

15–562 Testing breakerless transistorized ignition system TSZ 4

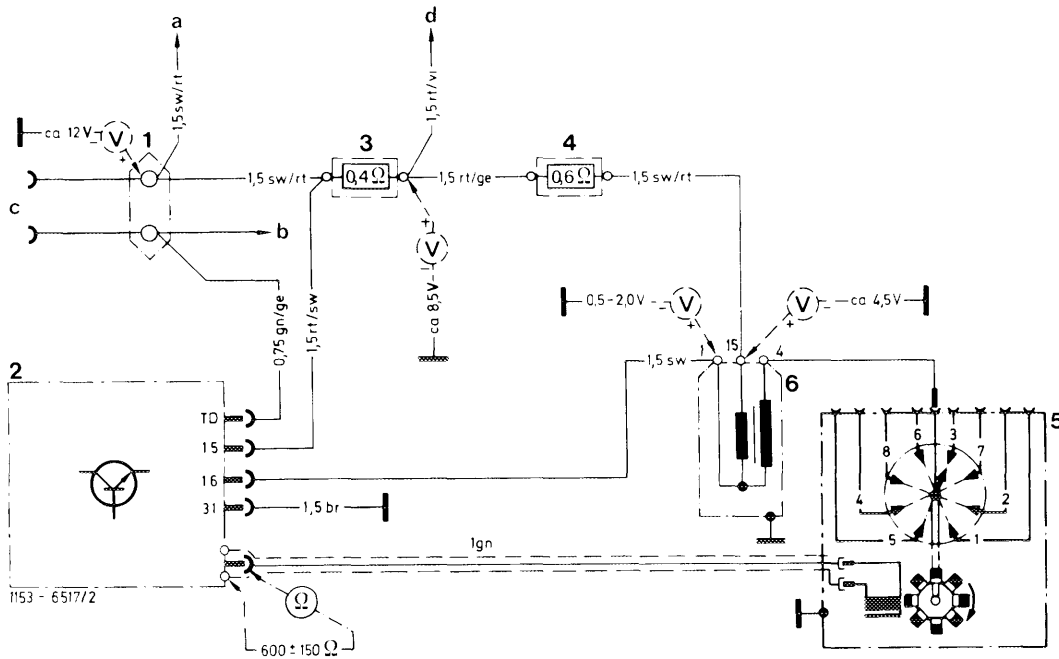
Test values

Battery rest potential		approx. 12 V
Ignition coil voltage	terminal 1 and ground	approx. 0.5–2 V
	terminal 15 and ground	approx. 4.5 V
Input voltage series resistor		approx. 12 V
Ignition coil resistor	primary terminal 1 and 15	0.33–0.46 Ω
	secondary terminal 1 and 4	7–12 k Ω
Transmitter resistance between terminal 7 and 31d		600 \pm 100 Ω
Transmitter coil with control line terminal 7 and ground		∞
Dwell angle at	approx. 1500 rpm	25–39°
	approx. 5000 rpm ¹⁾	33–40°

¹⁾ Perform dwell angle test at 5000 rpm only if complaints refer to misfiring at high speeds.

Conventional testers

Voltmeter, ohmmeter, dwell angle measuring instrument, revolution counter



Wiring diagram breakerless transistorized ignition with test values

- | | | |
|-------------------------------------------------|------------------------------------------|-------------|
| 1 Two-point cable connector | a Ignition starting switch terminal 15 | Color code |
| 2 Switching unit | b Instrument cluster, revolution counter | br = brown |
| 3 Series resistor 0.4 Ω | c Diagnosis socket | ge = yellow |
| 4 Series resistor 0.6 Ω | d Terminal 16 starter | gn = green |
| 5 Ignition distributor with transmitter section | | rt = red |
| 6 Ignition coil | | sw = black |

Note

In the event of complaints about misfiring, check high voltage side of ignition system first (spark plugs, ignition cable, spark plug connectors).

If complaints are about starting-up of engine, perform the following tests on ignition system in addition to test at fuel side:

Gefährliche Hochspannung!
Vorsicht bei Arbeiten an der Zündanlage

Danger! High voltage
Observe caution when working on the ignition system

Danger! Haute tension
Attention lors de travaux au système d'allumage

1154-9352

Visual checkup

Check electric screw connections and plug connections of ignition system for tight seat.

Voltage test

Note: With ignition switched on and engine stopped, a constant primary current of approx. 8 Amps. will flow in this ignition system.

1 Input voltage on series resistance 0.4 Ω cable color black/red (15/54):

Nominal value approx. 12 Volts

2 Voltage on ignition coil at approx. 20 °C:

Terminal 15 and ground = approx. 4.5 Volts

Terminal 1 and ground = 0.5–2.0 Volts

- a) If value is exceeded on terminal 1, switchgear is defective and should be replaced.
- b) If value on terminal 1 is attained, but no ignition voltage (firing spark) is induced, check transmitter section in ignition distributor (5) and secondary winding of ignition coil.

Resistance values ignition coil:

Primary winding terminal 15 and terminal 1
= 0.33–0.46 Ω

Secondary winding terminal 1 and terminal 4
= 7–12 k Ω

Checking dwell angle

Note: The dwell angle (timing angle) cannot be adjusted. The inspection serves to check function of switchgear (dwell angle control).

Connect dwell angle measuring instrument
(Connection similar to SI-standard switchgear).

Nominal value at

Engine speed	Dwell angle
1500 \pm 50/min	25–39°
5000 \pm 50/min ¹⁾	33–40°

¹⁾ Check at 5000/min only if complaints are about misfiring at high speeds.

If this value is not attained when measuring dwell angle, check ignition distributor transmitter section first. If transmitter section is in order, exchange switchgear.

Testing ignition distributor transmitter section

Pull off control line of ignition distributor on switchgear and connect ohmmeter.

- 1 Test transmitter resistance between terminal 7 and 31d.

Nominal value: $600 \pm 100 \Omega$

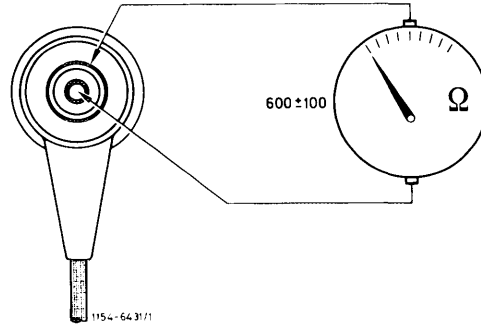
Note: On cold engine the ohmic value should be in lower half of specified value, on warm engine in upper half.

- 2 Test transmitter coil including control line for ground connection.

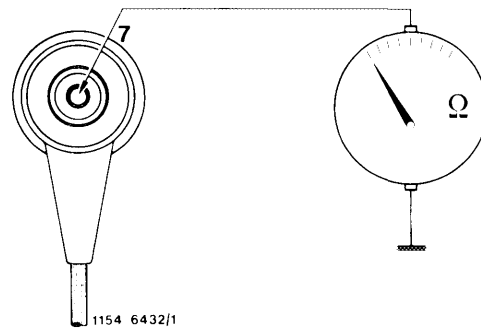
Nominal value: terminal 7 and ground = ∞

- 3 Check transmitter section for mechanical damage. There should be an air gap between rotor and stator.

Note: If transmitter section is defective, exchange complete ignition distributor.



Ohmmeter connection for testing transmitter resistance



Ohmmeter connection for testing ground connection