LUCAS

Alfa Romeo (1963)
Austin America (1968-71)
Austin Healey (1963-69)
Austin Marina (1973)
Capri (1970-73)
Cortina (1967-70)
Cricket (1971-72)
Jaguar (1963-73)
Jensen Healey (1973)
Lotus (1973)
MG (1963-73)
Rover (1963-73)
Sunbeam (1963-69)
Triumph (1963-73)

DESCRIPTION

Starter solenoids are electro-magnetic actuators mounted externally on the yokes of pre-engaged starting motors. These solenoids contain a soft iron plunger (linked to engaging lever), starter switch contacts and a coil with two windings (a heavy gauge pull-in winding and lighter gauge hold-in winding). Intially, both windings are energized in parallel when starter device is operated, but the pull-in winding is shorted out by the starter switch contacts at the instant of closure. Solenoids described here are sealed in a rolled steel outer case or body and cannot be disassembled. Most ground return starter solenoids have three terminals (two large and one small) with the exception having an additional small terminal marked "IGN" which is used in conjunction with the ignition coil ballast resistor. These units have an auxiliary phosphor bronze contact which serves to cut out the ballast resistor during starting, thereby ensuring that terminal voltage of the coil remains unaffected by the drop in battery voltage.

TESTING

SOLENOID CONTACTS

Solenoid Operated – 1) Remove all cables and connectors from solenoid terminals. Select appropriate voltage supply as indicated in table, and connect this voltage supply in series with a switch between "STA" and small unmarked terminal on solenoid. Connect a test lamp across solenoid main terminals and insert a stop (⅛" thick) between drive end bracket and pinion gear.

2) Close switch to energize series windings and test lamp should light, indicating contacts are closed. Open switch and remove pinion stop. Close switch and hold pinion gear in engaged position. Open switch and light should go out indicating that contacts have opened.

Supply Voltage Specifications

Application	Voltage
M325	
29 Slot	6.0
33 Slot	7.0
M35G	6.0
M35J	...
2M100	...
3M100	...
M418G	6.0
M45G	①12.0

① – Or use 6 volts across both windings.

Manually Operated – 1) Insert a stop (⅛" thick) between drive end bracket and pinion gear. Operate engaging lever to its fullest extent. Switch contacts should be fully closed. Release lever and remove stop.

2) Operate engaging lever to its fullest extent and hold pinion in fully engaged position. Release lever and with the pinion still held fully engaged, the switch contacts should open.

WINDING CONTINUITY

Connect ohmmeter between "STA" terminal and a good ground on solenoid body. A reading of 1.01-1.07 ohms should be obtained. If reading is not to specifications, replace solenoid.

PULL-IN WINDING

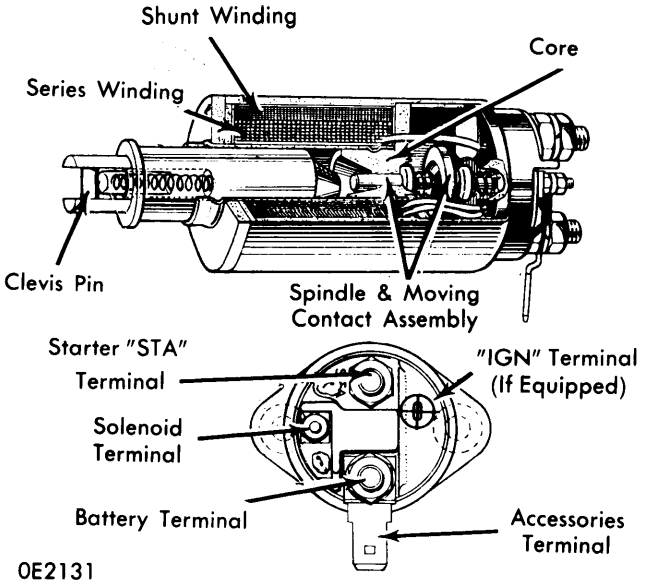
Connect ohmmeter between small unmarked terminal of soldnoid and "STA" terminal. If resistance is not within specifications, pull-in (series) winding is bad and solenoid should be replaced.

HOLD-IN WINDING

Connect ohmmeter between small unmarked terminal of solenoid and a good ground on solenoid body. If resistance is not within specifications, hold-in (shunt) winding is bad and solenoid should be replaced.

Resistance Specifications (Ohms)

Application	Pull-In Winding	Hold-In Winding
Sol. Model 9S (1963-71)	.40-.46	1.10-1.35
Sol. Model 10S (1963-71)	.36-.42	1.49-1.71
Austin Marina (1973)	...	1.01-1.07
Jaguar 6 & V12 (1972-73)	.36-.42	1.49-1.71
MGB-GT (1972-73)	.13-.15	.67-.73
Triumph 6 & V8 (1972-73)		
M418G	.13-.15	.63-.73
2M100	.25-.27	.76-.80



LUCAS STARTER SOLENOID (TYPICAL) (MODEL 10S SHOWN)