

KENLOWE®

unifan®

MODELS: A12(s) B10(s)
(NOT B10MINI(s))

SUCTION FAN FITTING INSTRUCTIONS
FOR FAN INSTALLATION BETWEEN
RADIATOR AND ENGINE

KLF 1303. 1990

MOUNT MOTOR WITH
WIRES LEAVING THE
MOTOR CASE BETWEEN
8 o'clock & 4 o'clock

*Read carefully
before commencing
installation*

WIRE OUTLET IS ALSO
A BREATHING PORT

CONTENTS CHECKLIST: Motor; Fan blade; Thermal control; 2 x 'V' shaped plastic brackets; 2 x black plastic rods; 5 x black plastic round finger nuts; Stepped pressed extension arm; 1 x 1591 bracket; 1 x 1584 rubber seal; 1 x flat nut; 1 x large engineers washer; 1 x 2BA Phillips screw; 4 x 4mm dia. 100mm long bolts; 8 x 4mm dia. nuts; 2 x 5mm dia. 20mm long set screws; 1 x 5mm dia. 12mm long set screw; 1 x 5mm dia. star washer; 3 x 5mm nuts; 2 x self-tapping screws; 4 x push-fit terminals (female); 4 x clear terminal shrouds; coil of red and green wire; 1 x male brass bullet; 1 x female brass bullet; 1 x male bullet clear shroud; 1 x female bullet clear shroud.

NOTE: Some of these components will be in addition to your requirements as this fan covers many different cars.

For simpler D.I.Y. fitting and in line with many present day production vehicles, the Kenlowe fan is fully automatic and whilst a facia light/manual control is not considered necessary it is available as an option at extra cost - Pt No 0570.

1. Unbolt engine fan blade, replacing bolts (using washers if necessary to take up fan thickness).
2. Secure the 'V' shaped moulded brackets to the motor flange opposite one another. Use the 5mm dia. retaining bolts provided and, with the bolt head on the blade side of the motor, screw into a 5mm metal nut. The metal nut is held in the recess in the plastic moulded bracket. **IMPORTANT:** As the fan and motor need to be positioned on the car with the wires leaving the motor at the lowest point, select holes which ensure this is possible. Fig.1
3. Unifan is supplied with the impellor correctly located on the spindle i.e. with the pin recessed in the blade hub to provide drive and a circlip to retain the impellor in position. Fig.3.
4. Position motor/blade/bracket assembly between radiator and engine off-centre alongside any central pulley. If space is available choose side nearest the top-hose entry from engine. Efficiency is greater when offset from centre. (Not applicable to transverse engined cars). Fig.2

In the event that you are unable to bolt a 'V' shaped bracket to one of the motor mounting lugs due to an obstruction, use pressed metal extension bracket supplied to clear. Bolt the 'V' shaped plastic bracket to the centre hole or, if necessary to clear wide obstruction, the end hole. Tighten bolts fully with spanner and use lock washer provided under nut

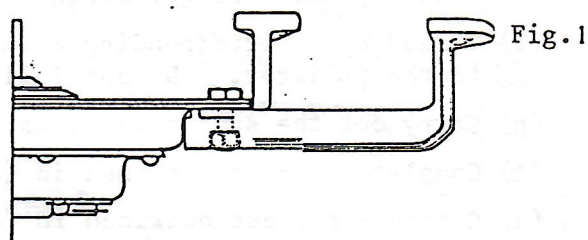
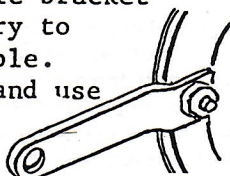


Fig.2

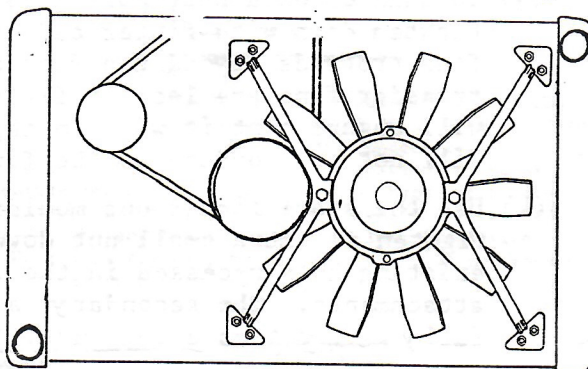
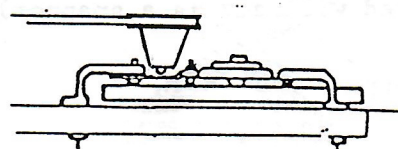
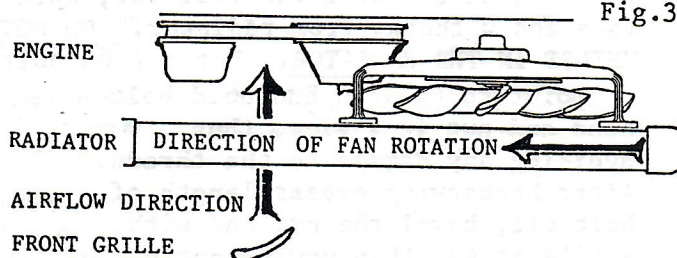


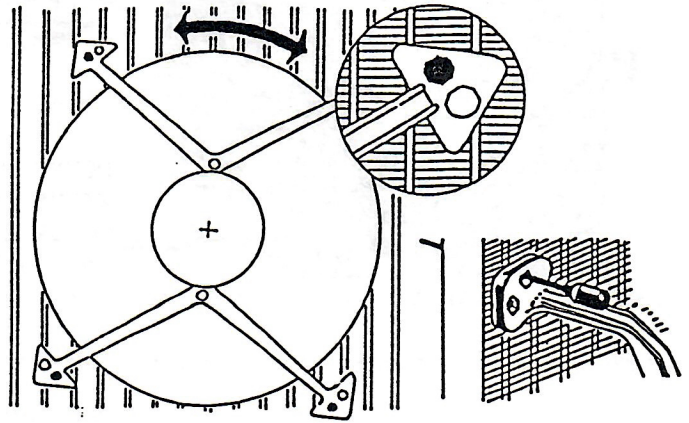
Fig.3



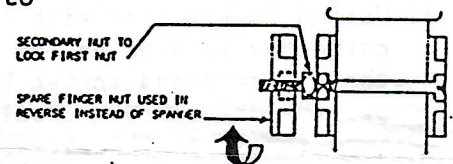
READ NEXT PAGE BEFORE COMMENCING INSTALLATION

5. (a) Position fan assembly against radiator face so that each mounting foot is central across two tubes; move motor/fan and V-shaped mountings around a centre to achieve this. See diagrams.

With a rotating motion, pass a round-ended dowel through hole in one of the top mounting feet until it passes out through the other side of the radiator fins. (NOTE: Select one of the two holes in each mounting foot that lines up centrally between water tubes—only one of the two holes in each foot is used).

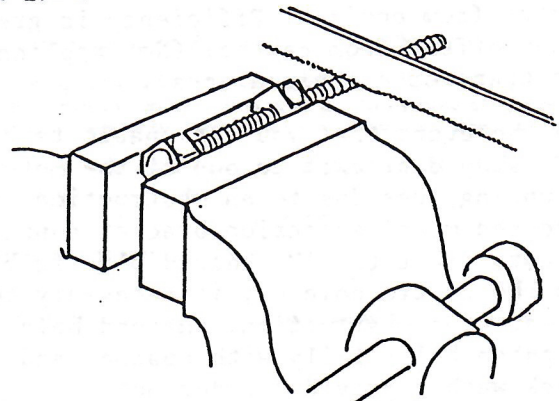


- (b) Using the other small round-ended dowel supplies, peg the other top mounting foot as in (a) above.
- (c) The assembly will now be in position on the radiator. Check all clearances are satisfactory and that instructions No. 4 and 5 have been carefully followed. Do not attach lower mounting feet at this time.
- (d) Remove one of the top dowel pegs with a rotating motion, holding the motor/fan assembly in position against the radiator with your other hand. Pass from the grille side of the radiator towards the engine one of the slender bolts without continually rotating. As it is slightly smaller than the dowel it should pass through the mounting foot and radiator without difficulty. Recess the bolt head in the moulded hexagon of the mounting foot.
- (e) Pass a plastic finger moulding over the bolt thread as diagram.
- (f) Thread on a corresponding metal nut with your fingers until close to the radiator. Do not fully tighten at this stage.
- (g) Carry out the same process as in (d) (e) and (f) on the other top foot.
- (h) Complete process outlined in (a) (b) and (c) on both lower feet – and only then.
- (i) Complete process outlined in (d) (e) and (f) on both lower feet.
- (j) To tighten each nut, pull back the finger moulding until the nut is recessed and tighten down with finger and thumb until assembly is firm. If the thin heat transfer fins protrude beyond the face of the water tubes, tighten finger nut until heat transfer fins are locally flattened behind finger nut. The limited purchase available will ensure that it will be impossible to over-tighten and the securing arrangement will not come undone as the fins of the radiator act as shake-proof washers.
- (k) Use the spare finger nut moulding reversed as a spanner to tighten an extra small nut down onto the top of the existing nuts recessed in the four finger nut radiator attachments. The secondary, additional nut tightened fully will act as a lock nut. (Do not use any spanners).

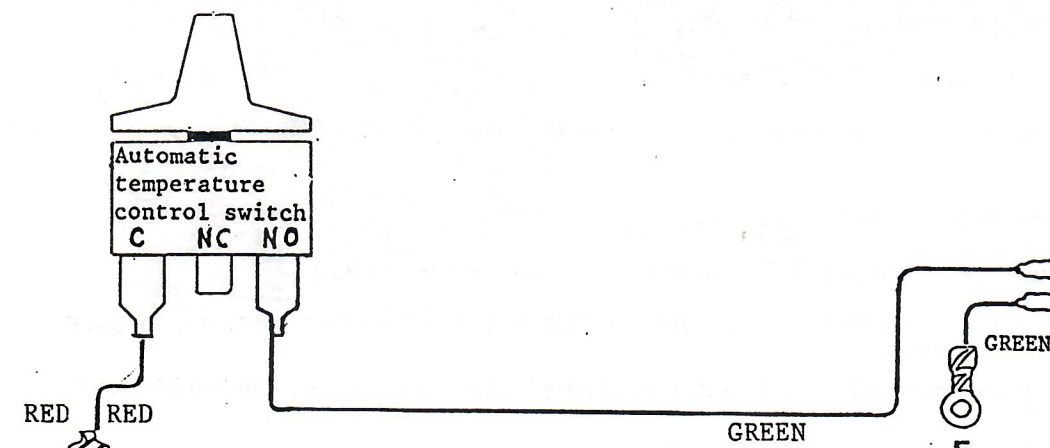


6. To reduce any excess length of bolts protruding through radiator observe strictly the following procedure only. When one bolt has been passed through the radiator, mark thread $\frac{1}{2}$ in. beyond radiator face and withdraw from radiator. DO NOT ATTEMPT TO CUT BOLT WHILST IN THE RADIATOR. Put nut on bolt $\frac{1}{2}$ " back from

point to be sawn and hold bolt head and nut in a vice, thus avoiding any damage to the thread. After hacksawing excess length of bolt off, bevel the cut end with a file at 45° then unwind nut off the end of the bolt to clean up thread. (Finger nut moulding reversed will act as a spanner).



12/24 volt circuits
negative or positive earth systems
Do NOT connect wires
to terminal 'NC'

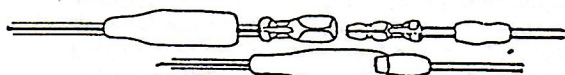
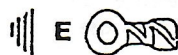


11. Connect to source of power, controlled by ignition switch, using one of the following examples to suit the vehicle.
1. Direct to fuse box (ignition control side of circuit)
Glass enclosed fuses - use either 25 or 35 amp rating
Porcelain open fuses - use 16 amp rating
 2. Direct to ignition switch on dashboard steering column.
- NOTE: Ensure you have full voltage - 12/13.5 volts supply on 12v vehicles - 27/28 volts supply on 24v vehicles - if in doubt establish full voltage/full fan speed by taking a temporary lead direct to battery.
- IMPORTANT: Do not connect power supply to switch side of coil if vehicle fitted with a ballast resistor which reduces voltage by approx. 35%.



use clear terminal shrouds

Earth terminals must be connected to metal body or chassis using a self tapping screw to ensure a good electrical earth - if you connect to an existing bolt ensure paint is not limiting the current returning to the metal of vehicle. - Check earth connection before and after connecting wire to vehicle and avoid selecting an earth for the fan which is near to the engine earth strap or the fascia tachometer (rev counter).



Male and female insulated bullet connections are already fitted to the motor wires on 317/8 10" and 327/8 12" sizes. 427/8 14.5" size supplied with both sets of bullet connections to be fitted. Connect corresponding terminals to the red/black and green/black wires to extend the motor wires to power supply and thermal control terminal 'NO'. Observe the following to ensure correct installation: (a) Check which colour wire goes to which motor lead terminal to achieve correct rotation before crimping bullet connections on to the wires (for direction of rotation, see wiring diagram incorporated in the main fitting instructions). (b) Put the appropriate short and long insulation sleeves over the wires before crimping the brass male and female terminals on. (c) Push home the male brass terminal fully and ensure the clear male insulating sleeve is fitted inside the larger female sleeve to provide a watertight connection.

Position motor with wires from electric motor pointing downwards, i.e. between 8 o'clock and 4 o'clock so that water cannot enter motor through the combined wire outlet and breathing port.

BLOWER FANS

Mounted between radiator and grille; Anti clockwise looking at rear of Kenlowe Fan Motor.

SUCTION FANS

Mounted between radiator and engine on conventional in line engine, on transverse engine, mount between radiator and wheelarch with spindle rotating Clockwise looking at rear of Kenlowe Fan Motor.

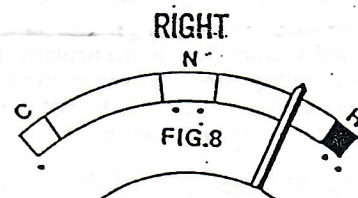
Note: It may be noticed that the fascia light glows at relatively high road speeds when fan is not running - this is not abnormal.

SETTING INSTRUCTIONS FOR 'VARIAMATIC' THERMAL CONTROL

IMPORTANT: FAILURE TO COMPLY EXACTLY WITH THESE INSTRUCTIONS WILL INVALIDATE YOUR GUARANTEE

SETTING INSTRUCTIONS FOR CARS WITH TEMPERATURE GAUGES

- 12 Turn adjusting knob fully clockwise.
- 13 Run engine until temperature gauge needle goes as far past "normal", as shown in diagram No. 8. Remember this is only 5 deg.C. or 10 deg.F. higher than your previous running temperature - see explanation in point 16B below. Therefore, for cars with gauges calibrated in degrees the needle should be at least 5 deg.C. or 10 deg.F. higher than reading obtained previously under average running (i. e. when vehicle is moving at 20 mph. or over, and after a journey of 12 miles minimum before fan is set to cut in).
- 14 Then turn knob slowly back anti-clockwise until fan starts.
- 15 Check fan reduces temperature approximately the thickness of the needle and then cuts out. If fan runs for long periods and has difficulty in cutting out (i. e. runs for over 4 minutes) set fan to cut in one graduation higher (i. e. to cut in at a higher temperature).
- 16 If the fan is set to cut in any lower than diagram No. 8 the Guarantee will become invalid because:-
 - (a) The fan will operate for long periods and over-cool the engine, defeating its object of ensuring that your car runs at a higher and more efficient temperature.
 - (b) Because the temperature gauge needle's first 1/4" of movement from "cold" may represent 40 deg.C. The identical 1/4" movement higher up the scale, towards the "hot" will only represent approximately 7 deg.C. Therefore, diagram No. 8 is showing a cut-in temperature of 5 deg.C. or 10 deg.F. higher than your previous over-cooled normal temperature, allowing the engine thermostat to be fully open before the fan cuts in (your gauge is therefore not a linear scale).



ONLY SET FAN TO CUT IN WHEN TEMPERATURE GAUGE NEEDLE REACHES ABOVE POSITION.
GUARANTEE INVALID IF FAN SET TO CUT IN LOWER.

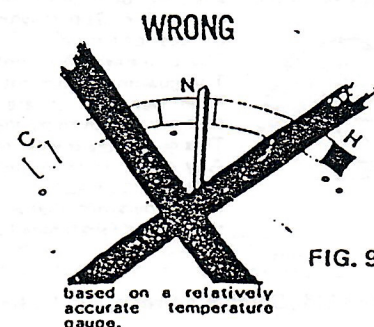


FIG. 9!

- 17 Lock the knob by tightening the locking screw 'A' in diagram FIG. 5A lightly. (Use a washer or similar to pack up the gap between knob and bracket if necessary).

TO SET CUT-IN TEMPERATURE WITHOUT A TEMPERATURE GAUGE:

- 18 Turn knob to position shown in diagram FIG. 6.
- 19 If fan cuts in when vehicle is moving, then turn knob clockwise one graduation to cut fan in at higher temperature. Then repeat test.
- 20 Lock knob by tightening locking screw 'A' in diagram FIG. 5A lightly.

NOTE: Clockwise to raise temperature at which fan cuts in. Anti-clockwise to reduce cut-in temperature.

REMEMBER ON ALL VEHICLES THAT THE PRESSURE CAP RAISES THE BOILING POINT OF WATER BY 3 deg.F. FOR EVERY POUND PER SQUARE INCH PRESSURE.

FOR VEHICLES WITH A 4lb. cap, boiling point is 224 deg.F., 7 lb. cap, 233 deg.F., 9lb. cap 239 deg.F., 10lb. cap 242 deg.F., 13lb. cap 251 deg.F., 15lb cap. 257 deg.F.

The modern vehicle with pressurised cooling can therefore be run at temperatures that would have been considered high only ten years ago, but it should be remembered that pressure caps lose their pressure capacity after approx. 12 months of use.

- 21 **IMPORTANT – FOR ALL INSTALLATIONS.** Check the following to ensure correct operation

- (a) Make sure that the blade is tight and is completely free to rotate under all conditions.
- (b) Blade is fitted on spindle correctly (see wiring diagram for correct rotation and FIG. 4)

- 22 **NOTE:** The following information is provided to ensure the maximum efficiency of the equipment and the best results.

- (a) If the fuse blows on first starting the fan, it may be due to the motor still being tight. Replace with a maximum fuse rating of 35 amps (English) European fuses are rated differently. See wiring diagram.
- (b) If there is evidence of blade tip run out (each blade is tested for balance) it will be due to distortion during storage and packing, despite the special care exercised. Once the blade is fitted on the car, it will true itself up due to the heat of the radiator, in about five weeks.
- (c) If fan runs for long periods and appears to have insufficient power to reduce coolant temperature it is normally because the Variomatic control has been set to cut the fan in at too low a temperature. Turn control knob clockwise 5 deg. and retest. If necessary continue setting higher until the fan stabilizes coolant temperature.
- (d) The manual control is provided to allow the fan to be switched on, if desired, irrespective of temperature.

- 23 These points apply to any car, and equally apply to cars that are not fitted with an electric fan.
Guard against restricting the grille aperture by mounting lights or badges which will obstruct natural ram effect cooling.
Pressure caps and hoses are components that should be replaced at periods of 12 months intervals. Ageing of the pressure cap spring will reduce the pressure retaining capacity and hoses may collapse internally without showing on the outside of the hose.

- 24 **IMPORTANT:** A strain is put on the cooling system when touring on the continent or when towing a caravan, this is increased if the car incorporates an automatic gearbox or if more than one of these conditions apply at the same time. Consequently cars with the standard engine driven fan often suffer from overheating under these conditions. In these circumstances the Kenlowe 'Thermomatic' electric fan may be employed as a Booster Fan to supplement the engine driven fan. The engine driven fan may be removed when motoring without caravan so gaining the normal Kenlowe advantages of reduced fuel consumption or improved performance. This equipment has been used successfully for caravan towing throughout the world, including tropical countries. This procedure is possible due to electric fan normally being mounted in front of the radiator, behind the front grille, with the fan blowing back through the core on the majority of cars. By this method the Kenlowe fan will cut in automatically when the standard engine driven fan cannot cope with the increased heat build up.

- 25 **AIR CONDITIONED VEHICLES:** With the increasing number of the air conditioning assemblies being fitted to standard vehicles it has become evident that the air conditioning condenser mounted in front of the engine cooling radiator dissipates its heat direct into the air stream passing through the engine cooling radiator and so over-loads the engine cooling system. The 327/L 'Thermomatic' Fan is particularly suitable for this application of boosting the engine fan in very hot weather when the air conditioning assembly is in maximum use, because this model is the slimmest automobile electric fan obtainable anywhere in the world and can therefore be fitted in front of the condenser. The engine driven fan can be removed during the colder months when the air conditioner is not in use so that the reduced fuel consumption and more power advantages apply.

POINTS 24 AND 25 ARE GENERAL AND MAY BE QUALIFIED BY REFERENCE TO KENLOWE TECHNICAL SERVICES.

Guarantee



KENLOWE ACCESORIES are guaranteed for a period of 12 months from date of purchase, providing the equipment is still the property of the first purchaser.

We guarantee that all precautions which are usual and reasonable have been taken to secure excellence of materials and workmanship, but damage for which we hold ourselves responsible under this guarantee is limited to the free supply of a new part in exchange for the part which may have proved defective, or (at our discretion) to the repair of the original part, and does not include the cost of fitting.

The purchaser shall not be able to claim any damage whatsoever save replacement of the defective part of our manufacture. This guarantee does not apply to defects caused by misuse or neglect.

When our products are fitted as initial equipment in production it is understood that this guarantee is additional to any guarantee that may be given by the vehicle manufacturer.

This guarantee is valid only when seals and manufacturers nameplate etc., remain intact.

Any communication should refer to the serial number found in the top right-hand side of the invoice/advice note and also place/date of purchase.

It is understood that acceptance of this guarantee does not cancel out any advantages that may be available to the purchaser under the revised Guarantee Law.

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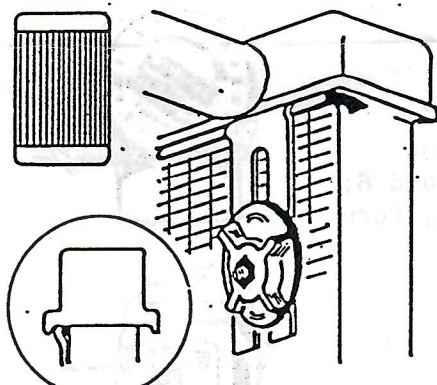
A Member of the Kenlowe Group

DO NOT MOUNT THERMAL CONTROL ON ENGINE OF ANY CAR.
DO NOT BEND COPPER SENSOR BULB AT END OF CAPILLARY.
POSITION CONTROL BOX SO THAT CAPILLARY HAS SOME SLACK ---
TO ABSORB VIBRATION.

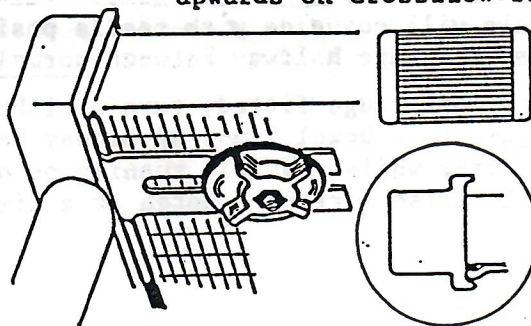
Select position adjacent to the radiator for the control box to be secured. Avoid any area which will be vulnerable to exhaust manifold heat or water spray. No adverse effect will be found by close proximity to the radiator itself. The built-in control box bracket can be secured to the car body using any convenient bolt, or drill two 1/8" diameter holes to secure with self tappers provided.

The copper sensor bulb at the end of the thin capillary is designed to be in physical contact with the radiator tank and fins. It is important that it is behind the tank lip on the engine side of the radiator nearest the top hose inlet from the engine. The sensor bulb is retained in position by the forked bracket,

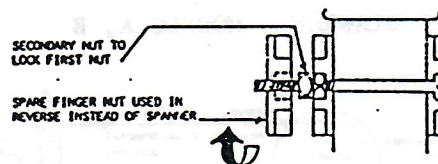
Install this way for vertical flow radiator



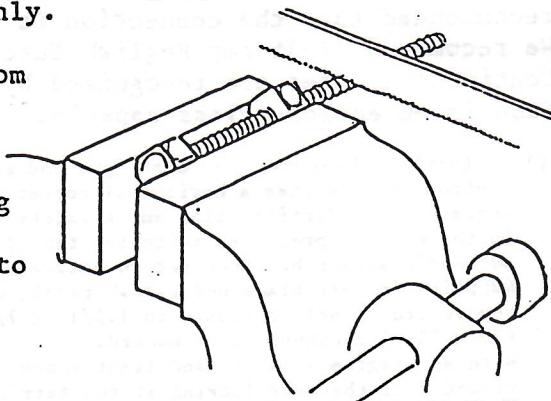
Install this way for crossflow radiator. Ensure sensor points upwards on crossflow radiators.



The forked plate is held in position by a small diameter bolt passed through the radiator. However, in the first instance, make way for the bolt by passing the black plastic dowel provided through the radiator using a rotating motion. Slide one of the black plastic finger nuts over the bolt so that the metal bolt head recesses into the moulding. Pass the bolt through the radiator without rotating it. Fit one black plastic finger nut moulding and the small metal nut provided. Pull back the black plastic moulding so that the metal nut fits in the recess and tighten down the fitting using your fingers. Fit a second metal nut to lock the first, as diagram.

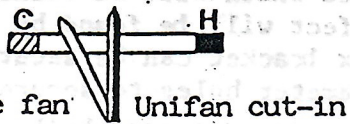

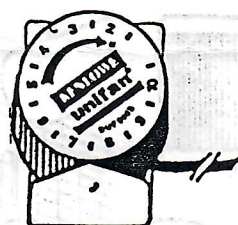
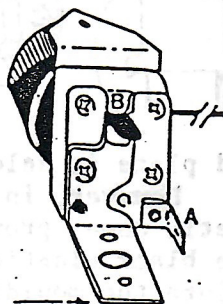


To reduce any excess length of bolt protruding through radiator observe strictly the following procedure only. When the bolt has been passed through the radiator, mark thread 1/2" beyond radiator face and withdraw from radiator. DO NOT ATTEMPT TO CUT BOLT WHILST IN THE RADIATOR. Put nut on bolt 1/2" back from point to be sawn and hold bolt head and nut in a vice, thus avoiding any damage to the thread. After hacksawing off excess length of bolt, bevel the cut end with a file at 45° then unwind nut off the end of the bolt to clean up thread. (Finger nut moulding reversed will act as a spanner)

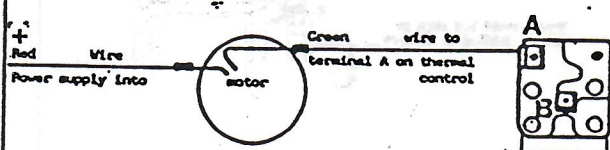


Turn dial knob full clockwise and run engine to raise temperature ready for setting fan cut-in. Set fan to cut in 5° or 10°F warmer than internal water sensing thermal control setting to ensure an effective back up and fail-safe facility for the fan's automatic operation.

Adopt one of the following fan cut-in procedures as appropriate:

- (1) If normal reading on temperature gauge with engine fan was midway between cold and hot, set fan to cut in midway between normal and hot, as diagram. (Turn ratchet knob anti-clockwise until fan cuts in as diagram). 
- (2) If previous reading on temperature gauge with engine fan was midway between cold and normal, set fan to cut in at normal i.e. midway between cold and hot, as diagram. (Turn dial knob anti-clockwise until fan cuts in as diagram). 
- (3) If previous normal temperature with engine fan not known, turn dial knob so that pointer adjacent to bezel lines up midway between 7 and 8; if the temperature gauge is accurate this will coincide with needle position on the temperature gauge halfway between normal and hot. 
- (4) If no temperature gauge fitted, turn dial knob so that pointer adjacent to bezel lines up midway between 7 and 8; if the fan works whilst vehicle running on open road, turn dial knob clockwise a ratchet notch at a time. 

WIRING DIAGRAM - MODELS A, B



NOTE: It is only necessary to attach a separate earth wire from terminal 'B' on thermal control to chassis if control box is mounted on insulated area or if the car body is fibreglass; in all other cases earthing is completed via the thermal control bracket to the car body.

NOTE: To wire in dashlight/manual control see 10 (iii) overpage.

Connect source of power direct to fuse box or ignition switch inside car. It is recommended that the connection is made on the ignition control side of the circuit. We recommend 17-35 amp English fuse rating or 8-16 amp Continental fuse rating. Continental fuses are recognised by being an open porcelain construction; the English fuse is an enclosed glass capsule.

- (iii) Optional Kenlowe combined dashlight and manual control incorporates a horizontal rocker switch engraved for identification and a safety bridge in the circuit precludes switching fan off if automatic sensor has been set to activate fan.. Supplied in matt black under-dash panel, or remove from panel to locate in 1.3/16 x 7/8" (30 x 23mm) aperture in dashboard. Wire as diagram - switch and light shown viewed from the rear looking at the terminals. Also see notes in instruction 8 on previous page.

