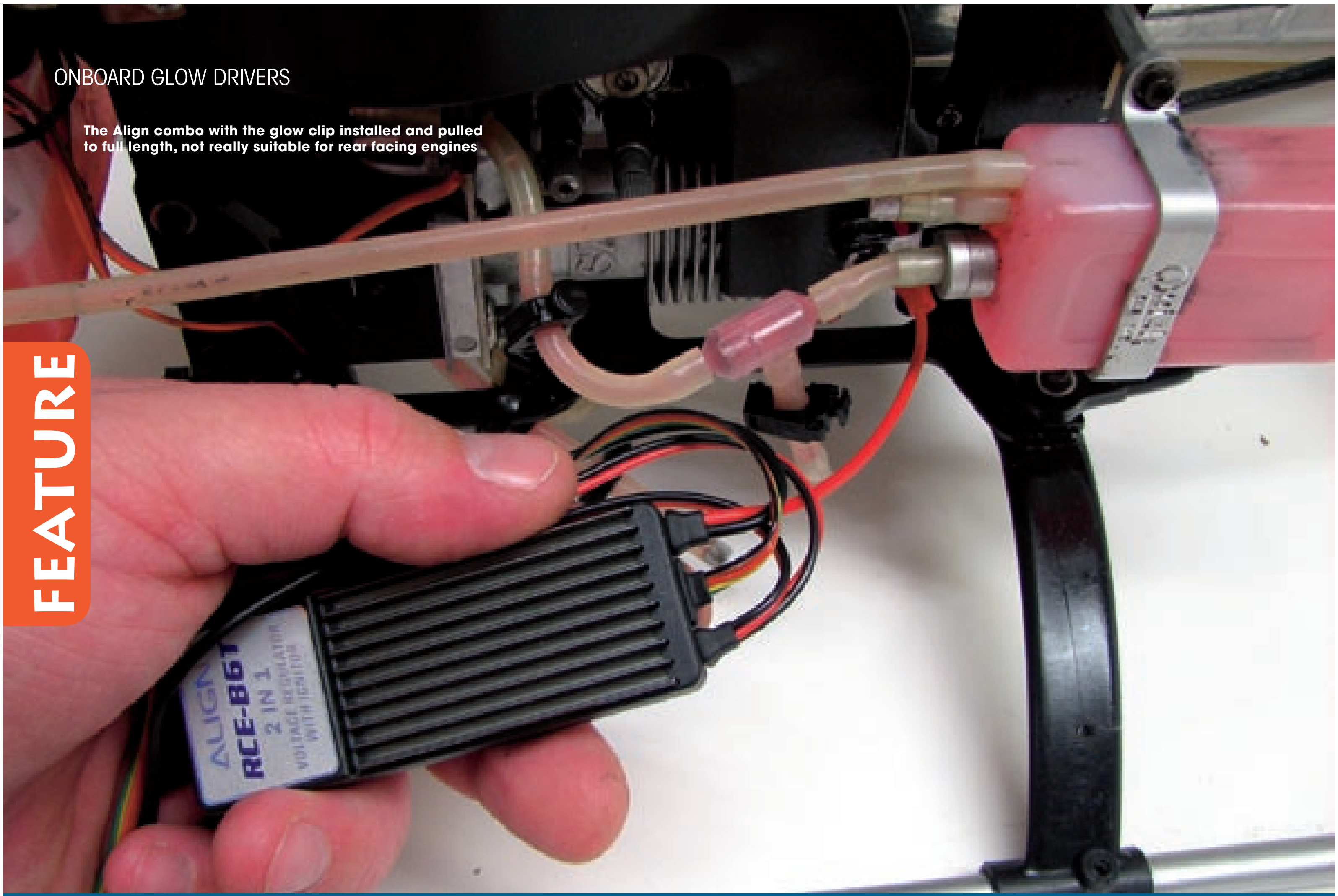


The Align combo with the glow clip installed and pulled to full length, not really suitable for rear facing engines

Getting a head start

THE ONBOARD GLOW DRIVER IS FAST BECOMING THE LATEST 'MUST HAVE' GADGET FOR THE MODEL HELICOPTER ENTHUSIAST AND THERE IS NOW A SELECTION OF UNITS TO CHOOSE FROM. HERE, DAVID NOLAN TAKES A SMALL SELECTION OF THE MOST POPULAR ON THE MARKET TO COMPARE IN TERMS OF PERFORMANCE, VALUE FOR MONEY, QUALITY AND USER FUNCTIONALITY

Over the years the field equipment required for the nitro helicopter flier has drastically simplified. Disappearing are the days of hauling around motorcycle batteries inside tool laden flight boxes equipped with dedicated power panel, starter with the attached mile of heavy duty cable and of course the plug-in glow driver and associated lead. Starters with LiPo batteries attached and pocket-sized glow drivers are all readily available and have been for some years now, but recently things have taken another step forward. The onboard glow driver, requiring no additional battery is fast becoming the new toy of the model helicopter enthusiast, to the point where there is now a selection of units to choose from. We have taken a small selection of the most popular on the market at the moment to compare in terms of performance, value for money, quality and user functionality.

A BETTER WAY

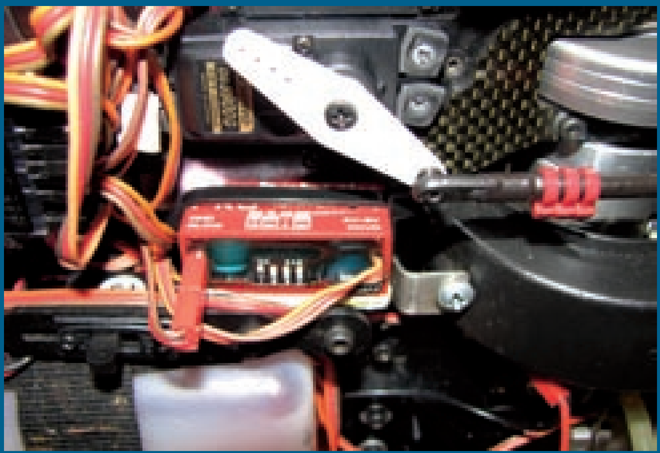
It can be only described as total frustration when you arrive at the field and find either you have left your glow driver behind, or it isn't charged or it is starting to go off and isn't holding the charge anymore, and you have only just found out. Your helicopter can be top notch, your radio the finest on the market your starter a lithium polymer high torque wonder to behold, but if you can't get that little glow plug to play ball you ain't going anywhere and have the finest selection of static models at the field that day. Ah "wait for someone else to show up" I hear you cry. Well that's all fine if it happens reasonably quickly, but often I have found myself to be the only flyer at the field for many an

All three onboard glow drivers for review

Prolux Automatic Glow Ignitor

Align 2 in 1 HE50H11 regulator and glow combo without the lipo receiver battery which is included in the package

SwitchGlo Pro Glow Ignitor



SwitchGlo installation for testing

hour, where I would be left standing for that time flying only in my head. And this can often be the case.

This frustration reached a head one day, when during my first and only flight of the day as it turned out, my brand new glow driver, whilst sitting all on its own not touching anything with the protective cap on, decided to catch fire on the start up bench! My backup was not holding the charge as I then discovered so it was day wasted as no one else appeared to rescue me. "There has to be a better way!"

Well, there is an alternative. The market is quickly filling up with very reasonably priced Onboard Glow Drivers which are designed to operate from your receiver pack without hugely draining it which also negates the need for a separate battery. I chose a few such examples to review in terms of value for money, quality and user functionality, to find out just what kind of choice is out there.

The units chosen for review were the Prolux Automatic Ignitor, the Align HE50H11 regulator glow combo, and the new SwitchGlo Pro Igniter. So what's in the box and what are these units designed to do?

PROLUX AUTOMATIC IGNITOR

The Prolux comes in a small clear bag with a card label attached which immediately says this product has been produced to meet a strict end user budget. Inside the bag is the unit itself and a small print single sheet of instructions which outline the units wiring, operating voltage of 4.8 - 6V, its weight of 30g and a brief look at the actual operating instructions. The sheet, although small and photocopied, does convey all the intended information with nothing left out.

The unit itself is approximately 50mm x 20mm x 15mm with no less than five sets of wires leaving the heat shrink clad unit. The wires include; a power-in with a standard servo type connector designed to be installed in any free receiver port to supply power only with no control, a typical spring loaded rubber clad connector for isolated connection to the glow plug, a black earthing lead with closed spade type connection on the end, a standard push-to-make switch and a red LED indicator. Both the switch and the LED are mounted on a small steel plate (similar to those supplied with most remote glow kits) with an M3 mounting hole pre drilled at one end.

The Prolux is designed as a push button glow igniter only where the operator presses the switch to activate the glow. The switch and LED are mounted onto the side of the helicopter, where the operator presses the button, waits for the LED to light and then has twenty seconds worth of glow time to start the engine. Should the engine not start within that time the unit is simply reset and the process begins over.

ALIGN '2-IN-1' HE50H11 REGULATOR GLOW COMBO

Align's offering is supplied in a hard clear plastic box (very useful for storing screws etc after the event) with a cardboard sleeve insert and single page of instructions. Again the instructions outline complete specifications, key features and operation instructions for the unit which are clear and cover the unit installation well with a practical wiring drawing making installation fool proof.

This unit is somewhat different to the others on review here as this is the only one which is not only an onboard glow system but also a voltage regulator as well. The complete package therefore comes as a two-piece unit (one the glow section with push button for the glow and general on off switch for the whole unit and the other the fixed voltage regulator) which measure 80mm x 80mm x 13.3mm and 35 x 24 x 10mm where the smaller of the two units is to be mounted for easy access for switching the onboard glow. Also supplied with the unit is a two cell, 1900mAh LiPo receiver pack with a JST type connection to suit the regulator.

From the regulator unit there are again five sets of wires including; a standard servo type connector to provide power-out from the regulator, designed for plugging into the receiver to provide a fixed voltage of 5.8V to power all the helicopters servos, a JST connector for attaching the supplied lipo for power-in, a shielded crocodile clip connection for isolated glow plug connection, an earthing wire with closed spade type connector attached and finally the multi-coloured six stranded connection to the ignition switch unit.

The whole package is designed to offer both a regulated voltage supply of 5.8V to power all the helicopters servos and associated electronics with an inbuilt on off switch, and also act as an onboard glow driver which is push button activated. The push button unit also has a variety of small LEDs which can be used as a voltage checker. These LEDs are also an integral part of the function of the unit as they can be used to tell when a plug is dead or whether the wiring is shorted out. Pushing the start button and waiting for the appropriate LEDs to light will provide fifteen seconds of glow power after

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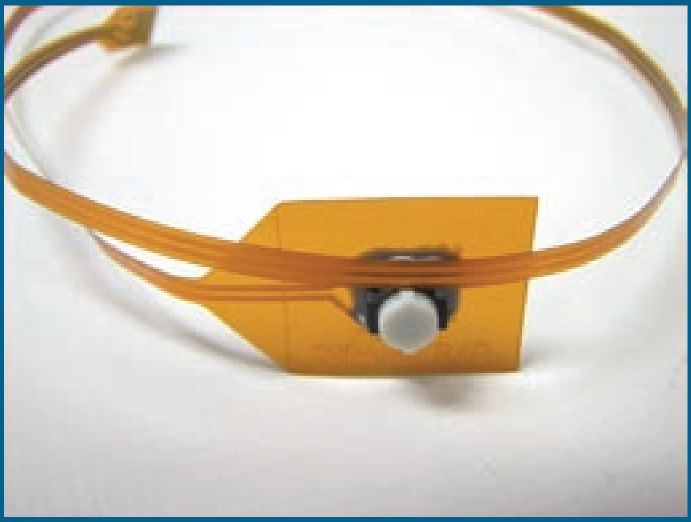
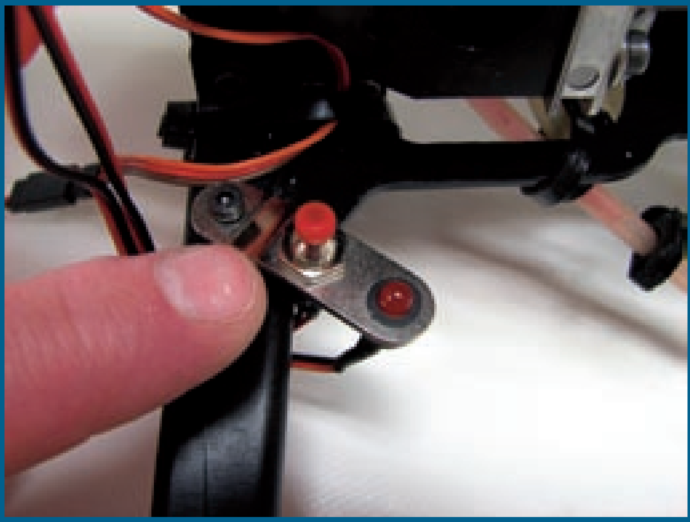


Optional extra push switch for the SwitchGlo Pro an unusual innovation



Prolux switch and LED plate installed

which the glow unit switches off. The process can simply be repeated by pushing the start button again to repeat the procedure.

SWITCHGLO PRO IGNITER

The SwitchGlo Pro Igniter unit is sold in a moulded plastic package with all the instructions being provided on the card infill behind the unit. The package also contains a SwitchGlo sticker and the unit itself complete with whatever associated wiring is required for correct function. As with the others the operation instructions are clearly laid out with the card also including the unit specification and installation instructions.

The complete unit measures 40mm x 18mm x 15mm in size with only two sets of wires leaving it's epoxy spill filled construction which are required for correct operation with the option of a detachable third switch wire to be plugged in should this method be preferred however this switch must be purchased separately. The wires are firstly a connection to the receiver with a standard servo type connector for transmitting both power and control and a removable JST connector which holds the shielded crocodile clip connection for isolated glow plug connection and earthing wire with closed spade type connector, which is larger than on the other units. Also on the spill filled side of the unit there are four small SIP switches which can be used to select various function within the unit such as glow time, transmitter or push button switch operation, audible buzzer on or off and an inbuilt servo reversing switch for when the unit is connected to a channel that is already being used for something else via a Y lead where the unit is operating in the opposite directions to the desired switch position.

The SwitchGlo unit is also different from the other two units in that it can be used either as an onboard push button activated glow driver or a transmitter activated onboard glow which can either be plugged into a free switchable channel or if a free channel is not available the unit can be piggy-backed up with an existing switchable channel which is already being used to control another function on the helicopter, say gyro mode or a governor selection switch. Once activated by the chosen method (onboard switch or via the transmitter) the unit can be selected to activate the glow for either fifteen or sixty seconds, whichever is preferred upon which time the unit will self deactivate. During the glow operation period a very distinctive audible warning is used to let the operator know whether the system is active or not. This function can again be deactivated if desirable but does also act as an indication of whether the plug has died or not with no audible warning being emitted if the plug is bad. Again like the other systems when the selected glow time is up the unit deactivates but unlike the other units it can be switched off manually from the transmitter if this function has been selected. To restart the glow cycle, simply repeat the process as before.

INSTALLATION AND TESTING

Now comes the fun part, the playing with new toys time! Each of the units came with adequate installation instructions, the best of which was marginally the Align unit, however none of the units on test come with any type of fixing mechanism in the form of double-sided tape or wraps to secure down. This isn't a big issue really as we all have our preferred methods but it would be nice to know the ideal method for installation to tell whether the unit will ultimately cope with the vibrations.

Looking at each unit it is clear to see that although each will require some sort of soft mounting probably along the lines of a foam gyro pad, the one which will suffer the most from running vibrations will be the Prolux. Closer inspection of the push-button ignitor switch and LED setup, shows that these parts will not be able to be vibration protected, as they are both attached directly to the steel mounting plate, which itself will be bolted directly to the helicopter. In my experience of very similar brackets, as used on remote glow extensions, they rarely stand the test of time and fatigue in a relatively short space of time no matter what the metal material. With no vibration protection on this bracket the push-button solder joints and those of the LED can only last so long and will fatigue also, of that I am sure. The ignitor unit itself has a very useful flat bottom which would be perfect for attaching a foam pad to help protect it from vibration and also has enough length on the cabling to be installed under the canopy to keep it away from the oily grime which will ultimately cover a helicopter after a days flying. Moving to the engine connections, the earthing eyelet is very small and thin and will again suffer from rapid fatigue. The isolated plug connection being of the spring loaded rubber coated variety will function fine but over time will become difficult to operate when changing plugs when the inevitable oil gets in.

Moving to the Align unit I do prefer the crocodile clip glow connection which do tend to be very reliable and easy to operate even as they get many hours on them. Again the earthing eyelet is very small and thin which I believe will fatigue quickly. The regulator is rated for a continuous 6Amp load which sounds quite reasonable however this is not backed up with the fact that they have used a JST 2 connector to the battery which has a recommended maximum rated current of 5 Amps. For most styles of flying it will likely be fine but it is a little close for my liking. Another

The Align glow driver switching unit which also includes the regulator on off switch

SwitchGlo pro with optional extra push switch attached

issue may arise for those of us who use helicopters with rear facing engines as the glow connection is only 130mm long and leaving from the regulator, meaning you would have to mount the regulator outside the canopy on a model with that type of engine arrangement. It just so happened that I was using a Miniature Aircraft Fury Extreme, which has a rear facing engine as a test bed for these units, which did create a mounting problem. The Align unit has the shortest glow lead of all the units on test. Another area for attention is the glow unit itself which houses the glow ignitor button and the helicopter on off switch. Given that the unit has to be visible on the outside of the helicopter to be able to ignite the glow it is therefore mounted away from the safe cover of the canopy which would reduce the risk of physical damage in a crash and also reduce the ingress of dirt and oil from normal day to day flight. That said the wiring does enter the unit through a rubber grommet which will help to seal it and the ignitor switch also appears to be relatively safe where it is but as the unit houses the on off switch, which is tiny, non fail safe and indeed is not sealed, this is still a worry. The rest of the regulator unit is however well packaged with a substantial heat sink attached to maintain temperature stability.

Lastly on to the SwitchGlo Pro. This unit also utilises a crocodile clip glow connector which is useful and it was just long enough to be able to mount the unit within the canopy and still reach the rear facing engine. As I say the lead was just long enough but was under a little tension so to prolong its life I simply used a JST extension lead which is able to be utilised as the glow connector and earthing leads are very usefully plugged into the unit leaving extending really simple. Again a JST connector is used here but this is fine as it is being used to power the glow and not the whole helicopter leaving it adequate for purpose. Like the Prolux there is a useful flat bottom to the unit which leaves soft mounting really easy and I found it an easy unit to tuck away into a small space out of harms way for general wear and crash damage. I decided to test using the transmitter activation function as the unit is not supplied with a push switch*, which is an optional extra.

EXTRA CHANNELS

As I am currently using a seven channel radio with all seven channels used I decided to piggy back the SwitchGlo with the gyro function toggle switch by simply using a Y lead. The idea being that when activating the unit on start up the gyro would step into rate mode which is rarely if ever used for normal flight and when the engine has started and the unit is deactivated by flicking the switch back the gyro resumes normal function in heading hold mode which is the normal flight condition. No fancy mixing was required and essentially nothing in terms of set up to make this work. I didn't have to use the servo reverse function as the unit would activate in gyro normal mode and deactivate in heading hold which is what I wanted, but if this happened to be the opposite way around I would simply have activated the servo reverse switch and that would have sorted it out. If a free switchable channel is available it can be used that way also, I just didn't have one available. I was also impressed with how solid and sturdy this unit was with its epoxy spill filled construction meaning that oil and even a marginal fuel spills shouldn't be an issue, but yet the unit isn't bulky. The audible buzzer is really quite loud and is not able to be missed easily but is useful as you can mount the unit away under the canopy without having to see any lights. Also I could see some advantages with being able to activate the glow in flight as often a bogged in engine is helped with a dart of glow.

*The push switch is an optional extra and to be fair is unlike anything I have ever seen in the model world as it utilises a very flexible printed circuit type arrangement with the button on the end. The lead is approximately 370mm long and is able to be folded, twisted and indeed trimmed which is unusual and is provided with a self adhesive backing. How this would stand the test of time I have no idea but all I know is that I have twisted and pulled at it every which way and it is still working which is impressive in something that looks so flimsy.

ON TEST

All the units on test functioned exactly as they were specified to do with none of them failing during testing. Each was able to be used to start the engine as designed with no problems. There was also little to no appreciable usage of the receiver pack with all of these units and certainly not enough to have concerns about flattening the receiver pack.

PROLUX AUTOMATIC GLOW

In terms of functionality I found the Prolux was sufficient, with the LED easy enough to see in most light conditions, although finding an appropriate mounting position was awkward enough. The twenty second glow was also fine for the first start of the day which is always the longest. I did find the glow connector somewhat awkward for fitting but when fitted it worked well and didn't come off in flight. These small issues may seem irrelevant however when you discover that the unit has a budget busting £11.99 price tag!

ALIGN 2-IN-1 HE50H11

The Align unit functionality was better than that of the Prolux with the small LED display useful in seeing if the unit was active and also for fault finding an installation issue. The regulator also functioned well but it was necessary to purchase a voltage step-down for the tail servo as they don't tend to like a 5.8v supply and are much happier lower down the voltage range. I was also conscious that my whole 90 sized digital servo clad helicopter was being powered through a quite inadequate JST connector which didn't sit comfortably with me in flight. Most annoying was the length of the leads as supplied and in particular the rather short glow connector lead, which left installing a bit of a pain. I do however like the crocodile clip glow connector which again didn't come off in flight. This unit is priced at £49.99 but remember it is a glow driver, voltage regulator and comes supplied with a lipo receiver pack.

SWITCHGLO PRO

With the SwitchGlo functionality being a choice it did allow more flexibility for a user's personal needs, however not supplying the push switch as standard with the unit is, I believe a mistake. The transmitter function option is a real gem and extremely convenient, as is the rather loud glow buzzer which allowed me to tuck the unit way out of sight. Length of leads was better on this unit and the option to extend further also useful for installation.

This unit is also able to be used from 4V to 9V which will also be a plus for some. The user selectable options on the unit are useful and will allow you to use the unit from the transmitter regardless of your allowable channel allocation. Although I didn't utilise this during the testing phase but it also appears fairly easy to set a radio mix for SwitchGlo to become inactive if the throttle stick is accidentally left high, or an idle up is engaged at start up, thus eliminating those frustrating "hot" starts which damage both clutches and main gears. The solid construction is also good as I imagine it will withstand running vibrations and indeed crash damage very well. The unit is priced at £44.49

Align 2-in-1 HE50H11 regulator and glow combo with the supplied LiPo receiver battery

SO WHICH TO BUY?

Despite the various faults and failings on some of these units it is difficult to choose when you take into account the "value for money" factor. The Prolux, although slightly crude in appearance and also a little in construction, does work as described and all for a relatively cheap price tag of £11.99. If you can overlook the quality of this unit and are prepared and happy enough to have it fail one day when out flying then it is for you, but be warned this unit is basic and as a cheaper unit will just do what it says on the tin and no more.

For the intermediate sports flier with a modest budget the Align unit would be a perfect way to become familiar with onboard glow units, voltage regulators and lipo receiver packs as it is extremely well priced for what you get, scoring very highly on the value for money stakes. Again overlooking some of the failings of this product might be easy with the amount of equipment you are getting for your buck but I would urge caution as your flying skills progress, beyond some of the rated parameters.

As a dedicated unit the SwitchGlo Pro is a high quality, high end piece of equipment with a fairly high end price tag to match. The unit will allow the user to choose how they want to use the product themselves to suit their own particular needs and will certainly outlast the other two in terms of its construction. It has some useful glow features which the others do not but priced at £44.49 it may be just a little expensive as what can be seen as a non essential item.

The SwitchGlo Pro may get my vote but then my needs and requirements may be very different to yours, so I recommend you let your own needs and requirements for an onboard glow as well as the depth of your pocket decide, but be under no illusions whichever you go for, once you have tasted an onboard glow you will never look back.

David Nolan

SwitchGlo Pro with the glow connector and earth lead detached, very useful for attaching a JST extention lead

TECH SPEC

Onboard glow drivers

Prolux Automatic Ignitor and Align HE50H11 regulator glow combo were generously donated for this article and are distributed by:

Robbe Schluter UK
Tel: 01455 637151
Email: sales@robbeuk.co.uk

SwitchGlo Pro Glow Ignitor is currently distributed in the UK by:

Climb Out Ltd
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SwitchGlo Pro Glow Ignitor is also available for order direct from www.switchglo.com and was generously donated for this article by:

Motors & Rotors
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