

The TRIUMPH Corporation

SERVICE BULLETIN

I came across this great Service Bulletin written by the late Rod Coates, Triumph Baltimore's service manager. I thought you would like it for reference. John H.

If you suspect electrical troubles on Triumphs fitted with Lucas D.C. generator equipment (or an E3L generator ed.), we suggest the following steps for isolating the fault:

Test No. 1. Testing the generator, wires and regulator ground.

- A.- Disconnect both wires from generator.
- B.- Connect the negative D.C. voltmeter lead to the generator "D" terminal.
- C.- Ground the positive D.C. voltmeter lead to the generator body (ground).
- D.- Start the engine and gradually raise the speed to fast idle (1500 to 1800 r.p.m.).

READING	SYMPTOM
1. Approx. 2 volts	Armature connections O.K., proceed to next step (step E).
2. Zero reading	Poor contact between brushes and commutator, weak brush springs, bad brush wires or defective armature.
3. Rising volts with rising engine speed	Internal short between D and F terminals.

- E.- Link terminals "D" and "F" on generator. Connect the negative D.C. voltmeter lead to this link. The positive D.C. voltmeter lead to the generator body (ground).
- F.- Start the engine and gradually raise the speed to a fast idle (1500 to 1800 r.p.m.).

READING	SYMPTOM
1. Rising volts with rising speed - full scale reading at fast idle.	Generator in good order. Proceed to next test (Step G).
2. Approx. 2 volts	Open circuit in field coil or connections.
3. Zero volts	Grounded field coil or field coil connection.

- G.- Reconnect wires from generator.
- H.- Remove twinseat (when necessary).
- I.- Remove wires from "D" and "F" terminals at the regula-

tor.

- J.- Connect the negative D.C. voltmeter lead to the "D" terminal wire from generator. The positive D.C. voltmeter lead should still be grounded.
- K.- Start engine and gradually raise the speed to a fast idle (1500 to 1800 r.p.m.).

READING	SYMPTOM
1. Approx. 2 volts	"D" wire from generator to regulator O.K.. Proceed to next step (Step L).
2. Zero reading	"D" wire open (broken wire).
3. Rising volts with speed	Short between "D" and "F" wires.

- L.- Join "D" and "F" wires together and connect negative D.C. voltmeter lead to this connection. Leave the positive D.C. voltmeter lead grounded.
- M.- Start the engine and gradually raise the speed to a fast idle (1500 to 1800 r.p.m.).

READING	SYMPTOM
1. Rising volts with rising speed - full scale reading at fast idle.	Wires from generator O.K. Proceed to next test (Step N).
2. Zero reading	Grounded "F" wire.
3. Approx. 2 volts	"F" wire open (broken wire).

- N.- Reconnect wires "D" and "F" terminal at the regulator.
- O.- Connect the positive D.C. voltmeter lead to the regulator's "E" terminal (this is the regulator's ground wire). Connect the negative D.C. voltmeter lead to the regulator's "A" terminal (which connects with the battery).

READING	SYMPTOM
1. Full battery voltage	Regulator ground and battery wires O.K.
2. Zero or less than battery voltage	Broken or poor regulator ground and or battery wires.

TEST NO. 2 . Testing and adjusting the Lucas voltage regulator.

- A.- Disconnect the battery. All other wiring on the motorcycle should be connected as normal.
B.- Connect the negative D.C. voltmeter lead to the "D" terminal on either the generator or regulator. Connect the positive D.C. voltmeter lead to ground (motorcycle frame).
C.- Start the engine and gradually raise the speed to a fast idle (1500 to 1800 r.p.m.).

READING

1. Steady voltage increase with speed until voltage rise levels out at 7.5 to 7.7 volts.
2. Steady voltage increase, but rise to levels other than in step 1.
3. Voltage does not rise with engine speed or is erratic
4. Rising volts with rising speed. No leveling-out action.
5. Reading approx. half required setting

SYMPTOM

- Voltage control portion of regulator O.K.. Proceed to next test (Step F). (Do not subsequently change voltage adj.)
Adjust the control screw by turning adj. screw to right to increase or left to decrease the setting, which must be 7.5 to 7.7 volts. Remember the battery must be disconnected when adj. voltage control.
Check air gap settings. (compare them with a new regulator). Loosen 2 screws on top of regulator coils to adjust.
Open circuit shorted winding in regulator coil. Replace regulator.

Burned or defective regulator points (high resistance). Repair points or replace regulator.

- D.- After proving that the voltage control portion of the regulator is functioning properly, complete the regulator test and adjustment as follows:
E.- Reconnect the battery. Connect the negative D.C. voltmeter lead to the regulator "A" terminal. Positive D.C. voltmeter lead should be grounded (motorcycle frame).

READING

1. Full battery voltage
2. Zero or less than battery volts

SYMPTOM

- Ammeter circuit O.K. Proceed to next test (Step G).
Improper connection at battery, ammeter or regulator. Or, broken battery - ammeter wire or defective ammeter.

- F.- With the test leads connected as in Test 2 (step F) above, start the engine and watch the test D.C. voltmeter.

READING

1. As cut-out contacts close with the engine speed increase, the voltmeter reading should rise to 6.3 to 7.0 volts.
2. Little or no cut-out voltage increase, with engine speed increase.

SYMPTOM

- Cut-out O.K. Proceed to next test (Step H).

Clean and adjust contacts so they meet correctly.

- G.- Connect negative D.C. voltmeter lead to regulator "D" terminal. Positive D.C. voltmeter lead should still be grounded (motorcycle frame).
H.- Start the engine and gradually increase engine speed to a fast idle (1500 to 1800 r.p.m.).

READING

1. Cut-out points close when voltage builds up to 6.3 to 6.7 volts.
2. Cut-out points do not close within the given limits
3. Cut-out points do not close.

SYMPTOM

- Cut-out O.K. (points must gradually open as engine r.p.m. falls)

Adjust by turning adjusting screw to the right increase, or to the left to decrease the setting.
Replace the regulator.

Conclusion:

We are sure that these step-by-step tests will enable our Dealers to carry out straightforward repairs on both generators and regulators.

All Triumphs since 1952 (engine #18706NA) utilize the positive ground battery system. The generator must be polarized accordingly. Should the polarity become changed by reversing battery wires or while repairing the generator, it will be indicated by reverse ammeter readings.

The polarity of a generator can easily be changed and the proper way of changing a negative ground generator to positive ground is as follows:

Remove the generator wires from the Bakelite generator end cover. Connect a negative battery wire to the "F" terminal on the generator end cover and flash the positive battery wire to the generator body.

Very truly yours,
THR TRIUMPH CORPORATION
ROD COATES
Service manager