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G6OI
1938

The Award Winning Newsletter for Members and Friends of

Stourbridge and District Amateur Radio Society

incorporating

Old Swinford Hospital School Radio Club

G6SRS
1938

G4CVK

1969

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MEETINGS

Visitors always welcome
The Society holds its full meetings on the
1st and 3rd Monday of each month at

**Old Swinford Hospital School
Heath Lane
Stourbridge
(8.00pm – 10.00pm)**

Additionally the shack is open during the same times on the
intermediate Mondays

**Telephone Enquiries to :-
Hon Secretary
John Clarke M1EJG
(01562) 700513**

**Or by e-mail to :-
honsec@g6oi.org.uk**

**All correspondence/enquiries should be
addressed to the Hon. Secretary :-
STARS
c/o The Mill House
21 Mill Lane
Blakedown
Kidderminster
DY10 3ND**

**STARS Web Site URL :-
www.g6oi.org.uk**

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EDITORIAL

We are grateful this month for an article on Power Supplies from Geoff (G0KVK). Thank you also to James (G7HEZ) for his photographs of the AGM and Vintage Radio talk.

Adrian (G0NLA) Starlite Editor

MESSAGE FROM THE PRESIDENT

The 2015 main meeting took place on 13th April. There was some debate as to if this had been an AGM or EGM meeting according to the rules of the society.

Highlights as follows:-

Wayne presented with the constructors competition award for his bat detector. (see next page)
G8GF Rose Bowl - John (Hon Sec) for his personal work in securing the future of remaining at Old Swinford. (collected by Mark on John's behalf)
James elected unopposed as President, Nick unopposed as Vice President, Hon Treasurer John Scott - unopposed, Hon Secretary John Clarke - unopposed.
Committee Members, Keith, Sean, Mark, Tim, Wayne, Peter and Malcolm. Adrian will continue as newsletter editor, but will not be on the committee.
Dr Bob and Geoff nominated as trustees of the society.
Issues raised by members for committee discussions. Valuation of the medallion, cost for non members attending club nights. (may be others from the AGM Minutes)
The three changes to the club rules were all voted for and approved by the members of the society - these will be updated shortly on the www.g6oi.org.uk official website.
Dr Alan generously offered to pay for the food for this years BBQ.



Phil's (G4SPZ) talk on vintage radios

Other items of note :-

As you may have read Eric G3IVQ passed away recently, he was a very active member of the society over many many years. Please read the next Starlite for a separate article on Eric's involvement with the society over many years.

The talk on Vintage Radio by Phil G4SPZ was very well received. (see above) The 3rd in a series

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from Phil with many examples of radios over the years brought along. John (Hon Tres) has a copy of the presentation if you would like links to any of the websites that Phil mentioned during the talk.



Wayne Mocroft (M5LLT) accepting the Constructors' Competition Cup



Mark accepting the G8GF Rose Bowl on behalf of John Clark (M1EJG)

Mark receiving the G8GF Rose Bowl on behalf of John Clarke (M1EJG) for his work on securing the future of the society following loss of club radio shack.

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POWER SUPPLIES – PART 2

Forward

This is the second of several articles about power supplies. Initially simpler power supplies are looked at. Later we examined more complex linear power supplies and finally switched mode power supplies. The article is adapted from lecture notes supplied by Geoff G0KVK. The course was for City and Guilds Electronics.

Recap and following on

Last month we started off looking at simple power supplies using half-wave rectifiers and then full-wave rectifiers. We then went on to look at a power supply using a bridge rectifier with components to help smooth the d.c. output. If the load on the transformer varies we may need to add additional components to help with stabilisation of the output voltage. There is a limit to how much stabilisation can be achieved. To supply even greater loads we have to utilise a transistor to handle the bulk of the current as shown in figure 5 below.

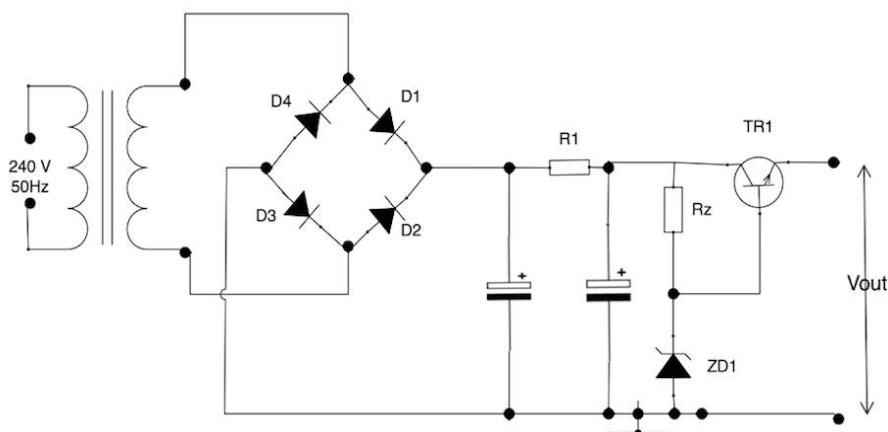


Figure 5

In this circuit RC filtering is used. TR1 handles the load current and would be mounted on an adequate *heat sink*. The base voltage of TR1 is set by ZD1 which only has to handle a few milliamps. When a transistor is conducting and if it is the usual silicon device, its base-emitter voltage is 0.6-0.7V. Hence the output voltage is 0.7V less than the zener voltage of ZD1. By careful choice of ZD1 we can get close enough to the desired output voltage. There are few circuits which are highly sensitive to operating at the specified level. A couple of exceptions are digital logic circuits, and certain VCR machines, but there are ways round that!

Summarising the topic of Power Supplies to date:

Less recent power supplies use the Full-Wave Bridge circuit.

Filtering of the rectified voltage is often done by RC circuits. When a low ripple is required and there is a heavy current demand (100mA or more) an inductor is used (LC filtering).

Stabilisation of the supply against variations of output voltage caused by changes in load current may be done by a simple zener diode circuit, with the addition of a transistor, if the load current

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justifies it.

With the advent of integrated circuits, especially if the output voltage is a standard value such as 5V or 12V, suitable regulators giving up to 1A are readily available and are cheap. Even for the hobby constructor they only cost about £1.50

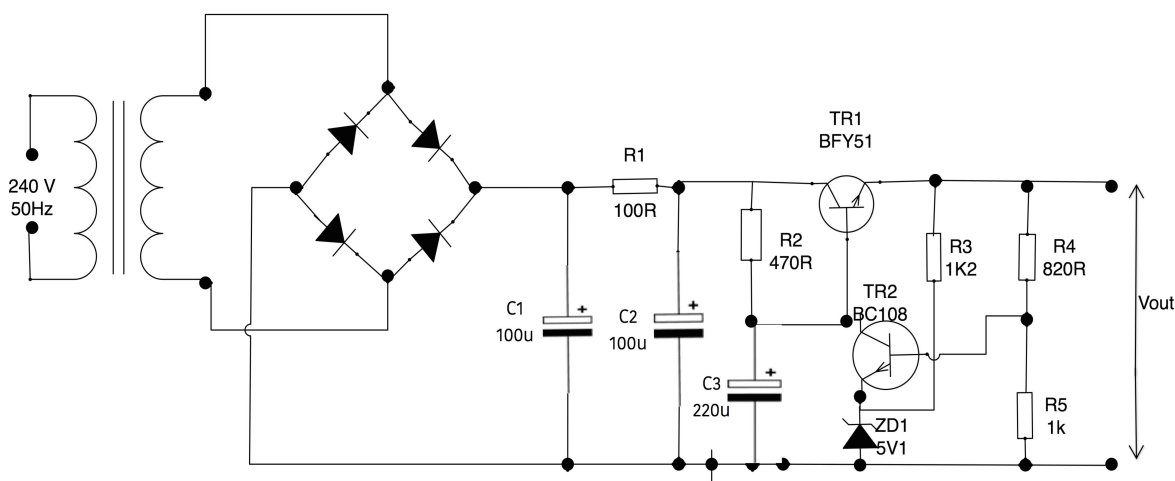


Figure 6

The Full-Wave Bridge rectifier, C1, C2 and R1 are conventional. RC filtering can be used as the current drain is small, less than 50mA. It is that part of the circuit to the right of C2 that is different.

Use of a Zener diode to stabilise output has been covered previously. Here ZD1 is keeping the emitter of TR2 at a steady voltage. The current through the diode is set by R3 which is connected to the output of the p.s.u. The base of TR2 should be about 0.7V more positive than its emitter, and this is monitored by the potential divider R4/R5 which is also connected to the output. Should the output voltage fall, the base voltage of TR2 falls which lowers the current through TR2. This current flows into TR1 governing its output voltage. The supply for TR2 is from R2 and C2 which also filters the ripple of C2.

Table 1

Rectifier Circuit Operating Characteristics

Circuit	No Load DC Output	Reverse Voltage on diodes	Ratio I_{dc}/I_{ac}	Full Load D.C. Output
Half-Wave	E	2E	0.43	0.32E
Full-Wave	E	E	0.87	0.64E
Bridge	E	E	0.61	0.64E

E is the peak value of the a.c. input waveform.

The ratio I_{dc}/I_{ac} is the ratio between the direct current through the load to the a.c. input to the rectifier circuit.

Next month we will cover switched mode power supplies. Many thanks to Geoff G0KVK for allowing us to use his notes. If there are any errors, I have probably introduced them during the transcription of the article.

Adrian (G0NLA) Starlite Editor

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YOUR COMMITTEE

Hon. President	JAMES	G7HEZ	
Vice President	NICK	G6DQN	
Hon. Secretary	JOHN	M1EJG	(01562) 700513
Hon. Treasurer	JOHN	G8UAE	
Committee Members	MARK	G7EDZ	
	KEITH	M0HPY	
	SEAN	M3XMJ	
	PETER	M6ZXH	
	MALCOLM	G8BOP	
	WAYNE	M5LLT	
	TIM	G7TAC	

CALENDAR OF EVENTS

It should be noted that the Shack will be open every Monday evening unless shown otherwise in the Calendar

May	Mon 4th	Bank Holiday - No Meeting
	Mon 11th	Shack work and outside aerial connections
	Mon 18th	Software Defined Radio (on the cheap) - Wayne
	Mon 25th	Bank Holiday - No Meeting
	Sat 30th	@10:00 am Roof Work - weather permitting
	Sun 31st	Oldbury Radio Rally - Oldbury Leisure Centre
June	Mon 8th	Committee Meeting
	Mon 15th	Sheepwalks BBQ
July	Mon 20th	Tim 4x4 Response
August	Mon 17th	No Main Meeting
	Mon 31st	Bank Holiday - No Meeting

Please note in future :-

There will be £2 admission charge to non-members for attending main meeting talks / events. This is refundable against joining the society.