FITTING INSTRUCTION

ZK1375

12N/12S Rear Audible Relay & Volton Combi Kit (2m Cable, Pre Wired)

SUITABLE FOR USE ON 12V NEGATIVE EARTH VEHICLES ONLY

COMPONENTS

ITEM	QTY	DESCRIPTION	ITEM	QTY	DESCRIPTION
A	1	ZR1000A Type Approved Flashmaster Audible Relay	G	2	Grommet
B	1	12N/12S Pre-Wired Socket (2m Cable, on T-Plate)	H	1	Blade Fuse Holder
C	1	ZR1220 Type Approved Volton Combi Relay	I	1	15 Amp Blade Fuse
D	11	Insulation Displacement Tap Connector	J	2	Blue Fully Insulated Female Spade
E	1	4m x 0.5mm Wire	K	3	Red 6.4mm Ring Earth Terminal
F	1	5m x 3mm Wire	L	2	Blue 6.4mm Ring Earth Terminal

FITTING PROCEDURE

⇒ Before commencing with installation please read all pages of this fitting instruction carefully.

⇒ Ensure vehicle circuits are de-energised, isolated and safe to work on (Always follow vehicle manufacturer's instructions).

⇒ Fasten Pre-Wired socket mounting plate between the towball and towbar neck flange using the existing towball bolts. Run the 12N and 12S 7 core cables into the boot through the grommets supplied. This may require appropriate holes to be drilled in the vehicle.

⇒ Locate the vehicle's wiring harness.

⇒ **WARNING** Only test for the vehicle road light function wires using a high impedance automotive tester or a digital volt meter. PCT Automotive recommends ZM1383.

⇒ Connect each of the audible relay and 12N socket wires to the vehicle's wiring harness as shown in the fitting diagram below.

⇒ Connect the yellow wire from the 12S socket 7 core cable to the vehicle's wiring harness as shown in the fitting diagram below.

⇒ Connect the white wire from the 12S socket 7 core cable to vehicle earth (-0 volts), using a blue 6.4mm ring earth terminal.

⇒ Connect the black wire from the 12S socket 7 core cable to vehicle earth (-0 volts), using a blue 6.4mm ring earth terminal.

⇒ Connect ZR1220 Earth terminal to vehicle earth (-0 volts), using 200mm of 0.5mm wire and a red 6.4mm ring earth terminal.

⇒ Connect the green wire from the 12S socket 7 core cable to the Permanent Live Output terminal on the ZR1220.

⇒ Connect the blue wire from the 12S socket 7 core cable to the Switched Output 1 terminal on the ZR1220.

⇒ Connect the red wire from the 12S socket 7 core cable to the Switched Output 2 terminal on the ZR1220.

⇒ Connect ZR1220 +12V Input terminal to +12 volt supply, through a 15 amp fuse, using 3mm wire. The ZR1220 supply should not feed any other system or load. The source of +12 volts should be a spare fuse on the vehicle's fuse board (Check vehicle manual).

⇒ Reconnect vehicle power (Always follow vehicle manufacturer's instructions.)

COMMISSIONING AND TEST PROCEDURE

1. **Start the vehicle engine** and turn on and off the vehicle road lights in the following sequence:-

   Side lights, Brake lights, Left indicator light, Right indicator light, Fog lights, Reversing lights

2. As each vehicle road light function is switched on in the sequence indicated above, test the corresponding 12N/12S socket output (as shown in the fitting diagram), +12 volts dc should be measured on each corresponding output.

3. With the vehicle engine running, commission the installation by plugging a 12N/12S socket tester or trailer test board into the 12N/12S sockets. (**Note** some socket testers do not trigger the indicator audible bulb failure warning.). The operation of the tester or test board should mirror the vehicle's rear road light operation.

4. The complete 12N/12S towing electrics installation can now be tested. Check that each pin in the 12N and 12S sockets operate as specified in the 12N/12S socket 7 core cable fitting diagram. Note that if the ZR1220 does not switch 12S pins 2 and 6 ON (Between 12V and 14.2V) after 10 to 15 seconds with the engine running, slowly turn the switching adjustment on the ZR1220 clockwise until 12S pins 2 and 6 switch ON (Between 12V and 14.2V).

5. All the vehicle road light functions should now be turned on together to 'pressure test' the complete electrics installation. All input cables and terminations should be checked for 'cool' operation. All the road light functions should be seen to operate on the 12N/12S socket tester. When a trailer test board or trailer is connected to the 12N socket and the directional indicators operate, an audible indication of operation should be heard.

Fault Finding

⇒ Relay not sounding after fitting: Check all connections and correct wiring pairings.

⇒ Relay continually sounding: Check all connections and socket/trailer unit for earth fault.

⇒ Relay not sounding whilst indicators working: Check bulb wattage (21W) and earth connections.

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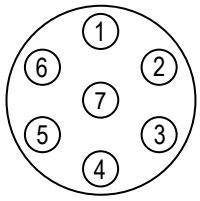
FITTING DIAGRAM

12N/12S SOCKET PIN CONFIGURATION
(View from front through flap)



12N/12S SOCKET 7 CORE CABLES

12N Pin No 1/L	12N Yellow Wire	(LH Indicator)	Yellow → ZR1000A AUDIBLE RELAY → Orange → LH Indicator
		(Vehicle Earth)	White → (Vehicle Earth)
12N Pin No 4/R	12N Green Wire	(RH Indicator)	Green → ZR1000A AUDIBLE RELAY → Grey → RH Indicator
12N Pin No 2/54G	12N Blue Wire	(Fog Lights)	Fog Light
12N Pin No 5/58R	12N Brown Wire	(RH Side Light)	RH Side Light
12N Pin No 6/54	12N Red Wire	(Brake Lights)	Brake Light
12N Pin No 7/58L	12N Black Wire	(LH Side Light)	LH Side Light
12N Pin No 3/31	12N White Wire	(Vehicle Earth)	Reversing Light
12S Pin No 1	12S Yellow Wire	(Reversing Lights)	
12S Pin No 3	12S White Wire	(Vehicle Earth)	
12S Pin No 5	12S Brown Wire	Not Used	
12S Pin No 7	12S Black Wire	(Vehicle Earth)	
12S Pin No 4	12S Green Wire	(Caravan Power Supply)	
12S Pin No 2	12S Blue Wire	(Battery Charger Supply)	
12S Pin No 6	12S Red Wire	(Refrigerator Supply)	

VEHICLE ROAD LIGHTS

Switching Adjustment
-0 Volt Vehicle Earth
(0.5MM Wire Minimum)
+12 Volt
(3MM Wire Minimum)

ZR1220 VOLTON COMBI

Switched Output 2
Switched Output 1
Permanent Live Output

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IMPORTANT PRODUCT INFORMATION & GUARANTEE
(TO BE RETAINED WITH THE VEHICLE AND PASSED TO SUBSEQUENT OWNERS)

Thank you for purchasing a PCT Automotive product. Please read the following information carefully before fitting or using your PCT Automotive product.

GUARANTEE

We shall free of charge either repair or at our option replace defective goods where the defects appear

i. if the goods are a towbar manufactured by us, during the economic lifetime of the vehicle it was first fitted to
ii. in the case of all other products manufactured by us, within 3 years following the date of your order

PROVIDED THAT (in each case) such defects shall be found to our reasonable satisfaction to have arisen substantially from our faulty design, workmanship or materials and have not arisen by reason of a failure to follow our instructions (whether written or oral), any modification, misuse, neglect or interference with the installation, any damage or abuse to the goods or vehicle by impact or vandalism or by a failure to carry out reasonable inspection, maintenance and/or adjustment.

At all times, the above guarantee is subject to our standard terms and conditions of sale a copy of which is available upon request from our offices.

TOWING LIMITS

Our towbars have been designed for towing up to the vehicle manufacturer's maximum recommended trailer weight and nose load limits for your model. Towing with gross weights above that recommended at any time will invalidate the guarantee and cancel any liability for damage. Towing a twin axle trailer, towing over rough ground or using a bicycle/motorcycle carrier, etc, exerts extreme loads on to a towbar and extra care should be taken in these situations not to exceed the vehicle manufacturer's maximum recommended limits.

PRODUCT IDENTIFICATION MARK

Your product carries a product identification mark. This mark carries important product and batch code information and if the product is type approved it also carries the type approval details which are required by law. Under no circumstances should this mark be defaced, removed or damaged.

INSTALLATION, INSPECTION, MAINTENANCE AND ADJUSTMENT

GENERAL INSTALLATION

⇒ All products should only be fitted by competent persons. Electrical products must only be fitted by an experienced auto-electrician.
⇒ Read the product fitting instructions carefully and check all components are included in the fitting kit before commencing installation.
⇒ Check vehicle for corrosion and/or accident damage. Towbars should not be fitted to any vehicle suffering from corrosion or accident damage or which is not in a roadworthy condition.
⇒ Clean off all road dirt, underseal and sound deadening mastic where parts are to fit to ensure correct seating of all components.
⇒ Bumper cut information is given as a guide only. Variations in models may occur therefore the fitter should always check that the bumper cut is necessary and of the correct size and shape before commencing with the cut.
⇒ All drilling swarf should be removed from the vehicle and all holes drilled in the vehicle should be treated with an appropriate rust inhibitor.
⇒ Do not fully tighten bolts before towbar is completely fitted unless instructed to do so in the fitting instruction, this will allow some variances to be overcome before final tightening of bolts.

PAINT & CORROSION

Towbars manufactured by PCT Automotive undergo a phosphate chemical pre-treatment prior to a polyester powder coat finish being applied. For long lasting good looks and in order to prevent corrosion the towbar should be regularly inspected for paint damage and wherever necessary re-painted in an appropriate finishing paint or underseal. The vehicle should also be regularly checked for any corrosion that could affect the towbar installation. Towbars should not be used on any vehicle suffering from corrosion that could affect the towbar installation.

BOLTS

All towbar fixing bolts should be checked initially after the first 300 towing miles, or the initial 500 miles of driving uncoupled, and then every 3,000 towing miles or to coincide with the vehicle manufacturer's recommended service intervals, whichever is the sooner. All towbar fixing bolts should be tightened using an appropriate torque wrench to the settings specified in the towbar fitting instruction.

ELECTRICAL INSTALLATION, TEST/COMMISSIONING AND MAINTENANCE

Failure to comply with the following instructions may cause damage to the towing vehicle's wiring loom and/or towing electrics installation.

Where displacement tap connectors e.g. Scotchloks, are the preferred method of connection, always use the correct colour coded tap connector for the size of cable to which it is to be connected. All towing relays and modules manufactured by PCT Automotive have cabling with a copper cross-sectional area in the range 0.5mm^2 to 1mm^2.

After installation of the 12N/12S sockets, prior to testing, a water displacement agent e.g. WD40 should be applied into the rear connection void through the water drain hole at the bottom of the sockets and also into the front pins under the socket flap. This socket maintenance should be carried out at least twice a year in the spring and autumn.

The towing electrics test procedure must be undertaken with the engine running. If any of the towing relays fail to function correctly, with the engine running and no other vehicle electrical systems turned on, check that the voltage across the vehicle's battery is between 13V and 14V approx, if this voltage is not correct, check the condition of the vehicle's battery/alternator.

Always ensure that the trailer/caravan/lighting board's own electrical systems are installed and functioning correctly before coupling to the vehicle's 12N/12S sockets.

Every six months (spring and autumn recommended) the battery and alternator of the vehicle should be checked to determine correct electrical functioning. All connections of the electrical installation including the earth should be checked for mechanical soundness and electrical quality. Plugs, sockets, relays and fixings should be checked for water ingress, mechanical soundness, electrical quality and general wear and tear.

Please complete the following information to validate the guarantee and for future reference.

VEHICLE OWNER NAME & ADDRESS:

VEHICLE MAKE & MODEL: VEHICLE REGISTRATION NUMBER:

FITTER NAME & ADDRESS: DATE TOWBAR FITTED:

If you have any comments or suggestions about the PCT Automotive product fitted to your vehicle, please address them to PCT Automotive, New Street, Holbrook Industrial Estate, Sheffield S20 3GH or email techsupport@pctautomotive.com
Your comments will help us in our aim to continually upgrade our products to meet the high standards expected by our customers.