvres and come with bird wire on the back.

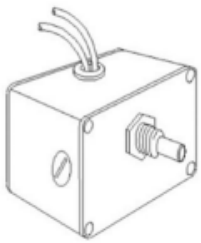
Wind Turbines (Whirly Birds)

Most wind turbines move too little air to be really useful. As a rule of thumb one wind turbine with a 300mm diameter neck equals half an eave vent. A standard under eave vent offers 0.3 square metres of free air.

PRODUCT ADVICE SHEET

Solid State Power Variable Speed Controller

Flush Wall Plate Mount



LOWENERGYLIVING
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FEATURES

- **240 VAC 1200 VA 5A**
- **Universal power control** for all resistive & most inductive loads to 1200VA.
- **Motor speed control** Stepless electronic speed control of 1Ø PSC, universal & shaded pole motors in fan, blower, centrifugal pump or where the load torque varies with motor speed.
- **2 & 3 wire control configurations** allows convenient 2 wire or efficient 3 -wire control of PSC motors.
- **Min speed / power adjustable.** Minimum level is independently preset adjustable.
- **Front mounted rotary control** varies / speed between an adjustable pre-set minimum and maximum.
- **Panel or wallplate mount.** Panel mount via 10mm shaft and nut. Wall plate flush mount for Clipsal and HPM wall plate. Surface mount enclosure also available.
- **Ctick & RoHS** compliant

SPECIFICATIONS	
RATINGS RMS continuous	240 VAC 50hz 5 amp 1200VA. Max case temp 70 °C Controller designed for PSC motor starting and reasonable short-term overload and surge conditions. MCB, fuse or thermal overload protection recommended for load is usually adequate to protect controller. Environmental: up to 30°C in free air. De-rate (max VA) by 20VA per °C above 30°C.
TECHNICAL BASIS	Phase angle control of incoming AC mains. 2 and 3 wire PSC control outputs.
ENCLOSURE & MOUNTING	Aluminium to IP 50. Size 53W x 37H x 41D (mm). Mounting via 10mm Ø central control shaft nut or clip in thermoplastic adapter suitable for all HPM and Clipsal wall plates.
SHAFT / KNOB	6mm plastic shaft with optional brushed aluminium indicating knob
CONNECTIONS	3x 100mm (65mm WP ver) leads 24/020 250 volt V105 PVC terminated with 10mm bootlace terminals Brown = Input. Red = Main out. White = Aux out.
ELECTROMAGNETIC COMPLIANCE	Fitted with integral EMI suppression network. When installed as per instructions overpage, complies with AS/NZS CISPR 14.1:2003. ACA CTick compliance no. N29529
RELIABILITY WARRANTY	The controllers are built for long service life and carry a 12-month warranty. They have been proudly designed & manufactured in Australia for 30 years using pragmatic design criteria and high-grade components. Appropriate quality control is ensured throughout their manufacture and all units are hand soldered and assembled.

CIRCUIT AND CONNECTION DIAGRAM FOR 250W MOTOR AND 1200 VB SPEED CONTROLLER 600MM, 760MM, 915MM AND 1070MM WHOLE HOUSE FANS

Read Instructions before commencing any wiring

The electrical connection of your Whole House Fan can only be carried out by a licensed electrical contractor and must conform to State Codes. The motor supplied requires a 240v 50Hz, single phase AC 2.2 AMP supply.

The 1200 Variable Fan Speed Controller complies with the EMC requirements of Standard AS. NZs 1044:1995 mandatory from 1st January 1999, when installed in the manner specified.

To comply with the EMC requirements, **shielded cable (supplied) MUST BE USED for the conductor connecting the controller to the main winding (blue cable) of the motor**, as marked on the diagram below.

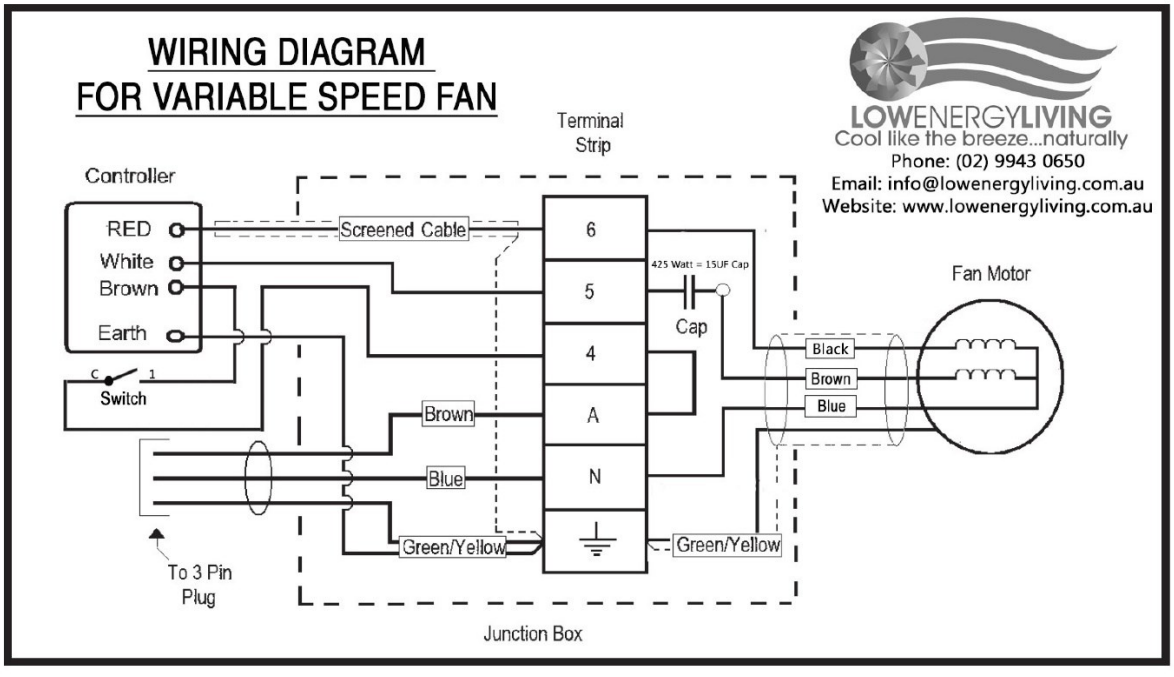
One end of the braided wire shielding must be connected to an earth of the supply, the other end of the shielding should remain unconnected. As the motor frame must be connected to earth, the cable shielding may be conveniently earthed on one end only in the junction box where an earth terminal is provided.

Earthing should be in accordance with AS3000. If the controller casing is accessible to personal contact, then it need not be earthed. NOTE: The cross-sectional area of the braiding of the shielded cable provided is too small to be a suitable earth conductor.

The junction box should be mounted in the roof space near the fan motor. It should be located on the side of an adjacent roof timber.

Note: Always check that the current draw is as per the specifications printed on the side of the motor.

The electrical connection of your Whole House Fan can only be carried out by a licensed electrical contractor and must conform to State Codes.



CIRCUIT AND CONNECTION DIAGRAM FOR 370W THREE SPEED MOTOR 1220MM WHOLE HOUSE FANS

WARNING

THIS MOTOR IS DESIGNED TO BE CONTROLLED ONLY WITH THE THREE FIXED SPEED WALL MOUNTED CONTROL SWITCH PROVIDED.

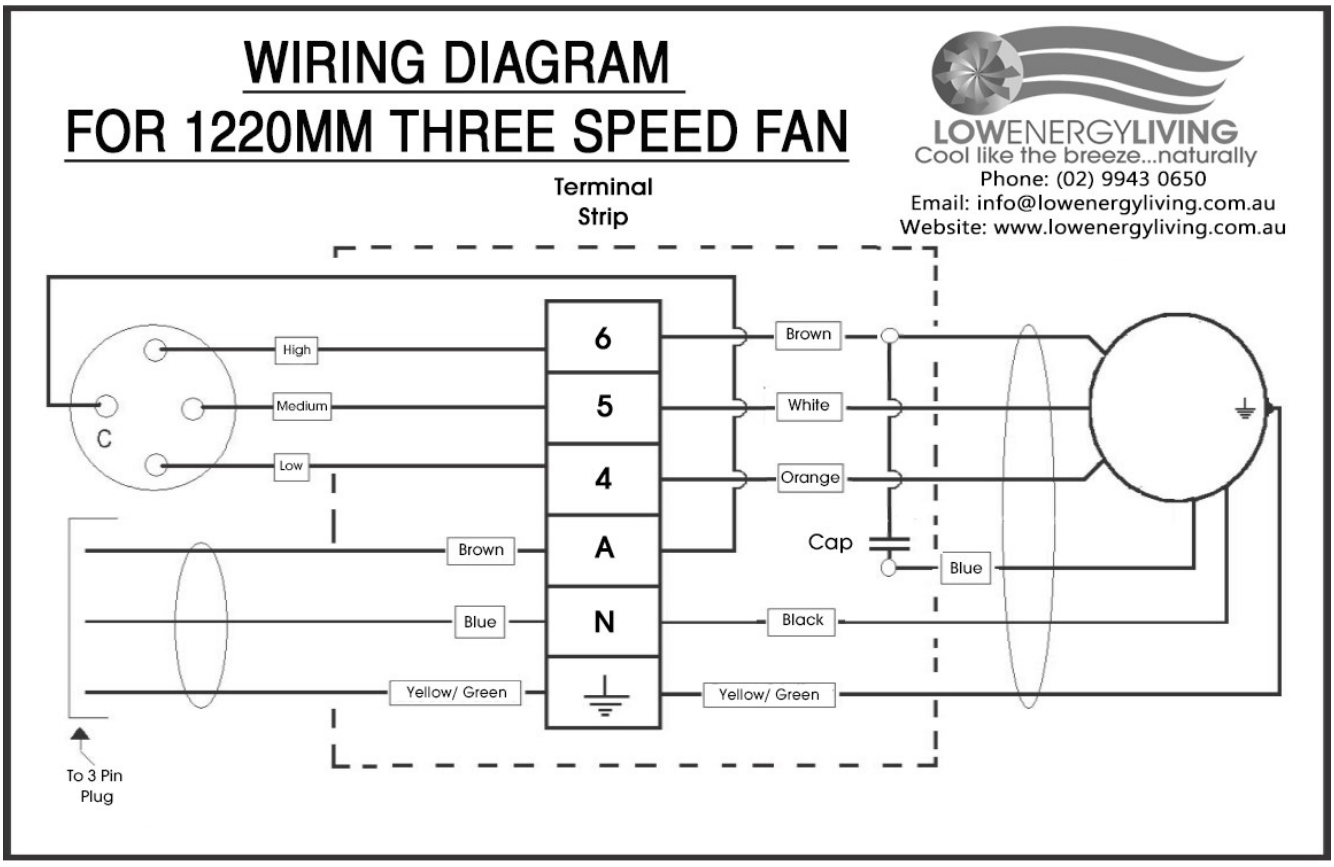
DO NOT CONNECT THIS MOTOR TO ANY SOLID-STATE SPEED CONTOLR DEVICE. TO DO SO RISKS FIRE OR ELECTRICAL SHOCK.

This motor supplied requires a 240v 50Hz, single phase AC 2.5 AMP supply.

The junction box supplied should be mounted in the roof space near the fan motor. It is usually located on the side of the adjacent roof timber.

Note: Always check that the current draw is as per the specifications printed on the side of the motor.

The electrical connection of your Whole House Fan can only be carried out by a licensed electrical contractor and must conform to State Codes.



INSTALLATION AND ADJUSTMENT OF AUTOMATIC CEILING SHUTTERS

Rafters and Gang nail truss roof types

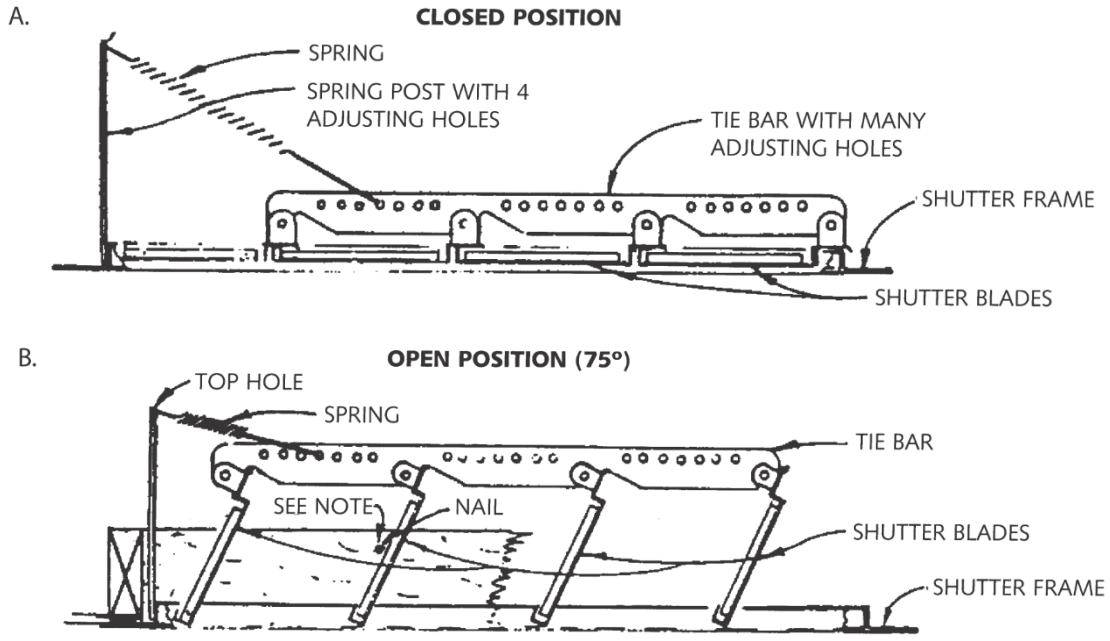
A. Once the wiring of the motor and speed control switch is completed and the motor is switched off you are ready to install the shutter.

B. Place the shutter face down on a flat surface or on the floor (preferably on the carpet to avoid scratching). Stand the shutter post upright (2x posts in gang nail truss shutter) and hook in on end of spring (s)

C. Hook the opposite end of the spring into a hole in the tie bar, often the third or fourth one. You are aiming to achieve maximum tension on the spring without the shutter blades opening. Manually open and close the blades to ensure the blades pivot smoothly.

You may need to make additional adjustments to the spring position once the shutter is installed into the ceiling. This can be done from below by gently lifting the blades with your fingers to reach the tie bar.

D. With the motor turned off install the shutter into the ceiling opening and secure with the screws provided.



Make fine shutter adjustments by using various holes in spring post.

Note: if required for positive stop, drive a nail at desired position as seen above.

TEST THAT THE SHUTTER IS OPERATING CORRECTLY

1) Open the windows and doors and start the fan motor on the highest speed. Run for a few seconds to check that the shutter blades are fully open.

   The shutter should not open beyond approximately 70° to ensure they will close by gravity when the motor is off. If this occurs, use a nail behind the second blade as shown in diagram B on page 11.
   NB. The motor should always be started on high.

2) If the blades only open slightly the spring tension is too loose or the blades could be impeded by a roof timber as they pivot upwards. Switch off the motor and adjust the spring tension by gently lifting the blades with your fingers to reach the ties bar.

3) As the motor speed is decreased the angle of the shutter blades may decrease. The blades should remain open when the motor is running at the lowest speed. If they close, switch off the motor, adjust the spring tension and retest as above.

   Never adjust the shutter spring or remove the ceiling shutter without first switching off the motor. To do so risks severe injury from the fan blades.

4) If the shutter rattles, increase the air flow coming through the windows and doors. Also check that the roof exhaust areas meet or exceed the minimum free air area recommended for the fan size and have not accidentally closed off.

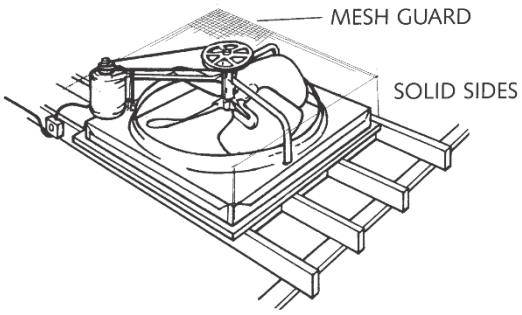
5) When the motor is switched off and fan blades cease to rotate, the shutter blades should drop and close. If they remain slightly open, the spring is too tight or there is something catching.

   If insulation is installed after the Whole House Fan, ensure the batts do not cover or block the flow of the roof space air to the eave vents.

6) Continue to check the shutter operation by opening up some rooms and closing off others fine tuning until you are satisfied the shutter opens and closes properly which ever windows and doors are open to the air flow.

7) How to construct an optional mesh safety guard over the fan in the roof space

Now that all aspects of the Whole House Fan installation have been successfully completed an optional mesh safety guard can be constructed around the fan, to prevent accidental contact with the rotating fan blades by anyone or anything in the roof space. Refer to diagram opposite for an idea of how to construct the safety guard.



OWNER OPERATING INSTRUCTIONS

Congratulations on choosing Whole House Fan Natural Cooling System. You can now enjoy the benefits of nature's own cooling system, a gentle breeze when and where you need it at the touch of a switch.

The majority of our fan sizes use only 250W of electricity at an hourly running cost of around 10c so you can run your Whole House Fan twenty-four hours a day in summer and spend less than $2.40.

The Whole House Fan cools in two ways; firstly, it reduces heat build-up in the solid structure of your home and secondly you feel more comfortable as moving air flows over your skin creating windchill. This is how fans and summer breezes create a cooling sensation.

First, a couple of safety reminders:

1. Do not switch on the fan if the ceiling shutter has been removed.
2. Ensure the fan is switched off before manually opening the shutter blades to make any adjustment to the ceiling shutter springs.
3. Never run your Whole House Fan System if all windows and doors are closed. Insufficient airflow through the fan could result in the motor overheating, tripping the thermal cut out and possibly damaging the motor.

Hints on using the system

Start Up

Open windows in the rooms where you want to direct the airflow. Switch the fan on and leave the speed control on high speed for a few seconds to ensure the wind activated shutter blades are fully open.

If required, you can now adjust the speed.

Directing airflow around the house.

To achieve optimal airflow from your Whole House Fan Cooling System, do not open all the windows in the house. It is preferable to direct the airflow through the areas you are using at the particular time of day.

For example, during the day you may wish to concentrate the air flow though day time rooms such as the kitchen, family room or other living areas, or even just one room, and close off unoccupied rooms such as bedrooms.

All you have to do is select the window or windows in the rooms where the airflow is required, if possible on the shady side, whilst keeping other windows and doors to unoccupied rooms closed.

The more concentrated airflow through limited windows speeds up the airflow over people in the rooms, increasing the windchill effect.

The whole of the roof space is being cooled by the action of the fan so those rooms temporarily without a direct airflow are still more comfortable because no heat is radiating down from the roof space.

When you wish to direct airflow into bedrooms, reduce or close windows in daytime rooms.

A Whole House Fan Cooling System in Split-Level or Two Storey Homes

The Cooling System works particularly well in two storey homes, which are generally much hotter upstairs than on the ground floor.

The ground floor stays cooler because of the extra insulation provided by the upper storey. In contras the upper storey gets a double dose of heat, some rising from the ground floor and the rest radiating down from the roof space.

By closing windows downstairs and opening windows upstairs the fan will draw fresh air in through upper level windows to expel the hot air that has risen from the ground floor whilst ensuring roof space temperatures remain close to ambient.

The Whole House Fan System ensures that upstairs bedrooms and the roof space above are filled with much cooler night air with no residual heat form the day.

During the day, you may prefer to continue to ventilate the upper level if the ground floor is comfortable or direct airflow to the ground floor only for a few hours.

The Whole House Fan Cooling System and Insulation

Insulation is great for conserving winter warmth to reduce heating costs.

In Summer, insulation will slow the transmission of roof space heat into the rooms below but it also prevents hot air escaping from rooms, as it does not distinguish between winter warmth and unwanted summer heat.

The Whole House Fan enhances the performance of insulation by preventing unwanted summer heat being trapped in rooms whist hugely reducing roof space temperatures.

Unlike air conditioning, insulation is not required to enhance the performance of a Whole House Fan Cooling System.

What about heat wave days?

With a Whole House Fan Cooling System, you start every day with a “bank” of cool air inside our home.

To conserve the cool air for as long as possible and reduce the need for air conditioning, it is important to keep air flowing through and out of the roof space whilst minimising the entry of hot outside air into rooms.

Close all windows and doors except for one window as close as possible to the ceiling shutter. Close curtains or blinds on westerly facing windows. Turn the fan on low speed.

The fan will draw outside air in through the single, nearby window, take it up through the ceiling shutter and into the roof space and out through the eave vents to keep roof space air temperatures down.

Use a room fan or an air conditioner to enhance comfort. Because there is less heat build-up in the home, air conditioning can be set at higher operating temperature setting and still provide cooling which will reduce running costs.

When outside temperatures cool down later in the day. Open more windows, increase the fan speed and fill your home with cool evening breezes.

No one home all day?

It is not recommended that any electrical appliance, particularly one with moving parts, be operated while there is no one home.

Unlike air conditioning, which would have to run for a considerable period to beat the heat, when the Whole House Fan Cooling System is switched on, the windchill cooling effect is felt almost immediately.

Opening plenty of windows and leaving the fan on high speed for 15-20 minutes will expel trapped heat that has built up in rooms throughout the day and draw in the cooler evening air.

Maintenance

The Whole House Fan Cooling System requires virtually no maintenance except to keep the ceiling shutter blades clean with a soft cloth. The drive belt is self-tensioning, the fan has sealed ball bearings to protect against dust and grim, as is the motor. Also, our exclusive patented automatic belt tensioning extends motor life and eliminates the need for manual belt adjusting.

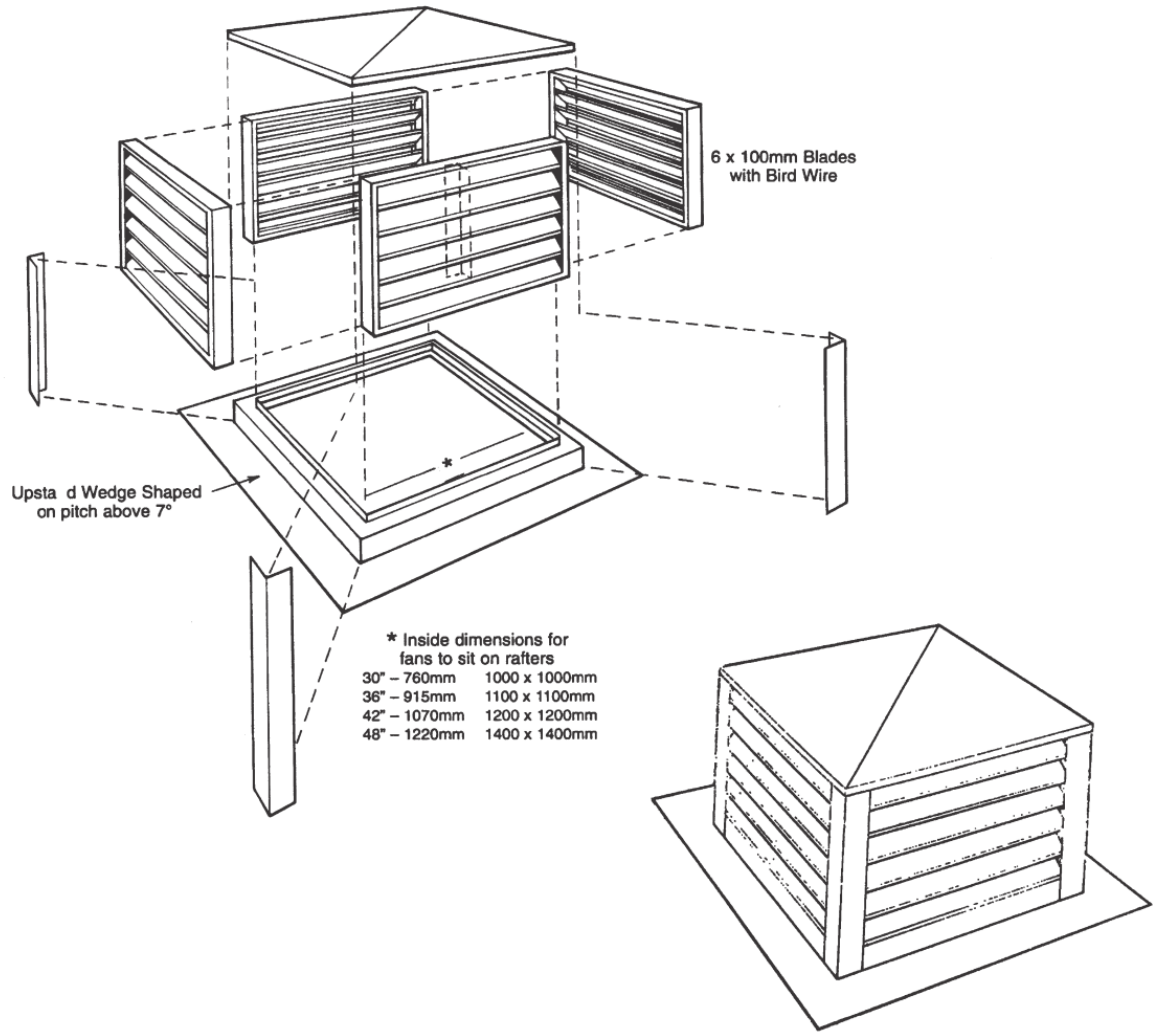
NO ROOF SPACE INSTALLATION WITH A CANOPY

Canopies are only used where there is no adequate roof space. They are most commonly used on flat roofs or on homes with cathedral ceilings that follow the sloping roofline.

If you require a canopy as part of your Whole House Fan installation it will have been custom designed in terms of size, flashings and colour and are installed by a licensed roof plumber.

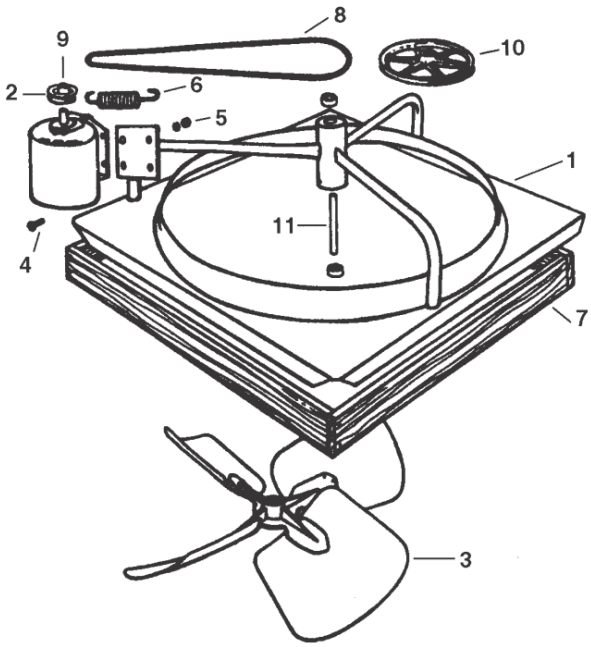
The installation of the fan on the roof timbers is carried out as per the “Standard Rafter Roof Instructions on page 4 of this manual”.

Check all detail of the electrical connection with your licensed electrical contractor to ensure strict compliance with State Codes.



PARTS AND WARRANTY

	DESCRIPTION	SIZE		
1.	Fan Frame	600mm		
	Fan Frame	760mm		
	Fan Frame	915mm		
	Fan Frame	1070mm		
	Fan Frame	1220mm		
2.	Motor 250 Watt Variable	600mm, 760mm, 915mm, 1070mm		
	Motor 1/2 HP 3 Speed	1220mm		
3.	Blade Assembly	600mm, 760mm, 915mm, 1070mm, 1220mm		
	600mm has 4 blades, all other fan sizes have 6 blades			
4.	Carriage Bolt (4 required)			
5.	Nut			
6.	Fan Spring			
7.	Wood Frame	600mm		
	Wood Frame	760mm		
	Wood Frame	915mm		
	Wood Frame	1070mm		
	Wood Frame	1228mm		
8.	V Belt	600mm	M45	
	V Belt	760mm	A57	
	V Belt	915mm	A61	
	V Belt	1070mm	A68	
	V Belt	1228mm	A78	
9.	Motor Pulley	600mm	2.75"	1/2" Bore
	Motor Pulley	760mm	2.75"	1/2" Bore
	Motor Pulley	915mm	2.75"	1/2" Bore
	Motor Pulley	1070mm	2.75"	1/2" Bore
	Motor Pulley	1228mm	2.75"	1/2" Bore
10.	Fan Pulley	600mm	6"	5/8" Bore
	Fan Pulley	760mm	9"	5/8" Bore
	Fan Pulley	915mm	9"	5/8" Bore
	Fan Pulley	1070mm	9"	5/8" Bore
	Fan Pulley	1220mm	12"	5/8" Bore
11	Fan Shaft			
12	Bearing (2 required)			



Warranty

1. Shephard Constructions Pty. Ltd. Hereafter called "the Company" warrants the fan blades, metal mounting frame, timber plenum and ceiling shutter to be free of any defects in materials or workmanship for a period of three years from date of purchase.
2. The Company warrants the motor, belt and switch to be free of defects in materials or workmanship for a period of one year from date of purchase.
3. The Company at its option shall repair or replace the unit or any defective components during the period of warranty. Parts for repair must be returned to the Company or authorised dealer at the purchasers cost.
4. **Conditions**
   This warranty shall only apply: -
   a. To original purchaser.
   b. Where the electrical connection of your Whole House Fan can only be carried out by a licensed electrical contractor and must conform to State Codes. If a warranty claim is made proof of the installation of the electrical components of the unit by a licensed electrical contractor will be need to be supplied, such as an invoice outlining the electrical work completed at the time of the installation.
   c. Where the unit has been used under normal conditions, where the unit has been installed and operated in accordance with the manufacturer's instructions and directions.
   d. Where the unit has not been modified in any way.
   e. Where any claim under this warranty is made in accordance with the conditions set out in item (5) below.
5. The company shall not be liable for any damage caused to the fan unit, shutter, motor or switch in transit or for any claim by any person for incidental or consequential damages.

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