



SAMPLE - Metro

Triumph Newsletter



DEDICATED TO THE TRIUMPH MOTORCYCLE – DETROIT, MICHIGAN, USA
DON WOODS – Patron of M.T.R.

SAMPLE NEWSLETTER – NOT FOR DISTRIBUTION

March 2004



Cobo Show Exhibit - a HUGE Success!

-- by Bruce

Well, the 2004 Cycle World International Motorcycle Show at Cobo Hall is over, and by the time you read this, all of the vintage bikes will have been returned to their rightful owners. Everything for the show started with the owners, and logically ends with them. Without people stepping up to volunteer their cherished toys, MTR's participation in the show would never have happened.

I need to thank Sonja of the Michigan Norton Owners for contacting her friends and getting them to display some outstanding bikes. The variety of Nortons was truly wonderful and gave all of us something to appreciate, as well as a chance to see how a \$275.00 "find" could be turned into rolling art. We could not have asked to partner with a better group of people.

One of the nice things about our display was that, even though some bikes were not perfect examples of those that rolled off the factory assembly line, everyone really enjoyed the many different "flavors." Many of the attendees who engaged us in conversation had their memories awakened by the sight of a '67, or '70 or '73 on display. Their bikes might have been a Daytona, or a Tiger, but they all had one thing in common: memories. Good memories.

The memories that our display brought out of the crowd may even get some of these folks to come to the next Battle of the Brits. I saw many of the colorful flyers being picked up. Hopefully, they will be posted on refrigerators and work benches all over town. I even spoke with a fellow from Rochester, New York, who came specifically for the show, but spent quite a bit of time by our display. He indicated that he just might make it back in September for the BOB (Battle of the Brits Motorcycle and Car Show). Talk about impact!

Most of all, I would like to thank every member who came to the show. Just your presence made us a force to be recognized. I spoke with one of the show organizers, and she commented that our bikes really made an impact, and she noticed our "MTR" shirts not only near the display area, but throughout the show. Those who helped haul bikes, set-up, staff, haul-out, and return bikes are the reason we succeeded. And maybe, just maybe, our enthusiasm will bring more members, more knowledge, and more fun, for all! Thanks for letting me be part of this.

Cobo Show Notes

-- by Ron

I have heard nothing but positive feedback about our participation in the Cycle World International Motorcycle Show at Cobo Hall -- how great the show was and how we had the best exhibit there.

I agree with all of you who have chimed in on the Yahoo MTR web site and want to add my thanks to Bruce. Bruce is a shining example of an MTR member who stepped up to the plate and made a difference. If not for his hard work, this event would not have happened, and I think the club should recognize his huge efforts. Unlike the BOB which is run by committee, Bruce handled all the strategy and much of the work for Cobo himself, and more importantly he handled it extremely well.

I also think that Bruce has shown us all that with hard work we can have fun and try new ideas. I urge you to personally thank him when you see him and also to consider following his example by helping to organize an event. Please consider volunteering to work at Mid Ohio, or showing up to do the Picnic, or working at BOB this year. The club is only as good as you want to make it. Bruce will be a tough act to follow -- but don't let that stop you!

***** EXTREMELY IMPORTANT NOTICE *****

Mid-Ohio Vintage Motorcycle Days

-- by Cliff

Now is the time to step up to the plate and **Help your Club!** We want to have an MTR booth at Vintage Motorcycle Days at the Mid-Ohio Race Course, July 16, 17, and 18. The idea is to use this booth to promote club membership and the Battle of the Brits by handing out applications and BOB flyers. We need MTR members to help staff the booth during show hours. Ideally, it would be nice to get enough volunteers that no one will have to spend more than two hours per day working. The number of members volunteering will also determine the scope of our participation. We will need to have your commitment by **March 19**. Please donate your time by sending an e-mail to XXXXXX.com or by calling Cliff.

So far, only two people have contacted me. This is not going to work unless we get more participation. I have contacted Mid-Ohio, and if we want a premium spot we need to get our info to them before April 2. Spots are \$90 and \$150. I don't want to spend more of the club's money than necessary. Plus, I don't think anyone should get stuck at the booth; there is too much going on to just sit there. The more volunteers we have, the better.

2003 Metro Triumph Riders Officers

President	Ron
Vice President	Lloyd
Treasurer	Rainer
Club Secretary	Peter

Club positions:

Classic Technical Advisors	Ron
	Todd
	Dave
Modern Technical Advisor	Henry
Road Captains	Henry
	Rick
	Dave
Sergeant-at-Arms	Eric
Club Regalia (Tee shirts, etc.)	Jon
AMA Rep. (MTR AMA 05997)	Rainer
Membership	John
Newsletter Editor	Peter
Newsletter Copy Editor	Gene
Newsletter Distribution	Ron
2004 BOB Co-chairperson	Pete
2004 BOB Co-chairperson	

Newsletter Submissions:

Please send your articles and classified ads to sell bikes and parts to:

Coming 2004 Events:

Boyer Tech Clinic – March 13th at Mikes. The MTR will provide pizza and soft drinks. The fun starts at 10 AM. See article in this edition.

Next MTR Meeting – March 14th at Kirby's Coney Island, corner of Square Lake and Woodward in Bloomfield Hills. Breakfast at 9 AM, meeting to follow.

MNO/MTR Campout at Interlochen - May 2004 –
Details to be announced.

Chili Rib Ride – May 1st, 11 AM at Teddy's

32nd annual CVMG Rally in Paris, ON - June 18-20 2004,
Father's Day, details to be published at a later date.

AMA Vintage Motorcycle Days – Mid-Ohio - July 16-18
Help staff the MTR sponsored booth, see article in this edition.

INOA/Norton National Rally, Big Prairie, OH - July 19 - 22
For details and map: www.whisperinghillsrvpark.com



MTR's Vintage Motorcycle Exhibit at Cobo Hall: Peter and Gene discuss the finer points of Bonneville restoration (left) while Bruce (Exhibit Chairman) tries out the seating position on one of the new classics!

Boyer Tech Clinic Scheduled

10 AM, Saturday, March 13th, at Mikes

Put the Smoke Back in Your Wires!

--by Ron

Perhaps the most puzzling part of a motorcycle for most owners is the wiring. So, in keeping with the MTR tradition of fixing stuff even if it isn't broken, we will have a clinic on the installation of a Boyer electronic ignition, along with an overview of how a motorcycle electrical system works.

The presenter will be Bob, the king of smoke in the wires. Bob is an electrical engineer and has been involved in many projects during his career at XXXXXXXX – I think he is they guy who ensures that all their cars start. I have asked Bob technical questions about my own bike and he was even able to explain things to a dope like me. He is a great teacher.

The clinic will be held at Mikes 10 am on March 13th. The MTR will provide pizza and soft drinks, and you may be inclined to bring adult beverages, if you like, for your own consumption and the benefit of other MTR members.

The session will begin with an explanation of the Lucas system and will cover such age-old puzzles as, "Why did it stop all of a sudden?" and "Why is it so dark out here?" Also covered will be the installation of the Boyer system into an actual Triumph. The old points setup will be replaced and the timing set so that the owner will never again have to replace points or deal with them in any way. The goal is to demonstrate how easy it is to install this modern upgrade.

There will be a five-minute period of total darkness at the end of the demo in honor of Mr. Lucas and his contributions to smoky wires. Songs may be sung (if you bring enough beer). This cannot be missed if you want to ride an old bike... Forget the English Discovery Channel guy, Mark Evans, slapping a brush-painted Bonnie together with the magic of video; come out and see the right way to treat old bikes!

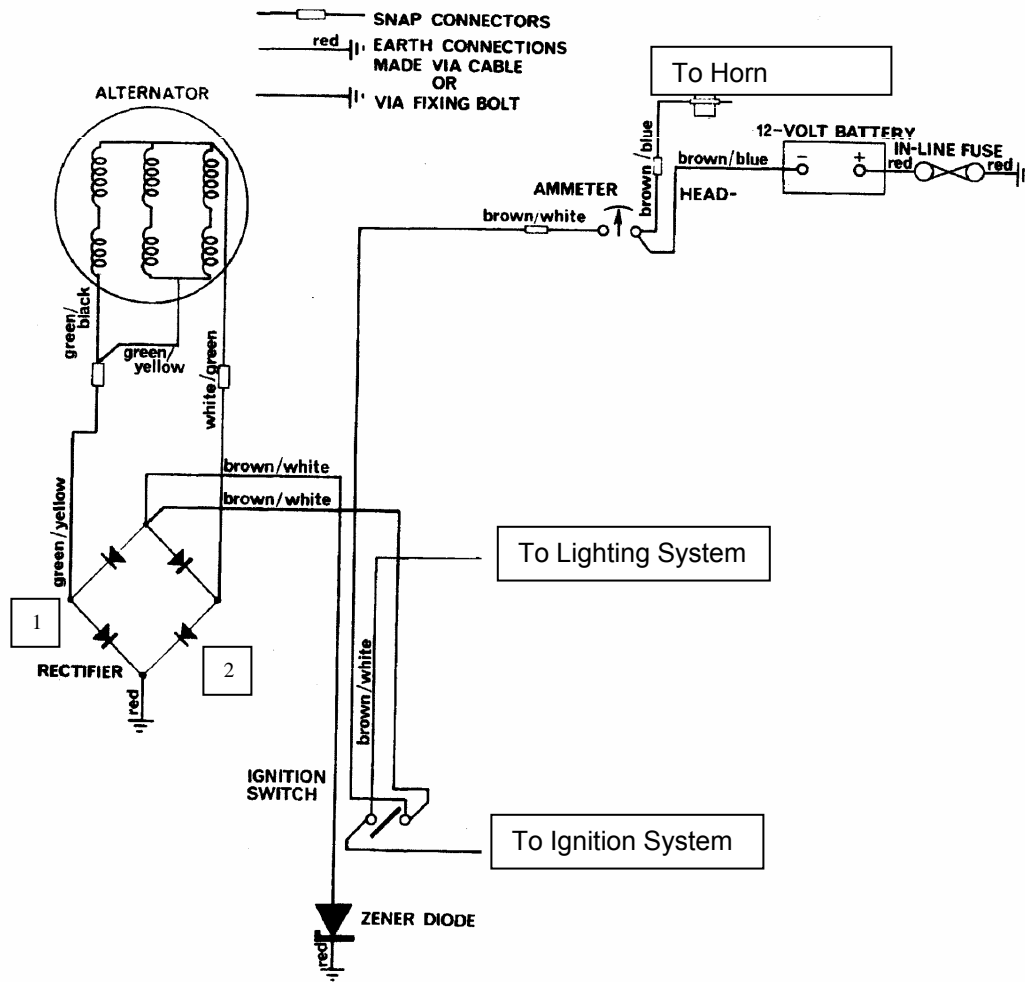
Mikes is located at:

Directions:

The Triumph Electrical System

--by Bob, Illustrations by Rainer

I've been asked to write an article helping fellow club members to understand the electrical system in their bikes. While I will focus on Triumphs, the information is applicable to most motorcycles in this era as the approach Triumph used was fairly common. I will get fairly technical as hopefully, with this knowledge, you will improve your ability to troubleshoot electrical system problems.



Typical Charging System of Early Triumph Models

The charging system is made up of a handful of components that are shown above in the simplified schematic diagram from my 1967 Bonneville - In 1966 Triumph changed from 6 V to 12 V electrics and added the zener diode.

For the system to work, it all starts with the alternator which generates electrical energy from mechanical energy. The output of the alternator is an alternating current (AC - a current which changes from positive to negative and back again—a sine wave), and since the battery stores a direct current (DC), the alternating current is converted to a direct current through the rectifier. Next the zener diode regulates the alternator voltage which increases as the speed of the motor increases. This prevents damage to the battery through overcharging. Finally the current goes to the battery to charge it or directly to one the loads (shown here as lighting, ignition, and the horn) and the net current flow in or out of the battery is measured by the ammeter. Isn't that easy? (not really...) Next let me take you through the individual components, their potential failure modes and their effects.

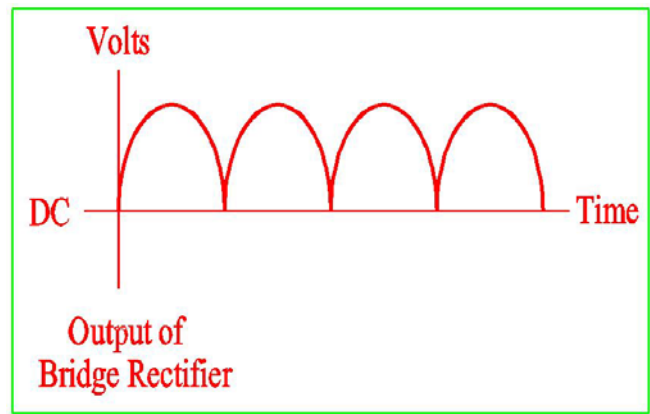
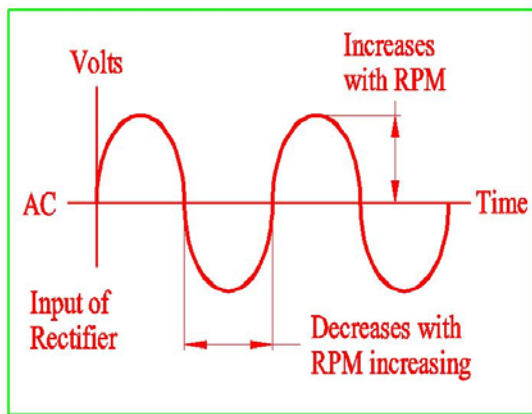
Alternator - Produces alternating current. How does it do this? If you pass a magnetic field through a wire so that the magnet flux (the field gradient) changes, a current will be produced in the wire (you'll have to trust me on this).

In most motorcycles, permanent magnets (rotor) are attached to the crankshaft to produce the changing magnetic flux across the "stator" (a stationary coil of wire that produces the electricity - shown as the curly lines in the previous schematic). You'll notice that there are actually two coils shown in the alternator schematic, one with a green/black wire, the other with a green/yellow wire, both with a common white/green wire. They are electrically combined at the output and electrically equivalent to a single coil that produces the current equal to the sum of the current from two coils. So why two? In some motorcycles, you will see one of the coils switched in only when the headlight is on to better match the generation of electricity (and therefore the mechanical energy used) to the load on the electrical system.

In cars and some modern luxu-bikes, there is a field coil instead of permanent magnets to produce the magnetic flux—the benefit is you can reduce or increase the field current to reduce or increase the magnetic field. This gives better control of the output voltage and current (as the load or engine speed changes) than a zener diode and permanent magnets.

Potential failure modes (and effects) are: weak or demagnetized magnet (reduced or no alternator output), shorted stator windings (reduced or no alternator output), and open winding (no alternator output).

Rectifier - Converts alternating current to direct current - see the two figures below.

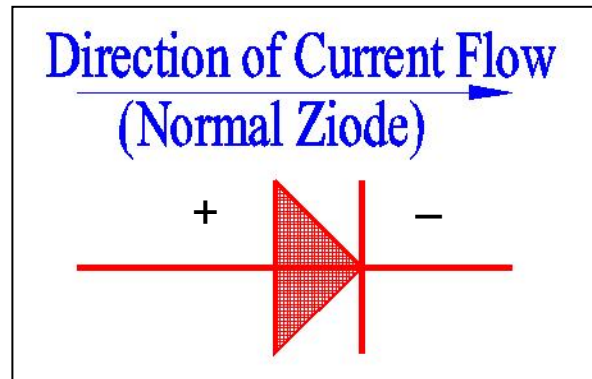


Older Triumphs convert alternating current to direct current with a selenium bridge rectifier (orange finned assembly), modern motorcycles use silicon bridge rectifiers. A bridge is made up of 4 diodes which always steer the alternating current toward the positive terminal of the battery.

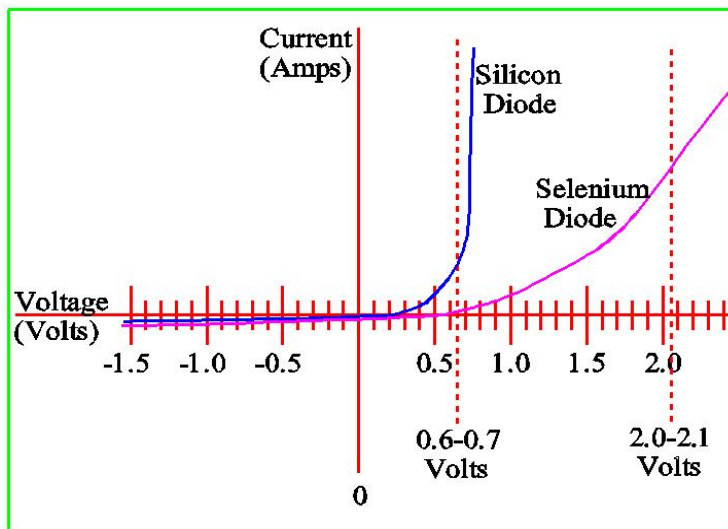
In a diode (see schematic symbol at the right), the current flows from + to - in the direction of the schematic "arrow" (the triangle part of the symbol). The diode will not allow current to flow in the opposite direction; Think of the vertical line in the schematic symbol as a stop sign keeping the electrical current from flowing in the - to + direction.

Let's look at just the battery and the diode bridge in the original schematic. Number the four diodes #1, 2, 3 & 4 in a CCW direction starting with the diode labeled #1.

When the green/yellow wire is positive compared to the white/green wire, the current flows through diode 1, through ground to the positive terminal of the battery, out of the negative terminal of the battery and through diode 3 to the white/green wire completing the circuit. Note that in this case, when the green/yellow wire is positive, diodes 2 & 4 are "reverse-biased" (shut off) and no current flows through them. When the white/green wire is positive (i.e. green/yellow is negative), current flows through diodes 2 & 4 to the battery, and 1 & 3 are shutoff. Got it?



Selenium bridge rectifiers (like those on the triumph) typically have fins because there is a larger voltage drop across them from two effects: 1. the offset voltage (2 volts vs. 0.6 volts for silicon) and 2. the selenium diode's higher resistance "forward" characteristic compared to silicon (forward means current flow in the direction of conduction or the right side of the graph). The forward resistance is the slope of the line. You can see that the selenium line is more "laid over" than the silicon line that is almost straight up and down -- the silicon diode has much less forward resistance.

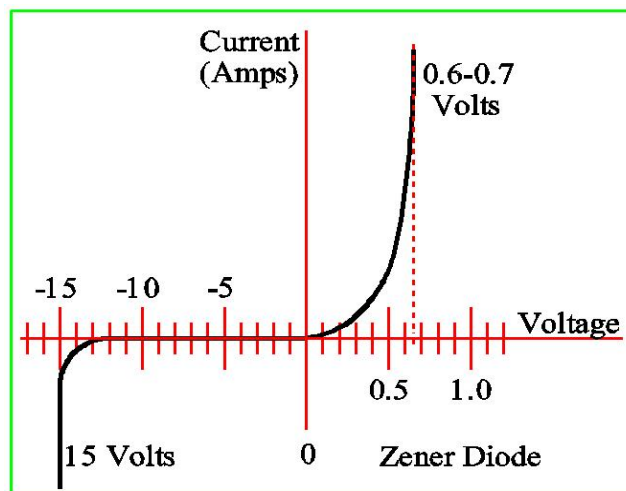


Why do we care? Because selenium rectifiers waste a lot more power (creating heat—so it's finned). In case you are interested, the wasted power is equal to the offset voltage (2 volts) times the current (say 5 amps—equals 10 watts) plus the current squared (for 5amps—25) times the forward resistance (say 2 ohms—equals 50 watts). So having a silicon rectifier is more efficient with its lower forward resistance since the maximum power wasted is proportional to the square of the current through it!!! Are you yawning yet?

Potential failure modes (and effects)—shorted diodes (creates a leakage path and drains battery) and open diodes (reduced or no output).

Zener Diode/regulator – Reduces DC voltage by “chopping off” the peak voltages above 15 volts as the rectifier output increases above 15 volts. This happens when the engine speeds up and the alternator puts out more voltage. On my 1967 Bonneville, the Zener diode is located on a plate (heat sink) underneath the seat. The Zener was moved from under the seat to under the headlamp on the bottom triple clamp to get better airflow/cooling on the 1968 models. After all the work you've done understanding how a regular diode works, I'm going to complicate things. Please refer to the sketch labeled, “Zener Diode”.

A zener diode is generally used for its “reverse” characteristic (left side of the graph), not its forward characteristic. With a Zener diode, as you increase the reverse voltage to a higher voltage, the diode starts to conduct backwards at the “zener or breakdown” voltage (for a Triumph, about 14 to 15 volts). Its forward characteristic is the same as a regular silicon diode. So what happens to the voltage/current it “cuts off”? We are back to the fins—it converts the electrical power to heat!! The power wasted is equal to the Zener voltage times the current going through the zener. So if the alternator is producing 10 amps, and only 8 amps is being used to charge the battery and supply the ignition and lighting loads, then 2 amps times 15 volts – 30 watts is being wasted as heat. And whether you use a zener diode or a modern podtronics regulator/rectifier, there is no way around wasting this energy with a permanent magnet type alternator!!! This is why cars don't use them. But they are cheap and compact—perfect for our riding pleasure because motorcycle electrical loads are relatively modest.



Potential failure modes (and effects) - shorted zener (no output voltage/drains battery/short circuit measured across battery) or open zener (battery keeps running out of water from overcharging, and is ruined very quickly). Also note that if you reverse connect the battery, all the energy of the battery gets dumped immediately through the Zener diode in the forward mode, creating mega heat and instant open circuit inside the zener as it turns back into silicon glass!! But because you were all smart enough not to eliminate your fuse, hopefully the fuse blows before the wiring burns up—and if you're really lucky, the zener does not fail, but unlikely.

Battery - A device which stores electricity through an electrochemical reaction which is "reversible". Most cars and bikes use Lead Acid batteries, with 6 cells, which achieves about 12.6 volts fully charged, and maintains that voltage to above 12 v until it is less than 20% charged.

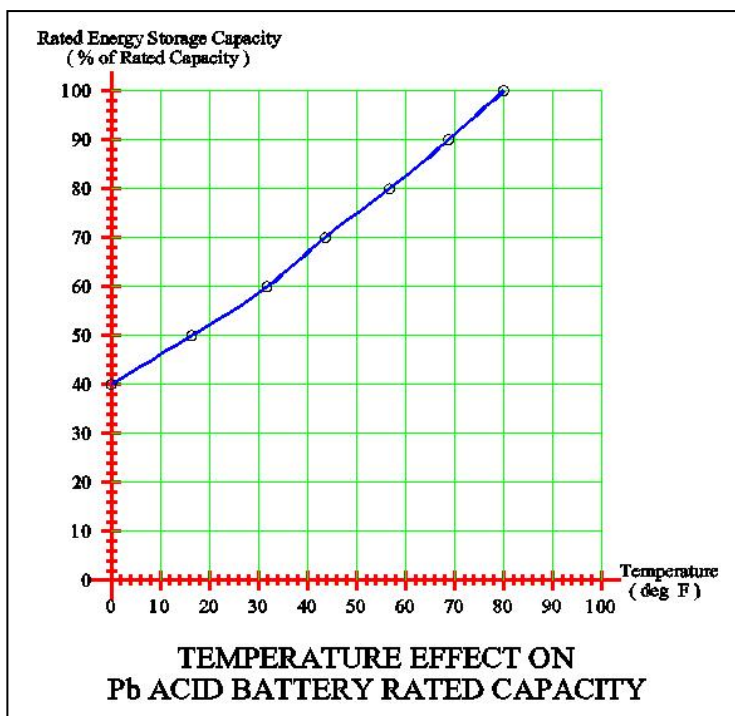
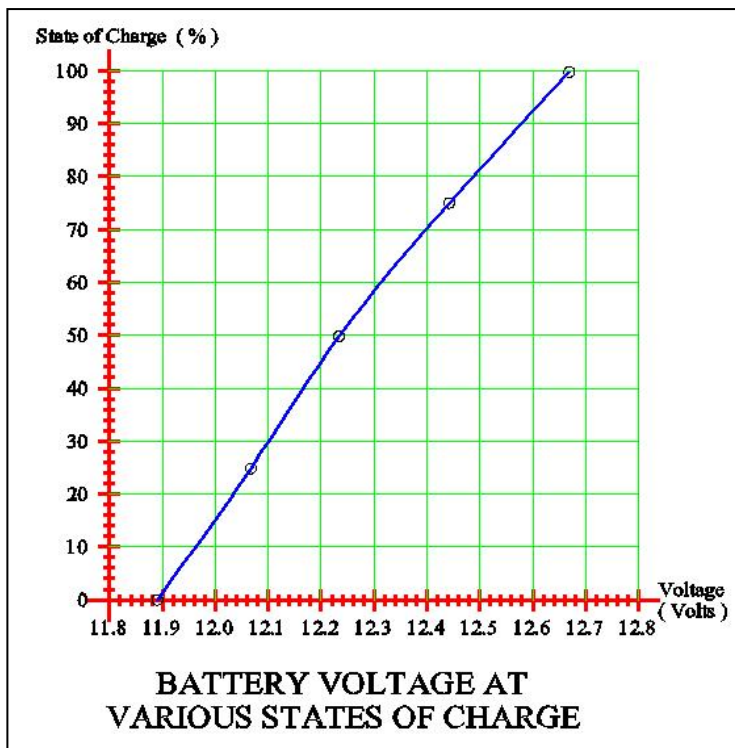
However, its internal resistance increases as it discharges, which means as you try to draw current, the voltage drops. So if you draw a little current, the voltage stays high. If you try to draw a lot of current, the voltage drops a lot.(e.g. when you turn on a starter motor). Lead acid batteries lose their storage capacity as they get cold (i.e. they can hold less energy, but at the same voltage). In fact, a Lead acid battery loses about half of its energy storage capability from 80 degrees F to 20F because the chemistry doesn't work efficiently. That's part of why your battery always seems to go dead in the winter.

Lead acid batteries are also subject to self-discharge so maintenance is always required, even when disconnected in the winter. Leaving a battery in a discharged state for any length of time reduces its life.

Potential failure modes (and effects)- 1) Loses capacity with age—this is from the lead plates not re-plating uniformly as the battery recharges, especially when battery is deep cycled -- almost completely discharged and then recharged. This can also happen from impurities getting deposited from not using distilled water, or the plates becoming "sulfated" from storing the battery in a discharged condition (eventually battery will not hold charge for very long and will need to be replaced); 2) Runs out of water – some of this is normal but reduced with better regulation of the charging system. Overcharging "boils" the water out (Like above, this shortens the life of battery and eventually it won't hold a charge); 3) Shorted cells or broken plates or terminals – (time to get a new battery—won't hold charge).

OK, enough already!

In summary, we have covered how the system works, the function of each component, the potential failure modes of each component and their effects on the electrical operation of your bike. I hope this article has been informative and helps you troubleshoot and repair electrical system problems on early model Triumph motorcycles. ■



Call for MTR Photo Albums

Does any one know where the old MTR photo albums are? We need the pictures for our new web site. If you have any information about these albums, please let me know, thank you.

--Ron

**Please support our 2003
Battle of the Brits sponsors:**



Memorabilia Items for Sale at MTR Meetings

-- Eric

BOB Items

\$10.00 2003 BOB gray T-shirts M, L, XL, 2XL, 3XL
\$10.00 Black BOB T-shirts M, XL, 3XL
\$10.00 Red BOB T-shirts L, XL, 3XL
\$ 5.00 BOB green coffee mugs

MTR Items (Members Only)

\$30.00 MTR Blue Denim long sleeve shirt
M, LG, XL, 2XL, 3XL
\$10.00 MTR Yellow Club T-shirt - M, L, XL, 2XL
\$ 5.00 MTR Coffee mugs
\$ 5.00 MTR Pins, early style and late style
\$15.00 MTR hats
\$12.00 Tax disk holder
\$ 2.00 Yellow MTR insert for tax disk
\$ 4.00 Yellow MTR stickers
\$15.00 MTR golf flag
\$ 3.00 MTR Patches
FREE! MTR yellow contact cards

**Support your Club!
Club Shirts, Hats, Pins, Stickers and Coffee Mugs
let others know you are an MTR member!**

Picture Sunday Photo CD is Available

If you participated in the "Picture Sunday" photographic session, you may pick-up your MTR-provided picture CD from Eric at the next MTR meeting.

MTR Library Video

Metro Triumph Riders has purchased Hughie Hancox's "Unit 650" engine rebuild video. You can check it out of the MTR library for a 4 week period for the small rental fee of \$10. (w/S&H, this video costs about \$65.00). The video covers the disassembly of the engine, inspection of parts and reassembly.

If you would like to rent this video, please contact John. Your \$10.00 rental fee will be used to purchase other materials for the MTR library.

MTR WEBSITE

<http://www.metrotriumphriders.com>

The MTR website:

- Allows members to ask questions of other MTR members
- Has tech info and contacts on it
- Has pictures of outings, bikes, technical clinics
- Acts as a reminder on club events you don't want to miss

Plymouth, MI 48170
P.O. Box 700521



MTR Participation Points for 2004

--by Rick

<u>Points will be awarded for:</u>	<u>Points</u>
Attending an MTR meeting or ride/event as listed in the calendar	5
Attending the above by motorcycle other than Triumph	7
Attending the above on a Triumph motorcycle	10
Attending a National British bike rally	15
Attending a National rally with your Triumph	17
Ride your Triumph to a National Rally	20
Sign up a new member (max of 2)	5
Publish an article for the newsletter (editor not eligible)	5
Win a trophy with your Triumph 1 st – 3 rd place (rally or race)	5
AMA membership	10
Club Officer	10
Sponsor a MTR Club Event	10

National rallies are defined as a major British meet like Triumph Days, Battle of the Brits, International Norton Rally, Ohio Valley BSA, Mid Ohio Vintage Days, BBC rally, Daytona Bike Week, Isle of Man, Beezumph or National RAT ride.

The winner is responsible for constructing/obtaining next years trophy to be presented at the MTR/MNO December holiday party. Per Henry's suggestion, there will be no consecutive winners.