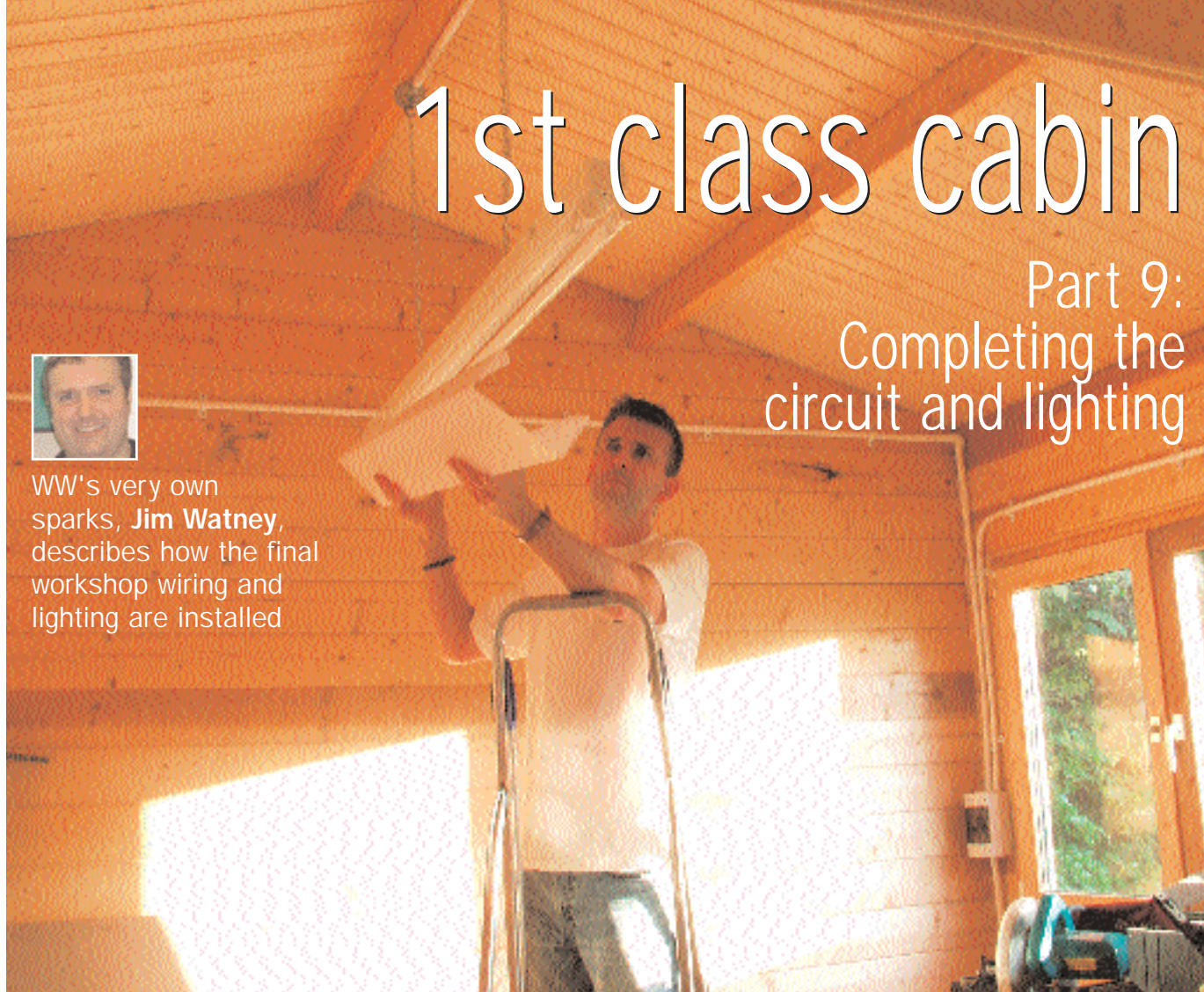


1st class cabin

Part 9: Completing the circuit and lighting



WW's very own sparks, **Jim Watney**, describes how the final workshop wiring and lighting are installed



Things are moving on, the power circuit is almost installed and as with all these jobs, last minute changes to the position of outlets can change some of the original design. In this case the conduit was only intended to run about halfway around the walls. This would have meant running the ring circuit return back down the conduit. However the circuit was extended to

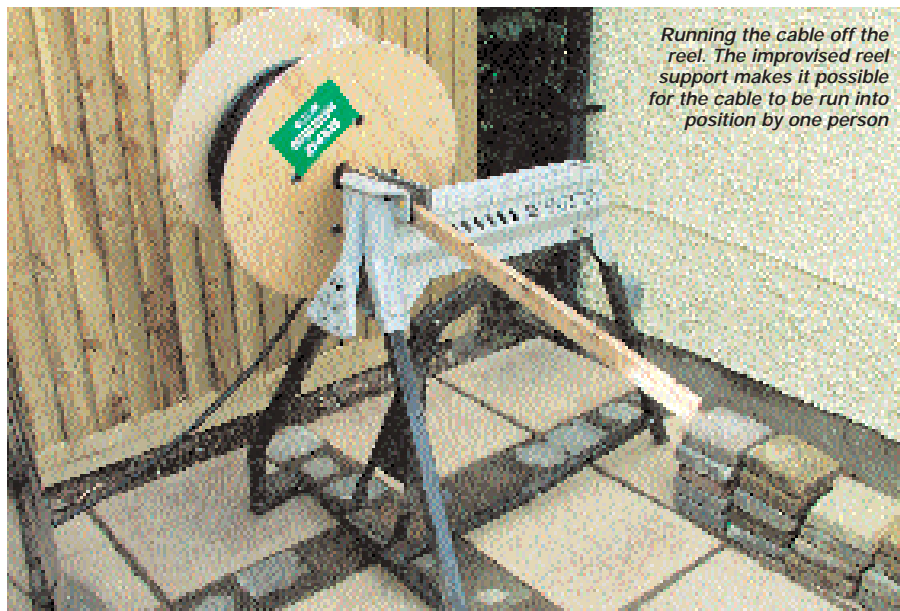
give power sockets all around the room and now the circuit extends almost all the way around the workshop. Returning all the wiring would have used excessive amounts of cable and it's difficult to pull a lot of wires through an 'occupied' conduit. Instead, the wires can go all the way around the walls to return to the consumer unit. The only problem is the doorway. We could have wired over this

Always call in a qualified electrician to test and connect your system. Never tackle any wiring if you are not confident.

but the shortest route was down and under the floor. Therefore, holes were drilled through the floor and the conduit installed. A weatherproof mastic is used to seal around the holes. Now the connection can be made to the workshop's consumer unit.

Connecting the armoured cables
Although the principals of running and connecting the armoured cable have been covered in previous instalments, it is now time to lay the cable for real. The workshop is a good 45 metres from the back of the house and by the time we navigated our way around the patio and up the wall to the switches we are up to 50 metres. That's a whole reel! The best way to dispense armoured cable is to unwind it from the reel. The small reels used in the workshop are light and easy to manage. In fact, we just slide them onto the handle of our fittings tote and let them dispense from there. These monster reels of armoured cable are a

Running the cable off the reel. The improvised reel support makes it possible for the cable to be run into position by one person



The cables are ready for connection to the shed. The armoured sheaths are being secured and connected to the workshop's main earthing block. An earth pole is fitted at the workshop. Although this is not strictly necessary it does ensure that the workshop has a good earth, regardless of what happens inside the house in the future. Box in the earth pole after installation



Once the armoured cables have been fitted to the box they can be fixed to the outside wall with cable clips. The cable connecting the earth pole to the block is held in place with cable ties

bit different. Some form of makeshift dispenser is called for. Here a length of timber and a 'Super Jaws' vice solved the problem. The cable was dispensed easily enough for one person to lay the entire length.

Where the cable crossed open ground it was buried and marked with warning tape. Along the boundary runs a mesh fence for some of the way and then trees and thick hedge. Burying it is not an option as the cable would have to be buried quite deeply, cutting through the roots. Instead a support rail was constructed from pressure treated timber and the cables were attached to that with plastic clips.

Once the armoured cables were laid out connection was made to the workshop. The cables were run down the side of the workshop and back to the house, secured at regular intervals. Connection to the house will be made after the new wiring has been fully completed, checked and tested.



The buried cables have warning tape placed over them before the trench is back filled



Here the switch cable is run back down to the house, fixed with plastic heavy duty clips. The incoming power cable will be fixed above

Lighting

The lighting in the workshop is supplied by two, twin fluorescent strip lights fitted with diffusers. These hang on jack chain which is hung from steel conduit boxes for strength. The plastic conduit is threaded, using a 20mm die and stock normally used on steel conduit, and screwed into the steel boxes. The single wire supply is terminated in the box using a terminal strip and connected to the fittings using three-core flex. Wherever they are used, after connection, all terminal strips must be taped over, using PVC



A hole is bored through the cabin to take the wiring for the outside light. Connection is made to the ring circuit



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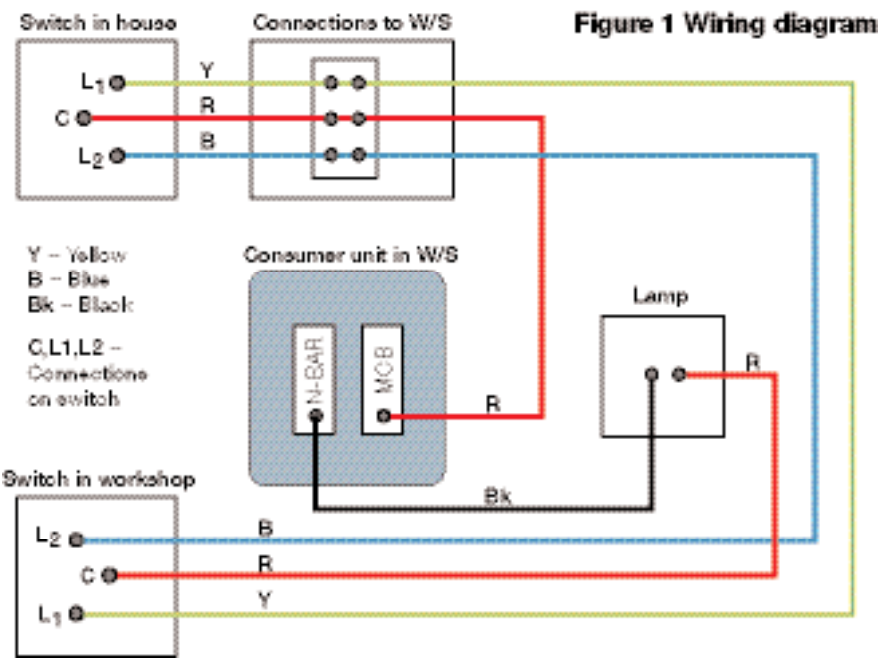
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TIP: The outside lamp is wired on the floor prior to fitting. This is much easier than wiring in situ



electrical tape, to maintain the correct degree of insulation.

There is also an outside light in the middle of the cabin's front wall. This can be operated from the house or from the wall switch in the workshop. In order to operate this, a second armoured cable must be run from the house to the workshop. This may seem excessive but

This high level socket will be useful for all sorts of applications, such as air filters and routing. Just make sure that the cable does not get wound up if circle cutting



having not done this myself in the past and spent many a winter's evening groping my way down the garden back to the house, I can assure you it is worth the effort.

The conduit is installed to the light switch and ceiling light fittings. Above the windows, the conduit is interrupted with a through box which has a hole drilled into the back. This will have a short piece of conduit connecting it to a metal box, on the outside of the workshop, where connection to the outside light will be made.

The wiring for the ceiling fittings is straightforward. The neutral (black) is connected between the neutral bar in the consumer unit to the terminal block in the first conduit box on the ceiling and extended to the second. The phase (red) is connected to the terminal block from the 6 amp Miniature Circuit Breaker (MCB) via the wall switch. All cable runs

Lighting is controlled from a switch on the wall of the workshop just inside the door. One of the switches is for the outside lighting. This is connected to a second switch inside the house to provide independent control of the light from either location. The other switch controls the workshop fluorescent lighting



The ring circuit is completed by running the conduit under the floor. This avoids lots of unsightly conduit bridging the door opening



The conduit is threaded and screwed into metal conduit boxes. These are used to hang the fluorescent light fittings



Connection is made between the single wire supply and the flex to the fittings at a screw terminal within the 'T' conduit box. This is taped after connection to maintain the correct level of electrical insulation

within the circuit are accompanied by a Circuit Protective Conductor (CPC). This is the earth (yellow/green) wire. It must connect all 'exposed-conductive-parts' to the main earth terminal.

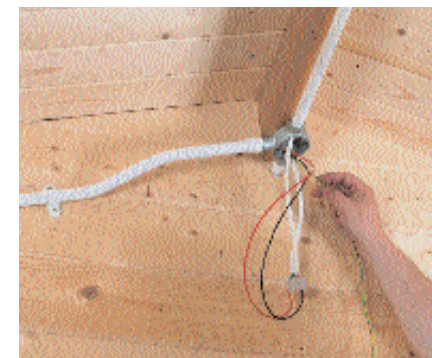
How to fit two-way switching

All the connections for the switching of the external light are completed at the workshop. The only exception is the connection of the switch in the house, which is an extension of the workshop's circuit back to the house.

The wiring for a two way switch consists of a neutral (black) and three, phase conductors, A common (C - red) and pair of 'alternatives' (L1 - yellow and L2 - blue). The common is always in circuit and is either connected or not to one or other of the alternatives depending on the switch positions. The colour coding is for identification and as

all of the conductors are phase conductors they should be 'flagged' with red tape at all connection points. The circuit must also be accompanied by a CPC.

The neutral from the lamp is connected to the consumer unit's neutral bar. The lighting MCB, in the consumer unit, is connected to the common terminal of the switch in house and the phase to the lamp is connected to the common terminal of the switch in the shed. L1 in the house connected to L1 in the shed (yellow) and L2 in the house connected to L2 in the shed (blue).



Feeding the lighting cable through the conduit



The lights are hung on Jack chain from hooked conduit box lids. These are fixed to the boxes with brass screws. The flex is run down the chain and into the fittings

Rapesco 191EL

Rapesco has a long established name in tackers and the small scale end of the nailer/brad market. Its products have always been up to the job so we were expecting good things of this latest nailer/stapler. We weren't disappointed. The machine was loaded with its maximum size of nail (35mm) and used to put up 15ft of featheredge fencing, with two nails on each arris - that's around 360 fixings. We completed the work in an hour and didn't annoy the neighbours with repeated hammer blows. There was only one misfire and that didn't jam the tool.

Turning to the spec, Rapesco has given this tool a firing speed of four nails per second and you can fit up to 100 in the cassette. The



Ideal for featheredge fencing

USEFUL INFORMATION

RRP Around £50
Rapesco
01732 464800



Use a timber block to make repeat spacing quicker

ON TEST

rounded bodywork has plenty of rubber padding but there's very little recoil with this size of fixing. Metal is used for the magazine and also for the quick-release reloading catch.

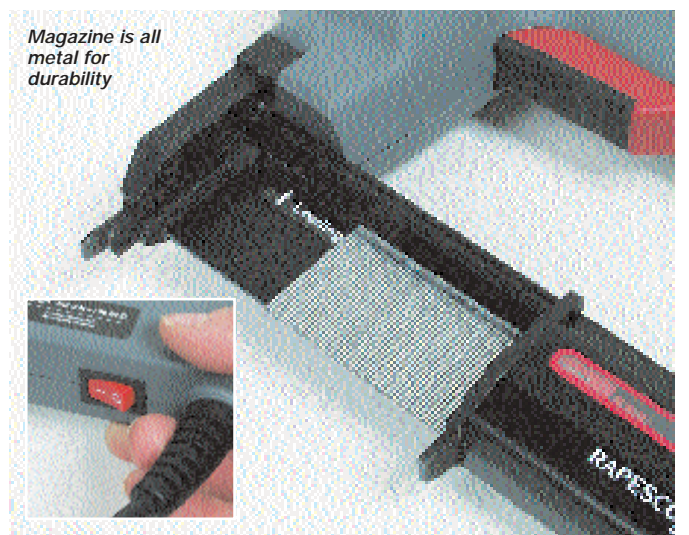
Like its larger brothers, the nose is pressure sensitive so will only fire when the gun is pressed against a firm surface.



Verdict

We were surprised this gun could cope with such a big project (luckily the fixings were galvanised) and the tool is light enough to use all day without problems. Recommended.

RATING	1	2	3	4	5
Value	[Progressive bar]				
Performance	[Progressive bar]				



Magazine is all metal for durability