



# Annual Service Guide



## Motorhomes and Caravans

## INTRODUCTION

The Approved Workshop scheme is a benchmark for the motorhome and touring caravan service and repair industry. Based on best practice, it focuses on the process of service delivery and, ultimately, customer satisfaction.

The following guidelines specifically relate to the annual service of motorhomes (habitation only) and caravans as per the Approved Workshop Service Schedules - see Appendices A and B and damp reports. In addition, service engineers should always refer to the motorhome, caravan and equipment manufacturers' instructions.

It is important to remember that all workshop staff must be trained and have proof of competency for the tasks they perform.

## CARAVANS

### Chassis & Running Gear

#### **Coupling head and safety catch**

Check for obvious signs of wear/damage by inserting a correct size ball (50mm).

Clean out cup and re-grease (except when used with ball-acting stabilisers).

On ball-acting stabilisers, check friction pads are in good condition.

Clean pads with the manufacturers' recommended cleaning fluid (ensure that the cup is completely free of any grease or oil contamination).

Check Safety catch for correct functioning. Clean, grease, and renew worn parts.

#### **Breakaway cable and clip**

Check condition correctly routed and attachment integrity.

Check clip is operational and lubricate.

#### **Head springs and damper**

Check operation, security and lubricate connections and moving parts.

Check shaft seals. Renew as required.

Check shaft for excessive wear. Remove corrosion and lightly grease. Apply grease at grease nipples.

Check correct function - resistance in both directions but more on extension than compression. If faulty check damper and straightness of shaft.

Examine rubber gaiter and renew if required.

Damper bracket – check and tighten bolts to correct torque.

#### **Drawbar**

Check and tighten coupling assembly to drawbar nuts/bolts (if accessible).

#### **Jockey wheel**

Check condition operation and lubricate.

Check for free rotation.

Check that clamp holds and is not distorted or damaged.

Clean/lubricate wheel spindle, screw thread and bearing stem.

Ensure washer is fitted under boss on clamp handle.

If a pneumatic tyre is fitted, check condition and pressure.

#### **Chassis**

*Note: To avoid damage, it is important to use the chassis manufacturer's recommended jacking points at all times.*

Check condition and security of assemblies.

Check for damage/corrosion especially in vicinity of drawbar and suspension mounting points.

Check and tighten if necessary chassis/drawbar, chassis/axle bracket bolts and any chassis assembly bolts to recommended torque.

#### **Chassis to body**

Check security – if necessary tighten chassis to body attachment bolts to recommended torque.

#### **Corner steadies and spare wheel carrier (where fitted)**

Check for damage, operation and lubricate.

Check freedom, correct operation.

Grease/oil, adjust and repair.

Jacking points (if fitted) check condition and security of attachment.

## Wheels

- Check for damage, distortion and excessive corrosion.
- Check wheel rims for load capability.

## Tyres - assess age

Assess age and advise replacement if over five years.

*Note: Tyres deteriorate with age irrespective of remaining tread pattern depth. As a general rule (and following guidance issued by the tyre makers' trade body, the British Rubber Manufacturers' Association), it is strongly advised that caravan tyres should be replaced when 5 years old, and should never be used when more than 7 years old. If you have reason to believe that the tyre size or construction may not be correct for the caravan, in particular if sustained high speeds are envisaged, refer to the latest Approved Workshop wall chart or manufacturers' specification for clarification.*

## Tyres - check condition

Check condition and wear pattern (incl. Sidewalls and valves).

*Note: Major tread wear during the normal life of the tyre may indicate a more serious problem, such as incorrect loading, wrong inflation pressure or even poor wheel alignment. If track adjustment is required, this may need special equipment and/or the manufacturer's assistance and/or renewal of suspension components or complete assemblies.*

Remove wheels and inspect tyres.

Examine the tyre side walls for date of manufacture and advise replacement if over five years old.

Check that the size, load index value and type of construction of tyres are the same for each axle.

Check the condition of the tyre valves - make sure the valve stem is undamaged, and is correctly aligned with the valve aperture in the wheel, and not distorted when the wheel trim (if fitted) is installed. Valve caps must also be fitted.

*Note: For sizes commonly used on trailer caravans refer to ETRTO (European Tyre and Rim Technical Organisation) or caravan manufacturer for further information.*

Check condition of spare tyre (if carried) and ensure it is compatible with tyres in use.

Check for any damage or deterioration such as lumps, bulges, cracks and splits on side walls and between tread patterns.

Check that the tyre sits correctly in the road wheel rim.

If tyre wear is uneven, visually check if camber angle is excessive.

## Check and record tyre tread depths

*Note: The UK (and European) legal minimum requirement is a tread depth of 1.6 mm across the central three quarters of the tread breadth around the entire circumference of the tyre.*

## Check and record tyre pressures

Check and adjust tyre pressures (incl. spare) - note pressures on service schedule.

## Suspension assemblies

Inspect suspension as fitted - coil, rubber in compression/torsion, torsion bar. Grease where applicable.

Check suspension pivots for wear.

If fitted, adjust coil spring tension if required. Refer to manufacturer's servicing instructions.

Check wheel clearance to wheel arch (normally, at least 25 mm unless specified in the manufacturer's handbook).

Check for corrosion.

Examine condition of chassis frame in vicinity of suspension mounting points for corrosion, fracture and distortion.

Check and tighten any securing nuts.

Check rubber bump stops if fitted for condition and wear.

Examine dampers (if fitted) for performance, damage, leakage, corrosion and security of attachment.

## Remove brake drums

Check condition of oil seals and bearings and renew as necessary.

Clean drum and check condition.

## Brake shoes

Examine condition of brake shoes, springs and expanders. Where no manufacturers' data is available the following guidelines for minimum brake lining thickness may be used: riveted linings - at least 0.5 mm above rivet heads. Bonded linings - at least 0.75 mm thick.

*Note: AL-KO and BPW recommend a minimum lining thickness of 2 mm for their current brake designs.*

Where applicable, check that the brake expander slides freely on back plate.

Examine condition of rubber boot on expander pull rod.

Check free movement on star wheel adjuster assembly. Lubricate with appropriate grease only.

Renew components as required.

Check correct assembly of automatic reversing mechanism if fitted (check carrier shoe location and carrier springs).

Lubricate as recommended (see caravan manufacturer's/brake manufacturer's service manual).

*Note: AL-KO Axle - once removed, the flanged hub nut must be discarded. It is a "one-shot-only" nut. Always fit a new flanged hub nut and torque to the recommended figure (Note: high torque setting). The nut must then be safely sealed to indicate correct assembly. No grease should be in the cap as this is a dust cap for protection only.*

*BPW Axle - there are two types of hub nut in use. The first (1996-1998 approximately) is a large flange nut used in conjunction with a secondary circlip within the hub, this allows the nut to be used as the hub puller. Due to the possibility of thread damage when removing tight hubs, this is a "one-shot" nut and must always be renewed and torque to manufacturers settings. The second (post 1998 approximately) is a smaller flange nut without a secondary circlip. These nuts are reusable, subject to no visible damage and there being resistance felt when screwing the nut by hand onto the spindle end. This resistance indicates that there is sufficient locking force to reuse the nut and torque to manufacturer's settings. During the original build, a paint mark is left on the spindle end to indicate that the nut has been correctly torqued. Continuation of this paint mark is not a requirement within the service instructions although it is not an uncommon practice.*

*Conventional hub & bearing assemblies - pack inner and outer bearings with fresh grease if appropriate (do not over-pack hub) and refit drum. Tighten hub nut and slacken off to give correct end float in accordance with manufacturer's servicing instructions. Check that hub rotates freely. Fit new split pin/circlips as appropriate and refit grease cap.*

### Adjust brakes

Ensure coupling drawshaft is fully extended. Adjust brakes and check operation. For auto-reverse systems, rotate drum in forward direction only. Adjust brakes according to manufacturer's servicing instructions.

### Brake rods, cables & supports

Check general condition for corrosion, wear and distortion. Lubricate clevis pins, compensators, linkages and axle pivots with oil/grease, as appropriate.

Check and adjust brake rod/cable return springs if fitted.

Check fork end on front of brake rod/cable is sliding correctly on over-run lever.

Check brake rod/cable is correctly supported as recommended by the chassis manufacturer.

On AL-KO Tandem Axle ensure brake rod extension tube (on rear of rod) is fitted and passes through the hole on the axle bracket for correct support (as shown in the AL-KO drawing).check operation, lubricate & adjust.

### Replace road wheels

Check wheel studs/bolts for wear. Replace wheels and tighten nuts/bolts with a torque wrench to manufacturer's specifications e.g. steel wheels approximately 88Nm (65lb/ft), alloy wheels approximately 115Nm (85lb/ft). Documented quality control check required.

*Note: Advise customer to re-check/tighten wheel nuts/bolts after 20-30 minutes of use or 20-30 miles from collection.*

### Handbrake mechanism

Adjust nut on front or rear of brake operating rod in accordance with manufacturer's servicing instructions and tighten locknut. The brake should then be correctly adjusted. Grease/oil handbrake ratchet, pivot and release assembly. Grease/oil Brake actuating lever pivot.

Check full travel of handbrake is possible with fairing fitted.

Push the caravan with as much force as is reasonably possible in each direction with the handbrake applied to check the handbrake efficiency.

*Note: It is a European directive and legal requirement that the handbrake shall be capable of holding the caravan stationary on a gradient of at least 1 in 6.25 (16%). When checking in reverse, apply the handbrake progressively while moving the caravan rearwards. It should roll a short distance before the shoes move into reverse position. Further movement of the handbrake will now be possible to provide full application. This further movement is ESSENTIAL and must be available. Always refer to manufacturer's servicing instructions.*

## 12V Electrics

### 12N, 12S & 13 pin plugs/cables

12N 7 pin plug - check external condition of plug, pins, tubes, body and cable entry. Check 7-core cable, condition, connections and clamping. Check for correct fit in test socket.

12S 7 pin plug - check external condition of plug, pins, tubes, body and cable entry. Check size of 7 core, condition, connection (grey), and clamping. Check for correct fit in test socket.

*Note: Pay particular attention to the centre pin for damage and misalignment.*

Recommended UK pin allocation 12N & 12S.

Terminal	Colour	12N Plug	12S Plug (pre '99 Model Year)	12S Plug ('99 Model Year onwards)
1	Yellow	Left indicator	Reversing light	Reversing light
2	Blue	Rear fog lamp	Battery charging	Spare
3	White	Common return (earth)	Common return (earth)	Return for pin 4
4	Green	Right indicator	Interior lights etc	Interior lights etc
5	Brown	Right side/tail	Spare	Spare
6	Red	Stop lamp	Fridge	Fridge
7	Black	Left side/tail	Spare	Return for pin 6

13 pin plug - check external condition of plug, pins, tubes, body and cable entry.

*Note: A single 13 pin connector is an alternative to the twin 7 pin system. This is used mainly on the continent, and hence may be seen on imported caravans, although most are either built with 7 pin plugs, or are modified to use them on arrival in this country. It is more likely that this system will be found on the towing vehicle, as several vehicle makers have adopted it as standard. Again, many owners may prefer to change to twin 7 pin sockets. To use the 13 pin socket, however, it should be wired as below.*

Recommended European pin allocation.

Terminal	Function
1	Left indicator
2	Rear fog lamp
3	Return (earth) for pins 1-8
4	Right indicator
5	Right side/tail
6	Stop lamp
7	Left side/tail & number plate light
8	Reversing light(s)
9	Interior lights etc or caravan charging (permanent supply)
10	Fridge (ignition controlled supply )
11	Return (earth) for pin 10
12	Sensing device
13	Return (earth) for pin 9

### Road lights, reflectors

Check condition of all road lights and reflectors. If water visible in any light then drain clean and re-seal.  
Check operation of all road lights with proprietary test equipment.

### Fridge

Check operation - using proprietary test equipment, check continuity of 12V fridge circuit.

### Interior lighting & equipment

12V equipment test - using proprietary test equipment. Check operation of all 12V equipment.

*Note: In the time allowed, it is not possible to check thoroughly all the complex equipment now fitted, but it is possible to check the operation of lights, fans and pumps etc.*

### Battery

Check for condition - damage, corrosion, spillage, security and that it is correctly vented.  
Clean terminals and grease with petroleum jelly.  
Non-insulated battery connections e.g. crocodile clips should not be fitted.  
Check indicator if sealed battery fitted. Otherwise check electrolyte level and top up if necessary.

### Wiring & fuses

Inspect all visible wiring for security, condition and current carrying capacity - frayed or chafed insulation, unsupported wiring, DIY additions.  
Check that an appropriately rated fuse protects circuits fed by the battery.

### Awning light

Check condition & operation.

## Ventilation

### Ventilation openings

Check all fixed ventilation openings for free flow of air.  
Remove any material/obstructions blocking the ventilators.

*Note: If blocked, the owner should be warned in writing of the dangers of obstruction ventilation.*

### Adjustable ventilators

Check adjustable ventilators for function.

### Roof lights

Check roof lights are free of obstructions.  
Other than fixed ventilation in the roof of the caravan, ventilators supplying air from the outside should have anti-vermin screens fitted with slots of not more than 9mm and not less than 6mm measured in any direction.

*Note: It is acceptable to use clean fly screen type mesh in roof lights and roof ventilators, providing it allows a free flow of air through it and can be removed for cleaning.*

*An assessment shall be made by a competent person of the free area of fixed ventilation required for the gas burning equipment installed in accordance with BS.5601 Part 1 up to 1998 or BSEN 721, from 1999 as applicable. If insufficient ventilation is provided, the owner must be informed of the dangers in writing unless agreement is given to correct the ventilation during the service visit.*

## **Gas System**

### **Regulator - Pre September 2003**

Check performance. Fit a "T" piece in the gas line between the regulator and the inlet to the caravan. Connect a pressure gauge (capable of measuring at least 45 mbar) to the "T" piece. Turn off all appliances. Turn on all in-line isolation valves to the appliances and open the gas supply gently. Observe the pressure gauge for at least one minute - if after this time the pressure continues to increase then the pressure regulator is faulty and must be changed.

### **Regulator - Post September 2003**

Procedure to be advised.

*Note: Prior to September 2003, butane and propane gases required different regulators. Butane was regulated to 28 mbar and propane to 37mbar. There is now a new standard, EN1949, which means that all gas cylinders and appliances will be regulated to 30mbar.*

*The new regulator, which will suit both butane and propane gasses, is permanently fixed as part of the gas system in the caravan and not connected directly to the cylinder. A high pressure supply pipe from the cylinder is available to connect all various types of cylinders that are used throughout Europe. Caravans manufactured before September 2003 cannot be retrofitted with the new regulator.*

### **Carry out gas leak test**

Close the cylinder valve and observe the pressure gauge reading over a period of 5 minutes. Continual lowering of pressure indicates a gas leak in the system. Detect leak using leak detection fluid and repair.

Turn on all cooking appliances (including grill and oven if fitted) and check the indicated pressure on the pressure gauge. Operating pressures should be in the range. Check that a 'U' gauge is okay. Butane 28 mbar + 5 mbar Propane 37 mbar + 5 mbar. Return to original condition.

### **Appliances**

Cooker - check for safe and secure installation.

Hotplate burners - at the 'fully on' position, flames should be stable with a clearly formed blue inner cone. Turn to low setting - flame should remain stable, no yellow flame or visible smoke. Check stability of oven and grill burners.

Fridge - check for safe and secure installation. If visible check that the final connection is not made with a rubber hose. Where necessary replace with copper or approved protected flexible connection. Check fridge vents (including exterior vents) not obstructed especially gas dispersal holes. Light burner and check flame picture.

Flued appliances (e.g. space heaters, water heaters etc) - check for safe and secure installation. Check that flue and flue termination has not sustained any mechanical damage. Visually check burner flame where possible. Conduct spillage tests in accordance with manufacturer's instructions on all open-flued appliances (e.g. instantaneous water heaters). In the case of water heaters, check that water of adequate temperature is delivered to the taps.

Other gas appliances - check installation and operation in accordance with manufacturer's instructions.

*Note: Appliances found to require servicing shall be notified to the owner in writing.*

*It is well known that some caravan manufacturers may not always install appliances (notably fridges and water heaters) fully in accordance with the appliance manufacturer's published instructions, for various reasons.*

### **Pipe work**

Check condition and date on flexible hose (BS 3212) and replace hose and clips when necessary.

Where possible, check flues, flue terminals, and including hoses for corrosion, wear, chafing, damage and obstruction.

*Note: flexible hoses should not be fitted except at cylinder.*

### **Flame failure device**

Where fitted, the FFD should be checked to ensure satisfactory operation. After the appliance has been successfully checked, allow time for the thermocouple to cool. Attempt to relight the appliance by turning it on without pushing in the gas control knob (Do Not over-ride the FFD). If appliance does not light, FFD is satisfactory.

### **Cylinder**

Check that gas cylinders are securely located upright and straps, if used, are in good condition.

Check condition of gas cylinder locker and ensure that the gas dispersal holes in the floor are unobstructed.

### **Gas dispersal holes**

Check all remaining gas dispersal holes are free from blockage.

## **Mains Electrics**

### **Inlet plug**

Check condition of inlet plug and report if replacement is necessary. Check condition of cables (including hook-up cable when available) and report any problems found (especially check the earth bonding to the chassis and its warning label).

### **Outlets & permanent connections**

Socket outlets - check polarity and report if defective (check DP sockets date).

RCD - check operation of Residual Current Device and report if defective carry out visual and functional check.

## **Water System**

### **Water pump**

Check operation of water pump, pressure switch and heater.

Clean grit filter.

### **Taps**

Check condition and operation of taps, micro switch, valves, pipes & tank (if fitted).

### **Water filter & housing**

Check for leaks & replace filter if necessary.

### **Waste system**

Check for leaks.

*Note: Shower systems are sealed and, therefore, cannot be checked.*

### **Toilet**

Check seals, flush and blade operation.

### **Drain down**

Drain down system - winter only.

*Note: Ensure customer is advised of situation.*

## **Fire Safety**

### **DIY additions**

Carefully check any DIY modifications or additions. Faults should be identified to the owner in writing.

### **Security & smoke alarms**

Check operation of any security alarms fitted.

Clean and check smoke alarms for correct operation. If battery has been removed by the customer, carry out test using workshop's own battery.

*Note: Ensure customer is advised of situation.*

### **Extinguisher (if fitted)**

Check correct type fitted and expiry date.

### **Fire blanket (if fitted)**

Check location and fixing.

## **Bodywork**

### **Body panels**

Check and report upon any damage & sealant condition.

### **Door locks & hinges**

Check operation and lubricate.

### **Body attachments**

Check security (including ladders, cycle racks, lockers, aerials, satellite dishes etc).

### **Floor**

Check for delamination.

### **Furniture**

Check condition and operation (incl. hinges, stays etc).

### Grab Handles

Check condition & security.

### Windows seals & blinds

Check condition & operation.

### Damp test

*Note: It is very important to ensure the meter probes are free from moisture and that internal surfaces are free from condensation before commencing the check.*

*Only use equipment that complies with the following minimum specification: Measurement range: 6% to above fibre saturation in wood (to nominal 100%). Resolution: +0.1%. Operating Temperature Range: -10°C to +45°C. If the meter is not fitted with remote probe facility then an audible alarm is essential. The meter must be battery powered. Ideally, both a probe type meter and a radio frequency type meter should be used to confirm suspect readings.*

*The damp check should be carried out at the end of the annual service. Only a trained and competent caravan engineer should carry out the check.*

Environment - Ideally the damp test should be carried out when the internal temperature of the caravan has stabilised and is close to workshop ambient temperature. This reduces the likelihood of condensation being present particularly in washroom areas and closed cupboards.

Method - Readings should be taken in each position marked on the diagram below. Care should be taken when readings are made to ensure that readings are accurate. It is important to make sure that probes are free of moisture and the surface being checked is free from condensation.

All readings should be taken in a position where the holes created by the meter's probes are not visible, i.e. behind rubber seals, in bed boxes or in cupboards.

Carry out and note readings on separate damp report (see Appendix C). Readings should be taken in the following areas:

Around roof joints and awning rails	Around exterior door
Heater flue seal	Fridge vent seal
Aerial seal	Around wheel boxes
Roof light seals	Around bottom rails
Above and below rear top shelf	Around all windows
Corner jointing seals	Grab handle seals
Rear lower panel	Front bulkhead to floor area
Above and below front window top shelf	

*Note: Readings between 0 -15% - no cause for concern.*

*Readings between 15 - 20% - may require further investigation when compared with the average of all readings taken. Consideration should be given to rechecking the area in three months.*

*Readings greater than 20% - will identify areas needing remedial work. There may be early signs of water ingress or evidence of moisture. Again, consideration should be given to rechecking the area in three months.*

*When readings go above 30% structural damage may be occurring and deterioration is inevitable.*

*It is important that any areas of concern be fully explained to the customer.*

## **MOTORHOME HABITATION**

### **Underbody**

#### **Body to chassis mountings**

Check body to chassis mountings and tighten to the recommended torque.

#### **Cab to body junction**

Check for excessive movement and seal condition.

#### **Underbody tanks and auxiliaries**

Check security, condition and connections.

#### **Spare wheel retainer**

Check operation and lubricate.

#### **Corner steadies**

Check operation of corner steadies and folding steps and lubricate (where applicable).

#### **Chassis**

Lubricate axle tube (AL-KO) and inspect non-original suspension components.

### **12V Electrics**

#### **12N & 12S plugs/cables**

12N 7 pin plug - check external condition of plug, pins, tubes, body and cable entry. Check 7-core cable, condition, connections and clamping. Check for correct fit in test socket.

12S 7 pin plug - check external condition of plug, pins, tubes, body and cable entry. Check size of 7 core, condition, connection (grey), and clamping. Check for correct fit in test socket.

*Note: Pay particular attention to the centre pin for damage and misalignment.*

#### **Road lights, reflectors**

Check condition of all road lights and reflectors. If water visible in any light then drain clean and re-seal.

Check operation of all road lights with proprietary test equipment.

#### **Fridge**

Check operation - using proprietary test equipment, check continuity of 12V fridge circuit.

#### **Interior lighting & equipment**

12V equipment test - using proprietary test equipment. Check operation of all 12V equipment.

*Note: In the time allowed, it is not possible to check thoroughly all the complex equipment now fitted, but it is possible to check the operation of lights, fans and pumps etc.*

#### **Habitation Battery (where fitted)**

Check for condition - damage, corrosion, spillage and that it is secured.

Clean terminals and grease with petroleum jelly.

Non-insulated battery connections e.g. crocodile clips should not be fitted.

Check indicator if sealed battery fitted. Otherwise check electrolyte level and top up if necessary.

#### **Wiring & fuses**

Inspect all visible wiring for security and condition - frayed or chafed insulation, unsupported wiring, DIY additions.

Check that an appropriately rated fuse protects circuits fed by the battery.

#### **Awning light**

Check condition & operation.

Check condition and operation of outside pump socket.

#### **Fan master**

Check operation.

### **Ventilation**

#### **Ventilation openings**

Check all fixed ventilation openings for free flow of air.

Remove any material/obstructions blocking the ventilators. If blocked, the owner should be warned of the dangers in writing.

### Adjustable ventilators

Check adjustable ventilators for function.

### Roof lights

Check roof lights are free of obstructions.

Other than fixed ventilation in the roof of the motorhome, ventilators supplying air from the outside should have anti-vermin screens fitted with slots of not more than 9mm and not less than 6mm measured in any direction.

*Note: It is acceptable to use clean fly screen type mesh in roof lights and roof ventilators, providing it allows a free flow of air through it and can be removed for cleaning.*

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### Carry out gas leak test

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### Appliances

Cooker - check for safe and secure installation.

Hotplate burners - at the 'fully on' position, flames should be stable with a clearly formed blue inner cone. Turn to low setting - flame should remain stable, no yellow flame or visible smoke. Check stability of oven and grill burners.

Fridge - check for safe and secure installation. If visible check that the final connection is not made with a rubber hose. Where necessary replace with copper or approved protected flexible connection. Check fridge vents (including exterior vents) not obstructed especially gas dispersal holes. Light burner and check flame picture.

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Other gas appliances - check installation and operation in accordance with manufacturer's instructions.

*Note: Appliances found to require servicing shall be notified to the owner in writing.*

*It is well known that some caravan manufacturers may not always install appliances (notably fridges and water heaters) fully in accordance with the appliance manufacturer's published instructions, for various reasons.*

### Pipe work

Check condition and date on flexible hose (BS 3212) and replace hose and clips when necessary.

Where possible, check flues, flue terminals, and including hoses for corrosion, wear, chafing, damage and obstruction.

*Note: flexible hoses should not be fitted except at cylinder.*

### Flame failure device

Where fitted, the FFD should be checked to ensure satisfactory operation. After the appliance has been successfully checked, allow time for the thermocouple to cool. Attempt to relight the appliance by turning it on without pushing in the gas control knob (Do Not over-ride the FFD). If appliance does not light, FFD is satisfactory.

### **Cylinder**

Check that gas cylinders are securely located upright and straps, if used, are in good condition.  
Check condition of gas cylinder locker and ensure that the gas dispersal holes in the floor are unobstructed.

### **Gas dispersal holes**

Check all remaining gas dispersal holes are free from blockage.

## **Mains Electrics**

### **Inlet plug**

Check condition of inlet plug and report if replacement is necessary. Check condition of cables (including hook-up cable when available) and report any problems found (especially check the earth bonding to the chassis and its warning label).

### **Outlets & permanent connections**

Socket outlets - check polarity and report if defective (check DP sockets date).  
RCD - check operation of Residual Current Device and report if defective carry out visual and functional check.

## **Water System**

### **Water pump**

Check operation of water pump, pressure switch and heater.  
Clean grit filter.

### **Taps**

Check condition and operation of taps, micro switch, valves, pipes & tank (if fitted).

### **Water filter & housing**

Check for leaks & replace filter if necessary.

### **Waste system**

Check for leaks.  
*Note: Shower systems are sealed and, therefore, cannot be checked.*

### **Toilet**

Check seals, flush and blade operation.

### **Drain down**

Drain down system - winter only.  
*Note: Ensure customer is advised of situation.*

## **Fire Safety**

### **DIY additions**

Carefully check any DIY modifications or additions. Faults should be identified to the owner in writing.

### **Security & smoke alarms**

Check operation of any security alarms fitted.  
Clean and check smoke alarms for correct operation. If battery has been removed by the customer, carry out test using workshop's own battery.  
*Note: Ensure customer is advised of situation.*

### **Extinguisher (if fitted)**

Check correct type fitted and expiry date.

### **Fire blanket (if fitted)**

Check location and fixing.

## **Bodywork**

### **Body panels**

Check and report upon any damage & sealant condition

### **Door locks & hinges**

Check operation and lubricate.

### **Body attachments**

Check security (including ladders, cycle racks, lockers, aerials, satellite dishes etc)

### **Floor**

Check for delamination.

### **Cab seat**

Check operation (swivel type or bed configuration only)

### **Furniture**

Check condition and operation (incl. hinges, stays etc).

### **Windows seals & blinds**

Check condition & operation.

### **Rising roofs**

Check operation where applicable.

### **Damp test**

*Note: It is very important to ensure the meter probes are free from moisture and that internal surfaces are free from condensation before commencing the check.*

*Only use equipment that complies with the following minimum specification: Measurement range: 6% to above fibre saturation in wood (to nominal 100%). Resolution: +0.1%. Operating Temperature Range: -10°C to +45°C. If the meter is not fitted with remote probe facility then an audible alarm is essential. The meter must be battery powered. Ideally, both a probe type meter and a radio frequency type meter should be used to confirm suspect readings.*

*The damp check should be carried out at the end of the annual service. Only a trained and competent caravan engineer should carry out the check.*

Environment - Ideally the damp test should be carried out when the internal temperature of the caravan has stabilised and is close to workshop ambient temperature. This reduces the likelihood of condensation being present particularly in washroom areas and closed cupboards.

Method - Readings should be taken in each position marked on the diagram below. Care should be taken when readings are made to ensure that readings are accurate. It is important to make sure that probes are free of moisture and the surface being checked is free from condensation.

All readings should be taken in a position where the holes created by the meter's probes are not visible, i.e. behind rubber seals, in bed boxes or in cupboards.

Carry out and note readings on separate damp report (see Appendix B). Readings should be taken in the following areas:

Around roof joints and awning rails	Fridge vent seal
Heater flue seal	Around wheel boxes
Aerial seal	Around bottom rails
Roof light seals	Around all windows
Above and below rear top shelf	Grab handle seals
Corner jointing seals	Front bulkhead to floor area
Rear lower panel	Above and below front window top shelf
Around exterior door	

*Note: Readings between 0 -15% - no cause for concern.*

*Readings between 15 - 20% - may require further investigation when compared with the average of all readings taken. Consideration should be given to rechecking the area in three months.*

*Readings greater than 20% - will identify areas needing remedial work. There may be early signs of water ingress or evidence of moisture. Again, consideration should be given to rechecking the area in three months.*

*When readings go above 30% structural damage may be occurring and deterioration is inevitable.*

*It is important that any areas of concern be fully explained to the customer.*