



1991

BMW 325i

Electrical

Troubleshooting

Manual

BMW of North America, Inc.
Woodcliff Lake, New Jersey

FOREWORD

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The purpose of this manual is to show electrical schematics in a manner that makes electrical troubleshooting easier. Electrical components which work together are shown together on one schematic. The Wiper-Washer schematic, for example, shows all of the electrical components in one diagram. At the top of the page is the fuse (positive) that powers the circuit. The flow of current is shown through all wires, connectors, switches, and motors to ground (negative) at the bottom of the page.

Within the schematic, all switches and sensors are shown "at rest," as though the Ignition Switch were off. For identification, component names are underlined and placed next to or above each component. Notes are included, describing how switches and other components work.

The power distribution schematic shows the current feed through all the connections from the Battery and Alternator to each fuse and the Ignition and Light Switches. If the Power Distribution schematic is combined with any other circuit schematic, a complete picture is made of how that circuit works. The Ground Distribution schematics show how several circuits are connected to common grounds.

All wiring between components is shown exactly as it exists in the vehicle; however, the wiring is not drawn to scale. To aid in understanding electrical operation, wiring inside complicated components has been simplified. The "Solid State" label designates electronic components.

WIRE SIZE CONVERSION CHART	
METRIC (CROSS-SECTIONAL AREA IN MM ²)	AWG (AMERICAN WIRE GAUGE)
.5	20
.75	18
1	16
1.5	14
2	14
2.5	12
4	10
6	8
8	8
16	4
20	4
25	2
32	2

WIRE INSULATION	
ABBREVIATIONS	COLOR
BK	BLACK
BR	BROWN
RD	RED
YL	YELLOW
GN	GREEN
BU	BLUE
VI	VIOLET
GY	GRAY
WT	WHITE
PK	PINK
OR	ORANGE

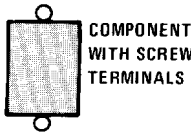
4 SYMBOLS



ENTIRE COMPONENT SHOWN



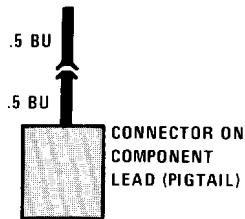
PART OF A COMPONENT SHOWN



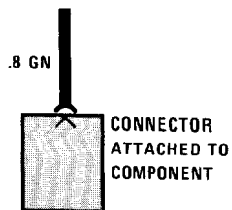
COMPONENT WITH SCREW TERMINALS



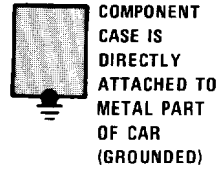
SOLID STATE (INCLUDES ONLY ELECTRONIC PARTS)



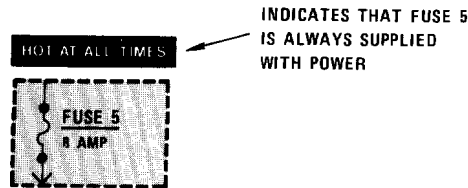
CONNECTOR ON COMPONENT LEAD (PIGTAIL)



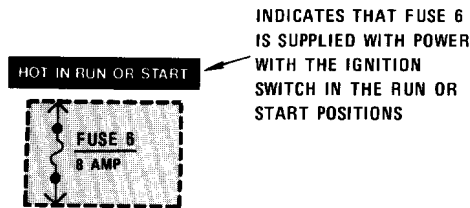
CONNECTOR ATTACHED TO COMPONENT



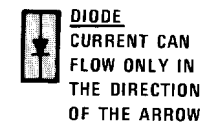
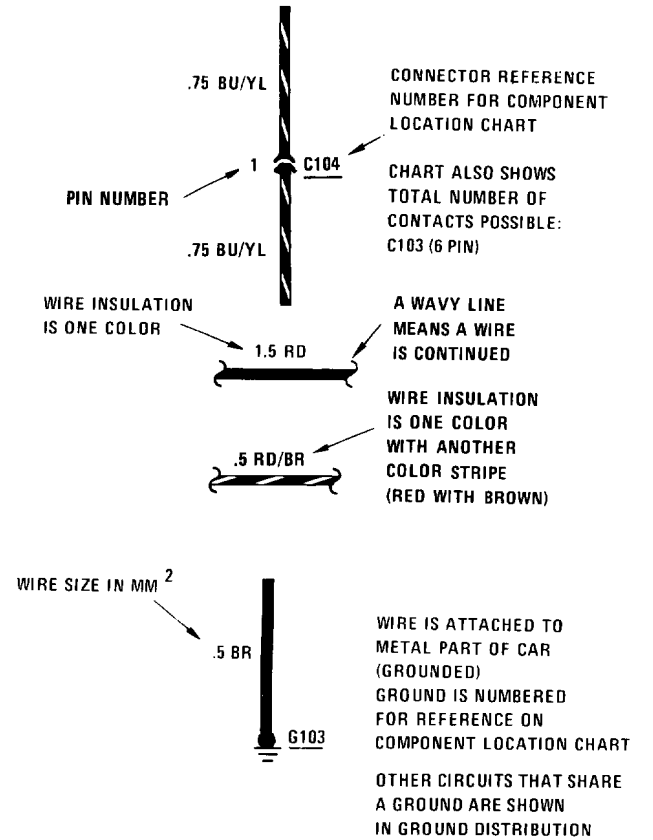
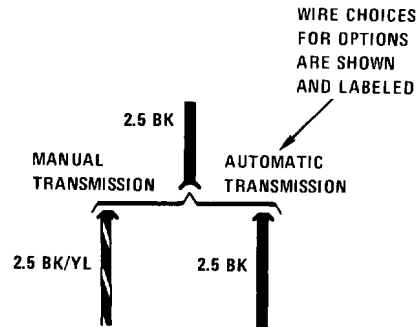
COMPONENT CASE IS DIRECTLY ATTACHED TO METAL PART OF CAR (GROUNDED)



INDICATES THAT FUSE 5 IS ALWAYS SUPPLIED WITH POWER

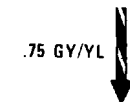


INDICATES THAT FUSE 6 IS SUPPLIED WITH POWER WITH THE IGNITION SWITCH IN THE RUN OR START POSITIONS

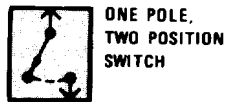


DIODE CURRENT CAN FLOW ONLY IN THE DIRECTION OF THE ARROW

CIRCUIT REFERENCE - A WIRE WHICH CONNECTS TO ANOTHER CIRCUIT



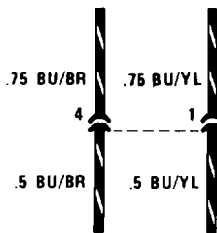
ACTIVE CHECK CONTROL



ONE POLE, TWO POSITION SWITCH

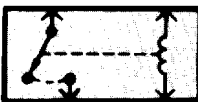


SWITCHES THAT MOVE TOGETHER
DASHED LINE SHOWS A MECHANICAL CONNECTION BETWEEN SWITCHES



TWO CONNECTIONS (PINS) IN THE SAME CONNECTOR

DASHED LINE SHOWS PARTS OF THE SAME CONNECTOR



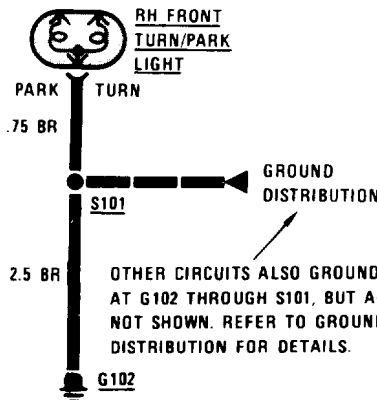
WHEN COIL IS ENERGIZED, SWITCH IS PULLED CLOSED

RELAY SHOWN WITH NO CURRENT FLOWING THROUGH COIL



RESISTOR ACROSS COIL IS FOR NOISE SUPPRESSION

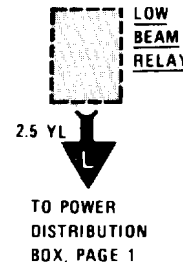
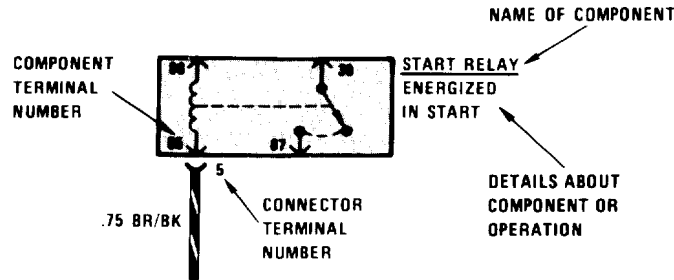
RELAY SHOWN WITH RESISTOR ACROSS COIL



LIGHT EMITTING DIODE



INDUCTIVE SENSOR



CURRENT PATH IS CONTINUED AS LABELED. THE ARROW SHOWS DIRECTION OF CURRENT FLOW AND IS REPEATED WHERE CURRENT PATH CONTINUES.

