

FITTING INSTRUCTIONS

Jaguar MKII 3.8 Alu radiator + Kenlowe fan

Partnumber: 060.138

Blower fan installation instructions Size 10", 11", 12", 13", 14"

Blower fan fitting instructions for fan installation between the radiator and front grille.

Use Kenlowe fan in place of belt driven or fixed/viscous engine fan for extra performance, improved mpg, reduced engine noise and quicker warm-up Or if you have any history of running hotter than 'normal' or overheating apply the Kenlowe fan in addition to the engine fan. To replace the engine driven fan with the Kenlowe electric fan, first, remove engine fan from pulley, (probably anti-clockwise) replace bolts using washers if necessary to take up fan thickness. Leave fan belt. If engine fan has a ducting or cowlings remove this as well as the engine fan. To locate the fan assembly between the radiator and front grille, assess if access is easier removing the grille or radiator. (If the mechanical fan is being removed take this into account as this is often easier with the radiator removed). Check that the bonnet catch clears the fan when the bonnet is down. Fan may be mounted off centre without reducing efficiency, provided that the fan blade does not extend beyond the radiator width. (Ideally bias the fan off centre nearest the top hose where the water is the hottest!)

To mount the Kenlowe fan a simple specially formulated high temperature "advanced" clamp mounting system enables easy DIY installation and ensures the fan duct seals to the radiator so that all the airflow output passes through the radiator to maximise heat exchange performance.

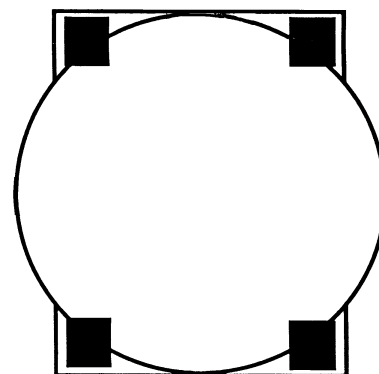
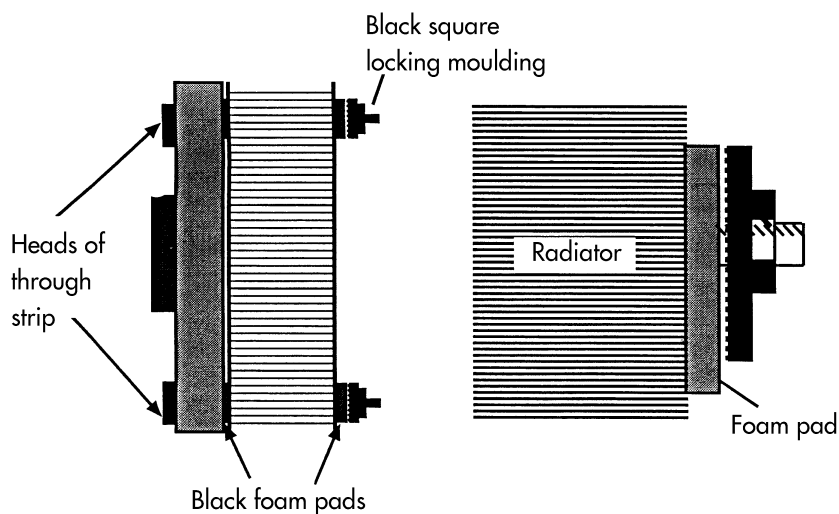
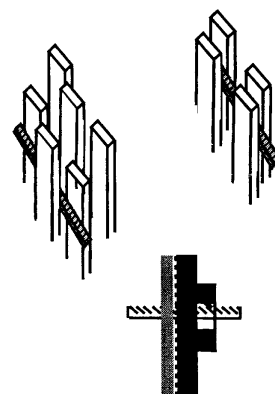
Use the six plastic ratchet strips, one at each corner of the fan ducting to clamp the fan to the engines water radiator. After each tie is passed through the outer most holes in the ring duct mounting lugs place a square black foam pad over the nylon ratchet strip - push the plastic strip between the water tubes of the water radiator. (If the finning is proud of the water tubes on the fan side leave off the black foam pads between the fan and the radiator). **IMPORTANT** If the radiator core is in poor condition (ie. rotting/decaying or just old) consider alternative mounting options that are available before attempting installation.

Note : this system is suitable for most radiators with rows of water tubes in line ie. and even some staggered core radiators provided the alternate rows leave an easy passage for the plastic strip to pass through! In the absence of sufficient space on staggered core radiators please contact your supplier for the optional fan to body mountings.

Before using the black square locking mouldings to secure the fan in place assess if the frail heat transfer finning is proud of the water tubes on the opposite side of the radiator to the fan! If the fins are proud of the water tubes flatten the finning with your finger or a piece of wood so that it is flush with the water tubes in the localised area where the locking moulding sits.

Place a black foam pad over the ratchet strip and push up to the water radiator before sliding the black plastic square locking moulding over the protruding boss away from the radiator and the offset slot on the ratchet side of the strip - the square black locking nut moulding should seat across at least two water tubes.

Using a pair of pliers pull the strip through the radiator whilst pushing the plastic retaining square towards the radiator sufficiently to compress the foam pads. The ratchet system will lock each fixing securely in place. Cut off the excess plastic strip with wire cutters after ensuring the ratchet system has been fully tightened.



Note : If the core height is less than the stationary outer plastic ring duct it may be necessary to relieve the plastic stationary duct locally to accommodate the top and bottom tanks or frame that are proud of the core to ensure that the duct seals to the radiator for maximum throughput efficiency.

Continues next page >>>

Page 1

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KENLOWE THERMAL CONTROL FITTING INSTRUCTIONS

Drain off approximately half the water in the radiator. Ensure that any interior heater taps (if fitted) are turned on. Loosen hose clip at radiator end of top hose, insert sensing element partially into the top radiator tank as FIG 5A. The small diameter copper capillary may be bent into a 'U' shape using the fingers only. DO NOT KINK AND KEEP THE RADIUS AS LARGE AS POSSIBLE. DO NOT BEND THE CAPILLARY WHERE IT IS JOINED TO THE SENSING ELEMENT. Pass the sensing element into the header tank as in FIG. 5A.

IF THE HEADER TANK DOES NOT ALLOW IT TO PASS COMPLETELY INTO IT, PASS THE SENSOR AS FAR AS POSSIBLE WITHOUT BENDING IT. LEAVE THE REMAINDER LYING IN THE NECK OF THE HEADER TANK AND TOP HOSE.

NOTE : If the hose is not in good condition a new hose should be fitted. Rest the rubber seal on the radius of the metal radiator pipe and against the end ferrule, but not over the top of it. Recess the capillary in the centre groove of the seal and with the thumb holding the capillary and seal steady pass the hose over the capillary, seal and metal pipe (leave hose clip loose until point '9' is completed).

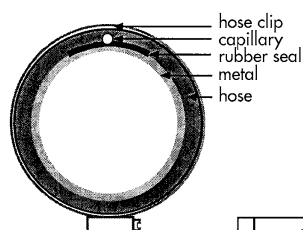
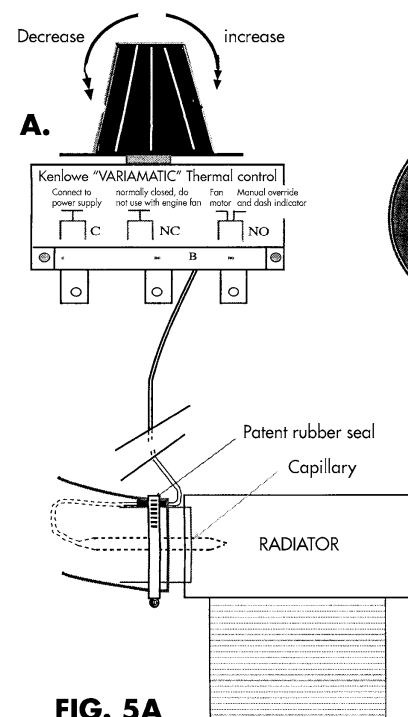
To mount the control box, locate a convenient position near top hose and clear of bonnet when lowered, UNDER NO CIRCUMSTANCES MOUNT TO THE ENGINE. This position should be out of line of road dirt or water and not near a very hot surface. If there is a convenient bolt this can be used to attach the bracket to the vehicle, alternatively two self tapping screws are supplied (drill 1/8" dia.). (If possible mount bracket vertically. This is not critical). The control mechanism should be mounted by passing the control up through the bracket exactly as diagram FIG. 5A and FIG. 6, with the capillary facing the bracket. Lock the upward facing tongue of the control on the female slot in the bracket and then using washer and thin half nut provided fit on threaded collar, tighten with spanner. Push dial adjustment knob carefully on 'D' shaped shaft as diagram FIG.6 making sure the spring blade is opposite the flat on the spindle of the thermal control. Screw large head Phillips screw (2BA) provided into threaded hole on top of the bracket marked 'A' in diagram 5A.

KENLOWE THERMAL CONTROL FITTING INSTRUCTIONS :

Locate the hose clip so that it is in the middle of the width of the Kenlowe patent seal. Locate worm drive clip or adjustment screw mechanism of the clip exactly opposite the rubber seal (180 deg. Opposite as diagram 5B). Tighten hose clip fully. Fill with coolant, start engine and check for leaks. When engine has warmed up a little re-tighten if necessary (remember that the capillary has a very thick wall and will not be crushed). Leave radiator cap off while the engine is ticking over to ensure against air locks and top up as necessary. Remember on all vehicles to position the control box as close as possible to the point where it enters the cooling system to allow maximum length of coiled capillary to absorb vibration but do not mount on the engine. Ensure capillary outlet backs to the bracket. (As FIG. 6). Remember that a worm drive hose clip will prove superior to wire clip.

NOTE : If a slight leak persists around the seal area tighten the hose clip fully when the water is really hot.

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DO NOT MOUNT THE THERMAL CONTROL BOX ON THE ENGINE OR ON THE RADIATOR IF IT IS DIRECTLY BOLTED TO THE ENGINE. (AS BMC TRANSVERSE) THUS AVOIDING CONSIDERABLE VIBRATION AND RESONANCE.

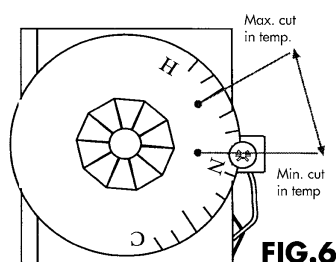


Diagram is based on the assumption that the control box has been fitted into the mounting bracket with the bracket protecting the capillary.

For Crossow radiators
Insert sensing element into side tank of the radiator which receives the hose from the top of the engine.

**DO NOT POINT SENSOR UP THE HOSE TOWARDS THE ENGINE
DO NOT BEND OR RE-FORM SENSOR BULB.**

If sensing element will not enter as far into the header tank as shown, allow it to enter as far as convenient leaving the remainder in the radiator neck.

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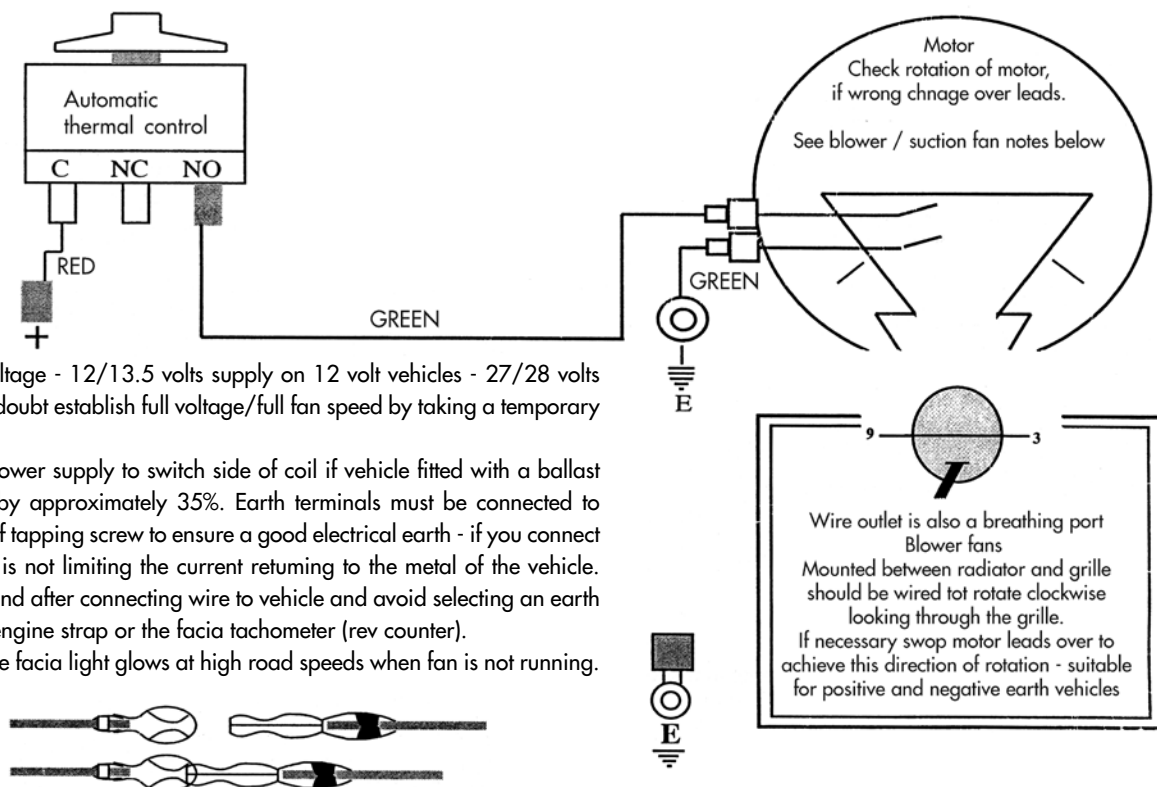
Partnumber: 060.138

Connect to power source, controlled by ignition switch, using one of the following examples to suit your vehicle. 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. Direct to ignition switch on dashboard steering column.

NOTE : Ensure you have full voltage - 12/13.5 volts supply on 12 volt vehicles - 27/28 volts supply on 24 volt vehicles - if in doubt establish full voltage/full fan speed by taking a temporary lead direct to the battery.

IMPORTANT : Do not connect power supply to switch side of coil if vehicle fitted with a ballast resistor which reduces voltage by approximately 35%. 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 the 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 strap or the facia tachometer (rev counter).

NOTE : It may be noticed that the facia light glows at high road speeds when fan is not running. This is normal!



Male and female insulated bullet connections are already fitted to the motor wires on some fans. Connect corresponding terminals to extend the motor wires to the power supply and the thermal control 'NO'. Observe the following to ensure correct installation:

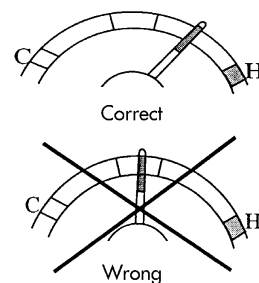
(a) Check which colour wire goes to which motor lead terminal to achieve correct rotation before crimping bullet connections on to the wires (for direction of rotation see wiring diagram incorporated in the main fitting instructions). (b) Put the appropriate short and long insulation sleeves over the wire before crimping the brass male and female terminals on. (e) Push home the male brass terminal fully and ensure the male insulating sleeve is fitted inside the larger female sleeve to provide a watertight connection. The power supply should be ignition controlled or if impractical the automatic fan sensor must be inserted in the bottom hose! The fan should be connected to a fused supply or if not practical use a 30amp spade blade type inline fuse in the power supply. Do NOT use glass or porcelain in line fuses.

Setting Instructions For 'Variomatic' Thermal Control. Important: Failure to comply exactly with these instructions will invalidate your guarantee.

Setting instructions for cars with temperature gauges :

(i) Turn adjustment knob fully clockwise. (ii) Run engine until the temperature gauge goes as far as normal as shown in diagram No.8. Remember this is only 5°C or 10°F higher than your previous running temperature - see explanation in point below. Therefore for cars with gauges calibrated in degrees the needle should be at least 5C or 10F higher than the reading obtained previously under average running (ie. when vehicle is moving at 20mph or over and after a journey of 12 miles or more.) (iii) Then turn knob slowly back anticlockwise until fan starts. (iv) Check fan reduces the temperature approximately the thickness of the needle and then cuts out. If the fan runs for long periods and has difficulty cutting out set fan to cut in one graduation higher. (ie. to cut in at a higher temperature.) (x) 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 the object of ensuring that your car runs at a higher and more efficient temperature. (b) Because the temperature gauge needles first 1/4" of movement from cold may represent 40°C the indentical 1/4" movement higher up the scale towards the 'hot' will only represent about 7°C. Therefore diagram No.8 is showing a cut in temperature of 5°C or 10°F higher than your previous over cooled normal temperature, allowing the engine thermostat to be fully open before the fan cuts in.

FIG. 8



Continues next page >>>

Page 3

FITTING INSTRUCTIONS

Jaguar MKII 3.8 Alu radiator + Kenlowe fan

Partnumber: 060.138

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 the knob and bracket if necessary).

TO SET CUT IN TEMPERATURE WITHOUT A TEMPERATURE GAUGE :

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

NOTE : Turn 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°F FOR EVERY POUND PER SQUARE INCH OF PRESSURE.

FOR VEHICLES WITH A 4lb cap boiling point is 224°F / 107°C, 7lb cap = 233°F / 112°C, 9lb cap = 239°F / 115°C, 10lb = 242°F / 117°C, 13lb cap = 251°F / 122°C, 15lb cap = 257°F / 125°C 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 approximately 12 months of use.

IMPORTANT FOR ALL FAN 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 to spindle correctly (see wiring diagram for correct rotation and Fig. 4)

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 due to the heat of the radiator in about five weeks.
- (c) If the 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 temperature. Turn the knob clockwise 5 and re-test. If necessary continue setting higher until the fan stabilizes the coolant temperature.
- (d) The manual control option is provided to allow the fan to be isolated or switched on irrespective of temperature if desired.

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 limit the natural ram effect cooling. Pressure caps and hoses are components that should be replaced at 12 month 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.

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 these conditions apply at the same time. Consequently cars with the standard engine driven fan often suffer from overheating under these conditions. In the 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 a 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 the 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.

AIR CONDITIONED VEHICLES :

With the increasing number of air conditioned 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 overloads the engine cooling system. The 'Thermomatic' fan assembly is particularly suitable for this application of boosting the engine fan in very hot weather when the air-conditioning 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 conditioning is not in use so that the reduced fuel consumption and more power advantages apply.

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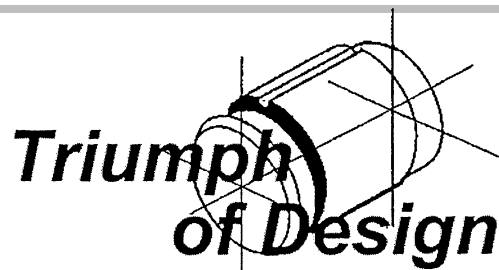
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Partnumber: 060.138

INSTRUCTIONS FOR ADVANCED NEW CONTINUOUS MOULDED RED SILICONE SEALING BAND

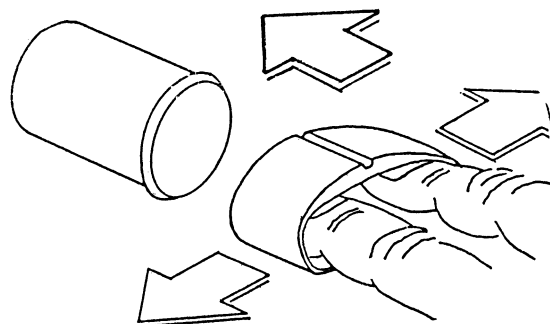
Instructions for advanced new continuous moulded red silicone sealing band for easy DIY retrofit installation of the thermal control capillary entry without cutting the hose or drilling the radiator yet giving an assured water tight seal!



Any alternatives such as electronic controls in hose adaptor blocks introduced into the hose have the disadvantage of needing a longer straight length of hose than many compact moulded curved hoses have available and consequently they can reduce the Important flexibility of the hose leading to hose failure or neck failure of the radiator which in either event can lead to catastrophic engine failure without hardly any warning from the temperature gauge, they also cost some 2 or 3 times more than the Kenlowe electrical mechanical control, yet still need a mechanical set of contacts because the electronic circuit cannot handle the current without a relay!

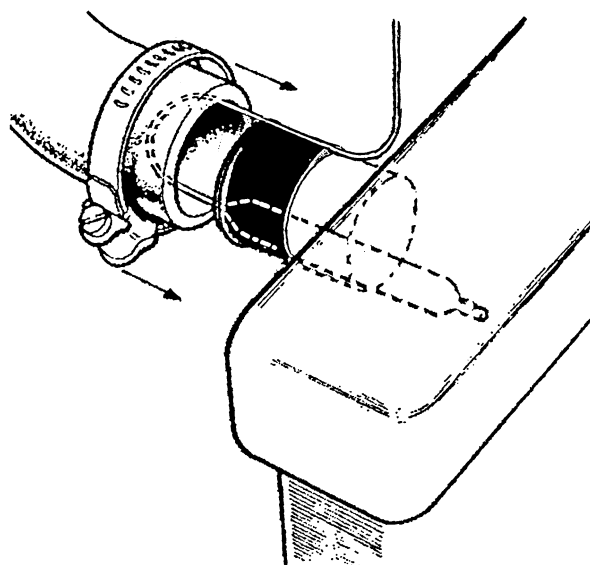
1) To fit the red silicone elastic continuous saddle band first decide where you prefer the capillary to lay in the groove and where you will have easy access to the jubilee screw which needs to be exactly 180° opposite.

2) Put a forefinger from each hand into the lower half of the continuous band, so you can pull it apart to the required diameter to fit over the top or bottom radiator pipe. Position the silicone band so that the groove is in the correct place and the band is between the wall of the tank and the raised end ferrule. Avoid using soap and if you need to reposition it a little pull the band by holding it between your fingers, do not grip the whole diameter with your hand because it won't slide but it can be tugged or rolled. If you need to move it a lot take it off and start again. Ensure the red silicone band does not overlap the raised ferrule end.



3) Lay the capillary in the groove having bent the capillary with your fingers into a U bend so that the torpedo bulb can lay in the neck and tank of the radiator.

4) Push the hose over the band whilst holding the capillary in the groove with your thumb - Take care not to snag the seal which would push it out of place (use a smear of soap inside the hose if this helps and replace the hose if it is hard and old rather than supple and relatively new! (Note where the thin red silicone continuous band lays particularly opposite the thicker capillary section so that you can place the hose clips in the middle of the band, which will be narrower at its thin waist compared with the thicker section with the capillary groove.



5) Position the hose clip as outlined and tighten down fully (remember the screw should be opposite the capillary entry and the band should be in the middle of the width allowing for the narrower thin section. Retighten when hot - you cannot crush the thick wall of the capillary.