WATER SYSTEM

The **FRESH WATER** storage tank is located on the offside against the side of the unit behind the driver's seat.
The WASTE WATER storage tank is in the same position on the opposite side of the unit
The lockable filler is located on the offside of the Romahome.

The tank is of clear polythene enabling you to judge the amount of water it contains and a breather pipe is fitted. It is important to ensure the ACCESS HATCH is water tight by closing it firmly on the rubber seal by turning it clockwise. Ideally the tank should be filled no higher than 40mm from the top.

Water left in the tank for extended periods may become unsuitable for drinking or washing and you should therefore change it as frequently as is practical. The tank is fitted with an **ACCESS HATCH** to enable you to clean it. Please bear in mind that any cleaning fluid you use may taint the water. Baby's bottle sterilising tablets are quite effective and also assist in reducing the polythene taint (which is quite harmless) on new tanks. The tank may be flushed by running water through the filler cap at the same time as turning the tap fully on (taking care not to run dry or overfill!)

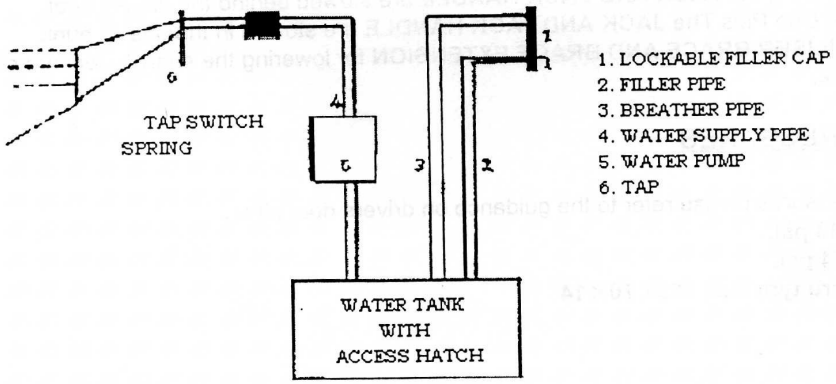
The water is fed from the tank via an ELECTRIC PUMP which is activated by the tap which contains an on / off electrical switch. The system is pressurised and the pump self-priming.

You must avoid activating the water pump when the tank is empty as **RUNNING THE PUMP DRY** may cause damage.
A hose or showerhead may be attached to the tap if you require it. (standard on the hot water system)

To DRAIN THE WASTEWATER TANK, place a suitable container under the outlet to the tank and open the tap. An ACCESS HATCH is provided on the waste tank so you can flush the tank clean.

Most of the **HOSE JOINTS** within your system are secured using Jubilee hose clips and you should ensure that these are always securely fastened and kept greased to prevent corrosion.

It is advisable to **DRAIN** the water tank during periods when your **ROMAHOME** is not in use, particularly during winter periods. The water pump should not be used if water is frozen and there is no free flow as it is liable to damage the pump.



GAS SYSTEM

Your **ROMAHOME** has been designed for use with Butane **CAMPING GAZ** and recommended bottle size 907 (2.72kg - 6lb). The **GAS STORAGE COMPARTMENT** is sited towards the rear of the near side of your **ROMAHOME** with external access.

You must make sure that the **VENTILATION** to this locker is never obstructed.

Your unit comes complete with the recommended regulator for **BUTANE** at 28 Mbar. You should never use an adjustable type regulator. Most of the equipment has been designed for use with either **BUTANE** at 28 Mbar or **PROPANE** at 37 Mbar. However, in it's supplied mode it should be used with **BUTANE** only and you should check with an approved LPG gas dealer if you wish to make changes to the system, either to the equipment or to the type of gas. Details of working pressures are included in the instructions, for your **COOKER**, and **REFRIGERATOR**,

Never **CHANGE A GAS CYLINDER** or disconnect a supply hose whilst smoking or near a naked flame or any electrical item likely to cause a spark.

The gas cylinder is connected to your vehicle with a **RUBBER HOSE** check regularly (see note below) and then to a fitted copper tube. This latter must not, as far as is practical, be disturbed or flexed in a manner which could cause damage and create a gas leak.

The CYLINDER **MAY BE CHANGED** by gently lifting it out of the locker, placing on the ground and unscrewing from the regulator, reversing the procedure with the new one.

Gas cylinders in use must only be stored in their **UPRIGHT POSITION** and **NEVER** on their side. SMMT code of practice for construction and use of Motor Caravans also recommend that spare cylinders are stored in an upright position. The main supply cylinder is retained in place with a strap, make sure it is always in place.

The **REGULATOR** should always be screwed firmly into position and never allowed to become loose and never over-tightened.

WHEN TRAVELLING, you should always ensure that the gas supply has been turned off at both the supply taps inside your **ROMAHOME** and at the gas cylinder itself. If you are involved in an accident, leaking gas can be a major hazard.

You should regularly check, or have checked, your gas system for leaks. It is in a moving vehicle where vibration could cause damage over a period of time. **RUBBER HOSES** may be affected by the corrosive nature of the gas and should be replaced as necessary WITH THE APROVED TYPE no later than the expiration date on the hose

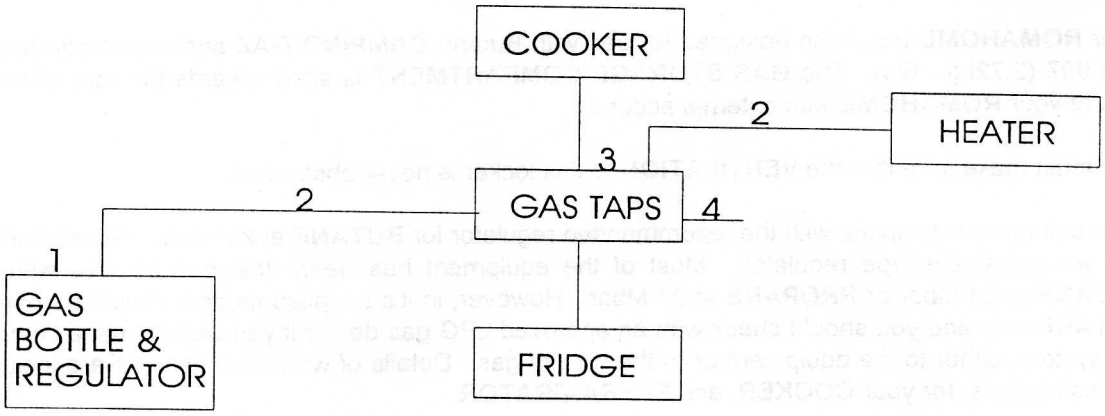
(Referrals to equipment instructions only apply to those units where equipment has been fitted).
You should **NEVER** allow your **GAS OR ELECTRICAL SYSTEMS** to be tampered with or altered other than by a qualified tradesman.

In the interests of safety, replacement parts for an appliance should conform to the appliance manufacturer's specification and should be fitted by them or their authorised agent.

The **GAS SUPPLY CIRCUIT**, shown below, passes from the gas cylinder through a 8mm (5/16"). supply to the distributor taps.

The **GAS SUPPLY TAPS** are located on the face of the locker below the **COOKER**
One tap is for the cooker, the second for the refrigerator. The taps dedicated to optional extras, which have not been fitted, should not be turned on at anytime. For safety reasons taps should be turned off when an appliance is not in use.

See Next Page for Gas Diagram...



SAFE HANDLING OF LPG GAS

1. Handled properly, LPG is a safe, convenient and effective energy source.
If handled incorrectly LP Gas can be hazardous. People have been injured in their homes, caravans, tents and boats by accidental fires and explosions involving gas from cylinders used with heaters, cookers, lights and refrigerators. These accidents can be avoided!
Accidents most frequently occur as a result of gas leaking when people are assembling appliances or changing gas cylinders or cartridges.
LP Gas is butane or propane and is stored as a liquid under pressure and a small leak can produce a large volume of highly flammable gas. The gas is heavier than air so it collects near the floor or ground and can be ignited at a considerable distance from the source of the leak resulting in a fire and possibly an explosion.
Propane or Butane should be used as recommended by the appliance manufacturer; they are not interchangeable. LP Gas should not be used with appliances approved for other gases, e.g. natural gas.

2. If you smell gas, do not use the appliance. Find the leak and have it checked.

3. Before attaching a new cylinder to the appliance, ensure that the appliance tap is closed (turned fully clockwise).
Check that the appliance seal is in good condition and correctly positioned in the bottom of the appliance tap where the cylinder screws in.
Make sure the cylinder is screwed fully home into the connection keeping it upright and without using tools. Screw hand tight only.

4. Test for leaks by applying a branded gas leak tester to all joints and connections. Never use a lighted match or any other flame. When appliances are not in use, close the valve on the cylinder.

5. All gas appliances must have air to operate properly. Failure to observe this simple rule could be highly dangerous. Do not obstruct room ventilation or appliance flues. Regularly check they are not blocked or deteriorating.

ELECTRICAL SYSTEM

Secondary battery and mains electric hook up are available as optional extras. You should refer only to those parts of these instructions that apply to your unit and its specification.
We use internationally recognised systems and coloured cables. If you wish to know more about wiring systems, you should refer to an approved automotive electrical handbook.

The **12volt FLUORESCENT LIGHTS** are activated by the switch on the side of the light fitting.

EARTHING

The terminology of "earth" in the automotive industry for your 12-volt system is actually for the negative return. The returns all run to a number of "earthing points" and then (in accordance with common practice), back through the metal body to the power source. The cooker and sink/drainer (if metal) are earthed when you have mains hook up.

IMPORTANT Your **MAINS HOOK-UP** (if you have one) has been certified by a registered Contractor of the National Inspection Council for Electrical Installation Contracting (NICEIC) and requires earthing in the same way as your domestic supply. On most sites an approved supply, earthing will be through the supply cable from the camp supply to your **ROMAHOME**. For further protection we fit an "**EARTH LEAKAGE TRIP**" which cuts the power in a microsecond if there is a leak to earth. However, **YOU MUST BE AWARE** that on some sites particularly continental, the earth cable may be faulty or even non-existent. If this coincides with "reversed polarity" in the supply your **ELCB** will be rendered ineffective and you have a potential problem. We therefore strongly recommend that you either fit into your mains circuit a **POLARITY SWITCH**, preferably with a buzzer which is activated on reverse or alternatively, use a tester on the camp supply before you connect.

To access to the **EARTHING POINTS**, remove the offside and nearside water tank covers.
You should ensure that these points remain free of corrosion and protected with Vaseline.
Earthing points are also located on the rear door pillar.

RECOMMENDED PRECAUTIONS FOR CONNECTING TO A MAINS SUPPLY

1. Before connecting the Romahome installation to the mains supply, check that:-
   a) The supply available at the pitch supply point is suitable for the installation of the Romahome and it's appliances. b) the main switch is in the OFF position.
2. Remove or raise any cover from the electricity inlet provided on the Romahome and insert the connector of the supply flexible cable.
3. Remove or raise any cover from the socket outlet provided at the pitch supply point and insert the plug at the other end of the supply flexible cable.
4. Switch on at the Romahome main switch.
5. Check the operation of circuit breakers, if any fitted in Romahome.
6. **IN CASE OF DOUBT CONSULT THE ROMAHOME DEALER.**
7. To disconnect reverse the procedure described in Paragraphs 2 to 4 above.
8. The Romahome electrical installation should be inspected and tested once a year.
   The following codes have been used in the wiring diagram.

ELECTRICAL SYSTEMS - GENERAL GUIDANCE
TYPICAL POWER CONSUMPTION REQUIREMENTS

The power available from your vehicle battery will depend upon which model you have. You should refer to the vehicle handbook or the local dealer for this information.

Typical power abilities are: Citroen Duo Petrol 29 amph
Citroen Duo Diesel 42 amph

But these should be verified on your own vehicle.

CONSUMPTION	12 volt supply	220/240 volt supply
Water pump	2.0 amp	---------
2 x 8 W fluorescent	1.33 amp	---------
10 W berth light	0.83 amp	---------
85 W refrigerator	7.1 amp	0.37 amp
2000 W kettle	----------	8.7 amp
1300 W toaster	----------	5.6 amp
1000 W microwave	----------	4.3 amp
100 W T.V.	8.0 amp	0.45amp

(the above approximate only - please obtain advice if in doubt)

You can estimate how many hours capacity your battery will provide by adding the amperage of the equipment in use and dividing into the battery amperage. Batteries are usually quoted as the available amperage over a 20-hour discharging period. Discharging faster than this will reduce the amperage available.

e.g.

40 AMP/HR BATTERY AT 20 HOUR RATE			50 AMP/HR BATTERY AT 20 HOUR RATE		
DISCHARGE (Amps)	DISCHARGE (Amps)	CAPACITY (Amps/hrs)	DISCHARGE (Amps)	DISCHARGE (Amps)	CAPACITY (Amps)
1	40	40	1	60	60
2	20	40	2.5	20	50
3	12.5	37.5	3	16.5	49.5
4	8.5	34	5	8.7	47.5
8	3.75	30	10	3.8	38.0

e.g. 10 watt berth light at 0.83 amps plus the T.V. at 8amp = 8.83 amps. With a battery of 40 amp the maximum time would be 3.75 hours. However voltage falls as a battery becomes discharged and this will increase the consumption (amperage). You should therefore always err on the side of caution.

Campsites generally offer one of two mains hook-up capacities limited to either 10 amp or 16 amp. You must therefore bear this in mind when considering your total mains power requirement.

If you wish to fit a transformer to run your 12-volt appliances from a higher voltage, you should only use an approved type. The extra low voltage at the terminals of the supply unit should be maintained between +/- 1 volt of 12V with applied loads varying from 0.5 amp to the maximum load of the supply unit. AC ripple should not exceed 10%.

If you have the factory fitted optional mains hook-up, which includes the ZIG X7 transformer you can charge your battery at up to 10 amps/hr (depending on which you have) and this should be taken into account when making your calculations.

COOKER AND GRILL. The total heat output of both appliances is 4.6kw. Please follow the instructions laid out in the manufacturer guide with regard to operation and maintenance and appended to this manual.

VEHICLE 12 VOLT SUPPLY ONLY

Those units with 12 volt supply only, draw the power from the base vehicle's own system. When the engine is not running you should take care not to drain the battery to the extent that it will not re-start the engine. Details of approximate power consumption's are given on page 12

The **ROMAHOME** power supply is taken from the vehicle's battery (3mm red cable via a 5-amp fuse. From the fuse box you will see a 1mm red cable via a 5-amp fuse. This is the lighting circuit.

There is a 1mm yellow cable, which is the feed to the electronic ignition (if you need it) on your refrigerator. If your refrigerator does not have electronic ignition, the cable terminates in a connection block and is available for your possible future use. Power for the Propex heater is taken from the 5 amp through a 1mm red cable and connected direct to the vehicle battery. (If Fitted)

The 12-volt power for the refrigerator is taken from the 6-amp fuse to a relay (an electronic switch). 12-volt power to the fridge from the vehicle battery may only be drawn when the relay has been activated. This is achieved by switching on the dashboard switch, (marked fridge) and the vehicle ignition. This means the 12-volt power to the fridge is available only when the engine is running, thus giving you protection against forgetting to switch the fridge off and draining the battery. The circuit is additional to any electronic ignition system for the fridge

You should always carry spare fuses for your Citroen, not only to cover the vehicle requirements but those for the **ROMAHOME** as well.

Wiring for the internal lights of the Romahome Duo runs behind the roof panels.
The earthing point are situated at the forward end of the nearside bunk, under both water tanks and under the passenger seat.

12 VOLT SUPPLY USING A SECONDARY BATTERY

The wiring for these units is basically the same as those that have no secondary battery.
The wiring diagram at the back of this book is correct excepting that there is a **RELAY** fitted into your system so that both the primary and secondary batteries are charged when your engine is running. The **RELAY** ensures that power cannot be drawn to the **ROMAHOME** from the primary battery and also that when the batteries are being charged, the primary battery has priority There is an "in line" 16 amp fuse fitted between the primary battery and relay.

The SECONDARY **BATTERY** is stored in a battery box under the passenger front seat. It is strongly recommended that the ventilation to this area is not obstructed.

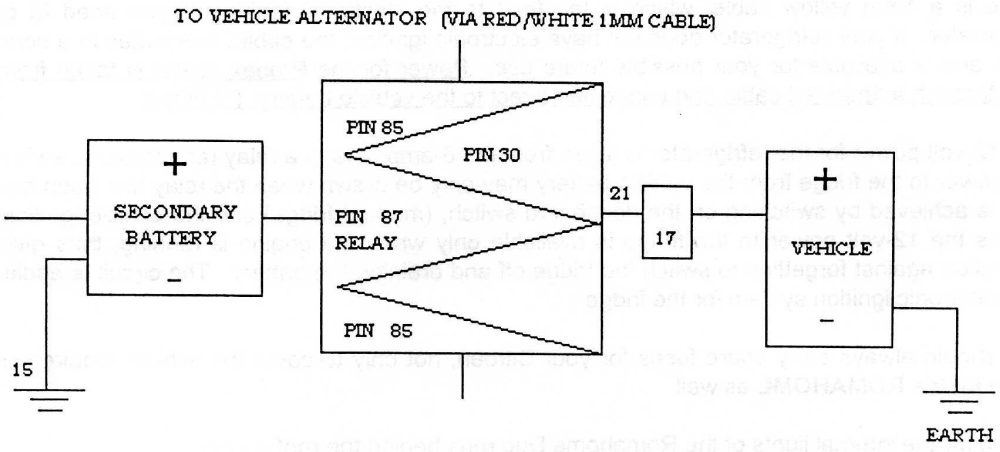
You must ensure that all power is switched off, before you disconnect the battery terminals.
You should avoid allowing your batteries to suffer temperatures below freezing point.
The battery should be maintained in a charged mode and regular checks should be made on its condition.
For units having a secondary battery but **NO** mains hook-up, charging is effected from the vehicle alternator via the "split charging relay".

For units having both secondary battery and mains hook-up, charging is either from the vehicle alternator or the ZIGX7 transformer/charger (see separate notes).

If you are drawing power from your secondary battery, you must allow ample time for recharging. If charging is from your vehicle and you are only making short journeys, it is doubtful you will sufficiently re-charge it and alternative arrangements should be made.

The power and size of a secondary battery is limited to its compatibility with the vehicle battery.

THE 12 VOLT SUPPLY USING A SECONDARY BATTERY (DIAGRAM)



NOTE: Some relays are fused, in which case 17 would be omitted.

UNITS HAVING MAINS ELECTRIC HOOK-UP OPTION

In connecting your unit to a camping site **MAINS ELECTRIC** hook-up option, either in the U.K. or elsewhere, you must make sure the connecting cable you use is to an approved design and standard. As there are a number of different site connections, depending upon which country you are in, you will require not only the main connecting cable (recommended 25 metres) but short approved adapter cables.

The polarity of the mains supply (particularly on the continent) can be opposite to the recognised British Standards. If this is the case, you should either temporarily swap the live and neutral wires over in the site connecting cable or, better still, have a polarity changeover switch fitted inside your unit. Incorrect polarity may damage some of your electrical equipment and will certainly render your **RCD** ineffective.

We strongly recommend that you seek specialist advice on your requirements, thus ensuring your safety.

A **Residual Current Device** (RCD), sometimes called an Earth Leakage Trip, is to protect you from electric shock and earthing faults, immediately cutting off the power supply. After correction of the fault, the RCD (main switch) should be switched on again. If it won't stay on then you still have a fault. The RCD should itself be frequently tested by pushing the test button, see appendix.

The Miniature Circuit Breakers (MCB) 5 amp and 10 amp act in a similar way as a fuse, cutting supply in the event of an **OVERLOAD** situation. After correction of the fault, they may be switched on again.

Mains electric power is taken from the **MAINS INLET** to the **CEC 225 MAINS INLET**, which incorporates the **RCD** and **MCB**.

Mains electric power is taken from the 10 amp **MCB** to the **13 AMP SWITCHED SOCKET** in the face of the near side bunk, providing mains power for your use.

It also supplies for your possible use a **12-VOLT POWER SOCKET**. With a mains hook-up you can therefore have both 12 volt and 220/240-volt power at the same time. You must ensure that only 12-volt appliances are used with this socket and that any 220/240-volt appliances are restricted to their own supply. In both cases you must remain below the amperage available for the circuit.

ZIG X7 TRANSFORMER

When the transformer is connected to the mains supply, it is capable of charging a battery up to 10 amps (depending upon the make you have) continuously and will automatically reduce its charging rate to zero as the battery condition improves. The unit will also provide enough power to enable equipment to be used at the same time as the battery is being charged.

12-volt power for the 3-way refrigerator is drawn direct from the vehicle battery through a 20 amp in line fuse and relay.
The ignitor wire for the fridge with electronic ignition is 1mm yellow cable "scotch locked" into the 1mm-green/mauve cable within the passenger dash locker.

For vehicles fitted with an optional 3-way refrigerator, preference should be given to running the appliance with 220/240 voltage whenever this is available.

The ZIG X7 provides 12-volt power to the Romahome circuit enabling you to run the built in water pump etc. It will not, however, supply 12-volt power to your refrigerator, which has a high amperage requirement.

In conclusion.....

When travelling, the changeover switch should be in the UP vehicle position.
When stationary, the changeover switch should be in the DOWN secondary position.
When connected to the mains supply, put changeover switch in the DOWN position AUX to charge the secondary battery.
When connected to a mains supply, put changeover switch in the UP position VEH to charge the VEH battery.

If you do not have a secondary battery, you may ignore that part of these instructions.

When the X7 power pack is connected to the mains supply, it is capable of supplying 13.5A of power to charge a battery and/or supply the 12V accessories. The output voltage is set at 13.8V and remains stable as the loads drawn from the accessories is altered. Therefore battery overcharging is eliminated as the output voltage cannot increase above this present level.

Because the output is stable, battery charging time is reduced and on-board accessories can be safely powered direct from the unit without a battery in circuit.

The X7 has automatic safety features including over voltage protection (OVP) to prevent the battery being overcharged in the event of a fault, it is fully protected should the battery be accidentally the wrong way round. It also includes a current limit circuit, protecting against short circuit an/or faulty appliance. All these features are self re-setting when conditions are returned to normal.

Please refer to manufacturers instructions for further information.

On later models an X7 isolation switch is fitted as an added safety feature. This should be in the OFF position before connecting up the mains power, as a precaution against power surges. Switch on both isolation switch and the fridge 240V switch after the mains power is connected.

TO OPERATE THE ZIG X7, connect the unit to a domestic mains supply via the Romahome mains input socket and **CEC 225 ON** the mains **ON/OFF** switch and then the 12-volt switch to the **ON** position. The X7 will now automatically adjust its output to the demand from the battery and/or equipment.

Power is drawn from the ZIG X7 panel as follows:-

The water pump and lights are through a 5 amp fuse.
Eberspacher heater (if fitted) through 5 amp in line fuse.
12-volt power socket through 10amp fuse.

REFRIGERATOR

Please follow the instructions laid out in the Electrolux guide with regard to operation and maintenance and appended to this manual for operation of the **REFRIGERATOR**.

The 12-volt power supply to the **REFRIGERATOR** is connected through the vehicle ignition and a manual switch is fitted in the dashboard of your vehicle.

To operate the refrigerator from the 12-volt power supply, switch on the dedicated switch. When the ignition is turned on and the engine is running the refrigerator will operate without discharging your battery. The refrigerator has no motor and so operation is silent. It must be level to operate and should be run for 3 hours before you use it.

You should try whenever possible, when stationary, to operate the refrigerator:-
1. On mains electric (if you have that option) to conserve gas.
2. Gaz
3. 12 volt for short periods only (as this means running your vehicle engine).

The refrigerator is normally only operated on 12 volt whilst driving but this will not reduce the temperature to the same extent as when in the gas or 240 volt modes.
At least every year you should ensure that all refrigerator ventilators are clear of debris and dust. You may have to remove the refrigerator to accomplish this.

If you need to **REMOVE THE REFRIGERATOR**, the following procedure should be adopted:-

1 Turn off the gas at isolating tap.

2 Remove refrigerator by opening the fridge door and remove the 4 screw cap covers and undo the screws.

3 From the outside of the vehicle remove the fridge vent cover and push the fridge forward.

4 Ease the refrigerator from its position by tilting the top of the refrigerator forwards and pulling the bottom edge of the refrigerator out, thus clearing the exhaust vent

If removal is for maintenance purposes only there is **no need** to disconnect the power or gas supplies.

TO REPLACE THE REFRIGERATOR, slide it into the casing (in the reverse way that you removed it) making sure that the exhaust pipe engages in the aperture of the outside exhaust vent.
Take care not to damage or trap electric wires or kink the gas supply pipe. Replace the retaining screws and replace the screw caps.

Units having the optional 3 way 240 volt/12 volt/gas refrigerator should note that the 240 volt power is drawn from the CEC 225 RCD/MCB mains unit through the 5 amp MCB. Due to the high amperage requirement it is not practical to run on 12 volt other than from the vehicles own battery when the engine is running.