

# The TRIUMPH Corporation

## SERVICE BULLETIN

October 12, 1965

65/14

TO ALL EASTERN TRIUMPH DEALERS:

### MODEL 102 ELECTRICAL TEST SET INSTRUCTIONS

For Early Triumph Models Fitted With  
Lucas D.C. Generators and Regulators

If you suspect electrical troubles on Triumphs fitted with Lucas D.C. equipment, 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. Plug Black test lead into Black socket (VOLTS). Position Test Set toggle switch for Test #3 (VOLTS-NO LOAD).
- C. Connect the Red test lead from the Triumph Test Set to a good ground on the motor-cycle frame. Connect the Black test lead to the generator "D" terminal.
- D. Start the engine and gradually raise the speed to a fast idle.

READING	SYMPTOM
1. Approx. 2 volts	Armature connections O.K., proceed to next test. (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 speed	Internal short, D and F terminals.

E. Link terminals "D" and "F" on generator. Connect Black Test Set lead to this link. Red Test Set lead should still be grounded.

F. Start the engine and gradually raise the speed to a fast idle.

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.

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- G. Reconnect wires from generator.
- H. Remove twinseat (when necessary).
- I. Remove wires from "D" and "F" terminals at the regulator.
- J. Connect the Black Test Set lead to the end of "D" terminal wire. The Red Test Set lead should still be grounded.
- K. Start engine and gradually raise the speed to a fast idle.

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-circuited (broken wires).
3. Rising volts with rising speed	Short between "D" and "F" wires.

- L. Join "D" and "F" wires together and connect Black Test Set lead to these two wires. Leave Red Test Set lead grounded.
- M. Start the engine and gradually raise the speed to a fast idle.

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

- N. Reconnect wires from "D" and "F" terminals at the regulator.
- O. Connect the Red Test Set lead from the Triumph Test Set to regulator "E" terminal. (This is the regulator ground wire). Connect the Black Test Set lead from the Triumph Test Set to regulator "A" terminal (which connects with battery).

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

## 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. The Triumph Test Set should still be utilized as in Test No.1, (Step B).
- C. Connect the Red Test Set lead to a good ground on the motorcycle frame. Connect the Black Test Set lead to terminal "D" on either the generator or regulator.

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D. Start the engine and gradually raise the speed to a fast idle.

READING	SYMPTOM
1. Steady voltage increase with speed increase until voltage rise levels out at 7.5 to 7.7 volts	Voltage control portion of regulator O.K. Proceed to next test. (Step F). Do not subsequently alter voltage control adjustment.
2. Steady voltage increase with speed increase but rise levels out at a different figure than given in D (1).	Adjust the voltage control screw by turning the adjusting screw to the right to increase or to the left to decrease the setting, which must be 7.5 to 7.7 volts. Remember, the battery must be disconnected when adjusting the voltage control.
3. Voltage does not rise with engine speed or is erratic.	Check air gap settings. (Compare them with a new regulator. Loosen 2 screws on top of armature to adjust).
4. Rising volts with rising speed—no leveling-out action.	Open circuit shorted winding in regulator coil. Replace regulator.
5. Reading approximately half required setting.	Burned for defective regulator points. Repair points or replace regulator.

E. After proving that the voltage control portion of the regulator is functioning properly, complete the regulator test and adjustment as follows:

F. Reconnect the battery. Connect the Black Test Set lead to regulator terminal "A". Red Test Set lead should still be grounded.

READING	SYMPTOM
1. Full battery voltage	Ammeter circuit O.K. Proceed to next test. (Step G)
2. Zero or less than battery volts.	Improper connection at battery, ammeter or regulator. Or, broken battery-ammeter wire or defective ammeter.

G. With Triumph Test Set connections same as Test No. 2 (Step F), start the engine and watch the Test Set meter.

READING	SYMPTOM
1. As cut-out contacts close with the engine speed increase, the voltmeter reading should rise to 6.3 to 7.0 volts.	Cut-Out O.K. Proceed to next test. (Step H).
2. Little or no voltage increase with engine speed increase.	Cleand and adjust cut-out contacts so that they meet correctly.

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- H. Connect Black Test Set lead to regulator "D" terminal or regulator frame. Start engine and watch Triumph Test Set meter as the speed is gradually increased to a fast idle.

READING	SYMPTOM
1. Cut-out points close when voltage builds up to 6.3 - 6.7	Cut-Out O.K.
2. Cut-out points do not close within the given limits.	Adjust by turning adjusting screw to the right to increase, or to the left to decrease the setting.
3. Cut-out points do not close.	Replace regulator.

CONCLUSION

We are sure that these step-by-step tests, when used with the Triumph Model 102 Electrical Test Set will enable our Dealers to carry out straightforward repairs on both generators and regulators.

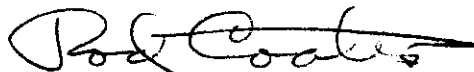
All Triumphs since 1952 (Engine #18706NA) utilize the positive ground battery system. The generator must be polarized accordingly. Should the polarity become changed by reversing battery wires or while repairing the generator, it will be indicated by reversed ammeter readings.

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 generator wires from bakelite end cover. Connect a negative battery wire to the "F" terminal on the generator end cover and flash the positive battery wire to the body or frame of the generator.

Very truly yours,

THE TRIUMPH CORPORATION



Service Manager

Rod Coates:bjh