



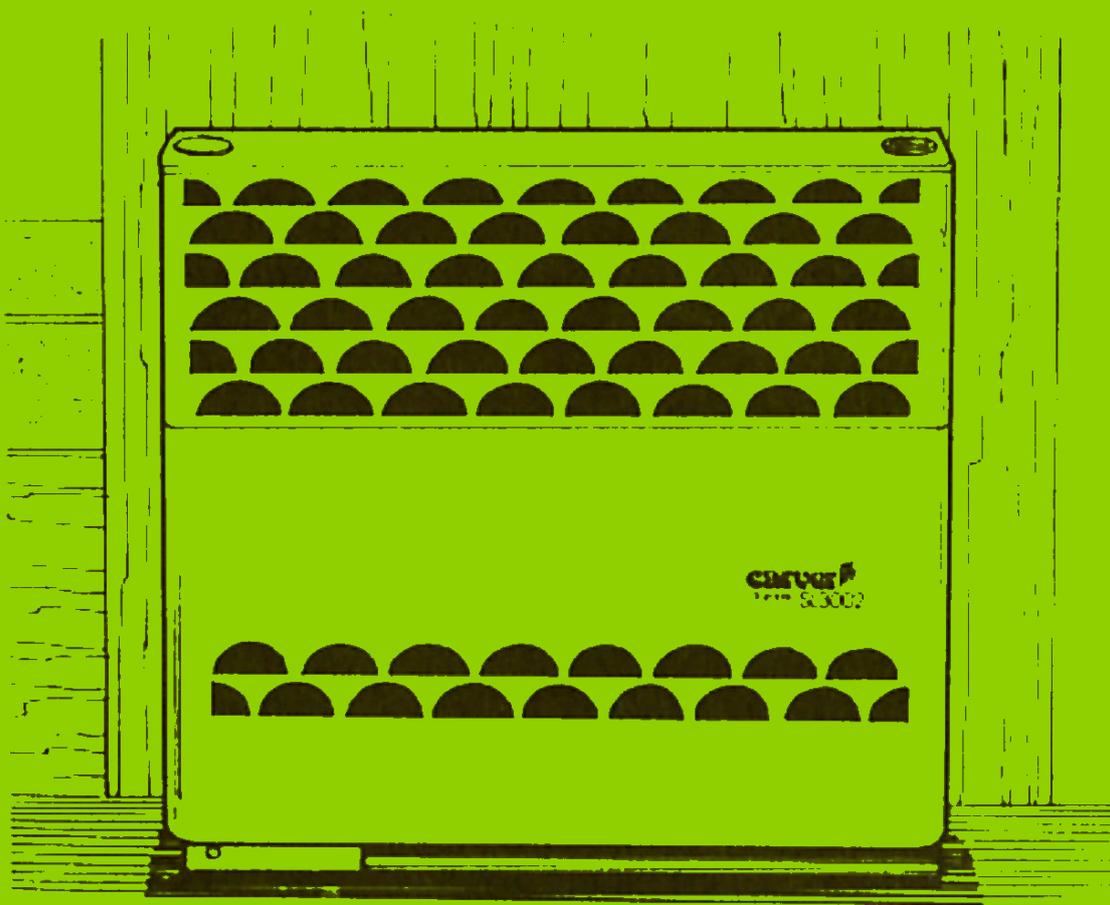
Heaters

SL3002 SLP3002 SL5002

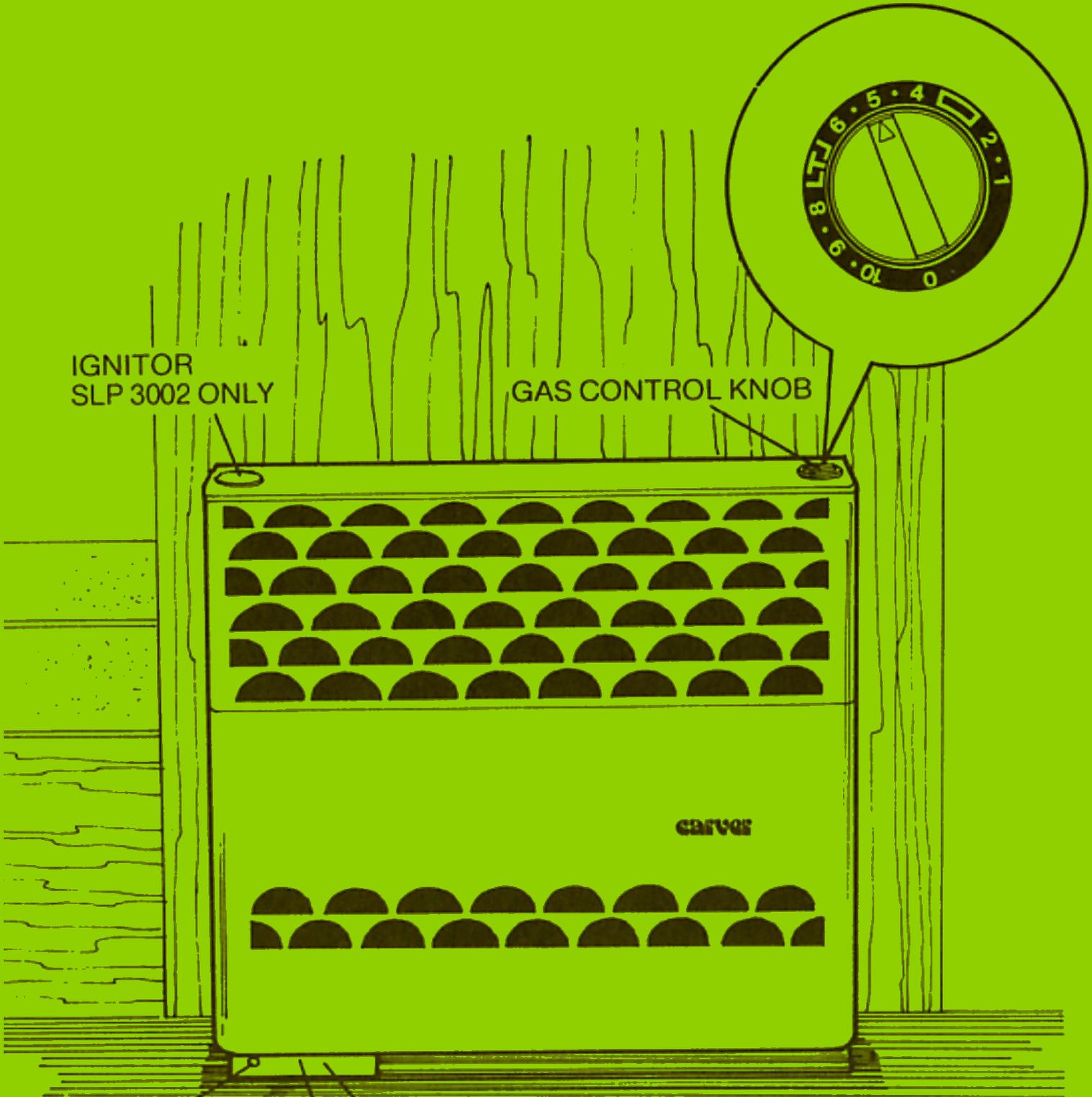
Accessories

AirMix Comfort Kit

Ducted Hot Air



**OPERATING &
SERVICING
INSTRUCTIONS**



IGNITOR
SLP 3002 ONLY

GAS CONTROL KNOB

carver

INDICATOR LIGHT

BATTERY BOX

AUTO IGNITION UNIT

LIGHTING & OPERATING INSTRUCTIONS

MODELS SL 3002 & SL 5002

1. TO LIGHT AND REGULATE

1.1. Turn the Gas Control Knob to a number between 1 and 10. The indicator light will flash showing that sparks are being produced.

1.2. Press the control knob down and hold it down. As soon as the heater lights the indicator lamp will stop flashing.

1.3. Continue to hold the knob down for a further 5-10 seconds and then release it.

1.4. Turn the control knob to the required comfort setting. The thermostat will then regulate the heater to maintain that level.

1.5. For heaters with Blown air Distribution a setting between 7 and 9 is usual and for those without, a setting between 2 and 4 is recommended.

1.6. If the flame is accidentally extinguished for any reason it is immediately relit by the automatic ignition.

2. TO EXTINGUISH.

2.1. Turn the Gas Control Knob to Zero.

3. TO CHANGE BATTERIES.

3.1. The unit takes 2 or 4 Alkaline Manganese batteries or HP7 dry cells. These should be replaced annually.

3.2. Press and slide the battery cover townwards or on later models release the zatch and swing the battery box forward. Fit the batteries as shown in the holder.

3.3 If on ignition the lamp does not flash, or the interval between flashes is longer than 2 seconds the batteries need replacing.

6. If the heater has been extinguished for any reason do not relight it for at least 2 minutes.

7. Do not obstruct the heater grill in any way.

GUARANTEE.

Provided that Carver Trumatic products have been installed and used in accordance with the instructions provided they are guaranteed for 12 months from the date of purchase by the first user against faulty material or workmanship with the exception of the heat exchange which is guaranteed for 5 years.

MODEL SLP 3002

4. TO LIGHT AND REGULATE.

4.1. Turn the Control Knob to a position between 1 and 10 and press it firmly down. AT THE SAME TIME operate the Ignitor several times till the heater lights. The flame is visible through the observation slot and will be on one burner only. If the heater fails to light after 15 strokes of the ignitor it may then have an over-rich mixture. Wait 2 minutes for this to disperse and try again.

4.2. When lit, keep the Control Knob pressed down for 10 seconds and then release it. All burners will then light. If the heater does not remain alight press the Control Knob down again and operate the Ignitor. Do not release the Control knob Quite so soon.

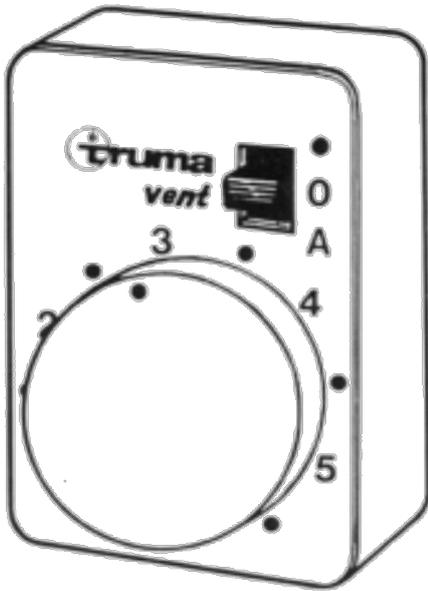
4.3. Turn the Control Knob to the required comfort setting, usually between 7 and 9 for heaters with blown air distribution and between 2 and 4 for those without. The heater will then progressively regulate itself to maintain the required temperature.

4.4. if there is air in the gas feed pipe operation (4.1.) will have to be continued while the pipe is purged.

5. TO EXTINGUISH.

5.1. Turn the Control Knob to "0"

8. OPERATING INSTRUCTIONS FOR BLOWN WARM AIR SYSTEM.



TEB AND TEN

8.1. Fan Model TEB for 12 volt DC Battery supply.

“●” gives manual fan speed control for cold air circulation. The speed may be controlled by turning the knob.

“○” is OFF.

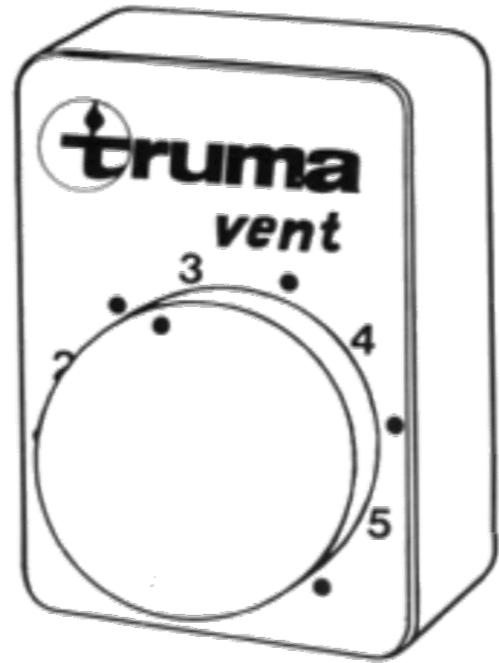
“**A**” is automatic speed control. The fan runs at high speed when the heater is giving maximum output and more slowly when the built-in thermostat reduces the heat output of the heater. There is a delay of approximately 5 minutes in these speed changes. The maximum speed may still be controlled by the knob.

8.2. Fan Model TEN for 220-240v AC mains supply.

“●” gives manual fan speed control for cold air circulation. The fan speed is regulated by the knob.

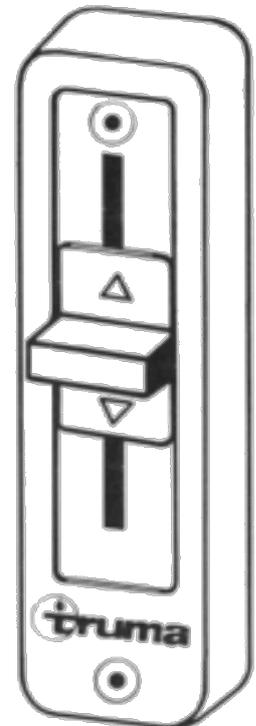
“○” is OFF.

“**A**” is automatic speed control. The fan speed is high when the heater is on maximum output and is gradually reduced as the heater output is reduced by the built-in thermostat. The maximum speed is controlled by the knob.



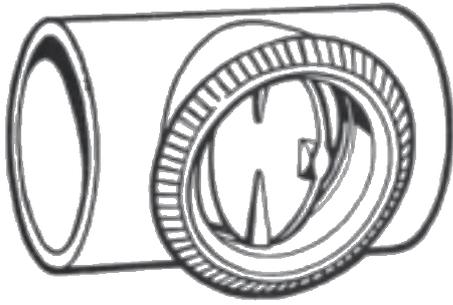
TN

8.3. Fan Model TN for 220-240v AC mains supply. The fan speed is manually controlled by turning the knob from “0” (OFF) to the required speed.

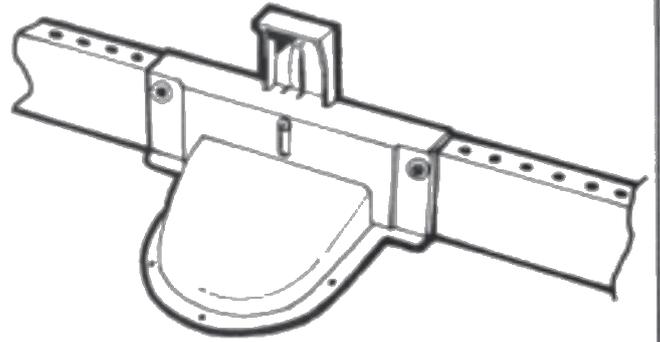


COMFORT KIT AIR MIX AXK

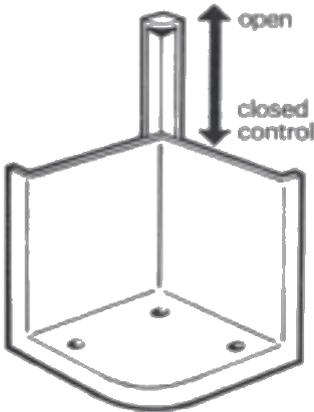
8.4. Comfort Kit Air Mix AXK. To draw in fresh air in summer, move the slide fully downwards in the direction of the blue arrow. To increase the proportion of warm recirculated air move the slider progressively upwards.



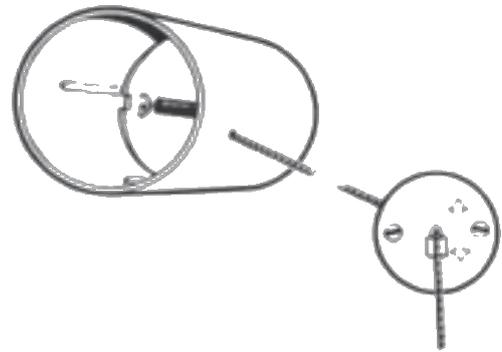
8.5. Butterfly Outlets "BE" and "EN". The Butterfly plate may be opened or closed to control the quantity of air and may also be twisted around to control direction.



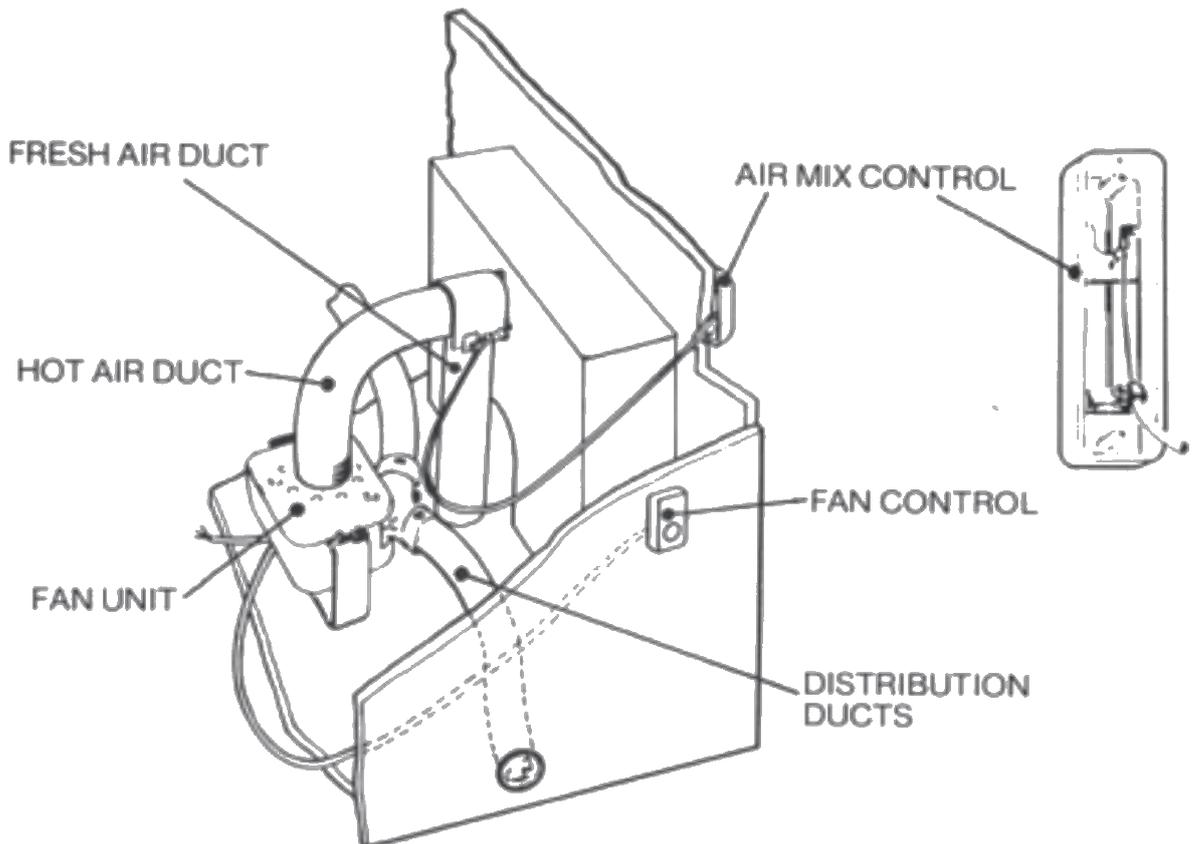
8.6. Strip Outlet "KO" Lift the handle to open.



8.7. Corner Outlet "EBE" Lift the handle to open.



8.8. Isolating Valve "SP" To close off one leg of the heating system, pull the cord and jam it into the cleat.



8.9. Fan Unit with AIR MIX COMFORT KIT AXK. Typical Installation.

9. GENERAL DESCRIPTION

SL 3002 SLP 3002 SL 5002

9.1. Carver Trumatic heaters are completely room-sealed units based on a proven heat exchanger consisting of a pair of internally and externally finned aluminium die Castings.

9.2. The gas burners are situated at the bottom of a vertical fire-way which permits complete combustion of the gas before meeting exchange surfaces. The flames travel along the top horizontal section and then downwards through further galleries cooling all the way and are kept moving by the thermal drive of the rising column of hot gases from the flame.

9.3. The flue outlet of the heater is towards the bottom of the heat exchanger thus ensuring that the majority of the heat is extracted from the gases before they are exhausted via the insulated flue pipe and the roof cowl. The combustion tract is entirely independent from the living space, all the air for combustion being drawn in from beneath the van through the plastic stabilising star.

9.4. A condensate tube is fitted to drain away any water formed in the flue.

9.5. The burners are of a self aspirating type, ensuring a good air to gas mixture before combustion and are situated below floor level. The heat output of three of the burners is controlled by the thermostatically operated valve, the burner nearest the side of the heater remaining unaltered.

9.6. The flame failure probe is mounted on the permanent burner to monitor the flame, and failure of that flame will cut off the entire gas supply to the heater.

9.7. The ignition electrode is also mounted above the permanent burner, the spark being generated by a piezo ignitor in the SLP 3002 and an automatic reignition unit in the others.

9.8. The heaters have a small air-way through the floor to allow fresh air to be drawn into the caravan over the heat exchanger and warmed.

10. SERVICING INSTRUCTIONS.

10.1. Under normal operating conditions, no routine service is required, except for removing the front case (Para 13) and dusting the heat exchanger at the start of the season. Should your heater fail to function correctly your gas service engineer will assist you, but if he is not available, the service notes in this hand book will be of assistance.

11. OPERATING SEQUENCE AND FUNCTIONS.

11.1. Gas is supplied to the 4 burners (8 in the SL 5002) via a thermostatically controlled flame failure valve. From the valve two burner feed pipes supply the gas to the burners, the top pipe feeding the burner nearest the side of the heater only and the lower pipe feeding the three inner burners. The three burners are subject to control by the thermostat and the single burner carries the ignition electrodes and flame failure probe.

11.2. On the SL 5002 there are two banks of 4 burners, the ignition electrodes being on one outer burner and flame failure probe on the other. This ensures that both banks are alight before the heater can be turned up. Cross ignition on the SL 5002 is by a flame tube.

11.3. The gas control knob operates the valve in the following fashion:- When it is turned to "0" no gas may pass whether the knob is depressed or not, or whether the heater is hot or cold.

11.4. SLP 3002 ONLY. If while the heater is cold the knob is turned to any number and then depressed, the flame failure device is overridden and gas is supplied to the burner nearest the side of the heater only. Operation of the ignitor will then light this burner and after about 10 seconds the flame-failure probe will be hot enough to hold the valve open. Releasing the knob will then supply gas to the other burners, but if the probe is not warm enough when the knob is released the flame will go out.

11.5. SL 3002 and SL 5002. When the knob is turned to any number, the automatic ignition unit starts sparking. When the knob is depressed the flame failure device is overridden and gas supplied to the outer burner. As soon as it is lit the ignition unit stops sparking and after about 10 seconds the flame failure probe will be hot enough to hold the valve open. Releasing the knob will then supply gas to the other 3 burners. but if the probe is not warm enough when the knob is released the burner will go out. If the flame is extinguished for any reason other than turning the knob to "off", the automatic ignitor will start sparking and relight it.

11.6. On all types, all 4 burners will stay alight until the thermostat is satisfied, then flames on the three inner burners will be gradually reduced to maintain the set temperature.

11.7. Fault Finding Table

PRIMARY SYMPTOMS		SLP 3002	SL 3002 & 5002
Permanent Burner will not light	Spark visible	12, 18.3, 20	12, 18.3, 20
	No Spark visible	15, 17	17
	Indicator light flashin	—	12, 17
	Indicator light NOT flashing	—	16
Heater lights on one burner	Goes out when control knob is released	18	18
	On releasing control knob combustion chamber fills with blue flame and then goes out	22.3, 22.4, 22.5	22.3, 22.4, 22.5
Heater lights on all burners	Goes out with a click after some time	18.5, 18.6	18.5, 18.6
	Goes out in windy conditions	22.1, 22.2	22.1, 22.2
	Goes out when doors are slammed	18.5, 22.6, 22.7	22.6, 22.7
	Burns with yellow flames	12, 18.3, 20	12, 18.3, 20
	Will not turn down to one burner	21	21
	Will not stop sparking	—	16.9
	Burns with a lazy blue flame filling the combustion chamber	22.3, 22.5	22.3, 22.5
Blown Hot Air Fan Unit	Not working at all Running Sluggishly Blowing on one leg of system only	TEB 12v DC	TN & TEN 240v AC
		23.1, 23.7	23.7
		23.1, 23.7	23.7
		23.5	—

12. GAS SUPPLY FAULTS

12.1. Gas supply. Check the cylinder contents, check that any intermediate taps are on, and that the gas is not frozen, in cold weather Butane may not be “boiling off” correctly. Change the cylinder or bring it into a warm place for half an hour. See “24. A note on your gas supply”

12.2. Regulator failure or malfunction. This can result in low or high pressure or restricted gas flow. Butane regulators should give 11" to 12" water gauge (300mm). Propane regulators should give 14" to 18" water gauge (350mm).

12.3. Observe other appliances for malfunction, change the regulator or check the pressure with about 3ft of clear plastic tube made into a “U” tube. Alternatively plunge the end of the pipe into water, bubbles should cease at 12" or 15" depth of immersion. The regulator on your caravan must be rated to pass 1.5 Kg (3lb) per hour or more at the correct pressure. Replace the regulator if necessary.

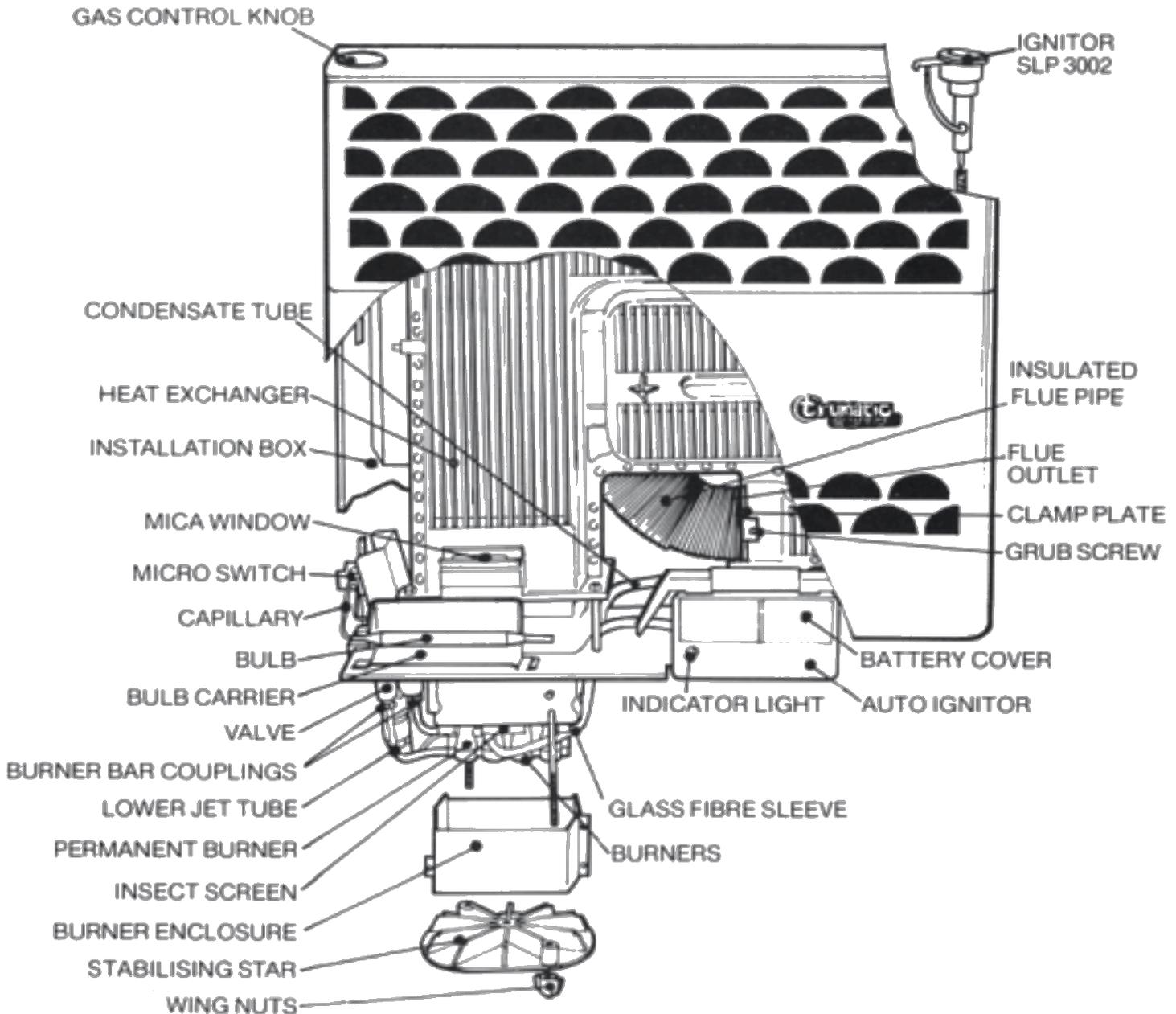
12.4. Gas pipe blocked. This may be caused by water, insects or other foreign matter entering the pipe while the gas been disconnected during winter. A blockage will usually be near the cylinder end, or if due to water, in the main run under the floor.

12.5. Disconnect the regulator from the main feed pipe and disconnect the main pipe run at the lowest convenient coupling under the van, blow through with a tyre pump, or air line. Water will usually drain out from this low point when all the gas taps are turned on.

12.6. Turn off all taps, reconnect the coupling and regulator. Cleanliness is essential when remaking these pipe joints. Turn on the gas and check for leaks with soapy water applied to the joints.

12.7. In the case of the SLP 3002 the heater may be OVER GASSED. This is due to pausing between pressing in the gas control valve and operating the ignitor. Turn off and leave for 2 minutes then try again, operating the ignitor IMMEDIATELY after depressing the control knob.

HEATERS SL 3002 AND SLP 3002 (LEFT HAND)



13. TO REMOVE FRONT CASE.

13.1. Pull the bottom of the case forward off its two spring clips. Lift the front case off the lip on the front of the installation box leaving the control knob on the heater.

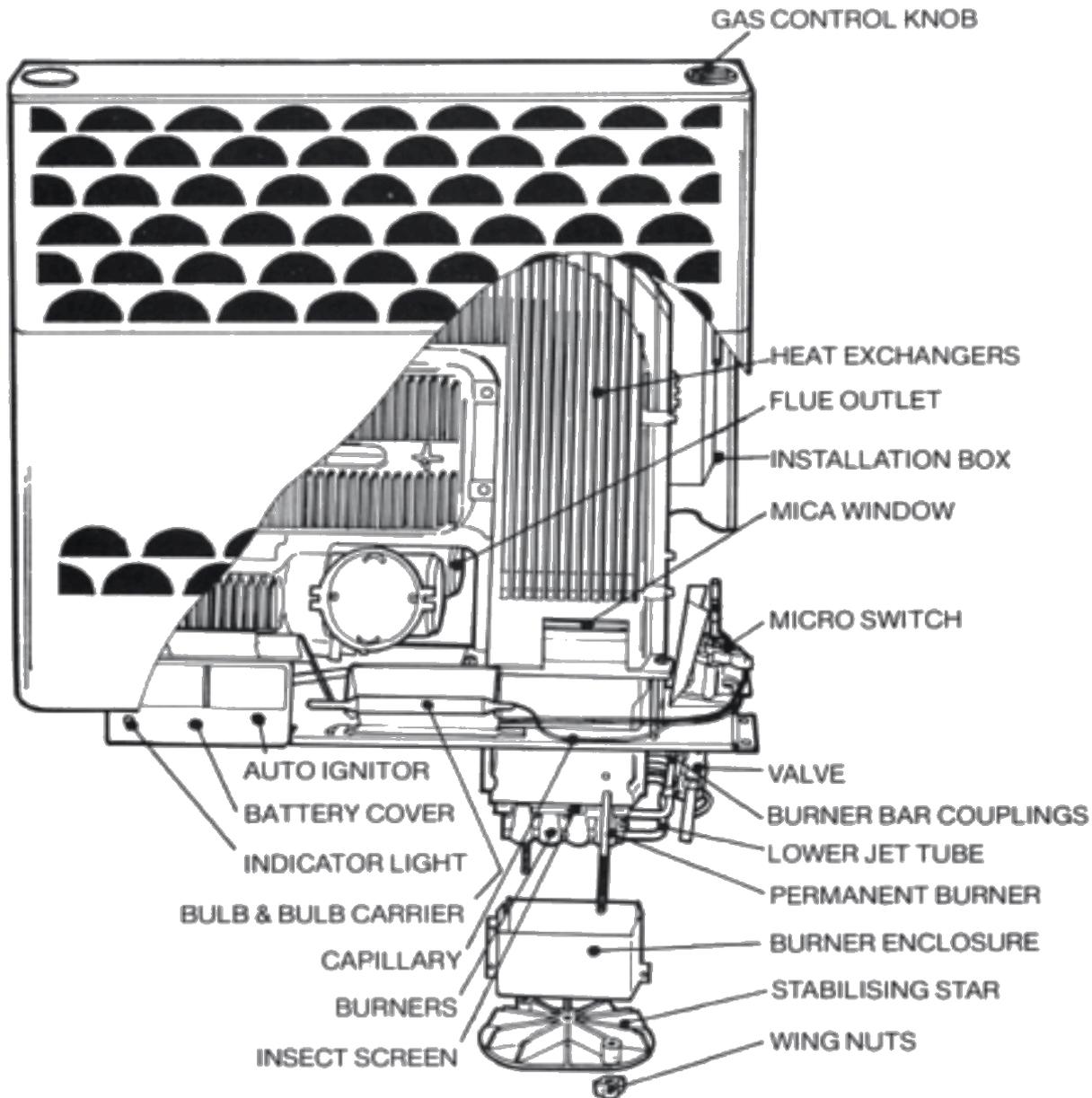
13.2. On the SLP 3002 only. Disconnect the long lead from the bottom of the ignitor.

14. TO REPLACE FRONT CASE.

14.1. On SLP 3002 only. Replace the long lead into the end of the ignitor. Check the black side wire on the ignitor is securely earthed into its tag.

14.2. Hang the front case onto the top lip of the installation box while guiding the control knob into its housing. Press the bottom of the case into its spring clips making sure that the springs ride over their locations on the case.

HEATER SL 5002 (RIGHT HAND)



15. IGNITION FAULTS. SLP 3002.

15.1. The spark is produced by a Piezo crystal ignitor mounted under the top of the front case. This unit requires no flints or batteries and has a life in excess of 50,000 operations.

15.2. From the end of the ignitor the spark is carried by an insulated high tension lead through the floor plate of the heater to the electrode.

15.3. The spark is visible through the observation window. It should be definite and appear vertically between the electrode tip and the gauze of the burner nearest the side of the heater.

15.4. The spark gap should be about 3mm ($\frac{1}{8}$ ") and may be adjusted if necessary by carefully bending the electrode with long nosed pliers or screwdriver after removing the mica window.

15.5. When checking the spark at the burner with the front case removed it is important that the case is held so that it is touching the heater when the ignitor is operated.

15.6. If there is no spark at the burner when the ignitor is operated check the ignitor by pulling the HT lead off the end and removing the black side connected lead from its earth tag.

15.7. Hold the black lead by its insulation with its connector about 3-6mm ($\frac{1}{8}$ " - $\frac{1}{4}$ ") from the ignitor end connection and operate the ignitor. If there is no spark replace the ignitor.

16. IGNITION FAULTS SL 3002 and SL 5002

16.1. The spark is produced by a battery powered automatic re-ignition unit. This unit is switched on by a micro-switch incorporated in the valve top when the control knob is at any position other than off and sparks are inhibited by the presence of a flame on the permanent burner shorting the electrode to earth.

16.2. The unit requires two HP7 dry cells which should last at least a year.

16.3. From the back of the unit the spark is taken via an insulated high tension lead through the floor plate of the heater to the electrode.

16.4. The spark is visible through the observation window. It should be definite and appear vertically between the electrode tip and the gauze of the burner nearest the side of the heater.

16.5. The spark gap should be 3-6mm ($\frac{1}{8}$ "- $\frac{1}{4}$ "), and may be adjusted if necessary as in 15.4.

16.6. The indicator lamp flashes every time a spark is produced. If there is no spark, or the spark rate is slower than 1 every 2 seconds, renew the batteries.

16.7. If the light still does not flash, short out with the tip of a screwdriver the two soldered connections on top of the valve. If the unit then works the switch has stuck. This can be freed by turning the control knob away from "off" and gently operating the switch with a finger.

16.8. If the unit still does not spark disconnect the HT lead and the two pin socket. Short out the two pins. If the indicator light does not flash the unit itself is faulty. If it does flash the fault may be in the wiring to the switch:- check, or in the HT lead see section 17.

16.9. If the unit continues sparking after a flame is established it may be due to inadequate earthing beneath the copper clip on the brown lead from the micro-switch to the ignitor, or a break in the HT lead or its insulator. Check, re-earth or replace.

17. IGNITION FAULTS ALL MODELS.

17.1. Check the HT lead above and below the floor for damage which could allow it to spark to earth before the electrode.

17.2. Remove the burner assembly from the heater (section 19) and check the lead and electrode for damage and the insulator for dirt, damage or tracking.

18. FLAME FAILURE SYSTEM FAULTS.

18.1. The symptoms are that the heater lights on its permanent burner but goes out when the gas control knob is released.

18.2. The thermo couple may not be hot enough. Try again but keep the knob depressed for longer before releasing it. Low gas pressure may also give this effect. (see paras 12.2. and 12.3.)

18.3. The gauze of the permanent burner may be obstructed by dirt which can deflect the flame away from the thermocouple tip. If this is happening the flame will usually be yellowish.

18.4. Remove front case (section 13). Remove the mica window and clean the gauze with a small brush or stick. This action will also cure yellow flames on some or all of the other burners.

18.5. There may be a poor connection between the braided thermocouple lead and the end of the valve. Beneath the van check that the nut securing the braided lead into the end of the valve is firm. If it is loose remove it completely, clean the domed contact face and replace. Do not overtighten as this may damage the washer between the inner and outer conductors.

18.6. Remove the burner (see section 19) and check the braided lead itself for physical damage. Replace if necessary.

19. TO REMOVE AND REPLACE THE BURNER ASSEMBLY.

19.1. Turn off the gas supply to the heater. From beneath the van, remove the gas coupling to the heater.

19.2. From inside the van remove the flue from the heater by slacking off the grub screw and rotating the clamp plate. The flue may now be pulled from its port.

19.3. Take off the two hold down nuts and the two wood screws, then lift the heater out.

19.4. Remove the two wing nuts, the plastic stabilising star and the burner enclosure taking care not to damage the ignition lead.

19.5. Free the thermostat bulb carrier from the base plate. Ease the outer edge of the valve outwards and downwards to free the spring clip and remove the entire burner and valve assembly.

19.6. Detach the burner by removing the two burner bar couplings.

19.7. Replace in the reverse order ensuring that the burner couplings are tight and the glass fibre sleeve is pushed over the end of the insulator and not pinched where it passes through the burner housing. It is important that the ends of the burner housing locate inside the end of the aluminium heat exchanger. After reconnection check all joints for gas leaks with soapy water with the heater running on No. 10.

20. TO CLEAN JETS.

20.1. Remove burner assembly (section 19). Rotate the lower jet tube through 180° so that the 3 jets are exposed. Wipe them clean and if necessary prick out with fine wire taking care not to bell-mouth the holes. Minimum jet size is 0.35mm (0.014"). The permanent burner jet in the upper bar may be reached by using a slightly bent wire.

21. THERMOSTAT.

21.1. The thermostat and valve are an integral unit which requires special tools to dismantle and adjust. If the heater will not cut down to the permanent burner when the van is warm, and the control knob turned to No. 1, suspect damage to the thermostat bulb or capillary. A smell of "ether" would confirm this. Replace valve complete with thermostat.

21.2. For correct operation it is important that the thermostat bulb is positioned at the front of the heater and shielded from the heat exchanger. If it is at the rear due to incorrect installation, remove the heater (section 19), remove the bulb from its support and re-assemble on the front.

22. AIR SUPPLY AND EXHAUST FAULTS.

22.1. All the air for combustion is drawn in from under the caravan through the plastic stabilising star and all the exhaust is carried to the roof cowl by the insulated flexible flue. The inductive effect of the inlet may be upset by a deep and/or close chassis member causing an extractive eddy. This can usually be cured by positioning a similar sized obstruction on the opposite side of the inlet. Plywood or metal can be used for this.

22.2 The intake is inductive and the roof cowl is designed to be extractive under windy conditions, but where nearby obstructions cause a downward flow of air onto the van roof a cowl extension AKX Section 25.1. may be required. An AKX will also help where the cowl has been fitted too close to the rise of a lantern roof.

23.3. Air starvation, indicated by a lazy blue flame which fills the combustion chamber and then goes out may be due to a damaged or blocked flue pipe, blocked cowl, or obstructions in the air intake assembly, Spiders' webs on the insect screen are the main offenders. Locate the obstruction and remove it. If the inner flexible flue is damaged, replace it.

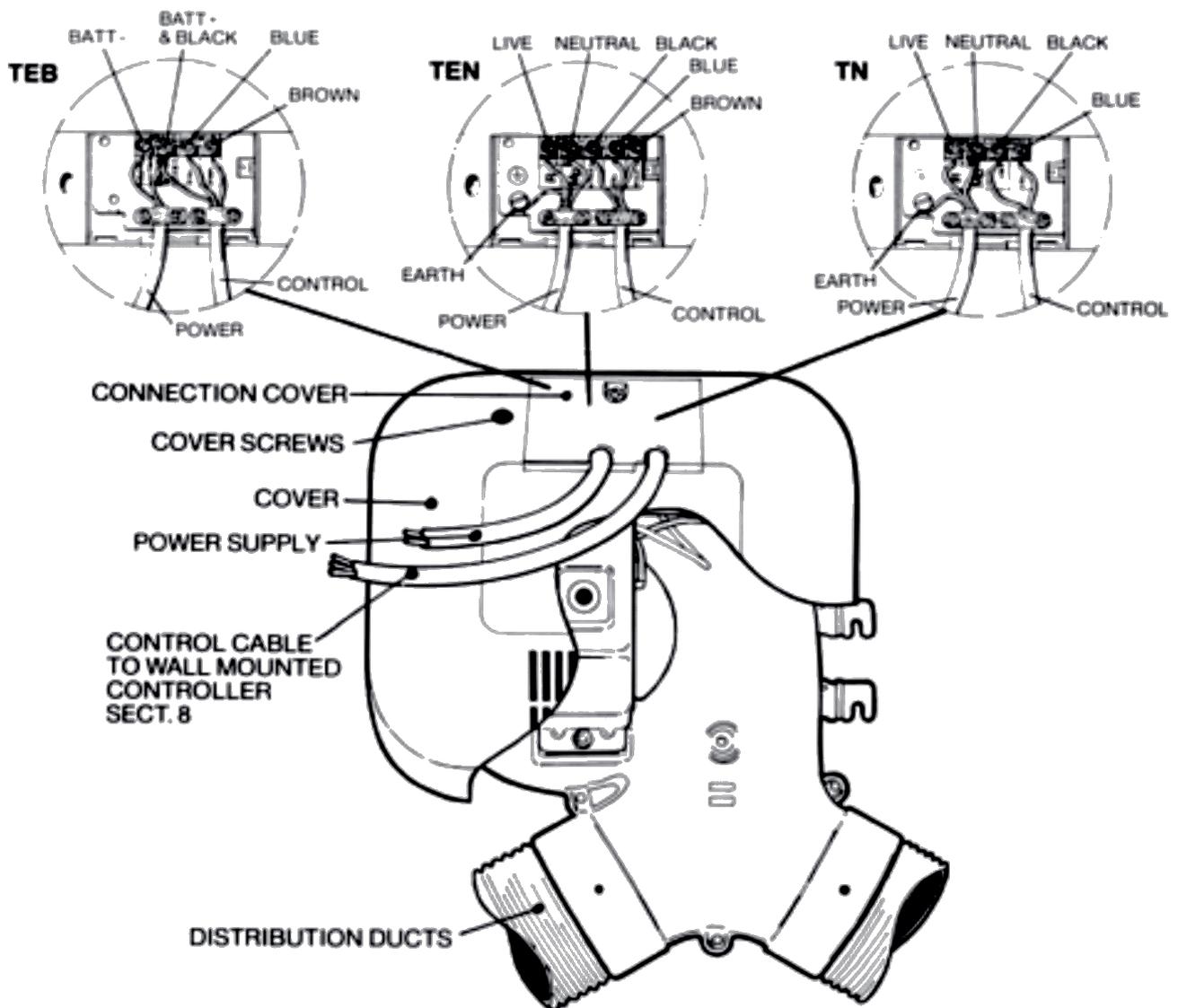
22.4. This condition may however occur momentarily as the control knob is released during the lighting sequence. If this gives trouble allow the knob to rise more slowly.

22.5. Flue blockage may be due to an incorrect installation in which water can collect in a bend of the flue. The AST flue support prevents this (see 25.2.).

22.6. If the flames flicker or go out when the van door or the wardrobe door is slammed, the flue may have become detached from the heater or cowl or may have a hole in it. Refasten or replace.

22.7. The flue should be clipped to the structure at a minimum of 3 places and its bottom section supported by a flue support AST. (Par 25.2.)

23. DUCTED HOT AIR FAN UNIT



23.1. WARNING. The use of any mains battery charger except our NT (Sect. 25.4.) without the battery properly connected can seriously damage the TEB controller.

23.2. The TEB 12 volt DC automatic unit is illustrated, the 220-250v A.C. versions differing only in motor shape and connections.

23.3. The fan is usually mounted directly on the back of the installation box but may in conjunction with the Comfort Kit be floor mounted behind the heater. Section 8.9.

23.4. The fan takes about half the convected warm air from the top of the heater and sends it through ducts to the outlets and the Comfort Kit allows a proportion of fresh air from beneath the van to be introduced if required.

23.5. The fan rotates anti-clockwise when viewed from the front. If the rotation is wrong the fan will blow lightly on one leg of the duct run only. This cannot happen on the A.C. models TN and TEN but an initially incorrectly connected TEB battery model may be corrected by reversing its power supply wires.

23.6. The fan bearings are lubricated for life and require no service.

23.7. If the fan appears sluggish, check battery voltage and fuses, if O.K. there may be hair or thread around the spindle. Electrically isolate the unit, remove the plastic cover and free the spindle.

23.8. Once a year it is recommended that the fan blades are gently cleaned with a paint brush. This may be done from the front of the heater after removing the heater case or in the case of the floor mounted fan unit by pulling off the duct between the fan and the back of the heater.

24. A NOTE ON YOUR GAS SUPPLY.

24.1. Many people are confused by references to: L.P.G., Butane, Propane, Calor Gas, Shell Gas, Camping Gaz, Water gauge (wg) and inches in connection with the bottled gas used for caravanning and camping. We will try to make things clear!

L.P.G., is short for Liquefied Petroleum Gas, (not low pressure) the two caravan gases being butane and propane. Calor, Shell and Camping Gaz are all proprietary names and can apply to various gases. In practice in the U.K. "Calor Gas" without any specific reference refers to "Calor Gas Butane" and is supplied in blue bottles, Camping Gaz in the blue containers in the U.K. is also butane. Camping Gaz itself is supplied from many sources in many different countries, and the contents vary from butane to propane or a mixture of both, depending on the climatic conditions in which it is expected to be used. Propane is always in Red or partly Red bottles. In all cases the contents of the bottles are in liquid form under pressure, this liquid "boils" off to form "gas" when the internal pressure is reduced i.e. when gas is used. It is therefore important that bottles are always used in the vertical position to prevent liquid entering the regulator or gas pipes. (Yes, some bottles are specially adapted for horizontal use on fork lift trucks etc., they are specially supplied and adequately marked). The action of drawing off the gas cools the bottle and fluid and frost may sometimes be observed on the outside of the bottle. If too much gas is drawn from a small bottle and the air temperature is low, the contents will eventually cease to gas off and the supply will be severely diminished until the liquid warms up again. The bottle when in use is always cooler than the surrounding air—allow plenty of air circulation in cool weather and do not cover the bottle with a "cosy" In hot sun however it is wise to shade it from the direct heat (see pressure tables). If your gas is too cold, bring the bottle into a warm place but never put it in front of a fire.

24.2. BUTANE.

Ceases to gas off effectively at about 0°C (32°F) and bearing in mind that the action of drawing off gas cools the contents, butane is unsuitable for caravan use in temperatures under about 2°C (35°F).

24.3. PROPANE.

Continues to gas off down to -42°C (42°F i.e. 74°F of frost) and is therefore suitable for all winter caravanning!

24.4. REGULATOR.

Is a governing device to reduce the bottle pressure to a constant working pressure expressed in: Water Gauge (wg) which refers to the height of a column of water the pressure will support. The usual pressure for U.K. caravan appliances is 11" wg. for butane (about ½ lb per square inch). This pressure is sometimes stated as 280 to 300mm w.g. or 28-30 mbar. Some countries (Germany, Austria and others), standardise on 20" (500mm) pressure, you should use a 500mm w.g. (50mbar) regulator if your caravan is so equipped, for both propane and butane. Most 11" w.g. (butane) appliances may also be used with propane without any modifications to the appliance, but because propane has less heating value per cubic foot of gas it is normally used with a 14" w.g. regulator to compensate for this. The price of butane and propane is virtually identical for the same heating value. ALL CARVER appliances may be used with butane at 11" w.g., or propane at 14" w.g., without modification (unless pressure is otherwise specified).

24.5. BOTTLES. Standard butane bottles in the UK have a male left hand thread on the bottle, and standard propane bottles a female left hand thread. Camping Gaz have a special female right hand thread and the latest Calor Aluminium and 32lb bottles have a clip on connection.

On the continent most bottles have a left hand male thread whether they contain butane or propane or more commonly a mixture of both. Most regulators on sale in the U.K. will only fit U.K. Gas bottles.

24.6. THE CARVER DUOMATIC is an automatic changeover regulator set which starts to use your spare bottle only when the first is completely exhausted or unable to supply the demand.

There are two models. The “Duomatic Butane” model will fit both U.K. butane and European Butane/Propane bottles and the “Duomatic Propane” will fit U.K. propane and Scandinavian propane bottles.

The Duomatic also has a gauge which reads zero when the first bottle is empty and can also indicate if you have a leak in the caravan gas system.

Camping Gaz and the latest Calor bottles may be connected by means of an adaptor to the Duomatic regulators, but care must be taken when changing an empty bottle to remove the Duomatic from the adaptor before detaching the adaptor from the bottle. This is to ensure that the built in non-return valve in the Duomatic operates correctly, and allows the gas supply from the other bottle to continue without a break.

24.7. BOTTLE PRESSURE. The pressure within the bottle varies only according to the type of gas and its temperature, therefore the pressure does not give any indication of the quantity of gas left in the bottle except that when all the liquid is used the pressure will rapidly drop to zero.

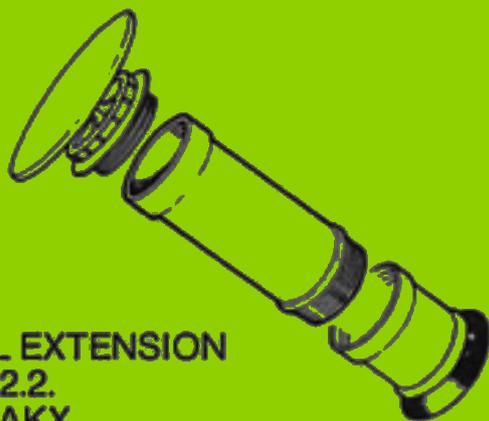
24.8. WARNING. Some industrial L.P.G. appliances operate at high pressure and utilise a “high Pressure Regulator” this often has an adjusting handle on the regulator itself. Under no circumstances should such a regulator be used on Caravan applications.

24.9 Cylinder Pressures relative to temperature and gas mixes

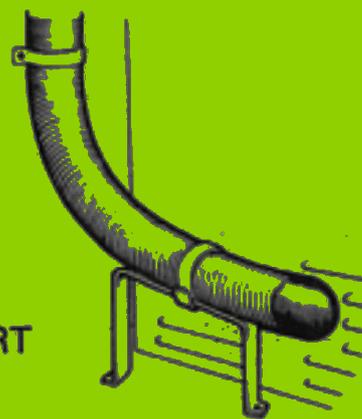
Propane %	100	75	50	25	—	—
—	—	25	50	75	100	Butane %
Pressure in bars (atmospheres)						
-10°C	2.40	1.85	1.20	0.50	—	14°F
0°C	3.80	3.00	2.20	1.10	—	32°F
+10°C	5.60	4.50	3.35	1.95	0.45	50°F
20°C	10.10	8.35	6.65	4.30	1.90	78°F
30°C	13.10	11.00	8.70	6.00	2.90	86°F
40°C	17.00	14.20	11.30	8.20	4.10	104°F

1 Bar = 1000mbar = 14.7 lb/sq.in = 1 kgf/cm² = 400”wg. = 10,000mm.wg.

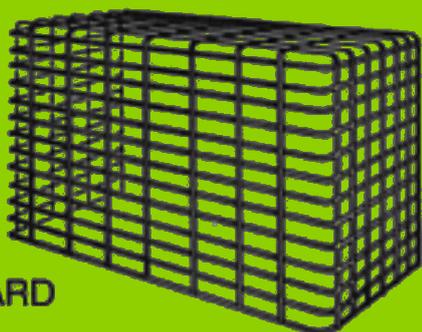
25. CARVER TRUMATIC ACCESSORIES



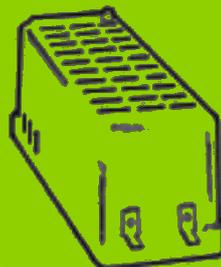
25.1.
COWL EXTENSION
Sect 22.2.
Code AKX



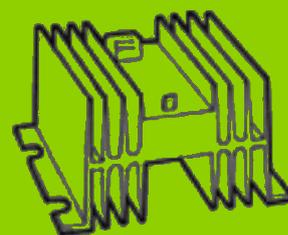
25.2.
FLUE SUPPORT
Sect 22.5.
Code AST



25.3.
DRESS GUARD
Hinges to
Wardrobe Front
Code DG3.

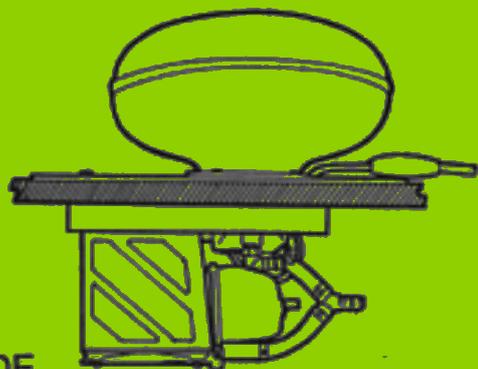


25.4.
240v AC to
13v DC rectifier
Fully Smoothed
Code NT.



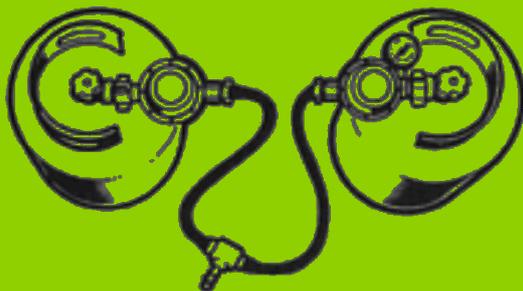
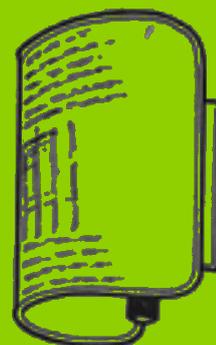
25.5. 24v DC
to 12v DC
converter. Code SU.

26. OTHER CARVER TRUMATIC PRODUCTS.

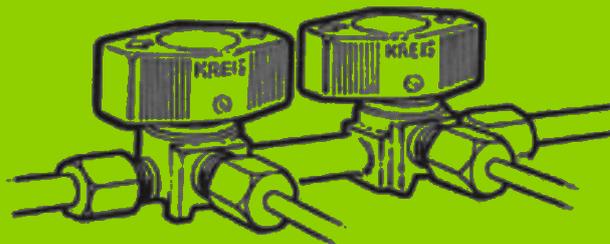


26.1.
CASCADE
FLOOR MOUNTED WATER HEATER

26.2.
NOVA-LIGHT
Shatterproof
Shade. Upright
long life mantle
Flint ignition
White NL/W
Gold NL/G
Brown NL/B



26.3.
Duomatic Automatic
change over regulator sets
DU BUTANE or DU PROPANE



26.4.
ON/OFF GAS VALVES
& MANIFOLDS
Full range available



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