

STARTER

1988 Chrysler LeBaron Convert/Coupe

1988 Starters
BOSCH, MITSUBISHI & NIPPONDENSO

Chrysler Motors: FWD Models

DESCRIPTION

Chrysler Motors models may be equipped with either a Bosch permanent magnet gear reduction starter or a Nippondenso field coil gear reduction starter.

TROUBLE SHOOTING

NOTE: See the TROUBLE SHOOTING - BASIC PROCEDURES article in the GENERAL TROUBLE SHOOTING section.

TESTING (ON-VEHICLE)

STARTER DOES NOT ENGAGE

Using voltmeter, check voltage at solenoid ignition terminal with ignition switch in "START" position. Voltage should exist. No voltage should exist once switch is released. If voltage does not exist, check ignition switch adjustment.

AMPERAGE DRAW TEST

1) Ensure battery is fully charged. Connect a battery-starter tester and a remote starter switch. Ensure carbon pile control knob is in the "OFF" position. Adjust voltmeter selector switch to "16 VOLT" position.

2) Turn function selector to starter system test (0-500 amp scale). Connect positive ammeter lead to positive battery terminal and negative lead to negative battery terminal.

3) Disconnect coil wire and attach to a good ground. Crank engine and note voltmeter reading. Stop cranking engine. Turn carbon pile control knob until the same voltmeter reading is obtained.

4) Note ammeter reading. Reading should be within specification. See STARTER SPECIFICATIONS.

5) If reading is less than specification, check supply circuit resistance. See CIRCUIT RESISTANCE TEST in this article. Replace starter if reading exceeds specification.

CIRCUIT RESISTANCE TEST

1) Connect voltmeter positive lead to positive battery post and negative lead to battery cable clamp. Crank engine and note voltmeter reading. No voltage should be obtained. Clean or repair connection and retest if voltage is obtained.

2) Connect voltmeter positive lead to positive battery post and negative lead to battery terminal on starter. Crank engine and note voltmeter reading. Voltmeter reading should be .2 volts or less. Clean or repair connection and retest if voltage exceeds specification.

3) Connect voltmeter positive lead to positive battery post and negative lead to solenoid lead to field coils. Crank engine and note voltmeter reading. Voltmeter reading should be .3 volts or less.

Clean or repair connection and retest if voltage reading exceeds specification.

4) Connect voltmeter positive lead to negative battery post and negative lead to negative battery cable clamp. Crank engine and note voltmeter reading. No voltage should be obtained. Clean or repair connection and retest if voltage reading is obtained.

5) Connect voltmeter positive lead to negative battery post and negative lead to battery cable connector on engine block. Crank engine and note voltmeter reading. Voltmeter reading should be .2 volts or less. Clean or repair connection and retest if voltage exceeds specification.

6) Connect voltmeter positive lead to starter housing and negative lead to negative battery post. Crank engine and note voltmeter reading. Voltmeter reading should be .2 volts or less. Clean or repair connection and retest if voltage reading exceeds specification.

SOLENOID & RELAY TESTS

NOTE: Solenoid and relay should be tested in order described. Ensure ignition is disabled to prevent engine from starting during cranking.

Solenoid

Connect a jumper wire between solenoid and battery terminals on starter relay. See Fig. 1. If engine fails to crank, or if solenoid chatters, check wiring and connectors from relay to starter for loose or corroded connections. Clean and retest. If engine cranks, solenoid is good. Proceed to starter relay test.

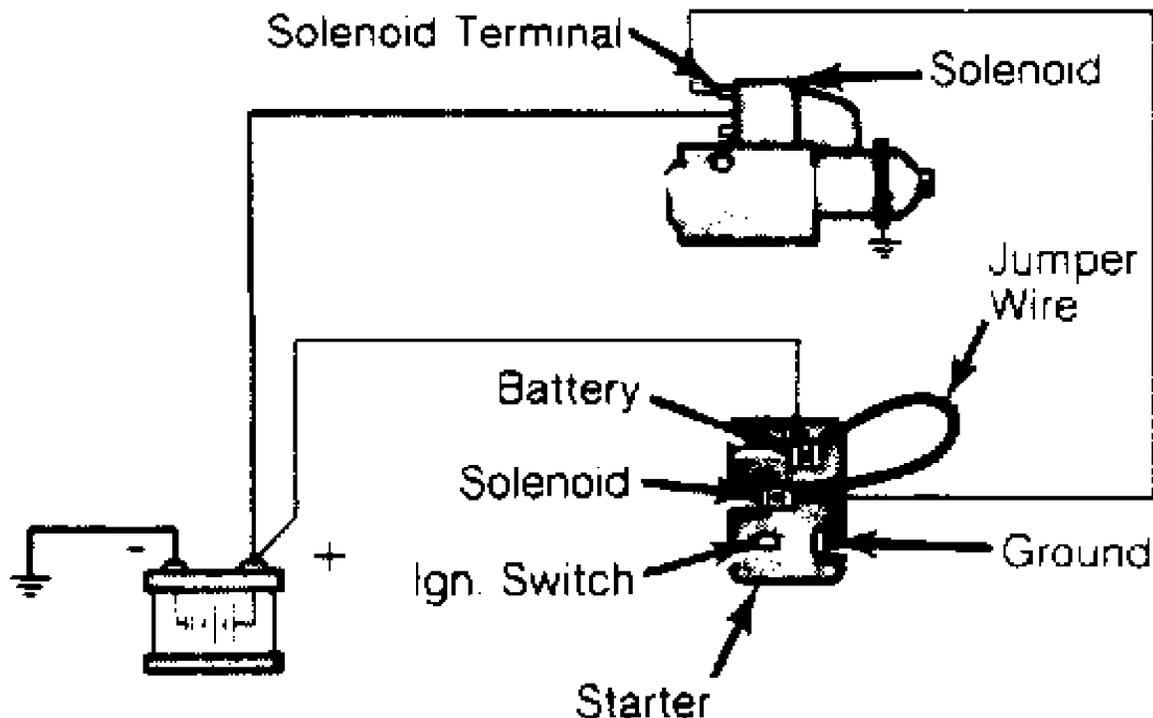
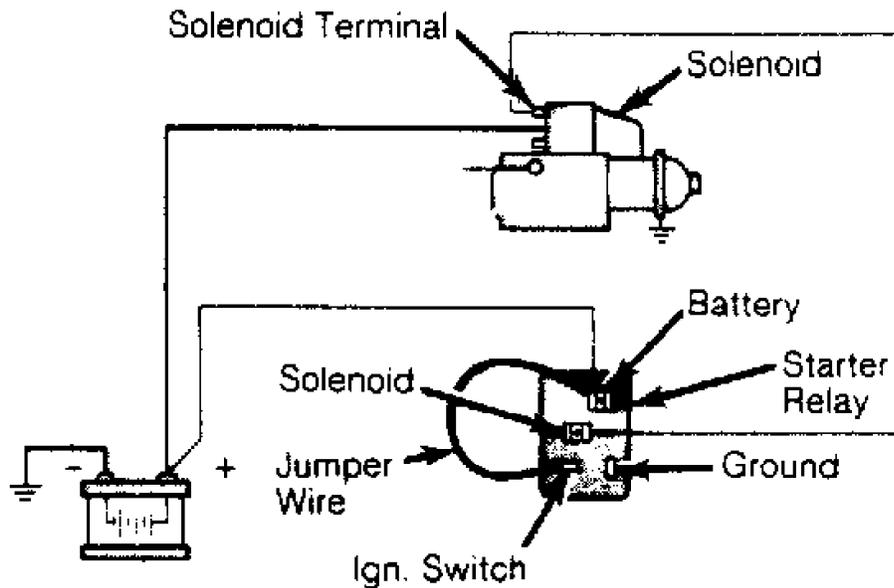


Fig. 1: Typical Starter Solenoid Test

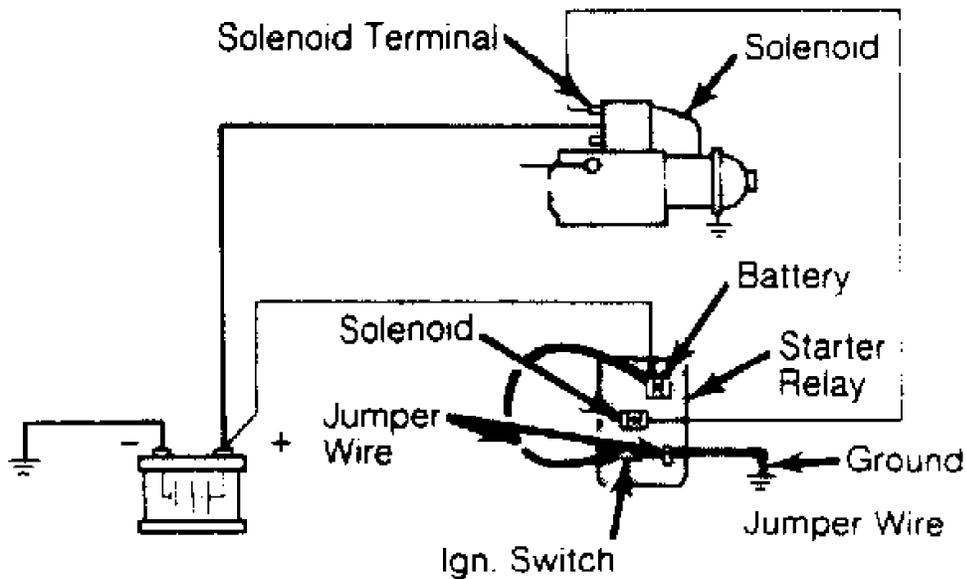
Starter Relay

1) Place A/T in Neutral or Park or M/T in Neutral. Apply parking brake. DO NOT remove relay connector. Using a test light,

check for battery voltage between starter relay battery terminal and ground. Connect a jumper wire on starter relay between ignition and battery terminals. See Fig. 2. Starter relay is okay if engine cranks.



TESTING WITH ONE JUMPER WIRE



TESTING WITH 2 JUMPER WIRES

Fig. 2: Testing Starter Relay

2) If engine fails to crank, connect a second jumper wire between starter relay ground terminal and a good ground. See Fig. 2. If engine does not crank, replace starter relay. If engine cranks,

neutral safety switch on A/T models or clutch neutral start switch on M/T models may be defective or require adjustment.

BENCH TESTING

SOLENOID TEST

1) Remove field coil wire from field coil terminal. Using an ohmmeter, check for continuity between solenoid terminal and field coil terminal. Continuity should exist.

2) Check for continuity between solenoid terminal and solenoid housing. Continuity should exist. If no continuity exists in either test, replace solenoid.

SHORTED ARMATURE

Place armature in a growler. Hold a thin steel blade parallel and just above armature while armature is rotating in growler. Replace armature if blade vibrates.

GROUNDED ARMATURE

Place armature in growler. Touch one lead of a self-powered test light to armature core and remaining lead to each commutator bar. If test light is activated, armature is grounded. Replace armature.

COMMUTATOR RUNOUT

Place armature in a pair of "V" blocks. Using a dial indicator, check commutator and shaft runout. If runout exceeds .003" (.08 mm), resurface or replace armature.

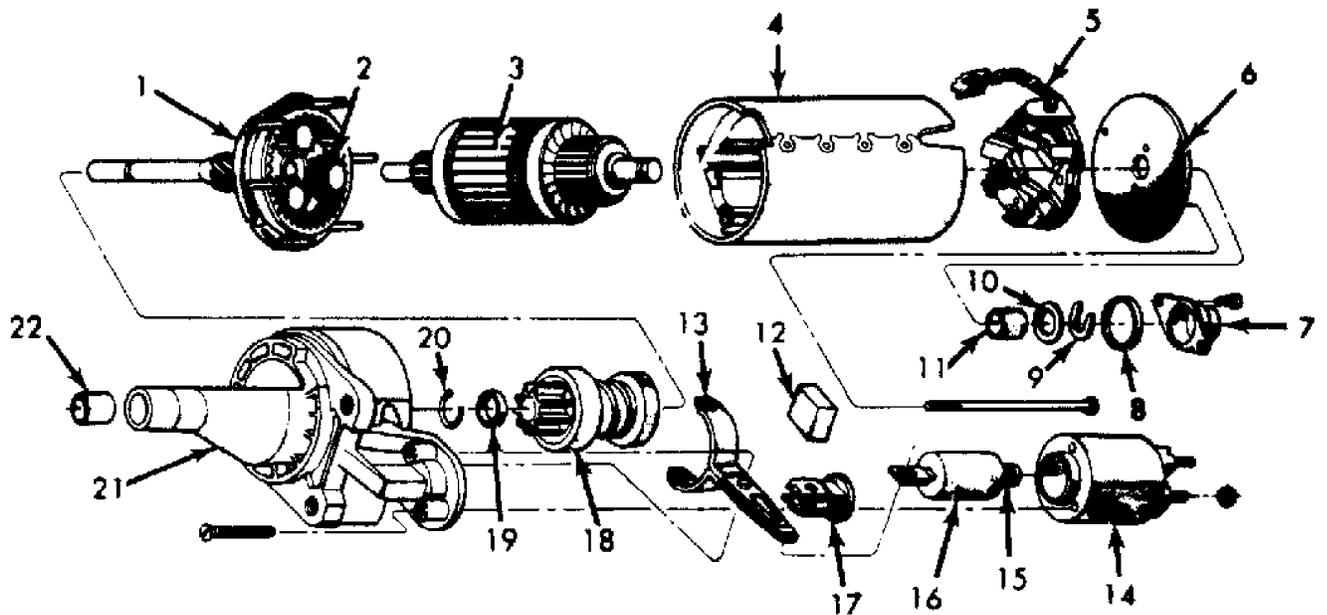
GROUNDED FIELD BRUSHES

1) Place one test lead of a self-powered test light to each field brush and remaining lead against brush holder. One set of brush holders are grounded 180 degrees apart. Test light should activate on these brushes.

2) Repeat procedure on remaining brushes. On these insulated brush holders, test light should not activate. If test light is activated on insulated brush holders, brush holders and plate are grounded. Replace brush holder plate assembly.

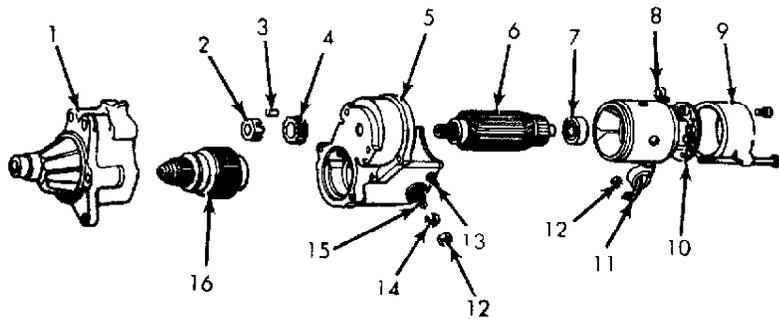
FIELD WINDINGS

Place one test lead of a self-powered test light to one field brush and remaining lead against field frame. Test light should activate if windings are grounded. Replace field housing if assembly is grounded.



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|--------------------------|---------------|-------------------|
| 1. Annulus Gear | 9. "C" Washer | 16. Plunger |
| 2. Planetary Gear | 10. Shim | 17. Bushing |
| 3. Armature | 11. Bushing | 18. Clutch |
| 4. Frame | 12. Seal | 19. Stop Collar |
| 5. Brush Holder Assembly | 13. Lever | 20. Snap Ring |
| 6. End Plate | 14. Solenoid | 21. End Housing |
| 7. End Shield | 15. Spring | 22. Shaft Bushing |
| 8. Seal | | |

Fig. 3: Exploded View of Chrysler Motors (Bosch) Starter



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|---------------------|-----------------------|
| 1. End Housing | 9. End Cover |
| 2. Roller Cage | 10. Brush Plate |
| 3. Roller | 11. Field Terminal |
| 4. Pinion Gear | 12. Nut |
| 5. Solenoid Housing | 13. Solenoid Terminal |
| 6. Armature | 14. Washer |
| 7. Bearing | 15. Battery Terminal |
| 8. Brush Spring | 16. Clutch |

Fig. 4: Exploded View of Chrysler Motors (Nippondenso) Starter

SPECIFICATIONS

STARTER SPECIFICATIONS

Application	Specifications
Bosch Starter	
Amperage Draw	150-220 Amps
No-Load Test	
2.5L	85 Amps @ 3700 RPM
3.0L	90 Amps @ 3565 RPM
Nippondenso	
Amperage Draw	150-220 Amps
No-Load Test	82 Amps @ 3625 RPM
