



Pennine Leisure Owners Handbook

IMPORTANT

Now that you are a proud owner of a Pennine Camper, we are sure that you will get many, many years of enjoyment out of this. You may in the future need help and information on this product and also you may need some optional extra to make your holidays even more luxurious.

When needing this you must first call the No 1 Pennine Dealer for Pennine Campers. Their telephone number is;

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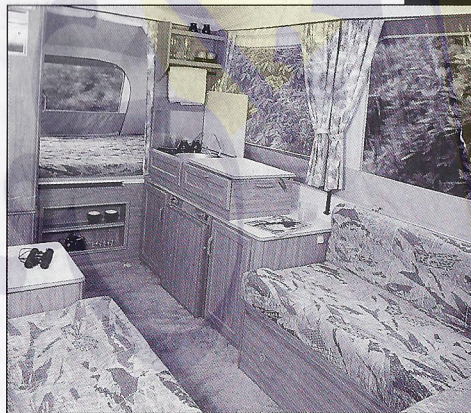
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PENNINE FOLDING CAMPERS

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experience the true
flavour of a Pennine?
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Outdoors of course!

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		PENNINE OWNERS' CLUB	IBC

Your supplying dealer should complete this document. It uniquely identifies your camper and should be referred to when requesting service or ordering extras.

Owner's Name		Manufacturer	Pennine Leisure Products
Owner's Address		Model	POLMAN
		Serial Number	159495
		Year of Manufacture	1995
Telephone Numbers		Key Number	X20
Pre-Delivery Inspection by			
Dealer	Pennine Leisure Products Ltd., Unit 4, Chester Street, Accrington, Lancs BB5 0SD Tel: 01254 385991 Fax: (01254) 386111		

You are now the proud owner of one of the finest folding campers available. Pennine Leisure Folding Campers are designed for your camping convenience and pleasure and built to the highest standards.

We are sure you will spend many happy hours camping in your new purchase.

This handbook is designed to help you make the most of your camper. Please read it thoroughly and keep it handy for reference.

FOR YOUR INFORMATION – The serial number of your camper is on a plate on the chassis drawbar; the last two digits indicate the model year and the remaining figures represent your camper's serial number (See diagram).

This number must be quoted in all correspondence with your dealer – it uniquely identifies your camper. This plate also states the maximum gross weight of your camper – this weight must not be exceeded.

PENNINE LEISURE PRODUCTS LTD ENGLAND		
CHASSIS No.	713	92
MAX. GROSS WT.	450	kg

Important

At various points in this handbook, safety instructions and warnings are given for the protection of you and your family. All such warnings are printed in bold type and preceded by this symbol – !

After Sales Service

All after-sales enquiries must be made to the dealer from whom you bought your camper. This includes enquiries relating to appliances as well as enquiries for optional extras.

Pennine Optional Extras

Your dealer has details of additional items available to enhance your camping enjoyment. These include; awning, underbed skirt or tent, sun canopy, underfloor heater, extension for awning, 240v electric hook-up and security safe.

Please note that your camper is supplied with both halves of the zips necessary for attaching an awning or sun canopy and skirt. If you decide to purchase one of these items, return the free half of the zip (which you will find attached to the exterior canvas) to your dealer at the time of ordering and he will return it to us for attachment of your accessory. This ensures perfect matching of the two zip halves even if the zip specification has changed since you bought your camper. If you sell your camper, be sure to pass on the free half to the new owner.

Finally, it is our wish that you derive much pleasure from your Pennine. Read the following pages carefully – they will help you achieve our aim.

Guarantee

Complete this section for your own peace of mind.

NAME AND ADDRESS OF PENNINE DEALER

.....

.....

.....

.....

TELEPHONE NUMBER

DATE OF PURCHASE

SERIAL NUMBER

KEY NUMBER

Owner's Service Statement

1. Pennine Leisure Products Ltd (hereinafter called 'the company') warrants that the owner of a folding camper manufactured by the company (hereinafter called 'the camper') will subject to the conditions specified below receive the following service free of all charges (including labour charges) from the authorised Pennine Leisure Products dealer from whom the camper was purchased, namely:-

The repair or replacement of any part (except those mentioned hereafter) of the camper which as a result of defective material or workmanship in manufacture required repair or replacement within twelve months from the date on which the camper was released in a new and unused state by the dealer to its first owner.

The conditions mentioned above are:-

a) That the camper has not been overloaded or used for racing or time trials or used for hire or reward or otherwise misused.

b) That the camper has been maintained in accordance with Pennine Leisure Products Owner's Handbook maintenance instructions supplied with each folding camper.

c) That neither the camper or any part has been altered, modified or repaired without the company's prior written consent.

d) That the identification numbers of the company on the camper have not been removed or defaced.

e) That the camper has not been used on roads or in conditions not suitable for a folding camper.

f) That the owner notifies the authorised dealer of the alleged defect within fourteen days of discovering it (the notification should be in writing and should specify the brand and model name and serial number of the camper and the supplying dealer's

name) and give sufficient particulars to enable the matter complained of to be identified.

g) That the camper is used only in the United Kingdom (other than temporary removals outside the United Kingdom for the purpose of a holiday or business tour).

h) That the camper is towed by a motor car. If the camper is towed by another vehicle, commercial or otherwise, fitted with a 'rigid' towbar the suitability must be accepted in writing by Pennine Leisure Products prior to commencement of warranty.

The excepted parts referred to are chassis, tyres, hubs, couplings and propriety products such as cookers, refrigerators and heaters normally covered by the respective manufacturer's own guarantee.

The warranty terms do not cover the cost of returning the camper to the place of repair.

2. The company's agents have no authority to vary the terms of this statement.

3. In this statement, the words 'the owner' means the purchaser or the hirer under a hire purchase agreement and the words 'authorised dealer' means a person, firm or company under contract with Pennine Leisure Products Ltd to supply or service Pennine Folding Campers.

4. Nothing in this Owner's Service Statement affects the owner's statutory rights in respect of the camper.

THE *Complete* CARAVAN & CAMPING CENTRE



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NORTH YORKSHIRE,
LINCOLNSHIRE
& HUMBERSIDE**



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ONLY

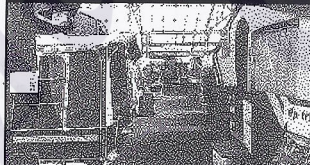


AT LEEDS ONLY

► PENNINE FOLDING CAMPERS



► PERMANENT DISPLAY OF AWNINGS



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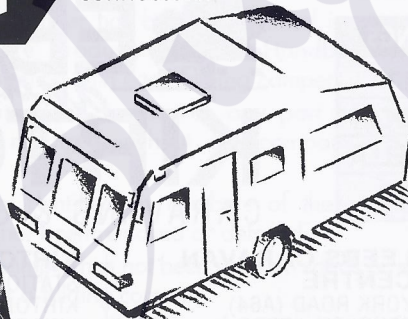
**BETWEEN SCUNTHORPE
& LINCOLN**

BRITAX (PMG) LIMITED ARE PLEASED TO BE ASSOCIATED WITH PENNINE LEISURE

Established in 1947, Britax is a major supplier of lighting and associated electrical equipment to the caravan manufacturing industry. Supplying rear lighting, front position lamps, direction indicators, end

outline marker lamps, rear registration lamps, reflex reflectors & electrical connectors.

Britax



For further information or a brochure, contact:
Britax (P.M.G.) Ltd, Bessingby Industrial Estate,
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Tel: 01262 670161 Fax: 01262 605666



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PLUS

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- Baggage Trailers ●
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THE CAMPER'S CODE

On The Road

The camper complies with the Road Traffic Acts and Regulations. Its weight distribution and undergear are not such as to cause undesirable swaying.

The owner ensures that it is insured against third party risks and that the car policy is not invalidated by towing.

The camper causes as little inconvenience as possible by looking out for and giving way to faster traffic.

He allows himself ample safety margin for stopping and changing direction.

He keeps close to the left, but is careful not to return too quickly to the left after passing cyclists or other traffic.

He does not tow a camper so large and heavy that the towing car cannot hold it steady under normal conditions, without snaking, or cannot climb ordinary main road hills without failing and obstructing other traffic, or cannot pull it up in adequate distance under braking.

On The Site

The camper does not stop on private land without obtaining the permission of the owner.

He places his camper where it will not interfere with the convenience or enjoyment of others.

He keeps his pitch neat and tidy with no loose equipment outside the camper beyond what is necessary or appropriate, and he leaves his pitch as clean or cleaner than he found it.

On organised sites he disposes of all rubbish by the means

provided and on casual sites he buries it or takes it away for disposal elsewhere in the proper manner.

He collects waste water from the camper waste outlet in a receptacle which he does not allow to overflow and foul the ground. On organised sites he disposes of waste water in the manner provided for and on casual sites he minimises fouling of the ground, e.g. by distributing waste water along a hedge.

He does not damage the turf by digging unnecessary holes or by improper use of his car.

For touring he carries his own sanitary equipment, comprising a chemical closet and suitable fluid. He does not rely on the earth method except at casual sites in very remote country. When the contents of a chemical closet are disposed of by burial, he avoids the vicinity of any watercourse.

At organised sites he keeps his dog under proper control, drives very slowly through the caravan lines, and avoids singing, loud radio, electric generator or any other noise at an hour where it would reasonably annoy others.

He makes sure that any laundry necessarily hung outside the camper is displayed discreetly.

He observes the country code relating to fire dangers, litter, gates, damage to crops, hedges, trees and livestock.

General

The camper shows courtesy and consideration to all with whom he comes into contact, so that the goodwill of campers is enhanced and he pays his proper dues.

THE TOWING CODE

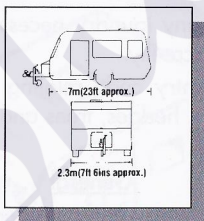
This Code of Practice contains recommendations jointly reviewed and agreed by the following organisations:

The National Caravan Council, The Caravan Club, The Camping and Caravanning Club, The Caravan Writers Guild, The Department of Transport.

Scope of the Code

The code applies to all trailer caravans and campers of maximum laden weight not exceeding 2030kg (4475lbs), overall width not exceeding 2.3m (7ft 6in approximately) and overall length not exceeding 7m (23ft approximately), excluding the drawbar and coupling.

This is legally the maximum size of trailer that can be towed by a motor car. (Regulations 7 & 8 of the Road Vehicles (Construction & Use) Regulations 1986).



CARAVAN / CAMPER TERMS

Ex Works Weight:

The maximum weight of the camper as stated by the camper manufacturer, as new with standard fixtures and fittings. (Note: because of the differences in weight of materials supplied for

construction of the camper, variation of $\pm 5\%$ of the manufacturer's stated ex works weight can be expected).

Actual Laden Weight

The total weight of the camper and its contents when being towed.

Maximum Authorised Weight (MAW):

The maximum weight for which the camper is designed for normal use when being towed on a road laden. This figure must not be exceeded (See page 11)

Noseweight:

That part of the weight of the caravan supported by the rear of the towing vehicle.

The Towing Vehicle

Kerb Weight

The weight of the towing vehicle as defined by the vehicle manufacturer

This is normally:

- with a full tank of fuel;
- with an adequate supply of other liquids incidental to the vehicle's propulsion;
- without driver or passengers;
- without any load except those tools and equipment with which the vehicle is normally provided;
- without any towing bracket.

Camper / towing vehicle weight ratio:

The actual laden weight of the camper is expressed as a percentage of the kerb weight of the towing vehicle, ie.

actual laden weight of caravan

$\times 100 = \%$

Kerb weight of towing vehicle.

FACTORS WHICH MUST BE CONSIDERED FOR SAFE TOWING

Driver's towing experience

Experience of towing is not essential for taking up caravanning but drivers without experience should take greater care when manoeuvring. Speed should be built up gradually to get used to the different braking and handling characteristics.

Further experience should be gained before tackling the more advanced elements of towing (higher weight ratios, mountain passes, difficult terrain, etc.)

CAMPER / TOWING VEHICLE WEIGHT RATIO

This ratio has a major influence on stability. It is recommended that:

The actual laden weight of the camper should be kept as low as possible. The lower it is when the camper is being towed on a road the safer the camper/towing vehicle combination will be.

Ideally, for a newcomer to caravanning the actual laden weight of the camper should not exceed 85% of the kerbside weight of the car.

As a general guide, the actual laden weight of the camper should not exceed the kerb weight of the towing vehicle if the latter is a conventional car (saloon, coupe, hatchback, estate convertible etc)

The greater the actual laden weight of the camper is in relation to the kerb weight of the towing vehicle, the more careful and experienced the driver needs to be.

Care must always be taken not to exceed the towing vehicles loading and towing limits.

The law requires that caravans and their towing vehicles and the loads they carry must be in such a condition that no danger or nuisance is caused.

(Regulation 100 of the Road and Vehicles (Construction and

Use) Regulations 1986)

POWER TO WEIGHT RATIO OF TOWING VEHICLE TO CAMPER

The performance of the towing vehicle has an important bearing on its suitability for towing and, therefore, on the selection of the camper to match the towing vehicle.

There are many factors involved, which are often contradictory, such as brake horse-power, gearing, torque characteristics, turbo charging and fuel injection.

No hard and fast rules can be stated but, as a general guide, conventional petrol engines with a capacity up to approximately 1500cc should be adequate for towing a camper weighing around 85% of the kerb weight of the towing vehicle. Above 1500cc such engines should manage a camper weighing up to 100% of the kerb weight of the towing vehicle and still give adequate performance, but it should be noted that the towing vehicle manufacturer's limit is, in some cases, less than the kerb weight. While the towing vehicle may manage 100%, attention is drawn to the recommendation under the previous heading 'camper/towing vehicle weight ratio', that a weight ration of 85% is an ideal starting point.

Diesel engines of whatever size have a lower performance for a given cubic capacity compared to petrol engines.

When climbing a 10% loss of power with a petrol engine and slightly less with a diesel engine should be expected for every 1000 metres gain in height. A good reserve of power is therefore very necessary for towing up gradients at altitude.

Vehicles with automatic transmission may need additional cooling for the gearbox when towing. The advice of the vehicle manufacturer should be sought.



L.B. Plastics Limited

manufacturers of

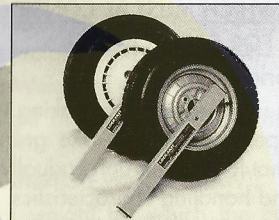
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Lock-Fast Wheel Lock for caravan & trailer security

(Approved and recommended by Pennine Leisure Products Ltd.)

- **Original Heavy Duty Wheel Lock**, offering high security.
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- **Unique, High Security, Drill Resistant, Push Button Lock System. Three Keys Provided.**
- **Simple and quick to fit. It can literally be fixed to a wheel in 3-4 seconds.** Provides immediate security, any time a caravan or trailer is parked.
- **Practical size for easy storage and use at any time.** For example, any temporary stop such as motorway services, when a caravan can be *very vulnerable*. Many traditional wheel clamps are simply too cumbersome to be used in this way.
- **Highly visual deterrent.** Anti corrosion pre-treatment; Bright Yellow Epoxy Finish.
- **Model LF10-0 for 100mm/4" centres. Model LF55 for 5.5" centres.** A range of *wheel studs* enables the Lock-Fast to be fitted to a variety of wheels including wheels fitted with 175 tyres. 12mm and 0.5" UNF *Wheel nuts (for B&B)* are available.
- Insurance improved. *Already* recommended by Crime Prevention Officers in several police forces.

PEDIGREE OF THE LOCK-FAST WHEEL LOCK

- * The manufacturers Invented and have produced the *ORIGINAL Quick Release Leaf Spring Stabiliser since 1984. Our DRIVER and CORGI Stabilisers have always been *superior in quality and value*.
- * Our original 240-12v RANGER Power Packs (Models PA10 & PA17) with their 10 and 17amp/12v smoothed outputs, offer superior performance & power.
- * 12v circuits in the majority of caravans are tested with our Service Workshop Test Equipment.

Breckland Trading Co., Thetford, Norfolk. IP24 1NQ.

Tel. 01842 754900 Fax. 01842 753007 Patent Pending

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BRAKE FAULTS AND THEIR ELIMINATION

FAULT	CAUSE	ELIMINATION
Braking Effect	Too much play in the brake system.	Re-adjust the brake system.
	Brake linings not run in.	Tighten somewhat the handbrake lever, drive 2-3 km
	Brake linings smooth, oiled or damaged	Replace brake shoes completely. Clean the braking surfaces in the brake drums.
	Over-running hitch is tight.	Lubricate the over-running hitch.
	Brake rod skewed or bent.	Eliminate the cause.
	Brake cables rusty or buckled.	Replace the brake cables.
Jerky Braking	Too much play in the brake system.	Re-adjust the brake system.
	Shock absorber of over-running hitch defective.	Replace shock absorber.
	Backmat brake shoe skews in the brake shoe carrier.	Replace complete brake shoe with brake shoe carriers.
Trailer already brakes when relieving the foot throttle.	Shock absorber of over-running hitch defective.	Replace shock absorber.
Reversing is hard or impossible	Brake system adjusted too severely.	Readjust the brake system.
	Cables pre-tensioned	Readjust the brake system.
Handbrake effect too weak	Incorrect adjustment	Readjust the brake system.
		Tighten handbrake lever as far as possible.
Wheel brakes get hot.	Incorrect adjustment of brake system.	Readjust the brake system.
	Wheel brakes dirty.	Clean.
	Handbrake lever not or only partly released.	Bring handbrake lever in zero position.
Ball coupling doesn't rest on ball	Inside of coupling dirty.	Clean out.

AL-KO KOBER CHASSIS

Description and Operation

The chassis is made of heavy duty galvanised steel.

Coupling Head

The ball couplings are entirely automatic in operation and designed for one hand operation to suit the 50mm international ball recommended by the British Standards Institution, National Caravan Council and the Society of Motor Manufacturers and Traders. The coupling head incorporates a 'positive attachment indicator button' designed to assist correct attachment. In addition there is provision for an anti-theft device consisting of a brass bawel lock which when inserted into the coupling head prevents movement of the handle, therefore making it impossible to lock the coupling either 'on' or 'off' the towing ball.

Coupling Up

Reverse the car to the trailer or move the trailer forward to the coupling point. Lift the locking trigger, and lift the handle upwards and forwards. Place the unlocked coupling onto the towing ball and with the slightest downward pressure it will lock onto the ball automatically. Ensure locking trigger returns to its free position. Connect the breakaway cable and lighting plug to the towing vehicle. Raise the jockey wheel to its stowed position.

Uncoupling

Lower the jockey wheel to the ground. Disconnect the breakaway cable and lighting plug.

Operate the handle and manually lift the coupling head clear of the towing ball or raise the telescopic jockey wheel to achieve the

same effect. The trailer towing ball coupling of the chassis has been type tested; the maximum support load at the coupling point must not be exceeded.

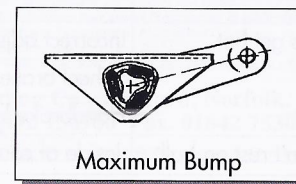
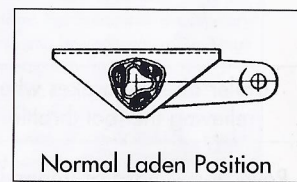
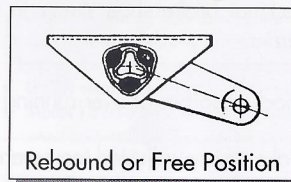
The Axle

The AL-KO rubber suspension axle has been designed for new standards of spring comfort and is maintenance free.

Three rubber elements are contained within a hexagonal axle tube. These provide suspension and have inherent damping characteristics.

The following three figures show the deformation of the rubber elements at the extremes of suspension movement.

The axle is designed to ride with the suspension drop arm at, or slightly below, the horizontal position.



The AL-KO automatic reversing wheel brake system comprises, twin brake shoes acting against a drum. The shoes are actuated by a fully floating expanding clutch, which when operated forces the shoes into contact with the drum.

The system also contains an adjuster box to arrest directional motion of the expanding clutch and shoes when the brake is engaged and a spring loaded reverse lever which collapses when reverse travel is required.

Operation

Forward braking; in the free position, with the handbrake fully forward in the off position, the drawshaft of the over-run device is fully extended and the shoes are clear of the drum.

As the towing vehicle brakes, the drawshaft of the over-run device is depressed toward the unit being towed. This action imparts linear motion to the main shaft of the over-running device which is transmitted via the over-run lever, brake rod and Bowden cable to the expanding clutch. This mechanism forces the leading brake shoe and, by reaction, the trailing shoe outwards into contact with the drum.

Friction between the brake shoes and the drum creates a tendency for both shoes and the expanding clutch to move in the direction of forward rotation until they abut against the adjuster box. This ensures that both shoes remain in the braking position.

Reversing

When the towing vehicle reverses, the drawshaft is pushed backward, moving the over-running device through its full travel. This movement is transmitted in the normal manner to the expanding clutch.

The clutch forces both shoes into contact with the drum. Initial

friction between these creates a tendency for the shoes and expanding clutch to move in the direction of wheel rotation ie. reverse. This movement imparts pressure to the spring-loaded auto-reverse lever, causing it to collapse. Thus, friction between the shoes and drum is almost eliminated, allowing the trailer to reverse in contact with the towing unit.

Slight forward movement of the chassis will allow the spring to reassert itself, enabling the reverse lever to recover to its normal position. Normal braking is then immediately available.

Parking – Handbrake Application

The AL-KO automatic reversing brake system incorporates a patented device for added safety when parking on a reverse sloping site or steep hill.

A spring cylinder has been added to the link between handbrake lever and centre brake rod.

Full application of the handbrake lever compresses a coil spring inside a steel cylinder and should any movement of the caravan occur following uncoupling the energy stored in the spring is immediately released to lock the wheel brakes.

The handbrake should always be applied to the full vertical position. Should any difficulty be experienced in achieving this position, gently inch the caravan backwards whilst applying the handbrake.

It should be noted that it is good practice to chock the wheels of a caravan when parking on steep slopes, or under adverse conditions such as loose or slippery surfaces.

Tyre Wear and Damage

The legal requirements for tread depth on motor vehicle tyres applies also to caravans. Similarly it is not permitted to mix

cross ply and radial tyres on the same axle. A redundant tyre must be replaced by one of the same size and construction.

Wheels should be balanced and changed round occasionally to equalise wear and prolong the life of the tyres.

It is very dangerous to neglect tyre damage. A tyre should be renewed if a blister, rupture or cut exposing the casing is detected. If the tyre has suffered violent impact (eg. against a kerb) it should be examined by a specialist as soon as possible.

SERVICING

Servicing Philosophy

The chassis has been designed to be maintained at its optimum performance level with minimal servicing. Servicing philosophy embraces lubrication, inspections and adjustments carried out in accordance with a schedule based on mileage. However, if the mileage is not attained, servicing should be carried out on a periodic basis.

Servicing Schedule

After First 500 Miles;

- Check wheel bearing adjustment.
- Check and adjust the brake shoes and the brake linkage.

Every 500 Miles or 2-monthly

- Inspect all wheels.
- Examine and lubricate the ball coupling.
- Inspect and lubricate the over-running device.
- Lubricate the jockey wheel.
- Lubricate the brake linkage.
- Lubricate the corner steadies.

Every 1500 Miles or 6-monthly

- Check and adjust the axial play of the wheel hub bearings.
- Visually check the axle for damage.

Every 3000 Miles or Annually

- Check wheel bearing adjustment.
- Measure the towing ball.
- Grease the over-running device.
- Check and adjust the brake shoes and the brake linkage.
- Grease the torsion bar axle.

Every 6000 Miles or Bi-annually

- Re-pack the wheel bearing hubs with grease.
- Adjust the axial play of the wheel hub bearings.
- Check the brake linings and brake shoes pull-off springs for wear or fatigue.
- Check and adjust the brake shoes and the brake linkage.
- Grease the running nuts on the brake linkage.
- Lubricate the pivot points of the running brake system.

After Use Servicing

After journeys during winter, hose down the chassis to wash the road salt off.

Recommended Lubricants

Mobilgrease MP is recommended for all greasing routines. A good all-purpose oil is recommended for general use.

BRAKE DRUM / HUB ASSEMBLY

Your chassis uses the new AL-KO Euro-axle system incorporating sealed for life bearings which are maintenance free and have a design life of 100,000km (62,000 miles). Do not attempt to remove

or replace this bearing if it, or the drum, are damaged then it will be necessary to replace with a complete drum and bearing assembly. If it is necessary to remove the brake drum, the following procedure should be followed (we recommend this to be carried out by an accredited AL-KO Service Centre):

1. Remove dust cap.
2. Remove flanged hub nut. Note: This is a 'one shot' nut, when re-fitting brake drum a new flanged nut **MUST** be used.
3. No greasing of hub bearing is required nor should the dust cap be packed with grease as on previous designs.
4. Re-assembly is the reverse procedure, however, the stub axle thread must be coated with 'Indol' mineral grease (available from AL-KO prior to fitting the new flanged nut. This nut must be torqued to $290\text{Nm} \pm 10\text{Nm}$ ($214\text{lb/ft} \pm 7.5\text{lb/ft}$).

Under no circumstances should the rear stub nut be disturbed as this controls toe in and camber. Interference with this nut will invalidate warranty. If it is, for any reason, disturbed then the axle must be returned to AL-KO for resetting of toe in and camber.

Check and adjust the brake shoes and the brake linkage. The AL-KO automatic reversing brake system and its linkage should be periodically adjusted to compensate for wear of the brake shoe lining and subsequent stretching of the Bowden cables.

The trailer brake will be subject to greater wear when used on continuous mountain journeys. The corner steadies should never be used to jack up the unit. When jacking becomes necessary, place the jack into the jacking point fitted on the camper.

NEVER USE THE CHASSIS MEMBERS AS A JACKING POINT

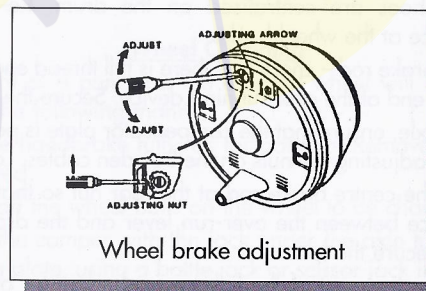
Recommended Adjustment Procedure

- a) Jack up the axle to raise the road wheel clear of the ground. Place a chock under the grounded wheel.
- b) Ensure that the drawshaft is fully extended (in the towing position) and the handbrake is OFF (fully forward position). Confirm that there is some end float in the rod and spring cylinder.

The brakes must be adjusted first and then, but only if necessary, the brake linkage.

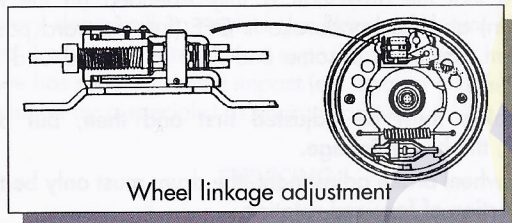
During wheel brake adjustment, the drum must only be turned in the direction of forward rotation.

Do not use excessive force during adjustment.



- c) Remove the plastic bung at the rear of the brake back plate and insert a suitable screwdriver into the hole.
- d) Adjust the star wheel in the direction of the arrow until there is resistance to wheel movement.
- e) Slacken until the brake drum turns freely in the forward direction.
- f) Check for correct adjustment at the chassis end of the Bowden cable. When pulled the cable should extend between 5 and 8mm.

- g) Check for uniform response by both wheel brakes when the hand brake is operated. Adjustment must be made on the wheel brake, not on the brake linkage.



- h) Apply the handbrake two or three times to ensure that the brake shoes are centralised on the drum. Re-check shoe clearance at the wheel brake.
- i) Centre brake rod – check that there is full thread engagement in the fork end of the over-running device. Secure the locking nut.
- j) At the axle, ensure that the compensator plate is parallel to the axle by adjusting the nuts on the Bowden cables. Lock the nuts.
- k) Adjust the centre brake rod at the rear nut so that there is no clearance between the over-run lever and the drawshaft and plate. Secure the locknuts.
- l) Correct adjustment of the linkage is checked by operating the handbrake lever so that it engages the second tooth of the ratchet and confirming that a slight braking force is felt at the wheels.
- m) On completion, tighten the self locking nut to give 1mm clearance between the nut and the spring cylinder. (Ignore this instruction if a gas strut type handbrake lever is fitted.)

Reversing will be difficult if either the wheel brake or the brake linkage is over adjusted.

Examine and Lubricate the Ball Coupling

- a) Examine all moving parts and the locking feature for wear and correct operation.
- b) Clean off and grease the spherical seat, bearing points and pivot pins.

Torque settings for securing bolts of ball couplings:

90S-AK1080Nm (18lbf)
161s-AK1090Nm (20lbf)

Examine and Lubricate the Over-Running Device

- a) Examine all pivot pins and levers for correct operation and lubricate with oil.
- b) Check the handbrake ratchet for correct operation and lubricate with oil.

Lubrication

Lubricate the Jockey Wheel – lightly oil the wheel axle and screw thread.

Lubricate the Brake Linings – Lightly oil all moving parts.

Lubricate the Corner Steadies – Lightly oil the screw and pivot points.

CHECK THE WHEEL NUTS BEFORE STARTING EVERY JOURNEY.

SERVICING AND TYRE INFORMATION

Recommended Servicing

As with your car, regular servicing of your camper's braking system, wheels/tyres and road lights are important, to maintain its optimum performance, investment value and most of all, safety.

Owners are strongly recommended to have their campers serviced prior to winter storage and before the start of the camping season.

Regular servicing of your camper can prevent accidents and it is the responsibility of the owner to ensure this is carried out.

Tyre Information

Tyre pressures;

145SR10	30psi
145SR13	30psi
155SR13	30psi

Your camper tyres must be at the pressure shown above. The correct pressures for your towing vehicle will be found in the vehicle's handbook, BUT it is recommended that an extra 4 to 6psi is put into the rear tyres of the vehicle to improve handling and to bear the extra load on the hitch.

Pressure should be checked with the tyres cold, not after a run when the pressure will be higher. Never reduce the pressures when the tyres are warm as they could be too low when they cool down.

If your camper should have a puncture, replace the affected wheel only with the correct spare wheel and tyre, which can be found in a carrier underneath the camper chassis.

Check your tyres regularly, but particularly if the camper has not been used for a long time. In order to minimise wear, it is recommended that wheels be balanced.

4WD Lightweight Commercial Vehicles

We would strongly recommend that any caravanner who uses either a 4WD (ie Landrover, Shogun etc) or a lightweight commercial vehicle should use a spring assisted towball. The unit will reduce the shock put into the system by between 50% and 70%.

This unit is already a standard factory fitted optional extra for such manufacturers as Daihatsu and Isuzu and more are considering the 'Shocklink'.

Wheel Changing

In the event of a puncture, the affected wheel will need to be changed in the following manner;

- 1) Apply the handbrake fully, as for parking. Remove the wheel trim if fitted.
- 2) Slacken off the wheel bolts on the wheel to be changed.
- 3) Jack up the camper with the jack under the axle tube or axle mounting plate, using a bottle jack or scissor jack if available. If such a jack is not available, alternative methods of raising the wheels off the ground are given below.
- 4) Remove the wheel bolts and the wheel.
- 5) Locate the spare wheel carrier under the chassis at the rear of the camper. Remove the 'R-clip' and wing nut. Slide the carrier forwards and lower the carrier and wheel to the ground and remove the wheel.
- 6) Check the condition of the spare wheel before fitting. Check all

mating surfaces are clean and dry, including the bolt seats. Always use the correct bolts to secure the wheel.

- 7) Fit the spare wheel and refit the bolts, finger tight to begin with. Using a car wheel brace, fully tighten the bolts in diagonal pair to ensure the wheel is correctly seated. Ideally the bolts should be tightened to a torque of 65lb/ft. If it is not possible to check this, (ie. at the roadside), have the torque checked at the first opportunity.
- 8) Lower the camper to the ground. Check the wheel bolts for tightness after 20 miles and every 3,000 miles thereafter.
- 9) Stow the damaged wheel in the spare wheel compartment and make sure it is repaired or replaced as soon as possible.

If you do not have a jack: In the case of the Pullman and the Sterling, the affected wheel may be raised by winding down the corner steadies on that side evenly (ie. wind one turn on each steady alternately) until the wheel is clear of the ground.

!WARNING: The side door must be closed when this operation is carried out.

For the Aztec and Fiesta, both wheels may be raised off the ground by the following means:

- 1) Unhitch the camper and lower the nose as far as you can by winding the jockey wheel.
- 2) Lower the two rear corner steadies to the ground.
- 3) Carefully raise the nose of the camper by use of the jockey wheel, until the wheels are clear of the ground.
- 4) Follow procedure above, steps 4 to 9.

!WARNING: These methods of raising the camper should only be used in an emergency and with extreme caution.



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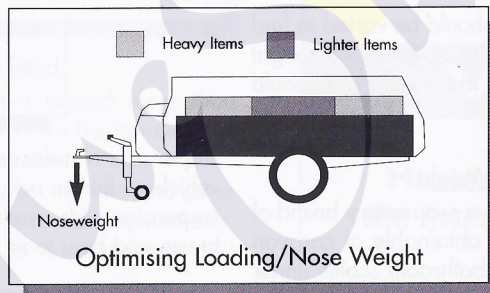
HITCHING UP – STEP BY STEP

Important

Before entering the camper for any reason, make sure the corner steadies are fully wound down. Before starting your journey, check wheel nuts, tyre pressures and tyre condition. The towball should be well greased.

If you have no experience of towing, it is a good idea to take the camper out on quiet roads to get used to towing before your first outing. If possible, obtain permission to use private roads at the weekend when you know there will be no other traffic in order to practice reversing the camper.

- 1) Store the contents of lockers securely; close all doors. Make sure the table is stowed correctly and if you have a fridge, close the door securely (remember always to push the travel catch down so that its lower end fully engages the plastic bush on the top of the door before moving off). If you have food in the fridge, set it to 12v operation for the journey (see page 41 – Kitchen Equipment).
- 2) If you are storing items on the floor make sure they are distributed as shown. Maximum load weight must not be exceeded and the camper nose weight must be no less than 95lbs (43kg) and preferably 110lbs (50kg). If the nose weight is less than the recommended value, it may lead to instability. The nose weight is the force acting downwards from the tow hitch (see diagram) and can be measured using a proprietary hitch weight gauge. See your Pennine dealer for details.



- 3) Check the gas bottle is secure and turned off. Close and lock the gas bottle locker lid.
- 4) Fold the camper and lock the door. Fit transit cover and raise the corner steadies fully.
- 5) Although Pennine campers can be manoeuvred by hand, we recommend that you reverse the towcar to the camper if practical. It will help to have someone guiding you. Secure the car hand brake.
- 6) Before hitching the camper, position the towball beside the towhitch. It is easier to move the towhitch sideways than to pull the camper forwards. Remove the towball cover and store it somewhere accessible.
- 7) Use the jockey wheel winding handle to raise the tow hitch slightly above the towball. Position the tow hitch cup over the ball. Release the safety catch and lift the handle. Lower the cup onto the ball using the jockey wheel handle. Make sure the handle can close fully and the safety catch clicks on. If you have a hitch lock or similar device, fit it now.
- 8) Secure the camper handbrake. Attach the breakaway wire to a suitable point on the tow bar (don't just loop it over the ball) and fasten it securely to itself using the clip.
- 9) Wind up the jockey wheel, locking it in the cut-out at the base of the tube so it can't move. Undo the tube clamp, raise the wheel assembly to its highest position and tighten the clamp firmly.
- 10) To make sure the camper is properly hitched, grip the drawbar underneath the rubber gaiter and lift it smartly. If the

rear of the tow car lifts then you can be confident of a safe hitch.

- 11) Connect the electrical plug; arrange the cable so it does not drag on the ground, but leave enough slack to allow for cornering.
- 12) With a helper, check the car and camper lights – check rear lights, indicators, rear fog lights, brake lights and front lights on the camper.
- 13) If you are leaving site, check round to make sure you have left nothing, release the camper handbrake and check mirrors before driving away.

NOSE WEIGHT

It is recommended that the nose weight should be varied to find the optimum for towing dependant upon the actual laden weight of the camper. Experience has shown that the noseweight should be between 50 & 90kg.

Measurement of Nose Weight

The nose weight may be measured using a proprietary brand of nose weight indicator. Such equipment is obtainable at caravan dealers. Another simple method is to use bathroom scales under the coupling head with a piece of wood fitted between the coupling head and the scales, of such length that the camper floor is horizontal with the jockey wheel raised.

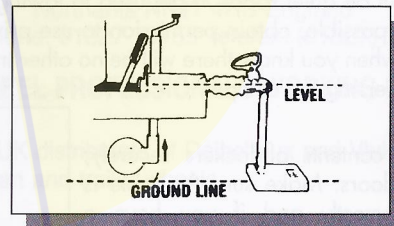
Stabilisers

A stabiliser should never be used to try to improve a camper/towing vehicle combination which has poor stability because the instability will reappear at higher speeds. However, a good stabiliser can make an acceptable camper/towing vehicle combination more stable and safer to handle.

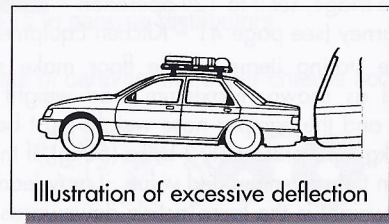
Towing Vehicle's Rear Suspension

It is important that the towing vehicle's rear suspension is not deflected excessively by the nose weight on the tow ball. If it is excessive, the steering and stability will be affected.

The greater the towing vehicle's tail overhang (The distance between the rear axle and the tow ball) the greater effect the nose weight will have on the towing vehicle's rear suspension. After trying out the camper, it may be found that stiffening of the rear



suspension is necessary – but note that this may give the towing vehicle a firmer ride when not towing. There are a number of suspension aids available and advice should be sought on which to use and how to fit it.



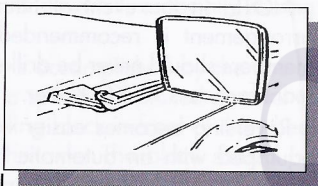
It is important to ensure that the camper is towed either level or slightly nose down.

When reversing round a corner, start with the outfit in a straight line. Decide the direction to turn and apply the opposite lock (1). See diagram Pg 24. Watch the nearside wheel and when it stops turning and begins to pivot, apply the opposite lock (2). Make the car follow the camper round then finally straighten up (3).

Proficiency at reversing can only be achieved with practice and should first be attempted in a large open area. Courses are also run by many organisations.

Mirrors

The driver of the towing vehicle must have an adequate view of the rear. If there is no rear view through the camper, it is essential that additional exterior towing mirrors are fitted.



Caution: Any rear view mirror must not project more than 200mm outside a) the width of the camper when being towed; b) the width of the towing vehicle when driven solo.

Note: Any rear view mirror fitted shall be 'e' marked and cover the field of view as stipulated by type approved requirements. (Regulation 33 of the Road Vehicles (Construction and Use) Regulation 1986)

Number Plate

A trailer must carry a rear number plate bearing the number of the towing vehicle and be illuminated at night. The number plate should conform to the same size and colour regulations as for cars. A reflective black and yellow plate may be used on a trailer towed by a vehicle with non-reflective plates and vice versa.

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Speed Limits

Normal road towing: 50mph. All other limits apply. Motorways (including dual carriageways): 60mph.

Pulling Off

Operate the clutch smoothly. Allow more engine speed to produce the power to move the additional weight of the camper.

Avoid wear and tear on clutch and transmission by taking extra care.

Change gears smoothly.

Try not to jerk the clutch.

CAMPER HANDLING

Allow for the camper being wider than the car. Do not bump the kerb with the camper wheels. When passing other vehicles, allow more than the normal clearance for driving solo. Allow longer to get up speed to pass. Allow for the vehicle being twice its normal length. Do not suddenly swing out.

Carry out all manoeuvres as smoothly as possible. Use nearside wing mirror to check the camper has cleared when overtaking.

Concern for other road users – Campers are slower than most motor cars. They take up more room. However, they follow the towing vehicle 'faithfully' with hardly any cut-in on corners, so drive close to your side of the road. Do NOT hog the centre of the road.

Indicate your intentions – clearly and early. Stopping and overtaking distances are greatly increased when towing a camper.

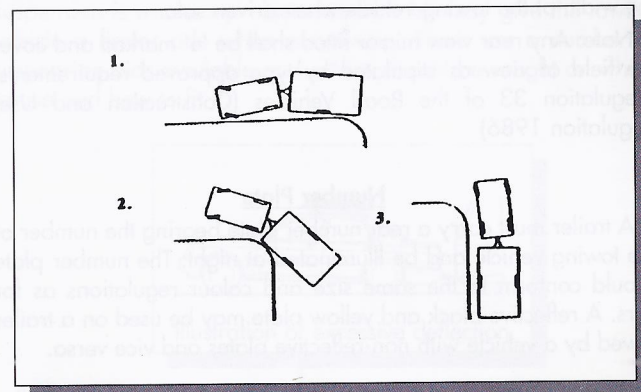
Care in Cross Winds. Your camper/car combination can be interfered with by bow waves from large overtaking vehicles. Be prepared!

Snaking – If the camper starts to veer violently from side to side, SLOW DOWN using the engine. DO NOT BRAKE. When you have stopped, check the camper's nose weight, load distribution and ALL tyre pressures.

The fitting of a stabiliser will make a good combination even safer to handle. A stabiliser will NOT improve a combination having poor stability to any significant extent.

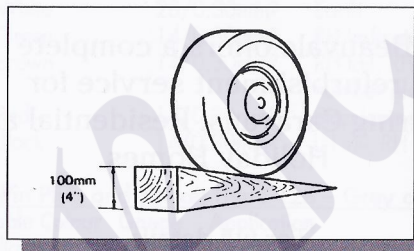
NOTE: In the event of fitting a stabiliser, a bolt on type of arrangement is recommended. The hitch assembly on chassis members should never be drilled without prior approval of chassis manufacturers AL-KO Kober.

Reversing becomes easier with practice. Pennine campers are equipped with an automatic reversing mechanism enabling the camper to be reversed immediately on stopping. Reversing practice should be carried out in a large open area.



Selecting a Site

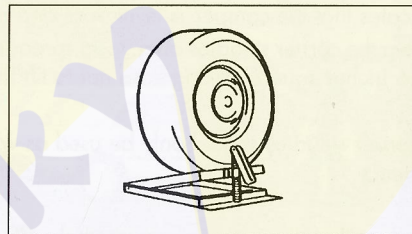
- 1) Carefully choose the pitch where you wish to place the camper. The site should be as level as possible, not under or near to trees. It should be well drained and not near possible boggy or marshy areas.
- 2) Select the site bearing in mind that you will have to move off at some future time. On sloping ground, face the camper down hill – it is easier to tow off downhill, especially during rainy periods.
- 3) Level the camper laterally. This is accomplished by the use of levelling blocks (see sketch) on a spirit level placed parallel to the camper axle. Place the levelling block in front of the wheel needed to be raised to level the axle. The block should be wedge shaped, tyre width 100mm (4 inches) high and strong enough to support the weight of the camper.



- 4) With the help of a partner to watch the spirit level, tow the camper up the levelling block until the camper axle is level
- 5) Apply the camper handbrake. Chock the camper wheels, if necessary, lower the jockey wheel to the ground and lock it into position.

NOTE: Whenever reversing into position on a downward

slope, it is essential that the camper is eased forward a few inches into the final parking position. This forward movement repositions the braking auto reverse mechanism thus allowing the hand brake to become effective when applied. If parking on steep or slippery slopes as a precautionary measure, the wheels should be adequately chocked.



Unhitching the Camper

- 1) Using the adjustment on the jockey wheel and holding up the latch of the locking device, wind up the jockey wheel until the hitch is clear of the towing vehicle ball.
- 2) Fit the towing ball cover.

NOTE: On upward facing sites when the hydraulically damped drawbar of the camper is fully extended, it will be necessary to slightly compress the drawbar to achieve a 'clean' unhitching.

Proceed as follows;

- 1) Camper handbrake ON.
- 2) Reverse the towing vehicle JUST 1 inch to release the tension on the ball.

- 3) Use the jockey wheel adjustment, as previously described, to unhitch the camper.

Horizontal Levelling

- 1) Place the spirit level in the doorway facing front to rear.
- 2) Wind the jockey wheel adjustment up or down until the spirit level indicates that the camper is level 'fore and aft'.
- 3) Wind down the corner steadies onto 'load spreaders' – (pieces of wood 6 inches square) taking care not to lift the camper.

NOTE: Corner steadies should only be used as wheel jacks in an emergency.

It is important that the camper is correctly levelled so that the fridge, cooker, water heater etc. will operate satisfactorily.

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Electrical System: Introduction

Your Pennine Folding Camper has a number of options for use of electrical power.

A 240v mains electrical system is available as a factory-fitted option on all models. The Fiesta and Pullman are supplied with a 12S lead which will supply 12v electrical power when plugged into the 12S socket on your car. 12v electricity is used to power the internal lights and the refrigerator when travelling.

The following sections fully describe the various options available and their safe use. If you intend to make use of one or more of the electricity options, take the time to read the following sections carefully.

Maximum Carrying Capacity Per Pin: 16 amps

Note: Please check that the wiring of your towing vehicle conforms to the following standard.

Normal 7 Pin Plug and Socket for Road Lighting

Terminal No.	Cable Colour	Gauge	Application
1 L	Yellow	14/0.30mm ²	LH Indicator Lamp
2 54G	Blue	14/0.30mm ²	Rear Fog Lights
3 31	White	28/0.30mm ²	Earth
4 R	Green	14/0.30mm ²	RH Indicator Lamp
5 58R	Brown	14/0.30mm ²	RH tail, RH side, number plate light
6 54	Red	14/0.30mm ²	Stop lamps
7 58L	Black	14/0.30mm ²	LH tail, RH side lamps

Auxiliary 7 Pin Plug and Socket (Type 12S – Grey or White)

Terminal No.	Cable Colour	Gauge	Application
1	Yellow	1.5mm ²	Reverse lamp and/or reverse brake
2	Blue	1.5mm ²	Trickle charge to camper
3	White	2.5mm ²	Earth
4	Green	1.5mm ²	Power supply eg. interior light
5	Brown	1.5mm ²	Warning light with common return
6	Red	1.5mm ²	Power supply eg. fridge
7	Black	1.5mm ²	Spare

At present no firm indication is available as to the precise application for pin 7.

Product Supporters



Product Support is available throughout the country for Plug-In-Systems electrical equipment fitted in Campers, Tourers and Motorhomes. For warranty or non-warranty service, a team of qualified engineers is just a phone call away.

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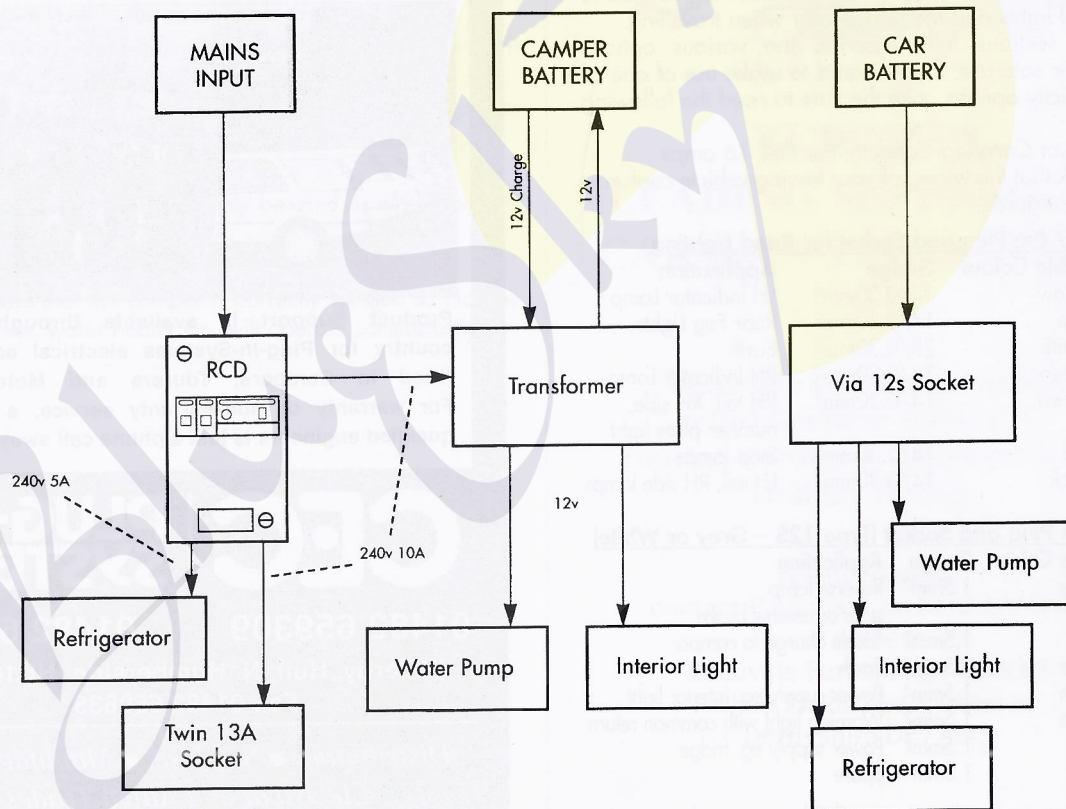
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ELECTRICITY SUPPLY SCHEMATIC

12V ELECTRICS

When a 12S ancillary plug and lead is fitted to your camper and connected to the socket of your towing vehicle:–

1) Car Battery Only (On Site with Extension Lead)

12v power is supplied from the car battery to the interior light and submersible water pump. In this instance, the refrigerator must be powered from the gas supply to prevent exhausting the car battery (see page 42 – Kitchen Equipment).

2) Car Battery Only (Towing)

When the 12S lead is connected to the car ready for towing, ensure all 12v fittings in your camper are switched off, except the refrigerator, which must be switched to 12v (see page 42 – Kitchen Equipment). The live feed for this purpose must be connected via pin 6 of the 12S socket, which must be wired through a relay fitted in your car (see your Pennine Dealer or auto-electrician for details).

If your camper is fitted with 240v mains wiring, it is a good idea to stock and freeze down your refrigerator using a mains supply before starting your journey. The 12v car supply is then only needed to maintain temperature.

3) 12v Battery Fitted in Camper

Note: If leads and battery connectors are fitted;

12v power is supplied to:

- submersible water pump
- interior light (if fitted)

In this instance, the refrigerator must be powered from the gas supply to prevent exhausting the camper battery (see page 40 – Kitchen Equipment).

Selecting a Battery

We recommend the use of a fully-sealed lead-acid rechargeable battery made for leisure use. These are rated in ampere/hours (consult your Pennine dealer)

!WARNINGS

- 1) **Switch off all appliances and light before disconnecting the battery.**
- 2) **Always disconnect the earth/negative terminal first and reconnect last.**
- 3) **Always follow the battery manufacturer's instructions.**
- 4) **Consult your Pennine dealer for advice.**

Blackening of Tubes in Transistorised Lamps

12v fluorescent lights are designed to work for a voltage range 10-14v and give maximum light output over this voltage range.

The lights will continue to operate even if the voltage drops below 10 volts when the tube is receiving insufficient voltage to enable it to operate satisfactorily and the result is that the ends of the tube tend to blacken. If, subsequently, the lamp is run at the correct voltage, the tube blackening will tend to clear, but if the unit is continually run below the 10v minimum, the tube blackening will increase and will result in premature tube failure.

Refrigerator – 12v Supply/Relay Device

To minimise the possibility of a drained car battery due to the refrigerator being inadvertently left operating when the car ignition is switched off, it is strongly recommended that a suitable relay device is fitted in the car, in circuit with the ignition

switch, so that when the engine is switched off, the refrigerator is also switched off.

Your car or caravan dealer will advise on this.

Approximate Current Consumptions for Various Appliances (All 12v DC)

Standard Equipment	
Reading Lights	0.8 amps
Kitchen Light	0.8 amps
Awning Light.....	0.8 amps

240v Mains Electrics

Mains Electrical units, when fitted by Pennine, consist of;

- a) Residual Current Device (RCD)
- b) Transformer / Charger

When a connection is made to mains electricity, a 240v supply is fed to the RCD. The Miniature Circuit Breakers (MCBs) on the RCD connect 240v to;

- 5 amp – refrigeration (240v switch on)
- 10 amp – double switched socket outlet
- transformer / charger

From the 10A MCB, 240v is supplied to the transformer which in turn distributes 12v electricity to:-

- Submersible water pump (if fitted)
- Interior Light (if fitted)
- Battery in camper (if fitted)

The transformer is a Ranger Power Model Type PA (Permanently

Attached). It provides fully controlled battery charging when required – recommended for sealed leisure batteries. The transformer is safety fused with thermal overload protection.

THE REPLACEMENT FUSE IS A LUCAS 8A (15A BLOW)

Wiring of Connecting Cable for Mains Inlet

Your connecting cable should be approved to BS4343 (corresponding with IEC 309/CEE 17) maximum 16 amp, 3 pole socket with recessed tubes.

This cable is required to connect your camper to a mains supply onsite and is available from your Pennine dealer. It should be 25m long of twin core (brown and blue) and Earth (green/yellow), each of 2.5mm² section. Shorter cables may not reach from the site socket outlet to your camper on some sites.

!WARNING

Do not attempt to make up these cables yourself, unless you are qualified to do so.

Connecting cables must never be joined.

Connecting cables must not be coiled when in use.

If your connection cable is damaged, buy a new one.

NEVER wrap connections in polythene as condensation may form and conduct electricity.

Mains Electricity and Connection to On-Site Facility.

Important: Make absolutely sure that the 12S lead has been disconnected from the tow car before proceeding further.

- 1) Before connecting up to a site mains supply, seek the permission of the site operator. Inform him when you disconnect too.

Check:

- a) That the mains supply is suitable for your installation and appliances ie. whether it is a.c. or d.c. and whether it is at the correct voltage and polarity (see operating instructions for RCD).
 - b) That your installation will be properly earthed (see operating instructions for RCD). Never accept a supply from a socket outlet or plug having only two pins, or from a lighting outlet, and...
 - c) That any residual current device in the mains supply to the camper has been tested recently.
- 2) **MAKE SURE THAT THE SWITCH AT THE SITE SUPPLY POINT IS OFF.**
- 3) Remove any cover from the electricity inlet on the camper, uncoil the connecting cable and insert the female connector into the camper inlet socket.
- 4) Remove any cover from the socket outlet provided at the site supply point and connect the plug at the other end of the connecting cable to this. Turn the main switch ON at the site supply point. **IMPORTANT:** If you do not receive power, tell the site operator. Before connecting the camper installation to the mains supply, consult the notice at the supply outlet and check 1 a) above.

5) ON LEAVING THE SITE

Reverse the procedures described in paragraphs 3 and 4.

POINT SHOULD BE SWITCHED OFF, THE CONNECTING CABLE DISCONNECTED AND ANY COVER REPLACED ON THE SOCKET OUTLET AT THE SITE SUPPLY POINT. IT IS DANGEROUS TO LEAVE THE SITE SUPPLY SOCKET OR SUPPLY CONNECTING CABLE LIVE.

- 6) Periodically, preferably not less than once a year, the electrical installation in your camper should be inspected and tested and a report on its condition obtained as detailed in the Regulations for Electrical Installations, published by the Institute of Electrical Engineers.

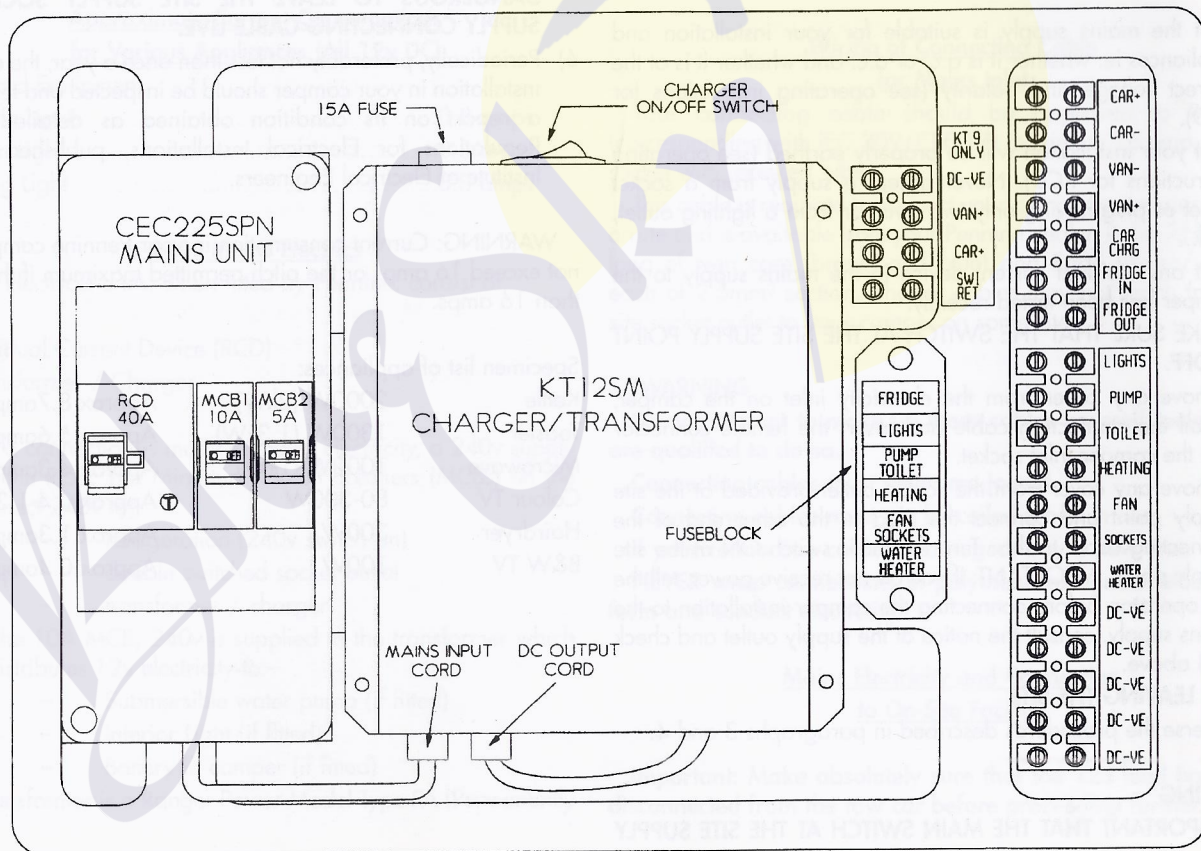
WARNING: Current consumption in your Pennine camper must not exceed 16 amps or the pitch permitted maximum if this is less than 16 amps.

Specimen list of appliances:

Kettle	2000W (2kW)	Approx 8.7amps
Toaster	1300W (1.3kW)	Approx 5.6amps
Microwave	1000W (1kW)	Approx 4.3amps
Colour TV	80-300W	Approx 0.4-1.3amps
Hairdryer	300W	Approx 1.3amps
B&W TV	100W	Approx 0.4amps

!WARNING

IT IS IMPORTANT THAT THE MAIN SWITCH AT THE SITE SUPPLY

KT1CFN POWER CONTROL PANEL

KT1CFN POWER CONTROL PANEL

The KT1 Power Control Panel from Plug-In-Systems combines the following features:-

- 1) CEC225SPN Mains Consumer Unit.
- 2) KT12SM Switch Mode Transformer/Charger.
- 3) 6-way fuseblock for protection of internal d.c. circuits, these being;
 - a) Fridge (15A)
 - b) Lights (10A)
 - c) Pump/Toilet (10A)
 - d) Heating (10A)
 - e) Fan/Sockets (10A)
 - f) Water Heater (10A)

CEC225 DESCRIPTION

- 1) This unit is designed to give both overload and earth leakage protection for the electrical supply in your caravan.
- 2) The MCBs (Miniature Circuit Breakers) are better described as mechanical fuses, which in the event of an overload situation in the circuit which they supply will automatically switch to the OFF position. After elimination of the fault, the MCB is reset by switching back on again (against the spring pressure) in an upwards direction.
- 3) In normal operation, these MCBs should be left in the ON position. The residual current device (RCD) is fitted to provide protection against earth faults and possible electric shock. In the event of an earth fault causing a leak of current to earth, either directly or via the human body, the unit should immediately trip and switch OFF the supply. Only

after elimination of the fault will it be possible to reset the RCD to the ON position and so restore the supply again. The ON position is upwards against the spring pressure.

- 4) Periodically, it is necessary to test the RCD. This is achieved by ensuring that it is in the switched ON position with an electricity supply connected. By pressing the TEST button marked "T" the unit should immediately switch to the OFF position. Provided this happens, all is correct and the switch should be returned to the ON position (upwards) to restore the supply back to normal.
- 5) The RCD also acts as the main switch for the end unit, if it is required to switch off all the circuits in the camper, this is done by operating the OFF/ON switch on the RCD.

KT12SM DESCRIPTION

The KT12SM transformer/charger unit from Plug-In-Systems Ltd is a fully automatic mains to 12v d.c. transformer unit, combining power and safety to give the ultimate in 12v dc power supplies. It is especially designed for camper, caravan and motorhome installations and requires minimal attention in use.

The unit incorporates important safety features;

- 1) Overcurrent Protection
- 2) Short Circuit Protection
- 3) Reverse Polarity Protection (battery)

The KT12SM power unit is designed to work with or without a battery in the circuit. It is, however, recommended that for optimum performance a good quality LEISURE battery is used.

Operation

Once the unit is connected to a 240v mains supply and 12v electrics, its operation is fully automatic once switched on. When used as a battery charger, any load placed on the 12v system will be shared by the battery and the KT12SM. When used as a power supply (with no battery in circuit) the KT12SM will supply an output suitable for use with the 12v system.

Protection

The unit is capable of providing up to 12 amps. Should this load be exceeded then the KT12SM will enter current limit mode, this means that the unit will prevent damage to itself, its associated wiring and 12v installations.

As a precautionary measure, a 15 amp d.c. fuse is fitted in the output circuit of the KT12SM. In normal use this fuse should not require attention, if this is the case, however,

REPLACE THE FUSE ONLY WITH THE
SPECIFIED RATING (SEE LABEL)

General Information

Mains supply to the KT12SM should be fused at 5 amps. When using a generator to supply the KT12SM, ensure that the generator's rated output (voltage) is not exceeded, otherwise internal damage to the KT12SM could occur.

Instructions

- a) Connect mains 240v ac to the camper.
- b) Switch the RCD to the on position (upwards).
- c) Switch the relevant MCB (5 amp) to the on position (upwards).

- d) Switch on the KT12SM. At this point the KT12SM on/off switch should illuminate and 12v power will be available to supply all d.c. appliances.

KT9 DISTRIBUTION PANEL
DESCRIPTION (IF FITTED)

In order that the 12v power in the camper can be monitored and controlled, a small KT9 Distribution Panel is provided which includes the following:-

- 1) Battery condition meter.
- 2) Selector switch, comprising car, caravan and central isolation positions.
- 3) Pump running indicator.

Instructions for use

- a) For use without a battery;
Place the battery select switch in the centre off position and ensure that a mains 240v a.c. supply is connected to the camper. Switch the battery charger on, 12v power should now be available to power the pump, lights etc.
- b) When a leisure battery is installed;
Place the battery select switch in the VAN position, 12v power should now be available from the leisure battery for use within the caravan.
- c) To use the car battery
Providing the car is connected to the camper via the 12S plug, it is possible to utilise 12v power from the car battery. To do this, place the battery select switch in the CAR

position, 12v power should now be available from the car battery.

d) How to charge the battery

To charge the battery, the charger must be switched on and the battery select switch should be placed in the relevant position i.e. to charge the camper battery the select switch should be placed in the VAN position.

NOTE: With the battery select switch in the centre off position and the charger switched on, it will be apparent that power is still available, this is because the charger is providing the power and can be switched off if necessary.

THE GAS SYSTEM

Introduction

Your camper is fitted with a double burner and grill, and in addition the Pullman and Fiesta are fitted with an Electrolux RM4206/RM4200 Refrigerator. (Operating instructions for these appliances can be found in Kitchen Equipment, page 40).

Liquefied Petroleum Gas (LPG) is used to fuel the appliances via a regulator. There are two types of bottled LPG commonly used in the United Kingdom and Europe, Butane and Propane. Most cylinders containing Butane are blue, those holding Propane are red. The variety, sizes and shapes of gas cylinders are many. Consult your Pennine dealer for advice.

Gas Regulators

Gas cannot be supplied from the cylinder without some form of regulation. The gas regulator supplies gas to the appliance(s) at a constant pressure, independent of gas flow.

YOUR CAMPER REQUIRES A REGULATOR GIVING THE FOLLOWING PRESSURES;

28 mbar (11.2" w.g.) for Butane (L.P.)

37 mbar (14.8" w.g.) for Propane (L.P.)

!Warning – Regulators are NOT interchangeable between Propane and Butane and should be replaced every five years.

Gas Hose

Your camper is supplied with a hose to connect the regulator on the gas cylinder to the gas system inlet. Pennine recommend that this hose is replaced annually; the replacement hose should be made from black neoprene with BS3212 printed on it.

Gas System Inlet

The gas system inlet is situated in the gas bottle locker mounted at the front of the camper. In addition, in the case of the Fiesta, Pullman and Sterling models, the cooker requires connection to the gas system before use.

!Warning – The cooker unit of the Fiesta, Pullman and Sterling must be connected before turning on the gas at the cylinder.

Both ends of the gas hose must have a circlip/jubilee clip to ensure a secure, gas-tight fit.

IT'S THERE



WHEN YOU

NEED IT.



CALOR Gas

For more information call free on 0800 626 626

www.foldingcampers.net

Using LPG Safely

!WARNING: Read the following carefully;

- 1) Before towing your camper you must ensure that gas appliances and gas cylinders are turned off. It is recommended that a refrigerator (if fitted) is operated from the 12v supply via the 12S ancillary power cable while travelling – not from bottled gas.
 - 2) NEVER apply heat to a gas cylinder.
 - 3) Regularly check the flexible gas hose and clips sealing the joints between hose/cylinder and hose/gas inlet.
 - 4) Make sure there are no naked lights when changing a gas cylinder. Do not smoke while changing a gas cylinder.
 - 5) Make sure that each gas appliance is working efficiently to the recommendations of appliance manufacturers.
 - 6) NEVER look for a gas leak with a naked flame. ALWAYS use a soap solution when testing connections.
- Better still – call your Pennine dealer if in doubt.

CALOR GAS INFORMATION

Calor Gas At Your Service

Calor Gas introduced bottled gas for caravanners nearly 60 years ago and has continued to give an unparalleled service throughout Great Britain and Ireland ever since.

The Gas That Goes Anywhere

Backed by the country's largest LPG (Liquefied Petroleum Gas) storage and distribution network and over 10,000 retail outlets –

many of which are caravan parks – Calor Gas provides portable gas for tourers and more permanent installations for caravan holiday homes virtually anywhere in the British Isles.

All Year Round Performance

The Calor Gas cylinder range now includes a range of propane as well as butane cylinder sizes to meet the needs of every caravanner, in winter and summer. Now there is even a 6kg propane cylinder available especially developed by Calor Gas for campers and caravan tourers. For those thinking of switching to propane, with its superior winter performance, Calor Gas dealers will be pleased to help.

Hot, Cool or Sizzling

Calor Gas dealers have a wide range of approved gas appliances, including cookers, fridges, water heaters, space heaters and of course, portable barbecues to add the sizzle to summer.

Safety Comes First

Calor Gas puts safety first and encourages caravanners to do the same. In particular, make sure ventilators are not blocked. If in doubt, check with your local Calor Gas dealer or phone the freephone number below.

Calor Gas Customer Services

Calor Gas regional customer service departments are always happy to help you. CALL FREE ON 0800 626 626 and ask for 'Customer Service'.

THE WATER SYSTEM

Introduction

In order to utilise the water system of your camper, you will need two water containers; one to carry fresh water to the camper and another to allow waste water from the kitchen to be properly disposed of. There are jerrycans, folding containers and wheeled containers on the market. Ask your Pennine Dealer for advice.

The Whale Tiptoe Pump M4

Standard in Aztec and Sterling models. The pump is located in the floor, directly in front of the sink when the kitchen unit is in position. The water inlet socket can be found at the front of your camper, on the outside.

With your filled fresh water container in position, close to the inlet socket, connect a length of clear plastic pipe (not supplied) between the inlet and the container.

To operate the pump, release the plunger plate by twisting anti-clockwise with your foot. Now pump up and down vigorously for full flow or gently for controlled flow. When you have enough water, push the plunger fully down and twist clockwise to lock the plunger plate down.

The Whale Submersible Pump

Standard in Pullman and Fiesta models. The Whale Submersible Pump 12v socket/water inlet can be found towards the front of your camper. With your filled fresh water container in position, connect the water pipe and the attached plug to the 12v socket outlet.

Gently place the end with the pump attached into the water container. The Whale Submersible Pump is self-priming so is now ready for use. The operation of your tap will automatically activate the pump.

Operation of Submersible Pump – Hints

To obtain efficient running and maximum life, ensure the following;

- 1) There is sufficient water in the container; do not run the pump when dry.
- 2) All hose connections are water tight.
- 3) There is adequate ventilation in the water container – any cap fitting must have a ventilation hole of at least 5mm diameter.
- 4) The 12v power supply is adequate – low performance could result from a weak battery.
- 5) Sometimes, when refilling the water container, it is possible to create an airlock in the pump. As a result, the pump will run noisily and will not pump. To cure this, gently shake the hose to dislodge the air pocket in the pump.
- 6) The pump strainers should be inspected and cleaned at regular intervals.
- 7) The pump body is completely sealed and no maintenance is required.

Winter Storage (Tiptoe and Submersible Pumps)

To prevent frost damage during winter storage, the following precaution should be taken after your last outing of the season.

The complete system should be drained of water. In case of the Tiptoe pump, it is necessary to disconnect the inlet hose from the base of the pump and allow all water to drain. The submersible pump must be drained by opening the tap and allowing the water to empty completely from the pipework.

KITCHEN EQUIPMENT

Stainless Steel Hob Unit and Sink With Drainer, Hob Burners

!WARNING: Do not use your hob or grill without ensuring that the lid is open, the support stay locked and the aluminium shield clipped in place.

Burners can be used for fast boiling or simmering and are controlled by safety taps of the self locking type.

When lighting a burner, always make sure you apply a lighted match or piezo electric igniter before turning on the gas. With a lighted match in position, push in the tap and, keeping it depressed, turn in an anti-clockwise direction to the full on position.

When turning a tap from the full on position to a low rate, turn anti-clockwise until the tap will not turn any further. This indicates the bottom of the simmer range. By turning clockwise, a larger flame can be obtained when required. To turn off, turn clockwise to the off position, when a stop will be reached; then release and the tap will spring out. Try not to have burner flames spreading beyond the base of small pans since this is wasteful. Make sure that the base of every kettle, saucepan or frying pan is smooth; any roughness may damage the chrome plated support.

Pan Sizes

The unit is suitable for use with pan sizes from 10cm (4") to 22cm (8.5") diameter.

Grill

The operation of lighting and controlling this burner is the same

as for the hob burners. Place the pan centrally under the grill. The grill heats up quickly so it is unnecessary to pre-heat it unless steaks or chops are being cooked in which case a couple of minutes pre-heating improves the quality of the grill. If a pre-heat is used, the empty grill pan should be placed under the grill to protect the base lining. When the grill has heated up, remove the grill pan, load the pan and place it centrally under the grill. The grill pan grid is reversible, giving a choice of two heights. Use it in the high position for toast.

Cleaning

To keep this appliance in good condition, it should be cleaned as soon as possible after use. The stainless steel sink unit and the burner heads should be cleaned with warm water and detergent using a soft cloth or a non-abrasive liquid cleaner. Stubborn stains can be removed by Duraglit or similar products. DO NOT use harsh abrasive cleaners, steel wool or cleansing powders. NEVER insert prickers, wires etc into jets for cleaning.

Adjusting

Your unit will be supplied correctly fitted and adjusted. Any subsequent service must be carried out by a person qualified to do so.

Using Your Hob Unit Safely

- 1) When the grill or hob is in use, always leave the front of the grill compartment open to allow hot air to escape. Always allow to cool before closing.
- 2) Always raise the hob lid, lock the support stay and clip the aluminium shield in place before using the grill or hob.
- 3) The clear plastic cover over the ventilation mesh behind the

- hob/sink unit should be opened while using the hob/sink.**
- The grill or hob must not in any circumstances be used as a space heater.**
 - Care should be taken to ensure that flammable materials are not in the vicinity of the burner flames.**

Manufactured by;
Spinflow Limited,
4-6 Welland Close,
Parkwood Industrial Estate,
Rutland Road,
Sheffield S3 9QY
Tel: (01742) 738157

or SMEV
c/o Scan-Térieur Ltd,
30 The Metro Centre,
Tolpits Lane,
Watford,
Herts WD1 8SB
Tel: (01923) 800353

THE ELECTROLUX RM4206/RM4200 **INSTRUCTIONS FOR USE**

Introduction

To ensure good refrigeration and economical operation, the refrigerator must be used as described in these instructions.

The refrigerator is designed for 'built-in' installation in campers. The refrigerator can be operated from either propane or butane gas without adjustment to the appliance.

Important Information

- This product is designed to be operated by adults. Children should not be allowed to tamper with the controls or play with the product.
- Any electrical work required to install this appliance should be carried out by a qualified electrician.

- It is dangerous to alter the specifications or modify this appliance in any way.
- Care must be taken to ensure that the appliance does not stand on the electrical supply cable.
- Electrolux camper refrigerators are designed to be used specifically for the storage of edible foodstuffs only.
- There are working parts in this product which heat up. Always ensure that there is adequate ventilation as failure to do this will result in component failure and possible food loss.
- Parts which heat up should not be exposed. Wherever possible, the back of the product should be close to a wall, but leaving the required distance for ventilation as stated in the installation instructions.
- Before defrosting, cleaning or maintenance work is carried out, be sure to switch off the appliance and unplug it.
- The ice box in this appliance contains tubes through which the refrigerant passes. If these are punctured this would cause substantial damage and result in food loss. **DO NOT USE SHARP INSTRUMENTS** to scrape off frost or ice. Under no circumstances should ice be forced off the ice box. Solid ice should be allowed to thaw when defrosting the appliance.
- This appliance is heavy. Care should be taken when moving it.
- Ice lollies can cause frost burns if consumed straight from the freezer.
- Frozen food must not be refrozen once it has thawed out.
- Manufacturers' food storage recommendations should be strictly adhered to. Refer to relevant instructions.
- Do not place carbonated or fizzy drinks as it creates pressure on the container which may cause it to explode resulting in damage to the appliance.

- Under no circumstances should you attempt to repair the appliance yourself as it may lead to injury or a more serious malfunctioning.

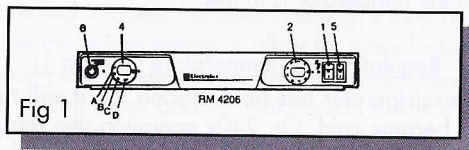


Fig 1

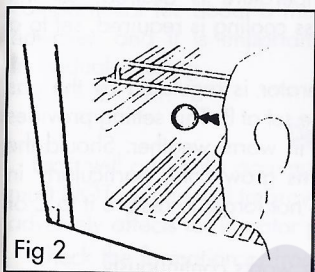


Fig 2

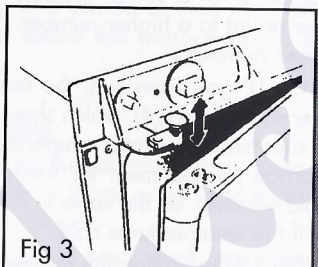


Fig 3

Controls

The refrigerator can be run on either 240v, 12v or LP gas. Changing between these modes of operation is carried out by means of the control panel. (See the diagrams above).

Two rocker switches are used to select the electric power supply, one for 240v (1) and one for 12v (5).

Refrigerator temperature is controlled by a thermostat knob (2) when the refrigerator runs on 240v.

The gas supply is turned on/off by means of the knob (4). When

lighting the gas, one must press in the knob as explained further on.

A manual piezo-electric igniter is used. When button (6) is pressed, sparks are generated at the burner.

STARTING THE REFRIGERATOR

CAUTION: Only one source of energy at a time.

LP Gas Operation

After initial installation, after servicing, changing gas cylinders etc., the gas lines may contain some air which should be allowed to escape by briefly turning on the refrigerator or other appliances. This will ensure that the flame lights immediately.

The flame failure device will automatically shut off gas to the burner if the flame is blown out. On electronic ignition versions the flame failure device will also shut off the gas, if the burner does not relight within about a minute of the flame being blown out.

Before You Start Gas Operation

- 1) Open the shut-off valve of the gas bottle (check that there is enough gas). Open any on-board shut-off valve.
- 2) Check that the switches for mains and 12v are off.
- 3) Depress and turn on the gas control safety device knob (4) to the gas position D.
- 4) Depress the gas control safety device knob (4) and hold it down while depressing the piezo-electric igniter button rapidly 3 or 4 times in quick succession.
- 5) Check the flame viewer to see whether the flame is alight (see Fig 2).

- 6) Keep the safety device control depressed for a further 15-30 seconds.
- 7) Release the safety device control and check to see that the flame is alight. (See Fig 2).
- 8) To terminate gas operation, turn knob (4) to '0'.

240v Operation

- 1) Turn off gas or 12v operation where applicable.
- 2) Set switch (1) to position 1.

12v Operation

There is no Thermostatic Control on 12v Operation. Only operate your refrigerator on 12v when the engine of your vehicle is running. Install through a relay or otherwise your battery will soon be discharged.

NOTE: Before operating the refrigerator on 12v, it should be pre-cooled, together with its contents, by running it on bottled gas or 240v for a few hours before changing over to 12v and starting on a journey.

- 1) If applicable, turn off the gas operation.
- 2) Set the 240v rocker switch (1) to '0' and the 12v switch (5) to 1.

Winter Operation

If the refrigerator has been left switched off in an unheated camper when the outside temperature is below -12C, the cooling unit will become so cold that it cannot be started in the 240v mode of operation. In such an event, the refrigerator must be started on LP gas.

Some ventilator grills have a facility for winter cover (ask your

dealer). These covers should be fitted in winter conditions to avoid over freezing of the refrigerator. The covers can also be used when the camper is in storage or is being washed by a high pressure spray. Remember to remove the winter covers at all other times when the refrigerator is in use.

Regulating The Temperature (See Fig 1)

Once the refrigerator has been started up, it will take a few minutes to become cold. On 240v operation, the refrigerator is controlled by a thermostat and the thermostat knob (2) should be set at 3. If a lower (colder) temperature is desired, set the thermostat to a higher number. If less cooling is required, set to a lower number.

On LP gas operation, the refrigerator is regulated by the gas thermostat knob (4), which should be set at B. This setting provides a suitable refrigerator temperature in warm weather. Should the storage compartment for fresh items grow cold, particularly in cold weather, set the valve to A. Do not forget to restore it to C or D if the weather turns cold.

On 12v operation the refrigerator works continuously.

Travel Catch (See Fig 3)

Make sure that the travel catch is engaged when the camper is on the move. The travel catch at the top of the door can be set in two different positions. In one position, the door is held tightly shut. In the other position, the door is secured ajar so that the refrigerator can be aired when not in use.

Food Storage

Always keep food in closed containers. Never put hot food in the refrigerator, allow it to cool first.

Never keep items in the refrigerator which might give off flammable gasses.

The temperature within the frozen and fresh food compartments will be affected by the location of the refrigerator, the ambient temperature and frequency of door opening. It may be necessary to adjust the thermostat setting to allow for these factors.

The 2 star (**) frozen food compartment is intended for the storage of frozen foods and for making ice. It is not suitable for freezing items of food.

Most kinds of frozen food can be stored in the frozen food compartment for about a month, This period of time may vary, however, and it is important to follow the instructions on the individual packing.

Defrosting

Frost will gradually accumulate on the refrigerating surfaces. It must NOT be allowed to grow thick as it acts as an insulator and adversely affects refrigerator performance.

Check the formation of frost regularly every week and when it is about 3mm thick it will be necessary to defrost the refrigerator.

To defrost the refrigerator, turn it off and remove the ice tray and all food items.

Any frozen foods should be wrapped loosely, but completely, in several layers of clean newspaper. Remember that if the temperature of frozen foods is allowed to rise unduly during defrosting then its storage time may be shortened.

If desired, defrosting can be speeded up by filling the ice tray with hot water and placing it in the frozen food compartment.

Do not try to accelerate defrosting by using any kind of heating device as the plastic surfaces of the refrigerator may be

damaged. Neither should any sharp object be used to scrape off the ice.

The defrost water from the cooling plate in the fresh food compartment runs from a collector channel down a tube to a drip tray at the rear of the refrigerator where it evaporates. This does not apply to the frozen food compartment which needs to be cleaned manually. Do not refreeze any thawed frozen food. When all the ice has melted, wipe the frozen and fresh food compartments dry and leave the door ajar for airing prior to re-starting.

Place the food items back inside, but wait until the refrigerator is cold before making icecubes.

Cleaning the Refrigerator

Clean the inside of the refrigerator regularly to keep it fresh and hygienic.

Soak a cloth in a solution consisting of a teaspoon of bicarbonate of soda to half a litre of warm water. Wring out the cloth and use it to clean the interior of the refrigerator and its fittings.

Never use detergents, scouring powder, strongly scented products or wax polish to clean the interior of the refrigerator as they may damage the surfaces and leave a strong odour.

The exterior of the refrigerator should be wiped clean now and again, using a damp cloth and a small quantity of detergent, but not the door gasket which should only be cleaned with soap and water and then thoroughly dried.

The cooling unit behind the refrigerator ought to be cleaned with a brush from time to time, but make sure that the refrigerator is switched off when doing this.

Turning Off The Refrigerator

If the refrigerator is not in use for some time:

- 1) Turn off the LP gas and electric power.
- 2) Empty the refrigerator and defrost it.
- 3) Clean the refrigerator interior and accessories and wipe them dry afterwards.
- 4) Leave the door ajar. It can be secured in this position by means of a travel catch.

If The Refrigerator Fails To Work

Check the following points before calling a service technician;

- 1) That the 'starting the refrigerator' instructions have been followed correctly.
- 2) If it is possible to start the refrigerator on any of the connected sources of energy.
- 3) If the refrigerator fails to work on gas, check that;
 - The gas bottle is not empty.
 - That all LP gas valves are open.
- 4) If the refrigerator fails to work on 12v, check that;
 - The 12v supply is connected to the refrigerator.
 - The fuse on the 12v supply is intact.
 - That the 12v switch is on.
- 5) If the refrigerator fails to work on 240v, check that;
 - The 20v supply is connected to the refrigerator.
 - The fuse is intact.
 - That the 240v switch is on.

If the refrigerator is not cold enough, it may be because;

- 1) The ventilation is inadequate owing to objects such as wire mesh or winter covers blocking ventilation passages.
- 2) The evaporator is frosted up.

- 3) The temperature control setting is incorrect.
- 4) The gas pressure is incorrect – check the pressure regulator at the gas container.
- 5) The ambient temperature is too high.
- 6) Too much food is loaded at the same time.
- 7) The door is not properly closed.
- 8) More than one source of energy is used at the same time.

The sealing cooling system must not be opened, since it contains corroding chemicals under high pressure.

FAILURE TO OBSERVE THESE CHECKS AND THOSE SHOWN ON THE DOOR PANEL INSTRUCTION LABEL COULD ALL RESULT IN YOU BEING CHARGED FOR THE SERVICE CALL.

Some Useful Hints

Make sure that;

- The refrigerator is not operating on 12v when the vehicle is parked, otherwise you may drain the car battery in a short time.
- Defrosting is carried out periodically.
- The refrigerator is clean and dry with the door left open when it is not in use.
- The ventilation openings are not obstructed.
- The door is secured by means of a travel catch when the camper is on the move.
- Only one mode of operation at a time is used to run the refrigerator.

Maintenance

Couplings can be tested for leaks using a soap solution.

DO NOT USE AN OPEN FLAME!

If there is any suspicion of damage, call for a service engineer.

In order to maintain optimum performance, it is recommended that this appliance is inspected and serviced annually by a qualified person.

Technical Data

ModelRM4206/RM4200

Overall Dimensions:

Height615mm

Height516mm

Width482mm

Depth with door482mm

Depth without door443mm

Built-in Dimensions:

Height613mm

Width490mm

Depth460mm

Capacities:

Gross Vol. (Approx.)60 Litres

Weight (Max.)17kg

Quinton and Kaines (Holdings) Limited

A Subsidiary of Tex Holdings PLC

MANUFACTURERS OF LIGHTWEIGHT CARAVAN DOORS WORKTOPS AND TABLES

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CARING FOR YOUR PENNINE

Exterior Panels

The exterior panels of your camper are acrylic painted aluminium sheets which are very easy to keep clean. We recommend that you wash down with plenty of clean water and a **mild** detergent. The most effective cleaning aid is either a short-haired bristle brush or a piece of tufted carpet. Polish occasionally with a good quality wax to help obtain a high gloss finish.

NEVER USE ABRASIVE OR HARSH CLEANERS

Use white spirit to remove stubborn marks such as tar or grease.

Corner Mouldings

Mouldings are anodised aluminium and should be treated in the same way as exterior panels. Examine mouldings regularly to ensure that no gaps have appeared which could allow water in. If gaps should appear, they may be sealed with mastic (contact your Pennine dealer if you are unsure)

Gas Bottle Locker

This is made from Glass Reinforced Plastic (GRP) and should be cleaned with detergent and water and waxed regularly.

Canvas

Before use, your canvas requires weathering. Once the canvas is weathered as described, it will be fully waterproof.

Avoid allowing aerosol sprays to come into contact with the canvas, as this may adversely affect its waterproof qualities. Mud and light soiling should be brushed off when dry. If necessary, a

weak solution of pure soap flakes may be used to remove stubborn marks. It is important, if this is done, to clean a complete panel of canvas, rather than a small area, to avoid watermarking.

Interior

For upholstery, a proprietary dry cleaning fluid will remove most stains; pre-treatment with a mild soap and water may be necessary for more stubborn stains. Brushing or vacuuming regularly will keep upholstery looking at its best. Fabric snags should be trimmed off immediately. Never attempt to pull them off as this could cause even more damage.

Carpeting, where fitted, should be regularly brushed while on site and vacuum cleaned on returning home to ensure particles of mud and grit do not become embedded.

Use a damp cloth to remove finger marks from furniture, or an all purpose cleaner. Furniture polish may be used, but do not use oil or abrasive cleaners.

Cupboard catches, stays and hinges, should be kept clean and lightly oiled or smeared with vaseline or alternatively silicon spray.

Use a mild detergent and damp cloth to remove any finger marks from interior wall boards.

Curtain Care Instructions

Curtains may be dry cleaned or washed as follows;

- 1) Wash separately by hand or machine in luke warm water, not exceeding 40C.
- 2) If by machine, use delicate fabric programme.
- 3) Finish with cold rinse and short spin.
- 4) Line dry.
- 5) Steam Iron with setting on cotton.

6) Only pure soap solution should be used.

- a) Do not use bleach.
- b) Do not use detergents.

Shower Room and Wash Basin Fittings

Always use a non-abrasive cleaner. Always put the cold water into the wash hand basin BEFORE adding the hot water in order to preserve the finish of the thermoplastic basin.

WINTER STORAGE

If the environment in which the camper is to be stored is likely to be damp, it is best to remove the canvas and store it in a warm, dry place. In any case, the inner tents, curtains and mattresses should be removed and stored inside.

To remove the canvas;

- 1) Unfold beds. Unfasten the three screws securing the canvas to each bed board. Unfasten the canvas ties from the frame where applicable.
- 2) Carefully remove and roll up the canvas, ideally packing it into a polythene bag.

NOTE: Make sure that the canvas is absolutely dry before you do this.

Location

Ideally, your Pennine camper should be stored undercover, protected from the elements but in a location which allows free circulation of air. If an undercover location is not available, the

camper should be sited on firm ground with adequate drainage and not too exposed. Avoid storing under trees or in areas where it might be subject to accidental damage.

Storage Checklist

- 1) Remove inner tents, curtains and mattresses and store safely indoors. Vacuum and clean the interior of your camper.
- 2) Clean and polish the cooker hob. Ensure cupboards are clear of food or crumbs as vermin could be attracted if they are left.
- 3) Clean out the fridge (if fitted) with bicarbonate of soda and leave the door in its 'vent' position.
- 4) Clean and sterilise the water system, pipework and containers by flushing with a suitable solution (eg. Milton) and rinsing. The containers can be stored inside the camper. Drain the water system before the risk of frost damage.
- 5) Stand the camper with towbar end higher than the rear to allow any water to run off. NOTE: Do not allow water, ice or snow to collect on top of the camper as it will discolour the transit cover.
- 6) If you wish, you may jack up the wheels and support the camper on blocks or axle stands, being sure to support the camper on blocks rather than drop arms so that the load is taken off the suspension. Alternatively, wind down the corner steadies so that the bulge at the bottom of the tyres is taken out.
- 7) Release the handbrake to prevent the brakes seizing onto the wheel drums. Rotate the wheels occasionally to keep the bearings lubricated.
- 8) Examine the plug(s) and cables for corrosion or damage. Replace any damaged cables and corroded pins or

grubscrews. All round terminals should be cleaned with fine emery paper and brass cleaner and finally smeared with petroleum jelly.

- 9) Wash the exterior periodically.

POINTS TO NOTE

Chassis

Apply lithium based grease to the corner steady joints and screw threads also to the tow-hitch and the car's towball (then fit the towball cover). Lubricate the jockey wheel.

AL-KO Galvanised Chassis & Wet Storage Stain (Rust)

Hot dip galvanising has been used for many years throughout the automotive industry, and is widely regarded as one of the best forms of corrosion protection. **It does, however, need minimal maintenance in certain circumstances.**

In its natural state, zinc is not a corrosion resistant metal, it achieves its corrosion resistance by forming a barrier layer through reaction with the atmosphere. This is mainly caused by the CO₂ content forming zinc carbonates.

The shiny silver colour of Hot Dip Galvanising will, over a period of time, turn light grey. This does not denote a failure of the galvanising, but simply shows the formation of the protective layer of zinc compounds.

These protective layers cannot form as a part of the curing process on material newly galvanised if the surface is covered with moisture of a low mineral content such as condensation, rain water or thawing snow. Insufficient air circulation will also prevent formation of these layers.

These are exactly the conditions experienced during long term parking or pre-build storage of chassis components where such moisture cannot be avoided. Restriction of air circulation can result in the formation of a soft, porous light grey oxidation layer. This is known as 'White Rust' and, in this context, **should not be confused with rust as applied to steel.**

Light white rust deposits do not affect the performance of Hot Dip Galvanised Steel, as the deposits are transformed into a protective layer by the action of CO₂. This does, however, require good air circulation.

AL-KO, therefore, strongly recommends that camper manufacturers should ensure a clean chassis prior to dispatch and advise their dealers that upon receipt of a camper, the chassis should be washed with clean water to prevent the formation of any white rust. **THIS IS OF PARTICULAR IMPORTANCE TO ANY DELIVERIES MADE DURING THE WINTER, WHEN LOW MINERAL CONTENT MOISTURE EG. ROAD SPRAY, IS MORE COMMON.**

Should any light deposits of white rust be found while washing the chassis, they can easily be removed by use of a wire or hard nylon brush.

Tyres

Check tyre pressures regularly during storage and re-inflate if necessary. In addition, check for cracks, splits or bulges. If in doubt, replace with tyres of identical specification. (See Page 19 – Servicing and Tyre Information).

Preparation for Re-use

- 1) Sterilise water system pipework (See page 38 – Water System) and container. Check water system for leaks **before** first using the camper.
- 2) Check the gas system for leaks and general condition (See page 37 – Gas System).
- 3) Check the operation of internal 12v electrical system and mains electrical system (if fitted).
- 4) Check the operation of 12N and/or 12S plugs, leads and sockets.
- 5) Check the operation of the roadlights.
- 6) Check the operation and adjustment of the handbrake (see page 13 – Service and Maintenance or refer to your Dealer).
- 7) Check the security of the towing bracket and ball hitch. The ball hitch must be clean and well greased.

SECURITY

You will appreciate that total security of your camper is impossible to achieve. However, there are several means by which you can deter the opportunist thief and protect your property.

General Security

- 1) Always lock the door and zip up the canvas whenever you leave the camper unattended.
- 2) Remove any valuable or portable items when you leave your camper. Note – for all small items, a secure locker is available from Pennine as an optional extra.

Protecting Your Camper From Theft

- 1) Always use a hitchlock, which will delay anyone attempting to

tow away your camper or unhitch it from your car. There are various types available, some of which are very inexpensive. Pennine make a wheel clamp which is designed specifically for Pennine Campers. See your Pennine dealer for details.

- 2) Corner steadies can be locked in the down position by means of various devices available from your dealer. A wheelclamp is perhaps the ultimate method of preventing your camper from being stolen.
- 3) Keep the gas bottle locker lid padlocked at all times.

IN CASE OF FIRE

- 1) Get everyone out of the camper.
- 2) Call the fire brigade.
- 3) Turn off outside gas valve and remove cylinders away from the camper if possible.
- 4) If it is an electrical fire, always turn off the supply as quickly as possible.
- 5) Tackle the fire if it is safe to do so:
 - i) From outside the camper, NOT inside.
 - ii) Stand back about 6ft aiming the extinguisher.
 - iii) Always aim the extinguisher at the base of the fire, not the flames.
 - iv) Once the extinguisher is empty, shut the camper and wait for the fire brigade. Do NOT go back into the camper, even if the fire appears to be out, there is always danger of re-ignition.

FIRE PRECAUTIONS

- 1) Keep a torch handy for emergencies, never use a naked flame.
- 2) Turn off all appliances and the gas bottles before going to bed or leaving the camper for some time.
- 3) Combustible materials should be kept clear of all heating and cooking appliances.
- 4) Do not leave fat pans unattended.
- 5) Do not leave children alone in the camper.
- 6) Keep matches out of children's reach.
- 7) Do not smoke in bed.
- 8) Do not block up any air vents.
- 9) Have gas piping and electrical wiring checked annually.

- 10) If a gas leak is suspected, use soapy water and look for bubbles – never use a naked flame. Better still – call your Pennine dealer. For extra safety, consider fitting gas detection equipment.

Fire Extinguisher

- Always carry a fire extinguisher mounted in a visible position close to the door.
- A dry powder extinguisher (minimum capacity 1kg) is recommended. This will deal safely with fat or electrical fires. (Water extinguishers should not be used for these types of fire: and vapourising extinguishers should not be used in the confined space of a camper).
- Read the instructions and make sure you and your family understand how to use your extinguisher or fire blanket before fire breaks out. Make sure that everyone in your family including children, know what to do if a fire starts.
- A fire blanket is a useful complement to your fire extinguisher.

BEFORE YOU TACKLE A FIRE

Many people put out small fires in their campers quite safely. By doing so they prevent serious injury or damage. But some people are injured and even die while trying to tackle fires which should have been left to the experts. Here is a simple fire fighting code to help you decide whether to put it out or get out.

- Always get everyone out and call the fire brigade. Only tackle a fire in the very early stages.
- Always put your own and other people's safety first and never risk injury to fight fires. Always make sure you can escape if you need to and remember that smoke can kill. IF IN DOUBT – GET OUT.
- Tackle the fire from the outside doorway, NOT inside. Never

let a fire get between you and your way out. If you have any doubt whether your extinguisher is suitable for the fire, do NOT use it, GET OUT.

- Always remember that fire extinguishers are only for 'first aid' fire fighting. Never tackle a fire if it is starting to spread to other items of the camper or if the camper is filling with smoke. IF IN DOUBT, GET OUT.
- If you cannot put out the fire, or if your extinguisher runs out – some last for only a few seconds – get out of the camper immediately. Close door.
- DO NOT go back into the camper even if the fire appears to be out, there is a danger of reignition.

Don't risk injury to fight fire. IF IN DOUBT, GET OUT. Make sure the fire brigade has been called.

FIGHTING SOME TYPICAL FIRES IN A CAMPER

Chip Pan Fires

- 1) Leave the pan where it is.
- 2) Turn off the heat if it is safe to do so.
- 3) Protecting your hands, place a damp cloth, a close fitting lid or a fire blanket over the pan to smother the flames.
- 4) Leave the pan to cool for at least 30 minutes. The fire can start again if the cover is removed too soon.

WARNING: NEVER USE WATER OR ANY TYPE OF EXTINGUISHER TO FIGHT THE FIRE

Furniture Fires

Use an AFFF (Aqua Film Forming Foam) or a water extinguisher.

WARNING: Fires in upholstered furniture will take a long while to start because of the fire retardant properties of the fabric and foam. But once alight it can spread quickly and produce poisonous fumes. Do not tackle the fire if it is burning fiercely or if there is already thick smoke. Get out and shut the door.

Curtain Fires

- 1) Use an AFFF, water or multi-purpose dry powder extinguisher.
- 2) Once the flames are out, make sure there is no smouldering material.
- 3) If it is safe to do so, pull the curtains to the floor.

WARNING: FIRES IN CURTAINS CAN SPREAD VERY QUICKLY

Electrical Appliances

- 1) If possible turn off the power (pull out the plug or, if you cannot reach the socket safely, switch off at the mains).
- 2) Use a halon 1211 (BCF), CO₂, AFFF, multi-purpose dry powder or water extinguisher.

WARNING: Do not use water-based extinguishers (including AFFF) unless the appliance is disconnected from the mains. You may risk electric shock. Dry powder does not penetrate the spaces in equipment easily and the fire may flare up again.

Fires Involving Bottled Gas

- 1) Call the fire brigade immediately and tell them bottled gas is involved.
- 2) If it is safe to do so, turn off the gas supply at the cylinder valve, and remove cylinders away from the camper if possible.
- 3) Wait until the flow of gas has stopped.
- 4) Extinguish other burning materials as instructed.

WARNING: Only deal with minor fires involving bottled gas. There is a risk of explosion if a fire involving escaping bottled gas is extinguished before the flow of gas has stopped, or if the cylinder is heated in the flames.

Car Fires

- 1) Switch off the engine.
- 2) Get everyone away from the vehicle.
- 3) Use an AFFF, halon 1211 (BCF), multi purpose dry powder or CO₂ extinguisher from outside the car, at a safe distance.

WARNING: Call the fire brigade and leave the area at once if the fire begins to develop quickly. (There is a danger of explosion if the petrol tank catches fire).

Space Heating Fires

Heating appliances should be completely extinguished before the camper is moved, and should not be used when the camper is in motion. Portable heaters or any other appliance other than the space heater should not be used to heat the camper.

Awning Spaces LPG Appliance Exhaust

Space heaters using liquefied petroleum gas have a high output and are continuous burning and therefore produce a high volume of exhaust. They should not be used if their flue outlets discharge into an awning space which is fully enclosed and which people are occupying.

Instantaneous water heaters also have a high output but are used only intermittently. When they are being used, fresh air circulation has to be provided within any space covered by an awning into which their flues discharge.

There is no danger of exhaust gas pollution in awning spaces from refrigerators and storage water heaters which vent into them, but some fresh air circulation in the space should be provided.

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From the original seed of an idea, prompted by the enjoyment they were getting from their Pennines, has grown the Pennine Owner's Club. A highly organised club with a growing membership from all over the country and all walks of life.

The aim of the club is to provide social and leisure activities for the mutual enjoyment and benefit to all Pennine Folding Camper Owners. As the club goes from strength to strength a full programme of varied activities is planned to take place all year round.

Tours of the Pennine factory at Accrington are organised whilst the impressive sight of hundreds of Pennines at the many rallies held by the club both in the UK and on the continent are an unforgettable experience indeed.

Complementing this active programme, the Pennine Owners' Club offers many other exciting reasons for joining. Discounts on product insurance, quarterly news magazines and regular updates on product information are just part of the many services open to club members.

The emphasis at the Pennine Owners' Club is very much placed on the family atmosphere, choosing sites with good facilities and with plenty of opportunities to keep all the family fully occupied.

Significantly, the spirit of involvement fostered by the Pennine

Owners' Club has played a key role in the product development programme at Pennine's factory. Practical suggestions and tips from members have been incorporated into many of the new products. Proof indeed that at Pennine we listen.

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For Further Information Contact:

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